PROJECT MANUAL

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

IFB for Contract No. 600-01-21

GENERAL CONSTRUCTION

ELECTRICAL CONSTRUCTION

PLUMBING CONSTRUCTION

MECHANICAL CONSTRUCTION

Bids Due
February 18, 2021
10:00 am

Procurement Dept. 100 Ross St.
2nd FL. Suite 200
Pittsburgh, PA 15219

Attn:
Mr. Kim Detrick, Director of Procurement

CONSULTANT: AE7

Issued: January 4, 2021

Caster D. Binion
Executive Director

Housing Authority of the City of Pittsburgh

Point of Contact: Kim.Detrick@hacp.org
or 412-456-5116 Opt 1

Housing Authority of the City of Pittsburgh

Procurement Department
100 Ross Street, Suite 200
Pittsburgh, PA 15219
Phone: (412) 456-5116
Fax: (412) 456-5007
www.hacp.org

NOTICE TO PROSPECTIVE BIDDERS

January 4, 2021

INVITATION FOR BIDS (IFB)

412 BLVD of the Allies HACP Office Build Out AMP - PA0010000099

The HOUSING AUTHORITY OF THE CITY OF PITTSBURGH will receive separate sealed bids for 412 BLVD of the Allies HACP Office Build Out AMP - PA0010000099 ; for the following contracts:

GENERAL CONSTRUCTION
ELECTRICAL CONSTRUCTION
PLUMBING CONSTRUCTION
MECHANICAL CONSTRUCTION

The estimated values of the project per contract noted above are in the following ranges:

GENERAL CONSTRUCTION	$ 2,592,347.00	$ 3,999,621.00
ELECTRICAL CONSTRUCTION	$ 1,934,199.00	$ 2,984,193.00
PLUMBING CONSTRUCTION	$ 270,044.00	$ 416,639.00
MECHANICAL CONSTRUCTION	$ 894,876.00	$ 1,380,666.00

Bid documents will be available on **January 4, 2021** . A Pre-Bid Conference will be held on **January 19, 202**at **10:00 am** , at 412 Blvd of the Allies Building Lobby

A site visit of the property will be conducted thereafter. Bidders shall be prepared to review all aspects of the site necessary to prepare a bid. The last day for submission of written questions will be **January 28, 2021** **until** **10:00 am** *Bids will be received at the HACP Procurement Department, 100 Ross Street – Suite 200 (2nd Floor), Pittsburgh, PA, 15219* ***until*** **10:00 am** ***on*** **February 18, 202**1 *, at which time and place all bids will be publicly opened and read aloud.*

The work must be substantially complete within 180 calendar days of the Notice to Proceed. Point of contact for the Housing Authority is Mr. Kim Detrick at (412) 456-5116 Opt 1.

Hacp will also accept online submission for this invitation to bid in addition to accepting submissions at our 100 Ross St office. For respondents wishing to submit online, please go to the following web address and upload the document: ***https://www.dropbox.com/request/pWcoO5boashTKJl99LiB***

Please include your name and email address and prompted before submitting and upload all relevant attachments in the same document. Formatting for online submissions should be organized in the same manner as if submitted via CD or flash drive. The title of the uploaded bid shall be as follows: [Full Company Name]_IFB#600-01-21-Bid. In the unlikely event that your bid is too large as a single file add; _Part 1, Part 2 etc. to the end of the file.

AWARD OF CONTRACT (S):

It is the intention of the Authority to award a contract to the lowest responsive and responsible bidder.

All bids shall remain open for the period specified in the IFB, which in no case shall be less than sixty (60) calendar days from the bid opening.

All bids of $10,000 or more must be accompanied by a negotiable bid guarantee that shall not be less than 5% of the amount of the bid. No bid guarantee is required for bids under $10,000. In accordance with 2 CFR 200.318(h) formerly 24 CFR Section 85.36(b)(8), the Authority is permitted to make awards only to responsible bidders possessing the ability to perform successfully under the terms and conditions of the proposed contract. Prior to award of any contract, the Authority shall conduct a pre-contract survey. Consideration will be given to such matters as bidder integrity, compliance with public policy, record of past performance, and financial and technical resources.

All bids must include a completed and signed Form of Agreement (Form 00500) as part of the bid. If the bid is successful and approved by HACP Board of Commissioners (if applicable), HACP will also sign the Form of Agreement thus creating a binding contract.

The successful bidder will be required to furnish an assurance of completion (performance and payment bond) each equal to 100% of the contract price.

The Authority reserves the right to reject any or all bids or to waive any informality in the bidding.

EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS:

The Contractor will be required to comply with all applicable Equal Employment Opportunity requirements for Federally-Assisted Construction Contracts. The Contractor must insure that employees and applicants for employment are not discriminated against because of race, color, religion, sexual preference, handicap or national origin.

A. Section 3 Participation

The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C 1701u and with HUD's regulations set forth at 24 CFR Part 135 ("Section 3"). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance shall be directed to low and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

> Please describe ways the Bidder will assist HACP to comply with HUD's Section 3 requirements for hiring HACP residents and/or local disadvantaged individuals and businesses by reviewing the Section 3 Clause and by completing **Document 00433 – Section 3 Form.**

Section 3 of the Housing and Urban Development Act of 1968, as amended (12 U.S.C. 1701, et seq.) (the "Act") requires the Housing Authority of the City of Pittsburgh to ensure that employment and other economic and business opportunities generated by financial assistance from the Department of Housing and Urban Development ("HUD"), to the greatest extent feasible, are directed to public housing residents and other low income persons, particularly recipients of government housing assistance, and business concerns that provide economic opportunities to low and very low income persons.

To comply with the Act HACP requires its contractors to provide equal employment opportunity to all employees and applicants for employment without regard to race, color, religion, sex, national origin, disability, veteran's or marital status, or economic status and to take affirmative action to ensure that both job applicants and existing employees are given fair and equal treatment.

The goal of this policy is to obtain a reasonable level of success in the recruitment, employment, and utilization of HACP residents and other eligible persons and/or businesses by contractors working on contracts partially or wholly funded with HUD monies. HACP shall examine and consider a contractor's potential for success in providing employment and business opportunities to those covered under Section 3 prior to acting on any proposed contract award. In response to any RFP, RFQ or IFB HACP will require submission of the Section 3 Opportunities Plan and roster of current employees, and certification that the bidder will comply with the requirements of Section 3 either by hiring Section 3 employees to directly perform under the contract or by committing a dollar amount to HACP's Section 3 program in an amount consistent with the chart below. Below are the HACP Section 3 Guidelines as listed in the HACP Section 3 Program Manual:

RESIDENT HIRING REQUIREMENTS / RESIDENT HIRING SCALE

TOTAL LABOR DOLLARS USE TOTAL CONTRACT AMOUNT FOR SERVICE CONTRACTS	**RESIDENT LABOR AS A % OF TOTAL LABOR** **A.** DOLLARS
Labor dollars $25,000 but less than $100,000	10% of the labor dollars
$100,000, but less than $200,000	9% of the labor dollars
At least $200,000, but less than $300,000	8% of the labor dollars
At least $300,000, but less than $400,000	7% of the labor dollars
At least $400,000, but less than $500,000	6% of the labor dollars
At least $500,000, but less than $1 million	5% of the labor dollars
At least $1 million, but less than $2 million	4% of the labor dollars
At least $2 million, but less than $4 million	3% of the labor dollars
At least $4 million, but less than $7 million	2% of the labor dollars
$7 million or more	½ to 1 % of the labor dollars

***A copy of HACP's Section 3 Program Manual is available for download at www.hacp.org*

A copy of HUD's Section 3 requirement is provided herein. If you have any questions regarding the Section 3 Requirements or would like to discuss goals and planning for Section 3 Requirements please contact Mr. Lloyd Wilson, Resident Employment Manager/Section 3 Coordinator, by e-mail at lloyd.wilson@hacp.org or by contacting him at the Housing Authority of the City of Pittsburgh, Resident Employment Program located at the Bedford Hope Center, 2305 Bedford Ave, Pittsburgh PA 15219, telephone (412) 395-3950, ext. 1048. Proposals must demonstrate how the Offeror intends to meet or exceed the Authority's Section 3 requirements. Proposals submitted without a Section 3 plan may be deemed nonresponsive. Also, please complete **Section 3 Opportunities Plan** and include with your proposal.

Any bid or proposal received from a contractor that does not contain a Section 3 Opportunities Plan or certification and back-up documentation acceptable to HACP shall be deemed non-responsive by HACP.

B. MBE/WBE Participation Plan

HACP MBE and WBE Goals. It is the policy of HACP to ensure that Minority Business Enterprises (MBEs) and Women-owned Businesses (WBEs) are provided maximum opportunity to participate in contracts let by HACP. In accordance with Executive Order 11625, HACP has established a minimum threshold of eighteen percent (18%) of the total dollar amount for MBE utilization in this contract. HACP has established a seven percent (7%) minimum threshold for participation of WBEs, and, HACP strongly encourages and affirmatively promotes the use of MBEs and WBEs in all HACP contracts. For these purposes, an MBE is defined as "any legal entity other than a joint venture, organized to engage in commercial transactions, that is at least fifty-one percent (51%) owned and controlled by one or more minority persons." Also, a minority person is defined as a member of a socially or economically disadvantaged minority group, which includes African-Americans, Hispanic-Americans, Native-Americans, and Asian-Americans. A WBE/MBE is defined as "any legal entity other than a joint venture, organized to engage in commercial transactions, that is at least fifty-one percent (51%) owned and controlled by a female.

Bids or proposals submitted in response to this solicitation MUST include an MBE/WBE participation plan which, at a minimum demonstrates "Best Efforts" have been taken to achieve compliance with MBE/WBE goals. HACP's Procurement Policy defines "Best Efforts" in compliance with MBE/WBE goals to mean that the contractor must certify and document with its bid or proposal that it has contacted in writing at least ten (10) certified MBE and ten (10) certified WBE subcontractors to participate in the proposed contract with or lesser number if the contractor provides documentation that ten (10) certified MBE/WBE contractors could not be identified. Each contractor shall certify as to same under penalty of perjury and shall submit the back-up documentation with its bid or proposal. Any bid or proposal received from a contractor that does not contain such certification and back-up documentation acceptable to HACP may be deemed non-responsive by HACP.

If you have any questions regarding the HACP MBE/WBE goals please contact Mr. Kim Detrick, Director of Procurement/Chief Contracting Officer, by e-mail at kim.detrick@hacp.org or by contacting him at the Procurement Department, Housing Authority of the City of Pittsburgh, 100 Ross Street, Suite 200 Pittsburgh PA 15219, telephone (412) 456-5116 opt.1. Bids or proposals must demonstrate how the Offeror intends to meet or exceed these goals.

The Authority's Minority and Woman Business (MBE/WBE) participation goals are as follows:

-- MBE Goal: 18%
-- WBE Goal: 7%

Additionally, please be advised that participation credit will be applied in accordance with the following classifications, as follows:

-- Broker:	10% of contract face value
-- Supplier:	60% of contract face value
-- Bona Fide Contractor:	100% of contract face value
-- All Professional Service Firms:	100% of contract face value

Vendor definitions for the above classifications are to be referenced in either the respective vendor MBE/WBE certifications or as defined in 49 CFR Part 26.

Please describe ways the Bidder will utilize MBE/WBE businesses to meet the goals above by completing **Document 00434** – **MBE/WBE Solicitation & Commitment Record**.

Caster D. Binion
Executive Director
Housing Authority of the City of Pittsburgh

Housing Authority of the City of Pittsburgh

Development & Modernization
100 Ross Street, Suite 200
Pittsburgh, PA 15219
(412) 456-5020
www.hacp.org

SPECIAL PROVISIONS

NOTICE TO ALL PROSPECTIVE BIDDERS

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

CONTRACT NO. 600-01-21

Each successful bidder(s) shall be required to comply with the following special provisions:

A. Required Documents/Information

After bid opening and determination of the responsive and responsible bidder, but prior to Notice to Proceed each successful bidder for this project shall provide the following documents/information to HACP within ten (10) business days of receiving written notice thereof:

(1) Insurance
(2) Payment and Performance Bonds
(3) Construction Schedule
(4) Submittal Log and Corresponding Submittals

Please accept these special provisions by completing the information requested below:

Signature of Authorized Officer: _____ Date: _____

Name of Contractor: _____

Address: _____

Telephone Number: _____

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

IFB CONTRACT NO. 600-01-21

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
DEVELOPMENT & MODERNIZATION DEPARTMENT
100 Ross Street, Suite 200
Pittsburgh, PA 15219
Phone: (412) 456-5020
Fax: (412) 456-5591

Issued: January 4, 2021

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP Contract No. 600-01-21

PROJECT MANUAL
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	Document 00433	Section 3 Opportunities Plan
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HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP CONTRACT NO. 600-01-21

INVITATION FOR BIDS
LIST OF DOCUMENTS

The HOUSING AUTHORITY OF THE CITY OF PITTSBURGH will receive separate sealed bids for 412 BLVD of the Allies HACP Office Build Out AMP - PA0010000099, for the following contracts:

GENERAL CONSTRUCTION
ELECTRICAL CONSTRUCTION
PLUMBING CONSTRUCTION
MECHANICAL CONSTRUCTION

A complete **Invitation for Bids (IFB)** consists of the following documents:

THE PROJECT MANUAL, **dated** January 4, 2021 consisting of:

Bidding Requirements, Contract Forms, Conditions of the Contract, Wage Determination, and the Specifications.

THE PROJECT DRAWINGS, as prepared by **AE7**, **dated** **September 3, 2020**.

THE BID PACKAGE, **dated** January 4, 2021 consisting of a single three-ring binder containing:

Blank bid document forms to be completed by the bidder;

Divider tabs to separate the original bid documents from the copies;

A pre-printed, pre-addressed envelope in which to deliver the bid.

ADDENDA will be issued as required.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

IDENTIFICATION OF OWNER

The Owner of this project is the Housing Authority of the City of Pittsburgh, a body corporate and politic and created pursuant to the "Housing Authorities Law," an Act passed by the 1937 session of the Legislature of the Commonwealth of Pennsylvania, P.L. 955, approved May 28, 1937, hereinafter variously called the "Housing Authority of the City of Pittsburgh" (HACP), "The Authority," the "Local Housing Authority" (LHA), the "Public Housing Authority" (PHA), or the "Public Housing Authority/Indian Housing Authority" (PHA/IHA).

Caster D. Binion
Executive Director
Housing Authority of the City of Pittsburgh

James D. Harris, Esquire
General Counsel
Housing Authority of the City of Pittsburgh

Kim Detrick
Director of Procurement
Housing Authority of the City of Pittsburgh

U.S. Department of Housing and Urban Development
Office of Public and Indian Housing

Instructions to Bidders for Contracts Public and Indian Housing Programs

Instructions to Bidders for Contracts

Public and Indian Housing Programs

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1. Bid Preparation and Submission

(a) Bidders are expected to examine the specifications, drawings, all instructions, and, if applicable, the construction site (see also the contract clause entitled **Site Investigation and Conditions Affecting the Work** of the *General Conditions of the Contract for Construction*). Failure to do so will be at the bidders' risk.

(b) All bids must be submitted on the forms provided by the Public Housing Agency/Indian Housing Authority (PHA/IHA). Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidder's name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of that agent's authority. (Bidders should retain a copy of their bid for their records.)

(c) Bidders must submit as part of their bid a completed form HUD-5369-A, "Representations, Certifications, and Other Statements of Bidders."

(d) All bid documents shall be sealed in an envelope which shall be clearly marked with the words "Bid Documents," the Invitation for Bids (IFB) number, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.

(e) If this solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "No Bid" in the space provided for any item on which no price is submitted.

(f) Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.

(g) Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph or facsimile (fax) machines will not be considered.

(h) If the proposed contract is for a Mutual Help project (as described in 24 CFR Part 905, Subpart E) that involves Mutual Help contributions of work, material, or equipment, supplemental information regarding the bid advertisement is provided as an attachment to this solicitation.

2. Explanations and Interpretations to Prospective Bidders

(a) Any prospective bidder desiring an explanation or interpretation of the solicitation, specifications, drawings, etc., must request it at least 7 days before the scheduled time for bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given a prospective bidder concerning this solicitation will be furnished promptly to all other prospective bidders as a written amendment to the solicitation, if that information is necessary in submitting bids, or if the lack of it would be prejudicial to other prospective bidders.

(b) Any information obtained by, or provided to, a bidder other than by formal amendment to the solicitation shall not constitute a change to the solicitation.

3. Amendments to Invitations for Bids

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date on the bid form, or (3) by letter, telegram, or facsimile, if those methods are authorized in the solicitation. The PHA/IHA must receive acknowledgement by the time and at the place specified for receipt of bids. Bids which fail to acknowledge the bidder's receipt of any amendment will result in the rejection of the bid if the amendment(s) contained information which substantively changed the PHA's/IHA's requirements.

(c) Amendments will be on file in the offices of the PHA/IHA and the Architect at least 7 days before bid opening.

4. Responsibility of Prospective Contractor

(a) The PHA/IHA will award contracts only to responsible prospective contractors who have the ability to perform successfully under the terms and conditions of the proposed contract. In determining the responsibility of a bidder, the PHA/IHA will consider such matters as the bidder's:

(1) Integrity;

(2) Compliance with public policy;

(3) Record of past performance; and

(4) Financial and technical resources (including construction and technical equipment).

(b) Before a bid is considered for award, the bidder may be requested by the PHA/IHA to submit a statement or other documentation regarding any of the items in paragraph (a) above. Failure by the bidder to provide such additional information shall render the bidder nonresponsible and ineligible for award.

5. Late Submissions, Modifications, and Withdrawal of Bids

(a) Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it:

(1) Was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th);

(2) Was sent by mail, or if authorized by the solicitation, was sent by telegram or via facsimile, and it is determined by the PHA/IHA that the late receipt was due solely to mishandling by the PHA/IHA after receipt at the PHA/IHA; or

(3) Was sent by U.S. Postal Service Express Mail Next Day Service - Post Office to Addressee, not later than 5:00 p.m. at the place of mailing two working days prior to the date specified for receipt of proposals. The term "working days" excludes weekends and observed holidays.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) of this provision.

(c) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark both on the envelope or wrapper and on the original receipt from the U.S. or Canadian Postal Service. Both postmarks must show a legible date or the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerk to place a hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt at the PHA/IHA is the time/date stamp of PHA/IHA on the proposal wrapper or other documentary evidence of receipt maintained by the PHA/IHA.

(e) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent by Express Mail Next Day Service-Post Office to Addressee is the date entered by the post office receiving clerk on the "Express Mail Next Day Service-Post Office to Addressee" label and the postmark on both the envelope or wrapper and on the original receipt from the U.S. Postal Service. "Postmark" has the same meaning as defined in paragraph (c) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, bidders should request the postal clerk to place a legible hand cancellation bull's eye postmark on both the receipt and Failure by a bidder to acknowledge receipt of the envelope or wrapper.

(f) Notwithstanding paragraph (a) of this provision, a late modification of an otherwise successful bid that makes its terms more favorable to the PHA/IHA will be considered at any time it is received and may be accepted.

(g) Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile machine transmission received at any time before the exact time set for opening of bids; provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

6. Bid Opening

All bids received by the date and time of receipt specified in the solicitation will be publicly opened and read. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present.

7. Service of Protest

(a) Definitions. As used in this provision:

"Interested party" means an actual or prospective bidder whose direct economic interest would be affected by the award of the contract.

"Protest" means a written objection by an interested party to this solicitation or to a proposed or actual award of a contract pursuant to this solicitation.

(b) Protests shall be served on the Contracting Officer by obtaining written and dated acknowledgement from —

Contracting Officer
Legal Department
Housing Authority of the City of Pittsburgh
200 Ross Street, 7th Floor
Pittsburgh, PA 15219

[Contracting Officer designate the official or location where a protest may be served on the Contracting Officer]

(c) All protests shall be resolved in accordance with the PHA's/IHA's protest policy and procedures, copies of which are maintained at the PHA/IHA.

8. Contract Award

(a) The PHA/IHA will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the PHA/IHA considering only price and any price-related factors specified in the solicitation.

(b) If the apparent low bid received in response to this solicitation exceeds the PHA's/IHA's available funding for the proposed contract work, the PHA/IHA may either accept separately priced items (see 8(e) below) or use the following procedure to determine contract award. The PHA/IHA shall apply in turn to each bid (proceeding in order from the apparent low bid to the high bid) each of the separately priced bid deductible items, if any, in their priority order set forth in this solicitation. If upon the application of the first deductible item to all initial bids, a new low bid is within the PHA's/IHA's available funding, then award shall be made to that bidder. If no bid is within the available funding amount, then the PHA/IHA shall apply the second deductible item. The PHA/IHA shall continue this process until an evaluated low bid, if any, is within the PHA's/IHA's available funding. If upon the application of all deductibles, no bid is within the PHA's/IHA's available funding, or if the solicitation does not request separately priced deductibles, the PHA/IHA shall follow its written policy and procedures in making any award under this solicitation.

(c) In the case of tie low bids, award shall be made in accordance with the PHA's/IHA's written policy and procedures.

(d) The PHA/IHA may reject any and all bids, accept other than the lowest bid (e.g., the apparent low bid is unreasonably low), and waive informalities or minor irregularities in bids received, in accordance with the PHA's/IHA's written policy and procedures.

(e) Unless precluded elsewhere in the solicitation, the PHA/IHA may accept any item or combination of items bid.

(f) The PHA/IHA may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(g) A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.

9. Bid Guarantee (applicable to construction and equipment contracts exceeding $25,000)

All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. In the case where the work under the contract will be performed on an Indian reservation area, the bid guarantee may also be an irrevocable Letter of Credit (see provision 10, Assurance of Completion, below). Certified checks and bank drafts must be made payable to the order of the PHA/IHA. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful bidder as required by the solicitation. Failure to submit a bid guarantee with the bid shall result in the rejection of the bid. Bid guarantees submitted by unsuccessful bidders will be returned as soon as practicable after bid opening.

10. Assurance of Completion

(a) Unless otherwise provided in State law, the successful bidder shall furnish an assurance of completion prior to the execution of any contract under this solicitation. This assurance may be [Contracting Officer check applicable items] —

[X] (1) a performance and payment bond in a penal sum of 100 percent of the contract price; or, as may be required or permitted by State law;

[ ] (2) separate performance and payment bonds, each for 50 percent or more of the contract price;

[ ] (3) a 20 percent cash escrow;

[ ] (4) a 25 percent irrevocable letter of credit; or,

[ ] (5) an irrevocable letter of credit for 10 percent of the total contract price with a monitoring and disbursements agreement with the IHA (applicable only to contracts awarded by an IHA under the Indian Housing Program).

(b) Bonds must be obtained from guarantee or surety companies acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. Individual sureties will not be considered. U.S. Treasury Circular Number 570, published annually in the Federal Register, lists companies approved to act as sureties on bonds securing Government contracts, the maximum underwriting limits on each contract bonded, and the States in which the company is licensed to do business. Use of companies listed in this circular is mandatory. Copies of the circular may be downloaded on the U.S. Department of Treasury website **http://www.fms.treas.gov/c570/index.html**, or ordered for a minimum fee by contacting the Government Printing Office at (202) 512-2168.

(c) Each bond shall clearly state the rate of premium and the total amount of premium charged. The current power of attorney for the person who signs for the surety company must be attached to the bond. The effective date of the power of attorney shall not precede the date of the bond. The effective date of the bond shall be on or after the execution date of the contract.

(d) Failure by the successful bidder to obtain the required assurance of completion within the time specified, or within such extended period as the PHA/IHA may grant based upon reasons determined adequate by the PHA/IHA, shall render the bidder ineligible for award. The PHA/IHA may then either award the contract to the next lowest responsible bidder or solicit new bids. The PHA/IHA may retain the ineligible bidder's bid guarantee.

11. Preconstruction Conference (applicable to construction contracts)

After award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the PHA/IHA and its architect/engineer, and other interested parties convened by the PHA/IHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract (e.g., Equal Employment Opportunity, Labor Standards). The PHA/IHA will provide the successful bidder with the date, time, and place of the conference.

12. Indian Preference Requirements (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

(a) HUD has determined that the contract awarded under this solicitation is subject to the requirements of section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e(b)). Section 7(b) requires that any contract or subcontract entered into for the benefit of Indians shall require that, to the greatest extent feasible

(1) Preferences and opportunities for training and employment (other than core crew positions; see paragraph (h) below) in connection with the administration of such contracts or subcontracts be given to qualified "Indians." The Act defines "Indians" to mean persons who are members of an Indian tribe and defines "Indian tribe" to mean any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians; and,

(2) Preference in the award of contracts or subcontracts in connection with the administration of contracts be given to Indian organizations and to Indian-owned economic enterprises, as defined in section 3 of the Indian Financing Act of 1974 (25 U.S.C. 1452). That Act defines "economic enterprise" to mean any Indian-owned commercial, industrial, or business activity established or organized for the purpose of profit, except that the Indian ownership must constitute not less than 51 percent of the enterprise; "Indian organization" to mean the governing body of any Indian tribe or entity established or recognized by such governing body; "Indian" to mean any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act; and Indian "tribe" to mean any Indian tribe, band, group, pueblo, or community including Native villages and Native groups (including

corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

(b) (1) The successful Contractor under this solicitation shall comply with the requirements of this provision in awarding all subcontracts under the contract and in providing training and employment opportunities.

(2) A finding by the IHA that the contractor, either (i) awarded a subcontract without using the procedure required by the IHA, (ii) falsely represented that subcontracts would be awarded to Indian enterprises or organizations; or, (iii) failed to comply with the contractor's employment and training preference bid statement shall be grounds for termination of the contract or for the assessment of penalties or other remedies.

(c) If specified elsewhere in this solicitation, the IHA may restrict the solicitation to qualified Indian-owned enterprises and Indian organizations. If two or more (or a greater number as specified elsewhere in the solicitation) qualified Indian-owned enterprises or organizations submit responsive bids, award shall be made to the qualified enterprise or organization with the lowest responsive bid. If fewer than the minimum required number of qualified Indian-owned enterprises or organizations submit responsive bids, the IHA shall reject all bids and readvertise the solicitation in accordance with paragraph (d) below.

(d) If the IHA prefers not to restrict the solicitation as described in paragraph (c) above, or if after having restricted a solicitation an insufficient number of qualified Indian enterprises or organizations submit bids, the IHA may advertise for bids from non-Indian as well as Indian-owned enterprises and Indian organizations. Award shall be made to the qualified Indian enterprise or organization with the lowest responsive bid if that bid is -

(1) Within the maximum HUD-approved budget amount established for the specific project or activity for which bids are being solicited; and

(2) No more than the percentage specified in 24 CFR 905.175(c) higher than the total bid price of the lowest responsive bid from any qualified bidder. If no responsive bid by a qualified Indian-owned economic enterprise or organization is within the stated range of the total bid price of the lowest responsive bid from any qualified enterprise, award shall be made to the bidder with the lowest bid.

(e) Bidders seeking to qualify for preference in contracting or subcontracting shall submit proof of Indian ownership with their bids. Proof of Indian ownership shall include but not be limited to:

(1) Certification by a tribe or other evidence that the bidder is an Indian. The IHA shall accept the certification of a tribe that an individual is a member.

(2) Evidence such as stock ownership, structure, management, control, financing and salary or profit sharing arrangements of the enterprise.

(f) (1) All bidders must submit with their bids a statement describing how they will provide Indian preference in the award of subcontracts. The specific requirements of that statement and the factors to used by the IHA in determining the statement's adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement shall be rejected as nonresponsive. The IHA may require that comparable statements be provided by subcontractors to the successful Contractor, and may require the Contractor to reject any bid or proposal by a subcontractor that fails to include the statement.

(2) Bidders and prospective subcontractors shall submit a certification (supported by credible evidence) to the IHA in any instance where the bidder or subcontractor believes it is infeasible to provide Indian preference in subcontracting. The acceptance or rejection by the IHA of the certification shall be final. Rejection shall disqualify the bid from further consideration.

(g) All bidders must submit with their bids a statement detailing their employment and training opportunities and their plans to provide preference to Indians in implementing the contract; and the number or percentage of Indians anticipated to be employed and trained. Comparable statements from all proposed subcontractors must be submitted. The criteria to be used by the IHA in determining the statement(s)'s adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement(s), or that includes a statement that does not meet minimum standards required by the IHA shall be rejected as nonresponsive.

(h) Core crew employees. A core crew employee is an individual who is a bona fide employee of the contractor at the time the bid is submitted; or an individual who was not employed by the bidder at the time the bid was submitted, but who is regularly employed by the bidder in a supervisory or other key skilled position when work is available. Bidders shall submit with their bids a list of all core crew employees.

(i) Preference in contracting, subcontracting, employment, and training shall apply not only on-site, on the reservation, or within the IHA's jurisdiction, but also to contracts with firms that operate outside these areas (e.g., employment in modular or manufactured housing construction facilities).

(j) Bidders should contact the IHA to determine if any additional local preference requirements are applicable to this solicitation.

(k) The IHA [ ] does [X] does not [Contracting Officer check applicable box] maintain lists of Indian-owned economic enterprises and Indian organizations by specialty (e.g., plumbing, electrical, foundations), which are available to bidders to assist them in meeting their responsibility to provide preference in connection with the administration of contracts and subcontracts.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP CONTRACT NO. 600-01-21

NOTICE OF PRE-BID CONFERENCE

A Pre-Bid Conference will be held on January 19, 2021

- A Pre-Bid Conference will be held on January 19, 202**at** 10:00 am, at the 412 Blvd of the Allies Building Lobby. A site visit of the property will be conducted thereafter. Bidders shall be prepared to review all aspects of the site necessary to prepare a bid.

- Representatives of the Authority, the engineer and other interested parties will be in attendance.

All bidders are urged to attend.

- Bidders are responsible for examining the construction site. (Refer to "Instructions to Bidders for Contracts," Document HUD 5369, Clause 1, "Bid Preparation and Submission.") Notwithstanding the above, lack of attendance will not be a basis for rejecting a bid.

- Bidders are urged to examine the drawings and specifications prior to the Pre-Bid Conference.

- Nothing at the Pre-Bid Conference will change the terms of the IFB unless a subsequent Addendum is issued. (Refer to "Instructions to Bidders for Contracts," Document HUD 5369, Clause 2, "Explanations and Interpretations to Prospective Bidders.")

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP CONTRACT NO. 600-01-21

PROJECT SCHEDULE

NO LATER THAN	
January 4, 2021	Invitation for Bids issued
January 19, 2021 10:00 am	Pre-Bid Conference (Followed by Site Visit)
January 28, 2021 10:00 am	Last day to submit written questions
February 18, 2021 10:00 am	Bids due
March 11, 2021 (estimated)	Notice of Award
March 24, 2021 (estimated)	Execution of Contracts
March 29, 2021 (estimated)	Pre-Construction Conference
April 5, 2021 (estimated)	Construction Start
180 calendar days from effective date of Notice to Proceed	All work required under this contract shall be complete

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP CONTRACT NO. 600-01-21

SCOPE OF WORK FOR
GENERAL CONSTRUCTION

The Contract for General Construction shall consist of the following component parts:

1. THE AGREEMENT
(Bound in the Project Manual)

THE BID	Document 00310 - Scope of Work for General Construction Document 00311 - Form of Bid for General Construction
THE FORM OF AGREEMENT	Document 00500 - Form of Agreement Document 00590 - Contracting Officer Certification
CONDITIONS OF THE CONTRACT	Document HUD - 5370 General Conditions HACP Document - Supplemental General Conditions Document 00830 - Wage Determination Schedule

2. PRIMARY SPECIFICATIONS FOR THE GENERAL CONSTRUCTION CONTRACT
(Bound in the Project Manual)

All Work contained in the Primary Specifications listed below is the Work of the Contractor for this General Construction Contract unless specifically indicated otherwise.

Any Reference in the Primary Specifications to the "Contractor," the "Prime Contractor," or the "General Contractor" shall be interpreted as meaning the Contractor for this General Construction Contract.

The General Contractor shall coordinate the schedule and activities of work performed by this and all other Prime Contracts, as identified by (G)-General, (P)-Plumbing, (H)-HVAC, and (E)-Electrical.

It is the contractual responsibility of the Contractor for General Construction to familiarize himself with the work of the other prime contractors so that the Project as a whole can proceed in an orderly fashion. Failure to familiarize work by other trades would not be an excuse for corrective measures at no cost to the City of Pittsburgh Housing Authority.

For example, the General Contractor shall coordinate installation of general construction work with the requirements of the Plumbing, Mechanical, and Electrical Contractors.

Reference Standard for Incidental Work: Incidental work, as used in this paragraph, is work which is not a basic part of other Prime Contracts but which is required by reference.

For example, the General Contractor is required by his Primary Specifications to install and repair all general work. In the event that the Plumbing Contractor disturbs the general work, the patching, repair shall be done and follow the same Specification requirements of the appropriate Specification Section by the Plumbing Contractor even if that specification section may not be part of the Plumbing Contractor's Primary Specification. The same applies to all trades where incidental work occurs.

TECHNICAL SPECIFICATIONS MAY BE FOUND AT PART FOUR
OF THE PROJECT MANUAL

PLEASE ALSO REFER TO DRAWINGS

3. PRIMARY DRAWINGS FOR THE GENERAL CONSTRUCTION CONTRACT
(Contained in the set of Project Drawings issued simultaneously with this Project Manual)

All Work contained in the Primary Drawings listed below is the Work of this Contractor unless specifically indicated otherwise.

Any Reference to the "Contractor," the "Prime Contractor," or the "General Contractor" shall be interpreted as meaning the Contractor for this General Construction Contract.

The Primary Drawings for this contract consist of all AE7 construction documents drawings, **dated** September 3, 2020 and specifications contained in this project manual.

In case of drawing conflict with specifications, it is understood that the specification shall supersede the drawings.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP Contract No. 600-01-21

FORM OF BID

GENERAL CONSTRUCTION

Contract No.: 600-01-21

TO: HOUSING AUTHORITY
CITY OF PITTSBURGH
(Hereinafter called the "Authority")
100 Ross Street, Suite 200
Pittsburgh, PA 15219

BIDDER: _____
(Bidder Name)
_____
(Business Address)
_____

_____
(Telephone)

1. The undersigned Bidder, having visited the site, having become familiar with local conditions affecting the cost of the work**, including all City of Pittsburgh current code requirements**, and having become familiar with the Invitation for Bids (the IFB) issued by the Authority, which consists of the following:

   - Project Manual, dated January 4, 2021 containing Bidding Requirements, Contract Forms, Conditions of the Contract, and Specifications
   - Project Drawings, dated September 3, 2020
   - Addenda (if any) as enumerated in this Form of Bid

   hereby proposes to provide all supervision, technical personnel, labor, materials, machinery, tools, appurtenances, equipment and services required to construct and complete the General Construction Work as described in Document 00310 "Scope of Work for General Construction" and as indicated in the Drawings and Specifications, for the following Firm Fixed Price:

   _____ Dollars ($ _____)
   (Insert Bid Price in words) *(Insert Bid Price in Figures)*

2. Bid security **[ ] is [ ] is not** submitted with this bid.
   (Check one)

   Bid Security is in amount of:

   _____% of the bid OR _____ Dollars ($_____)

Bid Security is in the form of:

[ ]	Certified Check	[ ]	Bank Draft
[ ]	U.S. Govt. Bond	[ ]	Bid Bond (Document 00410)

3. The Bidder hereby acknowledges receipt of the following Addenda, if any, as issued by the Authority:

Total number of Addenda _____ (if none, so state)

Addendum No. _____dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____

4. The Bidder attaches hereto the Special Provisions (Document 00021);

5. The Bidder attaches hereto the Statement of Bidder's Qualifications (Document 00420);

6. The Bidder attaches hereto the Section 3 Opportunities Plan (Document 00433), MBE/WBE Solicitation and Commitment Record (Document 00434), Bidder Manpower Plan (Document 00435), and Previous Related Experience (Document 00436);

7. The Bidder attaches hereto the Bidder's Representations, Certifications and Other Statements of Bidders (Document HUD 5369-A), Previous Participation Certificate (Document HUD-2530);

8. The Bidder attaches hereto the Bidder’s Special Provisions – Notice to All Prospective Bidders (Document 00437), Non-Collusion Affidavit (Document 00485);

9. The Bidder attaches hereto the completed Form of Agreement (Document 00500);

10. The Bidder attaches hereto the Supplemental General Conditions (HACP Document).

PROPRIETORSHIP SIGNATURE PAGE SHEET - FB-I

(To be used when the Bidder is an individual doing business as a Sole Proprietorship.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] An individual doing business in his/her own name
[ ] An individual doing business under a fictitious or assumed name
(Complete Proprietorship Fictitious Name Disclosure below)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Principal*	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

PROPRIETORSHIP FICTITIOUS NAME DISCLOSURE

(To be used when the Bidder is an individual doing business under a fictitious or assumed name.)

_____ is an individual trading under a fictitious or
(Proprietor's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Principal*	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

PARTNERSHIP SIGNATURE PAGE SHEET - FB-P-1

(To be used when the Bidder is an individual doing business as a Partnership.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] A General Partnership (Attach completed Sheet FB-P-3)
- [ ] Doing business under Partnership Name
- [ ] Doing business under a fictitious or assumed name
  (Complete Partnership Fictitious Name Disclosure Sheet FB-P-2)

[ ] A Limited Partnership (Attach completed Sheet FB-P-3)
- [ ] Doing business under Partnership Name
- [ ] Doing business under a fictitious or assumed name
  (Complete Partnership Fictitious Name Disclosure Sheet FB-P-2)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Partner **	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*
	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Partner **	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

* If the Bidder is a partnership, the Bid and Contract must be signed in the name of the partnership by at least two general partners, and the names and addresses of all the partners must be listed on the certificate on Sheet FB-P-3.

PARTNERSHIP FICTITIOUS NAME DISCLOSURE

SHEET FB-P-2

(To be used when the Bidder is a partnership doing business under a fictitious or assumed name.)

_____ is a partnership trading under a fictitious or
(Partnership's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

_____	_____
(Printed or Typed Name)	*(Printed or Typed Name)*
Witness	*Partner**
{	{
_____	_____
(Signature and Date)	*(Signature and Date)*

PARTNERSHIP CERTIFICATE SHEET FB-P-3

(To be used when the Bidder is a partnership.)

I, as partner of _____,
(Name of Partnership)
certify that the following are the names and addresses of all the partners of said partnership.

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ City: _____

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ City: _____

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ City: _____

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ City: _____

(Use additional sheets as required.)

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness {		*Partner** {	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

CORPORATION SIGNATURE PAGE SHEET FB-C-1

(To be used when the bidder is a corporation.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] A corporation doing business in its own name
[ ] A corporation doing business under a fictitious or assumed name
(Complete Corporation Fictitious Name Disclosure FB-C-2)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

(CORPORATE SEAL)

_____
(Corporate Name)

_____ _____
(Printed or Typed Name) *(Printed or Typed Name)*

Witness { *President* *V.P.*** {

_____ _____
(Signature and Date) *(Signature and Date)*

_____ _____
(Corporate Title) *(Corporate Title)*

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CORPORATION FICTITIOUS NAME DISCLOSURE SHEET FB-C-2

(To be used when the Bidder is a corporation doing business under a fictitious or assumed name.)

_____ is a corporation trading under a fictitious or
(Corporation's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*President*	
{		*V.P. *****	{
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CORPORATION CERTIFICATE SHEET FB-C-3

(To be used when the bidder is a corporation)

_____ is a corporation organized and existing
(Corporate name used as Bidder name)

under the laws of the state of _____ with its principal place of business at:

_____,_____,_____
(Street Address) *(City)* *(State)*

and, if a non-Pennsylvania corporation **[ ] has [ ] has not** *(check one)* been granted a certificate of authority to do business in Pennsylvania as required by the Pennsylvania Business Corporation Law, approved May 5, 1933, P.L. 364, as amended, 15 P.S. sec.2005 et seq.

I, _____, certify that I am the **[ ] Secretary [ ] Assistant Secretary** of the
(check one)
Corporation named a Bidder herein; that _____ who signed

this Bid on behalf of the Corporation was then _____ of said Corporation that
*(President/V.P.) ***

I know his signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and attested in behalf of said Corporation by authority of its governing body.

(CORPORATE SEAL)

_____
(Signature and Date)

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the above Certificate must be executed by the Secretary or Assistant Secretary

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP CONTRACT NO. 600-01-21

SCOPE OF WORK FOR
ELECTRICAL CONSTRUCTION

The Contract for Electrical Construction shall consist of the following component parts:

1. THE AGREEMENT
(Bound in the Project Manual)

THE BID	Document 00320 - Scope of Work for Electrical Construction Document 00321 - Form of Bid for Electrical Construction
THE FORM OF AGREEMENT	Document 00500 - Form of Agreement Document 00590 - Contracting Officer Certification
CONDITIONS OF THE CONTRACT	Document HUD - 5370 General Conditions HACP Document - Supplemental General Conditions Document 00830 - Wage Determination Schedule

2. PRIMARY SPECIFICATIONS FOR THE ELECTRICAL CONSTRUCTION CONTRACT
(Bound in the Project Manual)

All Work contained in the Primary Specifications listed below is the Work of the Contractor for this Electrical Construction Contract unless specifically indicated otherwise.

Any Reference in the Primary Specifications to the "Contractor," the "Prime Contractor," or the "Electrical Contractor" shall be interpreted as meaning the Contractor for this Electrical Construction Contract.

The Electrical Contractor shall coordinate the schedule and activities of work performed under this contract with that of those contracts identified as (G)-General, (P)-Plumbing, and (H)-HVAC.

It is the contractual responsibility of the Contractor for Electrical Construction to familiarize himself with the work of the other prime contractors so that the Project as a whole can proceed in an orderly fashion. Failure to familiarize work by other trades would not be an excuse for corrective measures at no cost to the City of Pittsburgh Housing Authority.

For example, the Electrical Contractor shall coordinate installation of electrical construction work with the requirements of the Plumbing, Mechanical, and General Contractors.

Reference Standard for Incidental Work: Incidental work, as used in this paragraph, is work which is not a basic part of other Prime Contracts but which is required by reference.

For example, the General Contractor is required by his Primary Specifications to install and repair all general work. In the event that the Plumbing Contractor disturbs the general work, the patching, repair shall be done and follow the same Specification requirements of the appropriate Specification Section by the Plumbing Contractor even if that specification section may not be part of the Plumbing Contractor's Primary Specification. The same applies to all trades where incidental work occurs.

TECHNICAL SPECIFICATIONS MAY BE FOUND AT PART FOUR
OF THE PROJECT MANUAL

PLEASE ALSO REFER TO DRAWINGS

3. PRIMARY DRAWINGS FOR THE ELECTRICAL CONSTRUCTION CONTRACT
(Contained in the set of Project Drawings issued simultaneously with this Project Manual)

All Work contained in the Primary Drawings listed below is the Work of this Contractor unless specifically indicated otherwise.

Any Reference to the "Contractor," the "Prime Contractor," or the "Electrical Contractor" shall be interpreted as meaning the Contractor for this Electrical Construction Contract.

The Primary Drawings for this contract consist of all AE7 construction documents drawings, **dated** September 3, 2020 and specifications contained in this project manual.

In case of drawing conflict with specifications, it is understood that the specification shall supersede the drawings.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP Contract No. 600-01-21

FORM OF BID

ELECTRICAL CONSTRUCTION

Contract No.: 600-01-21

TO: HOUSING AUTHORITY
CITY OF PITTSBURGH
(Hereinafter called the "Authority")
100 Ross Street, Suite 200
Pittsburgh, PA 15219

BIDDER: _____
(Bidder Name)
_____
(Business Address)
_____

_____
(Telephone)

1. The undersigned Bidder, having visited the site, having become familiar with local conditions affecting the cost of the work**, including all City of Pittsburgh current code requirements**, and having become familiar with the Invitation for Bids (the IFB) issued by the Authority, which consists of the following:

   - Project Manual, dated January 4, 2021 containing Bidding Requirements, Contract Forms, Conditions of the Contract, and Specifications
   - Project Drawings, dated September 3, 2020
   - Addenda (if any) as enumerated in this Form of Bid

   hereby proposes to provide all supervision, technical personnel, labor, materials, machinery, tools, appurtenances, equipment and services required to construct and complete the Electrical Construction Work as described in Document 00320 "Scope of Work for Electrical Construction" and as indicated in the Drawings and Specifications, for the following Firm Fixed Price:

   _____Dollars ($ _____)
   (Insert Bid Price in words) *(Insert Bid Price in Figures)*

2. Bid security **[ ] is [ ] is not** submitted with this bid.
   (Check one)

   Bid Security is in amount of:

   _____% of the bid OR _____ Dollars ($_____)

Bid Security is in the form of:

[ ]	Certified Check	[ ]	Bank Draft
[ ]	U.S. Govt. Bond	[ ]	Bid Bond (Document 00410)

3. The Bidder hereby acknowledges receipt of the following Addenda, if any, as issued by the Authority:

Total number of Addenda _____ (if none, so state)

Addendum No. _____dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____

4. The Bidder attaches hereto the Special Provisions (Document 00021);

5. The Bidder attaches hereto the Statement of Bidder's Qualifications (Document 00420);

6. The Bidder attaches hereto the Section 3 Opportunities Plan (Document 00433), MBE/WBE Solicitation and Commitment Record (Document 00434), Bidder Manpower Plan (Document 00435), and Previous Related Experience (Document 00436);

7. The Bidder attaches hereto the Bidder's Representations, Certifications and Other Statements of Bidders (Document HUD 5369-A), Previous Participation Certificate (Document HUD-2530);

8. The Bidder attaches hereto the Bidder’s Special Provisions – Notice to All Prospective Bidders (Document 00437), Non-Collusion Affidavit (Document 00485);

9. The Bidder attaches hereto the completed Form of Agreement (Document 00500);

10. The Bidder attaches hereto the Supplemental General Conditions (HACP Document).

PROPRIETORSHIP SIGNATURE PAGE SHEET - FB-I

(To be used when the Bidder is an individual doing business as a Sole Proprietorship.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] An individual doing business in his/her own name
[ ] An individual doing business under a fictitious or assumed name
(Complete Proprietorship Fictitious Name Disclosure below)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Principal*	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

PROPRIETORSHIP FICTITIOUS NAME DISCLOSURE

(To be used when the Bidder is an individual doing business under a fictitious or assumed name.)

_____ is an individual trading under a fictitious or
(Proprietor's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Principal*	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

PARTNERSHIP SIGNATURE PAGE SHEET - FB-P-1

(To be used when the Bidder is an individual doing business as a Partnership.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] A General Partnership (Attach completed Sheet FB-P-3)
- [ ] Doing business under Partnership Name
- [ ] Doing business under a fictitious or assumed name
  (Complete Partnership Fictitious Name Disclosure Sheet FB-P-2)

[ ] A Limited Partnership (Attach completed Sheet FB-P-3)
- [ ] Doing business under Partnership Name
- [ ] Doing business under a fictitious or assumed name
  (Complete Partnership Fictitious Name Disclosure Sheet FB-P-2)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Partner **	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*
	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Partner **	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

* If the Bidder is a partnership, the Bid and Contract must be signed in the name of the partnership by at least two general partners, and the names and addresses of all the partners must be listed on the certificate on Sheet FB-P-3.

PARTNERSHIP FICTITIOUS NAME DISCLOSURE

SHEET FB-P-2

(To be used when the Bidder is a partnership doing business under a fictitious or assumed name.)

_____ is a partnership trading under a fictitious or
(Partnership's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

_____	_____
(Printed or Typed Name)	*(Printed or Typed Name)*
Witness	*Partner**
{	{
_____	_____
(Signature and Date)	*(Signature and Date)*

PARTNERSHIP CERTIFICATE SHEET FB-P-3

(To be used when the Bidder is a partnership.)

I, as partner of _____,
(Name of Partnership)
certify that the following are the names and addresses of all the partners of said partnership.

Name: _____	Name: _____
Address: _____	Address: _____
City: _____	City: _____
Name: _____	Name: _____
Address: _____	Address: _____
City: _____	City: _____
Name: _____	Name: _____
Address: _____	Address: _____
City: _____	City: _____
Name: _____	Name: _____
Address: _____	Address: _____
City: _____	City: _____

(Use additional sheets as required.)

_____	_____
(Printed or Typed Name)	*(Printed or Typed Name)*
Witness {	*Partner** {
_____	_____
(Signature and Date)	*(Signature and Date)*

CORPORATION SIGNATURE PAGE SHEET FB-C-1

(To be used when the bidder is a corporation.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] A corporation doing business in its own name
[ ] A corporation doing business under a fictitious or assumed name
(Complete Corporation Fictitious Name Disclosure FB-C-2)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

(CORPORATE SEAL)

_____
(Corporate Name)

_____ _____
(Printed or Typed Name) *(Printed or Typed Name)*

Witness *President*
{ *V.P.*** {

_____ _____
(Signature and Date) *(Signature and Date)*

_____ _____
(Corporate Title) *(Corporate Title)*

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CORPORATION FICTITIOUS NAME DISCLOSURE SHEET FB-C-2

(To be used when the Bidder is a corporation doing business under a fictitious or assumed name.)

_____ is a corporation trading under a fictitious or
(Corporation's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*President*	
{		*V.P. *****	{
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CORPORATION CERTIFICATE SHEET FB-C-3

(To be used when the bidder is a corporation)

_____ is a corporation organized and existing
(Corporate name used as Bidder name)

under the laws of the state of _____ with its principal place of business at:

_____,_____,_____
(Street Address) *(City)* *(State)*

and, if a non-Pennsylvania corporation **[ ] has [ ] has not** *(check one)* been granted a certificate of authority to do business in Pennsylvania as required by the Pennsylvania Business Corporation Law, approved May 5, 1933, P.L. 364, as amended, 15 P.S. sec.2005 et seq.

I, _____, certify that I am the **[ ] Secretary [ ] Assistant Secretary** of the
(check one)
Corporation named a Bidder herein; that _____ who signed

this Bid on behalf of the Corporation was then _____ of said Corporation that
*(President/V.P.) ***

I know his signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and attested in behalf of said Corporation by authority of its governing body.

(CORPORATE SEAL)

_____
(Signature and Date)

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the above Certificate must be executed by the Secretary or Assistant Secretary

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP CONTRACT NO. 600-01-21

SCOPE OF WORK FOR
PLUMBING CONSTRUCTION

The Contract for Plumbing Construction shall consist of the following component parts:

1. THE AGREEMENT
(Bound in the Project Manual)

THE BID	Document 00330 - Scope of Work for Plumbing Construction Document 00331 - Form of Bid for Plumbing Construction
THE FORM OF AGREEMENT	Document 00500 - Form of Agreement Document 00590 - Contracting Officer Certification
CONDITIONS OF THE CONTRACT	Document HUD - 5370 General Conditions HACP Document - Supplemental General Conditions Document 00830 - Wage Determination Schedule

2. PRIMARY SPECIFICATIONS FOR THE PLUMBING CONSTRUCTION CONTRACT
(Bound in the Project Manual)

All Work contained in the Primary Specifications listed below is the Work of the Contractor for this Plumbing Construction Contract unless specifically indicated otherwise.

Any Reference in the Primary Specifications to the "Contractor," the "Prime Contractor," or the "Plumbing Contractor" shall be interpreted as meaning the Contractor for this Plumbing Construction Contract.

The Plumbing Contractor shall coordinate the schedule and activities of work performed under this contract with that of those contracts identified as (G)-General, (E)-Electrical, and (H)-HVAC.

It is the contractual responsibility of the Contractor for Plumbing Construction to familiarize himself with the work of the other prime contractors so that the Project as a whole can proceed in an orderly fashion. Failure to familiarize work by other trades would not be an excuse for corrective measures at no cost to the City of Pittsburgh Housing Authority.

For example, the Plumbing Contractor shall coordinate installation of plumbing construction work with the requirements of the Electrical, Mechanical, and General Contractors.

Reference Standard for Incidental Work: Incidental work, as used in this paragraph, is work which is not a basic part of other Prime Contracts but which is required by reference.

For example, the General Contractor is required by his Primary Specifications to install and repair all general work. In the event that the Plumbing Contractor disturbs the general work, the patching, repair shall be done and follow the same Specification requirements of the appropriate Specification Section by the Plumbing Contractor even if that specification section may not be part of the Plumbing Contractor's Primary Specification. The same applies to all trades where incidental work occurs.

TECHNICAL SPECIFICATIONS MAY BE FOUND AT PART FOUR
OF THE PROJECT MANUAL

PLEASE ALSO REFER TO DRAWINGS

3. PRIMARY DRAWINGS FOR THE PLUMBING CONSTRUCTION CONTRACT
(Contained in the set of Project Drawings issued simultaneously with this Project Manual)

All Work contained in the Primary Drawings listed below is the Work of this Contractor unless specifically indicated otherwise.

Any Reference to the "Contractor," the "Prime Contractor," or the "Plumbing Contractor" shall be interpreted as meaning the Contractor for this Plumbing Construction Contract.

The Primary Drawings for this contract consist of all AE7 construction documents drawings, **dated** September 3, 2020 and specifications contained in this project manual.

In case of drawing conflict with specifications, it is understood that the specification shall supersede the drawings.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP Contract No. 600-01-21

FORM OF BID

PLUMBING CONSTRUCTION

Contract No.: 600-01-21

TO: HOUSING AUTHORITY
CITY OF PITTSBURGH
(Hereinafter called the "Authority")
100 Ross Street, Suite 200
Pittsburgh, PA 15219

BIDDER: _____
(Bidder Name)
_____
(Business Address)
_____

_____
(Telephone)

1. The undersigned Bidder, having visited the site, having become familiar with local conditions affecting the cost of the work**, including all City of Pittsburgh current code requirements**, and having become familiar with the Invitation for Bids (the IFB) issued by the Authority, which consists of the following:

   - Project Manual, dated January 4, 2021 containing Bidding Requirements, Contract Forms, Conditions of the Contract, and Specifications
   - Project Drawings, dated September 3, 2020
   - Addenda (if any) as enumerated in this Form of Bid

   hereby proposes to provide all supervision, technical personnel, labor, materials, machinery, tools, appurtenances, equipment and services required to construct and complete the Plumbing Construction Work as described in Document 00330 "Scope of Work for Plumbing Construction" and as indicated in the Drawings and Specifications, for the following Firm Fixed Price:

   _____Dollars ($ _____)
   (Insert Bid Price in words) *(Insert Bid Price in Figures)*

2. Bid security **[ ] is [ ] is not** submitted with this bid.
   (Check one)

   Bid Security is in amount of:

   _____% of the bid OR _____ Dollars ($_____)

Bid Security is in the form of:

[ ]	Certified Check	[ ]	Bank Draft
[ ]	U.S. Govt. Bond	[ ]	Bid Bond (Document 00410)

3. The Bidder hereby acknowledges receipt of the following Addenda, if any, as issued by the Authority:

Total number of Addenda _____ (if none, so state)

Addendum No. _____dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____

4. The Bidder attaches hereto the Special Provisions (Document 00021);

5. The Bidder attaches hereto the Statement of Bidder's Qualifications (Document 00420);

6. The Bidder attaches hereto the Section 3 Opportunities Plan (Document 00433), MBE/WBE Solicitation and Commitment Record (Document 00434), Bidder Manpower Plan (Document 00435), and Previous Related Experience (Document 00436);

7. The Bidder attaches hereto the Bidder's Representations, Certifications and Other Statements of Bidders (Document HUD 5369-A), Previous Participation Certificate (Document HUD-2530);

8. The Bidder attaches hereto the Bidder’s Special Provisions – Notice to All Prospective Bidders (Document 00437), Non-Collusion Affidavit (Document 00485);

9. The Bidder attaches hereto the completed Form of Agreement (Document 00500);

10. The Bidder attaches hereto the Supplemental General Conditions (HACP Document).

PROPRIETORSHIP SIGNATURE PAGE SHEET - FB-I

(To be used when the Bidder is an individual doing business as a Sole Proprietorship.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] An individual doing business in his/her own name
[ ] An individual doing business under a fictitious or assumed name
(Complete Proprietorship Fictitious Name Disclosure below)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Principal*	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

PROPRIETORSHIP FICTITIOUS NAME DISCLOSURE

(To be used when the Bidder is an individual doing business under a fictitious or assumed name.)

_____ is an individual trading under a fictitious or
(Proprietor's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Principal*	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

PARTNERSHIP SIGNATURE PAGE SHEET - FB-P-1

(To be used when the Bidder is an individual doing business as a Partnership.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] A General Partnership (Attach completed Sheet FB-P-3)
- [ ] Doing business under Partnership Name
- [ ] Doing business under a fictitious or assumed name
  (Complete Partnership Fictitious Name Disclosure Sheet FB-P-2)

[ ] A Limited Partnership (Attach completed Sheet FB-P-3)
- [ ] Doing business under Partnership Name
- [ ] Doing business under a fictitious or assumed name
  (Complete Partnership Fictitious Name Disclosure Sheet FB-P-2)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Partner **	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*
	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Partner **	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

* If the Bidder is a partnership, the Bid and Contract must be signed in the name of the partnership by at least two general partners, and the names and addresses of all the partners must be listed on the certificate on Sheet FB-P-3.

PARTNERSHIP FICTITIOUS NAME DISCLOSURE

SHEET FB-P-2

(To be used when the Bidder is a partnership doing business under a fictitious or assumed name.)

_____ is a partnership trading under a fictitious or
(Partnership's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

_____	_____
(Printed or Typed Name)	*(Printed or Typed Name)*
Witness	*Partner**
{	{
_____	_____
(Signature and Date)	*(Signature and Date)*

PARTNERSHIP CERTIFICATE SHEET FB-P-3

(To be used when the Bidder is a partnership.)

I, as partner of _____,
(Name of Partnership)
certify that the following are the names and addresses of all the partners of said partnership.

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ City: _____

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ City: _____

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ City: _____

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ City: _____

(Use additional sheets as required.)

_____ _____
(Printed or Typed Name) *(Printed or Typed Name)*

Witness *Partner**

{ {

_____ _____
(Signature and Date) *(Signature and Date)*

CORPORATION SIGNATURE PAGE SHEET FB-C-1

(To be used when the bidder is a corporation.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] A corporation doing business in its own name
[ ] A corporation doing business under a fictitious or assumed name
(Complete Corporation Fictitious Name Disclosure FB-C-2)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

(CORPORATE SEAL)

_____
(Corporate Name)

_____ _____
(Printed or Typed Name) *(Printed or Typed Name)*

Witness { *President V.P.*** {

_____ _____
(Signature and Date) *(Signature and Date)*

_____ _____
(Corporate Title) *(Corporate Title)*

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CORPORATION FICTITIOUS NAME DISCLOSURE SHEET FB-C-2

(To be used when the Bidder is a corporation doing business under a fictitious or assumed name.)

_____ is a corporation trading under a fictitious or
(Corporation's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*President*	
{		*V.P. *****	{
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CORPORATION CERTIFICATE SHEET FB-C-3

(To be used when the bidder is a corporation)

_____ is a corporation organized and existing
(Corporate name used as Bidder name)

under the laws of the state of _____ with its principal place of business at:

_____,_____,_____
(Street Address) *(City)* *(State)*

and, if a non-Pennsylvania corporation **[ ] has [ ] has not** *(check one)* been granted a certificate of authority to do business in Pennsylvania as required by the Pennsylvania Business Corporation Law, approved May 5, 1933, P.L. 364, as amended, 15 P.S. sec.2005 et seq.

I, _____, certify that I am the **[ ] Secretary [ ] Assistant Secretary** of the
(check one)
Corporation named a Bidder herein; that _____ who signed

this Bid on behalf of the Corporation was then _____ of said Corporation that
(President/V.P.) **

I know his signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and attested in behalf of said Corporation by authority of its governing body.

(CORPORATE SEAL)

_____
(Signature and Date)

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the above Certificate must be executed by the Secretary or Assistant Secretary

Bid Security is in the form of:

[ ]	Certified Check	[ ]	Bank Draft
[ ]	U.S. Govt. Bond	[ ]	Bid Bond (Document 00410)

3. The Bidder hereby acknowledges receipt of the following Addenda, if any, as issued by the Authority:

Total number of Addenda _____ (if none, so state)

Addendum No. _____dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____

4. The Bidder attaches hereto the Special Provisions (Document 00021);

5. The Bidder attaches hereto the Statement of Bidder's Qualifications (Document 00420);

6. The Bidder attaches hereto the Section 3 Opportunities Plan (Document 00433), MBE/WBE Solicitation and Commitment Record (Document 00434), Bidder Manpower Plan (Document 00435), and Previous Related Experience (Document 00436);

7. The Bidder attaches hereto the Bidder's Representations, Certifications and Other Statements of Bidders (Document HUD 5369-A), Previous Participation Certificate (Document HUD-2530);

8. The Bidder attaches hereto the Bidder’s Special Provisions – Notice to All Prospective Bidders (Document 00437), Non-Collusion Affidavit (Document 00485);

9. The Bidder attaches hereto the completed Form of Agreement (Document 00500);

10. The Bidder attaches hereto the Supplemental General Conditions (HACP Document).

PROPRIETORSHIP SIGNATURE PAGE SHEET - FB-I

(To be used when the Bidder is an individual doing business as a Sole Proprietorship.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] An individual doing business in his/her own name
[ ] An individual doing business under a fictitious or assumed name
(Complete Proprietorship Fictitious Name Disclosure below)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Principal*	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

PROPRIETORSHIP FICTITIOUS NAME DISCLOSURE

(To be used when the Bidder is an individual doing business under a fictitious or assumed name.)

_____ is an individual trading under a fictitious or
(Proprietor's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Principal*	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

PARTNERSHIP SIGNATURE PAGE SHEET - FB-P-1

(To be used when the Bidder is an individual doing business as a Partnership.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] A General Partnership (Attach completed Sheet FB-P-3)
- [ ] Doing business under Partnership Name
- [ ] Doing business under a fictitious or assumed name
  (Complete Partnership Fictitious Name Disclosure Sheet FB-P-2)

[ ] A Limited Partnership (Attach completed Sheet FB-P-3)
- [ ] Doing business under Partnership Name
- [ ] Doing business under a fictitious or assumed name
  (Complete Partnership Fictitious Name Disclosure Sheet FB-P-2)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Partner **	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*
	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Partner **	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

* If the Bidder is a partnership, the Bid and Contract must be signed in the name of the partnership by at least two general partners, and the names and addresses of all the partners must be listed on the certificate on Sheet FB-P-3.

PARTNERSHIP FICTITIOUS NAME DISCLOSURE

SHEET FB-P-2

(To be used when the Bidder is a partnership doing business under a fictitious or assumed name.)

_____ is a partnership trading under a fictitious or
(Partnership's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

_____	_____
(Printed or Typed Name)	*(Printed or Typed Name)*
Witness	*Partner**
{	{
_____	_____
(Signature and Date)	*(Signature and Date)*

PARTNERSHIP CERTIFICATE SHEET FB-P-3

(To be used when the Bidder is a partnership.)

I, as partner of _____,
(Name of Partnership)
certify that the following are the names and addresses of all the partners of said partnership.

Name: _____	Name: _____
Address: _____	Address: _____
City: _____	City: _____
Name: _____	Name: _____
Address: _____	Address: _____
City: _____	City: _____
Name: _____	Name: _____
Address: _____	Address: _____
City: _____	City: _____
Name: _____	Name: _____
Address: _____	Address: _____
City: _____	City: _____

(Use additional sheets as required.)

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness {		*Partner** {	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

CORPORATION SIGNATURE PAGE SHEET FB-C-1

(To be used when the bidder is a corporation.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] A corporation doing business in its own name
[ ] A corporation doing business under a fictitious or assumed name
(Complete Corporation Fictitious Name Disclosure FB-C-2)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

(CORPORATE SEAL)

_____
(Corporate Name)

_____ _____
(Printed or Typed Name) *(Printed or Typed Name)*

Witness *President*
{ *V.P.*** {

_____ _____
(Signature and Date) *(Signature and Date)*

_____ _____
(Corporate Title) *(Corporate Title)*

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CORPORATION FICTITIOUS NAME DISCLOSURE SHEET FB-C-2

(To be used when the Bidder is a corporation doing business under a fictitious or assumed name.)

_____ is a corporation trading under a fictitious or
(Corporation's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*President*	
{		*V.P. *****	{
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CORPORATION CERTIFICATE SHEET FB-C-3

(To be used when the bidder is a corporation)

_____ is a corporation organized and existing
(Corporate name used as Bidder name)

under the laws of the state of _____ with its principal place of business at:

_____,_____,_____
(Street Address) *(City)* *(State)*

and, if a non-Pennsylvania corporation **[ ] has [ ] has not** *(check one)* been granted a certificate of authority to do business in Pennsylvania as required by the Pennsylvania Business Corporation Law, approved May 5, 1933, P.L. 364, as amended, 15 P.S. sec.2005 et seq.

I, _____, certify that I am the **[ ] Secretary [ ] Assistant Secretary** of the
(check one)
Corporation named a Bidder herein; that _____ who signed

this Bid on behalf of the Corporation was then _____ of said Corporation that
*(President/V.P.) ***

I know his signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and attested in behalf of said Corporation by authority of its governing body.

(CORPORATE SEAL)

_____
(Signature and Date)

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the above Certificate must be executed by the Secretary or Assistant Secretary

CORPORATION CERTIFICATE SHEET FB-C-3

(To be used when the bidder is a corporation)

_____ is a corporation organized and existing
(Corporate name used as Bidder name)

under the laws of the state of _____ with its principal place of business at:

_____,_____,_____
(Street Address) *(City)* *(State)*

and, if a non-Pennsylvania corporation **[ ] has [ ] has not** *(check one)* been granted a certificate of authority to do business in Pennsylvania as required by the Pennsylvania Business Corporation Law, approved May 5, 1933, P.L. 364, as amended, 15 P.S. sec.2005 et seq.

I, _____, certify that I am the **[ ] Secretary [ ] Assistant Secretary** of the
(check one)
Corporation named a Bidder herein; that _____ who signed

this Bid on behalf of the Corporation was then _____ of said Corporation that
(President/V.P.) **

I know his signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and attested in behalf of said Corporation by authority of its governing body.

(CORPORATE SEAL)

_____
(Signature and Date)

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the above Certificate must be executed by the Secretary or Assistant Secretary

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP CONTRACT NO. 600-01-21

SCOPE OF WORK FOR
MECHANICAL CONSTRUCTION

The Contract for Mechanical Construction shall consist of the following component parts:

1. THE AGREEMENT
(Bound in the Project Manual)

THE BID	Document 00340 - Scope of Work for Mechanical Construction Document 00341 - Form of Bid for Mechanical Construction
THE FORM OF AGREEMENT	Document 00500 - Form of Agreement Document 00590 - Contracting Officer Certification
CONDITIONS OF THE CONTRACT	Document HUD - 5370 General Conditions HACP Document - Supplemental General Conditions Document 00830 - Wage Determination Schedule

2. PRIMARY SPECIFICATIONS FOR THE MECHANICAL CONSTRUCTION CONTRACT
(Bound in the Project Manual)

All Work contained in the Primary Specifications listed below is the Work of the Contractor for this Mechanical Construction Contract unless specifically indicated otherwise.

Any Reference in the Primary Specifications to the "Contractor," the "Prime Contractor," or the "Mechanical Contractor" shall be interpreted as meaning the Contractor for this Mechanical Construction Contract.

The Mechanical Contractor shall coordinate the schedule and activities of work performed under this contract with that of those contracts identified as (G)-General, (E)-Electrical, and (P)-Plumbing.

It is the contractual responsibility of the Contractor for Mechanical Construction to familiarize himself with the work of the other prime contractors so that the Project as a whole can proceed in an orderly fashion. Failure to familiarize work by other trades would not be an excuse for corrective measures at no cost to the City of Pittsburgh Housing Authority.

For example, the Mechanical Contractor shall coordinate installation of mechanical construction work with the requirements of the Electrical, Plumbing, and General Contractors.

Reference Standard for Incidental Work: Incidental work, as used in this paragraph, is work which is not a basic part of other Prime Contracts but which is required by reference.

For example, the General Contractor is required by his Primary Specifications to install and repair all general work. In the event that the Plumbing Contractor disturbs the general work, the patching, repair shall be done and follow the same Specification requirements of the appropriate Specification Section by the Plumbing Contractor even if that specification section may not be part of the Plumbing Contractor's Primary Specification. The same applies to all trades where incidental work occurs.

TECHNICAL SPECIFICATIONS MAY BE FOUND AT PART FOUR
OF THE PROJECT MANUAL

PLEASE ALSO REFER TO DRAWINGS

3. PRIMARY DRAWINGS FOR THE MECHANICAL CONSTRUCTION CONTRACT
(Contained in the set of Project Drawings issued simultaneously with this Project Manual)

All Work contained in the Primary Drawings listed below is the Work of this Contractor unless specifically indicated otherwise.

Any Reference to the "Contractor," the "Prime Contractor," or the "Mechanical Contractor" shall be interpreted as meaning the Contractor for this Mechanical Construction Contract.

The Primary Drawings for this contract consist of all AE7 construction documents drawings, **dated** September 3, 2020 and specifications contained in this project manual.

In case of drawing conflict with specifications, it is understood that the specification shall supersede the drawings.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP Contract No. 600-01-21

FORM OF BID

MECHANICAL CONSTRUCTION

Contract No.: 600-01-21

TO: HOUSING AUTHORITY
CITY OF PITTSBURGH
(Hereinafter called the "Authority")
100 Ross Street, Suite 200
Pittsburgh, PA 15219

BIDDER: _____
(Bidder Name)
_____
(Business Address)
_____

_____
(Telephone)

1. The undersigned Bidder, having visited the site, having become familiar with local conditions affecting the cost of the work**, including all City of Pittsburgh current code requirements**, and having become familiar with the Invitation for Bids (the IFB) issued by the Authority, which consists of the following:

   - Project Manual, dated January 4, 2021 containing Bidding Requirements, Contract Forms, Conditions of the Contract, and Specifications
   - Project Drawings, dated September 3, 2020
   - Addenda (if any) as enumerated in this Form of Bid

   hereby proposes to provide all supervision, technical personnel, labor, materials, machinery, tools, appurtenances, equipment and services required to construct and complete the Mechanical Construction Work as described in Document 00340 "Scope of Work for Mechanical Construction" and as indicated in the Drawings and Specifications, for the following Firm Fixed Price:

   _____Dollars ($ _____)
   (Insert Bid Price in words) *(Insert Bid Price in Figures)*

2. Bid security **[ ] is [ ] is not** submitted with this bid.
   (Check one)

   Bid Security is in amount of:

   _____% of the bid OR _____ Dollars ($_____)

Bid Security is in the form of:

[ ]	Certified Check	[ ]	Bank Draft
[ ]	U.S. Govt. Bond	[ ]	Bid Bond (Document 00410)

3. The Bidder hereby acknowledges receipt of the following Addenda, if any, as issued by the Authority:

Total number of Addenda _____ (if none, so state)

Addendum No. _____dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____
Addendum No. _____ dated _____	Addendum No. _____ dated _____

4. The Bidder attaches hereto the Special Provisions (Document 00021);

5. The Bidder attaches hereto the Statement of Bidder's Qualifications (Document 00420);

6. The Bidder attaches hereto the Section 3 Opportunities Plan (Document 00433), MBE/WBE Solicitation and Commitment Record (Document 00434), Bidder Manpower Plan (Document 00435), and Previous Related Experience (Document 00436);

7. The Bidder attaches hereto the Bidder's Representations, Certifications and Other Statements of Bidders (Document HUD 5369-A), Previous Participation Certificate (Document HUD-2530);

8. The Bidder attaches hereto the Bidder’s Special Provisions – Notice to All Prospective Bidders (Document 00437), Non-Collusion Affidavit (Document 00485);

9. The Bidder attaches hereto the completed Form of Agreement (Document 00500);

10. The Bidder attaches hereto the Supplemental General Conditions (HACP Document).

PROPRIETORSHIP SIGNATURE PAGE SHEET - FB-I

(To be used when the Bidder is an individual doing business as a Sole Proprietorship.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] An individual doing business in his/her own name
[ ] An individual doing business under a fictitious or assumed name
(Complete Proprietorship Fictitious Name Disclosure below)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Principal*	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

PROPRIETORSHIP FICTITIOUS NAME DISCLOSURE

(To be used when the Bidder is an individual doing business under a fictitious or assumed name.)

_____ is an individual trading under a fictitious or
(Proprietor's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Principal*	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

PARTNERSHIP SIGNATURE PAGE SHEET - FB-P-1

(To be used when the Bidder is an individual doing business as a Partnership.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] A General Partnership (Attach completed Sheet FB-P-3)
- [ ] Doing business under Partnership Name
- [ ] Doing business under a fictitious or assumed name
  (Complete Partnership Fictitious Name Disclosure Sheet FB-P-2)

[ ] A Limited Partnership (Attach completed Sheet FB-P-3)
- [ ] Doing business under Partnership Name
- [ ] Doing business under a fictitious or assumed name
  (Complete Partnership Fictitious Name Disclosure Sheet FB-P-2)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Partner **	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*
	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Partner **	
{		{	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

* If the Bidder is a partnership, the Bid and Contract must be signed in the name of the partnership by at least two general partners, and the names and addresses of all the partners must be listed on the certificate on Sheet FB-P-3.

PARTNERSHIP FICTITIOUS NAME DISCLOSURE

SHEET FB-P-2

(To be used when the Bidder is a partnership doing business under a fictitious or assumed name.)

_____ is a partnership trading under a fictitious or
(Partnership's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

_____	_____
(Printed or Typed Name)	*(Printed or Typed Name)*
Witness	*Partner**
{	{
_____	_____
(Signature and Date)	*(Signature and Date)*

PARTNERSHIP CERTIFICATE SHEET FB-P-3

(To be used when the Bidder is a partnership.)

I, as partner of _____,
(Name of Partnership)
certify that the following are the names and addresses of all the partners of said partnership.

Name: _____	Name: _____
Address: _____	Address: _____
City: _____	City: _____
Name: _____	Name: _____
Address: _____	Address: _____
City: _____	City: _____
Name: _____	Name: _____
Address: _____	Address: _____
City: _____	City: _____
Name: _____	Name: _____
Address: _____	Address: _____
City: _____	City: _____

(Use additional sheets as required.)

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness {		*Partner** {	
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

CORPORATION SIGNATURE PAGE SHEET FB-C-1

(To be used when the bidder is a corporation.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

[ ] A corporation doing business in its own name
[ ] A corporation doing business under a fictitious or assumed name
(Complete Corporation Fictitious Name Disclosure FB-C-2)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

(CORPORATE SEAL)

_____
(Corporate Name)

_____ _____
(Printed or Typed Name) *(Printed or Typed Name)*

Witness *President*
{ *V.P.*** {

_____ _____
(Signature and Date) *(Signature and Date)*

_____ _____
(Corporate Title) *(Corporate Title)*

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CORPORATION FICTITIOUS NAME DISCLOSURE SHEET FB-C-2

(To be used when the Bidder is a corporation doing business under a fictitious or assumed name.)

_____ is a corporation trading under a fictitious or
(Corporation's Name)

assumed name of _____ and **[ ] has [ ] has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*President*	
{		*V.P. *****	{
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CORPORATION CERTIFICATE SHEET FB-C-3

(To be used when the bidder is a corporation)

_____ is a corporation organized and existing
(Corporate name used as Bidder name)

under the laws of the state of _____ with its principal place of business at:

_____,_____,_____
(Street Address) *(City)* *(State)*

and, if a non-Pennsylvania corporation **[ ] has [ ] has not** *(check one)* been granted a certificate of authority to do business in Pennsylvania as required by the Pennsylvania Business Corporation Law, approved May 5, 1933, P.L. 364, as amended, 15 P.S. sec.2005 et seq.

I, _____, certify that I am the **[ ] Secretary [ ] Assistant Secretary** of the
(check one)
Corporation named a Bidder herein; that _____ who signed

this Bid on behalf of the Corporation was then _____ of said Corporation that
*(President/V.P.) ***

I know his signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and attested in behalf of said Corporation by authority of its governing body.

(CORPORATE SEAL)

_____
(Signature and Date)

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the above Certificate must be executed by the Secretary or Assistant Secretary

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we,

_____, as Principal, and
(Insert name and address of Bidder exactly as it appears on Form of Bid)

_____, as Sureties, are
held and firmly bound unto the Housing Authority of the City of Pittsburgh, its certain attorney, successors, or assigns (the Obligee, hereinafter called the "Authority") in the penal sum of

_____Dollars ($_____)

lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally, firmly by these presents:

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas, the Principal simultaneously submits to the Authority the accompanying bid, dated

_____, 20_____ (the "Bid"), for construction of
(Insert date of bid)

_____
(Insert name of project exactly as it appears on Form of Bid)
pursuant to specifications, drawings and other related documents constituting the Invitation for Bids (the "IFB").

NOW, THEREFORE, if the Principal shall not withdraw said bid within the period specified therein after the opening of the same, or, if no period be specified, within sixty (60) days after the said opening, and shall within the period specified therefore, or, if no period be specified within ten (10) days after the prescribed forms are presented to him for signature, enter into a written contract with the Authority in accordance with the bid as accepted, and give bonds with good and sufficient surety or sureties, as may be required for the faithful performance and proper fulfillment of such contract and for the payment of labor and materialmen or in the event of the withdrawal of said bid within the period specified, or the failure to enter into such contract and give such bonds within the time specified, if the Principal shall pay the Authority the difference between the amount specified in said bid and the amount for which the Authority may procure the required work or supplies or both, if the latter amount be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS

this _____ day of _____ 20_____.

IF THE PRINCIPAL IS AN INDIVIDUAL, SIGN HERE

_____ *(Printed or Typed Name)*	_____ *(Printed or Typed Name)*
Witness	*Principal*
{	{
_____ *(Signature and Date)*	_____ *(Signature and Date)*

SURETY SIGN HERE

(SURETY SEAL)

_____ *(Printed or Typed Name)*	_____ *(Printed or Typed Name)*
Attest	*Surety****
{	{
_____ *(Signature and Date)*	_____ *(Signature and Date)*

*** Power of attorney must be attached to this Bid Bond.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS

this _____ day of _____ 20_____.

IF THE PRINCIPAL IS A PARTNERSHIP, SIGN HERE

_____ *(Printed or Typed Name)*	_____ *(Printed or Typed Name)*
Witness {	*Partner** {
_____ *(Signature and Date)*	_____ *(Signature and Date)*
_____ *(Printed or Typed Name)*	_____ *(Printed or Typed Name)*
Witness {	*Partner** {
_____ *(Signature and Date)*	_____ *(Signature and Date)*

* If the Bidder is a partnership, the Bond must be signed in the name of the partnership by at least two general partners, whose names and addresses must be listed on the certificate on page BF-3-P of the Bid.

SURETY SIGN HERE

(SURETY SEAL)

_____ *(Printed or Typed Name)*	_____ *(Printed or Typed Name)*
Attest {	*Surety**** {
_____ *(Signature and Date)*	_____ *(Signature and Date)*

*** Power of attorney must be attached to this Bid Bond.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS

this _____ day of _____ 20_____.

IF THE PRINCIPAL IS A CORPORATION, SIGN HERE

(CORPORATE SEAL)

_____
(Corporate Name)

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Attest {	_____ *(Signature and Date)*	*President V.P.*** {	_____ *(Signature and Date)*
	_____ *(Corporate Title)*		_____ *(Corporate Title)*

** If the bidder is a corporation, the Bond must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal below must be executed by the Secretary or Assistant Secretary.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the
[ ] Secretary [ ] Assistant Secretary of the Corporation named a Bidder herein; that
(check one)

_____ who signed this Bid on behalf of the

Corporation was then _____ of said Corporation that I know his signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and attested in behalf of said Corporation by authority of its governing body.

(CORPORATE SEAL)

_____
(Signature and Date)

SURETY SIGN HERE

(SURETY SEAL)

_____ _____
(Printed or Typed Name) *(Printed or Typed Name)*

Attest *Surety****

{ {

_____ _____
(Signature and Date) *(Signature and Date)*

*** Power of attorney must be attached to this Bid Bond.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

STATEMENT OF BIDDER'S QUALIFICATIONS

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

_____ _____
(Bidder's Name) *(Project Name)*

_____ _____
(Address)

_____ 600-01-21
(HACP Project No.)

Names of not more than two principals to contact:

Name:_____ Name:_____

Title:_____ Title:_____

Telephone:_____ Telephone:_____

AUTHORIZATION:

Excerpt from HUD 7460.8-REV-1 AND 24 CFR 85.36(b)(8) & 24 CFR 905.160(a)(3):

"The evaluation of a contractor's ability to perform a contract is known as determining the contractor's responsibility. Has **shall** make awards only to **responsible** contractors possessing the ability to perform successfully under the terms and conditions of a proposed contract. Consideration **shall** be given to such matters as **contractor integrity, compliance with public policy, record of past performance, and financial and technical resources**.

"The award of a contract to an offeror **shall** not be made solely on the basis of the lowest evaluated price without considering the firm's ability to perform the required work. Some of the specific factors to consider include (1) whether the contractor performed satisfactorily on other HA Contracts, (2) is the contractor suspended or debarred from Federal Contracts, and (3) have other HAs has satisfactory performance from this contractor.

"A pre-award survey may entail an on-site inspection of the offeror's facilities, including a review of financial statements, record keeping, production capacity, or similar factors that impact on the ability to perform the contract.

"Recent unsatisfactory performance regarding either quality or timeliness of delivery is an example of a problem which the Contracting Officer **shall** consider and resolve as to its impact on the current procurement prior to making an affirmative determination of responsibility.

ORGANIZATION

THE BIDDER IS:

[ ] An individual doing business in his/her own name
[ ] An individual doing business under a fictitious or assumed name

[ ] A General Partnership
  [ ] Doing business under Partnership Name
  [ ] Doing business under a fictitious or assumed name

[ ] A Limited Partnership
  [ ] Doing business under Partnership Name
  [ ] Doing business under a fictitious or assumed name

[ ] A corporation doing business in its own name
[ ] A corporation doing business under a fictitious or assumed name

How many years has the bidder been in business as a Contractor? _____

How many years has the bidder been in business under its present business name? _____

Under what other or former names has the bidder operated?

PAST PERFORMANCE

CLAIMS AND SUITS. (If the answer to any of the questions below is yes, please attach explanation.)

[ ] Yes [ ] No Has the Bidder ever failed to complete any work awarded to it?

[ ] Yes [ ] No Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against the bidder or its officers?

[ ] Yes [ ] No Has the bidder filed any law suits or requested arbitration with regard to construction contracts within the last five years?

[ ] Yes [ ] No Within the last five years, has any officer or principal of the bidder ever been an officer or principal of another organization when it failed to complete a construction contract? (If answer is yes, please attach details.)

State average annual amount of construction work performed during the past five years: $_____

State total worth of work in progress and under contract: $_____

On a separate sheet, list major construction projects the bidder has in progress, giving the name of project, owner, architect, contract amount, percent complete and scheduled completion date.

On a separate sheet, list the major projects the bidder has completed in the past five years, giving the name of project, owner, architect, contract amount, date of completion and percentage of the cost of the work performed with your own forces.

FINANCIAL RESOURCES

Financial Statement.

Attach a financial statement (audited if available), including the bidder's latest balance sheet and income statement showing the following items:

Current Assets (e.g. cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses);
Net Fixed Assets;
Other Assets;
Current Liabilities (e.g. accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries and accrued payroll taxes);
Other Liabilities (e.g. capital, capital stock, authorized and outstanding shares par values, earned surplus and retained earnings).

Name and address of firm preparing attached financial statement, and date thereof:

[ ] Yes [ ] No Is the attached financial statement for the identical organization named on page one?

If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsidiary).

[ ] Yes [ ] No Will the organization whose financial statement is attached act as guarantor of the contract for construction?

TECHNICAL RESOURCES

Licensing:
List jurisdictions and trade categories in which the bidder is legally qualified to do business, and indicate registration or license numbers, if applicable.

Experiences:
List the categories of work that the bidder normally performs with its own forces.

On a separate sheet, list the construction experience and present commitments of the key individuals of the bidder.

REFERENCES

List Trade References (use separate sheet if necessary):

List Bank References (use separate sheet if necessary):

List previous HUD/USDA-FmHA projects and Section 8 Contracts (formerly Schedule A on HUD-2530). Applicable to construction contracts exceeding $50,000. List each principals name, previous project, principal's participation role and interest, and disclose defaults, mortgage relief, assignments and foreclosures. **Note that having a Master Schedule on file with HUD will not meet this requirement.**

Certifications: I (meaning the individual who signs as well as the corporations, partnerships or other parties listed above who certify) hereby apply to HUD or USDA-FmHA, as the case may be, for approval to participate as a principal in the role and project listed above based upon my following previous participation record of this Certification.

I certify that all the statements made by me are true, complete and correct to the best of my knowledge and belief and are made in good faith, including the data contained in Schedule A and Exhibits, signed by me and attached to this form.
Warning: HUD and/or the Authority will prosecute false claims and statements. Conviction may result in criminal and/or civil penalties. (18 U.S.C. 1001, 1012;31 U.S.C. 3729, 3802)

I further certify that:

1. The list of previous HUD/USDA-FmHA projects and Section 8 Contracts contains a listing of every assisted or insured project of HUD, which I have been or am now a principal.

2. For the period beginning 10 years prior to the date of this certification, and except as shown by me on the certification.
   a. No mortgage on a project listed by me has ever been in default, assigned to the Government or foreclosed, nor has mortgage relief by the mortgagee been given;
   b. I have not experienced default or noncompliance under any Conventional Contract or Turnkey Contract of Sale in connection with a public housing project;
   c. To the best of my knowledge, there are no unresolved findings raised as a result of HUD audits, management reviews or other Governmental investigations concerning me or my projects;
   d. There has not been a suspension or termination of payments under any HUD assistance contract in which I have had a legal or beneficial interest;
   e. I have not been convicted of a felony and am not presently, to my knowledge, the subject of a complaint or indictment charging a felony. (A felony is defined as any offense punishable by imprisonment for a term exceeding one year, but does not include any offense classified as a misdemeanor under the laws of a State and punishable by imprisonment of two years or less);
   f. I have not been suspended, debarred or otherwise restricted by any Department or Agency of the Federal Government or of a State Government from doing business with such Department or Agency.

g. I have not defaulted on an obligation covered by a surety or performance bond and have not been the subject of a claim under an employee fidelity bond.

3. All the names of the parties, known to me to be principals in this project(s) in which I propose to participate, are listed above.

4. I am not a HUD/FmHA employee or a member of a HUD/FmHA employee's immediate household as defined in Standards of Ethical Conduct for Employees of the Executive Branch in 5 C.F.R. Part 2635 (57 FR 35006) and HUD's Standard of Conduct in 24 C.F.r. Part O and USDA's Standard of Conduct in 7 C.F.R. Part 9 Subpart B.

5. I am not a Housing Authority of the City of Pittsburgh employee or a member of an Authority employee's immediate family.

6. I am not a principal participant in an assisted or insured project as of this date on which construction has stopped for a period in excess of 20 days or which has been substantially completed for more than 90 days and documents for closing, including final cost certification have not been filed with HUD or FmHA.

7. To my knowledge I have not been found by HUD or FmHA to be in noncompliance with any applicable civil rights law.

8. I am not a Member of Congress or a Resident Commissioner nor otherwise prohibited or limited by law from contracting with the Government of the United States of America.

9. Statements above (if any) to which I cannot certify have been deleted by striking through the words with a pen. I have initialed each deletion (if any) and have attached a true and accurate signed statement (if applicable) to explain the facts and circumstances which I think helps to qualify me as a responsible principal for participation in this project.

(Signature and Date)

(Typed or Printed Name)

(Title)

(Company Name)

Subscribed and sworn to before me

this_____ day of _____, 20

My Commission expires _____, 20

All section 3 covered contracts shall include the following clause (referred to as the section 3 clause):

A. The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

B. The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

C. The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

D. The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

E. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.

F. Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

G. With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self- Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

Housing Authority City of Pittsburgh

Development and Modernization Department

Bidder's Section 3 Participation Form

A. Bidder's Section 3 Hiring Plan

Job Category	Total Estimated Positions Needed for Project	No. Positions Occupied by Permanent Employees*	Number of Positions Not Occupied	Number of Positions Available for Section 3 Residents
Trade:				
Journeyman				
Helper				
Apprentices				
Trainees				
Laborer				
Others				

*** Please submit a list of current employees to be assigned to this project including Dates of Hire**

B. Bidder's Section 3 Subcontracting Plan

SUB - CONTRACTOR'S NAME**	SUB - CONTRACTORS ADDRESS	PHONE NUMBER	FEDERAL TAX ID NO./ SS#	DESCRIPTION OF WORK	Sub - Contract Amount

**** If the Bidder has not identified a Section 3 subcontractor, please indicate if there will be any Section 3 subcontracting opportunity and describe scope of work**_____

_____
Company Name

_____
Project Name

_____
Project Number

_____
Name and Title of Person Completing this Form

_____
Signature and Date

PLACE HOLDER FOR

ROSTER OF CURRENT EMPLOYEES

Pursuant to Housing Authority of the City of Pittsburgh Section 3 Program Manual, Part I, Section A - Section 3 Policy Statement (in part):

"HACP shall examine and consider a contractor's potential for success in providing employment and business opportunities to those covered under Section 3 prior to acting on any proposed contract award. In response to any RFP, RFQ or IFB HACP will require submission of the Section 3 Opportunities Plan and roster of current employees, and certification that the bidder will comply with the requirements of Section 3."

Section 3 Participation

With respect to work performed in connection with Section 3 covered Indian housing assistance, Section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of Section 3 and Section 7(b) agree to comply with Section 3 to the maximum extent feasible, but not in derogation of compliance with Section 7(b).

RESIDENT HIRING REQUIREMENTS / RESIDENT HIRING SCALE

TOTAL LABOR DOLLARS USE TOTAL CONTRACT AMOUNT FOR SERVICE CONTRACTS	RESIDENT LABOR AS A % OF TOTAL LABOR DOLLARS
Labor dollars $25,000 but less than $100,000	10% of the labor dollars
$100,000, but less than $200,000	9% of the labor dollars
At least $200,000, but less than $300,000	8% of the labor dollars
At least $300,000, but less than $400,000	7% of the labor dollars
At least $400,000, but less than $500,000	6% of the labor dollars
At least $500,000, but less than $1 million	5% of the labor dollars
At least $1 million, but less than $2 million	4% of the labor dollars
At least $2 million, but less than $4 million	3% of the labor dollars
At least $4 million, but less than $7 million	2% of the labor dollars
$7 million or more	½ to 1 % of the labor dollars

A copy of HACP's Section 3 Program Manual is available for download at www.HACP.org.

SECTION 3 OPPORTUNITIES PLAN

Business Opportunities and Employment Training for Housing Authority of the City of Pittsburgh Low Income Public Housing Residents (LIPH) and Area Residents of Low and Very Low Income Status (ARLIS)

PRIME CONTRACTOR'S NAME: _____
SPECIFICATION OR RFP/IFB/RFQ NUMBER: _____
SPECIFICATION OR RFP/IFB/RFQ TITLE: _____

The Contractor hereby agrees to comply with all the provisions of Section 3 as set forth in 24 CFR 135.1 et seq. and the HACP Section 3 Policy and Program requirements. The Contractor hereby submits this document to identify employment opportunities for HACP residents (LIPH) and **Area Residents of Low and Very Low Income Status (ARLIS**) during the term of the contract between the Contractor and the HACP.

The preference of HACP is to ensure that as many HACP residents as possible are employed. In an effort to further that requirement, HACP has created a preference tier structure as outlined in the HACP Section 3 Policy and Program Manual which can be reviewed by visiting the "Vendor Services" section of www.hacp.org. Contractors are required to comply with Section 3 by first considering Tier I – Hiring. If the Contractor cannot meet its Section 3 requirement in Tier I and needs to move to Tier II or Tier III, that Contractor must document this inability to comply with the preference and the need to move to a lower tier. (Such inability **must** be documented for moves within tiers). The Contractor agrees to meet its Section 3 requirement following the Preferential Tier Structure as indicated by the selection below (check one or more tiers below):

[ ] Tier I – HIRING

The Contractor affirms that the jobs identified shall be for meaningful employment that may or may not be related to the scope of services covered under Contract/Purchase Order # _____. The Contractor has committed to employ _____ resident(s) in order to comply with its Section 3 requirements. A prime contractor may satisfy the HACP Resident Hiring Requirements through his/her subcontractors. **Contact the HACP Resident Employment Program for resident referrals at 412-395-3950, Ext 1048.**

When Tier I is selected, the Contractor shall complete the following table as instructed below:

(1) Indicate each job title for all phases of this contract
(2) The number of positions that will be needed in each category
(3) How many of those positions are currently filled
(4) The number currently filled by low and very low-income HACP residents
(5) The number currently filled by City of Pittsburgh neighborhood area residents
(6) How many positions need to be filled

Indicate your requirement for the number of positions you intend to fill with:

(7) Low income HACP Residents (LIPH) and/or
(8) Low and very low income City of Pittsburgh Neighborhood Area Residents (ARLIS)

SECTION 3 OPPORTUNITIES PLAN

Section 3 Labor Utilization Assessment and Plan							
SPEC or RFP TITLE:				**SPEC or RFP NUMBER:**			
JOB TITLE (1)	**NUMBER OF POSITIONS**					**HIRING REQUIREMENT**	
	# NEEDED (2)	**CURRENTLY FILLED**			**TO BE FILLED (6)**	**LIPH (7)**	**ARLIS (8)**
		TOTAL (3)	**LIPH (4)**	**ARLIS (5)**			

LIPH – HACP low income public housing resident
ARLIS - Area Residents of Low/Very Low Income Status – (Area is the Pittsburgh metropolitan area)

In the event the value of Section 3 resident hiring is less than the amount identified in the Resident Hiring Scale, vendors must contribute to the HACP Education Fund an amount not less than the difference between the value of Section 3 hiring and the amount identified in the Resident Hiring Scale, which funds shall be used to provide other economic opportunities.
Therefore, if it is anticipated that any position listed above shall be for less than the full term of the contract period, you must indicate on the lines below, the anticipated term for each position:

_____

_____

SECTION 3 OPPORTUNITIES PLAN

[ ] Tier II – CONTRACTING

The contractor has identified _____ HACP resident-owned business(es) or _____ Section 3 business(es) which is/are 51 percent or more owned by Section 3 residents or 30 percent or more of their permanent full-time workforce are Section 3 residents. This will satisfy the contractor's Section 3 requirement covered under Contract/Purchase Order # _____.

In a one (1) page letter on your firm's letterhead:

1) Indicate the requirements, expressed in terms of percentage, of planned contracting dollars for the use of Section 3 business concerns as subcontractors.

2) A statement of the total dollar amount to be contracted, total dollar amount to be contracted to Section 3 business concerns for building trades, and total dollar amount to be contracted to Section 3 business concerns for other than building trades work (maintenance, repair, modernization, and development).

3) A description of the method used to develop the requirements above and the efforts to be undertaken by the contractor to meet those requirements.

[ ] Tier III - OTHER ECONOMIC OPPORTUNITIES

Firms may provide other economic opportunities to train and employ Section 3 residents or make a direct cash contribution to the HACP Education Fund. HACP has established the following minimum threshold requirements for provision of training or contribution to the HACP fund that provides other economic opportunities:

a) Contractor incurs the cost of providing skilled training for residents in an amount commensurate with the sliding scale set forth in the Resident Hiring Scale; or,

b) Contractor makes a contribution to the HACP Education Fund at Clean Slate E3 to provide assistance to residents to obtain training. The level of contribution would be commensurate with the sliding scale set forth in the Resident Hiring Scale.
Contractor shall provide, in a letter on firm letterhead:

1) Indication of the skilled training to be provided, the number of persons to be trained, the training provider, the cost of training, and the trainee recruitment plan; or,
2) Provide the amount of planned contribution to be made in relation to percentage of the contract labor hours costs. (Contribution checks should be made payable to: Clean Slate E3 Education Fund and mailed to Clean Slate E3, C/O Housing Authority of the City of Pittsburgh, Finance Department, 200 Ross Street, 9th Floor, Pittsburgh, PA 15219.

[ ] Tier IV – No New Hire Opportunity

If awarded this contract, the contractor will be able to fulfill the requirements of the IFB/RFP/RFQ with the existing work force. No new hires will be employed as a result of this award. If this position changes and hiring opportunities become necessary, the HACP Resident Employment Program will be notified.

SECTION 3 OPPORTUNITIES PLAN

By signing below, the Contractor hereby agrees to comply with the selected Section 3 requirements indicated above. To the extent that the completion of this form is contingent upon future information, for example price negotiations, request for specific services, etc., the undersigned hereby affirms and agrees to fully adhere to the spirit and intent of the HACP Section 3 Policy.

Furthermore, the undersigned acknowledges and affirms responsibility for completion and submission of this form as part of the response documentation for this Invitation for Bid or Request for Proposal. Failure to submit this form may jeopardize the responsiveness of your submission.

Company Name:_____

Name:_____

Title:_____

Signature:_____Date:_____

Witness Name:_____

Witness Signature:_____Date:_____

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
MBE/WBE SOLICITATION AND COMMITMENT RECORD

SOLICITATION AND COMMITMENT STATEMENT
MINORITY (MBE) AND FEMALE (WBE) OWNED BUSINESS ENTERPRISES

BID NUMBER	NAME OF BIDDER	ADDRESS	PHONE

List below All MBE/WBE's that were solicited - whether or not a commitment was obtained -- Copy this form as necessary

_____MBE _____WBE	TYPE OF SUBCONTRACT WORK OR MATERIALS	DATE SOLICITED BY PHONE	DATE SOLICITED BY MAIL	COMMITMENT MADE **YES** (IF YES, GIVE DATE)	COMMITMENT MADE **NO**	GIVE REASON(S) IF NO COMMITMENT MADE
COMPANY NAME						
ADDRESS		QUOTE RECEIVED		AMOUNT COMMITTED		
CONTACT PERSON PHONE		YES	NO	DOLLAR AMOUNT $		
				PERCENT OF TOTAL BID %		

_____MBE _____WBE	TYPE OF SUBCONTRACT WORK OR MATERIALS	DATE SOLICITED BY PHONE	DATE SOLICITED BY MAIL	COMMITMENT MADE **YES** (IF YES, GIVE DATE)	COMMITMENT MADE **NO**	GIVE REASON(S) IF NO COMMITMENT MADE
COMPANY NAME						
ADDRESS		QUOTE RECEIVED		AMOUNT COMMITTED		
CONTACT PERSON PHONE		YES	NO	DOLLAR AMOUNT $		
				PERCENT OF TOTAL BID %		

_____MBE _____WBE	TYPE OF SUBCONTRACT WORK OR MATERIALS	DATE SOLICITED BY PHONE	DATE SOLICITED BY MAIL	COMMITMENT MADE **YES** (IF YES, GIVE DATE)	COMMITMENT MADE **NO**	GIVE REASON(S) IF NO COMMITMENT MADE
COMPANY NAME						
ADDRESS		QUOTE RECEIVED		AMOUNT COMMITTED		
CONTACT PERSON PHONE		YES	NO	DOLLAR AMOUNT $		
				PERCENT OF TOTAL BID %		

Prepared by: Title: Phone:

NOTE: Certification and letters of intent for each MBE/WBE commitment must accompany this document.

MBE/WBE Participation Plan

I. SMALL BUSINESS PARTICIPATION
Is the Bidder a Small Business as defined by the size and standards in 13 CFR 121?

Yes _____ No _____

II. MINORITY BUSINESS PARTICIPATION
Is the Bidder classified as a Minority Business Enterprise?

Yes _____ No _____

If "No", are any Subcontractors classified as Minority Business enterprises?

Yes _____ No _____

If "Yes", please fill in the following chart:

Consulting Firm(s) (MBE)	$ Value Contract	% of Fee

III. WOMEN-OWNED BUSINESS PARTICIPATION
Is the Bidder classified as a Woman-Owned Business Enterprise?

Yes _____ No _____

If "No", area any Subcontractors classified as Women-Owned Business Enterprises?

Yes _____ No _____

If "Yes", please fill in the following chart:

Consulting Firm(s) (WBE)	$ Value Contract	% of Fee

****All MBE/WBE firms must be certified.**
In order for the MBE/WBE participation plan to be complete, copies of MBE/WBE certification must be included for all firms listed.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
MBE/WBE RECORD
MBE/WBE SOLICITATION AND COMMITMENT STATEMENT
MBE/WBE 3-YEAR RECORD

BIDDERS NAME: _____
ADDRESS: _____
TELEPHONE: _____
CONTACT PERSON: _____
PROPOSAL AND BID FOR: _____

List below all contracts with the Housing Authority of the City of Pittsburgh during the past three years and the MBE and WBE participation obtained.					
CONTRACT TITLE	CONTRACT DATE	AMOUNT	% PARTICIPATION MBE	WBE	COMMENTS

Prepared by: Title: Phone:

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
MBE/WBE SOLICITATION AND COMMITMENT STATEMENT
ADDITIONAL INFORMATION SHEET

The bidder presents the following as additional and supplemental information to its MBE/WBE Solicitation and Commitment Statement.

Prepared by: Title: Phone:

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
MBE/WBE EXHIBIT

MBE/WBE COMMITMENT WAIVER REQUEST FORM

BIDDER'S FIRM:_____
ADDRESS:_____
TELEPHONE:_____
CONTACT PERSON:_____
PROPOSAL AND BID FOR:_____

Waiver of the MBE/WBE participation requirement is requested for the following reasons:

Prepared by: Title: Phone:

NOTE: The fully completed MBE/WBE Solicitation and Commitment Statement must accompany this waiver request.

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11625)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals for minority and female participation at the Housing Authority of the City of Pittsburgh are pursuant to the Mayor's promulgated Executive Order, and the action of the Housing Authority Board. Expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, these goals are seventeen percent (18%) of the total cost of the contract to be expended for minority participation and six percent (7%) for women participation. These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

   The Contractor's compliance with the Executive Order and the regulations in Section 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in Section 41 CFR Part 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in Section 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification, within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation, to:

   LaVaris Ross, Labor Relations Specialist
   U.S. Department of Housing and Urban Development
   Office of Labor Relations
   City Crescent Building
   10 S. Howard Street, 5th Floor
   Baltimore, MD 21201

   The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is within the Commonwealth of Pennsylvania, County of Allegheny, City of Pittsburgh.

Housing Authority of the City of Pittsburgh

Development & Modernization
100 Ross Street, Suite 200
Pittsburgh, PA 15219
(412) 456-5020
www.hacp.org

NOTICE TO ALL PROSPECTIVE BIDDERS

REQUEST FOR MANPOWER PLAN

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP CONTRACT NO. 600-01-21

Each bid must include a separate Manpower Plan and Major Equipment List for this Invitation for Bids. The Manpower Plan must include (1) the names of the bidder's personnel to be assigned to the Project, (2) trade/position, (3) Social Security Number or Driver's License Number and (4) Employee Date of Hire.

In the event you are bidding on multiple HACP construction work, each bid must include a separate Manpower Plan and Major Equipment List that clearly demonstrates that the bidder has the capacity and will not use the same personnel and equipment on more than one HACP construction work that are being executed simultaneously within the next 180 days.

HACP will use this information to determine whether the bidder has the capacity to perform the work.

Please acknowledge receipt of this Notice by completing the information below and the attached and including copies in your bid.

Bidder's Name: _____

Name of the Person Signing the Bid: _____

Signature of the Person Signing the Bid: _____

Bid Due Date: _____

Housing Authority of the City of Pittsburgh

Development & Modernization
100 Ross Street, Suite 200
Pittsburgh, PA 15219
(412) 456-5020
www.hacp.org

Bidder's Planned Manpower

Provide Employee Name, Trade/Position, Social Security Number or Driver's License Number and Date of Hire for each employee:
(use additional sheets if necessary).

Name	Position	Social Security No. or Driver's License No.		Date of Hire

Housing Authority of the City of Pittsburgh

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(412) 456-5020
www.hacp.org

SPECIAL PROVISIONS
FOR INVITATION FOR BIDS (IFB)

REQUEST FOR INFORMATION

Each bidder must submit the following information to assist the Owner to determine if the Bidder has the capacity to perform the required work under this **Project Name:_____ IFB No. _____.**

Bidder's Capacity

Provide information demonstrating the Bidder's ability to provide the resources necessary for the timely and efficient implementation of the construction work. Due to the nature of this procurement, capacity will also be evaluated based on the Bidder's ability to complete the work on time and within budget, therefore, please describe the Bidder's Capacity as follows:

1. Manpower Plan and Major Equipment List (Please complete **Form 00435-1 & 2**).
2. List a maximum of three-(3) current or completed ***Housing Authority of the City of Pittsburgh*** related projects, the **Initial Contract Value, Change Orders, if any, and Final Contract Value**. If the project was not completed within budget and on time, please explain the circumstances and/or justification for the change order(s): Please attach a separate sheet if you do not have sufficient space.

Project #	Initial Contract Value	Change Order(s)	Final Contract Value
a.			
b.			
c.			

Justification for Change Orders/Schedule:_____
_____

3. List at least three-(3) other Owners including one current or completed project plus the following information:

Vendor's Name & Contact #	Initial Contract Value	Change Order(s)	Final Contract Value
a.			
b.			
c.			

Justification for Change Orders/Schedule:_____
_____

The Bidder hereby certifies that the information provided above is accurate/correct and provision of false information can be a basis for the rejection of this bid:

Bidder's Name:_____ Bidder's Signature:_____
Date:_____

Housing Authority of the City of Pittsburgh

Development & Modernization
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Pittsburgh, PA 15219
(412) 456-5020
www.hacp.org

NOTICE TO ALL PROSPECTIVE BIDDERS

Previous Related Experience
for

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP CONTRACT NO. 600-01-21

The bidder shall list three (3) firms, governmental units, or persons for whom the bidder has previously performed work of the nature requested under this IFB. Bidder shall list as references all housing authorities, including HACP, for whom the bidder has previously performed work of the nature requested under this IFB. HACP reserves the right to contact such persons at anytime prior to award and the bidder agrees that HACP may rely on information provided by such persons to determine the bidder's responsibility.

In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recet HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 1			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	**Total $ Value per Change**	**Description of Change**	**Reason for Change**
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Housing Authority of the City of Pittsburgh

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Previous Related Experience
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412 BLVD of the Allies HACP Office Build Out
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In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recet HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 2			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	**Total $ Value per Change**	**Description of Change**	**Reason for Change**
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

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HACP CONTRACT NO. 600-01-21

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In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recet HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 3			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	**Total $ Value per Change**	**Description of Change**	**Reason for Change**
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

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In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recet HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 4			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	**Total $ Value per Change**	**Description of Change**	**Reason for Change**
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

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Pittsburgh, PA 15219
(412) 456-5020
www.hacp.org

Previous Related Experience
for
412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP CONTRACT NO. 600-01-21

The bidder shall list three (3) firms, governmental units, or persons for whom the bidder has previously performed work of the nature requested under this IFB. Bidder shall list as references all housing authorities, including HACP, for whom the bidder has previously performed work of the nature requested under this IFB. HACP reserves the right to contact such persons at anytime prior to award and the bidder agrees that HACP may rely on information provided by such persons to determine the bidder's responsibility.

In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recet HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 5			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	**Total $ Value per Change**	**Description of Change**	**Reason for Change**
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Housing Authority of the City of Pittsburgh

Development & Modernization
100 Ross Street, Suite 200
Pittsburgh, PA 15219
(412) 456-5020
www.hacp.org

Previous Related Experience
for
412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099
HACP CONTRACT NO. 600-01-21

The bidder shall list three (3) firms, governmental units, or persons for whom the bidder has previously performed work of the nature requested under this IFB. Bidder shall list as references all housing authorities, including HACP, for whom the bidder has previously performed work of the nature requested under this IFB. HACP reserves the right to contact such persons at anytime prior to award and the bidder agrees that HACP may rely on information provided by such persons to determine the bidder's responsibility.

In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recet HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 6			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	**Total $ Value per Change**	**Description of Change**	**Reason for Change**
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Housing Authority of the City of Pittsburgh

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Previous Related Experience
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412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP CONTRACT NO. 600-01-21

The bidder shall list three (3) firms, governmental units, or persons for whom the bidder has previously performed work of the nature requested under this IFB. Bidder shall list as references all housing authorities, including HACP, for whom the bidder has previously performed work of the nature requested under this IFB. HACP reserves the right to contact such persons at anytime prior to award and the bidder agrees that HACP may rely on information provided by such persons to determine the bidder's responsibility.

In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recet HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 7			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	**Total $ Value per Change**	**Description of Change**	**Reason for Change**
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

***All contractors MUST submit 3 references and most recent HACP Job if applicable.**

U.S. Department of Housing and Urban Development

Office of Public and Indian Housing

Representations, Certifications, and Other Statements of Bidders

Public and Indian Housing Programs

Representations, Certifications, and Other Statements of Bidders

Public and Indian Housing Programs

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1. Certificate of Independent Price Determination

(a) The bidder certifies that--

(1) The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to (i) those prices, (ii) the intention to submit a bid, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a competitive proposal solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit a bid for the purpose of restricting competition.

(b) Each signature on the bid is considered to be a certification by the signatory that the signatory--

(1) Is the person in the bidder's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(l) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(l) through (a)(3) above.

_____ [insert full name of person(s) in the bidder's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the bidder's organization];

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the bidder deletes or modifies subparagraph (a)2 above, the bidder must furnish with its bid a signed statement setting forth in detail the circumstances of the disclosure.

☑ [Contracting Officer check if following paragraph is applicable]

(d) Non-collusive affidavit. (applicable to contracts for construction and equipment exceeding $50,000)

(1) Each bidder shall execute, in the form provided by the PHA/IHA, an affidavit to the effect that he/she has not colluded with any other person, firm or corporation in regard to any bid submitted in response to this solicitation. If the successful bidder did not submit the affidavit with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the affidavit by that date may render the bid nonresponsive. No contract award will be made without a properly executed affidavit.

(2) A fully executed "Non-collusive Affidavit" [ ] is, [ ] is not included with the bid.

2. Contingent Fee Representation and Agreement

(a) Definitions. As used in this provision:

"Bona fide employee" means a person, employed by a bidder and subject to the bidder's supervision and control as to time, place, and manner of performance, who neither exerts, nor proposes to exert improper influence to solicit or obtain contracts nor holds out as being able to obtain any contract(s) through improper influence.

"Improper influence" means any influence that induces or tends to induce a PHA/IHA employee or officer to give consideration or to act regarding a PHA/IHA contract on any basis other than the merits of the matter.

(b) The bidder represents and certifies as part of its bid that, except for full-time bona fide employees working solely for the bidder, the bidder:

(1) [ ] has, [ ] has not employed or retained any person or company to solicit or obtain this contract; and

(2) [ ] has, [ ] has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.

(c) If the answer to either (a)(1) or (a)(2) above is affirmative, the bidder shall make an immediate and full written disclosure to the PHA/IHA Contracting Officer.

(d) Any misrepresentation by the bidder shall give the PHA/IHA the right to (1) terminate the contract; (2) at its discretion, deduct from contract payments the amount of any commission, percentage, brokerage, or other contingent fee; or (3) take other remedy pursuant to the contract.

3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions (applicable to contracts exceeding $100,000)

(a) The definitions and prohibitions contained in Section 1352 of title 31, United States Code, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The bidder, by signing its bid, hereby certifies to the best of his or her knowledge and belief as of December 23, 1989 that:

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of a contract resulting from this solicitation;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the bidder shall complete and submit, with its bid, OMB standard form LLL, "Disclosure of Lobbying Activities;" and

(3) He or she will include the language of this certification in all subcontracts at any tier and require that all recipients of subcontract awards in excess of $100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than $10,000, and not more than $100,000, for each such failure.

(d) Indian tribes (except those chartered by States) and Indian organizations as defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) are exempt from the requirements of this provision.

4. Organizational Conflicts of Interest Certification

The bidder certifies that to the best of its knowledge and belief and except as otherwise disclosed, he or she does not have any organizational conflict of interest which is defined as a situation in which the nature of work to be performed under this proposed contract and the bidder's organizational, financial, contractual, or other interests may, without some restriction on future activities:

(a) Result in an unfair competitive advantage to the bidder; or,

(b) Impair the bidder's objectivity in performing the contract work.

[ ] In the absence of any actual or apparent conflict, I hereby certify that to the best of my knowledge and belief, no actual or apparent conflict of interest exists with regard to my possible performance of this procurement.

5. Bidder's Certification of Eligibility

(a) By the submission of this bid, the bidder certifies that to the best of its knowledge and belief, neither it, nor any person or firm which has an interest in the bidder's firm, nor any of the bidder's subcontractors, is ineligible to:

(1) Be awarded contracts by any agency of the United States Government, HUD, or the State in which this contract is to be performed; or,

(2) Participate in HUD programs pursuant to 24 CFR Part 24.

(b) The certification in paragraph (a) above is a material representation of fact upon which reliance was placed when making award. If it is later determined that the bidder knowingly rendered an erroneous certification, the contract may be terminated for default, and the bidder may be debarred or suspended from participation in HUD programs and other Federal contract programs.

6. Minimum Bid Acceptance Period

(a) "Acceptance period," as used in this provision, means the number of calendar days available to the PHA/IHA for awarding a contract from the date specified in this solicitation for receipt of bids.

(b) This provision supersedes any language pertaining to the acceptance period that may appear elsewhere in this solicitation.

(c) The PHA/IHA requires a minimum acceptance period of [Contracting Officer insert time period] calendar days.

(d) In the space provided immediately below, bidders may specify a longer acceptance period than the PHA's/IHA's minimum requirement. The bidder allows the following acceptance period: calendar days.

(e) A bid allowing less than the PHA's/IHA's minimum acceptance period will be rejected.

(f) The bidder agrees to execute all that it has undertaken to do, in compliance with its bid, if that bid is accepted in writing within (1) the acceptance period stated in paragraph (c) above or (2) any longer acceptance period stated in paragraph (d) above.

7. Small, Minority, Women-Owned Business Concern Representation

The bidder represents and certifies as part of its bid/ offer that it --

(a) [ ] is, [ ] is not a small business concern. "Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding, and qualified as a small business under the criteria and size standards in 13 CFR 121.

(b) [ ] is, [ ] is not a women-owned business enterprise. "Women-owned business enterprise," as used in this provision, means a business that is at least 51 percent owned by a woman or women who are U.S. citizens and who also control and operate the business.

(c) [ ] is, [ ] is not a minority business enterprise. "Minority business enterprise," as used in this provision, means a business which is at least 51 percent owned or controlled by one or more minority group members or, in the case of a publicly owned business, at least 51 percent of its voting stock is owned by one or more minority group members, and whose management and daily operations are controlled by one or more such individuals. For the purpose of this definition, minority group members are:

(Check the block applicable to you)

[ ] Black Americans	[ ] Asian Pacific Americans
[ ] Hispanic Americans	[ ] Asian Indian Americans
[ ] Native Americans	[ ] Hasidic Jewish Americans

8. Indian-Owned Economic Enterprise and Indian Organization Representation (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

The bidder represents and certifies that it:

(a) [ ] is, [ ] is not an Indian-owned economic enterprise. "Economic enterprise," as used in this provision, means any commercial, industrial, or business activity established or organized for the purpose of profit, which is at least 51 percent Indian owned. "Indian," as used in this provision, means any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act.

(b) [ ] is, [ ] is not an Indian organization. "Indian organization," as used in this provision, means the governing body of any Indian tribe or entity established or recognized by such governing body. Indian "tribe" means any Indian tribe, band, group, pueblo, or

community including Native villages and Native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

9. Certification of Eligibility Under the Davis-Bacon Act (applicable to construction contracts exceeding $2,000)

(a) By the submission of this bid, the bidder certifies that neither it nor any person or firm who has an interest in the bidder's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of the contract resulting from this solicitation shall be subcontracted to any person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

10. Certification of Nonsegregated Facilities (applicable to contracts exceeding $10,000)

(a) The bidder's attention is called to the clause entitled **Equal Employment Opportunity** of the General Conditions of the Contract for Construction.

(b) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

(c) By the submission of this bid, the bidder certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The bidder agrees that a breach of this certification is a violation of the Equal Employment Opportunity clause in the contract.

(d) The bidder further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) prior to entering into subcontracts which exceed $10,000 and are not exempt from the requirements of the Equal Employment Opportunity clause, it will:

(1) Obtain identical certifications from the proposed subcontractors;

(2) Retain the certifications in its files; and

(3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

Notice to Prospective Subcontractors of Requirement for Certifications of Nonsegregated Facilities

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal Employment Opportunity clause of the prime contract. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

Note: The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

11. Clean Air and Water Certification (applicable to contracts exceeding $100,000)

The bidder certifies that:

(a) Any facility to be used in the performance of this contract [ ] is, [ ] is not listed on the Environmental Protection Agency List of Violating Facilities:

(b) The bidder will immediately notify the PHA/IHA Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the Environmental Protection Agency, indicating that any facility that the bidder proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and,

(c) The bidder will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

12. Previous Participation Certificate (applicable to construction and equipment contracts exceeding $50,000)

(a) The bidder shall complete and submit with his/her bid the Form HUD-2530, "Previous Participation Certificate." If the successful bidder does not submit the certificate with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the certificate by that date may render the bid nonresponsive. No contract award will be made without a properly executed certificate.

(b) A fully executed "Previous Participation Certificate"

[ ] is, [ ] is not included with the bid.

13. Bidder's Signature

The bidder hereby certifies that the information contained in these certifications and representations is accurate, complete, and current.

_____
(Signature and Date)

_____
(Typed or Printed Name)

_____
(Title)

_____
(Company Name)

(Company Address)

OMB Approval No. 2502-0118
(Exp. 11/30/2022)

US Department of Housing and Urban Development
Office of Housing/Federal Housing Commissioner

US Department of Agriculture
Farmers Home Administration

Part I to be completed by Controlling Participant(s) of Covered Projects *(See instructions)* Reason for submission:		**For HUD HQ/FmHA use only**	
1. Agency name and City where the application is filed		**2.** Project Name, Project Number, City and Zip Code	
3. Loan or Contract amount $	**4.** Number of Units or Beds	**5.** Section of Act	**6.** Type of Project (check one) ☐ Existing ☐ Rehabilitation ☐ Proposed (New)

7. List all proposed Controlling Participants and attach complete organization chart for all organizations showing ownership %

Name and address (Last, First, Middle Initial) of controlling participant(s) proposing to participate	**8 Role of Each Principal in Project**	**9. SSN or IRS Employer Number (TIN)**

Certifications: The controlling participants(s) listed above hereby apply to HUD or USDA FmHA, as the case maybe, for approval to participate as controlling participant(s) in the role(s) and project listed above. The controlling participant(s) certify that the information provided on this form and in any accompanying documentation is true and accurate. I/we acknowledge that making, presenting, or submitting a false, fictitious, or fraudulent statement, representation, or certification may result in criminal, civil, and/or administrative sanctions, including fines, penalties, and imprisonment. The controlling participants(s) further certify to the truth and accuracy of the following:

1. Schedule A contains a listing, for the last ten years, of every project assisted or insured by HUD, USDA FmHA and/or State and local government housing finance agencies in which the controlling participant(s) have participated or are now participating.
2. For the period beginning 10 years prior to the date of this certification, and except as shown on the certification:
a. No mortgage on a project listed has ever been in default, assigned to the Government or foreclosed, nor has it received mortgage relief from the mortgagee;
b. The controlling participants have no defaults or noncompliance under any Conventional Contract or Turnkey Contract of Sale in connection with a public housing project;
c. There are no known unresolved findings as a result of HUD audits, management reviews or other Governmental investigations concerning the controlling participants or their projects;
d. There has not been a suspension or termination of payments under any HUD assistance contract due to the controlling participant's fault or negligence;
e. The controlling participants have not been convicted of a felony and are not presently the subject of a complaint or indictment charging a felony. (A felony is defined as any offense punishable by imprisonment for a term exceeding one year, but does not include any offense classified as a misdemeanor under the laws of a State and punishable by imprisonment of two years or less);
f. The controlling participants have not been suspended, debarred or otherwise restricted by any Department or Agency of the Federal Government or of a State Government from doing business with such Department or Agency;
g. The controlling participants have not defaulted on an obligation covered by a surety or performance bond and have not been the subject of a claim under an employee fidelity bond;
3. All the names of the controlling participants who propose to participate in this project are listed above.
4. None of the controlling participants is a HUD/FmHA employee or a member of a HUD/FmHA employee's immediate household as defined in Standards of Ethical Conduct for Employees of the Executive Branch in 5 C.F.R. Part 2635 (57 FR 35006) and HUD's Standard of Conduct in 24 C.F.R. Part 0 and USDA's Standard of Conduct in 7 C.F.R. Part 0 Subpart B.
5. None of the controlling participants is a participant in an assisted or insured project as of this date on which construction has stopped for a period in excess of 20 days or which has been substantially completed for more than 90 days and documents for closing, including final cost certification, have not been filed with HUD or FmHA.
6.None of the controlling participants have been found by HUD or FmHA to be in noncompliance with any applicable fair housing and civil rights requirements in 24 CFR 5.105(a). (If any controlling participants have been found to be in noncompliance with any requirements, attach a signed statement explaining the relevant facts, circumstances, and resolution, if any).
7. None of the controlling participants is a Member of Congress or a Resident Commissioner nor otherwise prohibited or limited by law from contracting with the Government of the United States of America.
8.Statements above (if any) to which the controlling participant(s) cannot certify have been deleted by striking through the words with a pen, and the controlling participant(s) have initialed each deletion (if any) and have attached a true and accurate signed statement (if applicable) to explain the facts and circumstances.

Name of Controlling Participant	**Signature of Controlling Participant**	**Certification Date (mm/dd/yyyy)**	**Area Code and Tel. No.**
This form prepared by (print name)		**Area Code and Tel. No.**	

Schedule A: List of Previous Projects and Section 8 Contracts. Below is a complete list of the controlling participants' previous participation projects and participation history in covered projects as per 24 CFR, part 200 §200.214 and multifamily Housing programs of FmHA, State and local Housing Finance Agencies, if applicable. **Note:** Read and follow the instruction sheet carefully. Make full disclosure. Add extra sheets if you need more space. Double check for accuracy. If no previous projects, write by your name, "**No previous participation, First Experience**".

1. Controlling Participants' Name (Last, First)	2. List of previous projects (Project name, project ID and, Govt. agency involved)	3.List Participants' Role(s) (indicate dates participated, and if fee or identity of interest participant)	4. Status of loan (current, defaulted, assigned, foreclosed)	5.Was the Project ever in default during your participation **Yes**	**No**	**If yes, explain**	6. Last MOR rating and Physical Insp. Score and date

Part II- For HUD Internal Processing Only

Received and checked by me for accuracy and completeness; recommend approval or refer to Headquarters after checking appropriate box.

Date (mm/dd/yyyy)	Tel No. and area code	☐ A. No adverse information; form HUD-2530 approval recommended.	☐ C. Disclosure or Certification problem
Staff	Processing and Control	☐ B. Name match in system	☐ D. Other (attach memorandum)

Signature of authorized reviewer	Signature of authorized reviewer	Approved ☐ Yes ☐ No	Date (mm/dd/yyyy)

Instructions for Completing the Previous Participation Certificate, form HUD-2530

Carefully read these instructions and the applicable regulations. A copy of the regulations published at 24 C.F.R. part 200, subpart H, § 200.210-200.222 can be obtained on-line at www.gpo.gov and from the Account Executive at any HUD Office. Type or print neatly in ink when filling out this form. Incomplete form will be returned to the applicant.

Attach extra sheets as you need them. Be sure to indicate "Continued on Attachments" wherever appropriate. Sign each additional page that you attach if it refers to you or your record. **Carefully read the certification before you sign it.** Any questions regarding the form or how to complete it can be answered by your HUD Account Executive.

Purpose: This form provides HUD/USDA FmHA with a certified report of all previous participation in relevant HUD/USDA programs by those parties submitting the application. The information requested in this form is used by HUD/USDA to determine if you meet the standards established to ensure that all controlling participants in HUD/USDA projects will honor their legal, financial and contractual obligations and are of acceptable risks from the underwriting standpoint of an insurer, lender or governmental agency. HUD requires that you certify and submit your record of previous participation, in relevant projects, by completing and signing this form, before your participation can be approved.

HUD approval of your certification is a necessary precondition for your participation in the project and in the capacity that you propose. If you do not file this certification, do not furnish the information requested accurately, or do not meet established standards, HUD will not approve your certification.

Note that approval of your certification does not obligate HUD to approve your project application, and it does not satisfy all other HUD program requirements relative to your qualifications.

Who Must Sign and File Form HUD-2530: Form HUD-2530 must be completed and signed by all Controlling Participants of Covered Projects, as such terms are defined in 24 CFR part 200 §200.212, and as further clarified by the Processing Guide (HUD notice H 2016-15) referenced in 24 CFR §200.210(b) and available on the HUD website at: http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/mfh/prevparticipation.

Where and When Form HUD-2530 Must Be Filed: The original of this form must be submitted to the HUD Office where your project application will be processed at the same time you file your initial project application. This form must be filed with applications for projects listed in 24 CFR §200.214 and for the Triggering Events listed at 24 CFR §200.218.

Review of Adverse Determination: If approval of your participation in a HUD project is denied, withheld, or conditionally granted on the basis of your record of previous participation, you will be notified by the HUD Office. You may request reconsideration in accordance with 24 CFR §200.222 and further clarified by the Processing Guide. Request must be made in writing within 30 days from your receipt of the notice of determination.

The Department of Housing and Urban Development (HUD) is authorized to collect this information by law 42 U.S.C. 3535(d) and by regulation at 24 CFR 200.210. This information is needed so that principals applying to participate in multifamily programs can become HUD-approved controlling participants. The information you provide will enable HUD to evaluate your record with respect to established standards of performance, responsibility and eligibility. Without prior approval, a controlling participant may not participate in a proposed or existing multifamily or healthcare project. HUD uses this information to evaluate whether or not controlling participants pose an unsatisfactory underwriting risk. The information is used to evaluate the potential controlling participants and approve only individuals and organizations that will honor their legal, financial and contractual obligations.

Privacy Act Statement: The Housing and Community Development Act of 1987, 42 U.S.C. 3543 requires persons applying for a Federally-insured or guaranteed loan to furnish his/her Social Security Number (SSN). HUD must have your SSN for identification of your records. HUD may use your SSN for automated processing of your records and to make requests for information about you and your previous records with other public agencies and private sector sources. HUD may disclose certain information to Federal, State and local agencies when relevant to civil, criminal, or regulatory investigations and prosecutions. It will not be otherwise disclosed or released outside of HUD, except as required and permitted by law. You must provide all of the information requested in this application, including your SSN.

Public reporting burden for this collection of information is estimated to average three hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This agency may not collect this information, and you are not required to complete this form, unless it displays a currently valid OMB control number.

A response is mandatory. Failure to provide any of the information will result in your disapproval of participation in this HUD program.

Housing Authority of the City of Pittsburgh

Development & Modernization
100 Ross Street, Suite 200
Pittsburgh, PA 15219
(412) 456-5020
www.hacp.org

SPECIAL PROVISIONS

NOTICE TO ALL PROSPECTIVE BIDDERS
412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099
Documents Required for Payment
HACP Contract No.: 600-01-21

Pursuant to Sections 27, 38, 40 and 46 of the General Conditions for this Contract, each contractor must submit the following required documents with each Payment Estimate ("PE") in order for HACP to process a PE as follows:

A. Periodic Estimate – HUD 51001

B. Schedule of Stored Materials – HUD 51003 (if applicable)

C. Summary of Stored Materials – HUD 51004 (if applicable)

D. Schedule of Change Orders – HUD 51002 (if applicable)

E. Progress Payment Certification

F. Current/Approved Certified Payrolls (submitted to HACP's Davis-Bacon Wage Clerk).

G. MBE/WBE Utilization Report

H. Section 3 Summary Report

Signature of Authorized Officer: _____ Date: _____

THIS DOCUMENT MUST BE SIGNED.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

NON-COLLUSION AFFIDAVIT

State of_____

County of_____

_____, being first duly sworn, deposes and says:
(Printed or Typed Name)

That he/she is
(Proprietor, General Partner, President or Vice President)

of _____; and having submitted the foregoing Bid for
(Bidder Name)

412 BLVD of the Allies HACP Office
Build Out
AMP - PA0010000099
_____
(Project Name)

600-01-21
_____;
(HACP Contract No.)

and is the party making the foregoing Bid, and that such Bid is genuine and not collusive or sham; that said Bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any Bidder or person, to put in a sham bid, or to refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or of any bidder, or to fix any overhead, profit or cost element of said bid price, or of that of any bidder, or to secure any advantage against the Housing Authority of the City of Pittsburgh or any person interested in the proposed contract; and that all statements in said Bid are true.

_____
(Signature and Date)

Subscribed and sworn to before me

this_____ day of _____, 20__

My Commission expires _____, 20__

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

FORM OF AGREEMENT

THIS AGREEMENT, made this ____ day of _____ in the year Two Thousand _____(20) by and between:

_____

_____

_____

[ ] An individual doing business in his/her own name
[ ] An individual doing business under a fictitious or assumed name
[ ] A partnership
[ ] A Corporation

(Hereinafter called the Contractor)

AND

The Housing Authority of the City of Pittsburgh (hereinafter called the Authority)
200 Ross Street
Pittsburgh, PA 15219

WITNESSETH: That the Contractor and the Authority, for the consideration stated herein, mutually agree as follows:

ARTICLE 1, STATEMENT OF WORK

The Contractor shall provide all labor, materials and equipment, and services necessary to perform and complete all work required in accordance with AE7 drawings for 412 BLVD of the Allies HACP Office Build Out AMP - PA001000099 _____ dated September 3, 2020 and Project Manual dated January 4, 2021 regarding:

CONTRACT NO. 600-01-21

and addenda thereto numbered _____, all as prepared by _____, which said specifications, drawings, and addenda are incorporated herein by reference and are a part hereof.

The work shall begin at the time stipulated in the NOTICE TO PROCEED and in no event exceeding 180 consecutive calendar days from notice to proceed.

ARTICLE 2, THE CONTRACT PRICE

The Authority shall pay the contractor for the performance of the Contract in current fund, subject to additions and deductions as provided in the specifications.

_____ ($_____)

ARTICLE 3, CONTRACT DOCUMENTS

The Contract shall consist of the following component parts:

a. This Agreement
b. Project Manual (including all component parts) dated January 4, 2021.
c. Project Drawings issued by AE7 dated September 3, 2020.

This Agreement, together with the other documents enumerated in this Article 3 which said other documents are as fully a part of the Contract as if hereto attached or herein repeated, form the Contract. In the event that any provision in any component part of this Contract conflicts with any provision of any other component part, the provision of the component part first enumerated in this ARTICLE 3, shall govern, except as subsequent parts may establish more specific criteria or language in which case these criteria and language shall govern. The various provisions in Addenda shall be construed in the order of preference of the component part of the Contract which each modified.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS

this _____ day of _____ 20_____.

IF THE PRINCIPAL IS AN INDIVIDUAL, SIGN HERE

By signing this Form of Agreement, if the Housing Authority accepts and signs Contract No. 600-01-21 this contract shall be binding on both parties.

_____ *(Printed or Typed Name)*	_____ *(Printed or Typed Name)*
Witness	*Principal*
{	{
_____ *(Signature and Date)*	_____ *(Signature and Date)*

IF THE PRINCIPAL IS A PARTNERSHIP, SIGN HERE

By signing this Form of Agreement, if the Housing Authority accepts and signs Contract No. 600-01-21 this contract shall be binding on both parties.

_____ *(Printed or Typed Name)*	_____ *(Printed or Typed Name)*
Witness {	*Partner** {
_____ *(Signature and Date)*	_____ *(Signature and Date)*
_____ *(Printed or Typed Name)*	_____ *(Printed or Typed Name)*
Witness {	*Partner** {
_____ *(Signature and Date)*	_____ *(Signature and Date)*

* If the Bidder is a partnership, the Form of Agreement must be signed in the name of the partnership by at least two general partners, whose names and addresses must be listed on the certificate on page BF-3-P of the Bid.

IF THE PRINCIPAL IS A CORPORATION, SIGN HERE

By signing this Form of Agreement, if the Housing Authority accepts and signs Contract No. 600-01-21 this contract shall be binding on both parties.

(CORPORATE SEAL)

_____
(Corporate Name)

_____ *(Printed or Typed Name)*	_____ *(Printed or Typed Name)*
Witness {	*President* *V.P.*** {
_____ *(Signature and Date)*	_____ *(Signature and Date)*
_____ *(Corporate Title)*	_____ *(Corporate Title)*

** If the bidder is a corporation, the Form of Agreement must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the **Secretary/Assistant Secretary** of the Corporation named a Bidder herein; that *(Circle one)* _____ who signed this Bid on behalf of the Corporation was then _____ of said Corporation that I know his signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and attested in behalf of said Corporation by authority of its governing body.

(CORPORATE SEAL)

_____
(Signature and Date)

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

Secretary

Attest {

_____
(Signature and Date)

Kim Detrick, Chief Contracting Officer

Principal {

_____
(Signature and Date)

Monique Pierre, Chief Development Officer

Approved as to Contents and Costs {

_____
(Signature and Date)

Assistant General Counsel

Approved as to Form {

_____
(Signature and Date)

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

CONTRACTING OFFICER CERTIFICATION

I _____certify that I am the Recording Secretary of the Housing Authority of the City of Pittsburgh; that _____, who signed this Contract on behalf of the Housing Authority, was then Contracting Officer of said Authority; that the said Contract was duly signed for and on behalf of the Housing Authority of the City of Pittsburgh.

_____ (SEAL)
Secretary

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

PERFORMANCE BOND

THIS BOND IS ISSUED SIMULTANEOUSLY WITH PAYMENT BOND IN FAVOR OF THE AUTHORITY CONDITIONED ON THE FULL AND FAITHFUL PERFORMANCE OF THE CONTRACT.

KNOW ALL MEN BY THESE PRESENTS, that we,

_____, as Principal, and
(Insert name and address of contractor exactly as it appears on Form of Agreement)

_____, as Sureties, are held and firmly bound unto the **Housing Authority of the City of Pittsburgh**, its certain attorney, successors, or assigns (the Obligee, hereinafter called the "Authority") in the penal sum of

_____Dollars ($_____)

lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally, firmly by these presents:

WHEREAS, the Principal heretofore has submitted to the said Authority a certain bid, dated

_____, 20_____ (the "Bid"), for construction of
(Insert date of bid)

_____
(Insert name of project exactly as it appears on Form of Agreement)
pursuant to specifications, drawings and other related documents constituting the Invitation for Bids (the "IFB"); and

WHEREAS, the said Authority is a "Contracting body" under provisions of Act No. 385 of the General Assembly of the Commonwealth of Pennsylvania, approved by the Governor on December 20, 1967, known and cited as the "Public Works Contractors' Bond Law of 1967" (8 P.S. 191-202) (the "Act"); and

WHEREAS, the Act, in Section 3 (a), requires that, before an award shall be made to the Principal shall furnish this Bond to the said Authority, with this Bond to become binding upon the award of a Contract to the Principal by the said Authority in accordance with the Bid; and

WHEREAS, it also is a condition of the IFB that this Bond shall be furnished by the Principal to the said Authority; and

WHEREAS, Under the Invitation for Bids, it is provided, inter alia, that if the Principal shall furnish this Bond to the said Authority, and if the said Authority shall make an award to the Principal in accordance with the Bid, then the Principal and the said Authority shall enter into a contract with respect to performance of such work (the "Contract"), the Form of Agreement for which is set forth in the IFB.

NOW, therefore, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the principal shall faithfully perform the Contract on his part as of the time and in the manner therein provided and satisfy all claims and demands incurred in or for the same, or growing out of the same, or for injury or damages to persons or property in the performance thereof, and shall fully indemnify and save harmless the said Authority from any and all cost and damage which the said Authority may suffer by reason of the principal's failure to do so, and shall fully reimburse and repay the said Authority any and all outlay and expense which it incurs by reason of any such default, then this obligation shall be null and void, otherwise it shall remain in full force and virtue.

It is further understood and agreed that the principal shall guarantee for a period of one (1) year from completion date of the contract against defects in workmanship or materials in accordance with the terms of the Contract.

The said surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the Specifications accompanying the same shall in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS
(2 required by Authority)

this _____ day of _____ 20_____.

IF THE PRINCIPAL IS AN INDIVIDUAL, SIGN HERE

_____ *(Printed or Typed Name)*	_____ *(Printed or Typed Name)*
Witness	*Principal*
{	{
_____ *(Signature and Date)*	_____ *(Signature and Date)*

IF THE PRINCIPAL IS A PARTNERSHIP, SIGN HERE

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Partner**	
	{		{
	_____ *(Signature and Date)*		_____ *(Signature and Date)*
	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Witness		*Partner**	
	{		{
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

* If the Bidder is a partnership, the Bond must be signed in the name of the partnership by at least two general partners, whose names and addresses must be listed on the certificate on page BF-3-P of the Bid.

IF THE PRINCIPAL IS A CORPORATION, SIGN HERE

(CORPORATE SEAL)

_____
(Corporate Name)

_____		_____	
(Printed or Typed Name)		*(Printed or Typed Name)*	
Witness		*President V.P.***	
{		{	
_____		_____	
(Signature and Date)		*(Signature and Date)*	
_____		_____	
(Corporate Title)		*(Corporate Title)*	

** If the bidder is a corporation, the Bond must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal below must be executed by the Secretary or Assistant Secretary.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the
Secretary/Assistant Secretary of the Corporation named a Bidder herein; that
(Circle one)
_____ who signed this Bid on behalf of the

Corporation was then _____ of said Corporation that I know his signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and attested in behalf of said Corporation by authority of its governing body.

(CORPORATE SEAL)

_____
(Signature and Date)

SURETY SIGN HERE

(SURETY SEAL)

_____
(Printed or Typed Name)

_____
(Printed or Typed Name)

Attest
{
_____
(Signature and Date)

Surety ***
{
_____
(Signature and Date)

***Power of attorney must be attached to this Bid Bond.

The rate of premium charged is $_____ per thousand.
(To be filled in by Surety)

The total amount of premium charged is $_____
(To be filled in by Surety)

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

PAYMENT BOND
(Labor and Materialmen's Bond)

THIS BOND IS ISSUED SIMULTANEOUSLY WITH PERFORMANCE BOND IN FAVOR OF THE AUTHORITY CONDITIONED ON THE FULL AND FAITHFUL PERFORMANCE OF THE CONTRACT.

KNOW ALL MEN BY THESE PRESENTS, that we,

_____, as Principal, and
(Insert name and address of Contractor exactly as it appears on Form of Agreement)

_____, as Sureties, are held and firmly bound unto the **Housing Authority of the City of Pittsburgh**, its certain attorney, successors, or assigns (the Obligee, hereinafter called the "Authority") in the penal sum of

_____Dollars ($_____)

lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally, firmly by these presents:

WHEREAS, the Principal heretofore has submitted to the said Obligee a certain bid, dated

_____, 20_____ (the "Bid"), for construction of
(Insert date of bid)

_____
(Insert name of project exactly as it appears on Form of Agreement)
pursuant to specifications, drawings and other related documents constituting the Invitation for Bids (the "IFB"); and

WHEREAS, the said Authority is a "Contracting body" under provisions of Act No. 385 of the General Assembly of the Commonwealth of Pennsylvania, approved by the Governor on December 20, 1967, known and cited as the "Public Works Contractors' Bond Law of 1967" (8 P.S. 191-202) (the "Act"); and

WHEREAS, the Act, in Section 3 (a), requires that, before an award shall be made to the Principal shall furnish this Bond to the said Authority, with this Bond to become binding upon the award of a Contract to the Principal by the said Authority in accordance with the Bid; and

WHEREAS, it also is a condition of the IFB that this Bond shall be furnished by the Principal to the said Authority; and

WHEREAS, Under the Invitation for Bids, it is provided, inter alia, that if the Principal shall furnish this Bond to the said Authority, and if the said Authority shall make an award to the Principal in accordance with the Bid, then the Principal and the said Authority shall enter into a contract with respect to performance of such work (the "Contract"), the Form of Agreement for which is set forth in the IFB.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if said principal and all subcontractors to whom any portion of the work provided for in said contract is sublet and all assignees of said principal and of such subcontractors shall promptly make payment for all material furnished, labor supplied or performed, rental for equipment employed, and services rendered by public utilities in or in connection with the prosecution of the work, whether or not the said material, labor, equipment or services enter into and become component parts of the work or improvement contemplated in said contract, or in any amendment or extension of or addition to said Contract, then the above obligation shall be void; otherwise to remain in full force and effect. PROVIDED, however, that this bond is subject to the following conditions and limitations.

(a) All persons who have performed labor, rendered services or furnished materials or machinery, shall have direct right of action against the principal and surety on this bond, which right of action shall be asserted in proceedings instituted in the State in which such labor was performed, services rendered or materials furnished (or where labor has been performed, services rendered or materials furnished under said Contract is more than one State, then in any such State). Insofar as permitted by the laws of such State, such right of action shall be asserted in a proceeding instituting such action and any or all other persons having claims hereunder, and any other person having a claim hereunder shall have the right to be made a party to such proceeding (but not later than one year after the complete performance of said Contract and final settlement thereof) and to have such claim adjudicated in such action and judgment rendered thereon.

(b) The surety shall not be liable hereunder for any damages or compensation recoverable under any workmen's compensation or employer's liability statute.

(c) In no event shall the surety be liable for a greater sum than the penalty of this bond, or subject to any suit, action or proceeding thereon that is instituted later than one year after the complete performance of said contract and final settlement thereof.

(d) As used herein: The term "person" refers to any individual, firm or corporation who have furnished materials or machinery or public utility services to be used on or incorporated in the work or the prosecution thereof provided for in said Contract or in any amendment or extension of or addition to said Contract, and/or to any person engaged in the prosecution of the work provided for in said Contract or in any amendment or extension of or addition to said Contract, who is an agent, servant or employee of the principal, or of any subcontractor, or of any assignee of said principal or of any subcontractor and also anyone so engaged who performs the work of a laborer or of a mechanic regardless of any contractual relationship between the principal, or any sub-contractor, or any assignee of said principal or of said subcontractor, and such laborer or mechanic, but shall not include office employees not regularly stationed at the site of the work.

The said surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder or the Specifications accompanying the same, shall in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS
(2 required by Authority)

this _____ day of _____ 20_____.

IF THE PRINCIPAL IS AN INDIVIDUAL, SIGN HERE

_____	_____
(Printed or Typed Name)	*(Printed or Typed Name)*
Witness	*Principal*
{	{
_____	_____
(Signature and Date)	*(Signature and Date)*

IF THE PRINCIPAL IS A PARTNERSHIP, SIGN HERE

_____	_____
(Printed or Typed Name)	*(Printed or Typed Name)*
Witness	*Partner**
{	{
_____	_____
(Signature and Date)	*(Signature and Date)*
_____	_____
(Printed or Typed Name)	*(Printed or Typed Name)*
Witness	*Partner**
{	{
_____	_____
(Signature and Date)	*(Signature and Date)*

* If the Bidder is a partnership, the Bond must be signed in the name of the partnership by at least two general partners, whose names and addresses must be listed on the certificate on page BF-3-P of the Bid.

IF THE PRINCIPAL IS A CORPORATION, SIGN HERE

(CORPORATE SEAL)

_____
(Corporate Name)

_____		_____	
(Printed or Typed Name)		*(Printed or Typed Name)*	
Witness		*President*	
{		*V.P.***	{
_____		_____	
(Signature and Date)		*(Signature and Date)*	
_____		_____	
(Corporate Title)		*(Corporate Title)*	

** If the bidder is a corporation, the Bond must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the **Secretary/Assistant Secretary** of the Corporation named a Bidder herein; that

(Circle one)

_____ who signed this Bid on behalf of the

Corporation was then _____ of said Corporation that I know his signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and attested in behalf of said Corporation by authority of its governing body.

(CORPORATE SEAL)

_____
(Signature and Date)

SURETY SIGN HERE

(SURETY SEAL)

	_____ *(Printed or Typed Name)*		_____ *(Printed or Typed Name)*
Attest	{	*Surety*	{
	_____ *(Signature and Date)*		_____ *(Signature and Date)*

The rate of premium charged is $_____ per thousand.
(To be filled in by Surety)

The total amount of premium charged is $_____
(To be filled in by Surety)

General Conditions for Construction Contracts - Public Housing Programs

U.S. Department of Housing and Urban Development
Office of Public and Indian Housing
OMB Approval No. 2577-0157 (exp. 3/31/2020)

Applicability. This form is applicable to any construction/development contract greater than $150,000.

This form includes those clauses required by OMB's common rule on grantee procurement, implemented at HUD in 2 CFR 200, and those requirements set forth in Section 3 of the Housing and Urban Development Act of 1968 and its amendment by the Housing and Community Development Act of 1992, implemented by HUD at 24 CFR Part 135. The form is required for construction contracts awarded by Public Housing Agencies (PHAs).
The form is used by Housing Authorities in solicitations to provide necessary contract clauses. If the form were not used, HAs would be unable to enforce their contracts.
Public reporting burden for this collection of information is estimated to average 1.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Responses to the collection of information are required to obtain a benefit or to retain a benefit.
The information requested does not lend itself to confidentiality.
HUD may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB number.

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1. Definitions

(a) "Architect" means the person or other entity engaged by the PHA to perform architectural, engineering, design, and other services related to the work as provided for in the contract. When a PHA uses an engineer to act in this capacity, the terms "architect" and "engineer" shall be synonymous. The Architect shall serve as a technical representative of the Contracting Officer. The Architect's authority is as set forth elsewhere in this contract.

(b) "Contract" means the contract entered into between the PHA and the Contractor. It includes the forms of Bid, the Bid Bond, the Performance and Payment Bond or Bonds or other assurance of completion, the Certifications, Representations, and Other Statements of Bidders (form HUD-5370), these General Conditions of the Contract for Construction (form HUD-5370), the applicable wage rate determinations from the U.S. Department of Labor, any special conditions included elsewhere in the contract, the specifications, and drawings. It includes all formal changes to any of those documents by addendum, change order, or other modification.

(c) "Contracting Officer" means the person delegated the authority by the PHA to enter into, administer, and/or terminate this contract and designated as such in writing to the Contractor. The term includes any successor Contracting Officer and any duly authorized representative of the Contracting Officer also designated in writing. The Contracting Officer shall be deemed the authorized agent of the PHA in all dealings with the Contractor.

(d) "Contractor" means the person or other entity entering into the contract with the PHA to perform all of the work required under the contract.

(e) "Drawings" means the drawings enumerated in the schedule of drawings contained in the Specifications and as described in the contract clause entitled Specifications and Drawings for Construction herein.

(f) "HUD" means the United States of America acting through the Department of Housing and Urban Development including the Secretary, or any other person designated to act on its behalf. HUD has agreed, subject to the provisions of an Annual Contributions Contract (ACC), to provide financial assistance to the PHA, which includes assistance in financing the work to be performed under this contract. As defined elsewhere in these General Conditions or the contract documents, the determination of HUD may be required to authorize changes in the work or for release of funds to the PHA for payment to the Contractor. Notwithstanding HUD's role, nothing in this contract shall be construed to create any contractual relationship between the Contractor and HUD.

(g) "Project" means the entire project, whether construction or rehabilitation, the work for which is provided for in whole or in part under this contract.

(h) "PHA" means the Public Housing Agency organized under applicable state laws which is a party to this contract.

(j) "Specifications" means the written description of the technical requirements for construction and includes the criteria and tests for determining whether the requirements are met.

(l) "Work" means materials, workmanship, and manufacture and fabrication of components.

2. Contractor's Responsibility for Work

(a) The Contractor shall furnish all necessary labor, materials, tools, equipment, and transportation necessary for performance of the work. The Contractor shall also furnish all necessary water, heat, light, and power not made available to the Contractor by the PHA pursuant to the clause entitled Availability and Use of Utility Services herein.

(b) The Contractor shall perform on the site, and with its own organization, work equivalent to at least [✓] (12 percent unless otherwise indicated) of the total amount of work to be performed under the order. This percentage may be reduced by a supplemental agreement to this order if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the PHA.

(c) At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work site a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.

(d) The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor shall hold and save the PHA, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

(e) The Contractor shall lay out the work from base lines and bench marks indicated on the drawings and be responsible for all lines, levels, and measurements of all work executed under the contract. The Contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from its failure to do so.

(f) The Contractor shall confine all operations (including storage of materials) on PHA premises to areas authorized or approved by the Contracting Officer.

(g) The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. After completing the work and before final inspection, the Contractor shall (1) remove from the premises all scaffolding, equipment, tools, and materials (including rejected materials) that are not the property of the PHA and all rubbish caused by its work; (2) leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer; (3) perform all specified tests; and, (4) deliver the installation in complete and operating condition.

(h) The Contractor's responsibility will terminate when all work has been completed, the final inspection made, and the work accepted by the Contracting Officer. The Contractor will then be released from further obligation except as required by the warranties specified elsewhere in the contract.

3. Architect's Duties, Responsibilities, and Authority

(a) The Architect for this contract, and any successor, shall be designated in writing by the Contracting Officer.

(b) The Architect shall serve as the Contracting Officer's technical representative with respect to architectural, engineering, and design matters related to the work performed under the contract. The Architect may provide direction on contract performance. Such direction shall be within the scope of the contract and may not be of a nature which: (1) institutes additional work outside the scope of the contract; (2) constitutes a change as defined in the Changes clause herein; (3) causes an increase or decrease in the cost of the contract; (4) alters the Construction Progress Schedule; or (5) changes any of the other express terms or conditions of the contract.

(c) The Architect's duties and responsibilities may include but shall not be limited to:

(1) Making periodic visits to the work site, and on the basis of his/her on-site inspections, issuing written reports to the PHA which shall include all observed deficiencies. The Architect shall file a copy of the report with the Contractor's designated representative at the site;

(2) Making modifications in drawings and technical specifications and assisting the Contracting Officer in the preparation of change orders and other contract modifications for issuance by the Contracting Officer;

(3) Reviewing and making recommendations with respect to - (i) the Contractor's construction progress schedules; (ii) the Contractor's shop and detailed drawings; (iii) the machinery, mechanical and other equipment and materials or other articles proposed for use by the Contractor; and, (iv) the Contractor's price breakdown and progress payment estimates; and,

(4) Assisting in inspections, signing Certificates of Completion, and making recommendations with respect to acceptance of work completed under the contract.

4. Other Contracts

The PHA may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with PHA employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by PHA employees

Construction Requirements

5. Pre-construction Conference and Notice to Proceed

(a) Within ten calendar days of contract execution, and prior to the commencement of work, the Contractor shall attend a preconstruction conference with representatives of the PHA, its Architect, and other interested parties convened by the PHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The PHA will provide the Contractor with the date, time, and place of the conference.

(b) The contractor shall begin work upon receipt of a written Notice to Proceed from the Contracting Officer or designee. The Contractor shall not begin work prior to receiving such notice.

6. Construction Progress Schedule

(a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring labor, materials, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments or take other remedies under the contract until the Contractor submits the required schedule.

(b) The Contractor shall enter the actual progress on the chart as required by the Contracting Officer, and immediately deliver three copies of the annotated schedule to the Contracting Officer. If the Contracting Officer determines, upon the basis of inspection conducted pursuant to the clause entitled Inspection and Acceptance of Construction, herein that the Contractor is not meeting the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the PHA. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

(c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the Contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the Default clause of this contract.

7. Site Investigation and Conditions Affecting the Work

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to, (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads;(3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is

reasonably ascertainable from an inspection of the site, including all exploratory work done by the PHA, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the PHA.

(b) The PHA assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the PHA. Nor does the PHA assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

8. Differing Site Conditions

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site(s), of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. Work shall not proceed at the affected site, except at the Contractor's risk, until the Contracting Officer has provided written instructions to the Contractor. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, the Contractor shall file a claim in writing to the PHA within ten days after receipt of such instructions and, in any event, before proceeding with the work. An equitable adjustment in the contract price, the delivery schedule, or both shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

9. Specifications and Drawings for Construction

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by", or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.

(c) Where "as shown" "as indicated", "as detailed", or of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place" that is "furnished and installed".

(d) "Shop drawings" means drawings, submitted to the PHA by the Contractor, subcontractor, or any lower tier subcontractor, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials of equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The PHA may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with other contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the PHA's reasons therefore. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Architect approves any such variation and the Contracting Officer concurs, the Contracting Officer shall issue an appropriate modification to the contract, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) It shall be the responsibility of the Contractor to make timely requests of the PHA for such large scale and full size drawings, color schemes, and other additional information, not already in his possession, which shall be

required in the planning and production of the work. Such requests may be submitted as the need arises, but each such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay.

(h) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the PHA and one set will be returned to the Contractor. As required by the Contracting Officer, the Contractor, upon completing the work under this contract, shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the work is completed and accepted.

(i) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all shop drawings prepared by subcontractors are submitted to the Contracting Officer.

10. As-Built Drawings

(a) "As-built drawings," as used in this clause, means drawings submitted by the Contractor or subcontractor at any tier to show the construction of a particular structure or work as actually completed under the contract. "As-built drawings" shall be synonymous with "Record drawings."

(b) As required by the Contracting Officer, the Contractor shall provide the Contracting Officer accurate information to be used in the preparation of permanent as-built drawings. For this purpose, the Contractor shall record on one set of contract drawings all changes from the installations originally indicated, and record final locations of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walks.

(c) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all as-built drawings prepared by subcontractors are submitted to the Contracting Officer.

11. Material and Workmanship

(a) All equipment, material, and articles furnished under this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the contract to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of, and as approved by the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

(b) Approval of equipment and materials.

(1) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

(2) When required by the specifications or the Contracting Officer, the Contractor shall submit appropriately marked samples (and certificates related to them) for approval at the Contractor's expense, with all shipping charges prepaid. The Contractor shall label, or otherwise properly mark on the container, the material or product represented, its place of origin, the name of the producer, the Contractor's name, and the identification of the construction project for which the material or product is intended to be used.

(3) Certificates shall be submitted in triplicate, describing each sample submitted for approval and certifying that the material, equipment or accessory complies with contract requirements. The certificates shall include the name and brand of the product, name of manufacturer, and the location where produced.

(4) Approval of a sample shall not constitute a waiver of the PHA right to demand full compliance with contract requirements. Materials, equipment and accessories may be rejected for cause even though samples have been approved.

(5) Wherever materials are required to comply with recognized standards or specifications, such specifications shall be accepted as establishing the technical qualities and testing methods, but shall not govern the number of tests required to be made nor modify other contract requirements. The Contracting Officer may require laboratory test reports on items submitted for approval or may approve materials on the basis of data submitted in certificates with samples. Check tests will be made on materials delivered for use only as frequently as the Contracting Officer determines necessary to insure compliance of materials with the specifications. The Contractor will assume all costs of retesting materials which fail to meet contract requirements and/or testing materials offered in substitution for those found deficient.

(6) After approval, samples will be kept in the Project office until completion of work. They may be built into the work after a substantial quantity of the materials they represent has been built in and accepted.

(c) Requirements concerning lead-based paint. The Contractor shall comply with the requirements concerning lead-based paint contained in the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846) as implemented by 24 CFR Part 35.

12. Permits and Codes

(a) The Contractor shall give all notices and comply with all applicable laws, ordinances, codes, rules and regulations. Notwithstanding the requirement of the Contractor to comply with the drawings and specifications in the contract, all work installed shall comply with all applicable codes and regulations as amended by any

waivers. Before installing the work, the Contractor shall examine the drawings and the specifications for compliance with applicable codes and regulations bearing on the work and shall immediately report any discrepancy it may discover to the Contracting Officer. Where the requirements of the drawings and specifications fail to comply with the applicable code or regulation, the Contracting Officer shall modify the contract by change order pursuant to the clause entitled Changes herein to conform to the code or regulation.

(b) The Contractor shall secure and pay for all permits, fees, and licenses necessary for the proper execution and completion of the work. Where the PHA can arrange for the issuance of all or part of these permits, fees and licenses, without cost to the Contractor, the contract amount shall be reduced accordingly.

13. Health, Safety, and Accident Prevention

(a) In performing this contract, the Contractor shall:
(1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health and/or safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation;
(2) Protect the lives, health, and safety of other persons;
(3) Prevent damage to property, materials, supplies, and equipment; and,
(4) Avoid work interruptions.

(b) For these purposes, the Contractor shall:
(1) Comply with regulations and standards issued by the Secretary of Labor at 29 CFR Part 1926. Failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96), 40 U.S.C. 3701 et seq.; and
(2) Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.

(c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 CFR Part 1904.

(d) The Contracting Officer shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.

(e) The Contractor shall be responsible for its subcontractors' compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as the PHA, the Secretary of Housing and Urban Development, or the Secretary of Labor shall direct as a means of enforcing such provisions.

14. Temporary Heating

The Contractor shall provide and pay for temporary heating, covering, and enclosures necessary to properly protect all work and materials against damage by dampness and cold, to dry out the work, and to facilitate the completion of the work. Any permanent heating equipment used shall be turned over to the PHA in the condition and at the time required by the specifications.

15. Availability and Use of Utility Services

(a) The PHA shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the PHA or, where the utility is produced by the PHA, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

(b) The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the PHA, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

16. Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements

(a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed under this contract, and which do not unreasonably interfere with the work required under this contract.

(b) The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during performance of this contract, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.

(c) The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. Prior to disturbing the ground at the construction site, the Contractor shall ensure that all underground utility lines are clearly marked.

(d) The Contractor shall shore up, brace, underpin, secure, and protect as necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be affected by the excavations or other operations connected with the construction of the project.

(e) Any equipment temporarily removed as a result of work under this contract shall be protected, cleaned, and replaced in the same condition as at the time of award of this contract.

(f) New work which connects to existing work shall correspond in all respects with that to which it connects and/or be similar to existing work unless otherwise required by the specifications.
(g) No structural members shall be altered or in any way weakened without the written authorization of the Contracting Officer, unless such work is clearly specified in the plans or specifications.
(h) If the removal of the existing work exposes discolored or unfinished surfaces, or work out of alignment, such surfaces shall be refinished, or the material replaced as necessary to make the continuous work uniform and harmonious. This, however, shall not be construed to require the refinishing or reconstruction of dissimilar finishes previously exposed, or finished surfaces in good condition, but in different planes or on different levels when brought together by the removal of intervening work, unless such refinishing or reconstruction is specified in the plans or specifications.
(i) The Contractor shall give all required notices to any adjoining or adjacent property owner or other party before the commencement of any work.
(j) The Contractor shall indemnify and save harmless the PHA from any damages on account of settlement or the loss of lateral support of adjoining property, any damages from changes in topography affecting drainage, and from all loss or expense and all damages for which the PHA may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.
(k) The Contractor shall repair any damage to vegetation, structures, equipment, utilities, or improvements, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

17. Temporary Buildings and Transportation of Materials

(a) Temporary buildings (e.g., storage sheds, shops, offices, sanitary facilities) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the PHA. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.
(b) The Contractor shall, as directed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any federal, state, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

18. Clean Air and Water

The contactor shall comply with the Clean Air Act, as amended, 42 USC 7401 et seq., the Federal Water Pollution Control Water Act, as amended, 33 U.S.C. 1251 et seq., and standards issued pursuant thereto in the facilities in which this contract is to be performed.

19. Energy Efficiency

The Contractor shall comply with mandatory standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub.L. 94-163) for the State in which the work under the contract is performed.

20. Inspection and Acceptance of Construction

(a) Definitions. As used in this clause -
(1) “Acceptance” means the act of an authorized representative of the PHA by which the PHA approves and assumes ownership of the work performed under this contract. Acceptance may be partial or complete.
(2) “Inspection” means examining and testing the work performed under the contract (including, when appropriate, raw materials, equipment, components, and intermediate assemblies) to determine whether it conforms to contract requirements.
(3) “Testing” means that element of inspection that determines the properties or elements, including functional operation of materials, equipment, or their components, by the application of established scientific principles and procedures.
(b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. All work is subject to PHA inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.
(c) PHA inspections and tests are for the sole benefit of the PHA and do not: (1) relieve the Contractor of responsibility for providing adequate quality control measures; (2) relieve the Contractor of responsibility for loss or damage of the material before acceptance; (3) constitute or imply acceptance; or, (4) affect the continuing rights of the PHA after acceptance of the completed work under paragraph (j) below.
(d) The presence or absence of the PHA inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specifications without the Contracting Officer’s written authorization. All instructions and approvals with respect to the work shall be given to the Contractor by the Contracting Officer.
(e) The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The PHA may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The PHA shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

(f) The PHA may conduct routine inspections of the construction site on a daily basis.

(g) The Contractor shall, without charge, replace or correct work found by the PHA not to conform to contract requirements, unless the PHA decides that it is in its interest to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

(h) If the Contractor does not promptly replace or correct rejected work, the PHA may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor, or (2) terminate for default the Contractor's right to proceed.

(i) If any work requiring inspection is covered up without approval of the PHA, it must, if requested by the Contracting Officer, be uncovered at the expense of the Contractor. If at any time before final acceptance of the entire work, the PHA considers it necessary or advisable, to examine work already completed by removing or tearing it out, the Contractor, shall on request, promptly furnish all necessary facilities, labor, and material. If such work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray all the expenses of the examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the Contracting Officer shall make an equitable adjustment to cover the cost of the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(j) The Contractor shall notify the Contracting Officer, in writing, as to the date when in its opinion all or a designated portion of the work will be substantially completed and ready for inspection. If the Architect determines that the state of preparedness is as represented, the PHA will promptly arrange for the inspection. Unless otherwise specified in the contract, the PHA shall accept, as soon as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines and designates can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the PHA's right under any warranty or guarantee.

21. Use and Possession Prior to Completion

(a) The PHA shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the PHA intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The PHA's possession or use shall not be deemed an acceptance of any work under the contract.

(b) While the PHA has such possession or use, the Contractor shall be relieved of the responsibility for (1) the loss of or damage to the work resulting from the PHA's possession or use, notwithstanding the terms of the clause entitled Permits and Codes herein; (2) all maintenance costs on the areas occupied; and, (3) furnishing heat, light, power, and water used in the areas occupied without proper remuneration therefore. If prior possession or use by the PHA delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

22. Warranty of Title

The Contractor warrants good title to all materials, supplies, and equipment incorporated in the work and agrees to deliver the premises together with all improvements thereon free from any claims, liens or charges, and agrees further that neither it nor any other person, firm or corporation shall have any right to a lien upon the premises or anything appurtenant thereto.

23. Warranty of Construction

(a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (j) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of _____ (one year unless otherwise indicated) from the date of final acceptance of the work. If the PHA takes possession of any part of the work before final acceptance, this warranty shall continue for a period of (one year unless otherwise indicated) from the date that the PHA takes possession.

(b) The Contractor shall remedy, at the Contractor's expense, any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor's expense, any damage to PHA-owned or controlled real or personal property when the damage is the result of—
(1) The Contractor's failure to conform to contract requirements; or
(2) Any defects of equipment, material, workmanship or design furnished by the Contractor.

(c) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for (one year unless otherwise indicated) from the date of repair or replacement.

(d) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect or damage.

(e) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the PHA shall have the right to replace, repair or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(f) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall:
(1) Obtain all warranties that would be given in normal commercial practice;
(2) Require all warranties to be executed in writing, for the benefit of the PHA; and,
(3) Enforce all warranties for the benefit of the PHA.

(g) In the event the Contractor's warranty under paragraph (a) of this clause has expired, the PHA may bring suit at its own expense to enforce a subcontractor's, manufacturer's or supplier's warranty.

(h) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defect of material or design furnished by the PHA nor for the repair of any damage that results from any defect in PHA furnished material or design.

(i) Notwithstanding any provisions herein to the contrary, the establishment of the time periods in paragraphs (a) and (c) above relate only to the specific obligation of the Contractor to correct the work, and have no relationship to the time within which its obligation to comply with the contract may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to its obligation other than specifically to correct the work.

(j) This warranty shall not limit the PHA's rights under the Inspection and Acceptance of Construction clause of this contract with respect to latent defects, gross mistakes or fraud.

24. Prohibition Against Liens

The Contractor is prohibited from placing a lien on the PHA's property. This prohibition shall apply to all subcontractors at any tier and all materials suppliers.

Administrative Requirements

25. Contract Period

this contract within 180 calendar days of the effective date of the contract, or within the time schedule established in the notice to proceed issued by the Contracting Officer.

26. Order of Provisions

In the event of a conflict between these General Conditions and the Specifications, the General Conditions shall prevail. In the event of a conflict between the contract and any applicable state or local law or regulation, the state or local law or regulation shall prevail; provided that such state or local law or regulation does not conflict with, or is less restrictive than applicable federal law, regulation, or Executive Order. In the event of such a conflict, applicable federal law, regulation, and Executive Order shall prevail.

27. Payments

(a) The PHA shall pay the Contractor the price as provided in this contract.

(b) The PHA shall make progress payments approximately every 30 days as the work proceeds, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer. The PHA may, subject to written determination and approval of the Contracting Officer, make more frequent payments to contractors which are qualified small businesses.

(c) Before the first progress payment under this contract, the Contractor shall furnish, in such detail as requested by the Contracting Officer, a breakdown of the total contract price showing the amount included therein for each principal category of the work, which shall substantiate the payment amount requested in order to provide a basis for determining progress payments. The breakdown shall be approved by the Contracting Officer and must be acceptable to HUD. If the contract covers more than one project, the Contractor shall furnish a separate breakdown for each. The values and quantities employed in making up this breakdown are for determining the amount of progress payments and shall not be construed as a basis for additions to or deductions from the contract price. The Contractor shall prorate its overhead and profit over the construction period of the contract.

(d) The Contractor shall submit, on forms provided by the PHA, periodic estimates showing the value of the work performed during each period based upon the approved

submitted not later than 45 days in advance of the date set for payment and are subject to correction and revision as required. The estimates must be approved by the Contracting Officer with the concurrence of the Architect prior to payment. If the contract covers more than one project, the Contractor shall furnish a separate progress payment estimate for each.

(e) Along with each request for progress payments and the required estimates, the Contractor shall furnish the following certification, or payment shall not be made: I hereby certify, to the best of my knowledge and belief, that:

(1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

(2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements; and,

(3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

_____

Name:

_____

Title:

_____

Date:

(f) Except as otherwise provided in State law, the PHA shall retain ten (10) percent of the amount of progress payments until completion and acceptance of all work under the contract; except, that if upon completion of 50 percent of the work, the Contracting Officer, after consulting with the Architect, determines that the Contractor's performance and progress are satisfactory, the PHA may make the remaining payments in full for the work subsequently completed. If the Contracting Officer subsequently determines that the Contractor's performance and progress are unsatisfactory, the PHA shall reinstate the ten (10) percent (or other percentage as provided in State law) retainage until such time as the Contracting Officer determines that performance and progress are satisfactory.

(g) The Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration when computing progress payments.

Material delivered to the Contractor at locations other than the site may also be taken into consideration if the Contractor furnishes satisfactory evidence that (1) it has acquired title to such material; (2) the material is properly stored in a bonded warehouse, storage yard, or similar suitable place as may be approved by the Contracting Officer; (3) the material is insured to cover its full value; and (4) the material will be used to perform this contract. Before any progress payment which includes delivered material is made, the Contractor shall furnish such documentation as the Contracting Officer may require to assure the protection of the PHA's interest in such materials. The Contractor shall remain responsible for such stored material notwithstanding the transfer of title to the PHA.

(h) All material and work covered by progress payments made shall, at the time of payment become the sole property of the PHA, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or, (2) waiving the right of the PHA to require the fulfillment of all of the terms of the contract. In the event the work of the Contractor has been damaged by other contractors or persons other than employees of the PHA in the course of their employment, the Contractor shall restore such damaged work without cost to the PHA and to seek redress for its damage only from those who directly caused it.

(i) The PHA shall make the final payment due the Contractor under this contract after (1) completion and final acceptance of all work; and (2) presentation of release of all claims against the PHA arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. Each such exception shall embrace no more than one claim, the basis and scope of which shall be clearly defined. The amounts for such excepted claims shall not be included in the request for final payment. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned.

(j) Prior to making any payment, the Contracting Officer may require the Contractor to furnish receipts or other evidence of payment from all persons performing work and supplying material to the Contractor, if the Contracting Officer determines such evidence is necessary to substantiate claimed costs.

(k) The PHA shall not; (1) determine or adjust any claims for payment or disputes arising there under between the Contractor and its subcontractors or material suppliers; or, (2) withhold any moneys for the protection of the subcontractors or material suppliers. The failure or refusal of the PHA to withhold moneys from the Contractor shall in nowise impair the obligations of any surety or sureties under any bonds furnished under this contract.

28. Contract Modifications

(a) Only the Contracting Officer has authority to modify any term or condition of this contract. Any contract modification shall be authorized in writing.

(b) The Contracting Officer may modify the contract unilaterally (1) pursuant to a specific authorization stated in a contract clause (e.g., Changes); or (2) for administrative matters which do not change the rights or responsibilities of the parties (e.g., change in the PHA address). All other contract modifications shall be in the form of supplemental agreements signed by the Contractor and the Contracting Officer.

(c) When a proposed modification requires the approval of HUD prior to its issuance (e.g., a change order that exceeds the PHA's approved threshold), such modification shall not be effective until the required approval is received by the PHA.

29. Changes

(a) The Contracting Officer may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract including changes:
(1) In the specifications (including drawings and designs);
(2) In the method or manner of performance of the work;
(3) PHA-furnished facilities, equipment, materials, services, or site; or,
(4) Directing the acceleration in the performance of the work.

(b) Any other written order or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances and source of the order and (2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for a adjustment based on defective specifications, no proposal for any change under paragraph (b) above shall be allowed for any costs incurred more than 20 days (5 days for oral orders) before the Contractor gives written notice as required. In the case of defective specifications for which the PHA is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (a) of this clause, or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting a written statement describing the general nature and the amount of the proposal. If the facts justify it, the Contracting Officer may extend the period for submission. The proposal may be included in the notice required under paragraph (b) above. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

(f) The Contractor's written proposal for equitable adjustment shall be submitted in the form of a lump sum proposal supported with an itemized breakdown of all increases and decreases in the contract in at least the following details:

(1) Direct Costs. Materials (list individual items, the quantity and unit cost of each, and the aggregate cost); Transportation and delivery costs associated with materials; Labor breakdowns by hours or unit costs (identified with specific work to be performed); Construction equipment exclusively necessary for the change; Costs of preparation and/ or revision to shop drawings resulting from the change; Worker's Compensation and Public Liability Insurance; Employment taxes under FICA and FUTA; and, Bond Costs when size of change warrants revision.

(2) Indirect Costs. Indirect costs may include overhead, general and administrative expenses, and fringe benefits not normally treated as direct costs.

(3) Profit. The amount of profit shall be negotiated and may vary according to the nature, extent, and complexity of the work required by the change. The allowability of the direct and indirect costs shall be determined in accordance with the Contract Cost Principles and Procedures for Commercial Firms in Part 31 of the Federal Acquisition Regulation (48 CFR 1-31), as implemented by HUD Handbook 2210.18, in effect on the date of this contract. The Contractor shall not be allowed a profit on the profit received by any subcontractor. Equitable adjustments for deleted work shall include a credit for profit and may include a credit for indirect costs. On proposals covering both increases and decreases in the amount of the contract, the application of indirect costs and profit shall be on the net-change in direct costs for the Contractor or subcontractor performing the work.

(g) The Contractor shall include in the proposal its request for time extension (if any), and shall include sufficient information and dates to demonstrate whether and to what extent the change will delay the completion of the contract in its entirety.

(h) The Contracting Officer shall act on proposals within 30 days after their receipt, or notify the Contractor of the date when such action will be taken.

(i) Failure to reach an agreement on any proposal shall be a dispute under the clause entitled Disputes herein. Nothing in this clause, however, shall excuse the Contractor from proceeding with the contract as changed.

(j) Except in an emergency endangering life or property, no change shall be made by the Contractor without a prior order from the Contracting Officer.

30. Suspension of Work

(a) The Contracting Officer may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the PHA.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified (or within a reasonable time if not specified) in this contract an adjustment shall be made for any increase in the cost of performance of the contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor or for which any equitable adjustment is provided for or excluded under any other provision of this contract.

(c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order); and, (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

31. Disputes

(a) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to the contract. A claim arising under the contract, unlike a claim relating to the contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim. The submission may be converted to a claim by complying with the requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

(b) Except for disputes arising under the clauses entitled Labor Standards - Davis Bacon and Related Acts, herein, all disputes arising under or relating to this contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved under this clause.

(c) All claims by the Contractor shall be made in writing and submitted to the Contracting Officer for a written decision. A claim by the PHA against the Contractor shall be subject to a written decision by the Contracting Officer.

(d) The Contracting Officer shall, within 60 (unless otherwise indicated) days after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.

(e) The Contracting Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in the PHA in accordance with the PHA's policy and procedures, (2) refers the appeal to an independent mediator or arbitrator, or (3) files suit in a court of competent jurisdiction. Such appeal must be made within (30 unless otherwise indicated) days after receipt of the Contracting Officer's decision.

(f) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the contract, and comply with any decision of the Contracting Officer.

32. Default

(a) If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with the diligence that will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within this time, the Contracting Officer may, by written notice to the Contractor, terminate the right to

proceed with the work (or separable part of the work) that has been delayed. In this event, the PHA may take over the work and complete it, by contract or otherwise, and may take possession of and use any materials, equipment, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the PHA resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the PHA in completing the work.

(b) The Contractor's right to proceed shall not be terminated or the Contractor charged with damages under this clause if—

(1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God, or of the public enemy, (ii) acts of the PHA or other governmental entity in either its sovereign or contractual capacity, (iii) acts of another contractor in the performance of a contract with the PHA, (iv) fires, (v) floods, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and

(2) The Contractor, within days (10 days unless otherwise indicated) from the beginning of such delay (unless extended by the Contracting Officer) notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, time for completing the work shall be extended by written modification to the contract. The findings of the Contracting Officer shall be reduced to a written decision which shall be subject to the provisions of the Disputes clause of this contract.

(c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been for convenience of the PHA.

33. Liquidated Damages

(a) If the Contractor fails to complete the work within the time specified in the contract, or any extension, as specified in the clause entitled Default of this contract, the Contractor shall pay to the PHA as liquidated damages, the sum of $2,000. Contracting Officer insert amount] for each day of delay. If different completion dates are specified in the contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another clause in this contract, liquidated damages shall not be due the PHA. The Contractor remains liable for damages caused other than by delay.

(b) If the PHA terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the PHA in completing the work.

(c) If the PHA does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

34. Termination for Convenience

(a) The Contracting Officer may terminate this contract in whole, or in part, whenever the Contracting Officer determines that such termination is in the best interest of the PHA. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which the performance of the work under the contract is terminated, and the date upon which such termination becomes effective.

(b) If the performance of the work is terminated, either in whole or in part, the PHA shall be liable to the Contractor for reasonable and proper costs resulting from such termination upon the receipt by the PHA of a properly presented claim setting out in detail: (1) the total cost of the work performed to date of termination less the total amount of contract payments made to the Contractor; (2) the cost (including reasonable profit) of settling and paying claims under subcontracts and material orders for work performed and materials and supplies delivered to the site, payment for which has not been made by the PHA to the Contractor or by the Contractor to the subcontractor or supplier; (3) the cost of preserving and protecting the work already performed until the PHA or assignee takes possession thereof or assumes responsibility therefore; (4) the actual or estimated cost of legal and accounting services reasonably necessary to prepare and present the termination claim to the PHA; and (5) an amount constituting a reasonable profit on the value of the work performed by the Contractor.

(c) The Contracting Officer will act on the Contractor's claim within days (60 days unless otherwise indicated) of receipt of the Contractor's claim.

(d) Any disputes with regard to this clause are expressly made subject to the provisions of the Disputes clause of this contract.

35. Assignment of Contract

The Contractor shall not assign or transfer any interest in this contract; except that claims for monies due or to become due from the PHA under the contract may be assigned to a bank, trust company, or other financial institution. Such assignments of claims shall only be made with the written concurrence of the Contracting Officer. If the Contractor is a partnership, this contract shall inure to the benefit of the surviving or remaining member(s) of such partnership as approved by the Contracting Officer.

36. Insurance

(a) Before commencing work, the Contractor and each subcontractor shall furnish the PHA with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract:

(1) Workers' Compensation, in accordance with state or Territorial Workers' Compensation laws.

(2) Commercial General Liability with a combined single limit for bodily injury and property damage of not less than $ 1MILLION [Contracting Officer insert amount]

per occurrence to protect the Contractor and each subcontractor against claims for bodily injury or death and damage to the property of others. This shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under (3) below. If the Contractor has a "claims made" policy, then the following additional requirements apply: the policy must provide a "retroactive date" which must be on or before the execution date of the Contract; and the extended reporting period may not be less than five years following the completion date of the Contract.

(3) Automobile Liability on owned and non -owned motor vehicles used on the site(s) or in connection therewith for a combined single limit for bodily injury and property damage of not less than $ 1MILLION [Contracting Officer insert amount] per occurrence.

(b) Before commencing work, the Contractor shall furnish the PHA with a certificate of insurance evidencing that Builder's Risk (fire and extended coverage) Insurance on all work in place and/or materials stored at the building site(s), including foundations and building equipment, is in force. The Builder's Risk Insurance shall be for the benefit of the Contractor and the PHA as their interests may appear and each shall be named in the policy or policies as an insured. The Contractor in installing equipment supplied by the PHA shall carry insurance on such equipment from the time the Contractor takes possession thereof until the Contract work is accepted by the PHA. The Builder's Risk Insurance need not be carried on excavations, piers, footings, or foundations until such time as work on the superstructure is started. It need not be carried on landscape work. Policies shall furnish coverage at all times for the full cash value of all completed construction, as well as materials in place and/or stored at the site(s), whether or not partial payment has been made by the PHA. The Contractor may terminate this insurance on buildings as of the date taken over for occupancy by the PHA. The Contractor is not required to carry Builder's Risk Insurance for modernization work which does not involve structural alterations or additions and where the PHA's existing fire and extended coverage policy can be endorsed to include such work.

(c) All insurance shall be carried with companies which are financially responsible and admitted to do business in the State in which the project is located. If any such insurance is due to expire during the construction period, the Contractor (including subcontractors, as applicable) shall not permit the coverage to lapse and shall furnish evidence of coverage to the Contracting Officer. All certificates of insurance, as evidence of coverage, shall provide that no coverage may be canceled or non-renewed by the insurance company until at least 30 days prior written notice has been given to the Contracting Officer.

37. Subcontracts

(a) Definitions. As used in this contract -

(1) "Subcontract" means any contract, purchase order, or other purchase agreement, including modifications and change orders to the foregoing, entered into by a subcontractor to furnish supplies, materials, equipment, and services for the performance of the prime contract or a subcontract.

(2) "Subcontractor" means any supplier, vendor, or firm that furnishes supplies, materials, equipment, or services to or for the Contractor or another subcontractor.

(b) The Contractor shall not enter into any subcontract with any subcontractor who has been temporarily denied participation in a HUD program or who has been suspended or debarred from participating in contracting programs by any agency of the United States Government or of the state in which the work under this contract is to be performed.

(c) The Contractor shall be as fully responsible for the acts or omissions of its subcontractors, and of persons either directly or indirectly employed by them as for the acts or omissions of persons directly employed by the Contractor.

(d) The Contractor shall insert appropriate clauses in all subcontracts to bind subcontractors to the terms and conditions of this contract insofar as they are applicable to the work of subcontractors.

(e) Nothing contained in this contract shall create any contractual relationship between any subcontractor and the PHA or between the subcontractor and HUD.

38. Subcontracting with Small and Minority Firms, Women's Business Enterprise, and Labor Surplus Area Firms

The Contractor shall take the following steps to ensure that, whenever possible, subcontracts are awarded to small business firms, minority firms, women's business enterprises, and labor surplus area firms:

(a) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(b) Ensuring that small and minority businesses and women's business enterprises are solicited whenever they are potential sources;

(c) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women's business enterprises;

(d) Establishing delivery schedules, where the requirements of the contract permit, which encourage participation by small and minority businesses and women's business enterprises; and

(e) Using the services and assistance of the U.S. Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, and State and local governmental small business agencies.

39. Equal Employment Opportunity

During the performance of this contract, the Contractor agrees as follows:

(a) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or handicap.

(b) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, national origin, or handicap. Such action shall include, but not be limited to, (1) employment, (2) upgrading, (3) demotion, (4) transfer, (5) recruitment or recruitment advertising, (6) layoff or termination, (7) rates of pay or other forms of compensation, and (8) selection for training, including apprenticeship.

(c) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.

(d) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, or handicap.

(e) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(f) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(g) The Contractor shall furnish all information and reports required by Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto. The Contractor shall permit access to its books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(h) In the event of a determination that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for further Government contracts, or Federally assisted construction contracts under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended, the rules, regulations, and orders of the Secretary of Labor, or as otherwise provided by law.

(i) The Contractor shall include the terms and conditions of this clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor. The Contractor shall take such action with respect to any subcontract or purchase order as the Secretary of Housing and Urban Development or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

(j) Compliance with the requirements of this clause shall be to the maximum extent consistent with, but not in derogation of, compliance with section 7(b) of the Indian Self-Determination and Education Assistance Act and the Indian Preference clause of this contract.

40. Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968.

(a) The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

(b) The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 135 regulations.

(c) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

(d) The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 135.

(e) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 135.

(f) Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

(g) With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b)agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

41. Interest of Members of Congress

No member of or delegate to the Congress of the United States of America shall be admitted to any share or part of this contract or to any benefit that may arise therefrom.

42. Interest of Members, Officers, or Employees and Former Members, Officers, or Employees

No member, officer, or employee of the PHA, no member of the governing body of the locality in which the project is situated, no member of the governing body of the locality in which the PHA was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the project, shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this contract or the proceeds thereof.

43. Limitations on Payments made to Influence Certain Federal Financial Transactions

(a) The Contractor agrees to comply with Section 1352 of Title 31, United States Code which prohibits the use of Federal appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.

(b) The Contractor further agrees to comply with the requirement of the Act to furnish a disclosure (OMB Standard Form LLL, Disclosure of Lobbying Activities) if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

44. Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringement of any patent rights and shall save the PHA harmless from loss on account thereof; except that the PHA shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified and the Contractor has no reason to believe that the specified design, process, or product is an infringement. If, however, the Contractor has reason to believe that any design, process or product specified is an infringement of a patent, the Contractor shall promptly notify the Contracting Officer. Failure to give such notice shall make the Contractor responsible for resultant loss.

45. Examination and Retention of Contractor's Records

(a) The PHA, HUD, or Comptroller General of the United States, or any of their duly authorized representatives shall, until 3 years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.

(b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders not exceeding $10,000.

(c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the Disputes clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the PHA, HUD, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

46. Labor Standards - Davis-Bacon and Related Acts

If the total amount of this contract exceeds $2,000, the Federal labor standards set forth in the clause below shall apply to the development or construction work to be performed under the contract.

(a) Minimum Wages.

(1) All laborers and mechanics employed under this contract in the development or construction of the project(s) involved will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the regular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall

be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(2) (i) Any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met: (A) The work to be performed by the classification requested is not performed by a classification in the wage determination; and (B) The classification is utilized in the area by the construction industry; and (C) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(ii) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employee Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(iii) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(iv) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (a)(2)(ii) or (iii) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in classification.

(3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(b) Withholding of funds. HUD or its designee shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working in the construction or development of the project, all or part of the wages required by the contract, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due.

(c) Payrolls and basic records.

(1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working in the construction or development of the project. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(2) (i) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph (c)(1) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The Contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1214-0149.)

(ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(A) That the payroll for the payroll period contains the information required to be maintained under paragraph (c) (1) of this clause and that such information is correct and complete;

(B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3; and

(C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirements for submission of the "Statement of Compliance" required by subparagraph (c)(2)(ii) of this clause.

(iv) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(3) The Contractor or subcontractor shall make the records required under subparagraph (c)(1) available for inspection, copying, or transcription by authorized representatives of HUD or its designee, the Contracting Officer, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(d) (1) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship and Training, Employer and Labor Services (OATELS), or with a State Apprenticeship Agency recognized by OATELS, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by OATELS or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event OATELS, or a State Apprenticeship Agency recognized by OATELS, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under

the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(3) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(e) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

(f) Contract termination; debarment. A breach of this contract clause may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.

(g) Compliance with Davis-Bacon and related Act requirements. All rulings and interpretations of the Davis-Bacon and related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

(h) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this clause shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the PHA, HUD, the U.S. Department of Labor, or the employees or their representatives.

(i) Certification of eligibility.

(1) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a United States Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(3) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

(j) Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics, including watchmen and guards, shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions set forth in subparagraph (j)(1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic (including watchmen and guards) employed in violation of the provisions set forth in subparagraph (j)(1) of this clause, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by provisions set forth in subparagraph (j)(1) of this clause.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions set forth in subparagraph (j)(2) of this clause.

(k) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts all the provisions contained in this clause, and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all these provisions.

47. Non-Federal Prevailing Wage Rates

(a) Any prevailing wage rate (including basic hourly rate and any fringe benefits), determined under State or tribal law to be prevailing, with respect to any employee in any trade or position employed under the contract, is inapplicable to the contract and shall not be enforced against the Contractor or any subcontractor, with respect to employees engaged under the contract whenever such non-Federal prevailing wage rate exceeds:
(1) The applicable wage rate determined by the Secretary of Labor pursuant to the Davis-Bacon Act (40 U.S.C. 3141 et seq.) to be prevailing in the locality with respect to such trade;
(b) An applicable apprentice wage rate based thereon specified in an apprenticeship program registered with the U.S. Department of Labor (DOL) or a DOL-recognized State Apprenticeship Agency; or
(c) An applicable trainee wage rate based thereon specified in a DOL-certified trainee program.

48. Procurement of Recovered Materials.

(a) In accordance with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, the Contractor shall procure items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition. The Contractor shall procure items designated in the EPA guidelines that contain the highest percentage of recovered materials practicable unless the Contractor determines that such items: (1) are not reasonably available in a reasonable period of time; (2) fail to meet reasonable performance standards, which shall be determined on the basis of the guidelines of the National Institute of Standards and Technology, if applicable to the item; or (3) are only available at an unreasonable price.
(b) Paragraph (a) of this clause shall apply to items purchased under this contract where: (1) the Contractor purchases in excess of $10,000 of the item under this contract; or (2) during the preceding Federal fiscal year, the Contractor: (i) purchased any amount of the items for use under a contract that was funded with Federal appropriations and was with a Federal agency or a State agency or agency of a political subdivision of a State; and (ii) purchased a total of in excess of $10,000 of the item both under and outside that contract.

Housing Authority of the City of Pittsburgh

Development & Modernization
100 Ross Street, Suite 200
Pittsburgh, PA 15219
(412) 456-5020
www.hacp.org

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP Contract No. 600-01-21

SUPPLEMENTAL GENERAL CONDITIONS

SUPPLEMENTAL GENERAL CONDITIONS

To the extent that there is a conflict between the terms of the General Conditions and the terms of the Supplemental General Conditions, the terms of the Supplemental General Conditions shall govern to the extent of such conflict.

If HUD 5370 applies:

Section 31(e) of the General Conditions shall be deleted in its entirety and replaced by the following:

31(e). Forum. The Contracting Officer's decision shall be final unless, within thirty (30) days of receipt of the Contracting Officer's decision, the Contractor files suit in a court of competent jurisdiction.

If HUD 5370-EZ applies:

Section 3(d) of the General Conditions shall be deleted in its entirety and replaced by the following:

31(d). Forum. The Contracting Officer's decision shall be final unless, within thirty (30) days of receipt of the Contracting Officer's decision, the Contractor files suit in a court of competent jurisdiction.

If HUD 5370-C applies:

Section 1 Item 7(d) of the General Conditions shall be deleted in its entirety and replaced by the following:

Section 1 Item 7(d). Forum. The Contracting Officer's decision shall be final unless, within thirty (30) days of receipt of the Contracting Officer's decision, the Contractor files suit in a court of competent jurisdiction.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

Date: _____ Signature: _____
Contracting Officer

==========

_____
Vendor Name(Insert vendor company name above)

Date: _____ Signature: _____

Title: _____

THE HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

HACP Contract No. 600-01-21

WAGE DETERMINATION SCHEDULE

The construction covered by this contract is subject to the requirements of Clause 47 **Labor Standards - Davis-Bacon and Related Acts** of the General Conditions of the Contract for Construction. In accordance with 47 (a)(1) the wage determination of the Secretary of Labor is attached.

"General Decision Number: PA20200001 12/25/2020

Superseded General Decision Number: PA20190001

State: Pennsylvania

Construction Type: Building

County: Allegheny County in Pennsylvania.

BUILDING ERECTION AND FOUNDATION EXCAVATION PROJECTS (does not include residential construction consisting of single family homes and apartmennts up to and including 4 stories) EXCLUDING SEWAGE AND TREATMENT PLANT PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	01/24/2020
2	01/31/2020
3	02/07/2020
4	06/05/2020
5	06/19/2020
6	07/03/2020
7	07/24/2020
8	08/07/2020
9	08/21/2020
10	09/18/2020
11	10/02/2020
12	10/16/2020
13	11/13/2020

14 12/25/2020

ASBE0002-001 08/01/2020

	Rates	Fringes
Asbestos Workers/Insulator Includes the application of all insulating materials, protective coverings, coatings and finishings to all types of mechanical systems	$ 42.03	26.90

BOIL0154-001 01/01/2017

	Rates	Fringes
BOILERMAKER	$ 40.90	27.27

BRPA0009-029 06/01/2020

	Rates	Fringes
BRICKLAYER	$ 34.05	22.81

BRPA0009-060 06/01/2020

	Rates	Fringes
MASON - STONE	$ 35.02	22.10

BRPA0009-061 06/01/2020

	Rates	Fringes
TILE SETTER	$ 32.58	20.25

CARP0142-001 06/01/2020

	Rates	Fringes
Carpenter/Lather	$ 35.48	18.31

CARP1759-001 06/01/2018

	Rates	Fringes
FLOOR LAYER: Carpet	$ 33.75	17.03

CARP2235-007 01/01/2020

	Rates	Fringes
PILEDRIVERMAN	$ 35.40	19.70

* ELEC0005-007 12/25/2020

	Rates	Fringes
ELECTRICIAN	$ 43.61	28.27

ELEC0126-006 06/01/2020

	Rates	Fringes
LINE CONSTRUCTION		
Cable Splicer	$ 48.51	31.25%+11.75
Groundmen	$ 29.10	31.25%+11.75
Lineman	$ 48.51	31.25%+11.75
Truck Driver	$ 31.53	31.25%+11.75
Winch Truck Operator	$ 33.96	31.25%+11.75

ELEV0006-001 01/01/2020

	Rates	Fringes
ELEVATOR MECHANIC	$ 50.33	34.765+a+b

FOOTNOTE: A. Employer contributes 8% of regular hourly rate as vacation pay credit for employees with more than 5 years of service, and 6% for 6 months to 5 years of service.

B. Eight Paid Holidays (provided employee has worked 5 consecutive days before and the working day after the holiday): New Years's Day; Memorial Day; Independence Day; Labor Day; Veteran's Day; Thanksgiving Day and the Friday after Thanksgiving Day, and Christmas Day.

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* ENGI0066-001 06/01/2020

	Rates	Fringes
Power equipment operators:		
CLASS 1	$ 36.39	22.55
CLASS 2	$ 30.62	22.55
CLASS 3	$ 27.95	22.55

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

CLASS I

Asphalt Paver, Asphalt Roller, Asphalt Plant Operator, Athey Loader, Auger (Truck or Tractor Mounted), Auto Grader (C.M.I. and similar), Backhoe (180' and 360' swing), Back-Filling Machine, Batch Plant, Bulldozer, Cable Layer, Cableway, Caisson Drill, Central Mix Plant, Compactor with Blade, Concrete Pump (all types), Over-Head Crane, Crane (Crawler or Truck Mounted)*, Tower Crane (Stationary or Climbing Type), Rough Terrain Crane**, Wagon Crane, Crushing and/or Screening Plant, Derrick Traveler, Derrick (all types)(when assistance is needed it will be an oiler or apprentice), Derrick Boats, Dragline, Drill (Davey or similar), Dredge, Drill (Well and Core)(Truck or Skid

Mounted), Elevator, Excavating Equipment (all other), Fork Lift (Lull or similar), Franki Pile Machine (or similar), Guard Post Driver, Gradall (all types), Grader, Elevating Grader, Equipment Greaser, Helicopter, Helicopter Hoist Operators, Front End Loader, Hoist, Hydraulic Boom Truck, Jumbo Operator, Kocal, Koehring Scooper, Locomotive, Metro Chip Harvester (or similar), Mix Mobile, Mixer - Paver, Mucking Machine, Multiple Bowl Machines, Pile Driver (Sonic or similar), Scrapers, Shovels (powered), Slip Form Paver (C.M.I. and similar), Spreader (Concrete, Asphalt, or Stone), Tire Repairman (when assigned to a jobsite), Tower Mobile, Tractors (all types), Trencher, Tug Boat, Vermeer Saw, Welder (repairman), Whirley
* Cranes with Boom or Mast length (including jib) 100 ft or over shall be paid an additional $.50 per hour for each 50-foot increment of additional boom and/or jib length)

** Rough Terrain Cranes with Boom or Mast length (including jib) 101 ft or over shall be paid an Additional $.50 per hour for each 50-foot increment of additional boom and/or jib length)

Note: An additional $1.25 per hour (not counting boom pay) shall be paid for any crane (excluding overhead cranes) rated 100 ton or over.

CLASS II
Ballast Regulator, Boat (material or personnel)(powered), Boiler, Boring Machine, Compressor (combined with Air Tugger, Air Pump, Gunite Machine, or Sand Blaster), Concrete Belt Placer, Concrete Saw, Conveyor, Carry Crane, Crushing/Screening Plants, Curb Builder (self-propelled), Forklifts (ridden or self-propelled), Form Line Machine, Generator (over 5KW), Grout Pump, Heaters, Hoist (monorail, roof, one drum-regardless of power used), Huck Machine (or similar), Hydraulic Jack (single or multiple)(power driven), Ladavator, Mortar Mixer, Mulching Machine, Pavement Breaker (self-propelled or ridden), Pin Puller (powered), Pipe Cleaning Machine, Pipe Dream, Power Broom (except push type), Pulverizer, Pumps (regardless of power used), Roller/Compactor (Dirt), Refrigeration Plant, Ross Carrier (or similar), Seeding Machine, Skid Steer Loader (or similar), Slab Lifting Machine (hydraulic), Soil Stabilizer (pump type), Spray Cure Machine (power driven), Side Delivery Shoulder Spreader (attachment), Steam Jenny (or similar), Stone Crusher, Stone Spreader (self-propelled), Siphon (steam or air), Tie Tamper (multiple heads), Tractor (when used for landscaping, snaking, or hauling), Truck (Winch)(when hoisting and placing), Tube Finisher (C.M.I. and similar), Tugger, Water Blaster, Welding Machine, Well Point System

CLASS III
Brakeman, Deck Hand, Helicopter Signalman, Oiler*, Elevator (Alterations & Remodeling Commercial Buildings),

* Oilers on Truck Cranes: less than 50 ton shall receive $.10

over the Class III base rate; 50 ton up to 100 ton rated capacity shall be paid an additional $.25 per hour over the Class III base rate; 100 ton and over shall be paid an additional $1.00 per hour over the Class III base rate.

General Note: Hazardous Material Sites Level C & D receive $1.00 per hour premium for all classifications and Levels A & B receive $2.50 premium for all classifications

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IRON0003-002 06/01/2020

	Rates	Fringes
IRONWORKER	$ 37.29	32.40

LABO0613-002 01/01/2019

	Rates	Fringes
Laborers:		
GROUP 1	$ 22.37	17.60
GROUP 2	$ 22.52	17.60
GROUP 3	$ 22.65	17.60
GROUP 4	$ 23.12	17.60

LABORERS CLASSIFICATIONS

GROUP 1: COMMON LABORER - Building laborer; Brick removal for alterations; Carryable pumps; West brick buggy or similar; Walk behind forklift or similar (non self-propelled); Stripper and mover of forms; Toolroom man; all material conveyors (regardless of power used, including starting and stopping); Pouring of mortar or aggregate into blocks of voids

GROUP 2: SKILLED LABORER - West brick buggy or similar (self propelled); Power wheelbarrows and buggies; walk behind forklift or similar (self-propelled); Drill runner; All operators of compacting equipment; Pipe layer; Burner; Jackhammer man - concrete buster; Vibrator operator; Clay spade and/or similar; Gunnite nozzleman; Blaster; Concrete saw operator; Hod carrier; Scaffold builder; Air track operator; Bell and Bottom Man on furnace and stacks; Grout machine feeder and pump operator; Gunnite machine operator or similar; Gunnite machine potman or similar; Mortar Mixer; Mortar mixer machine (regardless of power used, including starting and stopping); Wagon drill operator; Laser cleaner; Lancer

GROUP 3: Asbestos removal or abatement laborer

GROUP 4: Toxic or Hazardous waste handling laborer

LABO0952-004 01/01/2019

	Rates	Fringes
Landscaping		
GROUP 1	$ 21.02	16.08
GROUP 2	$ 21.44	16.08
GROUP 3	$ 21.74	16.08

LANDSCAPING CLASSIFICATIONS

GROUP 1: Landscape laborer to include general landscaping work and the driving of trucks for the distribution of materials on the job site but not to include trucks used to transport supplies to the job

GROUP 2: Skilled Landscape Laborer to plant all types of trees and shrubs without direct supervision.

GROUP 3 - Landscape tractor operator to operate small industrial rubber tire tractor equipped with front end loader and backhoe attachment or a skid loader with landscape attachments used for the sole purpose of landscape work including soil spreading, unloading and loading of materials and such other landscaping work but not for heavy and highway construction work

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PAIN0057-003 06/01/2020

	Rates	Fringes
PAINTER		
Brush & Roller	$ 28.80	20.72

PAIN0057-005 06/01/2020

	Rates	Fringes
DRYWALL FINISHER/TAPER	$ 30.10	20.50

PAIN0751-001 09/01/2020

	Rates	Fringes
GLAZIER	$ 31.00	25.73

PLAS0526-007 06/01/2019

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 31.27	19.39

PLUM0027-002 06/01/2020

	Rates	Fringes
PLUMBER	$ 43.45	23.47

PLUM0449-001 06/01/2019

	Rates	Fringes
PIPEFITTER	$ 41.50	23.57

ROOF0037-001 06/01/2019

	Rates	Fringes
ROOFER	$ 31.62	17.05

SFPA0542-001 07/01/2020

	Rates	Fringes
SPRINKLER FITTER	$ 38.91	22.98

SHEE0012-002 07/01/2020

	Rates	Fringes
SHEET METAL WORKER	$ 37.96	28.05

TEAM0040-007 01/01/2020

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 29.93	20.21
GROUP 2	$ 30.39	20.52

FOOTNOTES:

A. Hazardous/toxic waste material/work level A & B receive additional $2.50 per hour above classification rate

B. Hazardous/toxic waste materials/Work level C & D receive $1.00 per hour above classification

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1 - Single Axle (2 axles including steering axle); Includes partsman and warehoueman. Tandem - Tri-Axle - Semi-Tractor Trailer (combination) (3 axles or more including steering axle)

GROUP 2 - Specialty Vehicles; Heavy equipment whose capacity exceeds that for which state licenses are issued specifically refers to units in excess of eight (8) feet width (such as Euclids, Atley Wagon, Payloder, Tournawagons, and similar equipment when not self loaded); Tar and Asphalt Distributors Trucks, Heavy Duty Trailer, such as Low Boy, High Boy

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests

for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

PART 4: TECHNICAL SPECIFICATIONS

412 BLVD of the Allies HACP Office Build Out
AMP - PA0010000099

IFB CONTRACT NO. 600-01-21

PROJECT MANUAL

Housing Authority of the City of Pittsburgh

412 Boulevard of the Allies

Pittsburgh, PA 15219

DIVISIONS 02 THROUGH 12

May 22, 2020
AE7 Project 190427.00

2840 Liberty Avenue Pittsburgh, PA 15222• Tel: 412.932.2044 • www.ae-7.com

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DIVISION 13 – SPECIAL CONSTRUCTION
Not Used

DIVISION 14 – CONVEYING EQUIPMENT
Not Used

END OF DOCUMENT

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit one copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within five days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 7 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

A. Substitutions: The Architect and Owner will consider requests for substitution during the bid period only. Submit requests for substitution during bidding and until four days prior to the bid due date.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SUBSTITUTION REQUEST

Project: _____ Substitution Request Number: _____

_____ From: _____

To: _____ Date: _____

_____ A/E Project Number: _____

Re: _____ Contract For: _____

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model: _____

Installer: _____ Address: _____ Phone: _____

History: X New product ☐ 1-4 years old ☐ 5-10 years old ☐ More than 10 years old

☐ Point-by-point comparative data attached — REQUIRED BY A/E

Reason for not providing specified item: 1) _____

2) _____

Similar Installation:

Project: _____ Architect: _____

Address: _____ Owner: _____

_____ Date Installed: _____

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain _____

_____

Savings to Owner for accepting substitution: _____

Proposed substitution changes Contract Time: ☐ No ☐ Yes Deduct _____

Supporting Data Attached: ☐Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

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Form Version: January 2013
CSI Form 13.1A

SUBSTITUTION REQUEST
(Continued)

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

_____

Telephone: _____

Attachments:

A/E's REVIEW AND RECOMMENDATION

☐ Approve Substitution - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
☐ Approve Substitution as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
☐ Reject Substitution - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

OWNER'S REVIEW AND ACTION

☐ Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures. Prepare Change Order.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures. Prepare Change Order.
☐ Substitution rejected - Use specified materials.

Signed by: _____ Date: _____

Additional Comments: ☐Contractor ☐Subcontractor ☐Supplier ☐Manufacturer ☐A/E

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Form Version: January 2013
CSI Form 13.1A

Sustainability Attributes Comparison Form

Refer to the Specification Section for the proposed substitution (Product Requirements listed in PART 2) and reference any required sustainable attribute performance requirements here:

_____

_____

_____

_____

_____

Does the proposed substitution meet all the above requirements? Yes/No

If No, list what is not met:_____

Does the proposed substitution, meet any of the following requirements?

Have similar recycled content values to the basis-of-design product? Yes/No & Cite post/pre % _____

Have an Environmental Product Declaration? Yes/No

Have a Material Ingredient Transparency Label? Yes/No

Have a General Emissions Evaluation Certificate? Yes/No

If this is a field-applied, wet-applied product or any wet-applied products shall be used in conjunction. Please indicate:

Provide VOC Content _____ g/L and indicate an estimated VOLUME to be applied _____

References:

Environmental Product Declaration	**Material Ingredient Transparency Labels**	**General Emissions Evaluation**
UL SPOT NSF.ORG SCS GLOBAL SERVICES	HPD-COLLABORATIVE.COM C2CCERTIFIED.ORG DECLARE LABEL	UL SPOT (GREENGUARD) SCS GLOBAL SERVICES CARPET-RUG.ORG (GLP)

VOC Content Limits: Reference Spec Section 016116-VOC Content and Emissions Restrictions

SECTION 013118 – COORDINATION DRAWINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section specifies minimum administrative and supervisory requirements necessary for coordination drawings on the Project to be collectively fulfilled by the Contractor including, but not limited to:

B. Each Contractor shall participate and be responsible for completion of coordination requirements.

1.3 COORDINATION

A. Coordination: Contractor shall coordinate its construction activities with those of other Contractors and Subcontractors, the Owner's on-site representative, and other entities involved to assure efficient and orderly installation of each part of the Work. Each Contractor shall coordinate its operations with operations included under different Sections of the Specification that are dependent upon each other for proper installation, connection, and operation.

1. Coordination drawings are required. The Contractors may bill the Owner for coordination drawings upon completion and upon review of coordination drawings by the Architect. Coordination Drawings are assigned the following values and shall appear on each Contractors' Schedule of Values. Payment for completion of coordination drawings shall be by the monthly pay application process.

    a. General Trades – minimum of 3.0 percent (3%) of the general trades contract.
    b. HVAC – minimum of 3.0 percent (3%) of the HVAC contract.
    c. Plumbing – minimum of 5.0 percent (5%) of the plumbing contract.
    d. Fire Protection- minimum of 4.5 percent (4 1/2%) of the fire protection contract.
    e. Electrical – minimum of 2 percent (2%) of the electrical contract.

2. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, each Contractor shall schedule its construction activities in the sequence required to obtain the best results.
3. Where availability of space is limited, each Contractor shall coordinate installation of different components with other Contractors to assure maximum accessibility for required maintenance, service, and repair.
4. Each Contractor shall make adequate provisions to accommodate items scheduled for later installation.

5. Review: Architect will review coordination drawings to confirm that, in general, the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make suitable modifications and resubmit
6. No installation of permanent systems shall proceed until the coordination drawings have been reviewed by the Architect. When work is installed prior to the completion of the Architect's review, the Owner has the right to have the work removed and reinstalled in sequence and in accordance with the reviewed coordination drawings at the defaulting contractor's expense.
7. When a Contractor goes beyond the specified coordination drawing duration or otherwise fails to fulfill its coordination drawing responsibilities the Owner also has the right but not the obligation to any Contractor to withhold the Contractor's Application for Payment(s) until the Contractor has fulfilled its coordination drawing responsibilities and forwarded the coordination drawings to the successor Contractor and/or Architect as applicable.
8. When work has been installed without proper coordination, changes to this work deemed necessary by the Architect shall be made to correct the conditions without extra cost to the Owner.
9. Device locations shall be coordinated to insure that conflicts will not exist once finishes and wall mounted items are installed.

B. Conservation: Each Contractor shall coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings between all Contractors to achieve the most efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

Upon execution of the Architects "Electronic File Transfer Agreement" electronic drawing files may be provided to each Contractor for their use in preparation of the Coordination Drawings.

1. Within 25 days of Notice to Proceed, the Contractor shall prepare and submit to the HVAC Sub contractor electronic drawing files and drawings of ¼-inch scale that indicate proposed structural elements and ceiling layouts in this Contract. These Coordination drawings are to include the following items:
2. Top and bottom of steel elevations.
3. Additional structural elements.
4. Reflected ceiling plans showing layout, type and height of ceilings.

    a. Include ceiling mounted items including but not limited to bulkheads, cubicle curtain tracks, banners, LCD projector mounts, projection screens, television brackets, ceiling fans etc.
5. Refer to the Contract Documents for additional items, not listed, that require coordination.

B. Within 10 days of receipt, the HVAC Contractor shall prepare and submit to the Plumbing Subcontractor electronic drawing files and drawings of ¼-inch scale that indicate proposed

routing of ductwork and piping in this Contract. These Coordination drawings are to include the following items:

1. Ductwork, showing top and bottom of duct elevations.
2. Piping, showing centerline of pipe. State outside diameter and insulation thickness.
3. Equipment (including recessed equipment in walls, chases or above ceilings and housekeeping pads). Include minimum required access space for operation and maintenance.
4. Floor, wall and roof penetrations.
5. Fire and smoke dampers.
6. Existing piping and equipment scheduled to remain.
7. Indicate size, elevation and general location of potential obstructions. Highlight and note any conflict points that might occur
8. Show and dimension services required of other Contractors.
9. Indicate required installation sequences.
10. Show access door locations.
11. Refer to the Contract Documents for additional items, not listed, that require coordination.

C. Within 10 days of receipt, the Plumbing Contractor shall prepare and submit to the Fire Protection or Electrical Subcontractor electronic drawing files and drawings of ¼-inch scale that indicate proposed routing of ductwork and piping in this Contract. These Coordination drawings are to include the following items:

1. Piping, showing centerline of pipe. State outside diameter and insulation thickness.
2. Equipment (including recessed equipment in walls, chases or above ceilings and housekeeping pads). Include minimum required access space for operation and maintenance.
3. Underground piping noting areas that penetrate footings and walls.
4. Floor, wall and roof penetrations.
5. Floor drains, and cleanout locations.
6. Service entrances (including required access space for operation and maintenance).
7. Existing piping and equipment (if applicable).
8. Indicate size, elevation and general location of potential obstructions. Highlight and note any conflict points that might occur.
9. Show and dimension services required of other Contractors.
10. Indicate required installation sequences.
11. Show access door locations.
12. Refer to the Contract Documents for additional items, not listed, that require coordination.

D. Within 10 days of receipt, the Fire Protection Contractor shall prepare and submit to the Electrical subcontractor electronic drawing files and drawings of ¼-inch scale that indicate proposed routing of ductwork and piping in this Contract. These Coordination drawings are to include the following items:

1. Piping, showing centerline of pipe. State outside diameter and insulation thickness.
2. Equipment (including recessed equipment in walls, chases or above ceilings and housekeeping pads). Include minimum required access space for operation and maintenance.
3. Underground piping noting areas that penetrate footings and walls.

4. Floor, wall and roof penetrations.
5. Floor drains, and cleanout locations.
6. Service entrances (including required access space for operation and maintenance).
7. Existing piping and equipment (if applicable).
8. Indicate size, elevation and general location of potential obstructions. Highlight and note any conflict points that might occur.
9. Show and dimension services required of other Contractors.
10. Indicate required installation sequences.
11. Show access door locations.
12. Refer to the Contract Documents for additional items, not listed, that require coordination.

E. Within 10 days of receipt, the Electrical Contractor shall prepare and submit to the Contractor electronic drawing files and drawings of ¼-inch scale that indicate proposed routing of ductwork and piping in this Contract. These Coordination drawings are to include the following items:

1. Electrical conduit greater than 1-1/2-inches in diameter. Both above and below grade.
2. Electrical conduit groupings containing 10 or more conduits. Both above and below grade.
3. Locations of Electrical Power Distribution Equipment (including switchboards, distribution panelboards, branch circuit panelboards and transformers). Include minimum required access space for operation and maintenance.
4. Emergency generator and associated distribution equipment
5. Control Panels (including but not limited to Fire Alarm, Lighting Control, Dimming)
6. Floor and roof penetrations.
7. Housekeeping pads.
8. Communications conduit greater than 1-1/2-inches in diameter. Both above and below grade.
9. Communications conduit groupings containing 10 or more conduits. Both above and below grade.
10. Cabletrays.
11. Telecommunications equipment racks.
12. Control Panels (including but not limited to Security, Public Address, Telephone System and local sound reinforcement systems).
13. Existing conduit ductbanks, distribution equipment and control panels that are to remain (if applicable).
14. Indicate size, elevation and general location of potential obstructions. Highlight and note any conflict points that might occur.
15. Show and dimension services required of other Contractors.
16. Indicate required installation sequences.
17. Show access door locations.
18. Refer to the Contract Documents for additional items, not listed, that require coordination.

F. The Electrical Contractor shall submit the prepared Coordination Drawings to the Contractor who will call for a Coordination Meeting within five days of receipt of the drawings.

G. The Contractor shall conduct Coordination Meetings.

H. The Contractor shall deliver electronic copies of the final Coordination Drawings to the Architect for review. Each set of Coordination Drawings shall bear the signature of an authorized representative from the Contractor and Subcontractors who have prepared and reviewed the Coordination Drawings. Submit 3 CD's containing color .pdf's and the CAD files of each of the drawings to the Architect.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL COORDINATION DRAWING PROVISIONS

A. Upon execution of the Architect's electronic transfer agreement, electronic drawing files may be provided to the Contractor for his use in preparation of the Coordination Drawings.

1. Sample of the Architects "Electronic File Transfer Agreement" can be found at the end of this section.

B. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:

1. File Preparation Format:
   a. Same digital data software program, version, and operating system as original Drawings.
2. File Submittal Format: Submit or post coordination drawing files using PDF format.
3. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
   a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.

C. The electronic files shall be updated by each prime contractor and include the work of the previous trades. Each component (ie: general trades, mechanical, plumbing, fire protection, electrical, general communications, etc.) shall have its own unique layer/ level within the file.

D. Each major component of the coordination drawings shall be visually represented with its own unique color in both electronic and printed forms.

1. Contractor's general trades items shall be shown in BLACK

   a. Structural steel shall be shown in BLACK with 50% opacity (GRAY).

2. HVAC items shall be shown in BLUE.
3. Plumbing items shall be shown in RED.
4. Fire suppression items shall be shown in GREEN.
5. Electrical items shall be shown in CYAN (Lt. Blue).
6. Communications items shall be shown in MAGENTA (Fuscia).

E. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

END OF SECTION 013118

ELECTRONIC FILE TRANSFER AGREEMENT

THIS ELECTRONIC FILE TRANSFER AGREEMENT ("Agreement") is made on , 2020 between **AE7 Pittsburgh LLC** (the "AE7")**,** and ****Consultant Company Name Here**** (the "Company").

1. Purpose. **AE7** has agreed to provide the Company with electronic data files including computer aided design (CAD) files. In making use of AE7's CAD files the Company acknowledges, understands and agrees to the following:

2. Agreement. AE7 is providing, by agreement with certain parties, materials stored electronically. The parties recognize that data, plans, specifications, reports, documents or other information recorded on or transmitted as electronic media (including but not necessarily limited to "CAD Documents") are subject to undetectable alteration, either intentional or unintentional, due to, among other causes, transmission, conversion, media degradation, software error, or human alteration. Accordingly, all such documents are provided to the parties for informational purposes only and not as an end product or as a record document. Any reliance thereon is deemed to be unreasonable and unenforceable. The signed and/or stamped hard copies of the Architect's Instruments of Service are the only true contract documents of record.

By signing below, the Company acknowledges that they understand and will comply with the aforementioned terms and conditions, and hereby verifies that the signature on this form is authorized by the Company.

AE7 Pittsburgh, LLC.
By: xxxxx, Project Manager
Signature:

_____

AE7 Pittsburgh, LLC.
By: Jeff Wetzel, Principal
Signature:

_____

xxxx(Consultant)
By: xxxxx
Signature:

_____

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Schedule of Values.
3. Administrative and procedural requirements for submittals.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

C. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1.5 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit a preliminary schedule of values to Architect in conjunction with coordination drawing submittal or as follows; whichever is earlier.
3. Submit the schedule of values to Architect at earliest possible date, but no later than seven calendar days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

    a. Project name and location.
    b. Owner's name.
    c. Owner's Project number.
    d. Name of Architect.
    e. Architect's Project number.
    f. Contractor's name and address.
    g. Date of submittal.
2. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:

    a. Related Specification Section or division.
    b. Description of the Work.
    c. Name of subcontractor.
    d. Name of manufacturer or fabricator.
    e. Name of supplier.
    f. Change Orders (numbers) that affect value.
    g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.

        1) Labor.
        2) Materials.
        3) Equipment.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
4. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

    a. Differentiate between items stored on-site and items stored off-site.
5. Coordination Drawings: Provide a separate line item for coordination drawings in the amount specified in Section 013118.
6. Overhead Costs, Proportional Distribution: Include total cost and proportionate share of general overhead and profit for each line item.
7. Overhead Costs, Separate Line Items: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.

8. Temporary Facilities: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
9. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
10. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.6 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
3. Name of Architect.
4. Name of Construction Manager.
5. Name of Contractor.
6. Name of firm or entity that prepared submittal.
7. Names of subcontractor, manufacturer, and supplier.
8. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
9. Category and type of submittal.
10. Submittal purpose and description.
11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
12. Drawing number and detail references, as appropriate.
13. Indication of full or partial submittal.
14. Location(s) where product is to be installed, as appropriate.
15. Other necessary identification.
16. Remarks.
17. Signature of transmitter.

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. PDF Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

E. Submittals for Web-Based Project Software: Prepare submittals as PDF files, or other format indicated by Project software website.

1.7 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Email: Prepare submittals as PDF package, and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.
2. Web-Based Project Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 10 working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Resubmittal Review: Allow 10 working days for review of each resubmittal.

D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.8 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams that show factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Permanently attach label on unexposed side of Samples that includes the following:

a. Project name and submittal number.
b. Generic description of Sample.
c. Product name and name of manufacturer.
d. Sample source.
e. Number and title of applicable Specification Section.
f. Specification paragraph number and generic name of each item.

3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.

4. Web-Based Project Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
5. Paper Transmittal: Include paper transmittal including complete submittal information indicated.
6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

7. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit 3 full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

8. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample**.**

        1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
        2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:

1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

    a. Name of evaluation organization.

b. Date of evaluation.
c. Time period when report is in effect.
d. Product and manufacturers' names.
e. Description of product.
f. Test procedures and results.
g. Limitations of use.

1.9 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.10 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.11 ARCHITECT'S REVIEW

A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required**,** and return it.

1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action.

2. Submittals by Web-Based Project Software: Architect will indicate, on Project software website, the appropriate action.

B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Architect will discard submittals received from sources other than Contractor.

F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

B. Related Requirements:

1. Section 011200 "Multiple Contract Summary" for coordination of responsibilities for waste management.
2. Section 01 8113 “Sustainable Design Requirements” as the project is under LEEDv4.1 ID+C
3. Section 042000 "Unit Masonry" for disposal requirements for masonry waste.
4. Section 044313.13 "Anchored Stone Masonry Veneer" for disposal requirements for excess stone and stone waste.
5. Section 044313.16 "Adhered Stone Masonry Veneer" for disposal requirements for excess stone and stone waste.
6. Section 311000 "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

1.3 DEFINITIONS

A. Alternative Daily Cover: Are counted as “waste” material.

B. Certified Commingled Recycling Facility: Offsite sorting facility(ies) certified by the Recycling Certification Institute or approved equivalent.

C. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

D. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.

E. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner's property.

F. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

G. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

H. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

I. Waste-to-Energy: Are not considered diversion, except for wood waste converted to bio-fuel.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition and construction waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 ACTION SUBMITTALS

A. Waste Management Plan: Submit plan within 7 days of date established for the Notice to Proceed.

1.6 INFORMATIONAL SUBMITTALS

A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, or on an agreed-to monthly date, submit report. Use the LEED v4.1 Credit Calculator Spreadsheet. Include the following information:

1. Material category.
2. Generation point of waste.
3. Total quantity of waste in tons (tonnes).
4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

B. Waste Reduction Calculations:
1. As part of the LEED Prerequisite "Construction and Demolition Waste Management Planning," establish a pre-project waste manage plan as described under PART 1.8 and PART 2 of this section.

2. Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

F. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

G. Qualification Data: For waste management coordinator and refrigerant recovery technician.

H. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

I. Refrigerant Recovery: Comply with requirements in Section 024119 "Selective Demolition" for refrigerant recovery submittals.

1.7 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: Experienced firm, or individual employed and assigned by General Contractor, with a record of successful waste management coordination of projects with similar requirements. Superintendent **may** serve as Waste Management Coordinator.

B. Refrigerant Recovery Technician Qualifications: Comply with requirements in Section 024119 "Selective Demolition."

C. Regulatory Requirements: Comply with transportation and disposal regulations of authorities having jurisdiction.

D. Waste Management Conference(s): Conduct conference(s) at Project site. Review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste management plan including responsibilities of each contractor and waste management coordinator.
2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.

4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

1.8 WASTE MANAGEMENT PLAN

A. General: Pre-Demolition and/or Construction: Develop a waste management plan according to requirements in this Section. Plan shall consist of waste identification, and waste reduction work plan. Distinguish between demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
   1. Identify at least 5 materials (both structural and nonstructural) targeted for diversion.
   2. Identify those from demolition and those that will be from on-going construction.

B. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator.
   1. Utilize the LEED v4.1 Credit Calculator spreadsheet.
   2. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
   3. Specify whether materials will be separated or commingled and describe the diversion strategies planned.
   4. Describe where the materials will be taken and how the recycling facility will process the materials including expected diversion rates for each material stream.

   5. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work in compliance with Section 024119 "Selective Demolition."
   6. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
   7. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. OPTION 1: General: Achieve end-of-Project rates for recycling of 75 percent by weight of total nonhazardous solid waste generated by the Work.
   1. Inclusive of at least 3 materials streams (site separated) OR
   2. Inclusive of diverting 75% using a Certified Commingled Recycling Facility and 4 material streams, of which 2 must be diverted.

B. OPTION 2: General: Reduction of Total Waste (Construction and Demolition)
   1. Salvage or recycle at least 75% of all demolition and renovation debris (not including ADC) and utilize onsite waste minimizing design strategies for new construction activities.
   2. Create a narrative describing how the project is addressing waste prevention and/or achieving waste generation thresholds via design strategies. AND

3. Do not generate more than 2.5 pounds of construction waste per square foot (12.2 kilograms of waste per square meter) of the building's floor area for all CI projects.

C. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following:

1. Demolition Waste:

a. Asphalt paving.
b. Concrete.
c. Concrete reinforcing steel.
d. Brick.
e. Concrete masonry units.
f. Wood studs.
g. Wood joists.
h. Plywood and oriented strand board.
i. Wood paneling.
j. Wood trim.
k. Structural and miscellaneous steel.
l. Rough hardware.
m. Roofing.
n. Insulation.
o. Doors and frames.
p. Door hardware.
q. Windows.
r. Glazing.
s. Metal studs.
t. Gypsum board.
u. Acoustical tile and panels.
v. Carpet.
w. Carpet pad.
x. Demountable partitions.
y. Equipment.
z. Cabinets.
aa. Plumbing fixtures.
bb. Piping.
cc. Supports and hangers.
dd. Valves.
ee. Sprinklers.
ff. Mechanical equipment.
gg. Refrigerants.
hh. Electrical conduit.
ii. Copper wiring.
jj. Lighting fixtures.
kk. Lamps.
ll. Ballasts.
mm. Electrical devices.
nn. Switchgear and panelboards.
oo. Transformers.

2. Construction Waste:

a. Masonry and CMU.
b. Lumber.
c. Wood sheet materials.
d. Wood trim.
e. Metals.
f. Roofing.
g. Insulation.
h. Carpet and pad.
i. Gypsum board.
j. Piping.
k. Electrical conduit.
l. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:

1) Paper.
2) Cardboard.
3) Boxes.
4) Plastic sheet and film.
5) Polystyrene packaging.
6) Wood crates.
7) Wood pallets.
8) Plastic pails.

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with operation, termination, and removal requirements in Section 015000 "Temporary Facilities and Controls."

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
1. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.
2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

A. Comply with requirements in Section 024119 "Selective Demolition" for salvaging demolition waste.

B. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.
5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

C. Salvaged Items for Owner's Use: Salvage items for Owner's use and handle as follows:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area on-site off-site.
5. Protect items from damage during transport and storage.

D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

E. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.

F. Plumbing Fixtures: Separate by type and size.

G. Lighting Fixtures: Separate lamps by type and protect from breakage.

H. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

B. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

    a. Inspect containers and bins for contamination and remove contaminated materials if found.
2. Store components off the ground and protect from the weather.
3. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

3.4 RECYCLING DEMOLITION WASTE

A. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

B. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

C. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

D. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.
2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

E. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

F. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

G. Metal Suspension System: Separate metal members, including trim and other metals from acoustical panels and tile, and sort with other metals.

H. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.

I. Carpet Tile: Remove debris, trash, and adhesive.

J. Piping: Reduce piping to straight lengths and store by material and size. Separate supports, hangers, valves, sprinklers, and other components by material and size.

K. Conduit: Reduce conduit to straight lengths and store by material and size.

L. Lamps: Separate lamps by type and store according to requirements in 40 CFR 273.

3.5 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
3. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Re-Use sizable pieces on-site and/or recycle.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

D. Paint: Seal containers and store by type.

3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas on Owner’s property.

C. Burning: Do not burn waste materials.

D. Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.

END OF SECTION 017419

SECTION 018113 - SUSTAINABLE DESIGN REQUIREMENTS - LEED v4.1 ID+C: COMMERCIAL INTERIORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general requirements and procedures for compliance with USGBC's LEED prerequisites and credits needed for Project to obtain LEED Silver certification based on USGBC's "LEED Version 4.1 for Interior Design and Construction" (hereafter, LEED v4.1 ID+C).

1. Specific requirements for LEED are also included in other Sections.
2. Other LEED prerequisites and credits needed to obtain LEED certification depend on product selections and may not be specifically identified as LEED requirements. Compliance with requirements needed to obtain LEED prerequisites and credits may be used as one criterion to evaluate substitution requests and comparable product requests.
3. A copy of LEED Project checklist is attached at end of this Section for information only.

    a. Some LEED prerequisites and credits needed to obtain indicated LEED certification depend on Architect's design and other aspects of Project that are not part of the Work of the Contract.
4. A copy of the LEED Submittal Form is attached at the end of this Section and shall be completed by all material suppliers as indicated in each product specification section.

1.3 DEFINITIONS

A. Chain-of-Custody Certificates: Certificates signed by manufacturers certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001. Certificates shall include evidence that manufacturer is certified for chain of custody by an FSC-accredited certification body.

B. Cradle-to-Gate Assessment: Analysis of a product's partial life-cycle from extraction (cradle) to gate (factory completion prior to distribution).

C. LEED: USGBC's "LEED Version 4.1 for Interior Design and Construction." Definitions that are a part of this document apply to this Section.

D. Life-Cycle Assessment: Evaluation of environmental impacts of a product from cradle to gate, defined by ISO 14040 and ISO 14044.

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E. Life-Cycle Inventory: Database that defines environmental input and output for each step in a material or assembly's life cycle.

F. Recycled Content: The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.

1. "Postconsumer" material is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product, which can no longer be used for its intended purpose.
2. "Preconsumer" material is defined as material diverted from the waste stream during the manufacturing process. Reutilization of materials (such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it) is excluded.

G. Regional Materials: Materials that have been extracted, harvested, or recovered, as well as manufactured, within 100 miles (160 km) of Project site. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site prior to work commencing on-site. Review LEED requirements and action plans for compliance with requirements.

1.5 ADMINISTRATIVE REQUIREMENTS

A. Respond to questions and requests from Architect about USGBC's LEED prerequisites and credits that are Contractor's responsibility, that depend on product selection or product qualities, or that depend on Contractor's procedures, until USGBC has made its determination on Project's LEED certification application.

B. Submit documentation and respond to questions and requests from USGBC about its LEED prerequisites and credits that are Contractor's responsibility, that depend on product selection or product qualities, or that depend on Contractor's procedures, until USGBC has made its determination on Project's LEED certification application.

1. Document correspondence with USGBC as informational submittals.

1.6 ACTION SUBMITTALS

A. General: Submit additional sustainable design submittals required by other Sections.

B. Sustainable Design Documentation Submittals:

1. The LEED Submittal Form shall be submitted concurrently for review with other product data and material submittals indicated under the PART 1 “Required Submittals” section of each required product.

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2. Additional Submittals Include:
   a. Environmental Product Declarations (EPDs) complying with LEED requirements.
   b. Documentation for products that comply with LEED requirements for multi-attribute optimization.
      1) Include documentation for regional materials, indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material and costs of regional materials.
   c. Sustainability reports for products that comply with LEED requirements for raw material and source extraction reporting.
      1) Documentation for products that comply with LEED requirements for leadership extraction practices. Include the following:
      2) Product Data and certification letter from product manufacturers, indicating participation in an extended producer responsibility program and statement of costs.
      3) Product Data and certification for bio-based materials, indicating that they comply with requirements. Include statement of costs.
      4) Product Data and chain-of-custody certificates for products containing certified wood. Include invoices.
      5) Receipts for salvaged and refurbished materials used for Project, indicating sources and costs.
      6) Product Data and certification letter from product manufacturers, indicating percentages by weight of postconsumer and preconsumer recycled content for products having recycled content. Include statement of costs.
      7) Documentation for regional materials, indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material and costs of regional materials.
   d. Material ingredient reports for products that comply with LEED requirements for material ingredient reporting.
      1) Documentation for products that comply with LEED requirements for material ingredient optimization.
   e. Documentation complying with Section 017419 "Construction Waste Management and Disposal."
   f. Product Data for adhesives and sealants used inside weatherproofing system, indicating VOC content and laboratory test reports showing compliance with requirements for low-emitting materials.
   g. Product Data for paints and coatings used inside weatherproofing system, indicating VOC content and laboratory test reports showing compliance with requirements for low-emitting materials.
   h. Laboratory test reports for flooring, indicating compliance with requirements for low-emitting materials.
   i. Laboratory test reports for products containing composite wood or agrifiber products or wood glues, indicating compliance with requirements for low-emitting materials.
   j. Laboratory test reports for ceilings, walls, and thermal insulation, indicating compliance with requirements for low-emitting materials.
3. Construction Indoor-Air-Quality (IAQ) Management:

   a. Construction IAQ management plan.
   b. Product Data for temporary filtration media.
   c. Product Data for filtration media used during occupancy.

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d. Construction Documentation: Six photographs at three different times during construction period, along with brief description of SMACNA approach employed, documenting implementation of IAQ management measures, including protection of ducts and on-site stored or installed absorptive materials.

4. IAQ Assessment:
   a. Report from testing and inspecting agency, indicating results of IAQ testing and documentation that show compliance with IAQ testing procedures and requirements.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Sustainability Consultant.

B. Project Materials Cost Data: Provide statement indicating total cost for materials used for Project. Costs exclude labor. Include breakout of costs for the following categories of items:
   1. Per CSI Divisions as shown on the Pay Application submitted to the Architect.

C. Sustainable Design Action Plans: Provide preliminary submittals within **seven** days of date established for the Notice to Proceed, indicating how the following requirements will be met:
   1. Waste management plan complying with Section 017419 "Construction Waste Management and Disposal."
   2. Construction IAQ management plan.

D. Indoor Air Quality Management Plan: Describe in detail measures to be taken to promote adequate indoor air quality upon completion; use SMACNA (OCC) as a guide.
   1. Submit not less than 60 days before enclosure of building.
   2. Identify potential sources of odor and dust.
   3. Identify construction activities likely to produce odor or dust.
   4. Describe protection of absorptive materials stored on-site and installed from moisture damage.
   5. Evaluate potential problems by severity and describe methods of control.
   6. Describe construction ventilation to be provided, including type and duration of ventilation, use of permanent HVAC systems, types of filters and schedule for replacement of filters.
   7. Describe cleaning and dust control procedures.

E. Indoor Air Quality Management Plan: Photograph Documentation: Time-Date Stamped
   1. Illustrating the IAQ Practices indicated in the plan document.
   2. Six photos provided monthly, as applicable to project schedule and work performed.

F. Indoor Air Quality Management: Submit cut sheet or product data for temporary filtration to illustrate MERV 8.

G. Indoor Air Quality Management Interior Finishes Installation Schedule: Identify each interior finish that either generates odors, moisture, or vapors or is susceptible to adsorption of odors and vapors, and indicate air handling zone, sequence of application, and curing times.

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1.8 QUALITY ASSURANCE

A. Identify an experienced LEED Accredited Professional, employed by the (General) contractor(s), capable of assisting with the coordination of the LEED requirements. This same person may also assist the waste management planning and on-site diversion activities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide products and procedures necessary to obtain LEED credits indicated as Contractor's responsibility. Although other Sections may specify some requirements that contribute to these LEED credits, Contractor shall provide additional materials and procedures necessary to obtain LEED credits indicated.

B. ENVIRONMENTAL PRODUCT DECLARATIONS (OPTION 1, 1 POINT)

C. At least 10 different products from at least three different manufacturers shall have EPDs that comply with LEED requirements.
   1. Products with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that have at least a cradle to gate scope are valued as one (1) product.
   2. Product-specific Type III EPD -- Internally Reviewed. Products with an internally critically reviewed LCA in accordance with ISO 14071. Products with product-specific internal EPDs which conform to ISO 14025, and EN 15804 or ISO 21930 and have at least a cradle to gate scope are valued as one (1) product.
   3. Industry-wide Type III EPD -- Products with third-party certification (Type III), including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator. Products with industry-wide EPDs, which conform to ISO 14025, and EN 15804 or ISO 21930 and have at least a cradle to gate scope are valued as one (1) product.
   4. Product-specific Type III EPD -- Products with third-party certification (Type III), including external verification and external critical review in which the manufacturer is
   5. 168 U.S. Green Building Council explicitly recognized as the participant by the program operator are valued as 1.5 products. Conform to ISO 14025 and EN 15804 or ISO 21930 and have at least a cradle to gate scope.

D. MATERIAL INGREDIENT REPORTING (OPTION 1, 1 POINT)

E. At least 10 different products from at least three different manufacturers shall comply with LEED requirements for material ingredient reporting. Each valued at 1 product, unless third-party verified with verification of content inventory are worth 1.5 products.
   1. Manufacturer Inventory. The manufacturer has published complete content inventory for the product following these guidelines:
      a. A publicly available inventory of all ingredients identified by name and Chemical Abstract Service Registration Number (CASRN) and/or European Community Number (EC Number).
      b. Materials defined as trade secret or intellectual property may withhold the name and/or CASRN/EC Number but must disclose ingredient/chemical role, amount and hazard score/class using either:

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1) Greenscreen List Translator (LT) score and/or Full GreenScreen Benchmark (BM)
2) The Globally Harmonized System of Classification and Labeling of Chemicals rev.6 (2015) (GHS)
   a) The hazard screen must be applied to each trade secret ingredient and the inventory lists the hazard category for each of the health hazards included in Part 3 of GHS (e.g. "GHS Category 2 Carcinogen").

c. Health Product Declaration. The end use product has a published and complete Health Product Declaration with full disclosure of known hazards in compliance with the Health Product Declaration open Standard.
d. Cradle to Cradle. Product has Material Health Certificate or is Cradle to Cradle Certified™ under standard version 3 or later with a Material Health achievement level at the Bronze level or higher.
e. Declare. The Declare product label must meet the following requirements:
   1) Declare labels designated as Red List Free or Declared.
   2) Declare labels designated as LBC Compliant that demonstrate content inventory to 0.1% (1000 ppm).
f. Living Product Challenge. The included Declare product label must demonstrate content inventory to 0.1% (1000 ppm).
g. Product Lens Certification
h. Facts – NSF/ANSI 336: Sustainability Assessment for Commercial Furnishings Fabric at any certification level.
i. USGBC approved program. Other USGBC approved programs meeting the material ingredient reporting criteria.

F. MATERIAL INGREDIENT OPTIMIZATION (OPTION 2, 1 POINT)

G. At least 10 permanently installed products for Project shall comply with LEED requirements for material ingredient optimization.
1. Material Ingredient Screening and Optimization Action Plan (value at 50% by cost or ½ product): The manufacturer has screened the product to at least 1,000 ppm and has provided a publicly available inventory meeting the requirements of Option 1 and completed a detailed action plan to mitigate or reduce known hazards using the principles of green chemistry. The action plan must be product-specific (not company, manufacturer or brand), and must include the following information:
   a. Description of the screening or assessment platform used by manufacturer to complete the material ingredient screening and analysis.
   b. Identification of the specific green chemistry principles targeted for implementation in the action plan.
   c. Description of specific steps anticipated in implementation of the action plan. Include proposed changes in formulation or manufacturing processes that are planned as part of green chemistry optimization strategy.
   d. Specific dates and a full timeline for completion of all the steps described in the action plan.
2. Advanced Inventory & Assessment (value at 100% by cost or 1 product):
   a. The end use product meets the requirements of any of the following:
      1) Manufacturer Inventory or Health Product Declaration: The product has demonstrated a chemical inventory to at least 0.01% by weight (100 ppm) with no GreenScreen LT-1 hazards or GHS Category 1 hazards. The HPD or Manufacturer Inventory must be third party verified.

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2) Manufacturer Inventory or HPD: The product has demonstrated a chemical inventory to at least 0.01% by weight (100ppm) and at least 75% by weight of product is assessed using GreenScreen Benchmark assessment. The remaining 25% by weight of product has been inventoried. The GreenScreen assessment must be publicly available. The HPD or Manufacturer Inventory must be third-party verified, or Living Product Challenge certified products that include a Red List Free Declare label.
3) Declare labels designated as Red List Free that are third-party verified.
4) Cradle to Cradle. Product has Material Health Certificate or is Cradel to Cradle Certified™ under standard version 3 or later with a Material Health achievement level at the Bronze level or higher.

3. Material Ingredient Optimization (value at 150% by cost or 1.5 products)
   a. The end use product has demonstrated a product inventory and assessment of ingredients using any of the following programs:
      1) Manufacturer Inventory or HPD: The product has demonstrated a chemical inventory to at least 0.01% by weight (100ppm) and at least 95% by weight of product is assessed using GreenScreen Benchmark assessment. No Benchmark 1 hazards (BM-1) are present in the end use product. The remaining 5% by weight of product not assessed has been inventoried and screened using GreenScreen List Translator and no GreenScreen LT-1 hazards are present in the end use product. The documents must be third party verified.
      2) Cradle to Cradle v3 certified product with Material Health category score of Silver or higher, or a Cradle to Cradle certified Material Health Certificate at Silver level or higher.
      3) Living Product Challenge. Products certified to the Living Product Challenge which includes achievement of Imperative 09: Transparent Material Health.

H. SOURCING OF RAW MATERIALS (OPTION 1, 1 POINT, CALCULATED BY COST)
1. Use products sourced from at least three different manufacturers that meet at least one of the responsible sourcing and extraction criteria below for at least 20%, by cost, of the total value of permanently installed building products in the project (1 point).
2. Use products sourced from at least five different manufacturers that meet at least one of the responsible sourcing and extraction criteria below for at least 40%, by cost, of the total value of permanently installed building products in the project (2 points).
   a. Extended Producer Responsibility Program: Products currently specified have been identified to be manufactured by a participant in an extended producer responsibility program. Valued at 50% of their cost.
      1) Carpet Products
      2) Ceiling Products
      3) Resilient Flooring
   b. Recycled Content: Building materials shall have recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content.
      1) Cost of postconsumer recycled content plus one-half of preconsumer recycled content of an item shall be determined by dividing the weight of postconsumer recycled content plus one-half of preconsumer recycled content in the item by the total weight of the item and multiplying by cost of the item.
      2) Do not include furniture, plumbing, mechanical and electrical components, and specialty items, such as elevators and equipment, in the calculation.

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c. Certified Wood: Wood-based materials shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, as indicated in the product specifications.

2.2 LOW-EMITTING MATERIALS (CALCULATED BY COST, SURFACE AREA OR VOLUME)

A. Indoor VOC EMISSIONS Standard and Test Method: California Department of Public Health Standard method v1..2-2017 (CDPH SM v1.2-2017), and complies with the VOC limits in Table 4-1 of the method. Additionally, the range of total VOCs after 14 days (336 hours) was measured as specified in the CDPH Standard Method v1.2 and is reported (TVOC ranges: 0.5 mg/m3 or less, between 0.5 and 5 mg/m3, or 5 mg/m3 or more). Laboratories that conduct the tests must be accredited under ISO/IEC 17025 for the test methods they use. Products used in school classrooms must be evaluated using the classroom scenario, products used in other spaces must be evaluated using the default private office scenario.
1. Wet-Applied Products: State amount applied in mass per surface area (if applicable), the range of TVOCs, follow the guidelines in CDPH Standard Method v1.2-2017, Section 8. ISO Guide 17065 accredited.
2. Paints and Coatings: Test tinted products, not just tinting bases.
3. Evidence of Compliance: Acceptable types of evidence are the following;
   a. Current UL (GGG) certification.
   b. Current SCS (CPD) Floorscore certification.
   c. Current SCS (CPD) Indoor Advantage Gold certification.
   d. Current listing in CHPS (HPPD) as a low-emitting product.
   e. Current CRI (GLP) certification.
   f. Test report showing compliance and stating exposure scenario used.
4. Product data submittal showing VOC CONTENT is NOT acceptable evidence of EMISSIONS.
5. Manufacturer's certification without test report by independent agency is NOT acceptable evidence.

B. VOC CONTENT Test Method:
1. VOC LIMIT TABLES ARE FOR REFERENCE AT THE END OF THIS SECTION
2. Product meets the VOC content limits outlined in one of the applicable standards and for projects in North America, methylene chloride and perchloroethylene may not be intentionally added.
3. Statement of product compliance must be made by the manufacturer. Any testing must follow the test method specified in the applicable regulation. If the applicable regulation requires subtraction of exempt compounds, any content of intentionally added exempt compounds larger than 1% weight by mass (total exempt compounds) must be disclosed.
4. Paints and coatings:
   a. At least 75% of all paints and coatings, by volume or surface area, meet the VOC emissions evaluation AND 100% meet the VOC content evaluation.
   b. The paints and coatings product category includes all interior paints and coatings applied on site.
   c. Meet the following by category:
      1) California Air Resource Board (CARB) 2007 Suggested Control Measure (SCM) for Architectural Coatings
      2) South Coast Air Quality Management District (SCAQMD) Rule 1113, effective February 5, 2016

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3) European Decopaint Directive (2004/42/EC)
4) Hong Kong Air pollution control (VOC) Regulation for regulated architectural paints (January 2010)

5. Adhesives and sealants:
   a. At least 75% of all adhesives and sealants, by volume or surface area, meet the VOC emissions evaluation AND 100% meet the VOC content evaluation.
   b. The adhesives and sealants product category includes all interior adhesives and sealants applied on site.
   c. Meet the following by category:
      1) SCAQMD Rule 1168, October 6, 2017
      2) Canadian VOC Concentration Limits for Architectural Coatings (SOR/2009-264)
      3) Hong Kong Air Pollution Control (VOC) Regulation for regulated adhesives and regulated sealants (April 2012)
      4) Free of solvents, as defined in TRGS 610 (January 2011)
   d. Evidence of Compliance: Acceptable types of evidence are:
      1) Manufacturer Data Sheet, listing VOC in g/L
      2) Report of laboratory testing performed in accordance with requirements.

C. Composite Wood Products:
   1. At least 75% of all composite wood, by cost or surface area, meets the Formaldehyde emissions evaluation OR salvaged and reused materials criteria.
   2. The composite wood product category includes all particleboard, medium density fiberboard, hardwood veneer plywood, and structural composite wood not included in the flooring, ceiling, wall panels, or furniture material categories.
   3. Shall be made using ultra-low-emitting formaldehyde resins as defined in California Air Resources Board's "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" or shall me made with no added formaldehyde.
   4. Evidence of Compliance: Acceptable types of evidence are:
      a. Current SCS "No Added Formaldehyde (NAF)" certification; www.scscertified.com.
      b. Report of laboratory testing performed in accordance with requirements.
      c. Published product data showing compliance with requirements.
      d. Certification by manufacturer that product complies with requirements.

D. Flooring:
   1. At least 90% of all flooring, by cost or surface area, meets the VOC EMISSIONS evaluation OR inherently nonemitting sources criteria, OR salvaged and reused materials criteria.
   2. The flooring product category includes all types of hard and soft surface flooring (carpet, ceramic, vinyl, rubber, engineered, solid wood, laminates), wall base, underlayments, and other floor coverings.
   3. Subflooring is excluded.

E. Wall Panels:
   1. At least 75% of all wall panels, by cost or surface area, meet the VOC emissions evaluation, OR inherently nonemitting sources criteria, OR salvaged and reused materials criteria.
   2. The wall panels product category includes all finish wall treatments (wall coverings, wall paneling, wall tile), surface wall structures such as gypsum or plaster, cubicle/curtain/partition walls, trim, doors, frames, windows, and window treatments.

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3. Removable/interchangeable fabric panels, built-in cabinetry, and vertical structural elements are excluded.

F. Ceilings:
1. At least 90% of all ceilings, by cost or surface area, meet the VOC emissions evaluation, OR inherently non-emitting sources criteria, OR salvaged and reused materials criteria.
2. The ceilings product category includes all ceiling panels, ceiling tile, surface ceiling structures such as gypsum or plaster, suspended systems (including canopies and clouds), and glazed skylights.
3. Overhead structural elements (exposed, finished, and unfinished) are excluded.

G. Insulation:
1. At least 75% of all insulation, by cost or surface area, meets the VOC emissions evaluation.
2. The insulation material category includes all thermal and acoustic boards, batts, rolls, blankets, sound attention fire blankets, foamed-in place, loose-fill, blown, and sprayed insulation.
3. Insulation for HVAC ducts and plumbing piping are excluded.

PART 3 - EXECUTION

3.1 NONSMOKING BUILDING

A. Smoking is not permitted within the building or within 25 ft. (8 m) of entrances, operable windows, or outdoor-air intakes.

3.2 CONSTRUCTION WASTE MANAGEMENT

A. Comply with Section 017419 "Construction Waste Management and Disposal."

3.3 CONSTRUCTION INDOOR-AIR-QUALITY (IAQ) MANAGEMENT

A. Comply with SMACNA's "SMACNA IAQ Guideline for Occupied Buildings under Construction."

1. If Owner authorizes use of permanent heating, cooling, and ventilating systems during construction period as specified in Section 015000 "Temporary Facilities and Controls," install MERV 8 filter media at each return-air inlet for the air-handling system used during construction.
   a. A cut sheet of filter media shall be submitted to the Architect for LEED Documentation.
2. Replace air filters immediately prior to occupancy with new filters specified in Section 234100 "Particulate Air Filtration."

B. CONSTRUCTION PROCEDURES INDOOR AIR-QUALITY (IAQ) MANAGEMENT
1. Prevent the absorption of moisture and humidity by absorptive materials by:

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a. Sequencing the delivery of such materials so that they are not present in the building until wet work is completed and dry.
b. Delivery and storage of such materials in fully sealed moisture-impermeable packaging.
c. Provide sufficient ventilation for drying within reasonable time frame.

2. Begin construction ventilation when building is substantially enclosed.
3. HVAC equipment and supply air ductwork may be used for ventilation during construction:
   a. Ensure that MERV 8 (min. per ASHRAE 52.2-2007, with errata) air filters are installed at each return air grille and return air transfer duct inlet opening prior to starting use; replace filters when they lose efficiency.
   b. Ensure that filtration is installed where required for normal operation of equipment, replace filters as those lose efficiency and prior to occupancy.
4. Do not store construction materials or waste in mechanical or electrical rooms.
5. Prior to use of return air ductwork without intake filters clean up and remove dust and debris generated by construction activities.
   a. Inspect duct intakes, return air grilles, and terminal units for dust.
   b. Clean plenum spaces, including top sides of lay-in ceilings, outsides of ducts, tops of pipes and conduit.
   c. Clean tops of doors and frames.
   d. Clean mechanical and electrical rooms, including tops of pipes, ducts, and conduit, equipment, and supports.
   e. Clean return plenums of air handling units.
   f. Remove intake filters last, after cleaning is complete.
6. Do not perform dusty or dirty work after starting use of return air ducts without intake filters.
7. Use other relevant recommendations of SMACNA (OCC) for avoiding unnecessary contamination due to construction procedures.
8. Tobacco product use is prohibited inside the building and within 25 feet of the building entrances during construction. Signage must be posted. Consider making the entire project site a tobacco free work zone.

3.4 INDOOR-AIR-QUALITY (IAQ) ASSESSMENT

A. Air-Quality Testing: Engage testing agency to perform the following:

1. Conduct baseline IAQ testing, after construction ends and prior to occupancy, using testing protocols consistent with the EPA's "Compendium of Methods for the Determination of Air Pollutants in Indoor Air," and as additionally detailed in USGBC's "LEED Reference Guide for Interior Design and Construction v4.1"

2. For each sampling point where maximum concentration limits are exceeded, take corrective action until requirements have been met.
   a. Number of Spaces are to have air sampling completed.
   b. Air samples shall be collected between 3 and 6 ft. (0.9 and 1.8 m) from the floor to represent the breathing zone of occupants, at durations required by the testing methods listed on the following tables.
      1) Consider locations that are most representative of the building space, and where occupants will normally spend their time.

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2) Identify at least one location per ventilation system. Include locations that represent the worst-case zones where the highest concentrations of contaminants of concern are likely to occur.
3) Identify at least one location per floor of the building.
4) Identify at least one location per space type. In most cases, only regularly occupied spaces need to be included. Additionally, for each space type identified, if the air is not well mixed or contaminants are not expected to be uniform throughout the space include more than one location in the space for testing.
5) A sampling protocol is particularly useful if the project has many floors or a large number of ventilation systems.
    a) Identify and group spaces (or floors) that are very similar in their construction, finishes, configuration, size, and HVAC systems.
    b) Randomly select one out of every seven identical spaces to include in the testing. In addition, for buildings with a large number of identical spaces (more than 21 spaces in a sample group), test a minimum of three spaces in the sample group

3. Air-sample testing shall be conducted as follows:

    a. All measurements shall be conducted prior to occupancy but during normal occupied hours, and with building ventilation system starting at the normal daily start time and operated at the minimum outside airflow rate for the occupied mode throughout the duration of the air testing.

    b. For each sampling point where the concentration exceeds the limit, take corrective action and retest for the noncompliant contaminants at the same sampling points. Repeat until all requirements are met.
    c. Building shall have all interior finishes installed including, but not limited to, millwork, doors, paint, carpet, and acoustic tiles. Nonfixed furnishings, such as workstations and partitions, are required to be in place for the testing.
    d. All Samples shall use the Allowed Test Methods listed on the tables that follow.

4. Demonstrate that contaminant maximum concentrations listed below in Table 1 are not exceeded:

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Table 1. Particulate Matter and inorganic gases

Contaminant (CAS#)	Concentration Limit (µg/m³)	Allowed Test Methods
Carbon monoxide (CO)	9 ppm; no more than 2 ppm above outdoor levels	ISO 4224 EPA Compendium Method IP-3 GB/T 18883-2002 for projects in China Direct calibrated electrochemical instrument with accuracy of (+/- 2% ppm <50 ppm minimum accuracy).
PM 10	ISO 14644-1:2015, cleanroom class of 8 or lower 50 µg/m³ Healthcare only: 20 µg/m³	Particulate monitoring device with accuracy greater of 5 micrograms/m3 or 20% of reading and resolution (5 min average data) +/- 5 µg/m³
PM 2.5	12 µg/m³ or 35 µg/m³**	
Ozone	0.07 ppm	Monitoring device with accuracy greater of 5 ppb or 20% of reading and resolution (5 min average data) +/- 5 ppb ISO 13964 ASTM D5149 — 02 EPA designated methods for Ozone

**Projects in areas with high ambient levels of PM2.5 (known EPA nonattainment areas for PM2.5, or local equivalent) must meet the 35 ug/m³ limit, all other projects should meet the 12 ug/m³ limit.

5. Demonstrate that contaminant maximum concentrations listed below in Table 2 are not exceeded:

Table 2. Volatile organic compounds

Contaminant (CAS#)	Concentration Limit (µg/m³)	Allowed Test Methods
Formaldehyde 50-00-0	20 µg/m³ (16 ppb)	ISO 16000-3, 4; EPA TO-11a, EPA comp. IP-6 ASTM D5197-16
Acetaldehyde 75-07-0	140 µg/m³	
Benzene 71-43-2	3 µg/m³	ISO 16000-6 EPA IP-1, EPA TO-17, EPA TO-15 ISO 16017-1, 2; ASTM D6196-15
Hexane (n-) 110-54-3	7000 µg/m³	
Naphthalene 91-20-3	9 µg/m³	
Phenol 108-95-2	200 µg/m³	
Styrene 100-42-5	900 µg/m³	
Tetrachloroethylene 127-18-4	35 µg/m³	
Toluene 108-88-3	300 µg/m³	
Vinyl acetate 108-05-4	200 µg/m³	
Dichlorobenzene (1,4-) 106-46-7	800 µg/m³	
Xylenes-total 108-38-3, 95-47-6, and 106-42-3	700 µg/m³	

END OF SECTION 018113

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Regulation	Product Type	Allowable VOC Content (g/l)
SCAQMD Rule 1113, effective February 5, 2016	Bond breakers	350
	Colorant - Architectural coatings, excluding IM coatings	50
	Colorant - Solvent-based IM	600
	Colorant - Waterborne IM	50
	Concrete - Curing compounds	100
	Concrete - Curing compounds for roadways and bridges	350
	Concrete surface retarder	50
	Driveway sealer	50
	Dry-fog coatings	50
	Faux finishing coatings - Clear topcoat	100
	Faux finishing coatings - Decorative coatings	350
	Faux finishing coatings - Glazes	350
	Faux finishing coatings - Japan	350
	Faux finishing coatings - Trowel applied coatings	50
	Fire-proofing coatings	150
	Flats	50
	Floor coatings	50
	Form release compound	100
	Graphic arts (sign) coatings	200
	Industrial maintenance coatings	100
	Industrial maintenance coatings - color indicating safety coatings	480
	Industrial maintenance coatings - High temperature IM coatings	420
	Industrial maintenance coatings - Non-sacrificial anti-graffiti coatings	100
	Industrial maintenance coatings - Zinc-rich IM primers	100
	Magnesite cement coatings	450
	Mastic coatings	100
	Metallic pigmented coatings	150
	Multi-Color coatings	250
	Nonflat coatings	50
	Pre-treatment wash primers	420
	Primers, sealers, and undercoaters	100
	Reactive penetrating sealers	350
	Recycled coatings	250
	Roof coatings	50
	Roof coatings, aluminum	100
	Roof primers, bituminous	350
	Rust preventative coatings	100
	Sacrificial anti-graffiti coatings	50
	Shellac - Clear	730

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		Shellac - Pigmented	550
		Specialty primers	100
		Stains	100
		Stains, interior	250
		Stone consolidants	450
		Swimming pool coatings - Repair	340
		Swimming pool coatings - Other	340
		Tile and stone sealers	100
		Traffic coatings	100
		Tub and tile refinish coatings	420
		Waterproofing sealers	100
		Waterproofing concrete/masonry sealers	100
		Wood coatings - varnish	275
		Wood coatings - sanding sealers	275
		Wood coatings - lacquer	275
		Wood conditioners	100
		Wood preservatives	350
		Low solids coatings	120
SCAQMD Rule 1168, effective date October 6, 2017	Adhesives for Architectural Applications		
		Building envelope membrane adhesive	250
		Carpet pad adhesives	50
		Ceramic glass, porcelain, & stone tile adhesive	65
		Cove base adhesives	50
		Dry wall and panel adhesives	50
		Multi-purpose construction adhesives	70
		Roofing- single ply roof membrane adhesive	250
		Roofing- all other roof adhesives	250
		Rubber floor adhesives	60
		Structural glazing adhesives	100
		Structural wood member adhesive	140
		Subfloor adhesive	50
		VCT and asphalt tile adhesives	50
		Wood flooring adhesive	100
		All other indoor floor covering adhesives	50
		All other outdoor floor covering adhesives	50
	Specialty Applications		
		Computer diskette manufacturing adhesive	350
		Contact adhesive	80
		Edge glue adhesive	250
		ABS welding cement	325
		ABS to PVC transition cement	510

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	CPVC welding cement	490
	PVC welding cement	510
	All other plastic cement welding cements	100
	Rubber Vulcanization Adhesive	250
	Special purpose contact adhesive	250
	Thin metal laminating adhesive	780
	Tire tread adhesive	100
	Top and trim adhesive	250
	Waterproof resorcinol glue	170
	All other adhesives	250
Substrate Specific Applications		
	Metal substrate-specific adhesives	30
	Plastic foam substrate-specific adhesives	50
	Porous material (except wood) substrate-specific adhesives	50
	Wood substrate-specific adhesives	30
	Fiberglass substrate-specific adhesives	80
	Reinforced plastic composite substrate-specific adhesives	200
Sealants for Architectural Applications		
	Clear, paintable, and immediately water-resistant sealant	250
	Foam insulation	250
	Grout	250
	Roadway sealant	250
	Non-staining plumbing putty	250
	Potable water sealant	250
	Roofing - single ply roof membrane sealant	450
	Roofing - all other roof sealants	300
	All other architectural sealants	50
	Marine deck sealant	760
	All other sealants	420
Adhesive Primers		
	Plastic adhesive primers	550
	Pressure sensitive adhesive primers	250
	Traffic marking tape adhesive primers	150
	Vehicle glass adhesive primers	250
	All other adhesive primers	250
Sealant Primers		
	Architectural non-porous sealant primer	250
	Architectural porous sealant primer	775
	Modified bituminous sealant primer	500
	Marine deck sealant primer	760

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Other	All other sealant primers	750
	- -	-
	Other adhesives, adhesive bonding primers, adhesive primers, or any other primers	250
California Air Resources Board (CARB) 2007	Flat coatings	50
	Nonflat coatings	100
	Nonflat - High gloss coatings	150
	Aluminum roof coatings	400
	Basement specialty coatings	400
	Bituminous roof coatings	50
	Bituminous roof primers	350
	Bond breakers	350
	Concrete curing compounds	350
	Concrete/Masonry sealers	100
	Driveway sealers	50
	Dry-fog coatings	150
	Faux finishing coatings	350
	Fire resistive coatings	350
	Floor coatings	100
	Form-release compounds	250
	Graphic arts coatings (sign paints)	500
	High temperature coatings	420
	Industrial maintenance coatings	250
	Low solids coatings	120
	Magnesite cement coatings	450
	Mastic texture coatings	100
	Metallic pigmented coatings	500
	Multi-color coatings	250
	Pre-treatment wash primers	420
	Primers, sealers, and undercoaters	100
	Reactive penetrating sealers	350
	Recycled coatings	250
	Roof coatings	50
	Rust preventative coatings	250
	Shellac - Clear	730
	Shellac - Opaque	550
	Specialty primers, sealers, and undercoaters	100
	Stains	250
	Stone consolidants	450
	Swimming pool coatings	340
	Traffic marking coatings	100
	Tub and tile refinish coatings	420

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	Waterproofing membranes	250
	Wood coatings	275
	Wood preservatives	350
	Zinc-rich primers	340

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LEEDv4.1 Submittal Form		PROJECT NAME:
Please provide the following general information:		Contractor Notes: [or Submittal #]
Sub-contractor/Material Provider:		
Name of Product Manufacturer:		
Specification Number:		
Date Submitted:		
Sub-Contractor Contact Name & Phone:		

Specific Product Information			Extended Producer Responsibility Program[1]	Recycled Content[2]		Bio-Based Material[3]	FSC Wood[4]	Regional Materials[5] [Provide Mileage to Project Site]		EPD[6]	Declare[7]	HPD[8]	C2C[9]	Documents Attached:
Material [product name/model number]:	**Material Cost** (i.e. the cost to project) (include taxes and delivery, excluding install labor & equipment):		Y/N	Post %	Pre %	Y/N	Y/N	Manufacturing Location:	Raw Material Extraction Location:	Y/N	Y/N	Y/N	Y/N	
A.	$													☐
B.	$													☐
C.	$													☐
D.	$													☐

Note 1: Extended Producer Responsibility Program Participation: Manufacturer or Third party participates by providing a take-back program. Include narrative from the manufacturer describing the nature of the program, where the materials can be collected, and where the materials go upon collection.
A state recognized program. OR Third-Party Program

Note 2: Recycled content in terms of post-consumer % and/or pre-consumer % (post-industrial %), if applicable. Include documentation to verify these values (must be a statement on Manufacturer Letterhead, or Manufacturer's Data Sheets).

Note 3: Bio-Based claims must be in accordance to ISO 14021. Manufacturer/Program confirm ASTM D6866 test method was conducted.

Note 4: Wood products are certified to be FSC, if specified as FSC. Provide Invoice illustrating FSC Chain-of-Custody, Claim, as well as total material cost.

Note 5: For each material listed above, provide the mileage from the project site to the point of final manufacturing and the point of raw materials extraction (if there are multiple raw materials, provide information for the one furthest from the project site). Include documentation illustrating distances.

Note 6: Environmental Product Declaration; Indicate if the product has an EPD. If so, provide a copy.

Note 7: Declare Label : Indicate if the product has a Declare Label. If so, provide a copy.

Note 8: Health Product Declaration: Indicate if the product has an HPD. If so, provide a copy.

Note 9: Cradle to Cradle Certification: Indicate if the product is C2C certified. If so, provide manufacturer documentation.

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LEEDv4.1 - Low Emitting Materials: ***[ALL SEALANTS, CAULKS, ADHESIVES, PAINTS, COATINGS, FLOORING MATERIALS, COMPOSITE WOOD, CEILING MATERIALS, WALL BOARDS, THERMAL INSULATION, ACOUSTIC INSULATION, AND FURNITURE]***	**PROJECT NAME:**

For any VOC or Interior-Emitting materials included in the project, indicate that the appropriate environmental standards are met. Include documentation confirming compliance with these standards (must be a statement on Manufacturer Letterhead, or Manufacturer's Data Sheets).

Specific Product Information			General Emissions Evaluation Documentation Provided [10]	For Composite Woods, Evaluation Provided [11]	For Furniture, Evaluation Provided [12]	VOC Content	Total Estimated Volume Installed of Fluid-Applied Products [Sealants, Caulks, Paints, Coatings] (In g, L, gal, etc.) [indicate quantity and units below]	Documents Attached:
Material [product name/model number]:	Product Category [Such as Sealant, Paint]		Y/N	Y/N or N/A	Y/N or N/A	VOC in g/L [grams per liter]		
A.								☐
B.								☐
C.								☐
D.								☐

Note 10: Indoor Emissions Standard and Test Method: California Department of Public Health (CDPH) SM v1.2-2017), compiles with VOC limits in Table 4-1 of the method, lists the Standard Private Office exposure scenario or other applicable exposure scenario and the allowable concentrations specified in the method, and the reported range of total VOC's after 14 days.

1. Wet-Applied Products: State amount applied in mass per surface area (if applicable).
2. Paints and Coatings: Test tinted products, not just tinting bases.
3. Evidence of Compliance: Acceptable types of evidence are the following;
   a. Current UL (GreenGuard Gold) certification.
   b. Current SCS (CPD) Floorscore certification.
   c. Current SCS (CPD) Indoor Advantage Gold certification.
   d. Current listing in CHPS (HPPD) as a low-emitting product.
   e. Current CRI (Green Label Plus) certification.
   f. Or Equal test report showing compliance and stating exposure scenario used.
4. Product data submittal showing VOC content is NOT acceptable evidence for emissions certifications.

Note 11: Composite Wood Emissions Standard: EPA TSCS Title VI OR CARB (ATCM) for ultra-low emitting formaldehyde (ULEF) resins or no added formaldehyde (NAF) resins.

1. Evidence of Compliance: Acceptable types of evidence are:
   a. Current SCS "No Added Formaldehyde (NAF)" certification; www.scscertified.com.
   b. Report of laboratory testing performed in accordance with requirements.

Note 12: Furnishings Emissions Standard and Test Method: BIFMA e3 Sections 7.6.1 and 7.6.2, tested in accordance with BIFMA M7.1-2011.

VOC LIMITS - REFERENCE STANDARDS

VOC-Content-Restricted Products: VOC content not greater than required by the following:

1. Adhesives, Including Flooring Adhesives:
   SCAQMD 1168 Rule, effective October 6, 2017.

2. Sealants: SCAQMD 1168 Rule, effective October 6, 2017.

3. Paints and Coatings: Each color; most stringent of the following:
   a. SCAQMD 1113 Rule, effective February 5, 2016
   c. CARB (SCM) 2007 for Architectural Coatings

Common VOC Products to be included as applicable, but not limited to:
Concrete Sealers, Stone Sealers, Carpet Tile, Carpet Adhesive, Wall Base, Wall Base Adhesive, VCT/Rubber Flooring, VCT/Rubber Flooring Adhesives, Fire Stop, Fire Caulk, PVC Cleaner, PVC Cement, Sealant at Plumbing Fixtures, Pipe and Duct Insulation, Joint Sealants, Painters Caulk, Lamination Adhesives for Cabinetry, Countertop Caulks, Wall Covering Adhesives, General Purpose Construction Adhesives, etc.

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LEED v4.1 ID+C: Commercial Interiors

Project Checklist

Project Name: Housing Authority for the City of Pittsburgh

Date: May 22, 2020 100% Construction Documents

Y	?	N			
	2		Credit	Integrative Process	2

17	1		Location and Transportation		18
		N	Credit	LEED for Neighborhood Development Location	18
8			Credit	Surrounding Density and Diverse Uses	8
7			Credit	Access to Quality Transit	7
	1		Credit	Bicycle Facilities	1
2			Credit	Reduced Parking Footprint	2

2		10	Water Efficiency		12
Y			Prereq	Indoor Water Use Reduction	Required
2		10	Credit	Indoor Water Use Reduction	12

10	2	26	Energy and Atmosphere		38
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Fundamental Refrigerant Management	Required
4		1	Credit	Enhanced Commissioning	5
6	2	16	Credit	Optimize Energy Performance	24
		2	Credit	Advanced Energy Metering	2
		6	Credit	Renewable Energy	6
		1	Credit	Enhanced Refrigerant Management	1

9		4	Materials and Resources		13
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
1			Credit	Long-Term Commitment	1
2		2	Credit	Interiors Life-Cycle Impact Reduction	4
1		1	Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
1		1	Credit	Building Product Disclosure and Optimization - Sourcing of Raw	2
2			Credit	Building Product Disclosure and Optimization - Material Ingred:	2
2			Credit	Construction and Demolition Waste Management	2

7	1	9	Indoor Environmental Quality		17
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
		2	Credit	Enhanced Indoor Air Quality Strategies	2
3			Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
2			Credit	Indoor Air Quality Assessment	2
		1	Credit	Thermal Comfort	1
1	1		Credit	Interior Lighting	2
		3	Credit	Daylight	3
		1	Credit	Quality Views	1
		2	Credit	Acoustic Performance	2

6			Innovation		6
1			Credit	Innovation: Occupant comfort survey	1
1			Credit	Innovation: Green Building Education	1
1			Credit	Exemplary: Access to Quality transit	1
1			Credit	Pilot: Green training for contractors	1
1			Credit	PIlot: Integrative Analysis of Building Materials	1
1			Credit	LEED Accredited Professional	1

4			Regional Priority		4
1			Credit	Construction Demolition Waste Management	1
1			Credit	Surrounding Density and Diverse Uses (5 points)	1
1			Credit	Reduced Parking Footprint (2 points)	1
1			Credit	Interiors Life Cycle Impact Reduction (1 point)	1

55	6	49	TOTALS	Possible Points:	110

Certified: 40 to 49 points, **Silver:** 50 to 59 points

Gold: 60 to 79 points **Platinum:** 80 to 110 points

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.

1.2 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.3 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

B. Predemolition photographs or video.

C. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician.

1.5 CLOSEOUT SUBMITTALS

A. Inventory of items that have been removed and salvaged.

1.6 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.7 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

G. Arrange selective demolition schedule so as not to interfere with Owner's operations.

1.8 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

C. Inventory and record the condition of items to be removed and salvaged.

3.2 PREPARATION

A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.4 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

C. Remove temporary barricades and protections where hazards no longer exist.

3.5 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
4. Maintain fire watch during and for at least three hours after flame-cutting operations.
5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
6. Dispose of demolished items and materials promptly. Comply with requirements in Section 017419 "Construction Waste Management and Disposal."

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.6 CLEANING

A. Remove demolition waste materials from Project site and recycle or dispose of them according to Section 017419 "Construction Waste Management and Disposal."

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 030130 - MAINTENANCE OF CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings, general provisions of the Contract, and other related construction documents such as Division 01 specifications apply to this Section.

1.2 SUMMARY

A. This Section includes trowel-grade, Portland cement-based, polymer modified, for patch, repair and finishing for vertical and overhead concrete at existing columns.

1.3 SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 018113 – Sustainable Design Requirements.

B. Low-Emitting Materials: Provide product data for all adhesives, paints, coatings, and sealants used on the interior of the project building (defined as inside the weatherproofing system) that identifies VOC content and VOC emissions. LEED Submittal Form shall be completed to include the estimated VOLUME of product(s) to be applied and total cost to the project.

C. Product Data: Submit manufacturer's product data and installation instructions for each material and product used. Include Safety Data Sheets.

D. Qualification Data: For Installer

1.4 QUALITY ASSURANCE

A. Manufacturer's Qualifications: The manufacturer shall be a company with at least five years' experience and regularly engaged in the manufacture and marketing of products specified herein.

B. Installer Qualifications: For best results, installation of the ARDEX product should be completed by a factory-trained applicator using mixing equipment and tools approved by the manufacturer. Please contact ARDEX Engineered Cements (724) 203-5000 for a list of recommended installers.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.

B. Store products in a dry area with temperature maintained between 50° and 85° F (10° and 29° C) and protect from direct sunlight.

C. Handle products in accordance with manufacturer's printed recommendations.

1.6 PROJECT CONDITIONS

A. Do not install material below 50° F (10° C) surface and air temperatures. These temperatures must also be maintained during and for 48 hours after the installation of products included in this section. Install quickly if substrate is warm and follow warm weather instructions per the manufacturer’s written instruction.

PART 2 - PRODUCTS

2.1 FINISHING COMPOUND

A. Portland cement-based, polymer modified, finishing compound for interior or exterior overhead and vertical concrete or masonry surfaces prior to sealing or painting.

1. Basis of Design Product:

a. ARDEX OVP^{TM}; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, Pa 15001 USA 724-203-5000 or an approved equal.

2. Performance and Physical Properties: Meet or exceed the following values for material cured at 73° F (23° C) and 50 percent relative humidity:

a. Application: Trowel
b. Pot Life: 90 minutes
c. Time to Seal or Paint: 2 to 3 hours, depending on jobsite conditions
d. VOC: 0
e. Color: Gray or White

PART 3 – EXECUTION

3.1 PREPARATION

A. General: Prepare substrate in accordance with manufacturer's instructions.

1. Concrete surfaces must be structurally sound, solid and free of any contaminant that might act as a bond breaker, including, but not limited to, form release agents, existing sealers or paints, patching compounds, weak or loose concrete, dust, dirt or oils. If necessary, mechanically clean the surface down to sound, solid concrete by sandblasting or grinding. Overwatered, frozen or otherwise weak concrete surfaces must also be mechanically prepared down to clean, sound and solid concrete. Acid etching, adhesive removers, solvents and sweeping compounds are not acceptable means of cleaning the substrate. Sanding equipment is not an effective method for removing curing and sealing compounds.

2. Surfaces must be dry for a successful installation. Surface and air temperatures must be a minimum of 50°F (10°C) for the installation of materials.

3.2 APPLICATION

A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.

B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas and landscaping from contact due to mixing and handling of materials.

C. Mixing: Comply with manufacturer's printed instructions and the following.

1. Mix each 20 lb. bag with 5 quarts (4.8 liters) of clean water.

2. For best results, mix using a $^{1}/2$" (12 mm) heavy-duty mixing drill (min. 650 rpm) with a recommended mixing paddle. Do not overwater. Mix thoroughly to obtain a lump-free consistency.

D. Application: Comply with manufacturer's printed instructions and the following.

1. Do not apply in freezing conditions or when the installation area is being subjected to precipitation.

2. Comply with manufacturer's guidelines for hot and cold weather application.

3. Apply the compound to the prepared surface with a steel trowel. Apply sufficient pressure to fill in all surface defects. Where necessary, minor touch-up work can be accomplished using a rubber float or slightly dampened sponge once the surface has started to harden. If the material has already fully set, the surface can be smoothed with fine sandpaper or re-skimmed.

4. ARDEX OVP contains no sand or gritty fillers and can be placed to a true featheredge for

perfectly smooth transitions. Use ARDEX OVP in small areas to fill in gouges, dents or holes of any depth. Thicker areas will take longer to harden.

E. Sealing and Painting

1. ARDEX OVP requires no special curing or drying procedures. Due to its unique formulation, the application of a latex paint or water-borne sealer can begin as soon as the surface has hardened – it does not need to be completely dry.

2. Drying time and the hardening of the surface will vary with jobsite conditions, the type of substrate and the thickness of installation. Thinner applications will require less drying time, while thicker applications, as well as those at cooler temperatures, may take 1 hour or more.

F. Color

1. The product is formulated from Portland cement and is a shade of gray or white when dry. As concrete color and jobsite conditions vary widely, it is not intended that this product will match the color of the concrete being resurfaced or an adjacent concrete pad. Jobsite conditions such as direct sunlight, wind or exposure to moisture before completely set can lead to color variations. If this is undesirable, a pigmented sealer should be used. Consult the ARDEX Technical Service Department for additional information.

END OF SECTION

SECTION 035416 - HYDRAULIC CEMENT UNDERLAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Polymer-modified, self-leveling, hydraulic cement underlayment.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include plans indicating substrates, locations, and average depths of underlayment based on survey of substrate conditions.

1.5 INFORMATIONAL SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 018113 – Sustainable Design Requirements.

B. Low-Emitting Materials: Provide product data for all adhesives, paints, coatings, and sealants used on the interior of the project building (defined as inside the weatherproofing system) that identifies VOC content and VOC emissions. LEED Submittal Form shall be completed to include the estimated VOLUME of product(s) to be applied and total cost to the project.

C. Qualification Data: For Installer.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Installer who is approved by manufacturer for application of underlayment products required for this Project.

1.7 FIELD CONDITIONS

A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ventilation, ambient temperature and humidity, and other conditions affecting underlayment performance.

1. Place hydraulic cement underlayments only when ambient temperature and temperature of substrates are between 50 and 80 deg F.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance Ratings: Comply with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 HYDRAULIC CEMENT UNDERLAYMENTS

A. Hydraulic Cement Underlayment: Polymer-modified, self-leveling, hydraulic cement product that can be applied in minimum uniform thickness of 1/4 inch and that can be feathered at edges to match adjacent floor elevations.

1. Manufacturer/Product: Provide K 15 manufactured by Ardex Americas.
2. Cement Binder: ASTM C150, portland cement, or hydraulic or blended hydraulic cement as defined by ASTM C219.
3. Compressive Strength: Not less than 4000 psi at 28 days when tested according to ASTM C109/C109M.
4. Underlayment Additive: Resilient-emulsion product of underlayment manufacturer, formulated for use with underlayment when applied to substrate and conditions indicated.
5. VOC=0 g/L.

B. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch; or coarse sand as recommended by underlayment manufacturer.

1. Provide aggregate when recommended in writing by underlayment manufacturer for underlayment thickness required.

C. Water: Potable and at a temperature of not more than 70 deg F.

D. Reinforcement: For underlayment applied to wood substrates, provide galvanized metal lath or other corrosion-resistant reinforcement recommended in writing by underlayment manufacturer.

E. Primer: Product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated.

F. Surface Sealer: Designed to reduce porosity as recommended by manufacturer for type of floor covering to be applied to underlayment.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for conditions affecting performance of the Work.

B. Proceed with application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Prepare and clean substrate according to manufacturer's written instructions.

1. Treat nonmoving substrate cracks according to manufacturer's written instructions to prevent cracks from telegraphing (reflecting) through underlayment.
2. Fill substrate voids to prevent underlayment from leaking.

B. Concrete Substrates: Mechanically remove, according to manufacturer's written instructions, laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond.

1. Moisture Testing: Perform tests so that each test area does not exceed 200 sq. ft. and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

a. Anhydrous Calcium Chloride Test, ASTM F1869: Proceed with installation only after substrates do not exceed a maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
b. Relative Humidity Test: Using in situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 85 percent relative humidity level measurement, or as recommended by hydraulic cement underlayment manufacturer.

C. Wood Substrates: Mechanically fasten loose boards and panels to eliminate substrate movement and squeaks. Sand to remove coatings that might impair underlayment bond and remove sanding dust.

1. Install underlayment reinforcement recommended in writing by manufacturer.

D. Nonporous Substrates: For ceramic tile, quarry tile, and terrazzo substrates, remove waxes, sealants, and other contaminants that might impair underlayment bond, and prepare surfaces according to manufacturer's written instructions.

E. Adhesion Tests: After substrate preparation, test substrate for adhesion with underlayment according to manufacturer's written instructions.

3.3 APPLICATION

A. General: Mix and apply underlayment components according to manufacturer's written instructions.

1. Close areas to traffic during underlayment application and for time period after application recommended in writing by manufacturer.
2. Coordinate application of components to provide optimum adhesion to substrate and between coats.
3. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through underlayment.

B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.

C. Apply underlayment to produce uniform, level surface.

1. Apply a final layer without aggregate to product surface.
2. Feather edges to match adjacent floor elevations.

D. Cure underlayment according to manufacturer's written instructions. Prevent contamination during application and curing processes.

E. Do not install floor coverings over underlayment until after time period recommended in writing by underlayment manufacturer.

F. Apply surface sealer at rate recommended by manufacturer.

G. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.

3.4 PROTECTION

A. Protect underlayment from concentrated and rolling loads for remainder of construction period.

END OF SECTION 035416

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes the following metal fabrications:

1. Rough hardware.
2. Steel ladders.
3. Loose bearing and leveling plates.
4. Loose steel lintels.

1.3 SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer’s letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 01 8113 – Sustainable Design Requirements.

B. Steel: Material Mill Certificates shall be submitted post-procurement.

C. Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

1. Product data for paint products and grout.
2. Samples representative of materials and finished products as may be requested by Architect.
3. Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.
4. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include a list of completed projects with project name, addresses, names of architects and owners, and other information specified.

D. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:

1. Steel framing and supports for mechanical and electrical equipment.

2. Steel framing and supports for applications where framing and supports are not specified in other Sections.

3. Steel shapes for supporting elevator door sills.

4. Shelf angles.

5. Metal ladders.

6. Loose steel lintels.

1.4 QUALITY ASSURANCE

A. Fabricator Qualifications: Firm experienced in producing metal fabrications similar to those indicated for this Project with a record of successful in-service performance, and with sufficient production capacity to produce required units without delaying the Work.

B. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code--Steel," AWS D1.2 "Structural Welding Code--Aluminum," and AWS D1.3 "Structural Welding Code--Sheet Steel."

1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

1.5 PROJECT CONDITIONS

A. Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabricating products without field measurements. Coordinate construction to ensure that actual dimensions correspond to guaranteed dimensions. Allow for trimming and fitting.

PART 2 - PRODUCTS

2.1 FERROUS METALS

A. Metal Surfaces, General: For metal fabrications exposed to view in the completed Work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

B. Steel Plates, Shapes, and Bars: ASTM A 36.

C. Rolled Steel Floor Plates: ASTM A 786.

D. Steel Tubing: Product type (manufacturing method) and as follows:

1. Cold-Formed Steel Tubing: ASTM A 500.

a) For exterior installations and where indicated, provide tubing with hot-dip galvanized coating per ASTM A 53.

E. Malleable-Iron Castings: ASTM A 47, Grade 32510.

F. Cast-in-Place Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials capable of sustaining, without failure, the load imposed within a safety factor of 4, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.

1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47 malleable iron or ASTM A 27 cast steel. Provide bolts, washers, and shims as required, hot-dip galvanized per ASTM A 153.

G. Welding Rods and Bare Electrodes: Select according to AWS specifications for the metal alloy to be welded.

2.2 PAINT

A. Low-emitting requirements – For Paints and Coatings, Adhesives and Sealants, applied on site and internal to the weatherproofing envelope:

1. General Emissions Evaluation: Products must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.1–2010 or CDPH Standard Method v1.2-2017, using the applicable exposure scenario.

2. Show compliance with VOC limits as detailed in Section 018113.17 Sustainable Design Requirements - LEED v4 ID+C.

3. Methylene chloride and perchloroethylene shall not be intentionally added in paints, coatings, adhesives, or sealants.

B. General: VOC Content: For field applications that are inside the weatherproofing system, paints and coatings shall comply with VOC content limits of authorities having jurisdiction and the following VOC content limits:

1. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.

2. Zinc-Rich Industrial Maintenance Primers: 340 g/L.

C. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements of FS TT-P-664, selected for good resistance to normal atmospheric corrosion, compatibility with finish paint systems indicated, and capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.

2.3 GALVANIZING

A. Hot dip galvanize per ASTM 123 where indicated.

B. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD-P-21035 or SSPC-Paint 20.

C. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12, except containing no asbestos fibers.

2.4 FASTENERS

A. Provide plated fasteners complying with ASTM B 633, Class Fe/Zn 25 for electro-deposited zinc coating, for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.

B. Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A, with hex nuts, ASTM A 563, and, where indicated, flat washers.

C. Machine Screws: ANSI B18.6.3.

D. Lag Bolts: ANSI B18.2.1.

E. Wood Screws: Flat head, carbon steel, ANSI B18.6.1.

F. Plain Washers: Round, carbon steel, ANSI B18.22.1.

G. Lock Washers: Helical, spring type, carbon steel, ANSI B18.21.1.

H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

1. Material: Carbon steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.

2. Material: Group 1 alloy 304 or 316 stainless-steel bolts and nuts complying with ASTM F 593 and ASTM F 594.

I. Toggle Bolts: FS FF-B-588, tumble-wing type, class and style as required.

2.5 GROUT

A. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.6 FABRICATION, GENERAL

A. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.

B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.

C. Allow for thermal movement resulting from a maximum change (range) of 100 deg F in ambient temperature in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.

D. Shear and punch metals cleanly and accurately. Remove burrs.

E. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

F. Remove sharp or rough areas on exposed traffic surfaces.

G. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.

H. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.

I. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

J. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

K. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

L. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

2.7 ROUGH HARDWARE

A. Furnish bent, or otherwise custom-fabricated, bolts, plates, anchors, hangers, dowels, and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 Sections.

B. Fabricate items to sizes, shapes, and dimensions required. Furnish malleable-iron washers for heads and nuts that bear on wood structural connections, and furnish steel washers elsewhere.

2.8 STEEL LADDER

A. General:

1. Comply with ANSI A14.3, except for elevator pit ladders.
2. For elevator pit ladders, comply with ASME A17.1/CSA B44.

B. Steel Ladders:

1. Space siderails 18 inches apart unless otherwise indicated.
2. Siderails: Continuous, 1/2-by-2-1/2-inch steel flat bars, with eased edges.
3. Rungs: 1-inch-square, steel bars.
4. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.
5. Provide nonslip surfaces on top of each rung, either by coating rung with aluminum-oxide granules set in epoxy-resin adhesive or by using a type of manufactured rung filled with aluminum-oxide grout.
6. Provide platforms as indicated fabricated from welded or pressure-locked steel bar grating, supported by steel angles. Limit openings in gratings to no more than 1/2 inch (12 mm) in least dimension.
7. Support each ladder at top and bottom and not more than 60 inches (1500 mm) o.c. with welded or bolted steel brackets.
8. Galvanize ladders, including brackets.

2.9 LOOSE BEARING AND LEVELING PLATES

A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of the required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Galvanize after fabrication.

2.10 LOOSE STEEL LINTELS

A. Fabricate loose structural steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.

B. Weld adjoining members together to form a single unit where indicated.

C. Size loose lintels for equal bearing of 1 inch per foot of clear span but not less than 8 inches bearing at each side of openings, unless otherwise indicated.

D. Galvanize loose steel lintels located in exterior walls.

2.11 SHELF AND RELIEVING ANGLES

A. Fabricate shelf and relieving angles from steel angles of sizes indicated and for attachment to concrete framing. Provide slotted holes to receive 3/4 inch bolts, spaced not more than 6 inches from ends and not more than 24 inches o.c., unless otherwise indicated.

B. For cavity walls, provide vertical channel brackets to support shelf/relieving angles from back-up masonry and concrete. Align expansion joints in angles with indicated control and expansion joints in cavity wall exterior wythe.

C. Galvanize shelf angles to be installed on exterior wythe.

2.12 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

1. Fabricate units from slotted channel framing where indicated.
2. Furnish inserts for units installed after concrete is placed.

C. Fabricate supports for operable partitions from continuous steel beams of sizes indicated or as recommended by partition manufacturer with attached bearing plates, anchors, and braces as recommended by partition manufacturer. Drill or punch bottom flanges of beams to receive partition track hanger rods; locate holes where indicated on operable partition Shop Drawings.

D. Galvanize miscellaneous framing and supports.

2.13 FINISHES, GENERAL

A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designing finishes.

B. Finish metal fabrications after assembly per requirement of "painting" specifications.

2.14 STEEL AND IRON FINISHES

A. Galvanizing: For those items indicated for galvanizing, apply zinc coating by the hot-dip process complying with the following requirements:

1. ASTM A 153 for galvanizing iron and steel hardware.

2. ASTM A 123 for galvanizing both fabricated and unfabricated iron and steel products made of uncoated rolled, pressed, and forged shapes, plates, bars, and strip 0.0299 inch thick or thicker.

B. Preparation for Shop Priming: Prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:

1. Exteriors (SSPC Zone 1B): SSPC-SP 6 "Commercial Blast Cleaning."

C. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes or to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with requirements of SSPC-PA 1 "Paint Application Specification No. 1" for shop painting.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installing anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

B. Set sleeves in concrete with tops flush with finish surface elevations. Protect sleeves from water and concrete entry.

3.2 INSTALLATION, GENERAL

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.

B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.

D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop-welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units that have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.

E. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.

3.3 SETTING LOOSE PLATES

A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.

B. Set loose leveling and bearing plates on wedges or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the bearing plate before packing with grout.

C. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

END OF SECTION 055000

SECTION 061000 – ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Wood blocking, cants, and nailers.
2. Wood furring and grounds.
3. Plywood backing panels.
    a. Provide backing panels coordinating size, locations, and equipment mounting requirements with the telecommunications and electrical equipment.

1.3 DEFINITIONS

A. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

B. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NHLA: National Hardwood Lumber Association.
3. NLGA: National Lumber Grades Authority.
4. SPIB: The Southern Pine Inspection Bureau.
5. WCLIB: West Coast Lumber Inspection Bureau.
6. WWPA: Western Wood Products Association.

1.4 SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 018113 – Sustainable Design Requirements.

B. Composite Wood Submittal: Composite Wood Evaluation Documentation: Evidence of Compliance of "No Added Formaldehyde (NAF)" or "Ultra-Low-Emitting Formaldehyde (ULEF)."

C. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
3. For fire-retardant treatments specified to be High-Temperature (HT) type include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

D. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:

1. Preservative-treated wood.
2. Fire-retardant-treated wood.
3. Power-driven fasteners.
4. Powder-actuated fasteners.
5. Expansion anchors.
6. Metal framing anchors.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

B. Deliver interior wood materials that are to be exposed to view only after building is enclosed and weatherproof, wet work other than painting is dry, and HVAC system is operating and maintaining temperature and humidity at occupancy levels.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece or omit grade stamp and provide certificates of grade compliance issued by grading agency.
3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
4. Provide dressed lumber, S4S, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA C2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
4. Wood framing members that are less than 18 inches above the ground in crawl spaces or unexcavated areas.
5. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: Comply with performance requirements of FRTW that has a flame spread of 25 or less and complies with ASTM E84.

1. Use treatment that does not promote corrosion of metal fasteners.
2. Use Exterior type for exterior locations and where indicated.
3. Use Interior Type A, unless otherwise indicated.

B. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.

C. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not bleed through, contain colorants, or otherwise adversely affect finishes.

D. Application: Treat all miscellaneous carpentry, unless otherwise indicated to be preservative treated.

2.4 DIMENSION LUMBER FRAMING

A. Maximum Moisture Content: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness.

B. Dimension Lumber Framing: No. 2 grade and any of the following species:

1. Hem-fir (north); NLGA.
2. Southern pine; SPIB.
3. Douglas fir-larch; WCLIB or WWPA.

2.5 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Cants.
4. Furring.
5. Grounds.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 15 percent maximum moisture content and any of the following species:

1. Hem-fir (north); NLGA.
2. Mixed southern pine; SPIB.
3. Spruce-pine-fir; NLGA.
4. Hem-fir; WCLIB, or WWPA.
5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

C. For exposed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:

1. Eastern white pine, Idaho white, lodgepole, ponderosa, or sugar pine; Premium or 2 Common (Sterling) grade; NeLMA, NLGA, WCLIB, or WWPA.
2. Mixed southern pine, No. 1 grade; SPIB.
3. Hem-fir or hem-fir (north), Select Merchantable or No. 1 Common grade; NLGA, WCLIB, or WWPA.
4. Spruce-pine-fir (south) or spruce-pine-fir, Select Merchantable or No. 1 Common grade; NeLMA, NLGA, WCLIB, or WWPA.

D. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine, No. 2 grade; SPIB.
2. Hem-fir or hem-fir (north), Construction or 2 Common grade; NLGA, WCLIB, or WWPA.
3. Spruce-pine-fir (south) or spruce-pine-fir, Construction or 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
4. Eastern softwoods, No. 2 Common grade; NELMA.
5. Northern species, No. 2 Common grade; NLGA.
6. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.6 PLYWOOD BACKING PANELS

A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.

B. Provide backing panels coordinating size, locations, and equipment mounting requirements with the telecommunications and electrical equipment.

C. Composite Wood Product Requirement- Part 2.

2.7 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, fire retardant treated, dissimilar materials, or in area of high relative humidity, provide fasteners as recommended by pressure-preservative or fire retardant treatment manufacturer.

a. Where fasteners are in contact with dissimilar materials or metals, provide fasteners of Type 304 stainless steel.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

F. Lag Bolts: ASME B18.2.1.

G. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material for Fasteners installed in conditioned (heated and air-conditioned) interior paces: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material for Fasteners installed in exterior and unconditioned (heated only, or ventilated only) interior spaces: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.8 MISCELLANEOUS MATERIALS

A. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

1. Use adhesives that have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Metal Framing Anchors: Install metal framing to comply with manufacturer's written instructions.

C. Do not splice structural members between supports, unless otherwise indicated.

D. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches (406 mm) o.c.

E. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:

1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
2. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet o.c.

F. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

G. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

H. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

I. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.

3.2 WOOD GROUND, SLEEPER, BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 064100 - INTERIOR ARCHITECTURAL CASEWORK & FINISH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Plastic-laminate casework.
2. Solid wood base.
3. Casework Hardware

B. Related Sections include the following:

1. Division 06 Section "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.

2. Division 12 Section “Quartz Agglomerate Countertops”.

1.3 DEFINITIONS

A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

1.4 SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer’s letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 01 8113 – Sustainable Design Requirements.

B. Composite Wood Submittal: Composite Wood Evaluation Documentation: Evidence of Compliance of "No Added Formaldehyde (NAF)" or "Ultra-Low-Emitting Formaldehyde (ULEF)."

C. Product Data: For each type of product indicated, including , including panel products, lumber, high-pressure decorative laminate, adhesive for bonding plastic laminate, fire-retardant-treated materials, stain finish system and cabinet hardware and accessories.

1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

D. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

1. Show details full size.
2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, and other items installed in architectural woodwork.

E. Samples for Verification:

1. Plastic laminates, 8 by 10 inches, for each type, color, pattern, and surface finish, with 1 sample applied to core material and specified edge material applied to 1 edge.
2. Core Material, 12-inch-square Sample showing corner.
3. Exposed cabinet hardware and accessories, one for each type and finish.
4. Lumber for Transparent Finish: Not less than 12 inches long, finished on one side and one edge.
5. Veneer-Faced Panel Products for Transparent Finish: 12 by 12 inches, include one face-veneer seam.

F. Qualification Data: For Installer and fabricator.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop shall be familiar with AWI standards and shall have the current copy of the standards available in the shop if asked for by the Architect.

B. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.

C. Fire-Test-Response Characteristics: Where fire-retardant materials or products are indicated, provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.

D. Preinstallation Conference: Conduct conference at Project site.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support woodwork and wall panels by field measurements before being enclosed, and indicate measurements on Shop Drawings.
2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork and wall panels without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.

B. Wood Products: Comply with the following:

1. Substrate panel product for casework up to 7/8” thick:. Particleboard, average 47 pound density, ANSI A208.1; Grade M-2-Exterior Glue.
2. Substrate panel product for casework 1’ thick and thicker: Particle board, average 45 pound density, ANSI A208.1, Grade M-2- Exterior glue.
3. Medium density fiberboard for wood laminate wall panels 3/4” thick, ANSI A208.2

C. Composite wood products installed on the interior side of the weatherproofing envelope shall be labeled ULEF (ultra-low-emitting formaldehyde) OR NAF (no added formaldehyde) per the California Air Resources Board ATCM for formaldehyde.

D. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.

1. Manufacturers: Refer to the Finish Schedule on the Drawings.
2. Colors and Patterns: Refer to Finish Legend on the Drawings.
3. Plastic laminate fronts/faces including any soffits/slopes and filler pieces—wood grain to run vertically.

2.2 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets. Refer to cut sheets at the end of this Section for basis of design hardware.

B. Exposed Hardware Finishes: Unless otherwise stated, for exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.

1. Brushed nickel or satin aluminum.

C. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

D. Products: Provide the following cabinet hardware items:

1. Drawer Pulls: Refer to casework Drawings.
   a. Doors: Locate pulls per architectural Drawings.

E. Hinges: .072 inch thick chromium plated steel leaves 2-1/2 inches high, five-knuckle hospital tip institutional grade quality with 0.139 inch diameter tight pin with soft-closing feature.

1. Swing: 270 degrees without binding.
2. Doors less than 36” in height: Two hinges.
3. Doors 36” or over in height: Three hinges.

F. Provide two rubber bumpers per door.

G. 7 pound magnetic catch per door. Provide two for doors 48 high and over.

H. Drawer Slides:

1. Standard Drawer: Self-closing, bottom-mount epoxy coated with captive roller and positive in stop. Slide shall have 150# rating, must be self-closing within last 3” of travel, and must prevent drawer fronts from contacting the cabinet body.
2. File Drawers: Full extension, bottom-mount epoxy coated with captive roller and positive instop. Slide shall have 100# rating, must be full extension, and prevent drawer fronts from contacting the cabinet body.
3. File drawers shall be equipped with “Pendaflex” file frames or equal manufactured units.

4. Drawer Stops: Designed to permit easy removal, and yet prevent inadvertent drawer removal. Provide on all drawers, located on the inside.

I. Shelving Hardware:

1. Open Shelving: Knape & Vogt 80 standards and 180 brackets, or equal regular duty single slot system.. Anochrome finish.
2. Adjustable Brackets: K&V #179 Seeries Adjustable Slat Bracket ,14 gage, Anochrome finish, length as noted on the drawings. Provide two #154 ANO Shelf fasteners per shelf.

2.3 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

C. Adhesives, General: Do not use adhesives that contain urea formaldehyde.

D. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.

1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.4 FABRICATION, GENERAL

A. Interior Woodwork Grade: Unless otherwise indicated, provide Custom-grade interior woodwork complying with referenced quality standard.

B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

C. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.

D. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.

E. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

1. Seal edges of openings in countertops with a coat of varnish.

2.5 PLASTIC-LAMINATE CABINETS (Flush Overlay Design)

A. Provide in accordance with AWI Architectural Woodwork Standards.

B. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by quality standard.

C. Laminate Cladding for Exposed Surfaces:

1. Horizontal Surfaces: Grade HGS.
2. Postformed Surfaces: Grade HGP.
3. Vertical Surfaces: Grade VGS.
4. Edges: Grade HGS.
5. Pattern Direction: Wood grain-vertically for drawer fronts, doors, and fixed panels.

D. Semi-Exposed Surfaces: Behind doors, drawer boxes, and unfinished panels.

1. Thermoset decorative panels.

2. Edges of Thermoset Decorative Panel Shelves: PVC or polyester edge banding.

E. Backing (concealed surfaces): high pressure backer Type BKH (0.28)

F. Edges: Grade HGS

G. Concealed Surfaces: Sound and dry solid wood, plywood, or particleboard without defects affecting strength, utility, or stability.

H. Back Panels: 1/2" particleboard surfaced both sides for balanced construction.

I. Joinery:

1. Rabbet backs flush into end panels and secure with concealed mechanical fasteners. Connect tops and bottoms of wall cabinets and bottoms and stretchers of base cabinets to ends and dividers with mechanical fasteners. Rabbet tops, bottoms, and backs into end panels.
2. Cabinet body components may be secured utilizing concealed interlocking mechanical fasteners as approved by the Architectural Woodwork Quality Standards 6th Edition – 1994 Sections 1600A-S-10 and AWI 1600B-S-9.
3. All joints are tight fitting and will not rupture or loosen due to the following:

a. Dimensional changes in the particleboard.
b. Racking of casework during shipment and installation.
c. Normal use.

4. All fastening devices and screws shall be treated to deter or resist corrosion.

J. Adjustable Shelving at Casework:

1. Color to match color of cabinet interior.
2. Adjustable shelves in open units and shelves over 36" long shall be 1" thick.
3. All other shelves shall be 3/4" thick.

K. Sub-base: Individual factory applied 3/4-inch-thick particleboard.

L. Toe Board: 5/8-inch-thick exterior grade plywood attached to sub-base with concealed fasteners.

M. Adjustable Shelf Supports within casework:

1. Shelf supports shall be injected molded clear plastic, with a double pin engagement 32 mm on center and shall have ¾" and 1" anti-tip locking tabs. Provide 200 extra shelf supports.
2. A 5 mm diameter row hole pattern 32 mm (1/4") on center shall be bored in cabinet ends for adjustable shelves. This row hole pattern shall also serve for hardware mounting and replacement and/or relocation of cabinet components
   a. Edges, Corners: Rounded

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.

B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.2 INSTALLATION

A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.

B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.

C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.

D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
2. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head screws sized for 1-inch penetration into wood framing, blocking, or hanging strips or toggle bolts through metal backing or metal framing behind wall finish.

G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.

1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
2. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
3. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
4. Caulk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants."

H. Installation Tolerances: As follows:

1. Variation from Plumb and Level: Plus or minus 1/16 inch (1.6 mm).
2. Variation of Panel Joints from Hairline: Not more than 1/16 inch (1.6 mm) wide.

I. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler, and sand smooth where exposed.

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semi exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

D. Clean panels with fabric facing, on completion of installation, to remove dust and other foreign materials according to manufacturer’s written instructions.

3.4 PROTECTION

A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, to ensure that fabric wrapped wall panels are without damage or deterioration at time of Substantial Completion.

B. Replace panels that cannot be cleaned and repaired, in a manner approved by Architect, before time of Substantial Completion.

END OF SECTION 06 41 00

SECTION 078413 - PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes through-penetration firestop systems for penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items.

1.3 PERFORMANCE REQUIREMENTS

A. General: For penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items, select and provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated.

B. Rated Systems: Provide through-penetration firestop systems with the following ratings determined per ASTM E 814:

1. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.

2. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, where systems protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas:

    a. Penetrations located outside wall cavities.
    b. Penetrations located outside fire-resistance-rated shaft enclosures.

C. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that, after curing, do not deteriorate when exposed to these conditions both during and after construction.

1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
2. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved, either by installing floor plates or by other means.

3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

D. For through-penetration firestop systems exposed to view, provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.

E. All rated floor penetrations shall be 2-hour rated.

1.4 ACTION SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 018113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;
1. Current UL (GGG) certification.
2. Current SCS (CPD) Indoor Advantage Gold certification.
3. Current listing in CHPS (HPPD) as a low-emitting product.
4. Current SCS (CPD) FLOORSCORE certification.
5. Current Green Label Plus (GLP) certification.
6. Test report showing compliance and stating exposure scenario used.

C. Low-Emitting Materials: Provide product data for all adhesives, paints, coatings, and sealants used on the interior of the project building (defined as inside the weatherproofing system) that identifies VOC content and VOC emissions. LEED Submittal Form shall be completed to include the estimated VOLUME of product(s) to be applied and total cost to the project.

D. Product Data: For each type of product indicated.

E. Shop Drawings: For each through-penetration firestop system, show each type of construction condition penetrated, relationships to adjoining construction, and type of penetrating item. Include firestop design designation of qualified testing and inspecting agency that evidences compliance with requirements for each condition indicated.

1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop system configuration for construction and penetrating items.
2. Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular through-penetration firestop condition, submit illustration, with modifications marked, approved by through-penetration firestop system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.

F. Through-Penetration Firestop System Schedule: Indicate locations of each through-penetration firestop system, along with the following information:

1. Types of penetrating items.
2. Types of constructions penetrated, including fire-resistance ratings and, where applicable, thicknesses of construction penetrated.
3. Through-penetration firestop systems for each location identified by firestop design designation of qualified testing and inspecting agency.

G. Qualification Data: For Installer.

H. Product Test Reports: From a qualified testing agency indicating through-penetration firestop system complies with requirements, based on comprehensive testing of current products.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A firm that has been approved by FM Global according to FM Global 4991, "Approval of Firestop Contractors," or been evaluated by UL and found to comply with its "Qualified Firestop Contractor Program Requirements."

B. Installer Qualifications: A firm experienced in installing through-penetration firestop systems similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful performance. Qualifications include having the necessary experience, staff, and training to install manufacturer's products per specified requirements. Manufacturer's willingness to sell its through-penetration firestop system products to Contractor or to Installer engaged by Contractor does not in itself confer qualification on buyer.

C. Installation Responsibility: Assign installation of through-penetration firestop systems and fire-resistive joint systems in Project to a single qualified installer.

D. Source Limitations: Obtain through-penetration firestop systems, for each kind of penetration and construction condition indicated, through one source from a single manufacturer.

E. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in Part 1 "Performance Requirements" Article:

1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
2. Through-penetration firestop systems are identical to those tested per testing standard referenced in "Part 1 Performance Requirements" Article. Provide rated systems complying with the following requirements:

    a. Through-penetration firestop system products bear classification marking of qualified testing and inspecting agency.
    b. Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by the following:

1) UL in its "Fire Resistance Directory."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver through-penetration firestop system products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, lot number, shelf life if applicable, qualified testing and inspecting agency's classification marking applicable to Project, curing time, and mixing instructions for multicomponent materials.

B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limits permitted by through-penetration firestop system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.

B. Ventilate through-penetration firestop systems per manufacturer's written instructions by natural means or, where this is inadequate, forced-air circulation.

1.8 COORDINATION

A. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.

B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.

C. Notify Owner's inspecting agency at least seven days in advance of through-penetration firestop system installations; confirm dates and times on days preceding each series of installations.

D. Do not cover up through-penetration firestop system installations that will become concealed behind other construction until each installation has been examined by building inspector, if required by authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, through-penetration firestop systems that may be incorporated into the Work include, but are not limited to, those systems indicated in the Through-Penetration Firestop System Schedule at the end of Part 3.

1. A/D Fire Protection Systems Inc.
2. Grace Construction Products.

3. Hilti, Inc.
4. Nelson Firestop Products.
5. 3M; Fire Protection Products.
6. Tremco, Inc.; Tremco Fire Protection Systems Group.

2.2 FIRESTOPPING, GENERAL

A. Compatibility: Provide through-penetration firestop systems that are compatible with one another; with the substrates forming openings; and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.

B. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with Part 1 "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by qualified testing and inspecting agency for firestop systems indicated.

2.3 FILL MATERIALS

A. General: Provide through-penetration firestop systems containing the types of fill materials indicated in the Through-Penetration Firestop System Schedule at the end of Part 3 by referencing the types of materials described in this Article. Fill materials are those referred to in directories of referenced testing and inspecting agencies as "fill," "void," or "cavity" materials.

B. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.

C. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.

D. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.

E. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.

F. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.

G. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.

H. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.

I. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives.

J. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

K. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces, and nonsag formulation for openings in vertical and other surfaces requiring a nonslumping, gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.
2. Grade for Horizontal Surfaces: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces.
3. Grade for Vertical Surfaces: Nonsag formulation for openings in vertical and other surfaces.

2.4 MIXING

A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of work.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Clean out openings immediately before installing through-penetration firestop systems to comply with firestop system manufacturer's written instructions and with the following requirements:

1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration firestop systems.
2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with through-penetration firestop systems. Remove loose particles remaining from cleaning operation.

3. Remove laitance and form-release agents from concrete.

B. Priming: Prime substrates where recommended in writing by through-penetration firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without disturbing firestop system's seal with substrates.

3.3 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

A. General: Install through-penetration firestop systems to comply with Part 1 "Performance Requirements" Article and with firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.

B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.

C. Install fill materials for firestop systems by proven techniques to produce the following results:

1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

A. Identify through-penetration firestop systems with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of edge of the firestop systems so that labels will be visible to anyone seeking to remove penetrating items or firestop systems. Use mechanical fasteners for metal labels. For plastic labels, use self-adhering type with adhesives capable of permanently bonding labels to surfaces on which labels are placed and, in combination with label material, will result in partial destruction of label if removal is attempted. Include the following information on labels:

1. The words "Warning - Through-Penetration Firestop System - Do Not Disturb. Notify Building Management of Any Damage."
2. Contractor's name, address, and phone number.

3. Through-penetration firestop system designation of applicable testing and inspecting agency.
4. Date of installation.
5. Through-penetration firestop system manufacturer's name.
6. Installer's name.

3.5 FIELD QUALITY CONTROL

A. Inspecting Agency: Engage a qualified, independent inspecting agency to inspect through-penetration firestops. Independent inspecting agency shall comply with ASTM E 2174 requirements including those related to qualifications, conducting inspections, and preparing test reports.

B. Where deficiencies are found, repair or replace through-penetration firestop systems so they comply with requirements.

C. Proceed with enclosing through-penetration firestop systems with other construction only after inspection reports are issued and firestop installations comply with requirements.

3.6 CLEANING AND PROTECTING

A. Clean off excess fill materials adjacent to openings as Work progresses by methods and with cleaning materials that are approved in writing by through-penetration firestop system manufacturers and that do not damage materials in which openings occur.

B. Provide final protection and maintain conditions during and after installation that ensure that through-penetration firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce systems complying with specified requirements.

3.7 THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE

A. Where UL-classified systems are indicated, they refer to alpha-alpha-numeric designations listed in UL's "Fire Resistance Directory" under product Category XHEZ.

B. Firestop Systems with No Penetrating Items:

1. UL-Classified Systems: FF-D-0002, FW-D-0004, FW-D-0011, FW-D-0019, HW-D-1006, HW-D-0013, HW-D-0020, HW-D-0027, HW-D-0044, HW-D-0065, WW-S-0004, WW-S-0008, V-7, and V-8.

C. Firestop Systems for Metallic Pipes, Conduit, or Tubing:

a. UL-Classified Systems: C-AJ- C-BJ- C-BK- F-A- F-B- F-C- W-J- W-K.

D. Firestop Systems for Nonmetallic Pipe, Conduit, or Tubing:

1. UL-Classified Systems: C-AJ-2001, C-AJ-2005, C-AJ-2027, C-AJ-2216, F-A-2045, W-J-2012, W-J-2029, W-L-2002, W-L-2004, W-L-2087, W-L-2090, W-L-2097, and W-L-2148.

E. Firestop Systems for Electrical Cables:

1. UL-Classified Systems: C-AJ-3031, C-AJ-3044, C-AJ-3150, W-L-3001; W-L-3032, W-L-3074, and W-L-3129.

F. Firestop Systems for Cable Trays:

1. UL-Classified Systems: C-AJ-4003, C-AJ-4006, W-J-4008, W-L-4004, and W-L-4018.

G. Firestop Systems for Insulated Pipes:

1. UL-Classified Systems: C-AJ-5001, C-AJ-5002, C-AJ-5005, C-AJ-5041, C-AJ-5060, W-J-5013, W-L-5001, W-L-5040, and W-L-5089.

H. Firestop Systems for Miscellaneous Mechanical Ductwork:

1. UL-Classified Systems: C-AJ-7003, C-AJ-7013, C-AJ-7015, C-AJ-7016, C-AJ-7020, W-L-7008, W-L-7016, and W-L-7041.

a. Install fire dampers per Drawings.

END OF SECTION 078413

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes joint sealants for the following applications, including those specified by reference to this Section:

1. Exterior joints in the following vertical surfaces and horizontal nontraffic surfaces:

    a. All joints between dissimilar materials.

2. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:

    a. Control and expansion joints on exposed interior surfaces of exterior walls.
    b. Perimeter joints of exterior openings where indicated.
    c. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
    d. Joints between plumbing fixtures and adjoining walls, floors, and counters.
    e. Other joints as indicated.

3. Interior joints in the following horizontal traffic surfaces:

    a. Isolation joints in cast-in-place concrete slabs.
    b. Other joints as indicated.

1.3 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 018113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;
   1. Current UL (GGG) certification.
   2. Current SCS (CPD) Indoor Advantage Gold certification.
   3. Current listing in CHPS (HPPD) as a low-emitting product.
   4. Current SCS (CPD) FLOORSCORE certification.
   5. Current Green Label Plus (GLP) certification.
   6. Test report showing compliance and stating exposure scenario used

C. Low-Emitting Materials: Provide product data for all adhesives, paints, coatings, and sealants used on the interior of the project building (defined as inside the weatherproofing system) that identifies VOC content and VOC emissions. LEED Submittal Form shall be completed to include the estimated VOLUME of product(s) to be applied and total cost to the project

D. Product Data: For each joint-sealant product indicated, including VOC content data.

E. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

F. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

G. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.

H. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.

I. Qualification Data: For Installer.

J. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.

K. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:

   1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
   2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

L. Field Test Report Log: For each elastomeric sealant application.

M. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.

N. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.

B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

C. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

1. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
2. Submit not fewer than eight pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

D. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period preceding the commencement of the Work.

1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
2. Test elastomeric joint sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.
3. Test elastomeric joint sealants according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.
4. Test other joint sealants for compliance with requirements indicated by referencing standard specifications and test methods.

E. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates as follows:

1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
2. Conduct field tests for each application indicated below:

a. Each type of elastomeric sealant and joint substrate indicated.
b. Each type of nonelastomeric sealant and joint substrate indicated.

3. Notify Architect seven days in advance of dates and times when test joints will be erected.
4. When testing sealant at EIFS, arrange for tests to take place with joint-sealant manufacturer and EIFS manufacturer technical representative present.

a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193.

1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

5. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.6 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: 5 years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: 5 years from date of Substantial Completion.

C. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:

1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
2. Disintegration of joint substrates from natural causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

B. General Emissions Evaluation Documentation: Products must be compliant CDPH Standard Method v1.2-2017 and comply with the VOC limits in Table 4-1 of the method. Products must be evaluated using the default private office scenario.

C. Refer to Section 01 8113 – Sustainable Design Requirements for VOC content limitations.

D. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

C. Suitability for Immersion in Liquids. Where elastomeric sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247 and qualify for the length of exposure indicated by reference to ASTM C 920 for Class 1 or 2. Liquid used for testing sealants is deionized water, unless otherwise indicated.

D. Single-Component Mildew-Resistant Acid-Curing Silicone Sealant:

1. Available Products:

   a. Dow Corning Corporation; 786 Mildew Resistant.
   b. Momentive Performance Materials, Inc. (formerly GE Advanced Materials) - Silicones; Sanitary SCS1700.
   c. Tremco; Tremsil 200 Sanitary.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: G, A, and, as applicable to joint substrates indicated, O.

   a. Use O Joint Substrates: Coated glass color anodic aluminum coated with a high-performance coating ceramic tile.

E. Multicomponent Nonsag Urethane Sealant:

1. Available Products:

   a. Pecora Corporation; Dynatrol II.
   b. Polymeric Systems, Inc.; PSI-270.
   c. Tremco; Dymeric 240.

2. Type and Grade: M (multicomponent) and NS (nonsag).
3. Class: 50.
4. Use[s] Related to Exposure: NT (nontraffic) and T (traffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

   a. Use O Joint Substrates: Color anodic aluminum coated with a high-performance coating galvanized steel, brick, ceramic tile and wood.

2.4 LATEX JOINT SEALANTS

A. Latex Sealant: Comply with ASTM C 834, Type OP, Grade NF.

B. Available Products:

1. Bostik Findley; Chem-Calk 600.
2. Pecora Corporation; AC-20+.
3. Tremco; Tremflex 834.

2.5 ACOUSTICAL JOINT SEALANTS

A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following:

1. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
2. Available Products:

    a. Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant.
    b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.

B. Acoustical Sealant for Concealed Joints: Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.

1. Available Products:

    a. Pecora Corporation; BA-98.
    b. Tremco; Tremco Acoustical Sealant.

2.6 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), O (open-cell material), B (bicellular material with a surface skin), or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

    a. Concrete.
    b. Masonry.
    c. Unglazed surfaces of ceramic tile.

3. Remove laitance and form-release agents from concrete.
4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

    a. Metal.

b. Glass.

B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

D. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

F. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.

2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
4. Provide flush joint configuration where indicated per Figure 5B in ASTM C 1193.

3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed elastomeric sealant joints as follows:

    a. Perform 10 tests for the first 1000 feet of joint length for each type of elastomeric sealant and joint substrate.
    b. Perform 1 test for each 1000 feet of joint length thereafter or 1 test per each floor per elevation.

2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, Method B, Exposed Surface Finish Hand Pull Tab, Method C, Field-Applied Sealant Joint Hand Pull Flap, or Method D, Water Immersion in Appendix X1 in ASTM C 1193, as appropriate for type of joint-sealant application indicated.

    a. For joints with dissimilar substrates, verify adhesion to each substrate separately; do this by extending cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.
4. Inspect tested joints and report on the following:

    a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
    b. Whether sealants filled joint cavities and are free of voids.
    c. Whether sealant dimensions and configurations comply with specified requirements.

5. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
6. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.7 JOINT-SEALANT SCHEDULE

A. Interior joints between plumbing fixtures and adjoining walls, floors, and counters.

1. Joint Sealant: Single-component mildew-resistant acid-curing silicone sealant.
2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

B. Perimeter joints between interior wall surfaces and frames of interior doors, windows and elevator entrances.

1. Joint Sealant: Latex sealant.
2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

C. Interior control, expansion, and isolation joints in horizontal traffic surfaces.

1. Joint Sealant: Multicomponent nonsag urethane sealant.
2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

END OF SECTION 079200

SECTION 081113 – HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Hollow-metal steel doors.
2. Hollow-metal steel frames.

B. Related Sections include :

1. Division 9 Section “Painting” for field painting steel doors and frames.

1.3 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings.

1.4 SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer’s letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 018113 – Sustainable Design Requirements.

B. Product Data: Include construction details, material descriptions, core descriptions, label compliance, fire-resistance and temperature-rise ratings, and finishes for each type of steel door and frame specified.

C. Shop Drawings: In addition to requirements below, provide a schedule of standard steel doors and frames using same reference numbers for details and openings as those on Drawings:

1. Elevations of each door design.
2. Details of doors, including vertical and horizontal edge details.
3. Frame details for each frame type, including dimensioned profiles.
4. Details and locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.

6. Details of anchorages, accessories, joints, and connections.
7. Details of glazing frames and stops showing glazing.
8. Details of conduit and preparations for electrified door hardware and controls.

D. Coordination Drawings: Drawings of each opening, including door and frame, drawn to scale and coordinating door hardware. Show elevations of each door design type, showing dimensions, locations of door hardware, and preparations for power, signal, and electrified control systems.

E. Oversize Construction Certification: For standard steel door assemblies required to be fire rated and exceeding limitations of labeled assemblies; include statement that doors comply with requirements of design, materials, and construction but have not been subjected to fire test.

F. Qualification Data: For Installer.

G. Product Test Reports: Based on evaluation of comprehensive fire tests performed by a qualified testing agency, for each type of standard steel door and frame.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

B. Testing Agency Qualifications: An independent agency qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.

C. Source Limitations: Obtain standard steel doors and frames through one source from a single manufacturer.

D. Fire-Rated Door Sidelight and Transom Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated.

1. Test Pressure: Test according to UBC Standard 7-2. After 5 minutes into the test, the neutral pressure level in furnace shall be established at 40 inches or less above the sill.
2. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a testing agency acceptable to authorities having jurisdiction that doors comply with standard construction requirements for tested and labeled fire-protection-rated door assemblies except for size.
3. Temperature-Rise Rating: At exit enclosures, provide doors that have a temperature-rise rating of 450 deg F maximum in 30 minutes of fire exposure.

E. Fire-Rated, Borrowed-Light Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to UBC Standard 7-4. Label each individual glazed lite.

F. Smoke-Control Door Assemblies: Comply with UBC Standard 7-2.

G. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store doors and frames under cover at Project site. Place units in a vertical position with heads up, spaced by blocking, on minimum 4-inch-high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber.

1. If wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating standard steel frames without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

1.8 COORDINATION

A. Coordinate installation of anchorages for standard steel frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Steelcraft; an Ingersoll-Rand Company.
2. Amweld International, LLC.
3. Ceco Door Products; an ASSA ABLOY Group Company.
4. Republic Builders Products Company.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Metallic-Coated Steel Sheet: ASTM A 653, Commercial Steel (CS), Type B; with minimum A40 zinc-iron-alloy (galvannealed) coating designation.

D. Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A 153, Class B.

E. Inserts, Bolts, and Fasteners: Provide items to be built into exterior walls, hot-dip galvanized according to ASTM A 153.

F. Grout: Comply with ASTM C 476, with a slump of 4 inches for standard steel door frames built into concrete or masonry, as measured according to ASTM C 143.

G. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. density; with maximum flame-spread and smoke-developed indexes of 25 and 50 respectively; passing ASTM E 136 for combustion characteristics.

H. Glazing: Comply with requirements in Division 8 Section "Glazing."

I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.3 STANDARD HOLLOW METAL DOORS

A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces, unless otherwise indicated. Comply with ANSI A250.8.

1. Design: Flush panel.
2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, mineral-board, or vertical steel-stiffener core.

    a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.
    b. Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with thermal-resistance value (R-value) of not less than 4.0 deg F x h x sq. ft./Btu when tested according to ASTM C 236 and SDI 113.

        1) Locations: Exterior doors.

3. Vertical Edges for Single-Acting Doors: Square edge.

4. Top and Bottom Edges: Closed with flush 0.042-inch- thick end closures or channels of same material as face sheets.
5. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

B. Interior Doors: Face sheets fabricated from Uncoated steel sheet, minimum thickness of 0.042 inch.

1. Heavy-Duty Doors and Frames: ANSI/SDI A250.8, Level 2; ANSI/SDI A250.4, Level B.

C. Hardware Reinforcement: Fabricate reinforcement plates from same material as door face sheets to comply with the following minimum sizes:

1. Hinges: Minimum 0.123 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
2. Pivots: Minimum 0.167 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
3. Lock Face, Flush Bolts, Closers, and Concealed Holders: Minimum 0.067 inch thick.
4. All Other Surface-Mounted Hardware: Minimum 0.067 inch thick.

D. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.4 STANDARD HOLLOW METAL FRAMES

A. General: Comply with ANSI A250.8 and with details indicated for type and profile.

B. Interior Frames: SDI A250.8.

1. Materials: Uncoated steel sheet, minimum thickness of 0.053 inch (1.3 mm).
2. Sidelite Frames: Fabricated from same thickness material as adjacent door frame.
3. Construction: Full profile welded.
4. Exposed Finish: Prime.

C. Hardware Reinforcement: Fabricate reinforcement plates from same material as frames to comply with the following minimum sizes:

1. Hinges: Minimum 0.123 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
2. Pivots: Minimum 0.167 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
3. Lock Face, Flush Bolts, Closers, and Concealed Holders: Minimum 0.067 inch thick.
4. All Other Surface-Mounted Hardware: Minimum 0.067 inch thick.

D. Supports and Anchors: Fabricated from electrolytic zinc-coated or metallic-coated steel sheet.

E. Jamb Anchors:
1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.

F. Floor Anchors: Formed from same material as frames, not less than 0.042 inch thick, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

G. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

H. Ceiling Struts: Minimum 3/8-inch-thick by 2-inch- wide steel.

I. Plaster Guards: Formed from same material as frames, not less than 0.016-inch thick.

2.5 STOPS AND MOLDINGS

A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch (0.8 mm) thick, fabricated from same material as door face sheet in which they are installed.

B. Fixed Frame Moldings: Formed integral with standard steel frames, minimum 5/8 inch high, unless otherwise indicated.

C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch thick, fabricated from same material as frames in which they are installed.

2.6 FABRICATION

A. General: Fabricate standard steel doors and frames to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Standard Steel Doors:

1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
2. Glazed Lites: Factory cut openings in doors.

C. Standard Steel Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints; fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.

3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners, unless otherwise indicated.
4. Plaster Guards: Weld guards to frame at back of hardware mortises in frames installed in concrete or masonry.
5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
6. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

        1) Three anchors per jamb up to 60 inches in height.
        2) Four anchors per jamb from 60 to 90 inches in height.
        3) Five anchors per jamb from 90 to 96 inches in height.
        4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof more than 96 inches in height.
        5) Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.

    b. Compression Type: Not less than two anchors in each jamb.
    c. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.

7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Provide plastic plugs to keep holes clear during construction.

    a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

D. Hardware Preparation: Factory prepare standard steel doors and frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping, according to the Door Hardware Schedule and templates furnished as specified in Division 8 Section "Door Hardware."

1. Reinforce doors and frames to receive nontemplated mortised and surface-mounted door hardware.
2. Comply with applicable requirements in ANSI A250.6 and ANSI/DHI A115 Series specifications for door and frame preparation for hardware. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

E. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of door or frame.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings such that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of doors and frames.

5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.7 STEEL FINISHES

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish standard steel door and frames after assembly.

B. Steel Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning"; remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel; comply with SSPC-SP 3, "Power Tool Cleaning," or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

C. Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mils.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied finish paint system indicated; and providing a sound foundation for field-applied topcoats despite prolonged exposure.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of standard steel doors and frames.

1. Examine roughing-in for embedded and built-in anchors to verify actual locations of standard steel frame connections before frame installation.
2. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove welded-in shipping spreaders installed at factory.

B. Prior to installation and with installation spreaders in place, adjust and securely brace standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:

1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.

2. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.

C. Drill and tap doors and frames to receive nontemplated mortised and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Provide doors and frames of sizes, thicknesses, and designs indicated. Install standard steel doors and frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

B. Standard Steel Frames: Install standard steel frames for doors, sidelights, transoms, borrowed lights and other openings, of size and profile indicated. Comply with SDI 105.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

    a. At fire-protection-rated openings, install frames according to NFPA 80.
    b. Install frames with removable glazing stops located on secure side of opening.
    c. Install door silencers in frames before grouting.
    d. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    e. Check plumb, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    f. Apply bituminous coating to backs of frames that are filled with mortar, grout, and plaster.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor and secure with postinstalled expansion anchors.
3. Ceiling Struts: Extend struts vertically from top of frame at each jamb to supporting construction above, unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction above. Provide adjustable wedged or bolted anchorage to frame jamb members.
4. Installation Tolerances: Adjust standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

C. Standard Steel Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
   1. Non-Fire-Rated Standard Steel Doors:
      a. Jambs and Head: 1/8 inch plus or minus 1/16 inch.
      b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.
      c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
      d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.
   2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

D. Glazing: Comply with installation requirements in Division 8 Section "Glazing" and with standard steel door and frame manufacturer's written instructions.
   1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c., and not more than 2 inches o.c. from each corner.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including standard steel doors or frames that are warped, bowed, or otherwise unacceptable.

B. Clean grout and other bonding material off standard steel doors and frames immediately after installation.

C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.

D. Galvannealed Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 081113

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Five-ply flush wood doors for opaque finish.
2. Factory priming flush wood doors.
3. Factory fitting flush wood doors to frames and factory machining for hardware.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product, including the following:

1. Door core materials and construction.
2. Door edge construction
3. Door face type and characteristics.
4. Factory-machining criteria.
5. Factory-priming specifications.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:

1. Door schedule indicating door location, type, size, fire protection rating, and swing.
2. Door elevations, dimension and locations of hardware, lite and louver cutouts, and glazing thicknesses.
3. Details of frame for each frame type, including dimensions and profile.
4. Dimensions and locations of blocking for hardware attachment.
5. Clearances and undercuts.

1.4 INFORMATIONAL SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer’s letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 018113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;
   1. Current UL (GGG) certification.
   2. Current SCS (CPD) Indoor Advantage Gold certification.
   3. Current listing in CHPS (HPPD) as a low-emitting product.
   4. Current SCS (CPD) FLOORSCORE certification.
   5. Current Green Label Plus (GLP) certification.
   6. Test report showing compliance and stating exposure scenario used

C. Composite Wood Submittal: Composite Wood Evaluation Documentation: Evidence of Compliance of "No Added Formaldehyde (NAF)" or "Ultra-Low-Emitting Formaldehyde (ULEF)."

D. Field quality-control reports.

PART 2 - PRODUCTS

2.1 FLUSH WOOD DOORS, GENERAL

A. Quality Standard: In addition to requirements specified, comply with "Architectural Woodwork Standards."

B. General Emissions Evaluation Documentation: Products must be compliant CDPH Standard Method v1.2-2017 and comply with the VOC limits in Table 4-1 of the method. Products must be evaluated using the default private office scenario.

2.2 SOLID-CORE FIVE-PLY FLUSH WOOD DOORS FOR OPAQUE FINISH

A. Interior Solid-Core Doors:

   1. Manufacturers: Subject to compliance with requirements, provide products manufactured by, but not limited to, one of the following:

      a. Eggers Industries.
      b. Lambton Doors.
      c. Masonite Architectural.
      d. VT Industries Inc.

   2. Architectural Woodwork Standards Grade: Custom.
   3. Faces: MDO.

      a. Apply MDO to standard-thickness, closed-grain, hardwood face veneers or directly to high-density hardboard crossbands.

   4. Exposed Vertical Edges: Any closed-grain hardwood.

   5. Core for Non-Fire-Rated Doors:

      a. Either glued wood stave or WDMA I.S. 10 structural composite lumber.

6. Construction: Five plies, hot-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before veneering.

2.3 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated.

1. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
2. Comply with NFPA 80 requirements for fire-rated doors.

B. Factory machine doors for hardware that is not surface applied.

1. Locate hardware to comply with DHI-WDHS-3.
2. Comply with final hardware schedules, door frame Shop Drawings, ANSI/BHMA-156.115-W, and hardware templates.
3. Coordinate with hardware mortises in metal frames, to verify dimensions and alignment before factory machining.

C. Openings: Factory cut and trim openings through doors.

1. Light Openings: Trim openings with moldings of material and profile indicated.
2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 088000 "Glazing."

2.4 FACTORY PRIMING

A. Doors for Opaque Finish: Factory prime faces, all four edges, edges of cutouts, and mortises with one coat of wood primer specified in Section 099123"Painting."

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hardware: For installation, see Section 087100 "Door Hardware."

B. Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.2 FIELD QUALITY CONTROL

A. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.

B. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.

3.3 ADJUSTING

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081416

SECTION 087100 - DOOR HARDWARE

1.1 SUMMARY

A. Section Includes

1. Door hardware for swinging doors.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: For electrified door hardware.

1. Include diagrams for power, signal, and control wiring.
2. Include details of interface of electrified door hardware and building safety and security systems.

C. Samples: For each exposed product in each finish specified, in manufacturer's standard size.

1. Tag Samples with full product description to coordinate Samples with door hardware schedule.

D. Samples for Initial Selection: For each type of exposed finish.

E. Samples for Verification: For each type of exposed product, in each finish specified.

1. Sample Size: Full-size units or minimum 2-by-4-inch (51-by-102-mm) Samples for sheet and 4-inch (102-mm) long Samples for other products.

a. Full-size Samples will be returned to Contractor. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated into the Work, within limitations of keying requirements.

2. Tag Samples with full product description to coordinate Samples with door hardware schedule.

F. Door Hardware Schedule: Prepared by or under the supervision of Installer's Architectural Hardware Consultant. Coordinate door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in Project construction schedule.

2. Format: Use same scheduling sequence and format and use same door numbers as in door hardware schedule in the Contract Documents.
3. Content: Include the following information:

    a. Identification number, location, hand, fire rating, size, and material of each door and frame.
    b. Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
    c. Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
    d. Description of electrified door hardware sequences of operation and interfaces with other building control systems.
    e. Fastenings and other installation information.
    f. Explanation of abbreviations, symbols, and designations contained in door hardware schedule.
    g. Mounting locations for door hardware.
    h. List of related door devices specified in other Sections for each door and frame.

G. Keying Schedule: Prepared by or under the supervision of Installer's Architectural Hardware Consultant, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations that are coordinated with the Contract Documents.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and Architectural Hardware Consultant.

B. Product Certificates: For each type of electrified door hardware.

1. Certify that door hardware for use on each type and size of labeled fire-rated doors complies with listed fire-rated door assemblies.

C. Product Test Reports: For compliance with accessibility requirements, for tests performed by manufacturer and witnessed by a qualified testing agency, for door hardware on doors located in accessible routes.

D. Field quality-control reports.

E. Sample Warranty: For special warranty.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and of an Architectural Hardware Consultant who is available during the course of the Work to consult Contractor, Architect, and Owner about door hardware and keying.

1. Warehousing Facilities: In Project's vicinity.
2. Scheduling Responsibility: Preparation of door hardware and keying schedule.

3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

B. Architectural Hardware Consultant Qualifications: A person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and who is currently certified by DHI as an Architectural Hardware Consultant (AHC) and an Electrified Hardware Consultant (EHC).

1.5 WARRANTY

A. Materials and Workmanship: Three years from date of Substantial Completion unless otherwise indicated below.

a. Electromagnetic Locks: Five years from date of Substantial Completion.
b. Exit Devices: Two years from date of Substantial Completion.
c. Manual Closers: 10 years from date of Substantial Completion.

1.6 FIELD QUALITY CONTROL

A. Independent Architectural Hardware Consultant: Contractor engaged. Perform inspections and prepare inspection reports.

1.7 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1.8 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

1.9 MANUFACTURERS

A. Source Limitations: Obtain each type of door hardware from single manufacturer. Provide the products named in the door hardware sets. No substitutions.

1.10 DOOR HARDWARE SCHEDULE

A. Refer to the Drawings.

END OF SECTION 087100

SECTION 088113 – WINDOW FILM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. WF-01 Privacy gradient band.

2. WF-02 Self-adhesive window film with custom gradient pattern.

3. WF-04 Self-adhesive window film with custom photograph dot pattern.

B. Related Sections include the following:

1. Division 8 Section 088000 “Glazing”

1.3 SUBMITTALS

A. Product data consisting of manufacturer’s technical data, installation instructions, and general recommendations for each window film required.

B. Samples for verification purposes of each type of window film required, 6-inch square in color, texture and finish indicated. Submit templates demonstrating gradient pattern and opacity. Obtain Architect’s approval of templates prior to production.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who is certified in writing by window film manufacturer as qualified to install window film specified.

B. Single-Source Responsibility: Obtain primary window film materials from a single manufacturer.

C. Preconstruction adhesion and compatibility testing.

D. Upon request, provide a Glass Stress Analysis of the existing glass and proposed glass/film combination as recommended by the film Manufacturer.

E. Mockup: Provide an in-place mockup of window film WF-02 at location selected by the Architect. Obtain Architect’s approval of custom gradient pattern prior to ordering material.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages and containers with seals unbroken and bearing manufacturer's labels containing brand name and directions for storage.

B. Store materials to comply with manufacture's directions to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects.

1.6 WARRANTY

A. The application shall be warranted by the film manufacturer for a period of five (5) years in that the film will maintain opaque properties without cracking, crazing, delaminating, or peeling. In the event that the product is found to be defective under warranty, the film manufacturer will replace such quantity of the film proved to be defective, and will additionally provide the removal and reapplication labor free of charge.

B. The film manufacturer also warrants against glass failure due to thermal shock fracture of glass provided the film is applied to recommended types of glass and the failure occurs within one (1) year from the start of application. Any glass failure must be reviewed by the film manufacturer prior to replacement.

PART 2 – PRODUCTS

2.1 MANUFACTURER

A. Basis-of-Design Products: U.S. Film Crew; 4090 Old William Penn Hwy.; Pittsburgh, PA 15235 or equal. Evidence of equal performance properties for products other than the specified material shall be clearly identified in product data submittals.

2.2 MATERIALS

A. Optically clear polyester with scratch resistant top coating. Film shall receive a custom gradient pattern. Custom pattern shall be provided by the Architect.

C. Adhesive color: Clear.

D. Film Thickness: 4.0 mil.

E. Width: As required to provide approved film patterns.

F. Minimum application temperature: 60 degrees F.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Film shall be applied to the surface of glass indicated by the Architect.

3.2 CLEANING AND PROTECTION

A. Clean window film surfaces after installation, according to manufacturer's written instructions.

END OF SECTION 088113

SECTION 089750 - GLASS WALL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SCOPE

A. The Glass Wall Contractor shall include all engineering, labor, materials, tools, equipment, appliances and services required to manufacture, deliver, furnish and install all items necessary for the proper execution and completion of the Work as shown on the Contract Documents, as specified herein, and/or as required by job conditions. All items not shown or specified, but which are necessary for the proper execution and completion of the Work shall be provided by the Glass Wall Contractor.

B. The extent of the VS-1 Glass Wall covered herein is shown on the building elevations, sections, floor plans and details of the Contract Documents and includes a fully enclosed, structurally sound, weather tight wall system including but not limited to:
   1. VS1 Glazing System
      a. Glass panels
      b. Cast aluminum wind restraint fittings (pinch plates)
      c. Cast aluminum gravity support brackets
      d. Head, sill and jamb glazing channels and related anchor supports
      e. Joint filler silicone gasket at interior glass joints
      f. Insert setting diagrams, support brackets, expansion joint definitions as required to accommodate wall expansion and building movement.
      g. Sealants, caulking, joint fillers, miscellaneous gaskets, fasteners, closures, and cut outs, as shown or as may be required in conjunction with the system or to join the system to adjacent construction, except as specifically excluded below.
      h. integrated VS1 door portal framing
      i. doors and hardware
      j. VS1 accessories defined on the construction documents
      k. All-glass VS1 vestibule if applicable

1.3 REFERENCES

A. Standard and applicable state and local building codes

B. American Architectural Manufacturers Association (AAMA)

C. Glass Association of American (GANA)

D. American Institute of Steel Construction (AISC)

E. American Iron and Steel Institute (AISI)

F. American National Standards Institute (ANAI)

G. American Society for Testing and Materials (ASTM)

H. American Welding Society (AWS)

I. Insulating Glass Certification Council (IGCC)

J. Sealed Insulating Glass Manufacturers Association (SIGMA)

K. Flat Glass Marketing Association (FGMA)

L. Steel Structures Painting Council (SSPC)

1.4 PERFORMANCE REQUIREMENTS

A. The Work, as erected, shall meet or exceed the following structural and thermal requirements as demonstrated by engineering calculations.

B. Provision for Thermal Movements
1. The Work shall be designed to provide for such expansion and contraction of component materials as will be caused by an exterior ambient temperature of 60F to +80F (or to values provided by building engineer).
2. The amount of such thermal movement that is accommodated in the VS-1 Glass Wall shall be identified on that Contractor's shop drawings, and shall be accompanied by thermal calculations.

C. Provision for Movement of the building Structure
1. The Work shall be designed to accommodate performance criteria, including but not limited to dead load and live load deflection, thermal expansion, elastic shortening and/or sway and torsion of the building frame, and seismic forces.
2. The amount of such movement that is accommodated in the Glass Wall Contractor's design shall be identified on that Contractor's Shop Drawings.

D. Structural Properties
1. Minimum design wind pressures for the Work acting normal to the plane of the surface of the Work shall be the greater of those required by the applicable Building Code, or as recommended by the Glass Wall Contractor as a result of his expertise in the design and construction of such Work, but no less than 10 PSF positive and negative for interior walls.
2. At corners and other changes in plane, both surfaces shall be assumed to experience the worst combination(s) of inward and outward design pressures simultaneously.
3. A one third increase in allowable stress shall not be permitted in calculations employing these design pressures, unless such calculations are based upon minimum rather than nominal metal thickness. Glass members or elements shall not be relied upon or utilized in calculations to demonstrate structural adequacy.
4. The deflection of any framing member, in a direction normal or perpendicular to the plane of the wall, when subjected to the design loads specified above shall not exceed:

a. for mullion clear spans between 10ft and 20ft: L/175 where L is the clear span of the member, nor shall the deflection of a framing member overhanging an anchor point exceed 2l/175.
b. for mullion clear spans between 20ft and 30ft: L/140 where L is the clear span of the member, nor shall the deflection of a framing member overhanging an anchor point exceed 2l/140.
c. for mullion clear spans between 30ft and 50ft: L/110 where L is the clear span of the member, nor shall the deflection of a framing member overhanging an anchor point exceed 2l/110.

5. The deflection of any framing member in a direction parallel to the plane of the wall, when carrying its full dead load, shall neither exceed an amount which will reduce the glass bite at the perimeter channel below 75% of the design dimension, nor reduce the clearance between that member and the edge of the glass to less than 1/4".
6. Glass edge deflection (for each panel independently) at full design load shall be limited to L/140 where "L" is the distance between pinch plates or the measurement of the glass edge spanning between VS-1 vertical mullions, whichever is greater.

E. Air Leakage
1. Air leakage through the Work shall not exceed 0.06 CFM per square foot of wall area at a test pressure of 6.24 PSF as tested in accordance with ASTM E-283.

F. The Contract Drawings and Specifications may not delineate some conditions or modifications which may be required to complete the Work of this Section. The Glass Wall Contractor shall develop any conditions not detailed on the Contract Drawings or noted in this Section through shop drawings to the same level of aesthetics and in compliance with performance criteria, as intended in the Contract Drawings and the Specifications.

G. Firestop: for conditions where the VS1 mullion passes in front of the slab edge as it is attached to a building, provide a continuous aluminum or steel slab edge metal as required that will allow the firestop insulation and smoke seal material to be applied per manufacturer's specifications. Use Hiliti-type system or equivalent.

1.5 QUALITY ASSURANCE

A. Provide all VS1 system components by one supplier.

B. Qualifications
1. Welding shall be done by skilled and qualified mechanics licensed where required in accordance with local building regulations. Welding shall be in conformance with AWS Structural Welding Code D1.1 as well as AISC "Specification for Architecturally Exposed Structural Steel".
2. The firm(s) engineering, fabricating and/or erecting the VS1 Glass Wall shall have no less than five (5) years experience in work of similar scope and complexity in the United States. A minimum of ten (10) projects must have been completed prior to the bid date of this project using the specific system being proposed.
3. The firm glazing the Work shall have no less than five (5) years experience in the United States in work of similar scope and complexity. Said firm must be approved by VS1 Inc. or Innovation Glass LLC as a qualified installer of the VS1 system.

4. The alternate metal fabricators listed in section 2.02 bidding the metal scope of work for this project must submit to the architect at least ten (10) days prior to bid the following documentation:
   a. System technical description
   b. Drawings of the system applied to this project. Drawings must at a minimum include:
      1) plans, elevations and sections of each wall type
      2) details of system for each wall type: head, sill, interior vertical joints, interior horizontal joints, jambs, special details, anchor details
      3) component details of each component
      4) compliance information for section 1.06.2 & 3. List job name, location, year completed, name of GC, architect and PE with contact email and telephone of manager for each party.
      5) calculations showing the sections and components are in compliance with the performance requirements of this specification.
      6) copy of mock up test reports per section 1.06.B.5
5. Provide copy of test reports from independent 3rd party laboratory demonstrating system has passed the following tests:
   a. static air infiltration test per ASTM E 283
   b. static pressure water resistance per ASTM E 331 to 12 psf
   c. uniform load deflection test per ASTM E 330 (30 psf)
   d. above tests to be conducted with at least two (2) operable windows as part of the mock up test assembly. Windows to be cycled 300 times prior to conducting test.

1.6 QUALITY CONTROL PROGRAM

A. Quality control procedures for all VS1 system components including fasteners shall be carried out at the factory, including test loadings, unless historical data can be provided that is acceptable to the Architect. In all cases, the loads applied in the quality control test must attain the following minimum values:
   1. Two times the value of the permissible member load for all parts in tension.
   2. Two times the value of the permissible member load for all parts in compression.

B. Finish Quality Control program; all polished metal to #4 satin finish per ANSI B46.1.

C. See 2.03 for glass and glazing hardware quality control requirements.

D. Job site standard: see 3.02.C.

E. Provide quality control manual for all cast parts; include verification that all 100% of all cast parts were:
   1. inspected
   2. die-penetrant tested to assure no cracks are present in the cast part

   Sample quantities of each cast part to have additional testing performed as follows
   3. X-ray to assure internal voids are minimal in quantity and size so as not to compromise the structural performance of the cast part.
   4. conduct tensile test on sample pour bars from each pour to assure structural properties of cast parts have been achieved by the casting process.

F. The Owner reserves the right to visit and inspect the fabricating facilities of the Glass Wall Contractor and any approved subcontractor to the Glass Wall Contractor at any time when the Work is in progress. All shop and field materials and workmanship shall be subject to inspection by the Owner at all times. Provide unimpeded access to the Work and any scaffolds utilized in the installation thereof without requiring execution of any special release forms.

1.7 SUBMITTALS

A. Shop Drawings
1. Submit shop drawings in accordance with with Section 013300 Submittal Procedures. Include:
2. Wall elevations at 1/4" scale
3. Details sized as necessary to adequately show required information
4. Typical glazing unit elevation at appropriate scale.
5. Show details of all conditions for every member of the glazing system. This includes the joint, anchorage, glazing system, and provision for expansion and contraction and sealant application. Provide isometric details of any conditions, as requested by the Owner and/or as required for proper assembly.
6. The details shall show all dimensions, sizes, thickness, materials, finishes, joint attachments, anchors and anchor mounts, and shall indicate erection tolerances, assumed building framing tolerances, thermal movement and movement due to live loads.
7. Include coordination details for related and adjoining Work, insert drawings and erection diagrams. Show relative lay-out for all adjacent walls, materials, all correctly dimensioned as based upon Contract Documents.

B. Calculations
1. Standard system: the VS1 system is a pre-engineered structural cladding system. If the project uses the VS1 system within its standard parameters, then an engineering certification by the metal supplier will be provided verifying that the VS1 system as drawn for this project meets or exceeds the performance criteria set forth in this project.

C. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 018113 – Sustainable Design Requirements.

D. Samples
1. Submit four samples each of all materials to be included in the Work in size and quantity as required by the Owner. These will include, but not be limited to, samples of:
2. Glass - 12" x 12" samples of each glass type fully prepared for installation.
3. Glazing hardware - mounting brackets with associated glass attachment devices, finished per Contract Documents.
4. Shop paint finish.
5. Head, jamb and sill channels finished per Contract Documents.
6. Gaskets, sealing materials, joint fillers, backer rods and flashing.
7. Field touch-up paint sample - 12" x 12".

E. Other

Submit certifications, guarantees, and all other required documentation including but not necessarily limited to those as described below:

1. Anchor setting diagrams
2. Guarantees
3. Metal finisher's quality control program
4. Casting company’s quality control program
5. Glass manufacturer's quality control program
6. Glass manufacturer's certification of suitability of product for application described in Contract Documents
7. Sealant manufacturer's certification of suitability of sealant product(s) for application described in Contract Documents
8. Sealant manufacturer's test results
9. Maintenance Manual

1.8 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of interior all-glass entrance systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

   a. Deterioration of metals, metal finishes, and other materials beyond normal use.
   b. Failure of operating components.

2. Warranty Period: Five years from date of Substantial Completion for assembly and components unless otherwise indicated.

PART 2 - PRODUCTS

2.1 VS1 GLASS WALL SYSTEM

A. The drawings and details show a VS-1 Glass Wall design concept utilizing a through-the-joint point supported approach for the glass wall solution. It is intended that a single company bear contractual responsibility for engineering, fabricating and erecting the VS1 Glass Wall.

2.2 MANUFACTURERS

A. VS1 system

1. Basis of Design Manufacturer: VS1 Inc, 40 Langridge Road, Tivoli, NY, 12583 tel. 845-758-3078; e-contact: franz@innovationglass.com or equal. Evidence of equal performance properties for products other than the specified material shall be clearly identified in product data submittals.
2. The following manufactures are acceptable suppliers of products equal to the VS1 system. Alternate manufacturers’ products shall not alter the performance, design intent,

geometry, site lines, support locations and loads, interface details, or Architectural intent of the system

a. Kawneer
b. Vistawall
c. US Aluminum

B. Glass
1. Viracon
2. Saint Gobain
3. Press Glass

Alternate manufacturers' products shall not alter the performance, design intent, geometry, thickness, support locations, interface details, or Architectural intent of the system. Submit product data to the architect for approval at least ten (10) days prior to bid.

2.3 COMPONENTS AND MATERIALS

A. Metals
1. Provide sizes, shapes and profiles as shown and/or required. Provide thickness, as necessary, to comply with structural loading requirements. Provide finish of carbon steel members per section 08900.
2. Aluminum extrusions: 6105-T5; 6061-T6 or as required to meet the structural requirements of this project.
3. Aluminum castings:
   a. minimum Fy (min) = 28 ksi
   b. ultimate tensile strength Fu (min) = 35ksi
4. Steel rectangular tubing – A500 Grade B, FY=46 Ksi
5. Steel pipes – A500 Gr. B, FY=46 Ksi, or A53 Gr. B
6. Gusset plates – A36 or A572 as required and specified on drawings.
7. Stainless Steel tubing – 304 stainless steel, unless exterior application exposed to weather then use 316 stainless steel.
8. Stainless Steel tension rods/cables and end fittings to be non-magnetic 300 series S.S., all with a #4 satin finish. If exterior application exposed to weather use only 316 stainless steel with #4 satin finish.
9. Carbon Steel tension rods - painted carbon A500 Grade B steel as called for in the final construction documents.
10. Tension rods end fittings to provide at least 1" take-up per assembly. Equivalent rod/cable connection detailing permitted subject to architect's approval.
11. Anchor gusset plates: Structural steel per ASTM A36 primed and painted as directed by Owner.
12. Perimeter channels: Provide aluminum of suitable alloy and temper as recommended by the manufacturer and finish applicator, to comply with the requirements of performance, fabrication and application of finish. Minimum thickness shall be 1/8".

B. Glass
1. Vertical glass to be tempered with following minimum thickness dimensions:
   1) Monolithic Glass : 3/8 inch tempered.
2. All glass shall be horizontally tempered to eliminate tong marks.

3. All edge work, holes and notches in the tempered glass panels shall be completed before tempering and shall comply with the requirements as follows:
   Dimensional tolerance on panel size shall be +/- 1mm of the theoretical dimension required.
   Squareness of each panel shall be within 3mm.
   Bow allowance shall be 0.1%.
4. Flatness shall be held to a maximum of 0.05mm.

C. Gaskets/Weather Stripping
1. All gaskets/weather-stripping and spacers shall be chemically compatible with the silicone sealant and suitable for specific purpose intended. Submit compliance data.
2. O-rings at pinch plates: ¼" diameter neoprene.

D. Sealants
1. All joints, which are sealed with sealant as part of the fabrication or erection procedure, shall be sealed with an approved low/medium modulus silicone sealant (exposed or concealed) in manufacturer's standard color as selected by the Owner. All perimeter sealant (metal to adjacent construction) shall be sealed with an approved low/medium modulus silicone sealant in manufacturer's standard color as selected by the Owner. Silicone sealant shall be as manufactured by General Electric (Silpruf) or DowSil (790 or 795) or Owner approve equal.
2. In using specified sealant, strictly observe printed instructions of sealant manufacturer regarding joint size, limitations, backer rod, mixing, cleaning, surface preparation, priming and application. A primer shall be used, unless written instructions from the sealant manufacturer advise to the contrary, and sealant manufacturer certifies that the lack of the use thereof will not reduce sealant performance. Sealant shall not be applied when substrates are wet or when the temperature is below 40oF, unless special low temperature application procedures, as recommended by the sealant manufacturer are followed.
3. Care shall be exercised to insure against "three surface adhesion". Bond breakers shall be provided where necessary.
4. Provide certification from sealant manufacturer that the sealant manufacturer has reviewed all sealant details and finds sealant suitable for the purpose intended, compatible with and will not stain the surfaces with which they are in contact. Statement as to compatibility, adhesion sufficiency and non-staining shall be accompanied by actual test results on production substrates performed in accord with applicable ASTM procedures. Cleaners used in laboratory testing shall be as intended for use on the Work and shall be VOC complaint with local governmental requirements.

2.4 ACCESSORIES

A. Fasteners visible or exposed to the weather to be fabricated from non-magnetic stainless steel (316 alloy or equivalent).

B. Self-drilling screws may not be used without prior approval from the VS1 metal supplier.

C. Slip joint linings/sleeves/shim: Provide stainless steel sleeve spacers and/or suitable bearing pads, as required, to insure free noiseless movement between surfaces where expansion and deflection movements are intended. Provide "Eel Slip", "Nylatron" or high impact polystyrene

shims or pads or equivalent plastic units or sizes and thickness (minimum 1/16" except 1/8" for "Eel Slip) recommended by the manufacturer to permanently prevent "freeze up" of joints.

D. Flashing require within the system and to adjacent construction shall be aluminum.

2.5 FABRICATION

A. General
1. All parts of the Work shall be of the materials, design, sizes and thickness shown or note on the Contract Drawings and/or specified in this Specification Section or as may be required to meet the aesthetic intent and design performance requirements. Methods of fabrication and assemble, however, unless specifically stated, shall be at the discretion of the manufacturer and subject to the acceptance of the Owner.

B. Workmanship
1. All work shall be done by competent workman thoroughly skilled in the trade. Use no materials, equipment or practices that may adversely affect the functioning, appearance and durability of the completed Work and related construction. The work shall be accomplished in compliance with the specified criteria and without buckling, opening of joints, undue stress on fasteners, sealant and gaskets, opening of welds, cracking of glass, leakage, noises or other harmful effects.

C. Joints in Metalwork
1. All exposed Work shall be carefully matched to produce continuity of line and design with all joints, unless otherwise shown or specified, being accurately fitted joints and rigidly secured. Any exposed edges shall be finished to match face of the Work.

D. Shop Assembly
1. As far as practicable, all fitting and assemble work shall be done in the shop.

E. Exposed Fasteners
1. Exposed fasteners on finished surfaces will not be permitted unless otherwise shown on the Contract Drawings, or specified. Exposed fasteners, if permitted by the Owner, shall be painted to match the adjoining finish and shall be located as inconspicuously as possible.

F. Protection of Metals
1. Protection against galvanic action shall be provided where dissimilar materials or metals are in contact. This protection shall be provided by either painting the contact surfaces with two heavy coatings of zinc rich primer in different colors or by application of an appropriate sealant or tape or other approved galvanic isolator.

G. Welding
1. All welding shall be in accord with pertinent recommendations of the American Welding Society and shall be done with electrodes and/or methods recommended by the suppliers of the metals being welded. Type, size and spacing of welds shall be as shown on the approved shop drawings.
2. Welds behind finished surfaces shall be done in such a manner as not to cause distortion "weld telegraphing" and/or discoloration on the finished side. Weld spatter and welding oxides on finished surfaces will not be permitted.

H. Shop Painting of Carbon Steel
1. Items of carbon steel, unless galvanized after fabrication or scheduled for other finish shall, after completion of fabrication and welding, be thoroughly cleaned of all loose scale, filing, dirt and other foreign matter and shall be painted with two coats of an approved zinc rich primer in two different colors. Surface preparation shall be SSPC-SP6. See section 08900 for additional finish requirements.

I. Shop Painting of Aluminum
1. extrusions – factory paint all exposed metal surfaces in strict accordance with manufacturers recommended application procedures. Use PPG Duracron (or equivalent) paint to standard color selection for all interior applications; use PPG Duranar XL (or equivalent) paint for all exterior applications. Submit color chart.
2. castings – factory paint all exposed metal surfaces with a powder coat type paint to standard color selection; submit color chart.

PART 3 - EXECUTION

3.1 EXAMINATION

A. After lines and grades have been established, and before beginning installation in any area, the Glass Wall Contractor shall examine all parts of the structure on which the Work is to be placed in that area. Should any conditions be found which, in his opinion, will prevent the proper execution of his Work, he shall report such conditions in writing to the General Contractor and make recommendations as to any necessary corrections. Installation or Work shall not proceed in that area until the General Contractor approves proposed installation methods.

3.2 INSTALLATION

A. Qualification of Workmen
1. All Work shall be performed by skilled workmen, especially trained and experienced in this type of Work.

B. Lines and Grades
1. Bench marks for elevations and building line offset marks for alignment shall be established on each floor level by the General Contractor, who shall be responsible for their accuracy. Should any error be found in their location, the Glass Wall Contractor shall so notify the General Contractor in writing, and installation Work shall not proceed in the affected areas until the errors have been corrected.

C. Erection Tolerances
1. General Contractor Tolerances
The following are the tolerances that the General Contractor must hold for the building steel framing, supporting the work of the Glass Wall Contractors' scope:
2. All steel work to AISC standards
   a. Columns 1/8" per foot up to 50' in height, to a maximum of 1" out of plane of the wall and 2" in plane of the wall.
   b. Beams – +/- ½" from theoretical location all directions
3. All Concrete work to ACI standards

a. Slabs - +/- ½" from theoretical elevations
b. VS1 system Contractor Erection Tolerances

4. All parts of the Work shall be erected, plumb and true, in proper alignment and relation to established lines and grades, and as shown on approved shop drawings and/or erection drawings. The following are the guidelines for the VS1 system Contractor for field erection tolerances:
   a. Survey and layout connections to the building within +/- 1/8" from theoretical locations.
   b. Vertical framing members must be plumb to within +/- 1/8" from theoretical position.
5. At a location of his choice, but adjacent to completed opaque wall, the Glass Wall Contractor shall erect the following full bay assemblies which upon acceptance by the Owner shall serve as job standards for completion of the Work:
   a. VS1 system extending one complete glazing bay and full height.

D. Welding
1. All welding shall be done by skilled mechanics, certified, qualified or licensed in accord with local building regulations and shall conform to the recommended practices of the American Welding Society and approved shop drawing requirements. Welds and adjoining burnt areas shall be thoroughly cleaned and painted with two coats of paint as specified above. Protect glass and other finished surfaces from damage, and prevent causing fires.

E. Use of Sealant Materials
1. Application of exterior sealant in moving joints shall not commence until the Work of this Specification Section has been "topped out" and the Owner has released Work for sealant application.
2. Sealing materials specified in this Specification Section shall be used in strict accordance with the manufacturer's printed instructions and shall be applied only by mechanics trained or experienced in their use.
3. Before applying sealing materials, all mortar, dirt, dust, moisture, protective coatings and other foreign matter shall completely be removed from surfaces it will contact. Comply with manufacturer's instructions for final wiping of surfaces immediately before application of primer and glazing sealants.
4. Adjoining surfaces shall be masked, when required to maintain a clean and neat appearance. Sealant compounds shall be tooled to fill the joint and provide a smooth finish surface.
5. Clean excess sealant from glass and support members immediately after application, using solvents or cleaners recommended by the manufacturers.

F. Anchorage
1. Anchorage of the Work to the structure shall be by approved methods in strict accordance with approved shop and/or erection drawings. Supporting brackets shall be so designed as to provide three dimensional adjustment and accurate location of all components. After the unit is properly positioned, all connections so designated on approved shop drawings shall be rigidly fixed by welding or other positive means.

G. Glazing
1. Before glazing, the backer structure shall be checked to see that it is square, plumb and true plane, and within tolerance to install the glass. Perimeter glazing channel clearance shall be sufficient to avoid all point loading.

2. If found otherwise, glazing shall not proceed until proper corrections are made. Correct glass sizes to insure adequate "glass bite" shall be verified by field measurement. Glass shall be installed in such manner to assure proper "glass bite" at all channels.
3. No glass shall be cut after leaving the factory.
4. Install in accordance with Glazing Manufacturer's requirements and the shop drawings.
5. Employ only experienced glaziers who have had previous experience with materials and systems being applied. Use tools and equipment recommended by the glass manufacturer.
6. Plate-to-plate joints of glass are sealed with silicone sealant. Joint dimensions shall be maintained to be compatible with sealant properties and live load movement of the structure.
7. Bolt Torque: Torque bolts to torques specified on shop drawings using calibrated tool. Lock torqued bolts into position to prevent back-off. Reset calibrations regularly to ensure accurate torquing.
8. Maintain a minimum temperature of 40oF during glazing unless the manufacturer of the glazing material specifically agrees in writing to application of this material at lower temperature. If job progress of other conditions require glazing work when temperature is below 40oF (or below the minimum temperature recommended by the manufacturer), consult the manufacturer and establish in writing the minimum provisions required to ensure satisfactory work.
9. Inspect each unit of glass immediately before installation. Glass which has significant impact damage at edges, scratches or abrasion of faces, or any other evidence of damage shall not be installed.

H. Removal of Debris
1. All debris caused by or incidental to the installation of this Work shall be deposited in trash receptacles provided by the General Contractor on a daily basis, as the Work progresses.

3.3 CLEANING AND PROTECTION

A. Remove from the installed Work all sealant smears or other unsightly marks caused by workmen that would not be readily removed by normal final cleaning with mild soap and water.

3.4 INSPECTION

A. Cooperate with the Architect's and Owner's inspection personnel and allow unrestricted access to the Work, both in plant and field, and to any scaffolds used in the performance of the Work without requiring any scaffold releases, in order to facilitate such inspection. Schedule field inspections with glass wall manufacturer and installer.

END OF SECTION 089750

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Non-load-bearing steel framing systems for interior gypsum board assemblies.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For firestop tracks from ICC-ES.

B. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 018113 – Sustainable Design Requirements.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.

2.2 FRAMING SYSTEMS

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
2. Protective Coating: ASTM A 653, G60 hot-dip galvanized unless otherwise indicated.

B. Studs and Runners: ASTM C 645.

1. Steel Studs and Runners:

a. Minimum Base-Metal Thickness: 0.033 inch.
b. Depth: As indicated on Drawings.

C. Slip-Type Head Joints: Where indicated, provide the following:

1. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1) Dietrich Metal Framing; SLP-TRK Slotted Deflection Track.
2) Steel Network Inc. (The); VertiClip SLD Series.
3) Superior Metal Trim; Superior Flex Track System (SFT).

D. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Fire Trak Corp.; Fire Trak System.
b. Grace Construction Products; FlameSafe FlowTrak System.
c. Metal-Lite, Inc.; The System.

E. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Minimum Base-Metal Thickness: 0.033 inch.

F. Cold-Rolled Channel Bridging: Steel, 0.053-inch minimum base-metal thickness, with minimum 1/2-inch-wide flanges.

1. Depth: 1-1/2 inches.
2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch-thick, galvanized steel.

G. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Minimum Base-Metal Thickness: 0.033 inch.
2. Depth: 7/8 inch (22.2 mm).

H. Resilient Furring Channels: 1/2-inch-deep, steel sheet members designed to reduce sound transmission.

1. Configuration: Asymmetrical or hat shaped.

I. Cold-Rolled Furring Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch-(13-mm-) wide flanges.

1. Depth: 3/4 inch (19 mm).
2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum uncoated-steel thickness of 0.033 inch (0.8 mm).
3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- (1.59-mm-) diameter wire, or double strand of 0.048-inch- (1.21-mm-) diameter wire.

J. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches (32 mm), wall attachment flange of 7/8 inch (22 mm), minimum uncoated-metal thickness of 0.018 inch (0.45 mm), and depth required to fit insulation thickness indicated.

2.3 SUSPENSION SYSTEMS

A. Tie Wire: ASTM A 641, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire.

B. Hanger Attachments to Concrete:

1. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.

C. Wire Hangers: ASTM A 641, Class 1 zinc coating, soft temper, 0.16 inch in diameter.

D. Flat Hangers: Steel sheet, 1 by 3/16 inch by length indicated.

E. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.053 inch (1.34 mm) and minimum 1/2-inch-wide flanges.

1. Depth: 2-1/2 inches.

F. Furring Channels (Furring Members):

1. Cold-Rolled Channels: 0.053-inch (1.34-mm) uncoated-steel thickness, with minimum 1/2-inch- (13-mm-) wide flanges, 3/4 inch (19 mm) deep.
2. Steel Studs and Runners: ASTM C 645.

a. Minimum Base-Metal Thickness: 0.033 inch (0.84 mm).
b. Depth: As indicated on Drawings.

3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22 mm) deep.

a. Minimum Base-Metal Thickness: 0.033 inch (0.84 mm).

4. Resilient Furring Channels: 1/2-inch- (13-mm-) deep members designed to reduce sound transmission.

a. Configuration: Asymmetrical or hat shaped.

G. Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Armstrong World Industries, Inc.; Drywall Grid Systems.
b. Chicago Metallic Corporation; Drywall Grid System.
c. USG Corporation; Drywall Suspension System.

2.4 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards.

1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Isolation Strip at Exterior Walls: Provide one of the following:

1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.
2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.

1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

B. Coordination with Sprayed Fire-Resistive Materials:

1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches (610 mm) o.c.
2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

3.3 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.

1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

C. Install bracing at terminations in assemblies.

D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.4 INSTALLING FRAMED ASSEMBLIES

A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

1. Single-Layer Application: 16 inches (406 mm) o.c. unless otherwise indicated.

B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

C. Install studs so flanges within framing system point in same direction.

D. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to

terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

    a. Install two studs at each jamb unless otherwise indicated.
    b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (13-mm) clearance from jamb stud to allow for installation of control joint in finished assembly.
    c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

    a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

E. Z-Furring Members:

1. Erect insulation, specified in Division 07 Section "Thermal Insulation," vertically and hold in place with Z-furring members spaced 24 inches (610 mm) o.c.
2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.
3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches (305 mm) from corner and cut insulation to fit.

F. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Interior gypsum board.

2. Tile backing panels.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For the following products:

1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.

C. Data indicating compliance with specified STC rating.

1.4 INFORMATIONAL SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 01 8113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;
   1. Current UL (GGG) certification.
   2. Current SCS (CPD) Indoor Advantage Gold certification.
   3. Current listing in CHPS (HPPD) as a low-emitting product.
   4. Current SCS (CPD) FLOORSCORE certification.
   5. Current Green Label Plus (GLP) certification.
   6. Test report showing compliance and stating exposure scenario used.

1.5 QUALITY ASSURANCE

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

1.6 STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

PART 2 - PRODUCTS

2.1 PANELS, GENERAL

A. General Emissions Evaluation Documentation: Products must be compliant CDPH Standard Method v1.2-2017 and comply with the VOC limits in Table 4-1 of the method. Products must be evaluated using the default private office scenario.

B. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.2 INTERIOR GYPSUM BOARD

A. General: Complying with ASTM C 1396; as applicable to type of gypsum board indicated and whichever is more stringent.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. G-P Gypsum.
b. National Gypsum Company.
c. USG Corporation.

B. Provide Type X, unless otherwise indicated:

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

2.3 TILE BACKING PANELS

A. Glass-Mat, Water-Resistant Backing Board: ASTM C1178/C1178M, with manufacturer's standard edges.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following or equal. Evidence of equal performance properties for products other than the specified material shall be clearly identified in product data submittals.

a. CertainTeed Corporation.
b. Georgia-Pacific Gypsum LLC.
c. United States Gypsum Company (USG)

2. Thickness: As indicated on Drawings.
3. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, or paper-faced galvanized steel sheet.
2. Shapes:

a. Cornerbead.
b. LC-Bead: J-shaped; exposed long flange receives joint compound.
c. L-Bead: L-shaped; exposed long flange receives joint compound.
d. U-Bead: J-shaped; exposed short flange does not receive joint compound.
e. Expansion (control) joint.

2.5 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475.

B. Joint Tape:

1. Interior Gypsum Wallboard: Paper.
2. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
3. Fill Coat: For second coat, use setting-type, sandable topping compound.
4. Finish Coat: For third coat, use setting-type, sandable topping compound.
5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound.

2.6 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

D. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

E. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Accumetric LLC; BOSS 824 Acoustical Sound Sealant.
b. Grabber Construction Products; Acoustical Sealant GSC.
c. Pecora Corporation; AC-20 FTR.
d. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant.
e. USG Corporation; SHEETROCK Acoustical Sealant.

2. Acoustical joint sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

3. Latex Acoustical Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C834 and the following requirements:

a. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTM E90.
b. Product has flame-spread and smoke-developed ratings of less than 25 per ASTM E84.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames and framing, for compliance with requirements and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Installation of paper faced panels shall not begin until areas receiving panels is conditioned space.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

C. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

D. Form control and expansion joints with space between edges of adjoining gypsum panels.

E. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-wide joints to install sealant.

F. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch-wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

G. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

H. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:

1. Type X: As indicated on Drawings.
2. Moisture- and Mold-Resistant Type: As indicated on Drawings.

B. Single-Layer Application:
1. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    b. At high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.

2. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

C. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners.
2. LC-Bead: Use at exposed panel edges.
3. L-Bead: Use where indicated.
4. U-Bead: Use at exposed panel edges.

3.5 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints and damaged surface areas.

C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated unless a higher level of finish is required for fire-resistive-rated assemblies and sound-rated assemblies.
2. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.

3.6 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 093000 - TILING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract and Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This section includes the following tile products:

1. Porcelain tile.
2. Crack suppression membrane.
3. Setting materials.
4. Grout materials.
5. Sealants.

B. Provide complete systems including leveling, waterproofing, setting materials, grout, sealants, etc and provide fully functional floor and wall finish systems.

1.3 PERFORMANCE REQUIREMENTS

A. Applications: Tiles being employed in floor, exterior and/or wet area applications must be so certified by the tile manufacturer for each of these uses.

B. Wet Areas: Do not provide mounted tile assemblies for these uses unless the tile manufacturer certifies that the mounting is suitable for the specified installation and can document a history of successful and appropriate in-service performance.

C. Factory Blending: Tile exhibiting color variations within the range(s) selected, are to be blended in the factory so that units taken from one package show the same range in colors as those taken from any other package.

1.4 SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 018113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;
   1. Current UL (GGG) certification.
   2. Current SCS (CPD) Indoor Advantage Gold certification.
   3. Current listing in CHPS (HPPD) as a low-emitting product.
   4. Current SCS (CPD) FLOORSCORE certification.
   5. Current Green Label Plus (GLP) certification.
   6. Test report showing compliance and stating exposure scenario used.

C. Product Data: Provide for all materials.

D. Shop Drawings: Provide drawings accurately depicting the areas being tiled; include field measurements. Locate each expansion, contraction, control, and isolation joints in the substrates; record the width of each joint. Layout tile patterns, coursing and expansion joints; demonstrate how the recorded substrate joints are being addressed within the tile work.

E. Samples: Provide full size samples of each tile, trim, accessory and grout being provide; repeat for each color being provided. Products demonstrating color and texture variations, are to be submitted in sets showing the full range of variations that can be expected.

F. Certification: Provide the manufacturer's certification(s) relative to the use of its products in floor and/or wet areas.

G. Qualification Data: For Installer.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.

   1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.
   2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

PART 2 - PRODUCTS

2.1 GENERAL

A. Installation Materials: Comply with ANSI A118.4

B. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.

2.2 TILE PRODUCTS

A. Refer to the Finish Types schedule and plans for material/product selections. Provide the named products or an approved equal. Evidence of equal performance properties for products other than the specified material shall be clearly identified in product data submittals.

2.3 TRIM UNITS

A. Unless otherwise indicated, provide trim that is made by the field tile manufacture intended to match in design, color, coursing and the other characteristics of the adjoining tiles.

B. When indicated or required by the nature of the tile/installation, provide non-tile trim.

1. Transitions: Provide Schluter transitions. Refer to the Drawings for profiles.

2.4 SETTING MATERIALS

A. Portland Cement: Comply with ASTM C 150, type 1.

B. Sand: Comply with ASTM C 144.

C. Lime: Comply with ASTM C 206 or ASTM C 207, both type S.

D. Water: Potable.

E. Latex-Portland Cement Mortar: Mix of portland cement, sand and a latex additive. Comply with ANSI A118.4, providing a nonsagging mix for walls.

2.5 GROUTING MATERIAL

A. Tile Grout:

1. Manufacturers: provide the following:
   a. Bostik, Inc.; Quartzlock 2 RapidCure Urethane.
   b. Latex Additive: Acrylic latex admixture for improved performance and color; Bostik Hydroment 425 Multi-Purpose Acrylic Latex Additive.

2. Grout colors as indicated on the Finish Types schedule or as selected by the Architect from the manufacturer’s full range.

2.6 CRACK ISOLATION MEMBRANE

A. General: Where a waterproof membrane is not installed, provide manufacturer's standard product, that complies with ANSI A118.12 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.

B. Fabric-Reinforced, Fluid-Applied Membrane: System consisting of liquid-latex rubber or elastomeric polymer and fabric reinforcement.

1. Basis of Design Product: Bostik, Inc. Ultra-Set Advanced
2. Subject to compliance with requirements, provide an equal product by one of the following:

    a. Custom Building Products.
    b. LATICRETE SUPERCAP, LLC.
    c. MAPEI Corporation.

2.7 SEALANTS

A. General Emissions Evaluation Documentation: Products must be compliant CDPH Standard Method v1.2-2017 and comply with the VOC limits in Table 4-1 of the method. Products must be evaluated using the default private office scenario.

B. Refer to Section 01 8113 – Sustainable Design Requirements for VOC content limitations.

C. Provide chemically curing elastomeric sealants that comply with ASTM C 920 as referenced by Type, Grade, Class, and Uses. Limit the VOC content to no more than 250 g/L when calculated per 40 CFR, part 59, subpart D (EPA method 24). Include the primers, backer rods, and accessories recommended by the sealant manufacturer.

D. Nontraffic Areas: Provide a mildew resistant, silicone of type S; grade NS; class 25; uses NT, G, A, and as applicable to nonporous joint substrates, O; formulated with fungicide. Must be designed for sealing joints in nonporpus substrates that are subject to in-service exposures to high humidity and temperature extremes.

E. Traffic Areas: Provide a multipart, urethane of type M; grade P; class 25; uses T, M, A, and as applicable to joint substrates, O. Include a Shore A hardness of 35.

2.8 MISCELLANEOUS MATERIALS

A. Backer Units: Refer to Division 9 Section 092900 for tile backer panels.

B. Underlayments And Patching Compounds: Provide products/formulations approved by the setting materials manufacturer.

C. Waterproofing for thin-set tile installation: Comply with ANSI A118.10. Provide a fabric-reinforced, fluid-applied system consisting of liquid-latex rubber and fabric reinforcement. System shall contain preformed fiberglass mesh coving, inside and outside corners, drain fittings, and preformed expansion joint flashing.

D. Cleaners: Provide a neutral product capable of removing soil and residue without harming the surfaces. Must be approved by both the tile and the grout manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Scope: Measure each surface being tiled. Compare actual dimensions to both those indicated on the contract documents and those on the shop drawings. Review conflicts with the architect prior to proceeding.

1. Wainscots: Include a bullnosed top course. If indicated dimensions do not end on a full tile, extend the height to the next full tile. Contact the architect for clarification prior to proceeding.

B. Moisture: Prior to the start of the tile work, review the nature of the substrate and the intended use of the tile application; applications that will be subject to wetting are limited to substrates of concrete, masonry, cured portland cement mortar, or cementitious backer units. Provide cementitious backing when one of these substrates is not present.

C. Substrate: Inspect; make flat, sound, dry, clean and free of incompatible coatings. Remove oil, waxy/soapy films and curing compounds. Coordinate the location of the substrate joints with that of the tile layout. Comply with GA-230 regarding vapor retarders.

3.2 PREPARATION

A. ANSI And TCA Reference Standards: Review the requirements of the product(s), application(s), and installation method(s) being employed. Provide the necessary adjustments/materials to ensure compliance with these standards.

B. Level, Slope, Placement, Deflection, Variation and Finish of Substrate: Coordinate with the substrate provider. Prior to the start of the tile work, provide the necessary adjustments to the substrate (as to level, slope, finish, deflection limit, variation tolerance and elevation) to ensure proper placement and the intended performance. Comply with ANSI A108.01 regarding flatness and concrete substrate finish.

1. Concrete And Masonry Substrates: Must be sound, crack-free, and dimensionally stable. Substrates that are smooth, dusty, painted, effloresced, coated with form release compounds, or have loose surface material are to be bush-hammered or heavily sandblasted; provide an uncontaminated and properly scarified substrate.
2. Concrete: Fill cracks, holes, and depressions with patching compound. Areas containing a limited amount of cracking are to be further renovated by providing a crack isolation sheet. Areas being so renovated are to be reviewed for acceptability by the isolation sheet manufacturer prior to beginning the work.

C. Tile Pretreatment: Verify that tile is pretreated as necessary.

1. Blending: Verify that tile exhibiting color variations (within the ranges selected) has been blended in the factory. Blending to ensure that units taken from one package will show the same range as those taken from any other package. Blending of tiles at the project site is prohibited.

3.3 INSTALLATION

A. ANSI Reference Standards: Comply with A10.20 and the specific A108 standard(s) that apply to the type of tile/setting/grouting materials employed and the method required.

1. Provide 95% mortar coverage for the following: wet areas, 8 inches by 8 inches and larger tiles, and rib-backed tiles.

B. Full And Total Extent: Provide tile into recesses and under/behind equipment and fixtures to form a complete covering without interruptions. Terminate work neatly at obstructions, edges, and corners without disrupting the pattern or joint alignments. Form intersections and returns accurately. Fit tile closely to electrical outlets, piping, fixtures, etc.

C. Cutting And Drilling: Perform without marring visible surfaces. Carefully grind the cut edges of tile abutting trim, finish, built-in items, etc. Provide straight joints/lines.

1. Cuts to occur only on the outer edges of the field, and no cut to produce less than a half size unit.

D. Jointing Pattern: Unless otherwise indicated, provide a grid pattern. Align joints when adjacent tiles/trim are the same size. Unless otherwise indicated, for each wall or floor space center the tile fields in both directions, adjusting to minimize tile cutting. Provide uniform joint widths and flush adjacencies, unless otherwise shown. Make adjustments prior to initial set.

1. Lippage and misaligned units are defects and are to be replaced.

E. Movement Joints: Provide (expansion, control, contraction, cold/construction, seismic, isolation, etc) joints as may be indicated on the drawings but never less (location and size) than that needed to comply with the TCA referenced standard; include a metal edge component when indicated. For nonindicated locations, follow these guidelines and submit the proposed locations for review prior to proceeding. Installation must occur simultaneously with that of the setting materials, mortar beds, and tile. Do not saw cut joints after tile installation.

1. Interior Areas: Provide within the range of 24 to 36 feet oc, in each direction. Areas exposed to direct sunlight or moisture, provide at 8 to 12 feet oc.
2. Restraining Items: Provide where tile abuts walls, ceilings, curbs, dissimilar materials, columns, pipes, etc.
3. Substrates: Provide at changes of substrate material, changes of backing materials, at cold joints, and above movement joints in the substrate. Joints to not be narrower than the joint in the substrate below.

F. Sealant: Tile edges adjacent to sealant applications are to be sanded/ground. Provide primer as required by the sealant manufacturer. Provide flexible backup strips as recommended by the sealant manufacturer.

G. Curing: Provide no less than a 5 day damp cure for indicated installations in the TCA reference standard.

3.4 INSTALLATION OF WATERPROOF MEMBRANE

A. Install waterproof membrane to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.

B. Allow waterproof membrane to cure and verify by testing that it is watertight before installing tile or setting materials over it.

3.5 INSTALLATION OF CRACK ISOLATION MEMBRANE

A. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness that is bonded securely to substrate.

B. Allow crack isolation membrane to cure before installing tile or setting materials over it.

3.6 FLOOR TILE INSTALLATION

A. General: Install tile to comply with requirements in the Floor Tile Installation Schedule, including those referencing TCA installation methods and ANSI A108 Series of tile installation standards.

1. For installations indicated below, follow procedures in ANSI A108 Series tile installation standards for providing 95 percent mortar coverage.

a. Tile floors in wet areas.

B. Joint Widths: Install tile on floors with the following joint widths:

1. 1/16 inch unless otherwise shown on the Finish Types legend.

C. Grout Sealer: Apply grout sealer to grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

3.7 WALL TILE INSTALLATION

A. Install types of tile designated for wall installations to comply with requirements in the Wall Tile Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.

B. Joint Widths: Install tile on walls with the following joint widths:

1. 1/16 inch, unless otherwise shown on the Finish Types legend.

3.8 REPAIR, CLEANING AND PROTECTION

A. Replace pitted, chipped, cracked, scratched, misaligned, etc units.

B. Traffic: Prohibit traffic from floors for a minimum of 7 days after the grouting is complete.

C. Cleaning: Clean tile surfaces ten days prior to substantial completion. Provide a cleaner that will not adversely affect the sealer.

END OF SECTION 093000

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Acoustical panels, and exposed suspension systems for ceilings.
2. Polyester modular baffles and suspension system.

1.3 DEFINITIONS

A. CAC: Ceiling Attenuation Class.

B. LR: Light Reflectance coefficient.

C. NRC: Noise Reduction Coefficient.

1.4 SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 01 8113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;
1. Current UL (GGG) certification.
2. Current SCS (CPD) Indoor Advantage Gold certification.
3. Current listing in CHPS (HPPD) as a low-emitting product.
4. Current SCS (CPD) FLOORSCORE certification.
5. Current Green Label Plus (GLP) certification.
6. Test report showing compliance and stating exposure scenario used.

C. Product Data: For each type of product indicated.

D. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.

1. Acoustical Panel: Set of 6-inch- square Samples of each type, color, pattern, and texture.
2. Polyester baffle: One baffle material sample, minimum 12 inch long of specified color.
3. Exposed Suspension System Members, Moldings, and Trim: Set of 12-inch- long Samples of each type, finish, and color.
4. Baffle Suspension System: One complete set of suspension system components.

E. Delegated-Design Submittal: For design of attachment devices.

F. Quality Assurance Submittals:

1. Coordinate Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items. Show the following:

   a. Ceiling suspension members.
   b. Method of attaching hangers to building structure.
   c. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.
   d. Minimum Drawing Scale: 1/4 inch = 1 foot.

2. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each acoustical panel ceiling.

G. Closeout Submittals:

1. Maintenance Data: For materials and finishes to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Acoustical Testing Agency Qualifications:

B. An independent testing laboratory, or an NVLAP-accredited laboratory, with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548. NVLAP-accredited laboratories must document accreditation, based on a "Certificate of Accreditation" and a "Scope of Accreditation" listing the test methods specified.

C. Source Limitations:

1. Acoustical Ceiling Panel: Obtain each type through one source from a single manufacturer.
2. Suspension System: Obtain each type through one source from a single manufacturer.

D. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:

1. Surface-Burning Characteristics: Provide acoustical panels with the following surface-burning characteristics complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84:

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical panels, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.8 COORDINATION

A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

1.9 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Acoustical ceiling panels: Quantity of each ceiling panel equal to 3 percent of quantity installed; not less than one full box.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer to design attachment devices.

2.2 ACOUSTICAL PANELS, GENERAL

A. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.

1. Mounting Method for Measuring NRC: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches away from test surface per ASTM E 795.

B. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.

1. Where appearance characteristics of acoustical panels are indicated by referencing pattern designations in ASTM E 1264 and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.

2.3 ACOUSTICAL PANELS

A. Acoustical Panel Product (ACP-01) Arktura

1. Product: Arktura SoftFold

a. Pattern: Wave
b. Multiple Modules
c. Color: Refer to the Finish Types legend.
d. Suspension: Manufacturer’s complete system, including but not limited to, adjustable quick connect fasteners, stainless steel cable, hanging brackets and joining brackets.

B. Acoustical Panel Product ACP-02) Armstrong Tectum Direct Attach.
1. General Emissions Evaluation Documentation: Products must be compliant CDPH Standard Method v1.2-2017 and comply with the VOC limits in Table 4-1 of the method. Products must be evaluated using the default private office scenario.

C. Acoustical Panel Product (ACT-01); Armstrong Ultima High NRC; Model 1940

1. Classification: Provide panels complying with ASTM E 1264 for type IV and Form 2
a. Color: White.
b. LR: 0.86.
c. NRC: Not applicable.
d. Edge Profile: Square Lay-In.
e. Thickness: 7/8 inch.
f. Size: 24 x 24 inches.
g. General Emissions Evaluation Documentation: Products must be compliant CDPH Standard Method v1.2-2017 and comply with the VOC limits in Table 4-1 of the method. Products must be evaluated using the default private office scenario.
h. Grid System: Prelude 15/16 inch

D. Acoustical Panel Product (ACT-02) Calla High CAC Privassure Performance; Model 2846

1. Classification: Provide panels complying with ASTM E 1264 for type and form as follows:
a. Color: White.
b. Grid System: Prelude 15/16 inch
c. Edge Profile: Square Tegular
d. Panel Size: 24 x 24 inches
e. Thickness: 1-3/4 inch

f. General Emissions Evaluation Documentation: Products must be compliant CDPH Standard Method v1.2-2017 and comply with the VOC limits in Table 4-1 of the method. Products must be evaluated using the default private office scenario.

2.4 METAL SUSPENSION SYSTEMS, GENERAL

A. Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.

B. Finishes and Colors, General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Provide manufacturer's standard factory-applied finish for type of system indicated.

C. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

D. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.

1. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

E. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:

1. Zinc-Coated Carbon-Steel Wire: ASTM A 641, Class 1 zinc coating, soft temper.
2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- diameter wire.

2.5 METAL SUSPENSION SYSTEM FOR ACOUSTICAL PANEL

A. Grid System Product (ACT-01, 02)

1. Manufacturer: Armstrong World Industries.
2. Prelude, face profile 15/16” color Flat White.

2.6 METAL EDGE MOLDINGS, TRIM AND ACCESSORIES

A. Manufacturers:

1. Armstrong World Industries, Inc.
2. Celotex Corporation; Architectural Ceilings Marketing Dept.
3. Chicago Metallic Corporation.
4. Fry Reglet Corporation.
5. Gordon, Inc.

6. MM Systems, Inc.
7. USG Interiors, Inc.

B. Extruded-Aluminum Edge Moldings and Trim: Where indicated, provide manufacturer's extruded-aluminum edge moldings and trim of profile indicated or referenced by manufacturer's designations, including splice plates, corner pieces, and attachment and other clips, complying with seismic design requirements.

1. Baked-Enamel or Powder-Coat Finish: Minimum dry film thickness of 1.5 mils (0.04 mm). Comply with ASTM C635/C635M and coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

2. Refer to the Drawings for metal edge trim and molding profiles.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

3.3 INSTALLATION, GENERAL

A. General: Install acoustical panel ceilings to comply with ASTM C 636 and seismic requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

B. Suspend ceiling hangers from building's structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.

2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and

hangers to support ceiling loads within performance limits established by referenced standards and publications.

4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.

5. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.

6. Space hangers not more than 48 inches o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.

C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into postinstalled anchors.

D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.

1. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.

2. Do not use exposed fasteners, including pop rivets, on moldings and trim.

E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

1. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension system runners and moldings.

2. For reveal-edged panels on suspension system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.

3. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.

3.4 CLEANING

A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095000

SECTION 095426 – SUSPENDED WOOD PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Wood veneer ceiling panels.
2. Exposed grid suspension system.
3. Wire hangers, fasteners, main runners, cross tees, metal moldings and trim, and accessories.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
2. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot- Dip Process.
3. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
7. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
8. ASTM E 580 Application of Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels in Areas Requiring Seismic Restraint.
9. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.
10. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems.
11. ASTM E 1264 Classification for Acoustical Ceiling Products.

1.4 ACTION SUBMITTALS

A. Product Data: Submit manufacturer's technical data for each type of ceiling unit and suspension system required.

B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.

C. Shop Drawings: For suspended wood ceilings.

1. Wood ceiling patterns and joints.
2. Ceiling suspension members.
3. Method of attaching hangers to building structure and locations of cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.
4. Ceiling-mounted items including, but not limited to, light fixtures, diffusers, grilles, speakers, sprinklers, and access panels.
5. Ceiling perimeter and penetrations through ceiling; trim and moldings.

D. Samples for Verification: For the following products:

1. Wood Ceilings: 12-inch- (305-mm-) long by 12-inch- (305-mm-) wide or full-width Samples of each type, color, and finish.
2. Suspension-System Members: 12-inch- (305-mm-) long Sample of each type.
3. Exposed Molding and Trim: 12-inch- (305-mm-) long Samples of each type, color, and finish.
4. Veneer Edge Banding: Applied to a cut end of a wood-ceiling Sample for each type, color, and finish.
5. Filler Strips: 12-inch- (305-mm-) long Samples of each type, color, and finish.

E. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards.

1.5 INFORMATIONAL SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 018113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;
1. Current UL (GGG) certification.
2. Current SCS (CPD) Indoor Advantage Gold certification.
3. Current listing in CHPS (HPPD) as a low-emitting product.
4. Current SCS (CPD) FLOORSCORE certification.
5. Current Green Label Plus (GLP) certification.

6. Test report showing compliance and stating exposure scenario used

C. Composite Wood Submittal**:** Composite Wood Evaluation Documentation: Evidence of Compliance of "No Added Formaldehyde (NAF)" or "Ultra-Low-Emitting Formaldehyde (ULEF)."

D. Qualification Data: For testing agency.

E. Product Test Reports: For each suspended wood ceiling, for tests performed by a qualified testing agency.

1.6 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide ceiling panel units and grid components by a single manufacturer.

B. Fire Performance Characteristics: Identify ceiling components with appropriate markings of applicable testing and inspecting organization.

1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
   a. Flame Spread: 25 or less
   b. Smoke Developed: 50 or less

C. Coordination of Work: Coordinate ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store ceiling components in a dry interior location in their cartons prior to installation to avoid damage. Store cartons in a flat, horizontal position. The protectors between the panels should not be removed until installation.

B. Do not store in unconditioned spaces with humidity greater than 70 percent or lower than 20 percent relative humidity and temperatures lower than 50 degrees F or greater than 86 degrees F. Panels must not be exposed to extreme temperatures, for example, close to a heating source or near a window with direct sunlight.

C. Handle ceiling units carefully to avoid chipped edges or damage to units in any way.

1.8 PROJECT CONDITIONS

A. Wood veneer ceiling materials should be permitted to reach room temperature and have a stabilized moisture content for a minimum of 72 hours before installation. (Remove plastic wrap to allow panels to climatize).

B. The wood veneer panels should not be installed in spaces where the temperature or humidity conditions vary greatly from the temperatures and conditions that will be normal in the occupied space.

C. As interior finish products, the wood veneer panels are designed for installation in temperature conditions between 50 degrees F and 86 degrees F, in spaces where the building is enclosed and HVAC systems are functioning and will be in continuous operation. Relative humidity should not fall below 20 percent or exceed 70 percent. Additionally, the fluctuation in relative humidity should not vary more than 30 percent over the life of the ceiling panels.

1.9 WARRANTY

A. Wood Veneer Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to:

1. Ceiling Panels: Sagging and warping
2. Grid System: Rusting and manufacturer’s defects

B. Warranty Period:

1. Wood veneer panels: Standard - One (1) year from date of Substantial Completion.
2. Grid: Ten years from date of Substantial Completion.

C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.10 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.

1. Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

PART 2 - PRODUCTS

2.1 GENERAL

A. General Emissions Evaluation Documentation: Products must be compliant CDPH Standard Method v1.2-2017 and comply with the VOC limits in Table 4-1 of the method. Products must be evaluated using the default private office scenario.

B. Composite wood products installed on the interior side of the weatherproofing envelope shall be labeled ULEF (ultra-low-emitting formaldehyde) OR NAF (no added formaldehyde) per the California Air Resources Board ATCM for formaldehyde.

C. Refer to Section 018113 – Sustainable Design Requirements for VOC content limitations.

2.2 MANUFACTURERS

A. Basis of Design Product: Armstrong World Industries, Inc., Woodworks Shapes For DesignFlex or equal. Evidence of equal performance properties for products other than the specified material shall be clearly identified in product data submittals.

1. Pattern and Wood Veneer Cut and Finish: Refer to the Finish Types legend on the Drawings.

2. Surface Finish: Manufacturer’s clear factory finish.

3. Size: Refer to the Drawings.

2.3 ACCESSORIES

A. Extruded-Aluminum Edge Moldings and Trim: Where indicated, provide manufacturer's extruded-aluminum edge moldings and trim of profile indicated or referenced by manufacturer's designations, including splice plates, corner pieces, and attachment and other clips, complying with seismic design requirements.

1. Baked-Enamel or Powder-Coat Finish: Minimum dry film thickness of 1.5 mils (0.04 mm). Comply with ASTM C635/C635M and coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

2. Refer to the Drawings for metal trim and molding details.

B. Provide acoustic infill panels above the Woodworks panel.

2.4 SUSPENSION SYSTEMS

A. Basis-of-Design Product: Armstrong World Industries, Inc.; Suprafine® XM for Shapes 9/16” Exposed Tee System or an equal product by suspended wood panel manufacturer.

B. Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, prepainted, hot-dip galvanized according to ASTM A 635, not less than G30 coating designation.

1. Structural Classification: Intermediate-duty system.
2. Face Design: Stepped flange.
3. Finish: Aluminum.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out.

B. Proper design for both supply air and return air, maintenance of the HVAC filters and building interior space are essential to minimize soiling. Before starting the HVAC system, make sure supply air is properly filtered and the building interior is free of construction dust.

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical units. Coordinate panel layout with mechanical and electrical fixtures.

3.3 INSTALLATION

A.

B. Install suspension system and panels in compliance with ASTM C636, with the authorities having jurisdiction, and in accordance with the manufacturer's installation instructions: WoodWorks Tegular Installation Instructions, LA-295694.

C. Suspend main beam from overhead construction with hanger wires spaced 4 feet on center along the length of the main runner. Install hanger wires plumb and straight.

D. Install main beams 48 inches on center with a 48 inch cross tee every 24 inches at 90 degrees to the main beam. Install the 24 inch cross tees at midpoints of the 48 inch cross tees.

3.4 ADJUSTING AND CLEANING

A. Replace damaged and broken panels.

B. Clean exposed surfaces of ceilings panels, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095426

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. Section Includes the following:

1. Resilient wall base.

2. Resilient flooring accessories.

1.3 SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 018113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;

1. Current UL (GGG) certification.
2. Current SCS (CPD) Indoor Advantage Gold certification.
3. Current listing in CHPS (HPPD) as a low-emitting product.
4. Current SCS (CPD) FLOORSCORE certification.
5. Current Green Label Plus (GLP) certification.
6. Test report showing compliance and stating exposure scenario used

C. Low-Emitting Materials: Provide product data for all adhesives, paints, coatings, and sealants used on the interior of the project building (defined as inside the weatherproofing system) that identifies VOC content and VOC emissions. LEED Submittal Form shall be completed to include the estimated VOLUME of product(s) to be applied and total cost to the project.

D. Product Data: For each type of product specified.

E. Samples for Verification: In manufacturer's standard sizes, one of each product color and pattern specified.

F. Product Certificates: Signed by manufacturers of resilient wall base and accessories certifying that each product furnished complies with requirements.

1.4 QUALITY ASSURANCE

A. Installer qualifications: Engage and experienced installer to perform work of this Section who has specialized in installing resilient products similar to those required for this Project and with a record of successful in-service performance.

B. Source Limitations: Obtain each type and color of product specified from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.

C. Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.

1. Critical Radiant Flux: 0.45 W/sq. Cm or greater when tested per ASTM E 648.

2. Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E 662.

1.5 DELIVERY STORAGE, AND HANDLING

A. Deliver products to Project site in manufacturer's original, unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.

B. Store products in dry spaces protected from the weather, with ambient temperatures maintained between 50 and 90 deg F.

C. Move products into spaces where they will be installed at least 48 hours before installation, unless longer conditioning period is recommended in writing by manufacturer.

1.6 PROJECT CONDITIONS

A. Maintain a temperature of not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C) in spaces to receive resilient products for at least 48 hours before installation, during installation, and for at least 48 hours after installation, unless manufacturer's written recommendations specify longer time periods. After postinstallation period, maintain a temperature of not less than 55 deg F (13 deg C) or more tan 95 deg F (35 deg C).

B. Do not install products until they are at the same temperature as the space where they are to be installed.

C. For resilient products installed on traffic surfaces, close spaces to traffic during installation and for time period after installation recommended in writing by manufacturer.

D. Coordinate resilient product installation with other construction to minimize possibility of damage and soiling during remainder of construction period. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design Manufacturer: Tarkett.

B. Provide equal products complying with requirements of this Section. Evidence of equal performance properties for products other than the specified material shall be clearly identified in product data submittals.

2.2 RESILIENT WALL BASE

A. Product Standard: ASTM F 1861, Type TP (rubber, thermoplastic).

B. Rubber Wall Base:

1. 4” straight and coved base; unless otherwise indicated on Finish types legend.

2. General Emissions Evaluation Documentation: Products must be compliant CDPH Standard Method v1.2-2017 and comply with the VOC limits in Table 4-1 of the method. Products must be evaluated using the default private office scenario.

3. Provide in coils greater than 100’ in length.

4. Provide pre-molded outside corners.

5. Color as indicated on Finish Drawings.

2.3 RESILIENT ACCESSORIES

A. Rubber Accessories: Products complying with requirements:

1. Transition strips.

2.4 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by resilient product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

C. Refer to Section 01 8113 – Sustainable Design Requirements for VOC content limitations.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions where installation of resilient products will occur, with Installer and manufacturer's representative present, for compliance with manufacturer’s requirements, including those for maximum moisture content. Verify that

substrates and conditions are satisfactory for resilient product installation and comply with requirements specified. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Comply with manufacturer's written installation instructions for preparing substrates indicated to receive resilient products.

B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.

C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

D. Broom and vacuum clean substrates to be covered immediately before installing resilient products. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. General: Install resilient products according to manufacturer's written installation instructions.

B. Apply resilient wall base to walls, columns, pilasters, and other permanent fixtures in rooms and areas where base is required.

1. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

2. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

3. Do not stretch base during installation.

4. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler materials.

5. Install premolded outside corners before installing straight pieces.

a) Outside corners have minimum 3" leg.

6. Form inside corners on job, from straight pieces of maximum lengths possible, by cutting an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.

C. Place resilient products so they are butted to adjacent materials and bond to substrates with adhesive. Install reducer strips at edges of flooring that would otherwise be exposed.

D. Apply resilient products to stairs as indicated and according to manufacturer's written installation instructions.

E. Provide resilient transition strips at all transitions from different types of resilient flooring, resilient flooring to carpet, and resilient flooring to existing flooring.

3.4 CLEANING AND PROTECTING

A. Perform the following operations immediately after installing resilient products:

1. Remove adhesive and other surface blemishes using cleaner recommended by resilient product manufacturers.

2. Sweep or vacuum horizontal surfaces thoroughly.

3. Do not wash resilient products until after time period recommended by resilient product manufacturer.

4. Damp-mop or sponge resilient products to remove marks and soil.

B. Protect resilient products against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by resilient product manufacturer.

C. Clean resilient products not more than 4 days before dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean products according to manufacturer's written recommendations.

END OF SECTION 096513

SECTION 096519 - RUBBER TILE FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Rubber floor tile and accessories.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For each type of resilient floor tile.

C. Samples for Verification: Full-size units of each color and pattern of floor tile required.

1.4 INFORMATIONAL SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 01 8113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;
1. Current UL (GGG) certification.
2. Current SCS (CPD) Indoor Advantage Gold certification.
3. Current listing in CHPS (HPPD) as a low-emitting product.
4. Current SCS (CPD) FLOORSCORE certification.
5. Current Green Label Plus (GLP) certification.
6. Test report showing compliance and stating exposure scenario used

C. Low-Emitting Materials: Provide product data for all adhesives, paints, coatings, and sealants used on the interior of the project building (defined as inside the weatherproofing system) that identifies VOC content and VOC emissions. LEED Submittal Form shall be completed to include the estimated VOLUME of product(s) to be applied and total cost to the project.

D. Qualification Data: For Installer.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of floor tile to include in maintenance manuals.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for floor tile installation indicated.

B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F. Store floor tiles on flat surfaces.

1.8 FIELD CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive floor tile during the following periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Close spaces to traffic during floor tile installation.

D. Close spaces to traffic for 48 hours after floor tile installation.

E. Install floor tile after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 GENERAL

A. General Emissions Evaluation Documentation: Products must be compliant CDPH Standard Method v1.2-2017 and comply with the VOC limits in Table 4-1 of the method. Products must be evaluated using the default private office scenario.

B. Refer to Section 018113 – Sustainable Design Requirements for VOC content limitations.

2.2 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For resilient floor tile, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

2.3 RUBBER FLOOR TILE

A. Basis of Design Manufacturer: :Nora Systems, Inc. Noraplan Sentica ed tile or equal. Evidence of equal performance properties for products other than the specified material shall be clearly identified in product data submittals.

B. Hardness: Grade 1, minimum hardness of 85, measured using Shore, Type A durometer according to ASTM D 2240.

C. Wearing Surface: Smooth.

D. Thickness: 2.0 mm.

E. Size: Refer to the Finish Types legend on the Drawings.

F. Colors and Patterns: Refer to Finish Types legend on the Drawings.

2.4 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.

1. Adhesives shall have a VOC content of 50 g/L or less.

C. Floor Polish: Provide protective, liquid floor-polish products recommended by floor tile manufacturer.

D. Sealers and Finish Coats for Resilient Terrazzo Floor Tile: Products recommended by floor tile manufacturer for resilient terrazzo floor tile.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates: Prepare according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
4. Moisture Testing: Perform tests so that each test area does not exceed 200 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

a. Anhydrous Calcium Chloride Test: ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
b. Relative Humidity Test: Using in-situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install floor tiles until materials are the same temperature as space where they are to be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.3 FLOOR TILE INSTALLATION

A. Comply with manufacturer's written instructions for installing floor tile.

B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.

C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.

D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.

E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.

G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.

H. Adhere floor tiles to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.4 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting floor tile.

B. Perform the following operations immediately after completing floor tile installation:

1. Remove adhesive and other blemishes from surfaces.
2. Sweep and vacuum surfaces thoroughly.
3. Damp-mop surfaces to remove marks and soil.

C. Protect floor tile from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.

1. Apply manufacturer’s recommended number of coat(s).

E. Cover floor tile until Substantial Completion.

END OF SECTION 096519

SECTION 096525 – LUXURY VINYL TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Luxury vinyl floor tile.

1.3 ACTION SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 01 8113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;

1. Current UL (GGG) certification.
2. Current SCS (CPD) Indoor Advantage Gold certification.
3. Current listing in CHPS (HPPD) as a low-emitting product.
4. Current SCS (CPD) FLOORSCORE certification.
5. Current Green Label Plus (GLP) certification.
6. Test report showing compliance and stating exposure scenario used

C. Low-Emitting Materials: Provide product data for all adhesives, paints, coatings, and sealants used on the interior of the project building (defined as inside the weatherproofing system) that identifies VOC content and VOC emissions. LEED Submittal Form shall be completed to include the estimated VOLUME of product(s) to be applied and total cost to the project

D. Product Data: For each type of product.

E. Samples: For each exposed product and for each color and pattern specified.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for floor tile installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For resilient floor tile, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

B. General Emissions Evaluation Documentation: Products must be compliant CDPH Standard Method v1.2-2017 and comply with the VOC limits in Table 4-1 of the method. Products must be evaluated using the default private office scenario.

2.2 LUXURY VINYL FLOOR TILE

A. Provide products manufactured by Interface, Inc. or equal. Evidence of equal performance properties for products other than the specified material shall be clearly identified in product data submittals.

B. Tile Standard: ASTM F 1700.

C. Refer to the Drawings for colors, patterns and sizes.

2.3 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.

1. Adhesives shall have a VOC content of 50 g/L or less.

C. Floor Polish: Provide protective, liquid floor-polish products recommended by luxury floor tile manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates: Prepare according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
4. Moisture Testing: Perform tests so that each test area does not exceed 1000 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

    a. Relative Humidity Test: Using in-situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement or as recommended by manufacturer of floor tile.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install floor tiles until materials are the same temperature as space where they are to be installed.

1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.2 FLOOR TILE INSTALLATION

A. Comply with manufacturer's written instructions for installing floor tile.

B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.

1. Refer to the Finish Types schedule for installation patterns.

C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.

D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.

E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.

G. Adhere floor tiles to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

H. Floor Polish, if recommended by manufacturers written instruction: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.

1. Apply number of coats recommended by floor tile manufacturer and as approved by Owner’s maintenance personnel.

END OF SECTION 096525

SECTION 096813 - TILE CARPETING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections, apply to this Section

1.2 SUMMARY

A. Section includes carpet tile, installation materials and accessories.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 01 8113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;
   1. Current UL (GGG) certification.
   2. Current SCS (CPD) Indoor Advantage Gold certification.
   3. Current listing in CHPS (HPPD) as a low-emitting product.
   4. Current SCS (CPD) FLOORSCORE certification.
   5. Current Green Label Plus (GLP) certification.
   6. Test report showing compliance and stating exposure scenario used.

C. Low-Emitting Materials: Provide product data for all adhesives, paints, coatings, and sealants used on the interior of the project building (defined as inside the weatherproofing system) that identifies VOC content and VOC emissions. LEED Submittal Form shall be completed to include the estimated VOLUME of product(s) to be applied and total cost to the project.

D. Product Data: For each type of installation product/material.

E. Shop Drawings: For carpet tile installation, plans showing the following:

1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
2. Carpet tile type, color, and dye lot.
3. Type of subfloor.
4. Type of installation.
5. Pattern of installation.
6. Pattern type, location, and direction.
7. Pile direction.
8. Type, color, and location of insets and borders.
9. Type, color, and location of edge, transition, and other accessory strips.
10. Transition details to other flooring materials.

F. Samples for Verification: For each of the following products. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.

1. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch-long Samples.

1.5 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Reclamation and recycling certificates and forms.

C. Sample warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Certified by the International Certified Floorcovering Installers Association at the Commercial II certification level.

1.8 FIELD CONDITIONS

A. Comply with CRI's "CRI Carpet Installation Standard" for temperature, humidity, and ventilation limitations.

B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at levels planned for building occupants during the remainder of the construction period.

C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.

D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

1.9 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd.

1.10 WARRANTY

A. Special Warranty for Carpet Tile Installation: Installer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 3 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CARPET TILE

A. Product: Provide carpet tile materials by Shaw Contract and Interface or an approved equal. Evidence of equal performance properties for products other than the specified material shall be clearly identified in product data submittals.
1. Refer to the Finish Types schedule on the Drawings for carpet tile pattern and color.

B. Applied Treatments:

1. Soil-Resistance Treatment: Manufacturer's standard treatment.

2.2 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.

B. Adhesive Dots: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that comply with flammability requirements for installed carpet tile, and are recommended by carpet tile manufacturer for releasable installation.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Concrete Slabs:

1. Moisture Testing: Perform tests so that each test area does not exceed 200 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

    a. Anhydrous Calcium Chloride Test: ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours or as otherwise recommended by carpet and adhesive manufacturer.
    b. Relative Humidity Test: Using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
    c. Perform additional moisture tests recommended in writing by adhesive and carpet tile manufacturers. Proceed with installation only after substrates pass testing.

B. Painted Subfloors: Perform bond test recommended in writing by adhesive manufacturer.

3.2 PREPARATION

A. General: Comply with CRI's "CRI Carpet Installation Standards" and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile.

B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch (3 mm) wide or wider, and protrusions more than 1/32 inch (0.8 mm) unless more stringent requirements are required by manufacturer's written instructions.

C. Concrete Substrates: Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by adhesive and carpet tile manufacturers.

D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

A. General: Comply with CRI's "CRI Carpet Installation Standard," Section 18, "Modular Carpet" and with carpet tile manufacturer's written installation instructions.

B. Installation Method: As defined on Drawings or if not defined, as directed by Architect. Install carpet tiles using manufacturer’s low VOC adhesive dots.

C. Maintain dye-lot integrity. Do not mix dye lots in same area.

D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.

E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on carpet tile as marked on subfloor. Use nonpermanent, nonstaining marking device.

G. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 096813

SECTION 097200 - WALL COVERINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Vinyl wall covering.

2. Magnetic dry-erase wall covering.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product. Include data on physical characteristics, durability, fade resistance, and fire-test-response characteristics.

B. Shop Drawings: Show location and extent of each wall-covering type. Indicate pattern placement, seams and termination points.

C. Samples: For each type of wall covering and for each color, pattern, texture, and finish specified, full width by 36-inch-long in size.

D. Product Schedule: For wall coverings. Use same designations indicated on Drawings.

1.3 INFORMATIONAL SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 01 8113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;
1. Current UL (GGG) certification.
2. Current SCS (CPD) Indoor Advantage Gold certification.
3. Current listing in CHPS (HPPD) as a low-emitting product.
4. Current SCS (CPD) FLOORSCORE certification.
5. Current Green Label Plus (GLP) certification.
6. Test report showing compliance and stating exposure scenario used.

C. Low-Emitting Materials: Provide product data for all adhesives, paints, coatings, and sealants used on the interior of the project building (defined as inside the weatherproofing system) that identifies VOC content and VOC emissions. LEED Submittal Form shall be completed to include the estimated VOLUME of product(s) to be applied and total cost to the project.

D. Product test reports.

E. Installer Qualifications for Wool Wall Covering: An installer recommended by Filzfelt manufacturer.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Wall-Covering Materials: For each type, color, texture, and finish, full width by length to equal to 5 percent of amount installed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: As determined by testing identical wall coverings applied with identical adhesives to substrates according to test method indicated below by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

a. Flame-Spread Index: 25 or less.
b. Smoke-Developed Index: 450 or less.

2.2 WALL COVERING; GENERAL

A. ProductS: Refer to the Finish Legend on Drawings.

B. Description: Provide mildew-resistant products in rolls from same production run.

C. Adhesive: Mildew-resistant, nonstaining adhesive, for use with specific wall covering and substrate application indicated and as recommended in writing by wall-covering manufacturer.

1. Low-Emitting Materials: Provide product data for all adhesives, paints, coatings, and sealants used on the interior of the project building (defined as inside the weatherproofing system) that identifies VOC content and VOC emissions. LEED Submittal Form shall be completed to include the estimated VOLUME of product(s) to be applied and total cost to the project.

D. Primer/Sealer: Mildew resistant, complying with requirements and recommended in writing by primer/sealer and wall-covering manufacturers for intended substrate.

2.3 VINYL WALL COVERING

A. Description: Provide vinyl products in rolls from same production run and complying with the following:

1. FS CCC-W-408D for Type II, Medium Duty.

B. Total Weight: 20 oz per linear yard.

C. Width: Refer to Finish Types legend.

D. Colors, Textures, and Patterns: Refer to the Finish Types legend.

2.4 MAGNETIC DRY-ERASE WALL COVERING

A. MDC flexible dry erase wallcoverings are distributed by MDC 400 High Grove Blvd, Glendale Heights, IL 60139 www.mdcwall.com or equal.

B. Flexible dry erase surfaces: magnetic receptive film with a 1 mil thick PVC film with thermally activated adhesive.

1. MDC Magnetic Receptive Dry Erase Wallcovering
2. Total Weight: 54.00 oz./sq.yd.
3. Backing Weight: 1.80 oz./sq.yd.
4. Base Film Weight: 51.25 oz./sq.yd.
5. Backing: 100% Polyester
6. Fire Rating (ASTM E-84): Class A
7. Colorfastness: 200 hours
8. Solvent Resistance: 1,000 Double Rubs with MEK. (ASTM D-4752)
9. Abrasion Resistance: 20,000 Double Rubs ASTM 3597

PART 3 - EXECUTION

3.1 PREPARATION

A. Comply with manufacturer's written instructions for surface preparation.

B. Clean substrates of substances that could impair bond of wall covering, including dirt, oil, grease, mold, mildew, and incompatible primers.

C. Prepare substrates to achieve a smooth, dry, clean, structurally sound surface free of flaking, unsound coatings, cracks, and defects.

1. Moisture Content: Maximum of 5 percent on new plaster, concrete, and concrete masonry units when tested with an electronic moisture meter.
2. Plaster: Allow new plaster to cure. Neutralize areas of high alkalinity. Prime with primer recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
3. Gypsum Board: Prime with primer as recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
4. Painted Surfaces: Treat areas susceptible to pigment bleeding.

D. Check painted surfaces for pigment bleeding. Sand gloss, semigloss, and eggshell finish with fine sandpaper.

E. Remove hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

F. Acclimatize wall-covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.

3.2 WALL-COVERING INSTALLATION; VINYL

A. Comply with wall-covering manufacturers' written installation instructions applicable to products and applications indicated.

B. Cut wall-covering strips in roll number sequence. Change the roll numbers at partition breaks and corners.

C. Install strips in same order as cut from roll.

D. Install wall covering without lifted or curling edges and without visible shrinkage.

E. Match pattern 72 inches above the finish floor unless otherwise instructed by the Architect.

F. Install seams vertical and plumb at least 6 inches from outside corners and 6 inches from inside corners unless a change of pattern or color exists at corner. Horizontal seams are not permitted.

G. Trim edges and seams for color uniformity, pattern match, and tight closure. Butt seams without overlaps or gaps between strips.

H. Fully bond wall covering to substrate. Remove air bubbles, wrinkles, blisters, and other defects.

I. Remove excess adhesive at seams, perimeter edges, and adjacent surfaces.

J. Reinstall hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

END OF SECTION 097200

SECTION 099123 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes painting, using types as specified herein, and colors as indicated or later selected by Architect. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1. Work includes painting and finishing of typical interior and exterior exposed surfaces and items throughout Project, except as otherwise indicated.
2. Work includes field-painting of exposed bare and covered pipes and ducts (including color coding), and of hangers, exposed steel and iron work, and primed metal surfaces of equipment installed under mechanical and electrical work, except as otherwise specified in Divisions 23 and 26 for mechanical and electrical work to be painted.
3. Surface preparation, priming, and coats of paint specified are in addition to shop-priming and surface treatment specified under other Sections.

B. Water-based polyurethane metallic coating.

1.3 RELATED WORK AND WORK NOT INCLUDED

A. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under various Sections for structural steel, metal fabrications, hollow metal work, and similar items.

B. Pre-Finished Items: Unless otherwise specified, this Section does not include painting of pre-finished items, such as exterior and wall panels, metal doors and frames, metal windows and curtainwall, plastic-laminate casework, and finished mechanical equipment and electrical fixtures.

C. Finished Metal Surfaces: Unless otherwise indicated, metal surfaces with baked-on coatings, anodized aluminum, stainless-steel, chromium plate, copper, bronze, and similar finished materials will not require finish painting.

D. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed and inaccessible areas, furred areas, pipe spaces, and duct shafts.

E. Operating Parts: Unless otherwise indicated, moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting.

F. Labels: Contractor shall not paint over any code-required labels, such as UL (Underwriters Laboratories) and FM (Factory Mutual), or any equipment identification, performance rating, name, or nomenclature plates.

1.4 SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 01 8113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;

1. Current UL (GGG) certification.
2. Current SCS (CPD) Indoor Advantage Gold certification.
3. Current listing in CHPS (HPPD) as a low-emitting product.
4. Current SCS (CPD) FLOORSCORE certification.
5. Current Green Label Plus (GLP) certification.
6. Test report showing compliance and stating exposure scenario used

C. Product Data: Submit manufacturer's product data and technical information for each paint system specified, including paint label analysis and application instructions for each material proposed for use.

1. List each material and cross-reference specific paint system and application. Identify each material by manufacturer's catalog number and general classification.
2. Include test reports indicating compliance with test requirements specified.

D. Samples: For initial color selection, submit manufacturer's color charts. After color selection, submit color chips for surfaces to be painted. For verification, submit samples of each color and material to be applied with texture to simulate actual conditions on representative samples of actual substrate. Use representative colors when preparing samples for review. Resubmit samples until required sheen, color, and texture are achieved. Include a list of material and application for each coat of each sample, and label each sample as to location and application.

1. Submit stepped samples, defining each separate coat, including block fillers and primers.
2. Submit samples for Architect's review of finish color and texture only, on following substrates, as applicable for each paint system.

    a. On hardboard, submit 12" x 12" samples.
    b. On actual wood surfaces, submit 4" x 8" samples.
    c. On steel sheet, submit 4" x 4" samples.

1.5 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats for each paint system. Use only thinners approved by paint manufacturer, and only within recommended limits.

B. Coordination of Work: Review other Sections in which primer paints are to be provided, to ensure compatibility of total paint system for each substrate. Upon request from other trades, furnish information or characteristics of finish materials, to ensure that compatible primer coats are used.

C. Applicator Qualifications: Engage an experienced applicator who has successfully completed projects similar in material and extent to that indicated for this Project.

D. Field Samples: On interior and exterior components, duplicate finishes of prepared samples. Provide full-coat finish samples on at least 10 sq.ft. of surface until required sheen, color, and texture are achieved. Simulate finished lighting conditions for reviewing in-place work.

1. Final acceptance of colors will be from job-applied samples.
2. Architect will select one area or surface to represent surfaces and conditions for each type of coating and substrate to be coated. Apply coatings in this area or surface according to paint schedule, or as specified. After finishes are accepted, this area or surface will be used for evaluation of paint systems of a similar nature.

1.6 DELIVERY, STORAGE, HANDLING

A. Deliver materials to job-site in original, new and unopened packages and containers, bearing manufacturer's name and label, and following information.

1. Name or title of material.
2. Product description (generic classification and binder type).
3. Manufacturer's name, stock number, and date of manufacturer.
4. Contents by volume, for major pigment and vehicle constituents.
5. Thinning instructions.
6. Application instructions.
7. Color name and number.
8. Handling instructions and precautions.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage of paint in a clean condition, free of foreign materials and residue.

1. Protect from freezing where necessary. Keep storage are a neat and orderly. Remove oily rags and waste daily. Take all precautions to ensure that workers and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing, and application of paints.

1.7 PROJECT CONDITIONS

A. Apply water-base paints only when temperature of surfaces to be painted and surrounding air temperatures are between 50°F (10°C) and 90°F (32°C), unless otherwise permitted by paint manufacturer's printed instructions.

B. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45°F (7°C) and 95°F (35°C), unless otherwise permitted by paint manufacturer's printed instructions.

C. Do not apply paint in snow, rain, fog or mist: when relative humidity exceeds 85%; at temperatures less than 5°F (3°C) above dew point; or to damp or wet surfaces; unless otherwise permitted by paint manufacturer's printed instructions.

1. Allow wet surfaces to dry thoroughly and attain temperature and conditions specified before proceeding with or continuing painting work.
2. Work may continue during inclement weather only if areas and surfaces to be coated are enclosed and temperature within area can be maintained within limits specified by manufacturer during application and drying periods.

D. Comply with applicable VOC requirements and with manufacturer's recommendations to provide proper ventilation in all areas where work is being performed. Paints used for interior application must meet or exceed the VOC and chemical component limits of Green Seal requirements. Refer to specification section 0118113 for VOC Content Limits and VOC Emissions Evaluation requirements.

PART 2 - PRODUCTS

2.1 TYPICAL PAINT MATERIALS

A. Acceptable Manufacturers: Products of Benjamin Moore and Sherwin Williams are named in this Section, to establish standards of quality required, except for special coatings and high-performance coatings. Proprietary names used to designate paint materials are not intended to imply that products of named manufacturers are required to exclusion of equivalent products of other manufacturers. If acceptable to Architect, and subject to compliance with requirements, products of following companies may be used.

1. Pittsburgh Paints (PPG)

PART 3 - EXECUTION

3.1 INSPECTION

A. Require applicator to examine areas and conditions under which painting work is to be applied, and notify Contractor in writing of conditions detrimental to proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to applicator. Starting of painting work will be construed as applicator's acceptance of surfaces and conditions within any particular area.

B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

3.2 PREPARATION, GENERAL

A. Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.

1. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify Architect in writing of any anticipated problems in using specified coating systems with substrates primed by others.
2. Remove hardware, accessories, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, re-install removed items.
3. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.

B. Prepare cementitious surfaces of concrete, concrete block, and cement plaster (if any) to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze.

1. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application of paint. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed directions.
2. Clean concrete floor surfaces scheduled to be painted with a commercial solution of muriatic acid, or other etching cleaner. Flush floor with clean water to neutralize acid, and allow to dry before painting.

C. Clean wood surfaces to be painted of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots; apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.

1. Prime, stain, or seal wood required to be job-painted immediately upon delivery to job-site. Prime edges, ends, faces, undersides, and backsides of such wood, including cabinets, counters, paneling.
2. Backprime all woodwork on backside prior to installation. When transparent finish is required, use spar varnish for backpriming.
3. Seal tops, bottoms, and cut-outs of unprimed wood doors with a heavy coat of varnish or equivalent sealer immediately upon delivery to job-site.

D. Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.

1. Touch-up shop-applied prime coats wherever damaged or bare, using same type of shop primer.

E. Clean galvanized surfaces to be free of oil and surface contaminants, using non-petroleum based solvent.

3.3 MATERIALS PREPARATION

A. Mix and prepare painting materials in accordance with manufacturer's directions.

B. Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.

C. Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

D. Tint each undercoat, except primer, a lighter shade to facilitate identifying each coat where multiple coats of same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

3.4 APPLICATION, GENERAL

A. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

1. Provide finish coats which are compatible with prime paints used.
2. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to insure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry-film thickness equivalent to that of flat surfaces.
3. Paint surfaces behind movable equipment and furniture to be same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat only before final installation of equipment.
4. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat non-specular black paint.
5. Paint backsides of access panels and removable or hinged covers to match exposed surfaces.
6. Finish exterior doors on tops, bottoms, and side edges to be same as exterior faces, unless otherwise indicated.
7. Sand lightly between each succeeding enamel or varnish coat.
8. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise indicated.

B. Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry-film thickness as indicated, or if not indicated, as recommended by coating manufacturer.

C. Apply prime coat to material which is required to be painted or finished, and which has not been prime coated by others.

1. For surfaces to receive wallcovering, if any, apply primer-sealer prior to installation of wallcovering.
2. Re-coat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.

D. Apply first-coat material to surfaces that have been cleaned, pre-treated, or otherwise prepared for painting, as soon as practicable after preparation and before subsequent surface deterioration.

E. Allow sufficient time between successive coatings to permit proper drying. Do not re-coat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of undercoat.

F. For pigmented (opaque) finishes, completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

G. For transparent (clear) finishes, use multiple coats to produce glass-smooth surface film of even luster. Provide a finish which is free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections.

H. Stenciling Fire Rated Partitions: Contractor to stencil partition fire rating on all fire rated partitions as follows: (in accordance with IBC 703.6)

1. Stencil each side of partition with lettering 2” high min.

2. Minimum Stenciling @ 8’-0” o.c.

3. Stencil paint color – red.

3.5 CLEAN-UP AND PROTECTION

A. During progress of the work, remove from job-site discarded paint materials, rubbish, cans, and rags at end of each work day.

1. Upon completion of painting work, clean glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

B. Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and re-painting, as acceptable to Architect.

1. Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.
2. At completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

3.6 INTERIOR PAINT SCHEDULE

A. Ferrous Metal, (Typical Paint Finish):

1. Gloss Finish High Performance:
2. 1st Coat: Benjamin Moore Super Spec® HP Acrylic Metal Primer P04 (47 g/L), MPI # 107, X-Green 107, 134, LEED 2009, CHPS Certified.
3. 2nd Coat: Benjamin Moore Ultra Spec D.T.M. Acrylic Gloss Enamel HP28 (142 g/L), MPI # 114, X-Green 114, 154, X-Green 154, 164, LEED 2009, LEED V4.
4. 3rd Coat: Benjamin Moore Ultra Spec D.T.M. Acrylic Gloss Enamel HP28 (142 g/L), MPI # 114, X-Green 114, 154, X-Green 154, 164, LEED 2009, LEED V4.

B. Gypsum Board, (Flat Finish):
1. First Coat: Benjamin Moore Fresh Start NATURA Zero VOC Primer 511 (0 g/L), MPI # 50, 50 X-Green, 149, 149 X-Green, qualifies for CHPS credit.
2. Second Coat: Benjamin Moore Natura Waterborne Interior Flat Finish 512 (0 g/L), MPI # 53, 53 X-Green, 143, 143 X-Green, LEED v4, certified asthma & allergy friendly, Cradle to Cradle Certified Silver, qualifies for CHPS.
3. Third Coat: Benjamin Moore Natura Waterborne Interior Flat Finish 512 (0 g/L), MPI # 53, 53 X-Green, 143, 143 X-Green, LEED v4, asthma & allergy friendly, Cradle to Cradle Certified Silver, qualifies for CHPS credit.

C. Gypsum Board, (Eggshell Finish):

1. Eggshell / Satin System:
2. First Coat: Benjamin Moore Fresh Start NATURA ZERO VOC Primer 511 (0 g/L), MPI # 50, 50 X-Green, 149, 149 X-Green, qualifies for CHPS credit.
3. Second Coat: Benjamin Moore Natura Interior Waterborne Eggshell Finish 513 (0 g/L), MPI # 44, 44 X-Green, 144, 144 X-Green, LEED v4, certified asthma & allergy friendly, Cradle to Cradle Certified Silver, qualifies for CHPS credit.
4. Third Coat: Benjamin Moore Natura Interior Waterborne Eggshell Finish 513 (0 g/L), MPI # 44, 44 X-Green,144, 144 X-Green, LEED v4, certified asthma & allergy friendly, Cradle to Cradle Certified Silver, qualifies for CHPS credit.

D. Concrete Block, (Flat Finish):

1. Flat Finish:
2. First Coat: Benjamin Moore Ultra Spec Hi-Build Masonry Block Filler 571 (45 g/L), MPI # 4, 4 X-Green, LEED v4.
3. Second Coat: Benjamin Moore Natura Interior Waterborne Flat Finish 512 (0 g/L), MPI # 53, 53 X-Green, 143, 143 X-Green, LEED v4, certified asthma & allergy friendly, Cradle to Cradle Certified Silver, qualifies for CHPS credit.
4. Third Coat: Benjamin Moore Natura Interior Waterborne Flat Finish 512 (0 g/L), MPI # 53, 53 X-Green, 143, 143 X-Green, LEED v4, certified asthma & allergy friendly, Cradle to Cradle Certified Silver, qualifies for CHPS credit.

E. Concrete Block, (Eggshell Finish):

1. Eggshell Finish:
2. First Coat: Benjamin Moore Ultra Spec Hi-Build Masonry Block Filler 571 (45 g/L), MPI # 4, 4 X-Green, LEED v4.

3. Second Coat: Natura Interior Waterborne Eggshell 513 (0 g/L), MPI # 44, 44 X-Green, 144, 144 X-Green, LEED v4, certified asthma & allergy friendly, Cradle to Cradle Certified Silver, qualifies for CHPS credit.
4. Third Coat: Benjamin Moore Natura Interior Waterborne Eggshell 513 (0 g/L), MPI # 44, 44 X-Green,144, 144 X-Green, LEED v4, certified asthma & allergy friendly, Cradle to Cradle Certified Silver, qualifies for CHPS credit.

A. Concrete Block, (Semi-Gloss Finish): F

1. Semi-Gloss Finish:
2. First Coat: Ultra Spec Hi-Build Masonry Block Filler 571 (45 g/L), MPI # 4, 4 X-Green, LEED v4.
3. Second Coat: Benjamin Moore Natura Interior Waterborne Semi-Gloss 514 (0 g/L), MPI # 54, 54 X-Green, 141, 141 X-Green, LEED v4, certified asthma & allergy friendly, Cradle to Cradle Certified Silver, qualifies for CHPS credit.
4. Third Coat: Benjamin Moore Natura Interior Waterborne Semi-Gloss 514 (0 g/L), MPI # 54, 54 X-Green, 141, 141 X-Green, LEED v4, certified asthma & allergy friendly, Cradle to Cradle Certified Silver, qualifies for CHPS credit.

B. Concrete, (Flat Finish):

1. Flat Finish:
2. First Coat: Benjamin Moore Ultra Spec Masonry Interior / Exterior 100% Acrylic Masonry Sealer 608 (46 g/L), MPI # 3, LEED 2009.
3. Second Coat: Benjamin Moore Natura Interior Waterborne Flat Finish 512 (0 g/L), MPI # 53, 53 X-Green, 143, 143 X-Green, LEED v4, certified asthma & allergy friendly, Cradle to Cradle Certified Silver, qualifies for CHPS credit.
4. Third Coat: Benjamin Moore Natura Interior Waterborne Flat Finish 512 (0 g/L), MPI # 53, 53 X-Green, 143, 143 X-Green, LEED v4, certified asthma & allergy friendly, Cradle to Cradle Certified Silver, qualifies for CHPS credit.

C. Concrete, (Eggshell Finish):
1. Primer: SW Loxon Concrete & Masonry Primer/Sealer, LX02-50 series
2. 1st Coat: SW Pro Industrial Acrylic Coating Eg-Shel, B66-660 series
3. 2nd Coat: SW Pro Industrial Acrylic Coating Eg-Shel, B66-660 series

D. Wood Surfaces, (Enamel Finish):

1. Primer: 1st Coat –Benjamin Moore Fresh Start Multi-Purpose Primer (023)
2. Finish: 2 nd & 3rd Coats – Benjamin Moore Advance Waterborne Alkyd Finish Satin (792), Semi-Gloss (793), High Gloss (794)

E. Ceiling Dryfall
1. Dryfall Waterborne Systems:
a. Flat Finish:
1) First Coat: Benjamin Moore Dryfall Latex Flat 395 (46 g/L), MPI # 118.
2) Second Coat: Benjamin Moore Dryfall Latex Flat 395 (46 g/L), MPI # 118.

OR

2. Sherwin Williams Pro Industrial; Waterborne Acrylic Dryfall Flat

SECTION 099123

SECTION 101475 – EXIT SIGNS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Exit signs.

1.3 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color Rendering Index.

C. Emergency Lighting Unit: A lighting unit with integral or remote emergency battery powered supply and the means for controlling and charging the battery and unit operation.

D. Fixture: See "Luminaire" Paragraph.

E. Lumen: Measured output of lamp and luminaire, or both.

F. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of exit sign, and emergency lighting support.

B. Shop Drawings: For nonstandard or custom luminaires.

1. Include plans, elevations, sections, and mounting and attachment details.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, coordinated with each other, using input from installers of the items involved:

B. Product Certificates: For each type of luminaire.

C. Sample Warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.7 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Two year(s) from date of Substantial Completion.

B. Special Warranty for Emergency Lighting Batteries: Manufacturer's standard form in which manufacturer of battery-powered emergency lighting unit agrees to repair or replace components of rechargeable batteries that fail in materials or workmanship within specified warranty period.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR EMERGENCY LIGHTING

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. NRTL Compliance: Fabricate and label emergency lighting units, exit signs, and batteries to comply with UL 924.

C. Comply with NFPA 70 and NFPA 101.

2.2 EXIT SIGNS

A. Internally Lighted Signs:

1. Lamps for AC Operation: LEDs, 70,000 hours minimum rated lamp life.
2. Edge-Lit Exit Signs shall be provided with a surface housing. Panels shall be injection-molded clear acrylic with a mirrored face.
3. Provide manufacturer’s mounting hardware compatible with each sign location.

4. Manufacturers: Provide the following product or an approved equal:

   a. Exitronix 900E Series LED Edge-Lit Exit Sign.

2.3 METAL FINISHES

A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.4 LUMINAIRE SUPPORT COMPONENTS

A. Provide channel and angle iron supports and nonmetallic channel and angle supports as approved by the Architect.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

C. Install lamps in each luminaire.

D. At Level 01 install exit signs as a flush mount at gypsum ceiling locations.

E. Supports:

1. Sized and rated for luminaire weight.
2. Able to maintain luminaire position when testing emergency power unit.
3. Provide support for luminaire and emergency power unit without causing deflection of ceiling or wall.
4. Luminaire-mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire and emergency power unit weight and vertical force of 400 percent of fixture weight.

F. Wall-Mounted Luminaire Support:

1. Attached to a minimum 20-gage backing plate attached to wall structural members.
2. Do not attach fixtures directly to gypsum board.

G. Suspended Luminaire Support:

1. Pendants and Rods: Where longer than 48 inches, brace to limit swinging.
2. Stem-Mounted, Single-Unit Fixtures: Suspend with twin-stem hangers. Support with approved outlet box and accessories that hold stem and provide damping of fixture oscillations. Support outlet box vertically to building structure using approved devices.

3. Do not use ceiling grid as support for pendant luminaires. Connect support wires or rods to building structure.

H. Identify system components, wiring, cabling, and terminals. Comply with industry standard requirements for identification for Electrical Systems.

END OF SECTION 101475

SECTION 102219 - INTEGRATED INTERIOR WALL ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Manufactured partition framing assemblies.
2. Face and center-mounted tiles.
3. Glass and glazing.
4. Doors, frames, and door hardware.
5. Accessories.
6. Finishes.
7. Integrated electrical.

B. Related Requirements, if applicable:

1. Section 096513 “Resilient Base and Accessories” for site-installed wall base.

1.2 REFERENCES

A. American Architectural Manufacturers Association (AAMA):

1. AAMA 61198 Voluntary Standards for Anodized Architectural Aluminum.

B. American Society of Civil Engineers (ASCE):

1. ASCE-7 Minimum Design Loads for Buildings and Other Structures.

C. ASTM International:

1. ASTM E 72 Method for Conducting Strength Tests of Panels for Building Construction.
2. ASTM E 84 Test Method for Surface Burning Characteristics of Building Materials.
3. ASTM E 90 Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
4. ASTM E 413 Classification for Rating Sound Insulation.
5. ASTM B 819 Standard Specification for Seamless Copper Tube for Medical Gas Systems

D. Architectural Woodwork Standards (AWS): a joint effort of US Architectural Woodwork Institute (AWI), Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Woodwork Institute (WI).

1. American Woodworking Standards (AWS) Manual.

E. National Fire Protection Association (NFPA):

1. NFPA 70 – National Electrical Code, 2008 Edition.

F. Underwriters Laboratories (UL):
1. UL QQXX - Sections and Units.
2. UL 183 - Standard for Safety for Manufactured Wiring Systems.
3. UL 498 - Standard for Safety for Attachment Plugs and Receptacles.
4. UL 514A - Standard for Safety for Metallic Outlet Boxes.
5. UL 514C - Standard for Safety for Non-Metallic Outlet Boxes, Flush-Device Boxes, and Covers.
6. UL 514D - Standard for Safety for Cover Plates for Flush-Mounted Wiring Devices.

G. Integrated Telecommunications Component References:

1. ANSI/NECA/BICSI-568-2006 -- Standard for Installing Commercial Building Telecommunications Cabling

a. ANSI/TIA/EIA Standards:

1) ANSI/TIA/EIA-568-B.1 -- Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements
2) ANSI/TIA/EIA-568-B.2 -- Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted Pair Cabling Components
3) ANSI/TIA/EIA-568-B.3 -- Optical Fiber Cabling Components Standard
4) ANSI/TIA/EIA-569-B -- Commercial Building Standard for Telecommunications Pathways and Spaces
5) ANSI/TIA/EIA-606(A) -- The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
6) ANSI-J-STD-607(A) -- Commercial Building Grounding and Bonding Requirements for Telecommunications
7) TIA-526-7 –OFSTP-7 Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant
8) TIA-526-14A –OFSTP-14 Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant
9) (ANSI/TIA/EIA-758(A) -- Customer-Owned Outside Plant Telecommunications Cabling Standard
10) TIA TSB-140 Additional Guidelines for Field Testing Length, Loss And Polarity of Optical Fiber Cabling Systems

b. BICSI:

1) BICSI -- Telecommunications Distribution Methods Manual
2) BICSI – Installation Transport Systems Information Manual
3) BICSI – Network Design Reference Design Manual
4) BICSI –Outside Plant Design Reference Manual
5) BICSI – Wireless Design Reference Manual
6) BICSI - Electronic Safety and Security Design Reference Manual
7) Infocomm/BICSI – AV Design Reference Manual

1.3 DEFINITIONS

A. Integrated Prefabricated Interior Construction: A construction process that includes an integrated “design assist” approach to design by using a software that allows for the designing, pricing, engineering and manufacturing of the assemblies and integration of other’s components for a prefabricated construction method for the interior construction of a facility. The entity has the ability to use prefabricated method of construction, i.e. offsite construction, using software for the manufacturing of the assemblies. Through the use of parametric design, framing assemblies have the ability to embed different AV components while also allowing for the integration of the following but not limited to:

1. Electrical and networking solutions, medical gas, millwork, murphy beds, exam tables.

B. Tiles: Panel-like materials face-mounted on wall framing to provide a finished surface; or center-mounted within a frame to fill and opening. Finishes and material can vary between MDF substrate or Glass.

C. ICE: DIRTT’s proprietary ICE software (“ICE”) allows for an automated manufacturing process which integrates numerous work processes involved in conventional construction including design, sales, ordering, engineering, manufacturing specifications, delivery and installation using a single underlying real-time engineering and manufacturing data set.

D. Mass Customization: ICE allows for individual customization, manufacture and deliver custom DIRTT Solutions to satisfy a specific customer’s needs. Mass customization is a manufacturing technique that combines the flexibility and personalization of custom-made solutions with the low unit costs associated with mass production.

E. Customer’s Own Materials (COM): Owner (customer) or Distribution Partner furnished materials or components provided to manufacturer for factory application or installation. Items provided in accordance with production schedule indicated in the Shop Drawings.

F. Distribution Partner: Qualified entities that partner with DIRTT Environmental Solutions throughout North America and whom provide design assist using the ICE software. DIRTT Distribution partners act as the subcontractor and hold all contractual agreements. Local Distribution Partners are used for projects. The Distribution will be responsible to procure all material, certified labor and cover all costs for the project scope along with all design and site coordination with other trades.

1.4 COORDINATION

A. Comply with Division 01 project management and procedures.

B. Project Scheduling and Lead Times: Manufacturing production time of all standard solutions and finishes shall not exceed six weeks, inclusive of shipping within US and Canada, from manufacturers receipt of complete order information (including shop drawing approval, deposit cost, and notice to proceed).

C. Schedule: Coordinate delivery with construction schedule to avoid storage or double handling of the integrated prefabricated interior construction partition assemblies and solutions.

D. Install integrated prefabricated interior construction partition assemblies and solutions after the building is enclosed and conditioned including completion of HVAC equipment, fire

suppression system, lighting, adjacent ceilings and base building finishes in a sequence that allows final electrical connection, voice data/communications to be completed during or after installation of the partition systems.

1. Coordinate integrated prefabricated interior construction partition assembly installation with ceiling, floor finish, and specified wall base (partition framing standard base, applied base, or integral base installation).

E. Floor and base finishes may be completed before installation of integrated interior partition system framing unless coordinated with the manufacturer ahead of time through the Shop Drawing process.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site a minimum of one week prior to Shop Drawing approval and prior to beginning installation.

1. Meeting participants include authorized representatives of the Owner, Architect, contractor, and all trades whose work will interface with installed systems.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for integrated prefabricated interior partitions.
2. Provide product data sheets for all types of Hardware and Accessories.

3. Test report showing compliance and stating exposure scenario used

B. Shop Drawings:

1. Provide manufacturer’s architectural plans, elevations, sections, connection and attachment details, finish schedule, reflected ceiling plans, doors and hardware schedule, electrical and mechanical requirements, schedules, and locations.

a. For integrated electrical components:

1) Indicate device type and location on Shop Drawing plans and elevations to confirm accurate scope of work has been captured from engineering plans or client. Coordinate as required until scope is confirmed by all affected parties.
2) Provide adequate legends to confirm electrical device specifications, amperage, trim ring and faceplate colors and styles, cable type, device type, and applicable level.

2. Provide manufacturer with product data, fabrication drawings, schematics and similar information for data, security, or communications to be embedded within or supported by partitions.

3. Include field measurements of existing construction, future construction, finished width and height of partitions and associated components.

    a. Manufacturer's authorized representative shall undertake field measurements to show relevant adjacencies in Shop Drawings. Site conditions, base building construction, and required clearances are to be reviewed and approved by the Architect, including exiting, life safety, location of building service devices, and other affected trades through Shop Drawings to identify and prevent potential conflicts.
    b. Where field measurements are not possible, hold-to and control dimensions must be coordinated and agreed upon by all parties through the Shop Drawing process before manufacturing begins.

C. Samples: Provide manufactures standard size samples for verification of support system and each type, color, and texture of exposed finish, full thickness and the following minimum sizes:

1. Extrusion Components.
2. Tile Finishes.
3. Linear Trim and Base.
4. Door Face Finishes.

1.7 INFORMATIONAL SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 01 8113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;

1. Current UL (GGG) certification.

2. Current SCS (CPD) Indoor Advantage Gold certification.

3. Current listing in CHPS (HPPD) as a low-emitting product.

4. Current SCS (CPD) FLOORSCORE certification.

5. Current Green Label Plus (GLP) certification.

C. Coordination Drawings:

1. Provide shop drawings for coordination between trades upon request.
2. Plumbing and Piping: Coordinate plumbing components with final plumbing engineering documents.

3. Electrical: Coordinate electrical components with final circuited electrical engineering documents.

D. Product Test Reports, Solid Partitions: Based on evaluation of comprehensive tests performed by an independent qualified testing agency.

E. Evaluation/Certification Reports:

1. ICC ESR (Evaluation Service Report), ESR1947 (reissued 2007): Provide evidence of compliance with structural performance requirements and relevant building codes.
2. UL QQXX - Sections and Units for electrical components.
3. OSHPD Preapproval of Manufacturers Certification (OPM-0044-13).
4. CCRR 1012 – Code Compliance Research Report for Solid Wall / Tile Faced Wall.
5. Flame Spread Reports for finishes (ASTM E84 or CAN |ULC S102) provide relevant testing reports for finish type specified on the project.

F. Sample Warranty: For manufacturer's special warranty.

1.8 CLOSEOUT SUBMITTALS

A. Maintenance Data: Provide maintenance data for incorporation into operation and maintenance manuals.

1.9 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer shall specialize in designing and manufacturing integrated interior construction systems of the quality and complexity required for this project with a minimum of 10 years documented successful experience. Manufacturer shall have production facilities capable of meeting contract requirements for single-source responsibilities and warranty.

B. Installer Qualifications: The Company employs installers and supervisors who are trained and certified by DIRTT and a Project Manager who is trained by DIRTT.

C. Certifications:

1. Sound Transmission Characteristics: Testing to be performed by a qualified independent testing agency in accordance with performance requirements, if required.

D. Integrated Electrical Components:

1. Factory Installed Electrical Components, Devices, and Accessories:

a. Factory Inspections to support UL, Intertek (ETL), and other specified listings by independent accredited 3rd Party Agency.

2. Field Installed Electrical Components, Devices, and Accessories:

a. Connections to the base building electrical system and all field installed electrical components, devices, and accessories shall be performed by an electrical contractor licensed in the jurisdiction of the project in accordance with applicable building / electrical codes and standards.
b. Such work shall be performed under permit, tested, and inspected to confirm adequacy of final installations and connections to the satisfaction of the Authority Having Jurisdiction.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver or install integrated interior construction system partitions until spaces are enclosed and weather-tight, wet work is complete and dry, work above ceilings is substantially complete, and HVAC system is operational and able to maintain ambient temperature and humidity conditions at occupancy levels for the remainder of the construction period.

B. Ship system components in manufacturers standard packaging. Maintain air circulation during shipment. Do not allow packaging to get wet or develop condensation.

C. Deliver materials to project site or offsite warehouse as directed by the Contractor or Owner as applicable, and in accordance with the manufacturer’s instructions in original unopened and undamaged packages. All elements and components shall be labeled with manufacturers name, brand names, size, finishes, and placement locations to be coherent with drawings.

D. Store in a clean, dry, secure space to protect from damage during construction activities. Minimize or eliminate storage period by coordinating with construction schedule.

E. Handle in accordance with the manufacturer’s instructions.

1.11 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install system and components until building is enclosed and finishing operations are complete

B. Temperature and humidity shall be maintained to final occupancy standards. Installation areas shall be climate controlled between 60 and 90 degrees F (15.5 and 32.2 C) with Relative Humidity maintained between 25 and 55 percent.

1.12 WARRANTY

A. Manufacturer's Standard Limited Warranty: Manufacturer agrees to repair or replace components of integrated prefabricated interior construction systems that fail(s) in materials or workmanship within specified warranty period.

1. Warranty Period: 10 year(s) limited warranty.

PART 2 - PRODUCTS

2.1 GENERAL

A. General Emissions Evaluation Documentation: Products must be compliant CDPH Standard Method v1.2-2017 and comply with the VOC limits in Table 4-1 of the method. Products must be evaluated using the default private office scenario.

2.2 MANUFACTURERS

A. Basis-of-Design Product: Provide DIRTT Environmental Systems or equal. Evidence of equal performance properties for products other than the specified material shall be clearly identified in product data submittals.

B. Source Limitations: Obtain manufactured partitions, integrated components, and accessories from single source from single manufacturer.

2.3 SYSTEM DESCRIPTION

A. Factory sub-assembled, site installed, integrated prefabricated interior solid and glazed partition assemblies, including structure, face site-mounted or center-mounted finished tiles, metal framing and doors to accept a variety of finishes, building services components, technology, equipment, and accessories.

B. System is floor-supported, floor-to-ceiling site constructed in configurations shown on the Shop Drawings. Top channels hold partition systems in place and accommodate height adjustments to suit floor-to-ceiling dimensional variations and similar site specific requirements.

1. Where partition systems are not clipped to ceilings or other overhead construction, additional structural review and system engineering will be required by the manufacturer.

C. Tile Attachment: Unitized aluminum frame assembly to support face mounted tiles in orientation and module increments as shown on the Drawings.

D. Partially Unitized Solid Wall system shall be comprised of components which can be disassembled, relocated / field cut and substantially reused.

E. Face tiled finishes applied to lightweight frame system, may be monolithic or segmented with the ability to span off-module, or across multiple frames in segments or monoliths, vertically and horizontally.

F. Manufacturer shall provide integrated strategy for accommodating accessory channels and reveals integrated into the structural frame allowing universal horizontal alignment to support furniture, storage, equipment and other components without defacing or damaging face tile or structural frame.

1. Materials manufactured by others shall not exceed the integrated interior construction system manufacturer’s limitations or tested performance.

G. Manufacturer shall provide ability for independent configuration / finish. Each side of wall must have the capability for variable aesthetic and function to suit different requirements. This will allow for the one side of the wall to have a totally independent function than the other to meet each organizations requirement.

H. Electrical and Communications Access: 3 inch (75 mm) clear wall cavity accessible from either side of partition by removable face tiles for solid walls.

I. Provide back boxes, supports, and conduit as required to accommodate lighting, signage, data, security and communications indicated on shop drawings. Integrated prefabricated interior partition manufacturer to provide continuous 1 inch (25 mm) open cavity vertically and horizontally within the wall framing.

J. Integrated prefabricated interior construction system manufacture shall allow for adaptability and retrofitting of hardware for future division of partitions, tiles, or supports to the greatest extent practical.

2.4 PERFORMANCE REQUIREMENTS

A. Structural Performance: Integrated interior construction system partitions shall be capable of withstanding the effects of gravity loads, dead loads, and the following loads and stresses within limits and under conditions indicated:

1. Transverse Load: Lateral deflection of the overall span when tested under a uniformly distributed load of 5 psf (0.24 kN/m2) in accordance with ASTM E 72 where L equals partition wall height:

    a. Solid Walls: not more than L/120;
    b. Glass Walls: not more than L/175 or 3/4 inch (19 mm) whichever is more stringent.

2. Mechanical Strength: Capable of withstanding static loads in accordance with ANSI/BIFMA X5.6.
3. Seismic Performance: Provide integrated interior construction partitions capable of withstanding effects of seismic motions determined according to the currently adopted building codes.

B. Acoustical Performance: Where STC ratings are indicated, provide partitions with STC rating determined by testing an identical system to ASTM E 90 and classified in accordance with ASTM E 413.

1. Sound Transmission Coefficient (STC) range shall be determined in accordance with Sound Transmission Test by Two-Room Method and reported in accordance with ASTM E 90 and ASTM E 413 for frequency data. Tested assembly shall have been assembled in the same manner the partitions to be installed on the project.
2. Test results vary based on glass or solid wall configuration, and implementation of perimeter enhancements at base building connections.

    a. Solid wall results range up to 50 STC performance.

b. Glass wall performance is limited by the glass specified. Coordinate requirements with the integrated partition manufacturer.

C. Fire Resistance:

1. Surface-Burning Characteristics: Tested in accordance with ASTM E 84 by a qualified independent testing agency.
2. National Building Code of Canada, CAN/ULC-S102 Surface Burning Characteristics of Building Materials and Assemblies.

2.5 INTEGRATED PREFABRICATED INTERIOR CONSTRUCTION SYSTEM FRAMING

A. Framing for Solid and Face Tiled Partition Assemblies:

1. Material: Aluminum extrusions, 6063T6 aluminum alloy, thickness engineered to meet performance requirements specified above.
2. Vertical Support Spacing: 6 inch (150 mm) minimum to 48 inch (1219 mm) maximum.
3. Ceiling Track: Continuous, with intermittent breaks for pass through of building services or structural components.
4. Floor Track: Modular with wall frames inclusive of carpet grippers or floor tape (non-seismic) or continuous with floor anchor attachment (seismic) stopped at doorways and pass-throughs.
5. Bracing: as required to meet structural performance.
6. Fasteners: Zinc Plated Steel Type F Screws unless otherwise indicated on engineered shop drawings.

B. Framing for Glazed Partitions:

1. Same as solid tile framing with customized spacing as shown on the Drawings. Maximum spacing 60 inches (1524 mm).

C. Frame Bases:

.1 Provide frame bases with provisions for 1-1/2 inch (38.1 mm) height adjustment to accommodate floor slab variances.

.2 Provide a leveling mechanism for making fine adjustment in height over adjustment range of the product.

2.6 FACE-MOUNTED AND CENTER-MOUNTED FINISH TILES

A. Tile Mounting: Face-mounted and Center-mounted as indicated on Drawings.

B. Tile Construction:

1. Standard Solid Tile Material: Medium Density Fiber Core (MDF).NAF
2. Glass Tile: Tempered Glass.

a. Provide with the following premium options. Coordinate with manufacturer as required, all options may not be able to be combined.

1) No Added Formaldehyde (NAF).
2) Forest Stewardship Council (FSC) Certification.
3) Flame Retardant Type (MDF) where required.

3. Thickness:

a. Solid Tiles: 1/2 inch (13 mm).
b. Glass Tiles: 1/4 inch (6 mm) with aluminum mounting rails to maintain alignment with adjacent finishes.

4. Widths: As shown on shop drawings.
5. Height: As shown on shop drawings.
6. Finishes: As specified below and as shown on the Drawings.

C. Reveals:
1. Classic: 0.35 inch (9 mm);

2.7 GLASS AND GLAZING

A. Typical: Tempered glass minimum thickness 1/4 inch (6 mm) to ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated), Type 1, Class 1 (transparent), Quality q3.

2.8 DOORS AND DOOR HARDWARE

A. General:

1. Coordinate security system components to be provided by others with partitions manufacturer through the Shop Drawing process.

B. Glazed Aluminum Doors: Manufacturer's standard stiles and rail door, pivot and sliding operation, single and double, framed glazed aluminum doors.
1. Door Thickness: 4 inches (102 mm)
2. Stile Width: 4 inches (102 mm)
3. Top Rail Height: 4 inches (102 mm)
4. Bottom Rail Height: 7-7/8 inches (200 mm)
5. Adjustability: Provide door skirt to accommodate varying floor levels.
6. Door Height: As noted on shop drawings. Maximum height 10 feet (3 meters).
7. Glazing: Tempered glass, 1/4 inch (6 mm) thick, custom finish.
8. Hardware Reinforcement: Factory milled by partition manufacturer to suit glass; hardware supplied by DIRTT as shown on show drawings.

C. Flush Wood Doors: Manufacturer's standard solid core door, single and double, pivot operation.
1. Door Thickness: 4 inches (102 mm)
2. Pressed high density fiberboard on both sides of door on particleboard core.
3. Edging: Solid edging.
4. Door Height: As noted on shop drawings. Maximum height 10 feet (3 meters).
5. Finish: to be determined.

2.9 DOOR FRAMES

A. Pivot Door Frames: Manufacturer's standard aluminum frame single and double doors, reversible, factory milled to receive hardware, for 1-15/32 inches (43 mm) +/- 1/16inch (1.5mm) doors.

1. Door Module Size: 3’3”, 3’4”, 3’6”
2. Finished door width is equal to module width less 2 inches (51 mm).
3. Configuration: Header, jambs and pivot hardware. Single door frame width not to exceed 44 inch (1118 mm) wide module.
4. Hardware Preparation and Reinforcement: Milled, reinforce, drill and tap frames at factory to receive specified hardware in accordance with the contract hardware schedule and templates.
5. Frame Height: Jambs shipped over length (height) by 2 inches (51 mm), for field cutting to suit opening height for proper alignment with adjacent frames.
6. Electrical Requirements:

    a. Security System Components: Coordinated hardware requirements and prep work for security system components, to include HES 5200 Electric Strike lockset, as designated on shop drawing.

7. Factory notched and drilled jambs for ceiling track and manufacturer’s standard header attachment.
8. Extrusion Profile: Rectilinear profile to match any adjacent unitized glass frames.
9. Seals: Manufacturer's standard.

B. Sliding Door Frames: Manufacturer's standard aluminum frame single and double sliding doors, with continuous track mounted to demountable wall system and capable of reconfiguration without part replacement or damage to wall components.

1. Door Module Size: 3’3 1/2”, 3’4”, 3’6”

    a. Finished door width is equal to module width plus 1/4 inch (6 mm).

2. Configuration: Header, jambs and pivot hardware. Single door frame width not to exceed 60 inch (1524 mm) wide module for Aluminum Doors and 48inch (1219 mm) for Wood Doors.
3. Self-supporting header and track, jambs, sliding door, and trackless at floor between jambs.
4. Frame Height: Jambs shipped over length by 2 inches (50 mm) in height, for field cutting to suit opening height for proper alignment with adjacent frames.
5. Factory notched and drilled jambs for ceiling track and manufacturer’s standard header attachment.
6. Extrusion Profile: Rectilinear profile to match any adjacent unitized glass frames.
7. Frame and Track Construction:

    a. Continuous extruded frame supported or drywall header section with concealed track mechanism.
    b. Guide and alignment hardware for stabilization of door bottom.
    c. Door secured in closed position on strike side of door.

d. Anti rack / lift hardware included in track assembly.

8. Operation:

a. Soft lose mechanism for door weights of 165 pounds (75 kg) or less.
b. Pneumatic slow down mechanism for door weight of 165 to 200 pounds (75 to 90 kg).

9. Seals: Manufacturer's standard continuous acoustical seals on strike and guide side.
10. Operation and Configuration: ADA compliant in both clear opening as determined by design professional of record.

C. Hardware: Manufacturer's standard top and bottom pivot and sliding door hardware, with lever, passage sets, locksets, and pulls.

D. Hardware: As specified in Division 08 "Door Hardware".

2.10 EMBEDDED COMPONENTS

A. Plumbing Chase Post

B. Universal Monitor Mounting Bracket.

2.11 INTEGRATED ELECTRICAL SERVICE

A. Performance Requirements.

1. Electrical work shall be inspected prior to installation of finishing panels.

B. System Description

1. System can be provided with electrical and network components mounted at varying heights installed in accordance with Division 26 Electrical and 27 Communications and as indicated.

C. Electrical Components, General

1. Electrical, Communications, and Security System Requirements: Provide for installation of electrical, communications, and security system items arranged so that wiring can be readily removed and replaced.

a. Electrical Conduit: Typical, provide Electric Metal Tubing (EMT) conduit pathways [3/4 inch (21 mm)] in cavity of prefabricated partition assemblies, from outlet and device boxes to top or bottom of prefabricated partition assemblies to permit wiring installation and connections as specified in Divisions 26, 27, and 28.

1) Typical EMT: Aluminum
2) Data / Communication Only: Option for 1 by 2 inch (25 by 50 mm) rectangular aluminum conduit. Show on Shop Drawings.

b. Flex Conduit: Provide UL listed per ANSI/UL-1, NEC Type FMC fabricated of lightweight, high-strength aluminum alloy, only permitted in locations shown on Shop Drawings.
c. Refer to Division 26, 27, and 28 Sections for conduit raceway and pull wire requirements.

2. All electrical installations must be inspected as part of the electrical contractor's scope prior to installation of face mounted finish tiles.

a. Grounding paths must be verified in patient care areas.

D. Electrical Components, Level 4

1. Level 4 Modular Electrical:

a. Panel cut outs.
b. Mounting brackets: Factory installed.
c. Trim rings: Shipped loose for field installation.
d. Faceplates: Shipped loose for field installation.
e. UL listed modular wiring system includes the device, the box assembly, a modular connector, all wiring and terminations.
f. The modular connector attached to the box to be extended above the modular partition to the slab above where it will connect to a splitter.
g. Provide the following from the splitter, to the electrical panel:

1) Panel Manager: manufactured modular home run-express lines mounted inside or just outside the electrical room hardwired by the Electrical Contractor. All connections from the Panel Manager and throughout the space are modular plug and play connections.
2) Zone Distribution: Zone boxes to hold either 12 circuits (independent neutrals) or 16 circuits (shared neutrals) are set up on a grid throughout the space. The Electrical Contractor is responsible for bringing the circuits to the zone boxes. All connections leaving the zone box throughout the space are modular plug and play connections. The zone boxes will be connected to the splitters using modular extender cables with plug and play connectors on both ends.
3) Whip Distribution: New or existing junction boxes in the ceiling hardwired by the Electrical Contractor connect to whips with a pigtail on one and modular connector on the other end provided by the prefabricated modular partition manufacturer.

h. Final lengths of power components are project specific and will be determined by the base building plenum height and the specific solution chosen. All power solutions can also run down to a raised floor.
i. Pre-wired device 20 amp: Factory installed.

j. 3/4 inch (21 mm) inside diameter EMT for data to the top or bottom of the panel (factory installed). EMT will extend 6 to 8 inches (150 to 200 mm) above finished ceiling for ceiling fed data or to the bottom of the frame for floor fed data. EMT, when used in concert with a Level 4 electrical solution, is grounded to the electrical back box with a #14 bond wire.

k. All home runs and connections to the modular electrical system is performed electrical contractor by permit.

2.12 ASSEMBLY COMPONENTS

A. Connections and Supports: Manufacturer's standard connections and supports that connect and release from floor and ceiling without damage using carpet grippers and ceiling track clips, with exception of the following conditions: bulkhead (drywall ceiling), electrical or service feeds and physical connections to base building, where required.

B. Tile Joint Closure: Manufacturer's standard, capable of closing up to a 1-inch (25 mm) gap between prefabricated partitions and base building elements.

C. Trim: Continuous and modular, factory finished, snap on type; field cuttable for variations in floor and ceiling levels.

1. Base Trim Profiles: Recessed; removable to access leveling mechanisms.
2. Ceiling Trim Profile: Recessed; adjustable to accommodate up to a 1/2 inch (13 mm) gap between demountable partitions and base building elements.
3. Wall Trim Profile: Recessed; adjustable to accommodate up to a 1/2 inch (13 mm) up to 1 inch (25 mm) gap between demountable partitions and base building elements.
4. Tile to Tile Profile: As detailed.
5. Colors: As selected by Architect from manufacturer's full range.

D. Brackets:

1. Manufacturer's brackets, supports and accessories for complete installation of system's furniture components, audio visual equipment, and paper accessories.
2. Provide bracket design to enable other system furniture to mount to integrated partitions, on or off module.

2.13 ACCESSORY COMPONENTS

A. Accessories - Classic:
1. Chart Rails
2. Mini Coat Hooks
3. Picture Hooks

2.14 FABRICATION

A. Frames:

1. Unless otherwise indicated on shop drawings, factory assembled frames with 1inch (25 mm) insulation, base track and levelers.

B. Face-Mounted and Center-Mounted Tiles

1. Face-Mounted Tiles: Installed to frames on site.

2. Center-Mounted Tiles: Factory Installed

C. Glazing:

1. Monolithic Glass-Framed Solutions: Factory installed/assembled.
2. Segmented Glass Framed Solutions: Factory installed/assembled.

D. Components:

1. Fabricate components for installation with concealed fastening devices and pressure-fit members that will not damage ceiling or floor coverings.

   a. Exceptions: Drywall ceiling and doors against base building require screw holes in base building for proper fastening.

2. Fabricate for installation with manufacturer's standard seals at floor and other locations where partition assemblies abut fixed construction and for installation of sound attenuation insulation in partition cavities.

2.15 GENERAL FINISH REQUIREMENTS

A. Protect finishes on exposed surfaces from damage during shipping.

B. Appearance of Finished Work:

1. Finishes shall match approved samples.
2. Variations in natural finishes such as stone and wood shall be reviewed and accepted in accordance with industry standards.

C. Frame Finishes: Finish to be determined.

1. Clear Anodized Aluminum: AAMA 611, AAM12C22A31, Class I.
2. Powdercoat Color: Factory applied to match paint finish as follows:

   a. Series: TBD
   b. Color: White Matte Powdercoat or White Glossy Powdercoat
   c. Paint Match: Manufacturer: TBD
   d. Paint Match: Description: TBD
   e. Paint Match: Color number: TBD

D. Paint Finish (PNT):

1. Factory Applied Tile Finishes: Joints and reveals as indicated on approved Shop Drawings.

   a. Series: Standard.
   b. Coating Type: Chromacoat
   c. Color: Shimmer.

   d. Series: Standard.

e. Coating Type: Chromacoat
f. Color: Slick.

g. Series: Standard.
h. Coating Type: Chromacoat
i. Color: Fresh.

j. Series: Standard.
k. Coating Type: Chromacoat
l. Color: Rain Check.

E. Wood Veneer Finish (VEN): Finish to be determined.

a. Series: Standard.
b. Wood Veneer Species: TBD.
c. Wood Veneer Cut: TBD.
d. Stain Finish: TBD.

F. Fabric Finish (FAB): Class A fire rated per ASTM E84 or other testing standard acceptable to the local building authority.

a. Series: TBD
b. Pattern: TBD.
c. Color: TBD.
d. Direction: TBD.
e. Edges: TBD.

G. Magnetic Markerboard: Porcelain enamel, balanced, high-pressure laminated, porcelain enamel-faced tiles, of three ply construction consisting of face sheet, core material, and backing.

a. Porcelain Face Sheet: Prefinished 28 gauge steel adhered to substrate.
b. Core Material: 1/2 inch (13 mm) thick MDF.
c. Color: White.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify field or hold-to control dimensions before fabrication of integrated interior construction system partitions. Coordinate fabrication schedule with construction schedule and progress to avoid delay in the work.

B. Examine all adjoining work including work by others.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Locations to receive partitions shall be inspected for compliance with manufacturers requirements.

B. Site floor conditions must be surveyed to determine the nature of floor level and determine where special conditions exist beyond manufacturer's standard leveling capabilities of 1-1/2 inch in 4 feet (38.1 mm in 1219 mm).

C. Field conditions and pre-existing installations by others which may adversely affect installation or exceed the manufacturers limitations shall be corrected before installing partitions.

3.3 INSTALLATION

A. Installation of integrated interior construction system shall be completed by a manufacturer certified installer.

B. Install system level, plumb, and aligned.

C. All building services shall be installed and connected to the base building systems by licensed subtrades. All building services shall be inspected by authorized trade representatives and Authority Having Jurisdiction in the presence of a manufacturer representative. Coordinate with all affected parties as required.

D. Installation sequence as determined by the certified installer and coordinated with the General Contractor based on project conditions.

3.4 INTEGRATED ELECTRICAL COMPONENT INSTALLATION

A. All building services shall be inspected by authorized trade representatives and the local building authority. Refer to Shop Drawings for location of components incorporated into prefabricated partitions.

B. In general, installation locations and dimensions are installed a typical distance from prefabricated partition edges, refer to Shop Drawings for more information.

3.5 CLEANING

A. Upon completion of installation, integrated interior construction system components and finishes shall be cleaned in accordance with the finish manufacturer's instructions. Alkaline or abrasive agents shall not be used. Avoid scratching or marring finishes.

3.6 PROTECTION

A. Protect from damage through the duration of construction activities.

3.7 DEMONSTRATION

A. Refer to Division 01 "Demonstration and Training".

B. Manufacturer's Distribution Partner will be responsible to provide general product training to the Owner or their outsourced operations team at time of installation as well as conduct a comprehensive training session(s) to convey the methodology, and assembly of the partitions to sustain general operational maintenance by the Owner's personnel with clearance over the facilities lifetime.

C. Reconfiguration and modifications shall comply with manufacturer's warranty requirements. Extensive or unusual changes will require additional Shop Drawings and manufactured components.

END OF SECTION 102219

SECTION 104400 - FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract and Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. Section includes fire protection cabinets and fire extinguishers.

1.3 PROJECT CONDITIONS

A. Do not deliver or install extinguishers until just before substantial completion.

B. Do not use permanent fire extinguishers for construction period fire protection.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For fire-protection cabinets.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.6 COORDINATION

A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements in ASTM E 814 for fire-resistance rating of walls where they are installed.

2.2 FIRE-PROTECTION CABINET

A. Basis of Design Manufacturer/Model: JL Industries, Inc.; a division of the Activar Construction Products Group; Clear VU Fire Extinguisher Cabinets.

B. Manufacturers: Subject to compliance with requirements, provide equal products by one of the following:

1. American Specialties, Inc.
2. Larsens Manufacturing Company.

3. Nystrom, Inc.
4. Potter Roemer LLC.

C. Cabinet Model: CV-1517G25.

D. Cabinet construction: Nonrated

E. Cabinet Construction: Fire rated

1. Fire-Rated Cabinets: Construct fire-rated cabinets with double walls fabricated from 0.043-inch-thick cold-rolled steel sheet lined with minimum 5/8-inch-thick fire-barrier material. Provide factory-drilled mounting holes.

F. Cabinet Material: Cold-rolled steel sheet.

G. Semirecessed Cabinet: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).

H. Square-Edge Trim: 1-1/2-inch.

I. Door Material: Steel sheet.

J. Door Style/Glazing: Clear acrylic bubble.

K. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.

1. Door Lock: Cylinder lock, keyed alike to other cabinets.

L. Materials:

1. Cold-Rolled Steel: ASTM A 1008, Commercial Steel (CS), Type B.

a. Finish: Baked enamel or powder coat.
b. Color: White.

2.3 FIRE EXTINGUISHERS

A. Fire extinguishers:

1. Basis of Design: JL Industries, Inc.; a division of the Activar Construction Products Group; Cosmic 10E

2. Ansul Fire Protection/A Grinnell Company.

3. General Fire Extinguisher Corporation.

4. Walter Kidde, The Fire Extinguisher Co.

B. Fire Extinguisher:

1. Rating: 4A-80B:C, 10 pounds capacity.

2. Type: ABC Dry Chemical.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare openings for recessed cabinets.

3.2 INSTALLATION

A. Perform installation in accordance with the manufacturer's instructions except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.

B. Install cabinets at locations indicated.

C. Install so that top of cabinet and/or bracket is 48 inches above finish floor unless otherwise shown on Drawings.

D. Install extinguishers.

END OF SECTION 104400

SECTION 122513 - ROLLER WINDOW SHADES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Roller shades, motorized and manual operation and accessories.

B. Shade fabric.

1.2 RELATED SECTIONS

A. Section 06100 - Rough Carpentry: Wood blocking and grounds for mounting roller shades and accessories.

1.3 REFERENCES

A. ASTM International (ASTM):
   1. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

B. Cradle to Cradle Products Innovation Institute (C2C):
   1. C2C (DIR) - C2C Certified Products Registry.

C. National Fire Protection Association (NFPA):
   1. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
   2. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.

D. Underwriters Laboratories (UL):
   1. UL (GGG) - GREENGUARD Gold Certified Products; Current Edition.
   2. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

E. Window Covering Manufacturers Association (WCMA):
   1. WCMA A100.1 - Safety of Window Covering Products; 2018.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Where motorized shades are to be controlled by control systems provided under other sections, coordinate the work with other trades to provide compatible products.
   2. Coordinate the work with other trades to provide rough-in of electrical wiring as required for installation of hardwired motorized shades.

B. Preinstallation Meeting: One week prior to commencing work related to this section. Require attendance of all affected installers.

C. Sequencing:

1. Do not fabricate shades until field dimensions for each opening have been taken with finished conditions in place. "Hold to" dimensions are not acceptable.
2. Do not install shades until final surface finishes and painting are complete.

1.5 SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 01 8113 – Sustainable Design Requirements.

B. General Emissions Evaluation Documentation: Evidence of Compliance: Acceptable types of evidence are the following;
1. Current UL (GGG) certification.
2. Current SCS (CPD) Indoor Advantage Gold certification.
3. Current listing in CHPS (HPPD) as a low-emitting product.
4. Current SCS (CPD) FLOORSCORE certification.
5. Current Green Label Plus (GLP) certification.
6. Test report showing compliance and stating exposure scenario used

C. Product Data: Manufacturer's catalog pages and data sheets for products specified including materials, finishes, dimensions, profiles, mountings, and accessories.
1. Preparation instructions and recommendations.
2. Styles, material descriptions, dimensions of individual components, profiles, features, finishes , accessories, and operating instructions.
3. Storage and handling requirements and recommendations.
4. Mounting details and installation methods.
5. Manufacturer's Instructions: Include storage, handling, protection, examination, preparation, and installation.
6. Project Record Documents: Record actual locations of control system components and show interconnecting wiring.
7. Operation and Maintenance Data: Component list with part numbers, and operation and maintenance instructions.
8. Motorized Shades: Power requirements. Typical wiring diagrams including integration of EDU controllers with building management system, audiovisual and lighting control systems as applicable.
9. Motorized Shades: Power requirements. Typical wiring diagrams including integration of EDU controllers with building management system, audiovisual and lighting control systems as applicable.

D. Shop Drawings: Plans, elevations, sections, product details, installation details, operational clearances, wiring diagrams and relationship to adjacent work.
1. Prepare shop drawings on AutoCad or MicroStation format using base sheets provided electronically by the Architect.

2. Prepare control wiring diagrams based on zones, switching and operational requirements provided by the Architect in electronic format.
3. Include one-line diagrams, wire counts, coverage patterns, and physical dimensions of each item.
4. Provide location plan showing all switch and control zones as per the performance requirements of the specifications. All switches, sensors and other control accessories must clearly be shown and called out in a bill of materials.

E. Shade Automation Schedule: For all shade control zones, provide a detailed schedule of all shade movements throughout the year for a theoretical clear sky. This schedule shall clearly show the time of date, time of day and shade position.

F. Window Treatment Schedule: For all roller shades. Use same room designations as indicated on the Drawings and include opening sizes and key to typical mounting details.

G. Verification Samples: For each finish product specified, one complete set of shade components, unassembled, demonstrating compliance with specified requirements.
1. Shadecloth Sample: Mark face of material to indicate interior faces.
a. Test reports indicating compliance with specified fabric properties.
b. Verification Samples: 6 inches (150 mm) square, representing actual materials, color and pattern.

H. Maintenance Data: Bill of materials for all components with part numbers. Methods for maintaining roller shades, precautions regarding cleaning materials and methods, instructions for operating hardware and controls.

I. Warranty: Provide manufacturer's warranty documents as specified in this Section.

1.6 QUALITY ASSURANCE

A. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

B. Manufacturer Qualifications: Obtain roller shades system through one source from a single manufacturer with a minimum of ten years experience and minimum of five projects of similar scope and size in manufacturing products comparable to those specified in this section.

C. Installer for Roller Shade System - Qualifications: Installer trained and certified by the manufacturer with a minimum of ten years experience in installing products comparable to those specified in this section.
1. Requirements for Roller Shade Installer/Contractor:
a. Roller Shade Hardware, shade fabric, motor, and all related controls shall be furnished and installed as a complete two-way communicating system and assembly.
b. Roller Shade Installer/Contractor shall list all components and systems included in their bid, including but not limited to, the prime manufacturer of the motor control and automated equipment and shall be financially responsible for any

change orders and/or back charges required by the BMS, AV, or Lighting Control Systems contractors to interface with the automatic solar tracking system and the motorized roller shade system.

D. Product Listing Organization Qualifications: Organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

E. Fire-Test-Response Characteristics: Passes NFPA 701 small and large-scale vertical burn. Materials tested shall be identical to products proposed for use.

F. Electrical Components: NFPA Article 100 listed and labeled by either UL or ETL or other testing agency acceptable to authorities having jurisdiction, marked for intended use, and tested as a system. Individual testing of components will not be acceptable in lieu of system testing.

G. Requirements for Electronic Hardware, Controls, and Switches: Roller shade hardware, shade fabric, EDU, and all related controls shall be furnished and installed as a complete two-way communicating system and assembly.

H. ShadeCloth Anti-Microbial Characteristics: 'No Growth' per ASTM G 21 results for fungi ATCC9642, ATCC9644, ATCC9645.

I. ShadeCloth Low-Emitting Material requirements: Meet CDPH v1.2-2017.

J. Turn-Key Single-Source Responsibility for Wiring Motorized Interior Roller Shades: To control the responsibility for performance of motorized roller shade systems, assign the design, engineering, and installation of motorized roller shade systems, motors, controls, and low voltage electrical control wiring specified in this Section to a single manufacturer and their authorized installer/dealer. The Architect will not produce a set of electrical drawings for the installation of control wiring for the motors, or motor controllers of the motorized roller shades. Power wiring (line voltage), shall be provided by the roller shade installer/dealer, in accordance with the requirements provided by the manufacturer. Coordinate the following with the roller shade installer/dealer:
   1. Contractor shall provide power panels and circuits of sufficient size to accommodate roller shade manufacturer's requirements, as indicated on the mechanical and electrical drawings.
   2. Contractor shall coordinate with requirements of roller shade installer/dealer, before inaccessible areas are constructed.
   3. Roller shade installer/dealer shall run line voltage as dedicated home runs (of sufficient quantity, in sufficient capacity as required) terminating in junction boxes in locations designated by roller shade dealer.
   4. Roller shade installer/dealer shall provide and run all line voltage (from the terminating points) to the motor controllers, wire all roller shade motors to the motor controllers, and provide and run low voltage control wiring from motor controllers to switch/ control locations designated by the Architect. All above-ceiling and concealed wiring shall be plenum-rated, or installed in conduit, as required by the electrical code having jurisdiction.

5. Contractor shall provide conduit with pull wire in all areas, which might not be accessible to roller shade contractor due to building design, equipment location or schedule.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver in factory-labeled packages, marked with manufacturer and product name, fire-test-response characteristics, and location of installation using same room designations indicated on Drawings and in Window Treatment Schedule.

B. Store and handle products per manufacturer's recommendations.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Install roller shades after finish work including painting is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

B. Power and control wiring shall be complete and certified, fully operational with uninterrupted communication on the lines and minimal noise certified by a commissioning agent specified in other sections.
1. 485, ICON, Lonmark and Dry Contract Network: Noise on the line not to exceed shade manufacturer's limits.

1.9 WARRANTY

A. Roller Shade Hardware and Chain Warranty: Manufacturer's standard non-depreciating warranty for interior shading.
1. Shade Hardware: 10 years unless otherwise indicated.
a. Mecho/5 with ThermoVeil, EuroVeil, EuroTwill, Soho, Equinox, Midnite, Chelsea, or Classic Blackout shade fabric: 25 years.
b. ElectroShade with ThermoVeil, EuroVeil, EuroTwill, Soho, Equinox, Midnite, Chelsea, or Classic Blackout shade fabric: 25 years.
2. Standard Shadecloth: Manufacturer's standard twenty-five year warranty.
3. Roller Shade Motors, Motor Control Systems, and Accessories: Manufacturer's standard non-depreciating five year warranty.
4. Roller Shade Installation: One year from date of Substantial Completion, not including scaffolding, lifts or other means to reach inaccessible areas, which are deemed owners responsibility.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design Manufacturer: Mecho, located at: 42-03 35th St.; Long Island City, NY 11101; ASD Tel: 718-729-2020; Fax: 718-729-2941; Email: marketing@mechoshade.com; Web: www.mechoshade.com or equal. Evidence of equal performance properties for products other than the specified material shall be clearly identified in product data submittals.

2.2 ROLLER SHADES, MOTORIZED OPERATION AND ACCESSORIES

A. Shade System; General:
   1. Motorized Shades: Comply with NFPA 70.
   2. Components capable of being removed or adjusted without removing mounted shade brackets, cassette support channel, or _____.
   3. Operates smoothly when raising or lowering shades.
   4. Cradle-to-Cradle certified and listed in C2C (DIR).
   5. Electrical Components: Listed, classified, and labeled as suitable for intended purpose. Test as total system. Individual component testing is acceptable.
      a. Components: FCC compliant where aplicable.

B. Basis of Design: ElectroShade with WhisperShade IQ2 EDU. As manufactured by MechoShade Systems LLC. Motor operated fabric window shade system complete with mounting brackets, roller tubes, hembars, hardware, and accessories.
   1. Voltage: 120 VAC
   2. Description: Single roller.
   3. Drop Position: Regular roll.
   4. Mounting: Ceiling mounted.
   5. Size: As indicated on drawings.
   6. Fabric: As indicated under Shade Fabric article.
   7. Brackets and Mounting Hardware: As recommended by manufacturer for mounting indicated and to accommodate shade fabric roll-up size and weight.
      a. Material: Steel, 1/8 inch (3 mm) thick.
      b. Multiple Shade Operation: Provide hardware as necessary to operate more than one shade using a single motor.
      c. Radiused Center Support Brackets: Provide brackets and connectors for radiused window applications.
         1) Maximum Offset: 22.5 degrees on each side for a 45 degree total offset.
         2) Maximum Offset: 8 degrees on each side for a 16 degree total offset.
   8. Roller Tubes:
      a. Material: Extruded aluminum.
      b. Size: As recommended by manufacturer; selected for suitability for installation conditions, span, and weight of shades.
      c. Fabric Attachment: Utilize extruded channel in tube to accept vinyl spline welded to fabric edge. Shade band to be removable and replaceable without removing roller tube from brackets or inserting spline from the side of the roller tube.
   9. Hembars: Designed to maintain bottom of shade straight and flat.
      a. Style: Full wrap fabric covered bottom bar, flat profile with heat sealed closed ends.
      b. Room-Darkening Shades: Provide a slot in bottom bar with wool-pile light seal.
   10. Accessories:
      a. Fascia: Removable extruded aluminum fascia, size as required to conceal shade mounting, attachable to brackets without exposed fasteners.
         1) Finish: Baked enamel. Color: Alabaster.
         2) Capable of installation across two or more shade bands in one piece.

3) Profile: Square.
4) Configuration: Continuous, fascia extends past continuous bracket.

b. Room-Darkening Channels, Standard: Extruded aluminum side and center channels with brush pile edge seals, SnapLoc mounting base, and concealed fasteners. Channels to accept one-piece exposed blackout hembar to assure side light control and sill light control.

2.3 INTELLIGENT ENCODED ELECTRONIC DRIVE SYSTEM

A. Electronic Drive Unit (EDU) System General Requirements:
1. A UL 325 listed solution.
a. Component certification in lieu of system testing is not acceptable.
2. Listing Label and Motor Rating: To be visible for inspection without dismounting of shade assembly to remove motor or EDU from shade roller tube.
3. Size and Configuration: As recommended by manufacturer for type, size, and arrangement of shades.
4. Conceal EDU inside shade roller tube.
5. EDU Rated Speed: The same nominal speed for shades in the same room.
6. Hanging Weight of Shade Band: 80 percent of rated lifting capacity of shade EDU and tube assembly.
7. Capable of upgrading firmware from anywhere on network without touching the motor.

B. Line Voltage EDU (120 VAC):
1. Basis of Design: MechoShade Systems LLC; WhisperShadeIQ2 System or equal. Tubular, asynchronous, integral AC motor and reversible capacitor. 120 VAC, single phase, 60 Hz; temperature Class B, thermally-protected, totally enclosed, maintenance-free. Powered by line voltage power supply connection equipped with locking disconnect plug assembly furnished with EDU.
2. Audible Noise: 46 dBA measured 3 ft (914 mm) from motor unit, depending on motor torque.
3. Nominal Speed: 34 RPM. Not to vary due to load/lift capacity.
4. Isolated, low voltage power supply for powering external accessories connected to either the dry contact or network port.
a. Products requiring accessories to be powered by a plug-in or externally-supplied power supply are not acceptable.

C. Modes of Operation:
1. Uniform Mode: Shades move to defined intermediate stop positions in order to maintain aesthetic uniformity.
2. Normal Mode: Shades move to defined intermediate stop positions and any position between defined upper and lower limits.
3. Maintenance Mode: Prevents shade from moving via dry contact or network control commands mode has been cleared/disabled.

D. Control Methods: Local isolated dry contact input and network control.
1. Local Isolated Dry Contact Inputs:
a. Local switch control, third party system integration without separate interface.

b. Moving EDU/shade to upper and lower limits and local switch preset positions.
c. Configuration of upper and lower limits, custom presets, and key modes of operation without a PC or microprocessor-based tools.
d. Configuration under protected sequences to prevent changes by casual user.
e. Switch Personalities: Configuration of dry contact control port over network such that any type of dry contact keypad/third-party interface and actuation methodology (maintained and/or momentary actuation) can be used to operate shade.
f. Dry Contact Control Connection Options to Include:
1) One-button.
2) Two-button.
3) Three-button. Able to support configuring limits, presets, and key operating modes (default).
4) Three-button. No configuration capability to prevent accidental changes in settings.

2. Network Control:
a. Bi-directional network communication to enable commanding operation of large groups of shades over a common backbone.
b. Each EDU:
1) Support eight network addresses capable of being employed for various levels of group control. Shade Contractor shall run all wiring and final hidden interface to AV rack for final connection interface, coordinate with AV Contractor.
2) Dry Contact Ports: Assigned its own local switch address which can be matched by other EDUs within eight network addresses in order to support group control when dry contact commands are received.
a) The EDU receiving dry contact commands may or may not be configured to operate based on commands coming through its own dry contact input port.
3) To have an independent unique identifier address (UID) enabling EDU to be independently controlled and configured over network via handheld configurator and/or PC controller.
c. Network Communication Card: Integral with tubular EDU assembly.
d. Support configuration of upper and lower limits using either a handheld removable program module/configurator or a local switch.
e. Support configuration of addresses using a handheld removable program module/configurator.

E. Alignment Positions:
1. Repeatable and precisely aligned shade positions and limits.
a. Support positioning commands from 0 to 100 percent in 1 percent increments.
b. Customizable Presets: 32.
c. Include three intermediate dry contact presets
2. Shades on same switch circuit or same network group address with same opening height, to align at each intermediate stopping position when traveling from any position, up or down.

3. Shades of differing heights: Capable of custom, aligned intermediate stop positions when traveling from any position, up or down.
4. Alignment of shade bands mechanically aligned on same EDU: Plus or minus 0.125 inch (3 mm).
5. Alignment of standard shades on adjacent EDUs: Plus or minus 0.25 inch (6 mm) when commanded to same alignment position.

F. Local Switch Presets:
1. Minimum of three customizable preset positions accessible over the local dry contact control inputs and over the network connection.
2. Preset positions: Customizable to any position between and including defined upper and lower limits (initially defaults to 25, 50, and 75 percent of shade travel).
3. Configuration of Custom Preset Positions: A handheld removable program module/configurator or a local switch.

G. Network Presets:
1. Minimum of 32 customizable preset positions (including the three local switch presets) accessible via network commands.
2. Preset positions: Customizable to any position between and including defined upper and lower limits (initially defaults to defined lower limit).
3. Configuration of Custom Preset Positions: A handheld removable program module/configurator or a local switch.

2.4 MOTOR CONTROLS, INTERFACES, AND ACCESSORIES

A. Unless indicated to be excluded, provide required equipment as necessary for a complete operating system providing the control intent specified. Provide components and connections necessary to interface with other systems as indicated.

B. Digital Network Controls:
1. Basis of Design: MechoShade Systems LLC; MechoNet. Low-voltage network utilizes standard Category 5/6 UTP cable; maximum of 4,000 feet (1,219 m), 250 nodes.
2. Reprogram control without requiring wiring modifications.
3. Ten-year non-volatile power failure memory for system configuration settings.
4. Network Interface Components:
a. MechoNet Network Interface; MNI Series: Four configurable motor/EDU ports (models available for RJ45 or terminal block wiring); four configurable switch ports; one infrared (IR) remote control port; one configurable serial port for RS232/RS485 communication.
b. IQ2 Dual Splitter: Two motor/EDU ports; two switch ports.
c. IQ/MLC2 Motor Group Controller: Four ports for line-voltage standard (non-intelligent) motors (120 or 230 VAC; 600 W, 1/4 HP maximum).
d. IQ Gateway; one for each floor where controlling across multiple floors.

2.5 ROLLER SHADE FABRICATION

A. Field measure finished openings prior to ordering or fabrication.

B. Dimensional Tolerances: Fabricate shades to fit openings within specified tolerances.
   1. Vertical Dimensions: Fill openings from head to sill with 1/2 inch (13 mm) space between bottom bar and window stool.
   2. Horizontal Dimensions: Inside Mounting.
   3. Horizontal Dimensions: Outside mounting.
      a. Cover window frames, trim, and casings completely.
      b. Extend shades beyond jambs on each side: 2 inches (50 mm).

C. Openings Requiring Continuous Multiple Shade Units with Separate Rollers: Locate roller joints at window mullion centers; butt rollers end-to-end.

2.6 SHADE FABRIC

A. Basis of Design: Shade fabric as manufactured by MechoShade Systems LLC.
   1. Blackout Shadecloths:
      a. Fabric: Equinox Blackout: 0100 series. Opaque.
      b. Color: 0105 Silver.
   2. Material Certificates and Product Disclosures:
      a. Low-Emitting Material Certification: Greenguard Gold certified and listed in UL (GGG).
   3. Performance Requirements:
   4. Fabrication:
      a. Fabric Orientation: Railroaded, fabric is turned 90 degrees off the roll.
      b. Battens: Manufacturer's standard material, full width of shade, and enclosed in welded shade fabric pocket; locate as indicated on drawings.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Start of installation shall be considered acceptance of substrates.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under the project conditions.

C. Coordinate with window installation and placement of concealed blocking to support shades.

3.3 INSTALLATION

A. Install shades level, plumb, square, and true per manufacturer's instructions and approved shop drawings. Locate so shade band is at least 2 inches (51 mm) from interior face of glass. Allow proper clearances for window operation hardware. Use mounting devices as indicated.

B. Replace shades exceeding specified tolerances at no extra cost to Owner.

C. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range. Adjust level, projection, and shade centering from mounting bracket. Verify there is no telescoping of shade fabric.

D. Clean roller shade surfaces after installation, per manufacturer's written instructions.

E. Demonstrate operation and maintenance of window shade system to Owner's personnel.

F. Manufacturer's authorized personnel are to train Owner's personnel on operation and maintenance of system.
   1. Use operation and maintenance manual as a reference, supplemented with additional training materials as required.

3.4 SYSTEM STARTUP

A. Motorized Shade System: Provide services of a manufacturer's authorized representative to perform system startup.

B. Turn-Key Single-Source Responsibility for Motorized Interior Roller Shades: Design, engineering, and installation of motorized roller shade systems, motors, controls, and low voltage electrical control wiring specified is to be performed by a single manufacturer and their authorized installer/dealer.
   1. The Architect will not provide a set of electrical drawings for installation of control wiring for motors, or motor controllers of motorized roller shades.
   2. Power wiring (line voltage), to be provided by roller shade installer/dealer, per requirements provided by manufacturer. Coordinate following with roller shade installer/dealer:
   3. Contractor To Provide the Following:
      a. Power Panels and Circuits: Size to accommodate roller shade manufacturer's requirements, as indicated on mechanical and electrical drawings.
      b. Coordinate with requirements of roller shade installer/dealer, before inaccessible areas are constructed.
      c. Line voltage as dedicated home runs, of sufficient quantity, and capacity as required. Terminate in junction boxes at locations designated by roller shade installer/dealer.
      d. Run line voltage from terminating points to motor controllers. Wire roller shade motors to motor controllers. Run low voltage control wiring from motor controllers to switch/control locations designated by Architect.
         1) Above-ceiling and concealed wiring to be plenum-rated, or in conduit, as required by the electrical code having jurisdiction.
      e. Use conduit with pull wire in areas, not accessible to roller shade contractor due to building design, equipment location or schedule.

3.5 PROTECTION AND CLEANING

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

1. Clean soiled shades and exposed components as recommended by manufacturer.
2. Replace shades that cannot be cleaned to "like new" condition.

END OF SECTION 122513

SECTION 123661 - QUARTZ AGGLOMERATE COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Quartz agglomerate countertops.
2. Quartz agglomerate backsplashes.

1.2 ACTION SUBMITTALS

A. LEED Submittal Form: Complete and include total material cost (cost of product to project, excluding installation labor and equipment). Provide documentation supporting claims on the LEED Submittal Form. Documentation can include written statements on manufacturer's letterhead, certificates, or product data sheets. This includes items such as Environmental Product Declarations, Health Product Declarations and other third-party certifications as indicated by credits pursued on the LEED scorecard and requirements listed in Section 01 8113 – Sustainable Design Requirements.

B. Composite Wood Submittal: Composite Wood Evaluation Documentation: Evidence of Compliance of "No Added Formaldehyde (NAF)" or "Ultra-Low-Emitting Formaldehyde (ULEF)."

C. Product Data: For engineered quartz materials.

D. Shop Drawings: For countertops and thresholds. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures. Provide a schedule of threshold locations.

E. Samples: For each type of material exposed to view. Threshold sample shall be of installed width x 6 inches long and shall be beveled per the drawing detail.

PART 2 - PRODUCTS

2.1 QUARTZ AGGLOMERATE MATERIALS

A. Quartz Agglomerate: Solid sheets consisting of quartz aggregates bound together with a matrix of filled plastic resin and complying with ICPA SS-1, except for composition.

1. Colors and Patterns: Refer to the Finish Types legend on the Drawings. Provide the specified material or equal. Evidence of equal performance properties for products other than the specified material shall be clearly identified in product data submittals.

B. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.

C. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.
D. Composite wood products installed on the interior side of the weatherproofing envelope shall be labeled ULEF (ultra-low-emitting formaldehyde) OR NAF (no added formaldehyde) per the California Air Resources Board ATCM for formaldehyde.

2.2 FABRICATION

A. Fabricate countertops and thresholds according to quartz agglomerate manufacturer's written instructions and the AWI/AWMAC/WI's "Architectural Woodwork Standards."
1. Grade: Premium.

B. Countertops: 1/2-inch-thick, quartz agglomerate with front edge built up with same material.

C. Backsplashes: 1/2-inch-thick, quartz agglomerate.

D. Joints: Fabricate countertops in sections for joining in field, with joints at locations shown and approved on shop drawings.

E. Cutouts and Holes:

1. Undercounter Plumbing Fixtures: Make cutouts for fixtures in shop using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.

2.3 INSTALLATION MATERIALS

A. Adhesive: Product recommended by quartz agglomerate manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Fasten subtops to cabinets by screwing through subtops into cornerblocks of base cabinets. Shim as needed to align subtops in a level plane.

B. Secure countertops to subtops with adhesive according to quartz agglomerate manufacturer's written instructions.

C. Bond joints with adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.

D. Install backsplashes and end splashes by adhering to wall and countertops with adhesive.

E. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.

F. Apply sealant to gaps at walls.

END OF SECTION 123661

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E303	6TH FLOOR POWER PLAN
E304	7TH FLOOR POWER PLAN
EM001	1ST FLOOR MECHANICAL POWER PLAN
EM002	5TH FLOOR MECHANICAL POWER PLAN
EM003	6TH FLOOR MECHANICAL POWER PLAN
EM004	7TH FLOOR MECHANICAL POWER PLAN
EM005	ROOF MECHANICAL POWER PLAN
E401	1ST FLOOR FIRE ALARM PLAN
E402	5TH FLOOR FIRE ALARM PLAN
E403	6TH FLOOR FIRE ALARM PLAN
E404	7TH FLOOR FIRE ALARM PLAN
E501	ELECTRICAL DETAILS
E502	ELECTRICAL FIRE ALARM RISER DIAGRAM
E503	ELECTRICAL DETAILS
E601	ELECTRICAL RISER DIAGRAMS
E701	ELECTRICAL SCHEDULES
E702	ELECTRICAL PANEL SCHEDULES

NUMBER	SHEET NAME
E703	ELECTRICAL PANEL SCHEDULES
E704	ELECTRICAL PANEL SCHEDULES
E705	ELECTRICAL PANEL SCHEDULES
TELECOMMUNICATIONS DRAWINGS	
T0.01	TELECOM DATA SHEET
T1.01	TELECOM FIRST FLOOR PLAN
T1.05	TELECOM FIFTH FLOOR PLAN
T1.06	TELECOM SIXTH FLOOR PLAN
T1.07	TELECOM SEVENTH FLOOR PLAN
T2.01	TELECOM DETAILS
T2.02	TELECOM ELEVATIONS
AV 0.01	A V DATA SHEET
AV 1.01	A V FIRST FLOOR PLAN
AV 1.05	A V FIFTH FLOOR PLAN
AV 1.06	A V SIXTH FLOOR PLAN
AV 1.07	A V SEVENTH FLOOR PLAN
ES 0.01	SEQUIRTY DATA SHEET
ES 1.01	SEQUIRTY FIRST FLOOR PLAN
ES 1.05	SEQUIRTY FIFTH FLOOR PLAN
ES 1.06	SEQUIRTY SIXTH FLOOR PLAN
ES 1.07	SEQUIRTY SEVENTH FLOOR PLAN
ES 2.01	SEQUIRTY CARD ACCESS DETAILS
ES 2.02	SEQUIRTY CAMERA DETAILS
SM 0.01	SOUND MASKING DATA SHEET
SM 1.05	SOUND MASKING PLAN - LEVEL 5
SM 1.06	SOUND MASKING PLAN - LEVEL 6
SM 1.07	SOUND MASKING PLAN - LEVEL 7

REFERENCE SYMBOLS

STRUCTURAL GRID — A.10

LEVEL INDICATOR — LEVEL 02, 10'-0" A/FF

MAT CHLINE — MAT CHLINE, SEE 1/A350

BUILDING SECTION — A350 / A350

WALL SECTION — A350

DETAIL SECTION — 1, A350

REVISION CLOUD / DELTA — 1

SPOT ELEVATION — 10'-0" A/FF

EXTERIOR / INTERIOR ELEVATION — A350/1, A350/1

NORTH ARROWS — NORTH, TRUE NORTH

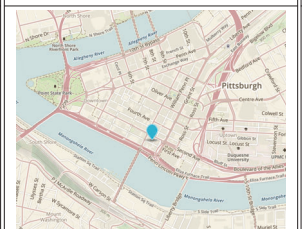
REFERENCE CALLOUT — A350, REFER TO ENLARGED PLAN 1/A350

ALTERNATIVE MAT CHLINE

ABBREVIATIONS

AB	ANCHOR BOLT	CONT	CONTINUOUS	FIN	FINISHED	MATL	MATERIAL	PTD	PAINTED	UH	UNIT HEATER
ACT	ADJUSTIC CEILING TILE	CONTR	CONTRACTOR	FLR	FLOOR	MAX	MAXIMUM	QT	QUARRY TILE	UNFIN	UNFINISHED
ADJ	ADJUSTABLE	COORD	COORDINATE	FRGP	FIBER REINFORCED GYPSUM PANEL	MECH	MECHANICAL	R	RADIUS	UOD	UNDERSIDE OF DECK
AFF	ABOVE FINISHED FLOOR	CORR	CORRIDOR	FTG	FOOTING	MED	MEDIUM	RD	ROOF DRAIN	UON	UNLESS OTHERWISE NOTED
AGGR	AGGREGATE	CPT	CARPET	FURN	FURNISHED	MEMB	MEMBRANE	REC	RECESSED	UV	UNIT VENTILATOR
AC	AIR CONDITIONING	CRS	COURSES	GA	GAUGE	MEP	MECHANICAL, ELECTRICAL, AND PLUMBING	RECPT	RECEPTACLE	VCT	VINYL COMPOSITION TILE
ALT	ALTERNATE	CT	CERAMIC TILE	GALV	GALVANIZED	MFR	MANUFACTURER	REINF	REINFORCING	VERT	VERTICAL
ALUM	ALUMINUM	CUFT (CF)	CUBIC FOOT	GB	GRAB BAR	MH	MANHOLE	REQD	REQUIRED	W	WITH
ANOD	ANODIZED	CW	COLD WATER	GC	GENERAL CONTRACTOR	MIN	MINIMUM	REV	REVISION	WC	WATER CLOSET
ATTEN	ATTENUATION	D	DRYER	GFRC	GLASS FIBER REINFORCED CONCRETE	MISC	MISCELLANEOUS	RFT	RESILIENT FLOOR TILE	WD	WOOD
AUTO	AUTOMATIC	DBL	DOUBLE	GL	GLASS	MO	MASONRY OPENING	RM	ROOM	WF	WIDE FLANGE
AVG	AVERAGE	DEG	DEGREE	GYP	GYPSUM	NIC	NOT IN CONTRACT	RUB	RUBBER	WP	WORK POINT
B/	BOTTOM OF	DIA	DIAMETER	HKGB	HIGH ABUSE GYPSUMBOARD	NO	NUMBER	RV	ROOF VENT	WT	WEIGHT
BC	BRICK COURSE	DIM	DIMENSION	HB	HOSE BIBB	NOM	NOMINAL	RX	REMOVE EXISTING		
BD	BOARD	DIM	DIMENSION	HDWD	HARDWOOD	NON-COM	NON-COMBUSTABLE	SEL	SELECT		
BLDG	BUILDING	DIV	DIVISION	HDWR	HARDWARE	OA	OVERALL	SGT	STRUCTURAL GLAZED TILE		
BLK	BLOCK	DW	DISHWASHER	HM	HOLLOW METAL	OC	ON CENTER	SIM	SIMILAR		
BM	BENCHMARK	EJ	EXPANSION JOINT	HORIZ	HORIZONTAL	OD	OUTSIDE DIAMETER	SPEC	SPECIFICATION		
CB	CAT CH BASIN	ELEC	ELECTRICAL	HT	HEIGHT	OPP	OPPOSITE	SQFT (SF)	SQUARE FOOT		
CFMF	COLD FORMED METAL FRAMING	ELEV	ELEVATION	HW	HOT WATER	OPP	OPPOSITE	SS	STAINLESS STEEL		
CG	CORNER GUARD	ENCL	ENCLOSURE	HWT	HOT WATER TANK	OHD	OVERHEAD	STD	STANDARD		
CJ	CONTROL JOINT	EQ	EQUAL	ID	INSIDE DIAMETER	PART	PARTITION	STOR	STORAGE		
CL	CENTERLINE	EQUIP	EQUIPMENT	IGU	INSULATED GLAZING UNIT	PL	PLATE	STRUCT	STRUCTURAL		
CLG	CEILING	EXIST	EXISTING	INCL	INCLUDED	PLAM	PLASTIC LAMINATE	SUSP CLG	SUSPENDED CEILING		
CLO	CLOSET	EXP BOLT	EXPANSION BOLT	INSUL	INSULATION	PLMB	PLUMBING	T/	TOP OF		
CLR	CLEAR	EWC	ELECTRIC WATER COOLER	JAN	JANITOR	POL	POLISHED	TEL	TELEPHONE		
CMU	CONCRETE MASONRY UNIT	FAB	FABRICATED	JB	JUNCTION BOX	PREFAB	PREFABRICATED	TEMP	TEMPERED		
COL	COLUMN	FD	FLOOR DRAIN	JT	JOINT	PREFIN	PREFINISHED	TERR	TERRAZZO		
COMP	COMPOSITION	FDN	FOUNDATION	LAM	LAMINATE	PREP	PREPERATION	TG	TONGUE AND GROOVE		
CONC	CONCRETE	FE	FIRE EXTINGUISHER	LAV	LAVATORY	PROC	PROCEDURE	THK	THICK OR THICKNESS		
CONN	CONNECTION	FEC	FIRE EXTINGUISHER CABINET	LF	LINEAR FEET	PROP	PROPERTY	TLT	TOILET		
CONST	CONSTRUCTION	FHC	FIRE HOSE CABINET	MAS	MASONRY	PT	PAINT	TYP	TYPICAL		

PROJECT LOCATION



412 Boulevard of the Allies, Pittsburgh, PA 15219

GENERAL NOTES

1. DO NOT SCALE DRAWINGS.
2. THE DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELAVANT DOCUMENTS AND PROJECT SPECIFICATIONS.
3. FIELD VERIFY JOB CONDITIONS AND DIMENSIONS AND NOTIFY THE ARCHITECT OF DEVIATIONS FROM THE DRAWINGS.
4. INSTALL MATERIALS AND PRODUCTS IN ACCORDANCE WITH THE MANUFACTURERS LATEST WRITTEN RECOMMENDATIONS.
5. SUPPLY EQUIPMENT FROM STRUCTURAL MEMBERS. DO NOT SUPPORT FROM DECK UON.
6. GENERAL CONTRACTOR SHALL PROVIDE LINTELS, LOUVERS AND SUPPORTS AT MECHANICAL OPENINGS UON.
7. PAINT LINTELS PRIOR TO INSTALLING DOORS AND WINDOWS.
8. FIRE-RETARDANT WOOD BLOCKING SHALL BE INSTALLED FOR WALL MOUNTED ITEMS WHERE REQUIRED.
9. USE SOLID CORE BRICK ABOVE RECESSED AREAS TO ACCOMODATE THE EXTERIOR ARCHITECTURE. REFER TO EXTERIOR ELEVATIONS.

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PROFESSIONAL SEAL:

PROJECT NUMBER: 190427.00

CLIENT PROJECT INFORMATION:

HACP - Housing Authority of the City of Pittsburgh

412 Boulevard of the Allies, Pittsburgh, PA 15219

CONSTRUCTION DOCUMENTS REVISION 3

09/03/2020

STRUCTURAL ENGINEERS

Company: TSE TAYLOR STRUCTURAL ENGINEERS, INC.
Address: 2275 SWALLOW HILL ROAD, BUILDING 100, PITTSBURGH, PA 15220
Phone Number: 412.722.0880
Email: -
Website: www.TSEpgh.com

MEP ENGINEERS

Company: ALLEN & SHARIFF
Address: 700 RIVER AVENUE, SUITE 600, PITTSBURGH, PA 15212
Phone Number: 412.322.9280
Email: -
Website: www.allenshariff.com

TECHNOLOGY CONSULTANT

Company: ITS CORPORATION
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Phone Number: 412.429.1701
Email: -
Website: www.itscorp.net

WAYFINDING CONSULTANT

Company: GUIDE STUDIO
Address: 13110 SHAKER SQUARE, SUITE 101, CLEVELAND, OHIO 44120
Phone Number: 216.921.0750
Email: -
Website: www.guidestudio.com

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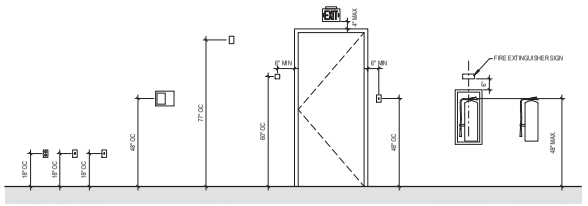
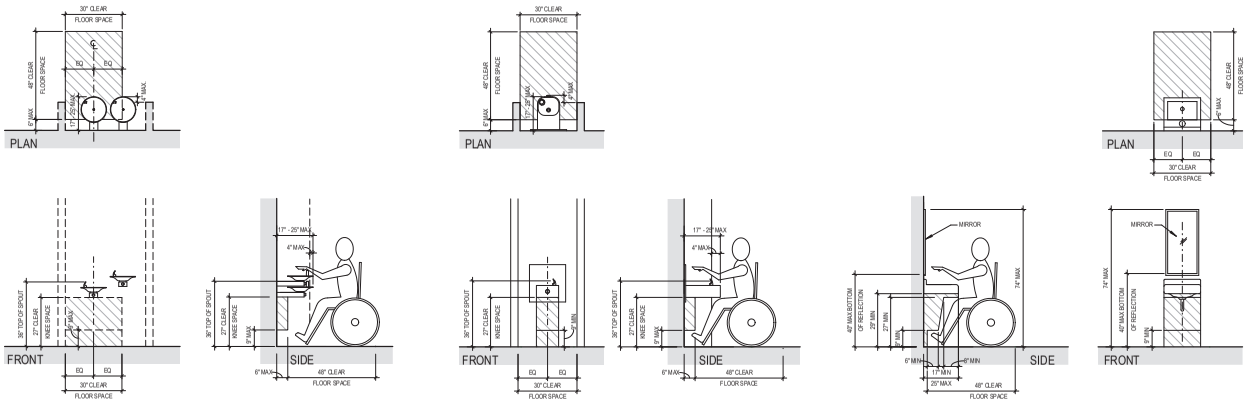
1. IT IS THE RESPONSIBILITY OF ALL PRIME CONTRACTORS TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSION. REPORT DISCREPANCIES TO THE ARCHITECT IMMEDIATELY.
2. COORDINATE ALL WORK WITH MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS.
3. PATCH ALL PENETRATIONS IN EXISTING FLOOR SLABS TO MATCH ADJACENT SURFACES.
4. PATCH PERIMETER WALLS TO PROVIDE A SMOOTH LEVEL OF DRYWALL FINISH FROM FLOOR TO UNDERSIDE OF EXISTING DECK UNLESS NOTED OTHERWISE.
5. PATCH EXISTING CONCRETE ENCASED BEAMS AS NEEDED TO REPAIR ANY LOOSE CONCRETE AT BEAM ENCASEMENT. PATCH TO MATCH EXISTING.
6. ADD GYPSUM BOARD ABOVE 8'-0" AT EXISTING PERIMETER, STAIR AND CORE LOCATIONS WHERE GYPSUM BOARD DOES NOT EXIST. PATCH AND SKIMCOAT TO PREP FOR NEW PAINT FINISH.
7. PATCH ANY HOLES IN WALLS AT BEAM AND COLUMN CONNECTION
8. PATCH ELEVATOR HOISTWAY AS NEEDED TO MEET 2HR RATING. BOLT/SECURE DOORS BEFORE COVERING.
9. FIREPROOFING THAT HAS BEEN DAMAGED AND/OR DISTURBED THROUGHOUT THE ENTIRITY OF THE FLOOR TO BE REPAIRED IN COMPLIANCE WITH ALL APPLICABLE CODES. WORK INCLUDES, BUT IS NOT LIMITED TO, DAMAGE INCURRED DURING PREVIOUS DEMOLITIONS, AND THROUGHOUT NEW CONSTRUCTION WORK
10. EXISTING CORE WALLS TO BE REPAIRED TO RECEIVE NEW FINISHES. GENERAL CONTRACTOR SHALL VERIFY EXTENT OF REPAIRS REQUIRED TO COMPLETE NEW CONSTRUCTION WORK. REFER TO ARCHITECTURAL DRAWINGS FOR SCOPE OF NEW CONSTRUCTION
11. ALL EXISTING COLUMNS THAT HAVE ANY HOLES LARGER THAN 1" TO BE PATCHED TO MATCH EXISTING FINISH. PREP FOR PAINTING.
12. FLOORS TO RECEIVE FLOOR LEVELING TOPPING AS REQUIRED TO PROVIDE REQUIRED LEVEL SURFACE FOR FINAL FINISHES. REFER TO PROJECT MANUAL FOR SPECIFICATION
13. GC TO PROVIDE FIRESTOPPING AT FLOOR AND STAIR PENETRATIONS TO MEET THE CODE REQUIRED RATINGS.
14. PROVIDE FIRE CAULKING AROUND ANY PENETRATIONS AT SHAFT WALL. PATCH AND SKIMCOAT DRYWALL TO PREP FOR NEW PAINT FINISH.
15. PROVIDE BLOCKING AT METAL STUD WALLS WHERE WALL MOUNTED CASEWORK WILL BE INSTALLED. BLOCKING IN DEMOUNTABLE PARTITIONS TO BE PROVIDED BY DEMOUNTABLE PARTITION PROVIDERS.
16. PROVIDE BLOCKING AT METAL STUD WALLS WHERE WALL MOUNTED TVS WILL BE INSTALLED. REFER TO ELECTRICAL AND AVIT DRAWINGS FOR ADDITIONAL INFORMATION. IF MOUNTED TO A DEMOUNTABLE WALL, BLOCKING TO BE PROVIDED BY THE DEMOUNTABLE PARTITION PROVIDER
17. PATCH EXISTING WALLS AT LOCATIONS WHERE OLD OUTLETS, EXTINGUISHER CABINETS OR OTHER DEVICES WERE REMOVED. PREPARE FOR FINAL FINISH.
18. PROVIDE CORNER BEAD AND DRYWALL FINISHING AT EXISTING WINDOW RETURNS WHERE GYPSUM INTEGRITY IS COMPROMISED. SKIMCOAT AREAS WHERE DRYWALL FINISH HAS BEEN DAMAGED. PREPARE FOR PAINT FINISH.
19. PATCH EXISTING HOLES IN ELEVATOR/RESTROOM CORE AND PREPARE GWB FOR FINAL PAINT FINISH.
20. PATCH EXTERIOR WALLS AS REQUIRED FOR NEW OUTLETS.
21. GC TO PROVIDE FIRE TREATED PLYWOOD BLOCKING AT NEW ELECTRICAL PANEL MOUNTING LOCATIONS AND AT WALL MOUNTED EQUIPMENT LOCATIONS.
22. ALL APPLIANCES BY GC. COORDINATE APPLIANCE SIZES WITH CASEWORK.
23. PROVIDE NEW WINDOW SILL TO MATCH EXISTING WHERE NEEDED
24. REPAIR EXISTING WINDOW SILL TO MATCH EXISTING WHERE NEEDED.
25. MODIFY EXISTING STAIR DOOR TO INCORPORATE ELECTRONIC STRIKE TO ALLOW DOOR TO REMAIN LOCKED. DOOR TO BE UNLOCKED FROM THE STAIR SIDE WITH CARD READER LOCK TO BE RELEASED FROM OFFICE SIDE WITH EXISTING PANIC HARDWARE. GC TO PROVIDE AND INSTALL ELECTRIC STRIKE. DOOR TO BE CAPABLE OF BEING UNLOCKED SIMULTANEOUSLY WITHOUT UNLATCHING UPON A SIGNAL FROM THE FIRE COMMAND CENTER. REFER TO DOOR SCHEDULE.
26. PATCH ANY HOLES AT WALLS ABOVE WINDOW HEAD HEIGHT.
27. HOLD COLUMN WRAP AS TIGHT TO PLUMBING AS POSSIBLE UNLESS OTHERWISE NOTED.
28. FAIL SAFE ELECTROMAGNETICALLY LOCKED DOOR HARDWARE PROVIDED AND INSTALLED BY DEMOUNTABLE PARTITION PROVIDER.
29. VERTICAL DOOR PULLS TO MEET ACCESSIBILITY GUIDELINES. CARD READER BY OWNER. PUSH TO EXIT BUTTON, AND DOOR RELEASE SENSOR TO BE PROVIDED AND INSTALLED BY GC.
30. REFER TO DOOR SCHEDULES FOR DOOR AND DOOR HARDWARE SCOPE. DOOR HARDWARE PROVIDED BY DEMOUNTABLE PARTITION PROVIDER TO INSTALL.



TYPICAL MOUNTING HEIGHTS



HIGH-LOW DRINKING FOUNTAIN

DRINKING FOUNTAIN

ACCESSIBLE LAVATORY

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HACP - Housing Authority of the City of Pittsburgh

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISIONS	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISIONS	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISIONS	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:

ARCHITECTURAL STANDARDS

SHEET NO:

G010

TRUE NORTH

PLAN NORTH

RESPONSIBILITY MATRIX

AREA	ITEM DESCRIPTION	MATERIAL				INSTALL			
		AV CONTRACTOR	ELECTRICAL CONTRACTOR	PLUMBING CONTRACTOR	DIRTT	AV CONTRACTOR	ELECTRICAL CONTRACTOR	PLUMBING CONTRACTOR	DIRTT
STRUCTURAL									
	All non-DIRTT framing, soffit headers, lighting support, MEP, etc.				GC OR GC SUB				GC OR GC SUB
	Structural bracing of DIRTT system to building structure				•		•		•
	Structural attachment of DIRTT curtain walls to GC walls				•				•
	Backing of GC wall for curtain wall connections				•				•
	All drawings and calculations for DIRTT walls and attachments, including seismic, up to connection points				•				•
MECHANICAL & HVAC									
	Rough-in and connection of all mechanical & HVAC				•				•
ELECTRICAL (DIRTT POWER)									
	DIRTT zone box				•				•
	DIRTT zone box to DIRTT j-box				•				•
	Device box & conduit inside DIRTT walls				•				•
	DIRTT j-box: express lines, extender cables, splitters, and power chassis				•				•
	Hardwire connections	•				•			
	Electrical receptacles, face plate/trim ring in DIRTT walls				•				•
	Non-DIRTT electrical receptacles, face plate/ trim rings	•				•			
	Room lighting (exception - lighting integrated into DIRTT millwork)				•				•
	LED lighting within DIRTT millwork - hardwire - review wiring diagram prior to DIRTT arrival				•				•
	Electrical circuiting labeling on electrical face plates	•				•			
	Occupancy sensors, transformers, thermostats, motion sensors, exiting devices and all lighting controls				•				•
PLUMBING									
	Rough in, stub-up and connection of all plumbing fixtures and pipes			•				•	
	In-wall domestic water			•				•	
	Bathroom lavatory backing - integrated in DIRTT wall				•				•
	Domestic water final connections			•				•	
	Waste water connections - incl. vent, ptrap, drain cover, etc.			•				•	
	Toilet fixture, sinks, carriers, and flush valves			•				•	
	Toilet & bathroom accessories backing- installed on DIRTT wall				•				•
DATA (DIRTT NETWORKS)									
	See DIRTT SOW document								
WALLS & DOORS									
	Fire-rated walls				•				•
	Glazing /Glass (DIRTT walls)				•				•
	Interior DIRTT walls: insulation, frames, face-mounted tiles				•				•
	Door slabs (see DIRTT shop drawing for details)				•				•
	Door pulls				•				•
	Door lever sets				•				•
	Backing for all DIRTT wall-mounted items (DIRTT Madonna)				•				•
	Backing for all dry wall-mounted items				•				•
CEILINGS									
	Ceiling grid: t-bar grid and tiles				•				•
	Ceiling grid to DIRTT wall hangers				•				•
	DIRTT Bespoke Ceilings				•				•
FLOOR									
	Carpet or finished floor material				•				•
	Raised floor, subfloor system (if in scope)				•				•
SECURITY EQUIPMENT									
	Security door hardware				•				•
	Final security wiring to building system				•				•
	Maglocks in door headers				•				•
	Keypad, card-scanners, push button, motion sensor				•				•
	Keypad single gang back box with conduit and 'tile cut out'				•				•
MILLWORK									
	Toe-kicks				•				•
	Hanger brackets or French cleats				•				•
	Cabinets (see Millwork shops for details and scope)				•				•
	Hardware, pulls, LED lighting within DIRTT cabinets				•				•
	Surfaces and counter top, backsplash, subtops								
INTEGRATED TECHNOLOGY & ACCESSORIES									
	Imbedded TV within DIRTT wall				•				•
	Power chassis, fan kits				•				•
	Mounting Brackets (embedded or facemounted)				•				•
	Clocks and other visible accessories				•				•
	Accessory or Medical equipment - support brackets only				•				•
	Accessory or Medical equipment				•				•
WALL-MOUNTED TECHNOLOGY & ACCESSORIES									
	Wall-mounted equipment - support brackets only				•				•
	Wall-mounted equipment - backing (Madonna)				•				•
	Wall-mounted equipment				•				•
HEALTHCARE SPECIFIC									
	Medgas Plumbing								

*THIS SCOPE RESPONSIBILITY MATRIX IS A BASIC GUIDELINE PROVIDED BY THE DIRTT PRODUCT MANUFACTURER. THE HACP PROJECT SHALL USE 4 PRIME CONTRACTORS.

RESPONSIBILITY MATRIX

AREA	ITEM DESCRIPTION	MATERIAL				INSTALL			
		AV CONTRACTOR	ELECTRICAL CONTRACTOR	PLUMBING CONTRACTOR	DIRTT	AV CONTRACTOR	ELECTRICAL CONTRACTOR	PLUMBING CONTRACTOR	DIRTT
	Medgas Devices (Oxygen, Air, Vacuum, Sliders)				GC OR GC SUB				GC OR GC SUB
	Medgas Devices Mounting Brackets				•				•
	Coved Flooring Base				•				•
	Plumbing Chases				•				•
	Infection Prevention Gaskets (DIRTT walls only)				•				•
PERMITS AND DRAWINGS									
	Permit Application (GC)				•				
	Permit drawings (architect)				•				
	DIRTT walls and millwork shop drawings				•				
	DIRTT installation drawings and as builts				•				
INSTALLATION AND SITE									
	Dumpster, recycling bins and disposal fees				•				•
	Forklift with 6 foot forks				•				•
	Scissor Lifts (2)				•				•
	Delivery coordination of trucks and sequencing				•				•
	Delivery labor from DIRTT trucks/site to store location								•
	Temporary protection (from damage by other trades)				•				•
	Offsite storage, if needed				•				•
OTHER									
	In-drywall electrical				•				•
	In-drywall data				•				•
	Drywall-mounted doors and windows (non-DIRTT supplied)				•				•
	Major appliances				•				•

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PROFESSIONAL SEAL

REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JAMES L. NETZEL JR. 18931

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION#5	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION#4	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION#3	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:

SCOPE RESPONSIBILITY MATRIX

SHEET NO:

G020

TRUE NORTH

PLAN NORTH

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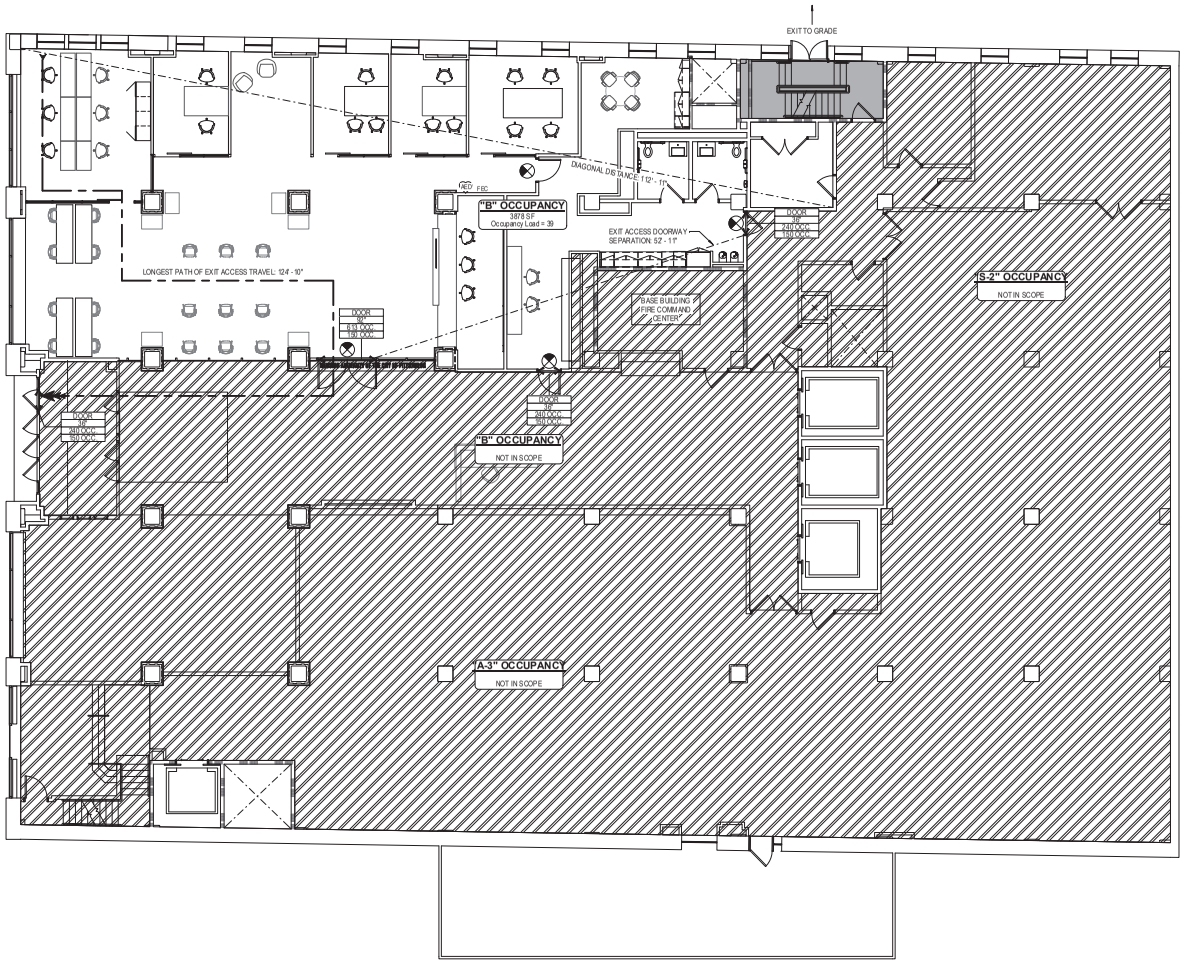

2 OVERALL LIFE SAFETY PLAN - LEVEL 01
1/8" = 1'-0"

APPLICABLE CODES - LEVEL 01

APPLICABLE CODES:
UNIFORM CONSTRUCTION CODE (UCC), PA ACT 45
INTERNATIONAL BUILDING CODE (IBC), 2015 EDITION
INTERNATIONAL MECHANICAL CODE (IMC), 2015 EDITION
INTERNATIONAL PLUMBING CODE (IPC), 201 5EDITION
INTERNATIONAL FIRE CODE (IFC), 2015 EDITION
INTERNATIONAL ENERGY CONSERVATION CODE (IECC), 201 5EDITION
ARTICLE XV OF THE ALLEGHENY COUNTY HEALTH DEPARTMENT'S RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE - CURRENT EDITION
NFPA 70 - 2008 ELECTRICAL CODE

ACCESSIBILITY STANDARDS:
ICC/ANSI A117.1 - 2009 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
CHAPTER 11 - 2018 INTERNATIONAL BUILDING CODE
APPENDIX E - 2018 INTERNATIONAL BUILDING CODE

AUTHORITY HAVING JURISDICTION:
CITY OF PITTSBURGH - DEPARTMENT OF PERMITS, LICENSES, AND INSPECTIONS

CHAPTER 3 - OCCUPANCY CLASSIFICATION

TYPE "B" BUSINESS - 3,878 SF

303.1.2 THE FOLLOWING ROOMS AND SPACES SHALL NOT BE CLASSIFIED AS ASSEMBLY OCCUPANCIES: A ROOM OR SPACE USED FOR ASSEMBLY PURPOSES WITH AN OCCUPANT LOAD OF LESS THAN 50 PERSONS, OR LESS THAN 750 SQUARE FEET IN AREA, AND ACCESSORY TO ANOTHER OCCUPANCY SHALL BE CLASSIFIED AS A GROUP "B" OCCUPANCY OR AS A PART OF THAT OCCUPANCY.

CHAPTER 4 - SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

403.2.1.1.2 IN A HIGH-RISE BUILDING, THE FIRE-RESISTANCE RATING OF THE BUILDING ELEMENTS IN TYPE IB CONSTRUCTION SHALL BE PERMITTED TO BE REDUCED TO THE FIRE-RESISTANCE RATING IN TYPE IIA.

CHAPTER 5 - BUILDING HEIGHT & AREA

TYPE "IB" CONSTRUCTION (EXISTING)

ALLOWABLE HEIGHT - 12 STORIES / 180' - 0"
ACTUAL - 9 STORIES / 118' - 10"
ALLOWABLE BUILDING AREA - UL SF/FLOOR
ACTUAL LEVEL 01) - 19,434 SF

508.1 WHERE A BUILDING CONTAINS MORE THAN ONE OCCUPANCY GROUP, THE BUILDING OR PORTION THEREOF SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF SECTION *508.2, 508.3, 508.4,* OR A COMBINATION OF THESE SECTIONS.

508.3 AREAS/OCCUPANCIES WITHIN SCOPE ARE TO BE CONSIDERED NONSEPARATED OCCUPANCIES IN ACCORDANCE TO THE PROVISIONS SET FORTH IN SECTION *508.3.*

CHAPTER 6 - TYPES OF CONSTRUCTION

TYPE "IB" CONSTRUCTION (EXISTING)

TABLE 601 PRIMARY STRUCTURE: 1 HOUR
BEARING WALLS - EXTERIOR: 1 HOUR
BEARING WALLS - INTERIOR: 1 HOUR
NON-BEARING WALLS - INTERIOR: 0 HOUR
FLOOR CONSTRUCTION: 1 HOUR
ROOF CONSTRUCTION: 1 HOUR

CHAPTER 8 - INTERIOR FINISHES

803.11 INTERIOR WALL AND CEILING FINISH SHALL HAVE A FLAME SPREAD INDEX NOT GREATER THAN THAT SPECIFIED IN TABLE *803.11* FOR THE GROUP AND LOCATION DESIGNATED.

TABLE 803.11 OCCUPANCY GROUP B
EXIT ENCLOSURES/PASSAGEWAYS: B
CORRIDORS: C
ROOMS/ENCLOSED SPACES: C

CHAPTER 9 - FIRE PROTECTION SYSTEMS

906.1 PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED IN NEW AND EXISTING GROUP A, AND B OCCUPANCIES.

TABLE 906.3(1)
FIRE EXTINGUISHER - CLASS A: FIRE, 2-A RATING
MAXIMUM TRAVEL DISTANCE TO FIRE EXTINGUISHER = 75'0"

907.1 FIRE ALARM AND DETECTION SYSTEM AND EMERGENCY VOICE/ ALARM COMMUNICATION SYSTEM PROVIDED BY BASE BUILDING.

CHAPTER 10 - MEANS OF EGRESS

1004.1.1 OCCUPANCY GROUP B: BUSINESS AREAS - 100 GROSS
3,878 SF / 100 GROSS SF/OCUPANT = 39 OCCUPANTS

39 OCCUPANTS IN SCOPE (LEVEL 01 ONLY)

1005.3.1 THE TOTAL WIDTH OF MEANS OF EGRESS SHALL NOT BE LESS THAN THE TOTAL OCCUPANT LOAD SERVED BY THE MEANS OF EGRESS MULTIPLIED BY 0.3 INCH PER OCCUPANT FOR STAIRWAYS AND BY 0.2 INCH PER OCCUPANT FOR OTHER EGRESS COMPONENTS.

EXCEPTION #1 FOR OTHER THAN GROUP H AND I-2 OCCUPANCIES, THE CAPACITY, IN INCHES, OF MEANS OF EGRESS SHALL BE CALCULATED BY MULTIPLYING BY 0.2 INCH PER OCCUPANT FOR STAIRWAYS AND BY 0.15 INCH PER OCCUPANT FOR OTHER EGRESS COMPONENTS.

(STAIRWAYS) 64 OCCUPANTS x 0.2" = 12.8" REQUIRED / 48" (EXISTING)

(OTHERS) 64 OCCUPANTS x 0.15" = 9.6" REQUIRED / 108" PROVIDED

1006.2.1 TWO EXITS OR EXIT ACCESS DOORWAYS FROM ANY SPACE SHALL BE PROVIDED WHERE THE DESIGN OCCUPANT LOAD OR THE COMMON PATH OF TRAVEL EXCEEDS THE VALUES LISTED IN TABLE *1006.2.1.*

TABLE 1006.2.1 OCCUPANCY GROUP B (SPRINKLERED)
MAXIMUM OCCUPANT LOAD OF SPACE: 49
MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE: 100'-0"

CHAPTER 10 - MEANS OF EGRESS

1007.1.1 THE SEPARATION DISTANCE BETWEEN TWO EXIT ACCESS DOORWAYS SHALL NOT BE LESS THAN ONE-HALF OF THE LEGNTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED.

EXCEPTION #2 WHERE A BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM, THE SEPARATION DISTANCE SHALL NOT BE LESS THAN ONE-THIRD OF THE OVERALL DIAGONAL DIMENSION OF THE AREA SERVED.

1009.1 ACCESSIBLE SPACES SHALL BE PROVIDED WITH NOT LESS THAN ONE ACCESSIBLE MEANS OF EGRESS FROM ANY ACCESSIBLE SPACE.

1017.2 EXIT ACCESS TRAVEL DISTANCE SHALL NOT EXCEED THE DISTANCES GIVEN IN *TABLE 1017.2.*

TABLE 1017.2 OCCUPANCY GROUP B (SPRINKLERED): 300' 0"

1020.1 CORRIDORS SHALL BE FIRE-RESISTANCE RATED IN ACCORDANCE WITH TABLE *1020.1.*

TABLE 1020.1 CORRIDORS SERVING OCCUPANCY GROUPS B WITH AN OCCUPANT LOAD GREATER THAN 30 IN A BUILDING EQUIPPED WITH AN AUTOMATIC SPRINKLER SYSTEM = 0 HOUR FIRE-RESISTANCE RATING REQUIRED.

1020.4 WHERE MORE THAN ONE EXIT OR EXIT ACCESS DOORWAY IS REQUIRED, THE EXIT ACCESS SHALL BE ARRANGED SUCH THAT THERE ARE NO DEAD ENDS IN CORRIDORS MORE THAN 20'-0".

EXCEPTION #2 IN OCCUPANCY GROUP B, WHERE THE BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM, THE LENGTH OF THE DEAD-END CORRIDORS SHALL NOT EXCEED 50'-0".

CHAPTER 11 - ACCESSIBILITY

1105.1 60% OF ALL PUBLIC ENTRANCES SHALL BE ACCESSIBLE.

1109.2 AT LEAST ONE OF EACH TYPE OF FIXTURE, ELEMENT, CONTROL, OR DISPENSER IN EACH ACCESSIBLE TOILET ROOM SHALL BE ACCESSIBLE.

CHAPTER 30 - ELEVATORS AND CONVEYING SYSTEMS

3006.2 ELEVATOR HOISTWAY DOOR OPENINGS SHALL BE PROTECTED IN HIGH-RISE BUILDINGS IN ACCORDANCE WITH SECTION *3006.3.*

3006.3.4 THE ELEVATOR HOISTWAY SHALL BE PRESSURIZED IN ACCORDANCE WITH SECTION *909.21.*

CHAPTER 4 - FIXTURES, FAUCETS, AND FIXTURE FITTINGS

(ACHD RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE, ARTICLE XV)

403.3.3 (IPC 201 5) IN OCCUPANCIES OTHER THAN COVERED AND OPEN MALL BUILDINGS, THE REQUIRED PUBLIC AND EMPLOYEE TOILET FACILITIES SHALL BE LOCATED NOT MORE THAN ONE STORY ABOVE OR BELOW THE SPACE REQUIRED TO BE PROVIDED WITH THE TOILET FACILITIES AND THE PATH OF TRAVEL TO SUCH FACILITIES SHALL NOT EXCEED A DISTANCE OF 500'.

CHAPTER 4 - FIXTURES, FAUCETS, AND FIXTURE FITTINGS (ACHD RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE, ARTICLE XV) DELETE 502 FROM IPC 403.3.3 AND REPLACE WITH 307

403 OCCUPANCY GROUP B
LEVEL 01: 36 OCCUPANTS
TOTAL (OCCUPANCY GROUP B): 39 OCCUPANTS IN SCOPE

WATER CLOSETS
TOILETS (MALE): 19.5 OCCUPANTS @ 2 PER 16-35 OCCUPANTS = 2 TOILETS REQUIRED
TOILETS (FEMALE): 19.5 OCCUPANTS @ 2 PER 16-35 OCCUPANTS = 2 TOILETS REQUIRED

LAVATORIES
LAVATORIES (MALE/FEMALE): 39 OCCUPANTS @ 2 PER 26-50 OCCUPANTS = 2 LAVATORIES REQUIRED

DRINKING FOUNTAINS
DRINKING FOUNTAINS (MALE/FEMALE): 39 OCCUPANTS @ 1 PER 100 OCCUPANTS = 1 DRINKING FOUNTAIN REQUIRED

SERVICE SINKS
SERVICE SINKS: 1 REQUIRED PER FLOOR

403 OCCUPANCY GROUP A-3
LOWER LEVEL (OUT OF SCOPE): 230 OCCUPANTS
TOTAL (OCCUPANCY GROUP A-3): 230 OCCUPANTS

WATER CLOSETS
TOILETS (MALE): 129 OCCUPANTS @ 1 PER 125 OCCUPANTS = 2 TOILETS REQUIRED
TOILETS (FEMALE): 129 OCCUPANTS @ 1 PER 65 OCCUPANTS = 2 TOILETS REQUIRED

LAVATORIES
LAVATORIES (MALE/FEMALE): 258 OCCUPANTS @ 1 PER 200 OCCUPANTS = 2 LAVATORIES REQUIRED

DRINKING FOUNTAINS
DRINKING FOUNTAINS (MALE/FEMALE): 258 OCCUPANTS @ 1 PER 500 OCCUPANTS = 1 DRINKING FOUNTAIN REQUIRED

SERVICE SINKS
SERVICE SINKS: 1 REQUIRED PER FLOOR

403 OCCUPANCY GROUP S-2 (OUT OF SCOPE)
LOWER LEVEL (OUT OF SCOPE): 37 OCCUPANTS
TOTAL (OCCUPANCY GROUP S-2): 37 OCCUPANTS

WATER CLOSETS
TOILETS (MALE/FEMALE): 37 OCCUPANTS @ 1 PER 100 OCCUPANTS = 1 TOILETS REQUIRED

LAVATORIES
LAVATORIES (MALE/FEMALE): 37 OCCUPANTS @ 1 PER 100 OCCUPANTS = 1 LAVATORIES REQUIRED

DRINKING FOUNTAINS
DRINKING FOUNTAINS (MALE/FEMALE): 37 OCCUPANTS @ 1 PER 1,000 OCCUPANTS = 1 DRINKING FOUNTAIN REQUIRED

SERVICE SINKS
SERVICE SINKS: 1 REQUIRED

COMBINED TOTAL MINIMUM NUMBER OF REQUIRED FIXTURES FOR LEVEL 01 AND LOWER LEVEL (OUT OF SCOPE):

WATER CLOSETS
MALE: 4 REQUIRED / 4 PROVIDED
FEMALE: 4 REQUIRED / 4 PROVIDED
MALE OR FEMALE: 1 REQUIRED / 1 PROVIDED

LAVATORIES 5 REQUIRED / 7 PROVIDED

DRINKING FOUNTAINS 3 REQUIRED / 6 PROVIDED

SERVICE SINKS 1 REQUIRED PER FLOOR / 1 PROVIDED PER FLOOR

419 (ACHD RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE, ARTICLE XV) THE NUMBER OF URINALS FOR MALES SHALL BE AT LEAST 50% OF THE TOTAL NUMBER OF WATER CLOSETS REQUIRED FOR MALES. THE NUMBER OF WATER CLOSETS MAY BE DECREASED BY THE NUMBER OF URINALS WHICH ARE USED, BUT THE NUMBER OF REMAINING WATER CLOSETS SHALL NOT BE LESS THAT 50% OF THE ORIGINAL TABULATED TOTAL.

LIFE SAFETY NOTES

1. AN ASTERISK (*) ON THE IBC OCCUPANCY TAG INDICATES THE AREA CALCULATION IS A ROUNDED UP GROSS AREA MEASUREMENT. FOR THE TRUE REQUIRED OCCUPANCY OF THIS AREA PER LEVEL AS DEFINED IN TABLE 1004.1.1 OF THE INTERNATIONAL BUILDING CODE, REFER TO THE GROSS AREA SCHEDULE.

OCCUPANCY LEGEND

- "B" BUSINESS OCCUPANCY
- "A-2" ASSEMBLY OCCUPANCY
- OUT OF SCOPE, VARIOUS OCCUPANCIES
- EGRESS COMPONENT

LIFE SAFETY LEGEND

WALL RATINGS
- 1 HR FIRE RESISTANT
- 2 HR FIRE RESISTANT
- 3 HR FIRE RESISTANT

SYMBOLS
- EXIT ARROW
- FEC — FIRE EXTINGUISHER CABINET
- FE — FIRE EXTINGUISHER
- EXIT CAPACITY TAG
- DOOR TYP. 2 DOOR 3'-0" 180 OOC 180 OOC — TYPE; MAX ALLOWABLE OCC.; ACTUAL OCC.
- EGRESS LINE - LONG SET PATH
- EGRESS LINE - COMMON PATH
- EGRESS LINE - "DEAD END" CORRIDOR
- DIAGONAL DISTANCE PATH
- Area Name — AREA IN SF; ROOM; Occupancy Load = 10,000 — OCCUPANCY LOAD PER IBC TABLE 1004.1.1; IBC ALLOWABLE AREA PER OCCUPANT — IBC OCCUPANCY TAG

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #5	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #4	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #3	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO: 190427.00 | DRAWN BY: AE7 | REVIEWED BY: JW

SHEET NAME:
OVERALL LIFE SAFETY PLAN - LEVEL 01

SHEET NO:
G101

TRUE NORTH
PLAN NORTH

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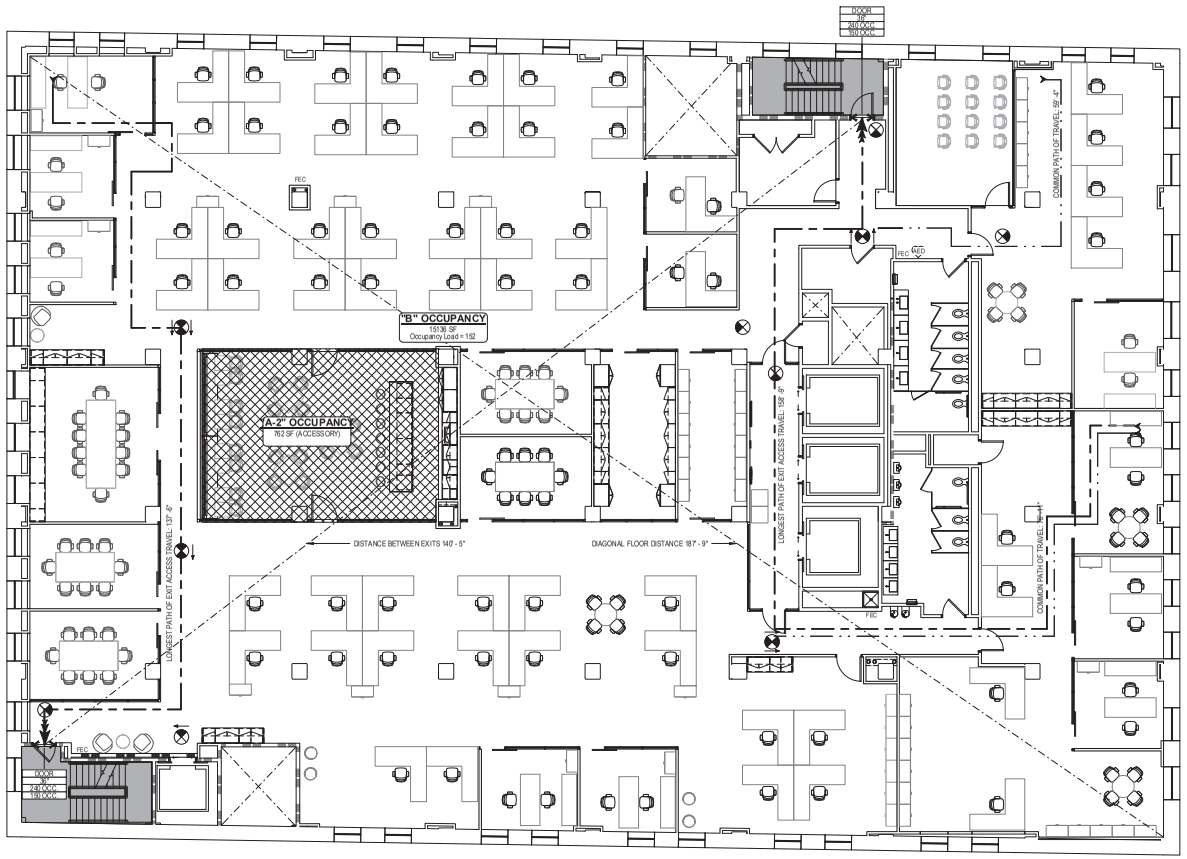

2 OVERALL LIFE SAFETY PLAN - LEVEL 05
1/8" = 1'-0"

APPLICABLE CODES - LEVEL 05

APPLICABLE CODES:
UNIFORM CONSTRUCTION CODE (UCC), PA ACT 45
INTERNATIONAL BUILDING CODE (IBC), 2015 EDITION
INTERNATIONAL MECHANICAL CODE (IMC), 2015 EDITION
INTERNATIONAL PLUMBING CODE (IPC), 2015 EDITION
INTERNATIONAL FIRE CODE (IFC), 2015 EDITION
INTERNATIONAL ENERGY CONSERVATION CODE (IECC), 2015 EDITION
ARTICLE XV OF THE ALLEGHENY COUNTY HEALTH DEPARTMENT'S RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE - CURRENT EDITION
NFPA 70 - 2008 ELECTRICAL CODE

ACCESSIBILITY STANDARDS:
ICC/ANSI A117.1 - 2009 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
CHAPTER 11 - 2018 INTERNATIONAL BUILDING CODE
APPENDIX E - 2018 INTERNATIONAL BUILDING CODE

AUTHORITY HAVING JURISDICTION:
CITY OF PITTSBURGH - DEPARTMENT OF PERMITS, LICENSES, AND INSPECTIONS

CHAPTER 3 - OCCUPANCY CLASSIFICATION

TYPE "B" BUSINESS - 15,136 SF

303.1.2 THE FOLLOWING ROOMS AND SPACES SHALL NOT BE CLASSIFIED AS ASSEMBLY OCCUPANCIES: A ROOM OR SPACE USED FOR ASSEMBLY PURPOSES WITH AN OCCUPANT LOAD OF LESS THAN 50 PERSONS, OR LESS THAN 750 SQUARE FEET IN AREA, AND ACCESSORY TO ANOTHER OCCUPANCY SHALL BE CLASSIFIED AS A GROUP "B" OCCUPANCY OR AS A PART OF THAT OCCUPANCY.

CHAPTER 4 - SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

403.2.1.1 IN A HIGH-RISE BUILDING, THE FIRE-RESISTANCE RATING OF THE BUILDING ELEMENTS IN TYPE IB CONSTRUCTION SHALL BE PERMITTED TO BE REDUCED TO THE FIRE-RESISTANCE RATING IN TYPE IIA.

CHAPTER 5 - BUILDING HEIGHT & AREA

TYPE "IB" CONSTRUCTION (EXISTING)

ALLOWABLE HEIGHT - 12 STORIES / 180' - 0"
ACTUAL - 9 STORIES / 116' - 10"
ALLOWABLE BUILDING AREA - UL SF/FLOOR
ACTUAL (LEVEL 05) - 16,436 SF

508.1 WHERE A BUILDING CONTAINS MORE THAN ONE OCCUPANCY GROUP, THE BUILDING OR PORTION THEREOF SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF SECTION *508.2*, *508.3*, *508.4*, OR A COMBINATION OF THESE SECTIONS.

508.3 AREAS OCCUPANCIES WITHIN SCOPE ARE TO BE CONSIDERED NONSEPARATED OCCUPANCIES IN ACCORDANCE TO THE PROVISIONS SET FORTH IN SECTION *508.2*.

CHAPTER 6 - TYPES OF CONSTRUCTION

TYPE "IB" CONSTRUCTION (EXISTING)

TABLE 601 PRIMARY STRUCTURE: 1 HOUR
BEARING WALLS - EXTERIOR: 1 HOUR
BEARING WALLS - INTERIOR: 1 HOUR
NON-BEARING WALLS - INTERIOR: 0 HOUR
FLOOR CONSTRUCTION: 1 HOUR
ROOF CONSTRUCTION: 1 HOUR

CHAPTER 8 - INTERIOR FINISHES

803.11 INTERIOR WALL AND CEILING FINISH SHALL HAVE A FLAME SPREAD INDEX NOT GREATER THAN THAT SPECIFIED IN TABLE *803.11* FOR THE GROUP AND LOCATION DESIGNATED.

TABLE 803.11 OCCUPANCY GROUP B
EXIT ENCLOSURES/PASSAGEWAYS: B
CORRIDORS: C
ROOMS/ENCLOSED SPACES: C

CHAPTER 9 - FIRE PROTECTION SYSTEMS

906.1 PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED IN NEW AND EXISTING GROUP B OCCUPANCIES.

TABLE 906.3(1)
FIRE EXTINGUISHER - CLASS A, FIRE, 2-A RATING
MAXIMUM TRAVEL DISTANCE TO FIRE EXTINGUISHER = 75'-0"

907.1 FIRE ALARM AND DETECTION SYSTEM AND EMERGENCY VOICE/ ALARM COMMUNICATION SYSTEM PROVIDED BY BASE BUILDING.

CHAPTER 10 - MEANS OF EGRESS

1004.1.1 OCCUPANCY GROUP B: BUSINESS AREAS - 100 GROSS
15,081 SF / 100 GROSS SF/OCCUPANT = 152 OCCUPANTS

152 OCCUPANTS IN SCOPE (LEVEL 01 ONLY)

1005.3.1 THE TOTAL WIDTH OF MEANS OF EGRESS SHALL NOT BE LESS THAN THE TOTAL OCCUPANT LOAD SERVED BY THE MEANS OF EGRESS MULTIPLIED BY 0.3 INCH PER OCCUPANT FOR STAIRWAYS AND BY 0.2 INCH PER OCCUPANT FOR OTHER EGRESS COMPONENTS.

EXCEPTION #1 FOR OTHER THAN GROUP H AND I-2 OCCUPANCIES, THE CAPACITY, IN INCHES, OF MEANS OF EGRESS SHALL BE CALCULATED BY MULTIPLIED BY 0.2 INCH PER OCCUPANT FOR STAIRWAYS AND BY 0.15 INCH PER OCCUPANT FOR OTHER EGRESS COMPONENTS.

(STAIRWAYS): 152 OCCUPANTS x 0.2" = 30.4" REQUIRED / 52" (EXISTING)

(OTHERS) 152 OCCUPANT S x 0.15" = 22.8" REQUIRED / 68" PROVIDED

1006.2.1 TWO EXITS OR EXIT ACCESS DOORWAYS FROM ANY SPACE SHALL BE PROVIDED WHERE THE DESIGN OCCUPANT LOAD OR THE COMMON PATH OF TRAVEL EXCEEDS THE VALUES LISTED IN TABLE *1006.2.1*.

TABLE 1006.2.1 OCCUPANCY GROUP B (SPRINKLERED)
MAXIMUM OCCUPANT LOAD OF SPACE: 49
MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE: 100'-0"

1007.1.1 THE SEPARATION DISTANCE BETWEEN TWO EXIT ACCESS DOORWAYS SHALL NOT BE LESS THAN ONE-HALF OF THE LEGNTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED.

EXCEPTION #2 WHERE A BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM, THE SEPARATION DISTANCE SHALL NOT BE LESS THAN ONE-THIRD OF THE OVERALL DIAGONAL DIMENSION OF THE AREA SERVED.

1009.1 ACCESSIBLE SPACES SHALL BE PROVIDED WITH NOT LESS THAN ONE ACCESSIBLE MEANS OF EGRESS FROM ANY ACCESSIBLE SPACE.

CHAPTER 10 - MEANS OF EGRESS

1017.2 EXIT ACCESS TRAVEL DISTANCE SHALL NOT EXCEED THE DISTANCES GIVEN IN *TABLE 1017.2*.

TABLE 1017.2 OCCUPANCY GROUP B (SPRINKLERED): 300' 0"

1020.1 CORRIDORS SHALL BE FIRE-RESISTANCE RATED IN ACCORDANCE WITH TABLE *1020.1*.

TABLE 1020.1 CORRIDORS SERVING OCCUPANCY GROUPS B WITH AN OCCUPANT LOAD GREATER THAN 30 IN A BUILDING EQUIPPED WITH AN AUTOMATIC SPRINKLER SYSTEM = 0 HOUR FIRE-RESISTANCE RATING REQUIRED.

1020.4 WHERE MORE THAN ONE EXIT OR EXIT ACCESS DOORWAY IS REQUIRED, THE EXIT ACCESS SHALL BE ARRANGED SUCH THAT THERE ARE NO DEAD ENDS IN CORRIDORS MORE THAN *20'-0"*.

EXCEPTION #3 IN OCCUPANCY GROUP B, WHERE THE BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM, THE LENGTH OF THE DEAD-END CORRIDORS SHALL NOT EXCEED *50'-0"*.

CHAPTER 11 - ACCESSIBILITY

1109.2 AT LEAST ONE OF EACH TYPE OF FIXTURE, ELEMENT, CONTROL, OR DISPENSER IN EACH ACCESSIBLE TOILET ROOM SHALL BE ACCESSIBLE.

CHAPTER 30 - ELEVATORS AND CONVEYING SYSTEMS

3005.2 ELEVATOR HOISTWAY DOOR OPENINGS SHALL BE PROTECTED IN HIGH-RISE BUILDINGS IN ACCORDANCE WITH SECTION *3005.3*.

3006.3 THE ELEVATOR HOISTWAY SHALL BE PRESSURIZED IN ACCORDANCE WITH SECTION *909.21*.

CHAPTER 4 - FIXTURES, FAUCETS, AND FIXTURE FITTINGS

(ACHD RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE, ARTICLE XV)

403.3.3 (IPC 311.5) IN OCCUPANCIES OTHER THAN COVERED AND OPEN MALL BUILDINGS, THE REQUIRED PUBLIC AND EMPLOYEE TOILET FACILITIES SHALL BE LOCATED NOT MORE THAN ONE STORY ABOVE OR BELOW THE SPACE REQUIRED TO BE PROVIDED WITH THE TOILET FACILITIES AND THE PATH OF TRAVEL TO SUCH FACILITIES SHALL NOT EXCEED A DISTANCE OF 500'.

CHAPTER 4 - FIXTURES, FAUCETS, AND FIXTURE FITTINGS (ACHD RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE, ARTICLE XV) DELETE *500'* FROM *IPC 403.3.3* AND REPLACE WITH *300'*.

"REFER TO G106 "APPLICABLE CODES - LEVEL 06" FOR COMBINED TOTAL MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES FOR LEVELS 05 AND LEVEL 06"

LIFE SAFETY NOTES

1. AN ASTERISK (*) ON THE IBC OCCUPANCY TAG INDICATES THE AREA CALCULATION IS A ROUNDED UP GROSS AREA MEASUREMENT. FOR THE TRUE REQUIRED OCCUPANCY OF THIS AREA PER LEVEL AS DEFINED IN TABLE 1004.1.1 OF THE INTERNATIONAL BUILDING CODE, REFER TO THE GROSS AREA SCHEDULE.

OCCUPANCY LEGEND

- "B" BUSINESS OCCUPANCY
- "A-2" ASSEMBLY OCCUPANCY
- OUT OF SCOPE, VARIOUS OCCUPANCIES
- EGRESS COMPONENT

LIFE SAFETY LEGEND

WALL RATINGS
- 1 HR FIRE RESISTANT
- 2 HR FIRE RESISTANT
- 3 HR FIRE RESISTANT

SYMBOLS
- EXIT ARROW
- FEC — FIRE EXTINGUISHER CABINET
- FE — FIRE EXTINGUISHER
- EXIT CAPACITY TAG (DOOR NO / 240 OCCX / 150 OCCX: TYPE; MAX ALLOWABLE OCC.; ACTUAL OCC.)
- EGRESS LINE - LONGEST PATH
- EGRESS LINE - COMMON PATH
- EGRESS LINE - "DEAD END" CORRIDOR
- DIAGONAL DISTANCE PATH
- IBC OCCUPANCY TAG (AREA IN SF; Area Name; ROOM; Occupancy Load = 10,000; OCCUPANCY LOAD PER IBC TABLE 1004.1.1; IBC ALLOWABLE AREA PER OCCUPANT)

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #5	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #4	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #3	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO: 190427.00 | DRAWN BY: AE7 | REVIEWED BY: JW

SHEET NAME:
OVERALL LIFE SAFETY PLAN - LEVEL 05

SHEET NO:
G105

TRUE NORTH
PLAN NORTH

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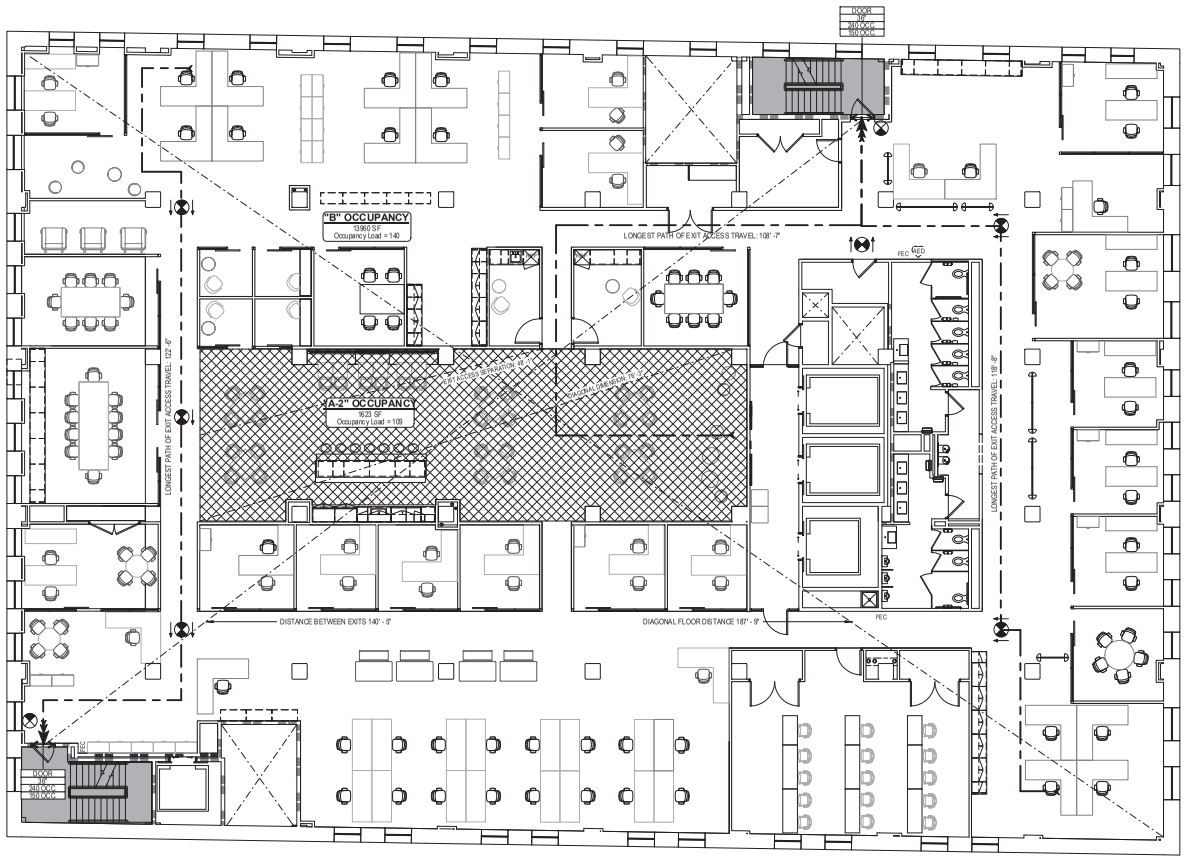

2 OVERALL LIFE SAFETY PLAN - LEVEL 06
1/8" = 1'-0"

APPLICABLE CODES - LEVEL 06

APPLICABLE CODES:
UNIFORM CONSTRUCTION CODE (UCC), PA ACT 45
INTERNATIONAL BUILDING CODE (IBC), 2015 EDITION
INTERNATIONAL MECHANICAL CODE (IMC), 2015 EDITION
INTERNATIONAL PLUMBING CODE (IPC), 2015 EDITION
INTERNATIONAL FIRE CODE (IFC), 2015 EDITION
INTERNATIONAL ENERGY CONSERVATION CODE (IECC), 2015 EDITION
ARTICLE XV OF THE ALLEGHENY COUNTY HEALTH DEPARTMENT'S RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE - CURRENT EDITION
NFPA 70 - 2008 ELECTRICAL CODE

ACCESSIBILITY STANDARDS:
ICC/ANSI A117.1 - 2009 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
CHAPTER 11 - 2018 INTERNATIONAL BUILDING CODE
APPENDIX E - 2018 INTERNATIONAL BUILDING CODE

AUTHORITY HAVING JURISDICTION:
CITY OF PITTSBURGH - DEPARTMENT OF PERMITS, LICENSES, AND INSPECTIONS

CHAPTER 3 - OCCUPANCY CLASSIFICATION

TYPE "B" BUSINESS - 13,960 SF

TYPE "A-2" ASSEMBLY - 1,623 SF

303.1.2 THE FOLLOWING ROOMS AND SPACES SHALL NOT BE CLASSIFIED AS ASSEMBLY OCCUPANCIES: A ROOM OR SPACE USED FOR ASSEMBLY PURPOSES WITH AN OCCUPANT LOAD OF LESS THAN 50 PERSONS, OR LESS THAN 750 SQUARE FEET IN AREA, AND ACCESSORY TO ANOTHER OCCUPANCY SHALL BE CLASSIFIED AS A GROUP "B" OCCUPANCY OR AS A PART OF THAT OCCUPANCY.

CHAPTER 4 - SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

403.2.1.1 IN A HIGH-RISE BUILDING, THE FIRE-RESISTANCE RATING OF THE BUILDING ELEMENTS IN TYPE IB CONSTRUCTION SHALL BE PERMITTED TO BE REDUCED TO THE FIRE-RESISTANCE RATING IN TYPE IIA.

CHAPTER 5 - BUILDING HEIGHT & AREA

TYPE "IB" CONSTRUCTION (EXISTING)

ALLOWABLE HEIGHT - 12 STORIES / 180' -0"
ACTUAL - 9 STORIES / 116' -10"
ALLOWABLE BUILDING AREA - UL SF/FLOOR
ACTUAL LEVEL 06) - 19,424 SF

508.1 WHERE A BUILDING CONTAINS MORE THAN ONE OCCUPANCY GROUP, THE BUILDING OR PORTION THEREOF SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF SECTION 508.2, 508.3, 508.4, OR A COMBINATION OF THESE SECTIONS.

508.3 AREAS / OCCUPANCIES WITHIN SCOPE ARE TO BE CONSIDERED NONSEPARATED OCCUPANCIES IN ACCORDANCE TO THE PROVISIONS SET FORTH IN SECTION 508.3.

CHAPTER 6 - TYPES OF CONSTRUCTION

TYPE "IB" CONSTRUCTION (EXISTING)

TABLE 601 PRIMARY STRUCTURE: 1 HOUR
BEARING WALLS - EXTERIOR: 1 HOUR
BEARING WALLS - INTERIOR: 1 HOUR
NON-BEARING WALLS - INTERIOR: 0 HOUR
FLOOR CONSTRUCTION: 1 HOUR
ROOF CONSTRUCTION: 1 HOUR

CHAPTER 8 - INTERIOR FINISHES

803.11 INTERIOR WALL AND CEILING FINISH SHALL HAVE A FLAME SPREAD INDEX NOT GREATER THAN THAT SPECIFIED IN TABLE *803.11* FOR THE GROUP AND LOCATION DESIGNATED.

TABLE 803.11 OCCUPANCY GROUP B
EXIT ENCLOSURES/PASSAGEWAYS: B
CORRIDORS: C
ROOMS/ENCLOSED SPACES: C

TABLE 803.11 OCCUPANCY GROUP A-2
EXIT ENCLOSURES/PASSAGEWAYS: B
CORRIDORS: B
ROOMS/ENCLOSED SPACES: C

CHAPTER 9 - FIRE PROTECTION SYSTEMS

906.1 PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED IN NEW AND EXISTING GROUP A, AND B OCCUPANCIES.

TABLE 906.3(1)
FIRE EXTINGUISHER - CLASS A: FIRE, 2-A RATING
MAXIMUM TRAVEL DISTANCE TO FIRE EXTINGUISHER = 75'0"

907.1 FIRE ALARM AND DETECTION SYSTEM AND EMERGENCY VOICE/ ALARM COMMUNICATION SYSTEM PROVIDED BY BASE BUILDING.

CHAPTER 10 - MEANS OF EGRESS

1004.1.1 OCCUPANCY GROUP B: BUSINESS AREAS - 100 GROSS
13,960 SF / 100 GROSS SF/OCCUPANT = 140 OCCUPANTS

OCCUPANCY GROUP A-2: ASSEMBLY, WITHOUT FIXED SEATING (UNCONCENTRATED) - 15 NET
1,623 SF / 15 NET SF/OCCUPANT = 109 OCCUPANTS

249 OCCUPANTS IN SCOPE (LEVEL 01 ONLY)

1005.3.1 THE TOTAL WIDTH OF MEANS OF EGRESS SHALL NOT BE LESS THAN THE TOTAL OCCUPANT LOAD SERVED BY THE MEANS OF EGRESS MULTIPLIED BY 0.3 INCH PER OCCUPANT FOR STAIRWAYS AND BY 0.2 INCH PER OCCUPANT FOR OTHER EGRESS COMPONENTS.

EXCEPTION 1 FOR OTHER THAN GROUP H AND I-2 OCCUPANCIES, THE CAPACITY, IN INCHES, OF MEANS OF EGRESS SHALL BE CALCULATED BY MULTIPLYING BY 0.2 INCH PER OCCUPANT FOR STAIRWAYS AND BY 0.15 INCH PER OCCUPANT FOR OTHER EGRESS COMPONENTS.

(STAIRWAY'S) 249 OCCUPANTS x 0.2" = 49.8" REQUIRED / 92" (EXISTING)

(OTHERS) 249 OCCUPANTS x 0.15" = 37.35" REQUIRED / 68" PROVIDED

1014.2.1 TWO EXITS OR EXIT ACCESS DOORWAYS FROM ANY SPACE SHALL BE PROVIDED WHERE THE DESIGN OCCUPANT LOAD OR THE COMMON PATH OF TRAVEL EXCEEDS THE VALUES LISTED IN TABLE *1014.2.1*.

TABLE 1006.2.1 OCCUPANCY GROUP B (SPRINKLERED)
MAXIMUM OCCUPANT LOAD OF SPACE: 49
MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE: 100'-0"

OCCUPANCY GROUP A-2 (SPRINKLERED)
MAXIMUM OCCUPANT LOAD OF SPACE: 49
MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE: 75'-0"

CHAPTER 10 - MEANS OF EGRESS

1007.1.1 THE SEPARATION DISTANCE BETWEEN TWO EXIT ACCESS DOORWAYS SHALL NOT BE LESS THAN ONE-HALF OF THE LEGNTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED.

EXCEPTION #2 WHERE A BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM, THE SEPARATION DISTANCE SHALL NOT BE LESS THAN ONE-THIRD OF THE OVERALL DIAGONAL DIMENSION OF THE AREA SERVED.

1009.1 ACCESSIBLE SPACES SHALL BE PROVIDED WITH NOT LESS THAN ONE ACCESSIBLE MEANS OF EGRESS FROM ANY ACCESSIBLE SPACE.

1017.2 EXIT ACCESS TRAVEL DISTANCE SHALL NOT EXCEED THE DISTANCES GIVEN IN *TABLE 1017.2*.

TABLE 1017.2 OCCUPANCY GROUP B (SPRINKLERED): 300' 0"

OCCUPANCY GROUP A-2 (SPRINKLERED): 250'-0"

1020.1 CORRIDORS SHALL BE FIRE-RESISTANCE RATED IN ACCORDANCE WITH TABLE *1020.1*.

TABLE 1020.1 CORRIDORS SERVING OCCUPANCY GROUPS A AND B WITH AN OCCUPANT LOAD GREATER THAN 30 IN A BUILDING EQUIPPED WITH AN AUTOMATIC SPRINKLER SYSTEM = 0 HOUR FIRE-RESISTANCE RATING REQUIRED

1020.4 WHERE MORE THAN ONE EXIT OR EXIT ACCESS DOORWAY IS REQUIRED THE EXIT ACCESS SHALL BE ARRANGED SUCH THAT THERE ARE NO DEAD ENDS IN CORRIDORS MORE THAN 20'-0".

CHAPTER 11 - ACCESSIBILITY

1109.2 AT LEAST ONE OF EACH TYPE OF FIXTURE, ELEMENT, CONTROL, OR DISPENSER IN EACH ACCESSIBLE TOILET ROOM SHALL BE ACCESSIBLE.

CHAPTER 30 - ELEVATORS AND CONVEYING SYSTEMS

3006.2 ELEVATOR HOISTWAY DOOR OPENINGS SHALL BE PROTECTED IN HIGH-RISE BUILDINGS IN ACCORDANCE WITH SECTION 3006.1.

3006.3.4 THE ELEVATOR HOISTWAY SHALL BE PRESSURIZED IN ACCORDANCE WITH SECTION 909.21.

CHAPTER 4 - FIXTURES, FAUCETS, AND FIXTURE FITTINGS

(ACHD RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE, ARTICLE XV)

403 OCCUPANCY GROUP B
LEVEL 05: 151 OCCUPANTS
LEVEL 06: 140 OCCUPANTS
TOTAL (OCCUPANCY GROUP B): 291 OCCUPANTS IN SCOPE

WATER CLOSETS
TOILETS (MALE): 146 OCCUPANTS @ 6 PER 111-150 OCCUPANTS = 6 TOILETS REQUIRED
TOILETS (FEMALE): 146 OCCUPANTS @ 6 PER 111-150 OCCUPANTS = 6 TOILETS REQUIRED

LAVATORIES
LAVATORIES (MALE/FEMALE): 291 OCCUPANTS @ 5 PER 151-200 OCCUPANTS + 1 PER 80 OCCUPANTS OVER 200 OCCUPANTS = 7 LAVATORIES REQUIRED

DRINKING FOUNTAINS
DRINKING FOUNTAINS (MALE/FEMALE): 291 OCCUPANTS @ 1 PER 100 OCCUPANTS = 3 DRINKING FOUNTAIN REQUIRED

SERVICE SINKS
SERVICE SINKS: 1 REQUIRED PER FLOOR

403 OCCUPANCY GROUP A-2
LEVEL 06: 109 OCCUPANTS
TOTAL (OCCUPANCY GROUP A-2): 109 OCCUPANTS

WATER CLOSETS
TOILETS (MALE): 55 OCCUPANTS @ 3 PER 51-100 OCCUPANTS = 3 TOILETS REQUIRED
TOILETS (FEMALE): 55 OCCUPANTS @ 3 PER 51-100 OCCUPANTS = 3 TOILETS REQUIRED

LAVATORIES
LAVATORIES (MALE/FEMALE): 109 OCCUPANTS @ 1 PER 75 OCCUPANTS = 2 LAVATORIES REQUIRED

DRINKING FOUNTAINS
DRINKING FOUNTAINS (MALE/FEMALE): 109 OCCUPANTS @ 1 PER 500 OCCUPANTS = 1 DRINKING FOUNTAIN REQUIRED

SERVICE SINKS
SERVICE SINKS: 1 REQUIRED PER FLOOR

COMBINED TOTAL MINIMUM NUMBER OF REQUIRED FIXTURES FOR LEVEL 05 AND LEVEL 06

WATER CLOSETS
MALE: 9 REQUIRED / 12 PROVIDED (6 PER FLOOR)
FEMALE: 9 REQUIRED / 10 PROVIDED (5 PER FLOOR)

LAVATORIES: 9 REQUIRED / 16 PROVIDED

DRINKING FOUNTAINS: 4 REQUIRED / 4 PROVIDED

SERVICE SINKS: 1 REQUIRED PER FLOOR / 1 PROVIDED PER FLOOR

419 (ACHD RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE, ARTICLE XV) THE NUMBER OF URINALS FOR MALES SHALL BE AT LEAST 50% OF THE TOTAL NUMBER OF WATER CLOSETS REQUIRED FOR MALES. THE NUMBER OF WATER CLOSETS MAY BE DECREASED BY THE NUMBER OF URINALS WHICH ARE USED, BUT THE NUMBER OF REMAINING WATER CLOSETS SHALL NOT BE LESS THAN 50% OF THE ORIGINAL TABULATED TOTAL.

LIFE SAFETY NOTES

1. AN ASTERISK (*) ON THE IBC OCCUPANCY TAG INDICATES THE AREA CALCULATION IS A ROUNDED UP GROSS AREA MEASUREMENT. FOR THE TRUE REQUIRED OCCUPANCY OF THIS AREA PER LEVEL AS DEFINED IN TABLE 1004.1.1 OF THE INTERNATIONAL BUILDING CODE, REFER TO THE GROSS AREA SCHEDULE.

OCCUPANCY LEGEND

- "B" BUSINESS OCCUPANCY
- "A-2" ASSEMBLY OCCUPANCY
- OUT OF SCOPE, VARIOUS OCCUPANCIES
- EGRESS COMPONENT

LIFE SAFETY LEGEND

WALL RATINGS
- 1 HR FIRE RESISTANT
- 2 HR FIRE RESISTANT
- 3 HR FIRE RESISTANT

SYMBOLS
- EXIT ARROW
- FEC — FIRE EXTINGUISHER CABINET
- FE — FIRE EXTINGUISHER
- EXIT CAPACITY TAG (DOOR TYP. / 240 DOOR / 550 DOOR)
- TYPE
- MAX ALLOWABLE OCC. / ACTUAL OCC.
- EGRESS LINE - LONGEST PATH
- EGRESS LINE - COMMON PATH
- EGRESS LINE - "DEAD END" CORRIDOR
- DIAGONAL DISTANCE PATH
- IBC OCCUPANCY TAG (AREA IN SF; Area Name; ROOF; Occupancy Load = 10,000; OCCUPANCY LOAD PER IBC TABLE 1004.1.1; IBC ALLOWABLE AREA PER OCCUPANT)

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5	100% CONSTRUCTION DOCUMENTS REVISION #5	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #4	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #3	07/09/2020
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PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
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SHEET NAME:
OVERALL LIFE SAFETY PLAN - LEVEL 06

SHEET NO:
G106

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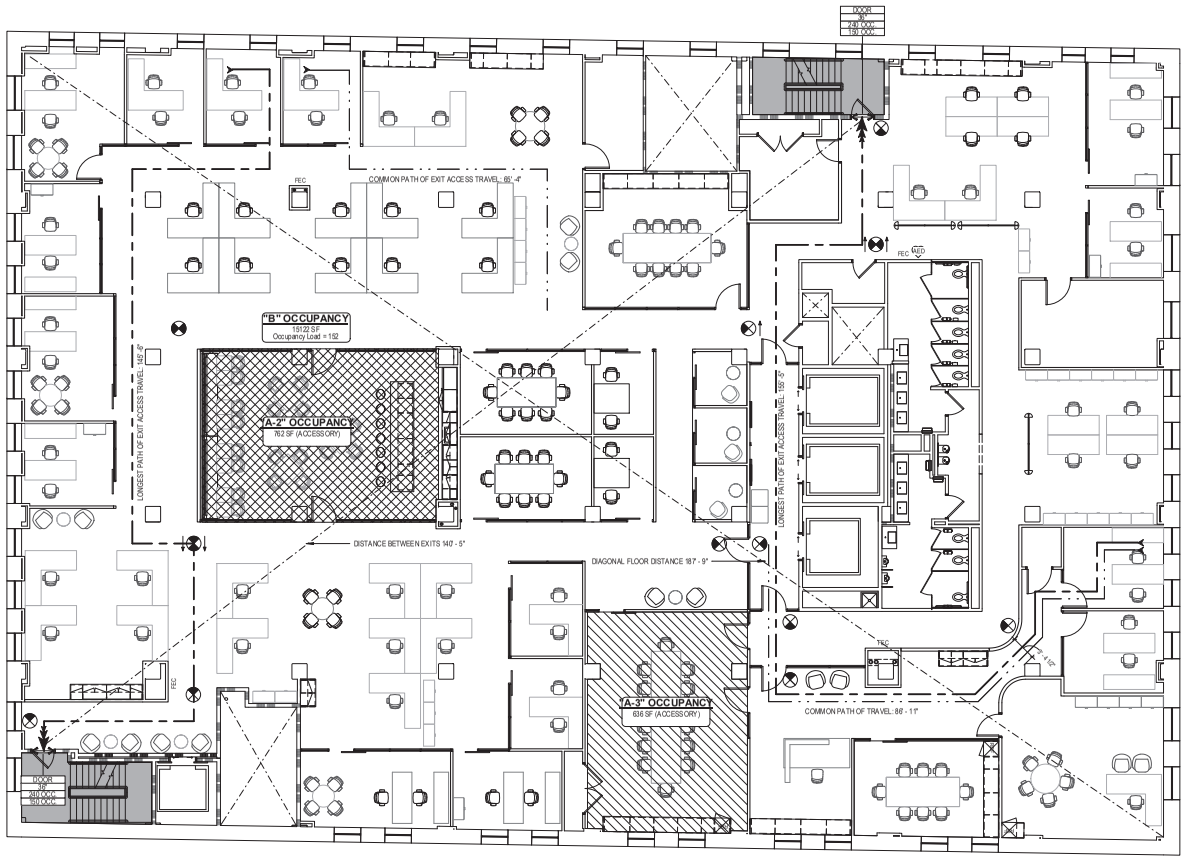

2 OVERALL LIFE SAFETY PLAN - LEVEL 07
1/8" = 1'-0"

APPLICABLE CODES - LEVEL 07

APPLICABLE CODES:
UNIFORM CONSTRUCTION CODE (UCC), PA ACT 45
INTERNATIONAL BUILDING CODE (IBC), 2015 EDITION
INTERNATIONAL MECHANICAL CODE (IMC), 2015 EDITION
INTERNATIONAL PLUMBING CODE (IPC), 2015 EDITION
INTERNATIONAL FIRE CODE (IFC), 2015 EDITION
INTERNATIONAL ENERGY CONSERVATION CODE (IECC), 2015 EDITION
ARTICLE XX OF THE ALLEGHENY COUNTY HEALTH DEPARTMENTS RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE - CURRENT EDITION
NFPA 70 - 2008 ELECTRICAL CODE

ACCESSIBILITY STANDARDS:
ICC/ANSI A117.1 - 2009 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
CHAPTER 11 - 2018 INTERNATIONAL BUILDING CODE
APPENDIX E - 2018 INTERNATIONAL BUILDING CODE

AUTHORITY HAVING JURISDICTION:
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CHAPTER 3 - OCCUPANCY CLASSIFICATION

TYPE "B" BUSINESS - 15,122 SF

303.1.2 THE FOLLOWING ROOMS AND SPACES SHALL NOT BE CLASSIFIED AS ASSEMBLY OCCUPANCIES: A ROOM OR SPACE USED FOR ASSEMBLY PURPOSES WITH AN OCCUPANT LOAD OF LESS THAN 50 PERSONS, OR LESS THAN 750 SQUARE FEET IN AREA, AND ACCESSORY TO ANOTHER OCCUPANCY SHALL BE CLASSIFIED AS A GROUP "B" OCCUPANCY OR AS A PART OF THAT OCCUPANCY.

CHAPTER 4 - SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

403.2.1.1.2 IN A HIGH-RISE BUILDING, THE FIRE-RESISTANCE RATING OF THE BUILDING ELEMENTS IN TYPE IB CONSTRUCTION SHALL BE PERMITTED TO BE REDUCED TO THE FIRE-RESISTANCE RATING IN TYPE IIA.

CHAPTER 5 - BUILDING HEIGHT & AREA

TYPE "IB" CONSTRUCTION (EXISTING)

ALLOWABLE HEIGHT - 12 STORIES / 160' -0"
ACTUAL - 9 STORIES / 118' - 10"
ALLOWABLE BUILDING AREA - UL SF/FLOOR
ACTUAL (LEVEL 07) - 15,434 SF

508.1 WHERE A BUILDING CONTAINS MORE THAN ONE OCCUPANCY GROUP, THE BUILDING OR PORTION THEREOF SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF SECTION 508.2, 508.3, 508.4, OR A COMBINATION OF THESE SECTIONS.

508.3 AREAS OCCUPANCIES WITHIN SCOPE ARE TO BE CONSIDERED NONSEPARATED OCCUPANCIES IN ACCORDANCE TO THE PROVISIONS SET FORTH IN SECTION 508.2.

CHAPTER 6 - TYPES OF CONSTRUCTION

TYPE "IB" CONSTRUCTION (EXISTING)

TABLE 601 PRIMARY STRUCTURE: 1 HOUR
BEARING WALLS - EXTERIOR: 1 HOUR
BEARING WALLS - INTERIOR: 1 HOUR
NON-BEARING WALLS - INTERIOR: 0 HOUR
FLOOR CONSTRUCTION: 1 HOUR
ROOF CONSTRUCTION: 1 HOUR

CHAPTER 8 - INTERIOR FINISHES

803.11 INTERIOR WALL AND CEILING FINISH SHALL HAVE A FLAME SPREAD INDEX NOT GREATER THAN THAT SPECIFIED IN TABLE *803.11* FOR THE GROUP AND LOCATION DESIGNATED.

TABLE 803.11 OCCUPANCY GROUP B
EXIT ENCLOSURES/PASSAGEWAYS: B
CORRIDORS: C
ROOMS/ENCLOSED SPACES: C

CHAPTER 9 - FIRE PROTECTION SYSTEMS

906.1 PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED IN NEW AND EXISTING GROUP B OCCUPANCIES.

TABLE 906.3(1)
FIRE EXTINGUISHER - CLASS A: FIRE, 2-A RATING
MAXIMUM TRAVEL DISTANCE TO FIRE EXTINGUISHER = 75'-0"

907.1 FIRE ALARM AND DETECTION SYSTEM AND EMERGENCY VOICE/ ALARM COMMUNICATION SYSTEM PROVIDED BY BASE BUILDING.

CHAPTER 10 - MEANS OF EGRESS

1004.1.1 OCCUPANCY GROUP B: BUSINESS AREAS - 100 GROSS
15,122 SF / 100 GROSS SPD/OCUPANT = 152 OCCUPANTS

152 OCCUPANTS IN SCOPE (LEVEL 7 ONLY)

1005.3.1 THE TOTAL WIDTH OF MEANS OF EGRESS SHALL NOT BE LESS THAN THE TOTAL OCCUPANT LOAD SERVED BY THE MEANS OF EGRESS MULTIPLIED BY 0.3 INCH PER OCCUPANT FOR STAIRWAYS AND BY 0.2 INCH PER OCCUPANT FOR OTHER EGRESS COMPONENTS.

EXCEPTION #1 FOR OTHER THAN GROUP H AND I-2 OCCUPANCIES, THE CAPACITY, IN INCHES, OF MEANS OF EGRESS SHALL BE CALCULATED BY MULTIPLYING BY 0.2 INCH PER OCCUPANT FOR STAIRWAYS AND BY 0.15 INCH PER OCCUPANT FOR OTHER EGRESS COMPONENTS.

(STAIRWAYS) 152 OCCUPANTS x 0.2" = 30.4" REQUIRED / 92" (EXISTING)

(OTHERS) 152 OCCUPANT S x 0.15" = 22.8" REQUIRED / 68" PROVIDED

1016.2.1 TWO EXITS OR EXIT ACCESS DOORWAYS FROM ANY SPACE SHALL BE PROVIDED WHERE THE DESIGN OCCUPANT LOAD OR THE COMMON PATH OF TRAVEL EXCEEDS THE VALUES LISTED IN TABLE *1016.2.1*.

TABLE 1006.2.1 OCCUPANCY GROUP B (SPRINKLERED)
MAXIMUM OCCUPANT LOAD OF SPACE: 49
MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE: 100'-0"

1007.1.1 THE SEPARATION DISTANCE BETWEEN TWO EXIT ACCESS DOORWAYS SHALL NOT BE LESS THAN ONE-HALF OF THE LEGNTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED.

EXCEPTION #2 WHERE A BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM, THE SEPARATION DISTANCE SHALL NOT BE LESS THAN ONE-THIRD OF THE OVERALL DIAGONAL DIMENSION OF THE AREA SERVED.

1009.1.1 ACCESSIBLE SPACES SHALL BE PROVIDED WITH NOT LESS THAN ONE ACCESSIBLE MEANS OF EGRESS FROM ANY ACCESSIBLE SPACE.

CHAPTER 10 - MEANS OF EGRESS

1017.2 EXIT ACCESS TRAVEL DISTANCE SHALL NOT EXCEED THE DISTANCES GIVEN IN *TABLE 1017.2*.

TABLE 1017.2 OCCUPANCY GROUP B (SPRINKLERED): 300' 0"

1020.1 CORRIDORS SHALL BE FIRE-RESISTANCE RATED IN ACCORDANCE WITH TABLE *1020.1*.

TABLE 1020.1 CORRIDORS SERVING OCCUPANCY GROUPS B WITH AN OCCUPANT LOAD GREATER THAN 30 IN A BUILDING EQUIPPED WITH AN AUTOMATIC SPRINKLER SYSTEM = 0 HOUR FIRE-RESISTANCE RATING REQUIRED.

1020.4 WHERE MORE THAN ONE EXIT OR EXIT ACCESS DOORWAY IS REQUIRED THE EXIT ACCESS SHALL BE ARRANGED SUCH THAT THERE ARE NO DEAD ENDS IN CORRIDORS MORE THAN 20'-0".

EXCEPTION #3 IN OCCUPANCY GROUP B, WHERE THE BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM, THE LENGTH OF THE DEAD-END CORRIDORS SHALL NOT EXCEED 50'-0".

CHAPTER 11 - ACCESSIBILITY

1109.2 AT LEAST ONE OF EACH TYPE OF FIXTURE, ELEMENT, CONTROL, OR DISPENSER IN EACH ACCESSIBLE TOILET ROOM SHALL BE ACCESSIBLE.

CHAPTER 30 - ELEVATORS AND CONVEYING SYSTEMS

3005.2 ELEVATOR HOISTWAY DOOR OPENINGS SHALL BE PROTECTED IN HIGH-RISE BUILDINGS IN ACCORDANCE WITH SECTION *3005.3*.

3006.3 THE ELEVATOR HOISTWAY SHALL BE PRESSURIZED IN ACCORDANCE WITH SECTION *909.21*.

CHAPTER 4 - FIXTURES, FAUCETS, AND FIXTURE FITTINGS

(ACHD RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE, ARTICLE XV)

403 OCCUPANCY GROUP: B
LEVEL 07: 152 OCCUPANTS
TOTAL (OCCUPANCY GROUP B): 152 OCCUPANTS IN SCOPE

WATER CLOSETS
TOILETS (MALE): 76 OCCUPANTS @ 4 PER 56-80 OCCUPANTS = 4 REQUIRED / 6 PROVIDED
TOILETS (FEMALE): 76 OCCUPANTS @ 4 PER 56-80 OCCUPANTS = 4 REQUIRED / 5 PROVIDED

LAVATORIES
LAVATORIES (MALE/FEMALE): 152 OCCUPANT S @ 5 PER 151-200 OCCUPANTS = 5 REQUIRED / 8 PROVIDED

DRINKING FOUNTAINS
DRINKING FOUNTAINS (MALE/FEMALE): 152 OCCUPANTS @ 1 PER 100 OCCUPANTS = 2 REQUIRED / 2 PROVIDED

SERVICE SINKS
SERVICE SINKS: 1 REQUIRED PER FLOOR / 1 PROVIDED

419 (ACHD RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE, ARTICLE XV) THE NUMBER OF URINALS FOR MALES SHALL BE AT LEAST 50% OF THE TOTAL NUMBER OF WATER CLOSETS REQUIRED FOR MALES. THE NUMBER OF WATER CLOSETS MAY BE DECREASED BY THE NUMBER OF URINALS WHICH ARE USED, BUT THE NUMBER OF REMAINING WATER CLOSETS SHALL NOT BE LESS THAT 50% OF THE ORIGINAL TABULATED TOTAL.

LIFE SAFETY NOTES

1. AN ASTERISK (*) ON THE IBC OCCUPANCY TAG INDICATES THE AREA CALCULATION IS A ROUNDED UP GROSS AREA MEASUREMENT. FOR THE TRUE REQUIRED OCCUPANCY OF THIS AREA PER LEVEL AS DEFINED IN TABLE 1004.1.1 OF THE INTERNATIONAL BUILDING CODE, REFER TO THE GROSS AREA SCHEDULE.

OCCUPANCY LEGEND

- "B" BUSINESS OCCUPANCY
- "A-2" ASSEMBLY OCCUPANCY
- OUT OF SCOPE, VARIOUS OCCUPANCIES
- EGRESS COMPONENT

LIFE SAFETY LEGEND

WALL RATINGS
- 1 HR FIRE RESISTANT
- 2 HR FIRE RESISTANT
- 3 HR FIRE RESISTANT

SYMBOLS
- EXIT ARROW
- FEC — FIRE EXTINGUISHER CABINET
- FE — FIRE EXTINGUISHER
- EXIT CAPACITY TAG (DOOR TYP, 240 OCCS, 150 OCCS)
- TYPE
- MAX ALLOWABLE OCC. ACTUAL OCC.
- EGRESS LINE - LONGEST PATH
- EGRESS LINE - COMMON PATH
- EGRESS LINE - "DEAD END" CORRIDOR
- DIAGONAL DISTANCE PATH
- AREA IN SF
- Area Name / ROOM / Occupancy Load = 10,000 — IBC OCCUPANCY TAG
- OCCUPANCY LOAD PER IBC TABLE 1004.1.1
- IBC ALLOWABLE AREA PER OCCUPANT

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3	100% CONSTRUCTION DOCUMENTS REVISION #3	07/09/2020
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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

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190427.00	AE7	JW

SHEET NAME:
OVERALL LIFE SAFETY PLAN - LEVEL 07

SHEET NO:
G107

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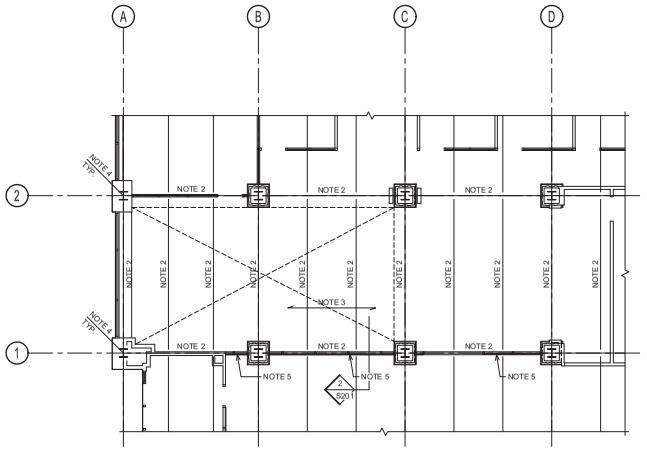
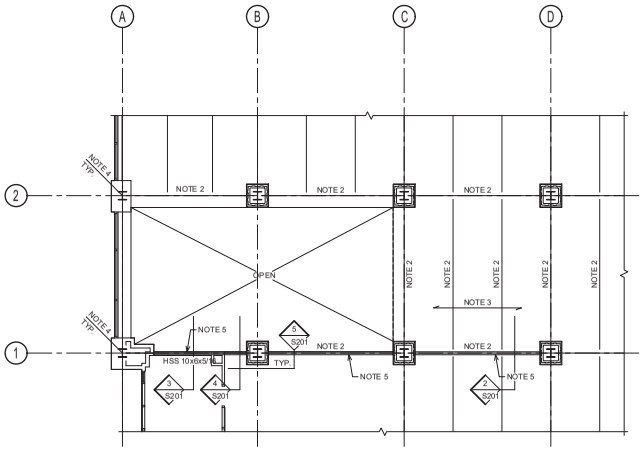


LEVEL 01 FRAMING PLAN

SCALE: 1/8" = 1'-0"

PLAN NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF STRUCTURAL WORK. NOTIFY ARCHITECT AND ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
2. EXISTING STEEL BEAM/GIRDER ENCASED IN CONCRETE FIRE PROOFING. VERIFY IN FIELD.
3. EXISTING CONCRETE FLOOR DECK. VERIFY IN FIELD.
4. EXISTING BUILT-UP STEEL COLUMN ENCASED IN CONCRETE FIREPROOFING. VERIFY IN FIELD.
5. NEW CURTAIN WALL. REFER TO ARCHITECTURAL DRAWINGS AND MANUFACTURER REQUIREMENTS FOR ADDITIONAL INFORMATION.

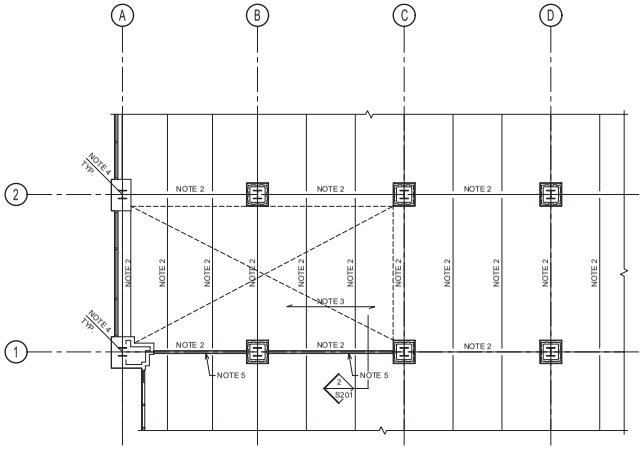


MEZZANINE FRAMING PLAN

SCALE: 1/8" = 1'-0"

PLAN NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF STRUCTURAL WORK. NOTIFY ARCHITECT AND ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
2. EXISTING STEEL BEAM/GIRDER ENCASED IN CONCRETE FIRE PROOFING. VERIFY IN FIELD.
3. EXISTING CONCRETE SLAB-ON-DECK. VERIFY IN FIELD.
4. EXISTING BUILT-UP STEEL COLUMN ENCASED IN CONCRETE FIREPROOFING. VERIFY IN FIELD.
5. NEW CURTAIN WALL. REFER TO ARCHITECTURAL DRAWINGS AND MANUFACTURER REQUIREMENTS FOR ADDITIONAL INFORMATION.



LEVEL 02 FRAMING PLAN

SCALE: 1/8" = 1'-0"

PLAN NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF STRUCTURAL WORK. NOTIFY ARCHITECT AND ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
2. EXISTING STEEL BEAM/GIRDER ENCASED IN CONCRETE FIRE PROOFING. VERIFY IN FIELD.
3. EXISTING CONCRETE FLOOR DECK. VERIFY IN FIELD.
4. EXISTING BUILT-UP STEEL COLUMN ENCASED IN CONCRETE FIREPROOFING. VERIFY IN FIELD.
5. NEW CURTAIN WALL. REFER TO ARCHITECTURAL DRAWINGS AND MANUFACTURER REQUIREMENTS FOR ADDITIONAL INFORMATION.

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TSE Project No.: 629

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Housing Authority of the City of Pittsburgh

200 ROSS STREET
PITTSBURGH, PA 15219

(412) 456-5000
hacp.org

HACP - Housing Authority of the City of Pittsburgh
412 Boulevard of the Allies, Pittsburgh, PA 15219

#	DESCRIPTION	DATE
	100% CONSTRUCTION DOCUMENTS REV. 3	09/03/2020
	100% CONSTRUCTION DOCUMENTS REV. 2	07/30/2020
	100% CONSTRUCTION DOCUMENTS REV.1	07/09/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY
190427.00	TFB	PCR

SHEET NAME:

PARTIAL STRUCTURAL FRAMING PLANS

SHEET NO:

S101

TRUE NORTH

PLAN NORTH

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GENERAL NOTES:

DESIGN LIVE LOADS

DL-1 INTERIOR WIND PRESSURE. . . . . 10 PSF

DL-2 CURTAIN WALL DEAD LOAD. . . . . 15 PSF

DL-3 CURTAIN WALL DEFLECTION LIMIT . . . . . 1/4"

STRUCTURAL STEEL

S-1 ALL STRUCTURAL STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" (AISC 360-10) OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION.

S-2 GRADE OF STEEL
WIDE FLANGE SHAPES. . . . . ASTM A992
STEEL HSS SHAPES . . . . . ASTM A500, GRADE B OR C
STEEL PIPES . . . . . ASTM A53, TYPE E, GRADE B
COLUMN BASE PLATES AND MOMENT CONNECTION END PLATES . . . . . ASTM A572, GRADE 50
OTHER SHAPES, PLATE, AND BARS . . . . . ASTM A36, TYPICAL

S-3 ALL STRUCTURAL BOLTS SHALL BE ASTM A325, 3/4" DIAMETER, TYPE N, UNLESS NOTED OTHERWISE.

S-4 ALL STRUCTURAL WELDING SHALL CONFORM TO AWS D1.1 OF THE AMERICAN WELDING SOCIETY. E70 ELECTRODES SHALL BE USED FOR ALL WELDING.

S-5 ALL BEAM END CONNECTIONS NOT SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS SHALL BE DESIGNED FOR THE END REACTIONS INDICATED ON THE DRAWINGS. WHERE END REACTIONS ARE NOT INDICATED, THE END CONNECTION SHALL BE DESIGNED FOR ONE HALF OF THE UNIFORM LOAD CAPACITY OF THE MEMBER IN ACCORDANCE WITH AISC SPECIFICATIONS.

S-6 ALL MODIFICATIONS REQUIRED FOR OTHER TRADES SHALL BE SHOWN ON THE SHOP DRAWINGS AND MADE DURING SHOP FABRICATION. FIELD BURNING OF STRUCTURAL STEEL IS PROHIBITED.

S-7 UNLESS SPECIFICALLY DIMENSIONED ON PLANS, ALL FILLER BEAMS WITHIN BAYS ARE INTENDED TO BE EQUALLY SPACED.

S-8 ALL STRUCTURAL STEEL SHALL BE SHOP COATED WITH METAL PRIMER CONFORMING TO SSPC-PAINT 25. ALL STEEL SURFACES SHALL BE PREPARED IN ACCORDANCE WITH SSPC-SP2 "HAND TOOL CLEANING" OR SSPC-SP3 "POWER TOOL CLEANING" PRIOR TO APPLYING THE PRIMER COAT. SURFACES WITHIN 3 INCHES OF WELDS SHALL NOT BE PAINTED PRIOR TO WELDING. MEMBERS TO BE FIREPROOFED AND PORTIONS TO BE IN CONTACT WITH SLIP-CRITICAL BOLTED CONNECTIONS SHALL NOT BE PAINTED.

CONCRETE/MASONRY ANCHORS

A-1 ALL EXPANSION ANCHORS SHALL BE "HILTI KWIK-BOLT 3", AS MANUFACTURED BY HILTI FASTENING SYSTEMS, INC., OR AN APPROVED EQUAL MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION A-A-1923A, TYPE 4.

A-2 ALL SLEEVE ANCHORS SHALL BE "HILTI HLC SLEEVE ANCHORS", AS MANUFACTURED BY HILTI FASTENING SYSTEMS, INC., OR AN APPROVED EQUAL.

A-3 ALL ADHESIVE ANCHORS SHALL BE "HILTI HIT ADHESIVE ANCHORS", AS MANUFACTURED BY HILTI FASTENING SYSTEMS, INC., OR AN APPROVED EQUAL. SCREEN TUBES SHALL BE ADDED AT ALL INSTALLATIONS IN CAVITY WALLS AND WALLS WITH HOLLOW CELLS.

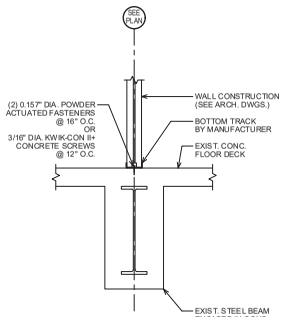
A-4 ALL THREADED RODS FOR ADHESIVE ANCHORS SHALL BE "HILTI HAS-E" CARBON STEEL THREADED RODS, AS MANUFACTURED BY HILTI FASTENING SYSTEMS, INC., CONFORMING TO ISO 898 CLASS 5.8 WITH A MINIMUM TENSILE STRENGTH OF 72.5 KSI AND A MINIMUM YIELD STRENGTH OF 58 KSI.

A-5 ALL SCREW ANCHORS SHALL BE "KWIK-CON II+ TORX HEX HEAD", AS MANUFACTURED BY HILTI FASTENING SYSTEMS, INC., OR AN APPROVED EQUAL.

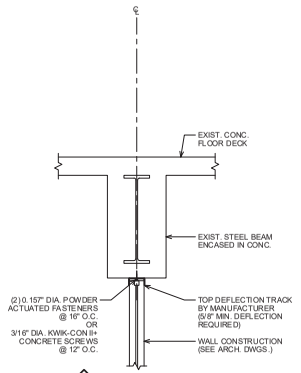
A-6 ALL POWDER ACTUATED FASTENERS SHALL BE "HILTI X-U" AS MANUFACTURED BY HILTI FASTENING SYSTEMS, INC., OR AN APPROVED EQUAL.

A-7 ALL ANCHOR SPACING, EMBEDMENT, EDGE DISTANCE, AND INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. REFER TO SECTIONS AND DETAILS ON THE DRAWINGS FOR ADDITIONAL INFORMATION.

A-8 SUBSTITUTIONS:
ANY PROPOSED ANCHOR SUBSTITUTIONS BY THE CONTRACTOR MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. PROPOSED SUBSTITUTION SUBMITTALS MUST INCLUDE STRUCTURAL CALCULATIONS, SIGNED AND SEALED BY THE CONTRACTOR'S PROFESSIONAL ENGINEER, DEMONSTRATING THAT THE PROPOSED ANCHORS ARE STRUCTURALLY ADEQUATE FOR THE SPECIFIC LOADS AND CONDITIONS AT EACH LOCATION WHERE THE SUBSTITUTION IS TO BE CONSIDERED. (DUE TO VARIOUS CONDITIONS AND ADJUSTMENT FACTORS THAT MUST BE CONSIDERED WHEN CALCULATING ANCHOR CAPACITIES, LOAD TABLES PREPARED BY OTHER MANUFACTURERS FOR SIMILAR ANCHOR TYPES ARE NOT SUFFICIENT FOR DETERMINING ANCHOR SUITABILITY).



1 S201 SECTION
SCALE: 3/4" = 1'-0"



2 S201 SECTION
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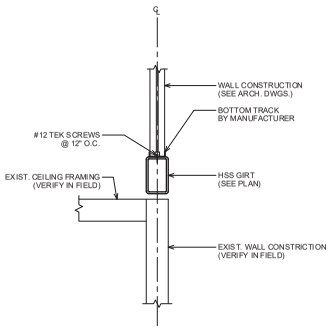

3 S201 SECTION
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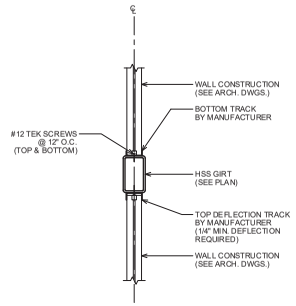

4 S201 SECTION
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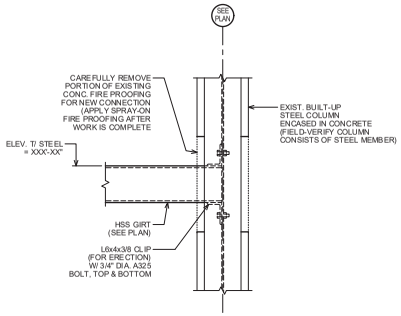

5 S201 SECTION
SCALE: 3/4" = 1'-0"

NOTE: FIELD WELDED CONNECTION IS ACCEPTABLE IF EXISTING STEEL IS VERIFIED TO BE WELDABLE.

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PROFESSIONAL SEAL
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL PHILIP C. RITTLING ENGINEER No. PE077913
07/09/2020

CONSULTANT

TSE
Taylor Structural Engineers, Inc.
22 Technology Hill Road, Building 300
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Phone: (412) 722-0880
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TSE Project No.: 6229

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PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY
190427.00	TFB	PGR

SHEET NAME:
GENERAL NOTES, STRUCTURAL SECTION AND DETAILS

SHEET NO.
S201

TRUE NORTH
PLAN NORTH

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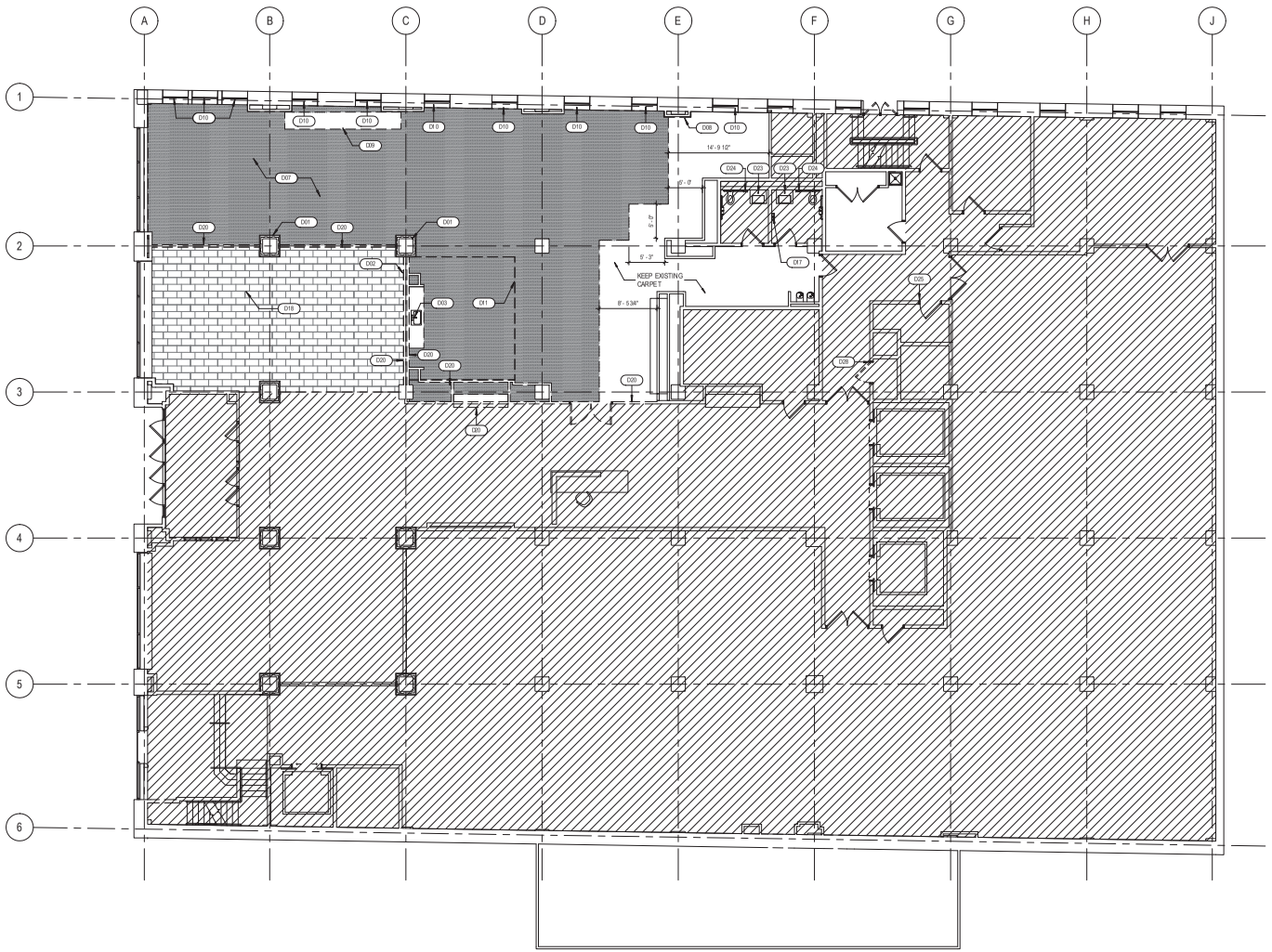

1 DEMOLITION FLOOR PLAN - LEVEL 01
1/8" = 1'-0"

DEMOLITION NOTES

1. REFER TO SHEET G010 PROJECT GENERAL NOTES.
2. EACH PRIME CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION OF THEIR RESPECTIVE TRADE SCOPE. ANY DISCREPANCIES OR DISPUTES IN SCOPE OF WORK SHALL BE BROUGHT TO THE GC'S OR ARCHITECTS ATTENTION IMMEDIATELY.
3. DEMO TEMPORARY LIGHTING AROUND ELEVATOR CORE PREVIOUSLY USED FOR ELEVATOR PERMIT OPERATION.
4. ITEMS SHOWN IN DASHED LINES ARE TO BE DEMOLISHED AND REMOVED, UNLESS OTHERWISE NOTED. REVIEW ARCHITECTURAL DRAWINGS FOR MISCELLANEOUS ITEMS.
5. THE SCOPE OF DEMOLITION WORK HAS BEEN INDICATED ON THESE DOCUMENTS FOR THE CONTRACTOR'S INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE FULL SCOPE, EXTENT, NATURE, AND MANNER OF DEMOLITION REQUIRED.
6. REFER TO THE ARCHITECTURAL, PLUMBING, FIRE PROTECTION, MECHANICAL, ELECTRICAL, AND TECHNOLOGY DOCUMENTS PRIOR TO DEMOLITION ACTIVITIES AND COORDINATE EXTENT OF DEMOLITION SCOPE TO MATCH THE REQUIREMENTS OF NEW CONSTRUCTION.
7. ONLY WORKMEN SKILLED AND KNOWLEDGEABLE IN THEIR RESPECTIVE TRADES SHALL BE EMPLOYED IN DEMOLITION WORK.
8. CONTRACTOR SHALL TAKE SPECIAL CARE TO DEMOLISH ONLY WORK WHICH IS REQUIRED TO BE DEMOLISHED AND NOT TO DISTURB ANY WORK WHICH IS TO REMAIN. IF IN THE COURSE OF DEMOLITION THE CONTRACTOR DESTROYS OR DISTURBS ANY WORK WHICH IS TO REMAIN, HE SHALL AT HIS OWN EXPENSE REPAIR OR REPLACE.
9. AREAS, SURFACES, AND FINISHES NOT AFFECTED BY THE WORK OF THIS CONTRACT SHALL BE PROTECTED PRIOR TO AND UNTIL COMPLETION OF CONTRACTED WORK.
10. FIRE EXIT DOORS AND/OR CORRIDORS MUST REMAIN USABLE FOR EMERGENCY EGRESS. PROVIDE AND MAINTAIN SEALS.
11. PROVIDE AND MAINTAIN SEALS AROUND DOORWAYS TO PREVENT DUST FROM ENTERING OCCUPIED SPACES.
12. PROVIDE TEMPORARY DUST PARTITIONS TO SEPARATE DEMOLITION AREAS FROM OCCUPIED SPACES.
13. THE OWNER HAS FIRST RIGHT OF REFUSAL. CONTRACTOR MUST NOTIFY THE OWNER THREE DAYS PRIOR TO STARTING A CONSTRUCTION PHASE SO THE OWNER MAY REMOVE ANY ITEMS.
14. THE OWNER HAS THE RIGHT TO RETAIN ANY EXISTING FURNITURE AND EQUIPMENT. COORDINATE WITH THE CONSTRUCTION DOCUMENTS AND THE OWNER THE RETAINAGE, STORAGE, RELOCATION OR DISPOSAL OF LOOSE FURNITURE AND EQUIPMENT THROUGHOUT THE EXISTING STRUCTURE(S).
15. REMOVE, RETAIN OWNERSHIP, AND DISCARD DEMOLISHED ITEMS THAT ARE NOT TO BE REUSED OR TURNED OVER TO THE OWNER IN A MANNER FULLY APPROVED BY LOCAL AUTHORITIES AND GOVERNING AGENCIES.
16. CUTS AND PENETRATIONS IN EXISTING WORK REQUIRED TO ACCOMPLISH NEW WORK SHALL BE DONE NEATLY AND WITHOUT DISTURBING ADJACENT WORK TO REMAIN.
17. WHERE DEMOLITION OF EXISTING CONSTRUCTION AND/OR EQUIPMENT OCCURS, PATCH AND REPAIR FLOOR, WALL, AND CEILING CONSTRUCTION AND/OR FINISHES TO MATCH ADJACENT EXISTING CONSTRUCTION TO REMAIN.
18. PATCHING OF EXISTING MASONRY OPENINGS TO BE DONE WITH MATERIAL OF THE SAME TYPE AND SIZE AS EXISTING AND IS TO BE TOOTHED INTO ADJACENT CONSTRUCTION.
19. WHERE ITEMS ARE TO BE REMOVED FROM STRUCTURAL GLAZED TILE, CERAMIC TILE, BRICK, OR OTHER SIMILAR MATERIALS THE CONTRACTOR SHALL REPLACE THE DISTURBED PIECES TO MATCH THE ADJACENT CONSTRUCTION. SALVAGED MATERIAL IN GOOD CONDITION WILL BE ACCEPTED. WHEN SALVAGED MATERIAL IS NOT AVAILABLE, THE CONTRACTOR SHALL PROVIDE AN APPROVED MATCHING LOOKING GROUT AND/OR MORTAR COLORS.
20. REMOVE ALL PROTRUDING JUNCTION AND ELECTRICAL BOXES. FIELD VERIFY USE AND COORDINATE WITH ELEC. DWGS

DEMO KEYED NOTES

NO.	DESCRIPTION
D01	DECORATIVE COLUMN SURROUNDS TO REMAIN. PATCH/REBUILD AS NEEDED TO MATCH EXISTING
D02	REMOVE TV WALL AND SAVE FOR RELOCATION. COST TO REMOVE, RELOCATE AND STORE TV WALL IS PART OF "BASE BUILDING COST" - PRICE SEPERATELY FROM TENANT FIT-OUT PACKAGE.
D03	REMOVE KITCHEN CABINETRY, COUNTERTOPS, PLUMBING FIXTURES, APPLIANCES SAVE AND STORE FOR THE PITTSBURGH HOUSING AUTHORITY.
D07	SALVAGE EXISTING CARPET FOR REUSE ON LEVEL 00 CITY OF PITTSBURGH
D08	DEMO FINISH OFF BUILD OUT, PATCH AND REPAIR GYPSUM AS NEEDED THROUGHOUT.
D09	REMOVE AND STORE SHUFFLEBOARD.
D10	REMOVE EXISTING WINDOW STOOL. PREPARE TO RECEIVE NEW FINISH. D00
D11	REMOVE EXISTING TILE AND PREPARE TO RECEIVE NEW FINISH.
D17	REMOVE EXISTING PAPER TOWEL DISPENSER AND RELOCATE TO EAST WALL WITH ADA REACH RANGES AND CLEAR DISTANCE FROM TOILET. PATCH AND REPAIR EXISTING WALL AS NEEDED
D18	SALVAGE ALL EXISTING TILE PIECES FOR BASE BUILDING BUILD OUT. DEMO REMAINING TILE.
D20	DEMO EXISTING INTERIOR BRICK WALLS.
D23	DEMO EXISTING FAUCETS
D24	DEMO EXISTING SOAP DISPENSERS
D25	DEMO EXISTING DOOR FRAME
D28	DEMO EXISTING DOOR AND DOOR FRAME

DEMOLITION LEGEND

LINESTYLES

EXISTING

DEMOLITON

NEW

PATTERNS

OUT OF SCOPE

SYMBOLS

00 KEYED NOTE VALUE.

KEYNOTE

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(412) 932 2044
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PROFESSIONAL SEAL

REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JEFFREY C. METZEL JW

CONSULTANT:

CLIENT:

Housing Authority of the City of Pittsburgh
200 ROSS STREET
PITTSBURGH, PA 15219
(412) 456 60 00
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5	100% CONSTRUCTION DOCUMENTS REVISION #5	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #4	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #3	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:

DEMOLITION FLOOR PLAN - LEVEL 01

SHEET NO:

AD101

TRUE NORTH
PLAN NORTH

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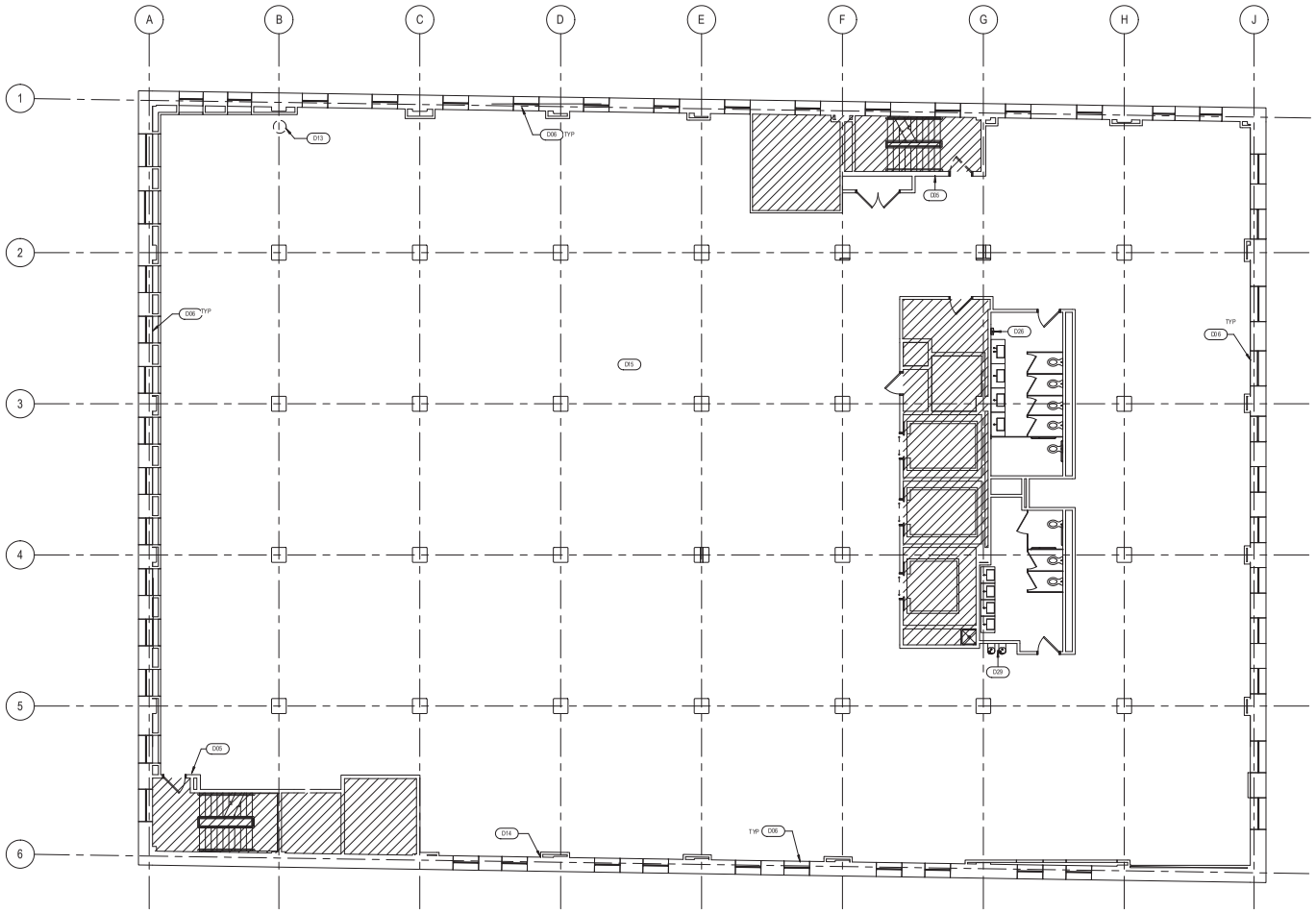

1 DEMOLITION FLOOR PLAN - LEVEL 05
1/8" = 1'-0"

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3. DEMO TEMPORARY LIGHTING AROUND ELEVATOR CORE PREVIOUSLY USED FOR ELEVATOR PERMIT OPERATION.
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9. AREAS, SURFACES, AND FINISHES NOT AFFECTED BY THE WORK OF THIS CONTRACT SHALL BE PROTECTED PRIOR TO AND UNTIL COMPLETION OF CONTRACTED WORK.
10. FIRE EXIT DOORS AND/OR CORRIDORS MUST REMAIN USABLE FOR EMERGENCY EGRESS. PROVIDE AND MAINTAIN SEALS.
11. PROVIDE AND MAINTAIN SEALS AROUND DOORWAYS TO PREVENT DUST FROM ENTERING OCCUPIED SPACES.
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20. REMOVE ALL PROTRUDING JUNCTION AND ELECTRICAL BOXES. FIELD VERIFY USE AND COORDINATE WITH ELEC. DWGS

DEMO KEYED NOTES

NO.	DESCRIPTION
D05	REMOVE EXISTING GYPSUM. REBUILD STUDS AND FURRING WALLS AS NEEDED TO UNDERSIDE OF DECK. ALL BUILD-OUTS ON SAME SURFACE ARE TO BE FLUSH.
D06	REPAIR OR REPLACE EXISTING WINDOW SILL TO MATCH EXISTING.
D13	FIELD VERIFY CONDITION OF EXISTING DRAIN TO CONFIRM REMOVAL, CUT AND LEVEL WITH EXISTING FLOOR TO PREPARE FOR NEW FINISH.
D14	COORDINATE WITH ELECTRICAL DWGS USE OF EXISTING ELECTRICAL BOX TO CONFIRM REMOVAL. REMOVE AND PATCH TO PREPARE FOR NEW FINISH.
D15	PROVIDE FLOOR LEVELING WHEREVER NEEDED.
D26	DEMO EXISTING PAPER TOWEL/TRASH
D29	REPLACE EXISTING WATER FOUNTAIN

DEMOLITION LEGEND

LINESTYLES

EXISTING

DEMOLITON

NEW

PATTERNS

OUT OF SCOPE

SYMBOLS

KEYED NOTE VALUE

KEYNOTE

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PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:

DEMOLITION FLOOR PLAN - LEVEL 05

SHEET NO:

AD105

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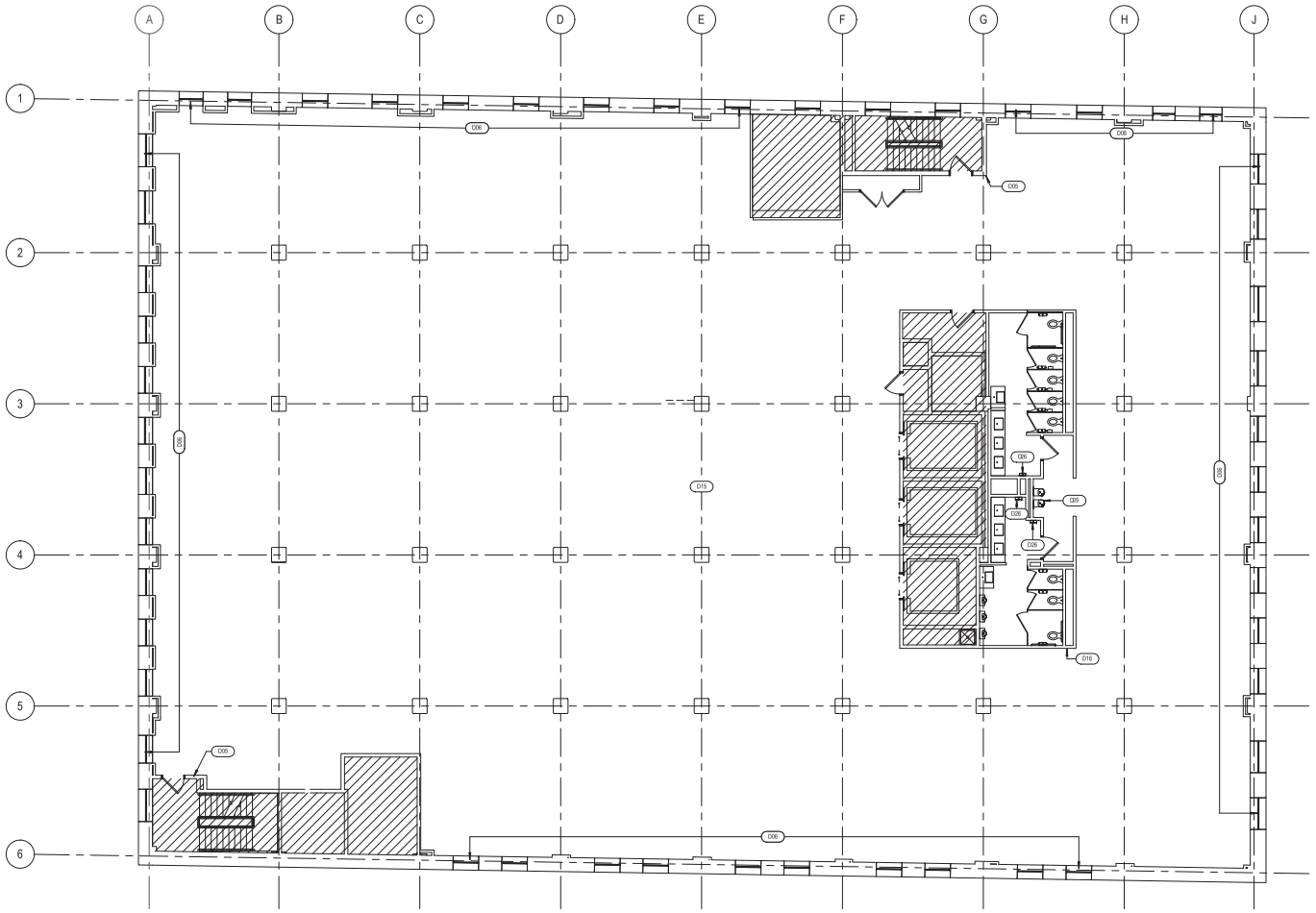

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10. FIRE EXIT DOORS AND/OR CORRIDORS MUST REMAIN USABLE FOR EMERGENCY EGRESS. PROVIDE AND MAINTAIN SEALS.
11. PROVIDE AND MAINTAIN SEALS AROUND DOORWAYS TO PREVENT DUST FROM ENTERING OCCUPIED SPACES.
12. PROVIDE TEMPORARY DUST PARTITIONS TO SEPARATE DEMOLITION AREAS FROM OCCUPIED SPACES.
13. THE OWNER HAS FIRST RIGHT OF REFUSAL. CONTRACTOR MUST NOTIFY THE OWNER THREE DAYS PRIOR TO STARTING A CONSTRUCTION PHASE SO THE OWNER MAY REMOVE ANY ITEMS.
14. THE OWNER HAS THE RIGHT TO RETAIN ANY EXISTING FURNITURE AND EQUIPMENT. COORDINATE WITH THE CONSTRUCTION DOCUMENTS AND THE OWNER THE RETAINAGE, STORAGE, RELOCATION OR DISPOSAL OF LOOSE FURNITURE AND EQUIPMENT THROUGHOUT THE EXISTING STRUCTURE(S).
15. REMOVE, RETAIN OWNERSHIP, AND DISCARD DEMOLISHED ITEMS THAT ARE NOT TO BE REUSED OR TURNED OVER TO THE OWNER IN A MANNER FULLY APPROVED BY LOCAL AUTHORITIES AND GOVERNING AGENCIES.
16. CUTS AND PENETRATIONS IN EXISTING WORK REQUIRED TO ACCOMPLISH NEW WORK SHALL BE DONE NEATLY AND WITHOUT DISTURBING ADJACENT WORK TO REMAIN.
17. WHERE DEMOLITION OF EXISTING CONSTRUCTION AND/OR EQUIPMENT OCCURS, PATCH AND REPAIR FLOOR, WALL, AND CEILING CONSTRUCTION AND/OR FINISHES TO MATCH ADJACENT EXISTING CONSTRUCTION TO REMAIN.
18. PATCHING OF EXISTING MASONRY OPENINGS TO BE DONE WITH MATERIAL OF THE SAME TYPE AND SIZE AS EXISTING AND IS TO BE TOOTHED INTO ADJACENT CONSTRUCTION.
19. WHERE ITEMS ARE TO BE REMOVED FROM STRUCTURAL GLAZED TILE, CERAMIC TILE, BRICK, OR OTHER SIMILAR MATERIALS THE CONTRACTOR SHALL REPLACE THE DISTURBED PIECES TO MATCH THE ADJACENT CONSTRUCTION. SALVAGED MATERIAL IN GOOD CONDITION WILL BE ACCEPTED. WHEN SALVAGED MATERIAL IS NOT AVAILABLE, THE CONTRACTOR SHALL PROVIDE AN APPROVED MATCHING LOOKING GROUT AND/OR MORTAR COLORS.
20. REMOVE ALL PROTRUDING JUNCTION AND ELECTRICAL BOXES. FIELD VERIFY USE AND COORDINATE WITH ELEC. DWGS

DEMO KEYED NOTES

NO.	DESCRIPTION
D05	REMOVE EXISTING GYPSUM. REBUILD STUDS AND FURRING WALLS AS NEEDED TO UNDERSIDE OF DECK. ALL BUILD-OUT'S ON SAME SURFACE ARE TO BE FLUSH.
D06	REPAIR OR REPLACE EXISTING WINDOW SILL TO MATCH EXISTING.
D15	PROVIDE FLOOR LEVELING WHEREVER NEEDED.
D16	REMOVE FIRE EXTINGUISHER BOX. PATCH AND PREPARE TO RECEIVE NEW FINISH
D26	DEMO EXISTING PAPER TOWEL/TRASH
D29	REPLACE EXISTING WATER FOUNTAIN

DEMOLITION LEGEND

LINESTYLES

EXISTING

DEMOLITON

NEW

PATTERNS

OUT OF SCOPE

SYMBOLS

KEYED NOTE VALUE

KEYNOTE

AE7
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PROFESSIONAL SEAL

REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JEFFREY C. METZEL No. RA-018911

CONSULTANT:

CLIENT:

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HACP - Housing Authority of the City of Pittsburgh

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION#5	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION#4	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION#3	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:

DEMOLITION FLOOR PLAN - LEVEL 06

SHEET NO:

AD106

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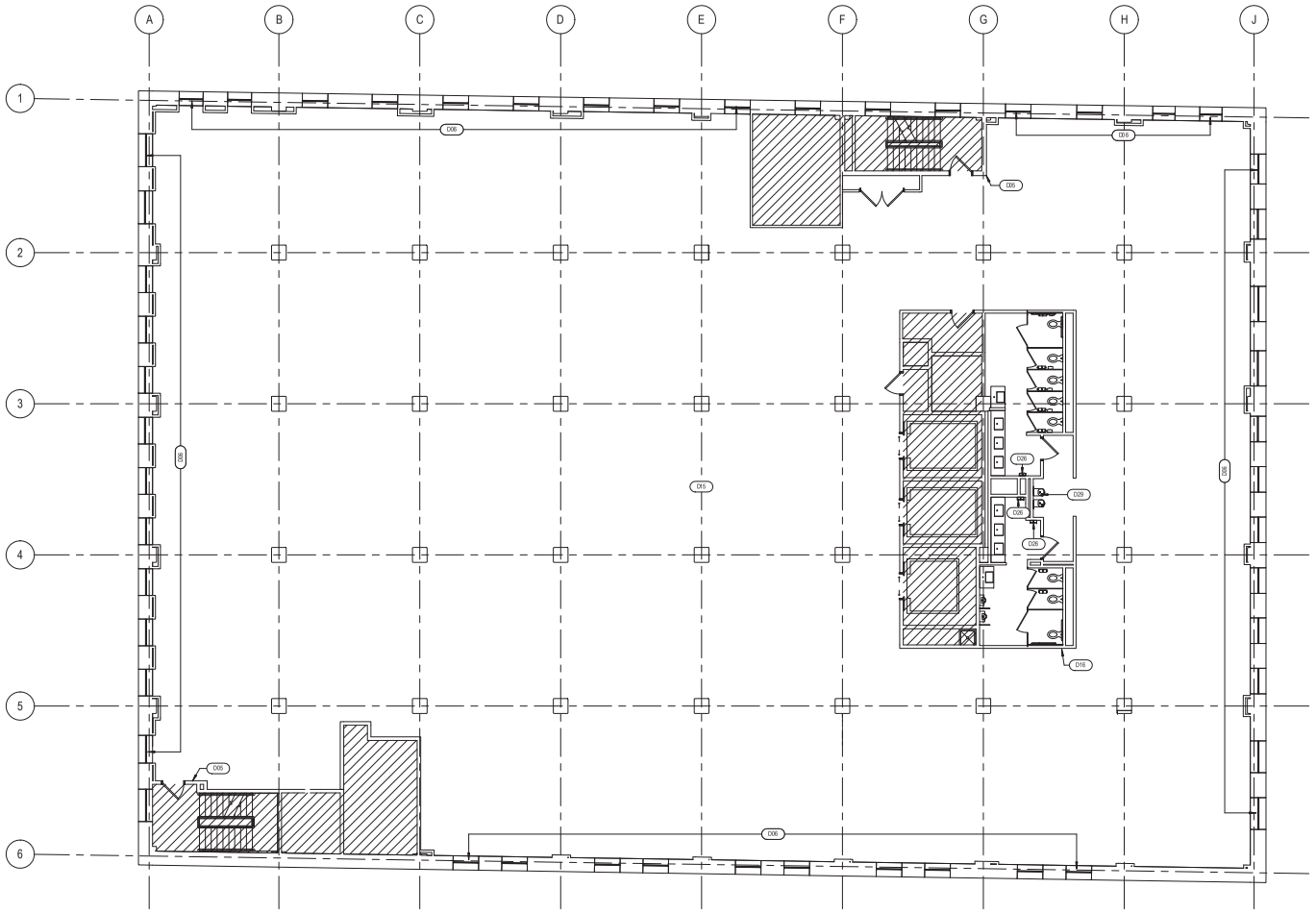

1 DEMOLITION FLOOR PLAN - LEVEL 07
1/8" = 1'-0"

DEMOLITION NOTES

1. REFER TO SHEET G010 PROJECT GENERAL NOTES.
2. EACH PRIME CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION OF THEIR RESPECTIVE TRADE SCOPE. ANY DISCREPANCIES OR DISPUTES IN SCOPE OF WORK SHALL BE BROUGHT TO THE GC'S OR ARCHITECTS ATTENTION IMMEDIATELY.
3. DEMO TEMPORARY LIGHTING AROUND ELEVATOR CORE PREVIOUSLY USED FOR ELEVATOR PERMIT OPERATION.
4. ITEMS SHOWN IN DASHED LINES ARE TO BE DEMOLISHED AND REMOVED, UNLESS OTHERWISE NOTED. REVIEW ARCHITECTURAL DRAWINGS FOR MISCELLANEOUS ITEMS.
5. THE SCOPE OF DEMOLITION WORK HAS BEEN INDICATED ON THESE DOCUMENTS FOR THE CONTRACTOR'S INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE FULL SCOPE, EXTENT, NATURE, AND MANNER OF DEMOLITION REQUIRED.
6. REFER TO THE ARCHITECTURAL, PLUMBING, FIRE PROTECTION, MECHANICAL, ELECTRICAL, AND TECHNOLOGY DOCUMENTS PRIOR TO DEMOLITION ACTIVITIES AND COORDINATE EXTENT OF DEMOLITION SCOPE TO MATCH THE REQUIREMENTS OF NEW CONSTRUCTION.
7. ONLY WORKMEN SKILLED AND KNOWLEDGEABLE IN THEIR RESPECTIVE TRADES SHALL BE EMPLOYED IN DEMOLITION WORK.
8. CONTRACTOR SHALL TAKE SPECIAL CARE TO DEMOLISH ONLY WORK WHICH IS REQUIRED TO BE DEMOLISHED AND NOT TO DISTURB ANY WORK WHICH IS TO REMAIN. IF IN THE COURSE OF DEMOLITION THE CONTRACTOR DESTROYS OR DISTURBS ANY WORK WHICH IS TO REMAIN, HE SHALL AT HIS OWN EXPENSE REPAIR OR REPLACE.
9. AREAS, SURFACES, AND FINISHES NOT AFFECTED BY THE WORK OF THIS CONTRACT SHALL BE PROTECTED PRIOR TO AND UNTIL COMPLETION OF CONTRACTED WORK.
10. FIRE EXIT DOORS AND/OR CORRIDORS MUST REMAIN USABLE FOR EMERGENCY EGRESS. PROVIDE AND MAINTAIN SEALS.
11. PROVIDE AND MAINTAIN SEALS AROUND DOORWAYS TO PREVENT DUST FROM ENTERING OCCUPIED SPACES.
12. PROVIDE TEMPORARY DUST PARTITIONS TO SEPARATE DEMOLITION AREAS FROM OCCUPIED SPACES.
13. THE OWNER HAS FIRST RIGHT OF REFUSAL. CONTRACTOR MUST NOTIFY THE OWNER THREE DAYS PRIOR TO STARTING A CONSTRUCTION PHASE SO THE OWNER MAY REMOVE ANY ITEMS.
14. THE OWNER HAS THE RIGHT TO RETAIN ANY EXISTING FURNITURE AND EQUIPMENT. COORDINATE WITH THE CONSTRUCTION DOCUMENTS AND THE OWNER THE RETAINAGE, STORAGE, RELOCATION OR DISPOSAL OF LOOSE FURNITURE AND EQUIPMENT THROUGHOUT THE EXISTING STRUCTURE(S).
15. REMOVE, RETAIN OWNERSHIP, AND DISCARD DEMOLISHED ITEMS THAT ARE NOT TO BE REUSED OR TURNED OVER TO THE OWNER IN A MANNER FULLY APPROVED BY LOCAL AUTHORITIES AND GOVERNING AGENCIES.
16. CUTS AND PENETRATIONS IN EXISTING WORK REQUIRED TO ACCOMPLISH NEW WORK SHALL BE DONE NEATLY AND WITHOUT DISTURBING ADJACENT WORK TO REMAIN.
17. WHERE DEMOLITION OF EXISTING CONSTRUCTION AND/OR EQUIPMENT OCCURS, PATCH AND REPAIR FLOOR, WALL, AND CEILING CONSTRUCTION AND/OR FINISHES TO MATCH ADJACENT EXISTING CONSTRUCTION TO REMAIN.
18. PATCHING OF EXISTING MASONRY OPENINGS TO BE DONE WITH MATERIAL OF THE SAME TYPE AND SIZE AS EXISTING AND IS TO BE TOOTHED INTO ADJACENT CONSTRUCTION.
19. WHERE ITEMS ARE TO BE REMOVED FROM STRUCTURAL GLAZED TILE, CERAMIC TILE, BRICK, OR OTHER SIMILAR MATERIALS THE CONTRACTOR SHALL REPLACE THE DISTURBED PIECES TO MATCH THE ADJACENT CONSTRUCTION. SALVAGED MATERIAL IN GOOD CONDITION WILL BE ACCEPTED. WHEN SALVAGED MATERIAL IS NOT AVAILABLE, THE CONTRACTOR SHALL PROVIDE AN APPROVED MATCHING LOOKING GROUT AND/OR MORTAR COLORS.
20. REMOVE ALL PROTRUDING JUNCTION AND ELECTRICAL BOXES. FIELD VERIFY USE AND COORDINATE WITH ELEC. DWGS

DEMO KEYED NOTES

NO.	DESCRIPTION
D05	REMOVE EXISTING GYPSUM; REBUILD STUDS AND FURRING WALLS AS NEEDED TO UNDERSIDE OF DECK. ALL BUILD-OUTS ON SAME SURFACE ARE TO BE FLUSH.
D06	REPAIR OR REPLACE EXISTING WINDOW SILL TO MATCH EXISTING
D15	PROVIDE FLOOR LEVELING WHEREVER NEEDED.
D16	REMOVE FIRE EXTINGUISHER BOX. PATCH AND PREPARE TO RECEIVE NEW FINISH
D26	DEMO EXISTING PAPER TOWEL/TRASH
D29	REPLACE EXISTING WATER FOUNTAIN

DEMOLITION LEGEND

LINESTYLES

EXISTING

DEMOLITON

NEW

PATTERNS

OUT OF SCOPE

SYMBOLS

00 KEYED NOTE VALUE

KEYNOTE

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PROFESSIONAL SEAL

REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JEFFREY C. METZEL No. RA-016851

CONSULTANT:

CLIENT:

Housing Authority of the City of Pittsburgh

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hacp.org

HACP - Housing Authority of the City of Pittsburgh

412 Boulevard of the Allies, Pittsburgh, PA 15219

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5	100% CONSTRUCTION DOCUMENTS REVISION 05	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION 04	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION 03	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:

DEMOLITION FLOOR PLAN - LEVEL 07

SHEET NO:

AD107

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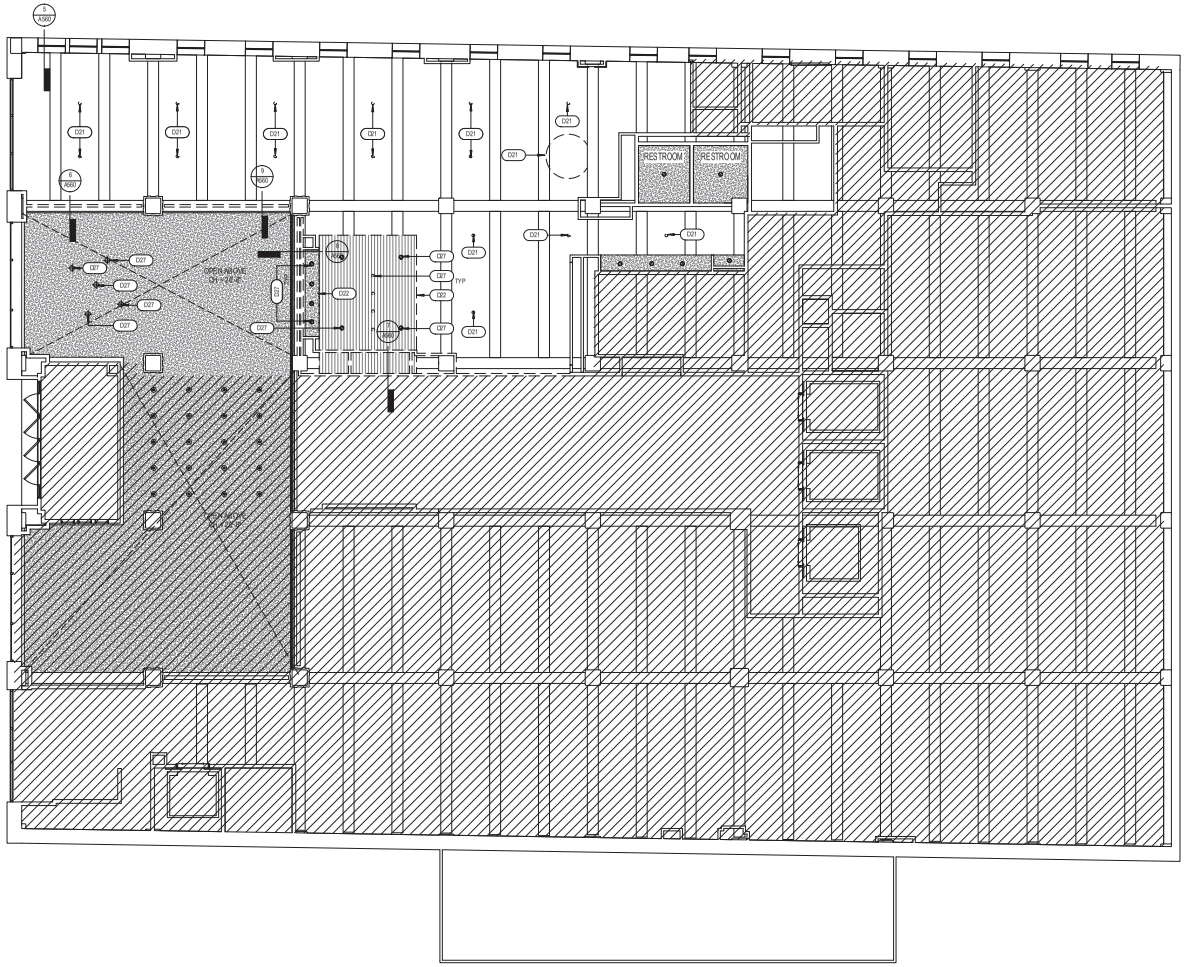

1 OVERALL REFLECTED CEILING PLAN - LEVEL 01
1/8" = 1'-0"

DEMOLITION NOTES

1. REFER TO SHEET G010 PROJECT GENERAL NOTES.
2. EACH PRIME CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION OF THEIR RESPECTIVE TRADE SCOPE. ANY DISCREPANCIES OR DISPUTES IN SCOPE OF WORK SHALL BE BROUGHT TO THE GC'S OR ARCHITECTS ATTENTION IMMEDIATELY.
3. DEMO TEMPORARY LIGHTING AROUND ELEVATOR CORE PREVIOUSLY USED FOR ELEVATOR PERMIT OPERATION.
4. ITEMS SHOWN IN DASHED LINES ARE TO BE DEMOLISHED AND REMOVED, UNLESS OTHERWISE NOTED. REVIEW ARCHITECTURAL DRAWINGS FOR MISCELLANEOUS ITEMS.
5. THE SCOPE OF DEMOLITION WORK HAS BEEN INDICATED ON THESE DOCUMENTS FOR THE CONTRACTOR'S INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE FULL SCOPE, EXTENT, NATURE, AND MANNER OF DEMOLITION REQUIRED.
6. REFER TO THE ARCHITECTURAL, PLUMBING, FIRE PROTECTION, MECHANICAL, ELECTRICAL, AND TECHNOLOGY DOCUMENTS PRIOR TO DEMOLITION ACTIVITIES AND COORDINATE EXTENT OF DEMOLITION SCOPE TO MATCH THE REQUIREMENTS OF NEW CONSTRUCTION.
7. ONLY WORKMEN SKILLED AND KNOWLEDGEABLE IN THEIR RESPECTIVE TRADES SHALL BE EMPLOYED IN DEMOLITION WORK.
8. CONTRACTOR SHALL TAKE SPECIAL CARE TO DEMOLISH ONLY WORK WHICH IS REQUIRED TO BE DEMOLISHED AND NOT TO DISTURB ANY WORK WHICH IS TO REMAIN. IF IN THE COURSE OF DEMOLITION THE CONTRACTOR DESTROYS OR DISTURBS ANY WORK WHICH IS TO REMAIN, HE SHALL AT HIS OWN EXPENSE REPAIR OR REPLACE.
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20. REMOVE ALL PROTRUDING JUNCTION AND ELECTRICAL BOXES. FIELD VERIFY USE AND COORDINATE WITH ELEC. DWGS

DEMO KEYED NOTES

NO.	DESCRIPTION
D21	REMOVE EXISTING LIGHTING PENDANTS AND STORE FOR HACP TO PICK-OUT. REMAINDER OF LIGHTS WILL BE STORED FOR THE CITY OF PITTSBURGH LIKE-IN-KIND PICK-OUT.
D22	DEMO EXISTING CEILINGS
D27	REMOVE EXISTING LIGHTING PENDANTS AND STORE.

DEMOLITION LEGEND

LINESTYLES

EXISTING

DEMOLITON

NEW

PATTERNS

OUT OF SCOPE

SYMBOLS

KEYED NOTE VALUE

KEYNOTE

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PROFESSIONAL SEAL

REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JEFFREY A. NEITZEL No. RA-018511

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CLIENT:

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HACP - Housing Authority of the City of Pittsburgh

412 Boulevard of the Allies, Pittsburgh, PA 15219

#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #5	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #4	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #3	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:

DEMOLITION REFLECTED CEILING PLAN - LEVEL 01

SHEET NO:

AD151

TRUE NORTH

PLAN NORTH

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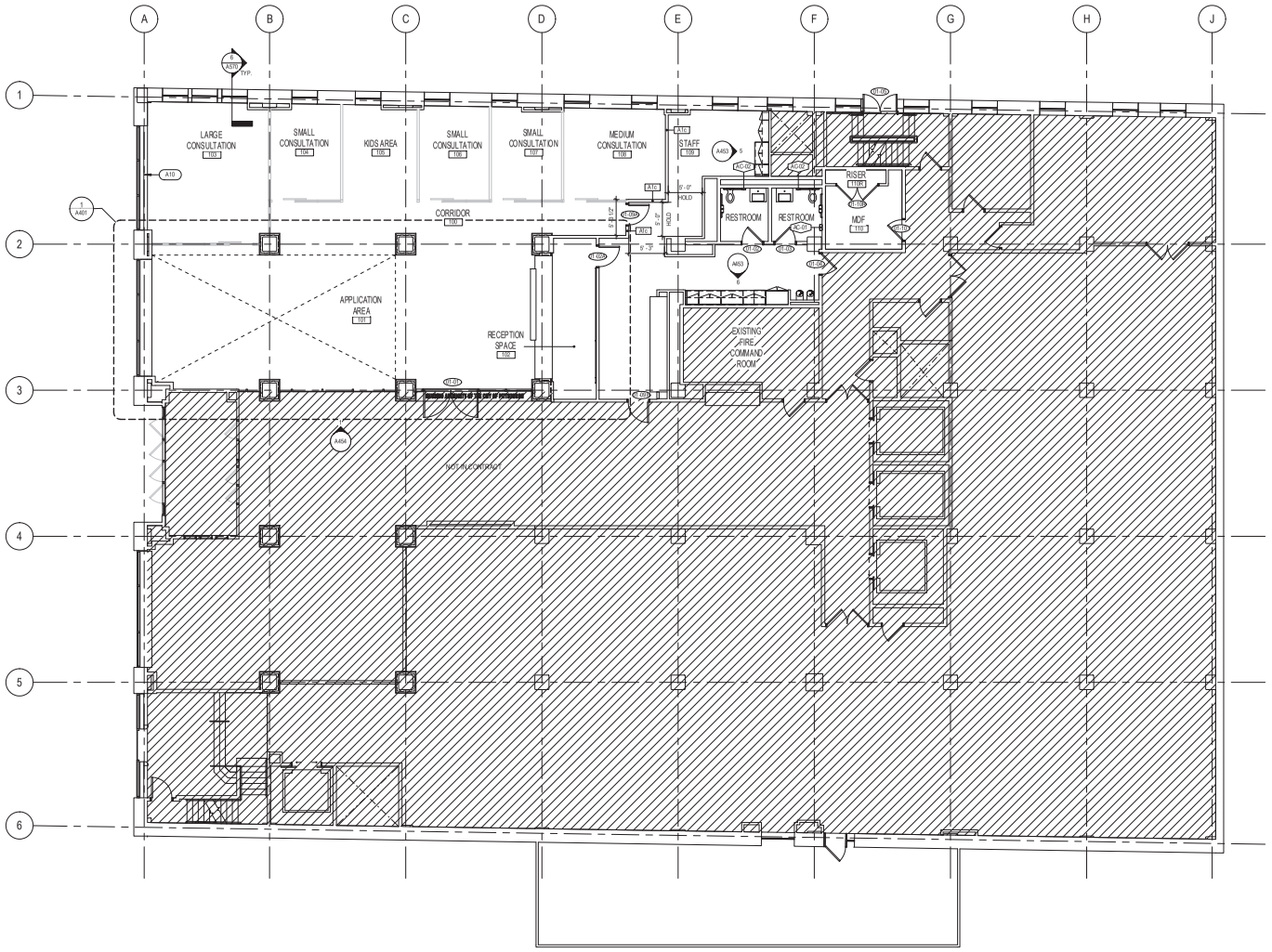

1 OVERALL FLOOR PLAN - LEVEL 01
1/8" = 1'-0"

PLAN NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. INTERIOR DIMENSIONS ARE TO CENTER OF WALL U.O.N.
3. DOORS WITHIN STUD WALLS TO BE A TYPICAL 4" DISTANCE ON HINGE SIDE FROM ADJACENT WALL; DOORS WITHIN MASONRY WALLS TO BE A TYPICAL SINGLE UNIT DISTANCE ON HINGE SIDE FROM ADJACENT WALL.
4. RETURN FURRED/LAMINATED GYP. BD. TO DOOR AND/OR WINDOW FRAMES AS REQUIRED - TYP.
5. CONSTRUCT PARTITIONS FROM FLOOR SLAB TO UNDERSIDE OF DECK U.O.N.
6. STUD PARTITIONS SHALL HAVE DOUBLE STUDS AT DOOR JAMBS, OPENINGS AND CORNERS.
7. PROVIDE FIRE-RETARDANT WOOD BLOCKING FOR WALL MOUNTED ITEMS, INCLUDING ITEMS FURNISHED BY THE OWNER.
8. AT STUD PARTITIONS PROVIDE DIAGONAL BRACING AT OPENINGS GREATER THAN 4'-0" WIDE.
9. PARTITIONS DESIGNATED AS SOUND RATED SHALL BE:
   1. SEALED WITH ACOUSTICAL SEALANT AT EACH FACE OF PARTITION WHERE PENETRATED BY DUCT, PIPE, CONDUIT, OR OTHER APPURTENANCES.
   2. SEALED WITH ACOUSTICAL SEALANT CONTINUOUSLY AT PERIMETER, SILLS, JAMBS, AND HEADS - EACH SIDE.
10. PARTITIONS DESIGNATED TO BE FIRE RATED SHALL BE:
    1. SET TOP AND BOTTOM PARTITION RUNNER TRACKS IN BEDS OF SEALANT.
    2. PACK VOIDS BETWEEN TOP OF PARTITION AND UNDERSIDE OF STRUCTURE WITH FIRE SAFING.
    3. CLOSE PENETRATIONS WITH FIRE-STOPPING MATERIALS PER U.L. DESIGN.
11. GYPSUM BOARD PARTITIONS DESIGNATED IN WET AREAS SHALL HAVE PROVIDED GALVANIZED STUDS, FASTENERS AND MISC. METAL ACCESSORIES.
12. PARTITION TYPES OVER OPENINGS SHALL MATCH ADJACENT PARTITIONS U.O.N.

PLAN KEYED NOTES

NO	DESCRIPTION
A10	REPAINT EXISTING RADIATORS TO MATCH BASE BUILDING

PLAN LEGEND

- EXISTING CONSTRUCTION
- DEMOUNTABLE WALL PARTITION (NOT INCLUDED IN GC SCOPE)
- NEW CONSTRUCTION
- ROOM TAG: ROOM NAME / ROOM NUMBER / AREA
- DOOR TAG: REFER TO SHEET A600 PT
- PARTITION TAG: REFER TO SHEET A630
- WINDOW TAG
- KEYNOTE: KEYED NOTE VALUE
- NOT IN SCOPE

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PROFESSIONAL SEAL

REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JEFFREY C. METZEL No. RA-018911

CONSULTANT:

CLIENT:

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HACP - Housing Authority of the City of Pittsburgh

412 Boulevard of the Allies, Pittsburgh, PA 15219

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3	100% CONSTRUCTION DOCUMENTS REVISIONS	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME: OVERALL FLOOR PLAN - LEVEL 01

SHEET NO: A101

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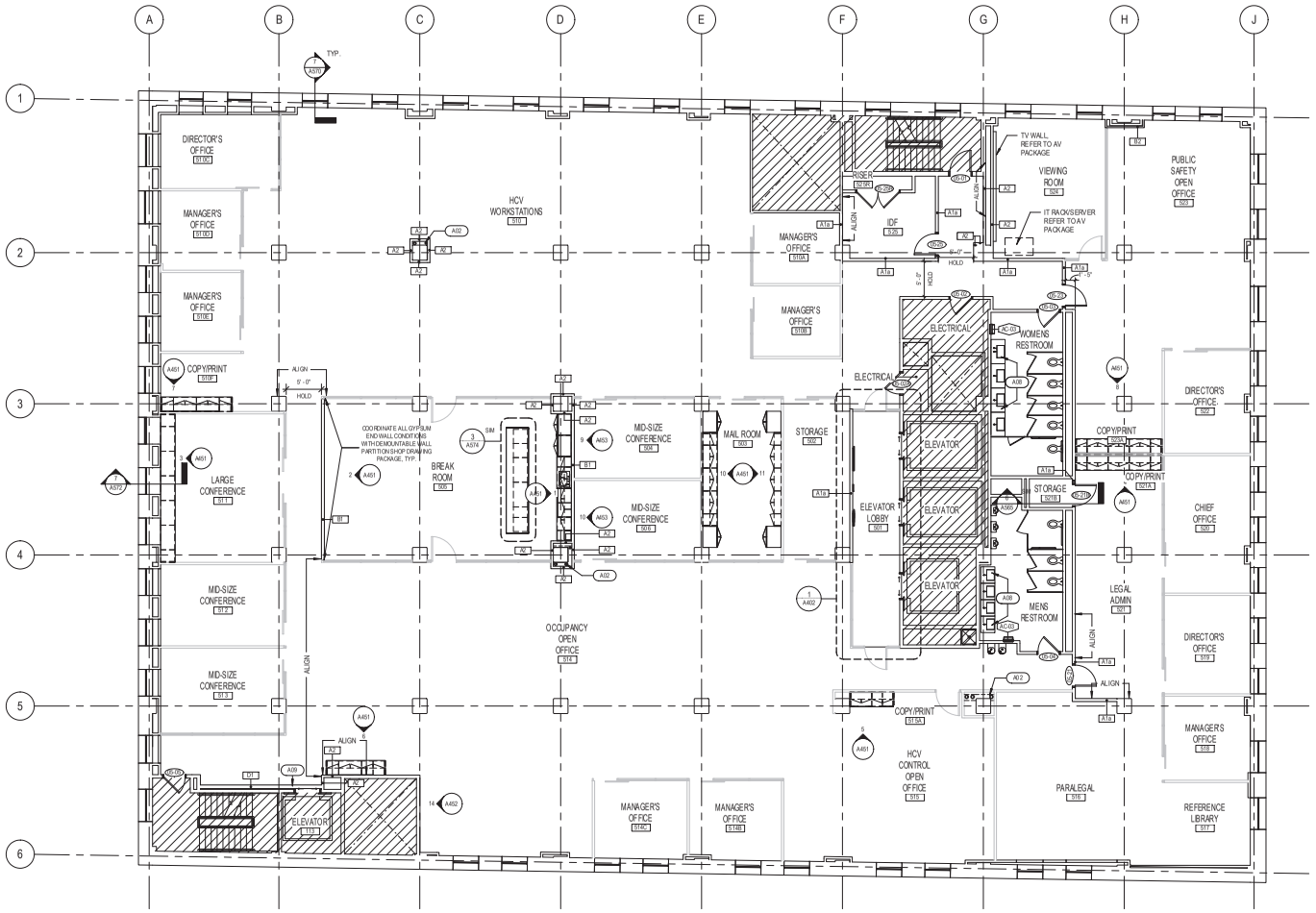

1 OVERALL FLOOR PLAN - LEVEL 05
1/8" = 1'-0"

PLAN NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. INTERIOR DIMENSIONS ARE TO CENTER OF WALL U.O.N.
3. DOORS WITHIN STUD WALLS TO BE A TYPICAL 4" DISTANCE ON HINGE SIDE FROM ADJACENT WALL; DOORS WITHIN MASONRY WALLS TO BE A TYPICAL SINGLE UNIT DISTANCE ON HINGE SIDE FROM ADJACENT WALL.
4. RETURN FURRED/LAMINATED GYP. BD. TO DOOR AND/OR WINDOW FRAMES AS REQUIRED - TYP.
5. CONSTRUCT PARTITIONS FROM FLOOR SLAB TO UNDERSIDE OF DECK U.O.N.
6. STUD PARTITIONS SHALL HAVE DOUBLE STUDS AT DOOR JAMBS, OPENINGS AND CORNERS.
7. PROVIDE FIRE-RETARDANT WOOD BLOCKING FOR WALL MOUNTED ITEMS, INCLUDING ITEMS FURNISHED BY THE OWNER.
8. AT STUD PARTITIONS PROVIDE DIAGONAL BRACING AT OPENINGS GREATER THAN 4'-0" WIDE
9. PARTITIONS DESIGNATED AS SOUND RATED SHALL BE:
   1. SEALED WITH ACOUSTICAL SEALANT AT EACH FACE OF PARTITION WHERE PENETRATED BY DUCT, PIPE, CONDUIT, OR OTHER APPERTENANCES.
   2. SEALED WITH ACOUSTICAL SEALANT CONTINUOUSLY AT PERIMETER SILLS, JAMBS, AND HEADS - EACH SIDE.
10. PARTITIONS DESIGNATED TO BE FIRE RATED SHALL BE:
    1. SET TOP AND BOTTOM PARTITION RUNNER TRACKS IN BEDS OF SEALANT.
    2. PACK VOIDS BETWEEN TOP OF PARTITION AND UNDERSIDE OF STRUCTURE WITH FIRE SAFING.
    3. CLOSE PENETRATIONS WITH FIRE-STOPPING MATERIALS PER U.L. DESIGN.
11. GYPSUM BOARD PARTITIONS DESIGNATED IN WET AREAS SHALL HAVE PROVIDED GALVANIZED STUDS, FASTENERS AND MISC. METAL ACCESSORIES.
12. PARTITION TYPES OVER OPENINGS SHALL MATCH ADJACENT PARTITIONS U.O.N.

PLAN KEYED NOTES

NO	DESCRIPTION
A02	EXISTING PLUMBING PIPES. REFER TO PLUMBING DRAWINGS.
A08	REFER TO DETAIL 7/A570 FOR EXPOSED PIPE DETAIL FOR EXISTING PLUMBING AND SINKS. PART OF "BASE BUILDING COST" - PRICE SEPERATELY FROM TENANT FIT-OUT PACKAGE.
A09	PRIME OVER EXISTING ELEVATOR DOOR AND OPERATIONAL DEVICES WITH PRIMER WALL PER WALL TYPE DI. CONFIRM ACCESS TO THE 5TH THRU 7TH FLOOR IS LOCKED OFF THE ELEVATOR OPERATION.

PLAN LEGEND

- EXISTING CONSTRUCTION
- DEMOUNTABLE WALL PARTITION (NOT INCLUDED IN GC SCOPE)
- NEW CONSTRUCTION
- ROOM NAME / ROOM NUMBER / AREA — ROOM TAG
- DOOR TAG REFER TO SHEET A630 PT
- PARTITION TAG REFER TO SHEET A630
- WINDOW TAG
- KEYED NOTE VALUE — KEYNOTE
- NOT IN SCOPE

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PROFESSIONAL SEAL

COMMONWEALTH OF PENNSYLVANIA REGISTERED ARCHITECT JEFFREY C. METZEL No. 18931

CONSULTANT:

CLIENT:

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HACP - Housing Authority of the City of Pittsburgh

412 Boulevard of the Allies, Pittsburgh, PA 15219

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5	100% CONSTRUCTION DOCUMENTS REVISION #5	09/03/2020
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3	100% CONSTRUCTION DOCUMENTS REVISION #3	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME: OVERALL FLOOR PLAN - LEVEL 05

SHEET NO: A105

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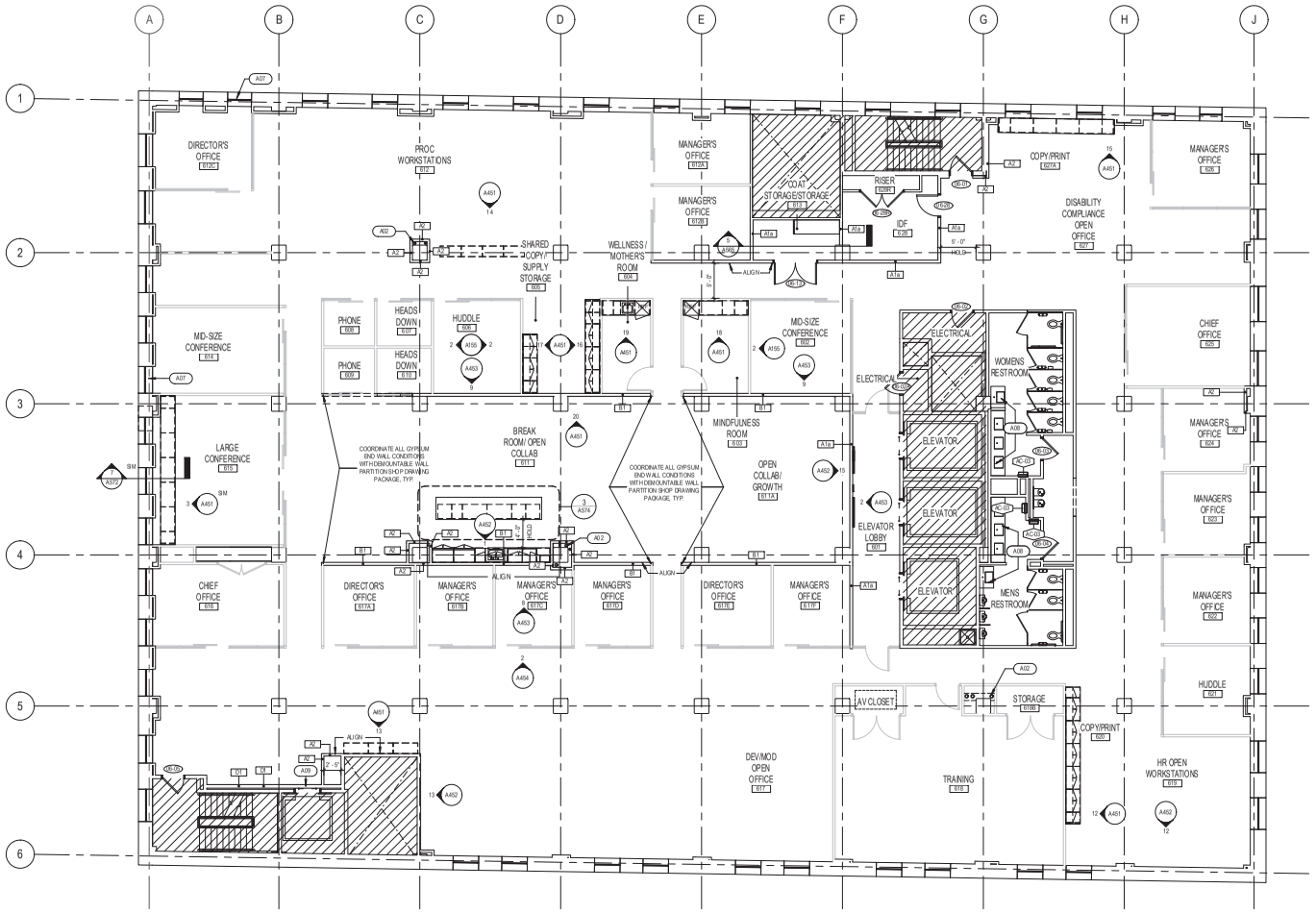

1 OVERALL FLOOR PLAN - LEVEL 06
1/8" = 1'-0"

PLAN NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. INTERIOR DIMENSIONS ARE TO CENTER OF WALL U.O.N.
3. DOORS WITHIN STUD WALLS TO BE A TYPICAL 4" DISTANCE ON HINGE SIDE FROM ADJACENT WALL; DOORS WITH MASONRY WALLS TO BE A TYPICAL SINGLE UNIT DISTANCE ON HINGE SIDE FROM ADJACENT WALL.
4. RETURN FURRED/LAMINATED GYP. BD. TO DOOR AND/OR WINDOW FRAMES AS REQUIRED - TYP.
5. CONSTRUCT PARTITIONS FROM FLOOR SLAB TO UNDERSIDE OF DECK U.O.N.
6. STUD PARTITIONS SHALL HAVE DOUBLE STUDS AT DOOR JAMBS, OPENINGS, AND CORNERS.
7. PROVIDE FIRE-RETARDANT WOOD BLOCKING FOR WALL MOUNTED ITEMS, INCLUDING ITEMS FURNISHED BY THE OWNER.
8. AT STUD PARTITIONS PROVIDE DIAGONAL BRACING AT OPENINGS GREATER THAN 4'-0" WIDE
9. PARTITIONS DESIGNATED AS SOUND RATED SHALL BE:
   1. SEALED WITH ACOUSTICAL SEALANT AT EACH FACE OF PARTITION WHERE PENETRATED BY DUCT, PIPE, CONDUIT, OR OTHER APPURTENANCES.
   2. SEALED WITH ACOUSTICAL SEALANT CONTINUOUSLY AT PERIMETER SILLS, JAMBS, AND HEADS - EACH SIDE.
10. PARTITIONS DESIGNATED TO BE FIRE RATED SHALL BE:
    1. SET TOP AND BOTTOM PARTITION RUNNER TRACKS IN BEDS OF SEALANT.
    2. PACK VOIDS BETWEEN TOP OF PARTITION AND UNDERSIDE OF STRUCTURE WITH FIRE SAFING.
    3. CLOSE PENETRATIONS WITH FIRE-STOPPING MATERIALS PER U.L. DESIGN.
11. GYPSUM BOARD PARTITIONS DESIGNATED IN WET AREAS SHALL HAVE PROVIDED GALVANIZED STUDS, FASTENERS AND MISC. METAL ACCESSORIES.
12. PARTITION TYPES OVER OPENINGS SHALL MATCH ADJACENT PARTITIONS U.O.N.

PLAN KEYED NOTES

NO	DESCRIPTION
A02	EXISTING PLUMBING PIPES. REFER TO PLUMBING DRAWINGS.
A07	REPAIR NON-OPERATIONAL WINDOW
A08	REFER TO DETAIL TA5/D FOR EXPOSED PIPE DETAIL FOR EXISTING PLUMBING AND SINKS. PART OF "BASE BUILDING COST" - PRICE SEPERATELY FROM TENANT FIT-OUT PACKAGE.
A09	FRAME OVER EXISTING ELEVATOR DOOR AND OPERATIONAL DEVICES WITH SHAFT WALL PER WALL TYPE DI. CONFIRM ACCESS TO THE STH THRU 7TH FLOOR IS LOCKED OFF THE ELEVATOR OPERATION

PLAN LEGEND

- EXISTING CONSTRUCTION
- DEMOUNTABLE WALL PARTITION (NOT INCLUDED IN GC SCOPE)
- NEW CONSTRUCTION
- ROOM NAME
- ROOM NAME 101 / 100 SF — ROOM NUMBER / AREA — ROOM TAG
- A0X0 — DOOR TAG REFER TO SHEET A6.00 PT
- A101 — PARTITION TAG REFER TO SHEET A6.30
- WINDOW TAG
- KEYED NOTE VALUE 00 — KEYNOTE
- NOT IN SCOPE

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PROFESSIONAL SEAL

REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JEFFREY C. METZEL No. RA016911

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CLIENT:

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HACP - Housing Authority of the City of Pittsburgh

412 Boulevard of the Allies, Pittsburgh, PA 15219

#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #5	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #4	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #3	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME: OVERALL FLOOR PLAN - LEVEL 06

SHEET NO: A106

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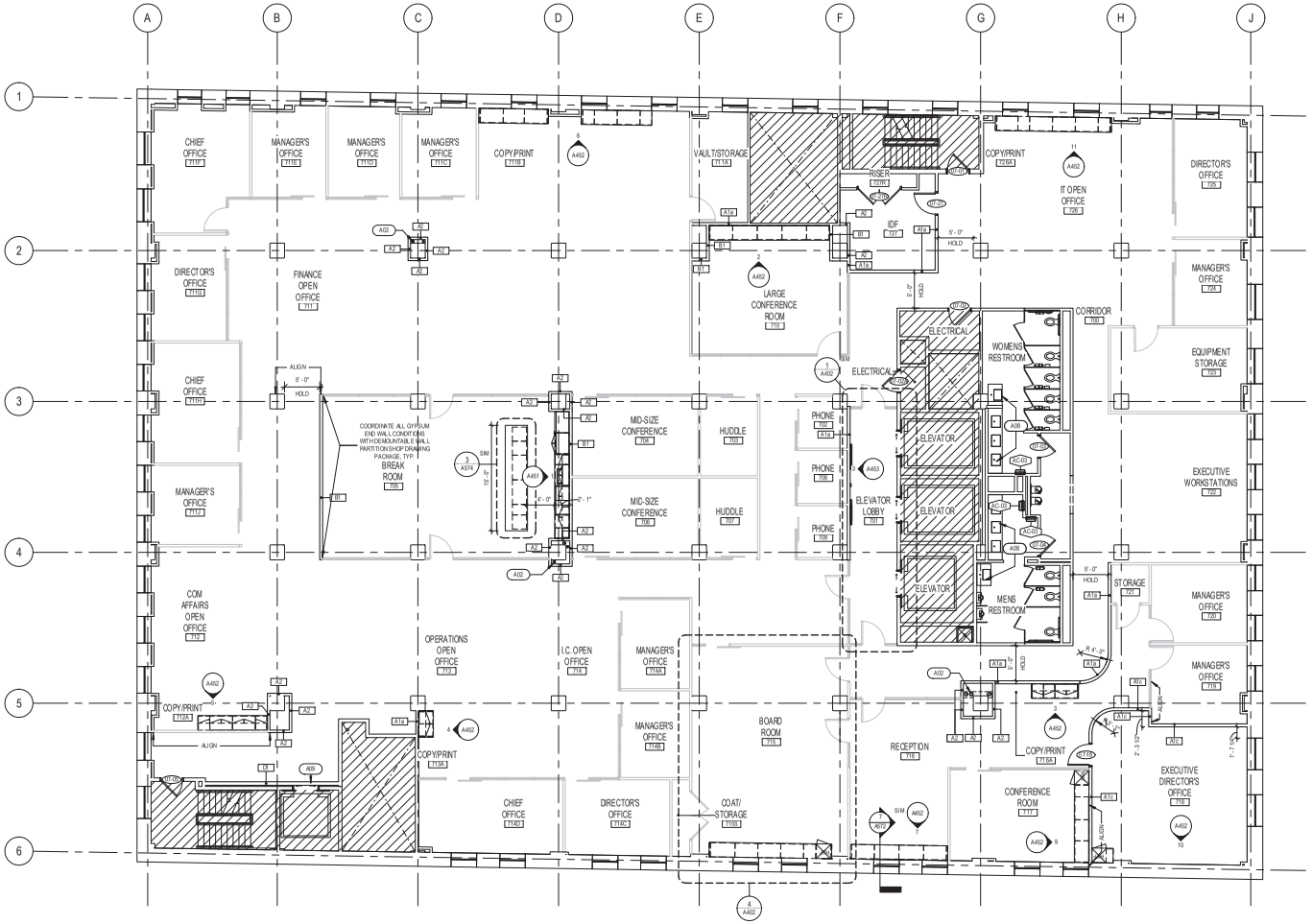

1 OVERALL FLOOR PLAN - LEVEL 07
1/8" = 1'-0"

PLAN NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. INTERIOR DIMENSIONS ARE TO CENTER OF WALL U.O.N.
3. DOORS WITHIN STUD WALLS TO BE A TYPICAL 4" DISTANCE ON HINGE SIDE FROM ADJACENT WALL; DOORS WITH MASONRY WALLS TO BE A TYPICAL SINGLE UNIT DISTANCE ON HINGE SIDE FROM ADJACENT WALL.
4. RETURN FURRED/LAMINATED GYP. BD. TO DOOR AND/OR WINDOW FRAMES AS REQUIRED - TYP.
5. CONSTRUCT PARTITIONS FROM FLOOR SLAB TO UNDERSIDE OF DECK U.O.N.
6. STUD PARTITIONS SHALL HAVE DOUBLE STUDS AT DOOR JAMBS, OPENINGS, AND CORNERS.
7. PROVIDE FIRE-RETARDANT WOOD BLOCKING FOR WALL MOUNTED ITEMS, INCLUDING ITEMS FURNISHED BY THE OWNER.
8. AT STUD PARTITIONS PROVIDE DIAGONAL BRACING AT OPENINGS GREATER THAN 4'-0" WIDE.
9. PARTITIONS DESIGNATED AS SOUND RATED SHALL BE:
   1. SEALED WITH ACOUSTICAL SEALANT AT EACH FACE OF PARTITION WHERE PENETRATED BY DUCT, PIPE, CONDUIT, OR OTHER APPERTENANCES.
   2. SEALED WITH ACOUSTICAL SEALANT CONTINUOUSLY AT PERIMETER SILLS, JAMBS, AND HEADS - EACH SIDE.
10. PARTITIONS DESIGNATED TO BE FIRE RATED SHALL BE:
    1. SET TOP AND BOTTOM PARTITION RUNNER TRACKS IN BEDS OF SEALANT.
    2. PACK VOIDS BETWEEN TOP OF PARTITION AND UNDERSIDE OF STRUCTURE WITH FIRE SAFING.
    3. CLOSE PENETRATIONS WITH FIRE-STOPPING MATERIALS PER U.L. DESIGN.
11. GYPSUM BOARD PARTITIONS DESIGNATED IN WET AREAS SHALL HAVE PROVIDED GALVANIZED STUDS, FASTENERS AND MISC. METAL ACCESSORIES.
12. PARTITION TYPES OVER OPENINGS SHALL MATCH ADJACENT PARTITIONS U.O.N.

PLAN KEYED NOTES

NO	DESCRIPTION
A02	EXISTING PLUMBING PIPES. REFER TO PLUMBING DRAWINGS.
A08	REFER TO DETAIL TA07/0 FOR EXPOSED PIPE DETAIL FOR EXISTING PLUMBING AND SINKS. PART OF "BASE BUILDING COST" - PRICE SEPERATELY FROM TENANT FIT-OUT PACKAGE.
A09	FRAME OVER EXISTING ELEVATOR DOOR AND OPERATIONAL DEVICES WITH SHAFT WALL PER WALL TYPE DI. CONFIRM ACCESS TO THE 5TH THRU 7TH FLOOR IS LOCKED OFF THE ELEVATOR OPERATION.

PLAN LEGEND

- EXISTING CONSTRUCTION
- DEMOUNTABLE WALL PARTITION (NOT INCLUDED IN GC SCOPE)
- NEW CONSTRUCTION
- ROOM TAG (ROOM NAME, ROOM NUMBER, AREA)
- DOOR TAG - REFER TO SHEET A6.00 PT
- PARTITION TAG - REFER TO SHEET A6.30
- WINDOW TAG
- KEYNOTE (KEYED NOTE VALUE)
- NOT IN SCOPE

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PROFESSIONAL SEAL

REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JEFFREY C. METZEL No. RA-018931

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HACP - Housing Authority of the City of Pittsburgh

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISIONS	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISIONS	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISIONS	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME: OVERALL FLOOR PLAN - LEVEL 07

SHEET NO: A107

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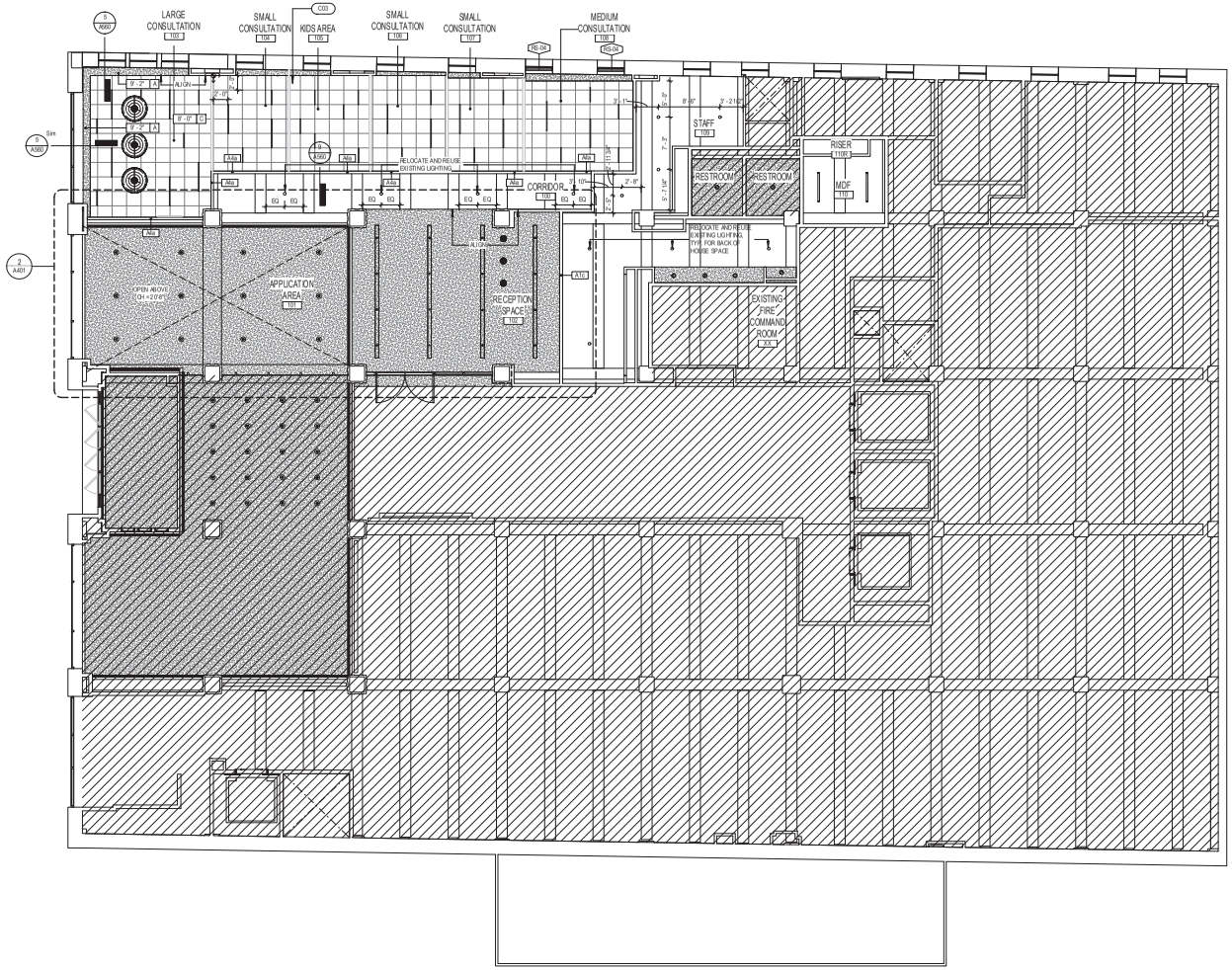

1 OVERALL REFLECTED CEILING PLAN - LEVEL 01
1/8" = 1'-0"

CEILING NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. ALL EXPOSED CEILINGS, INFRASTRUCTURE AND COLUMNS TO BE PT-10 U.O.N.
3. ACOUSTICAL CEILING GRID IS TO BE LAID IN CONTINUOUS CEILING RUNS. DEMOUNTABLE WALLS COME IN AFTER. IMPERATIVE TO FOLLOW CEILING START POINTS AS NOTED ON REFLECTED CEILING PLANS.
4. COORDINATE REFLECTED CEILING PLAN WITH HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL, AND COMMUNICATION DRAWINGS.
5. REFER TO RCP PLANS AND PARTITION TYPES FOR BULKHEAD LOCATIONS.
6. ALL 8'-6" GYP. AND DEMOUNTABLE WALLS TO RECEIVE AWSTR AXIOM CLASSIC TRIM - WHITE FINISH

RCP KEYED NOTES

NO	DESCRIPTION
C01	EXTENSIVE REPAIR ON EXISTING BEAMS, PREPARE PREP TO RECEIVE NEW PAINT.
C02	PAINT EXISTING RISER TO MATCH EXISTING GYPSUM CEILING.
C03	INSTALL ACOUSTICAL CEILING TILE AS ONE CONTINUOUS RUN UNLESS NOTED OTHERWISE. REFER TO OVERALL REFLECTED FINISH PLANS OR ENLARGED REFLECTED FINISH PLANS FOR INSTALL TILE START POINT.

CEILING LEGEND

SYMBOLS

HEIGHT A.F.F. / TYPE — 10' - 10" | A — CEILING TAG

ROOM NAME / ROOM NUMBER — 101 | 100 SF — ROOM TAG

KEYNOTE VALUE — 7 — KEYNOTE TAG

TILING START POINT

NOT IN SCOPE

CEILING TYPE CODES

A: --	5/8" GWB WITH PT-03 FINISH U.O.N.
B: ACT 01	REFER TO FINISH LEGEND
C: ACT -02	REFER TO FINISH LEGEND
D: ACP- 01	REFER TO FINISH LEGEND
E: ACP- 02	REFER TO FINISH LEGEND
F: ACP-03	REFER TO FINISH LEGEND
G: ACP-04	REFER TO FINISH LEGEND

ABBREVIATIONS

RS-01	MANUAL EQUINOX BLACKOUT 0102 ALABASTER ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL, LARGE CONFERENCES/ VIEWING ROOM)
RS-02	AUTOMATIC (WITH QZ MOTOR AND MHI INTERFACE) EQUINOX BLACKOUT 0105 SILVER ROLLER SHADE WITH CRESTRON SYSTEM. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL (BOARD ROOM/ TRAINING ROOM)
RS-03	MANUAL EQUINOX BLACKOUT 0105 SILVER ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL (LARGE EXECUTIVE CONFERENCE)
RS-04	MANUAL SOHO COLLECTION 1102 CANAL 1% OPEN ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL (LVL 01 CONSULT ROOM/ EXECUTIVE SUITE)

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PROFESSIONAL SEAL

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION 05	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION 04	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION 03	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
OVERALL REFLECTED CEILING PLAN - LEVEL 01

SHEET NO:
A111

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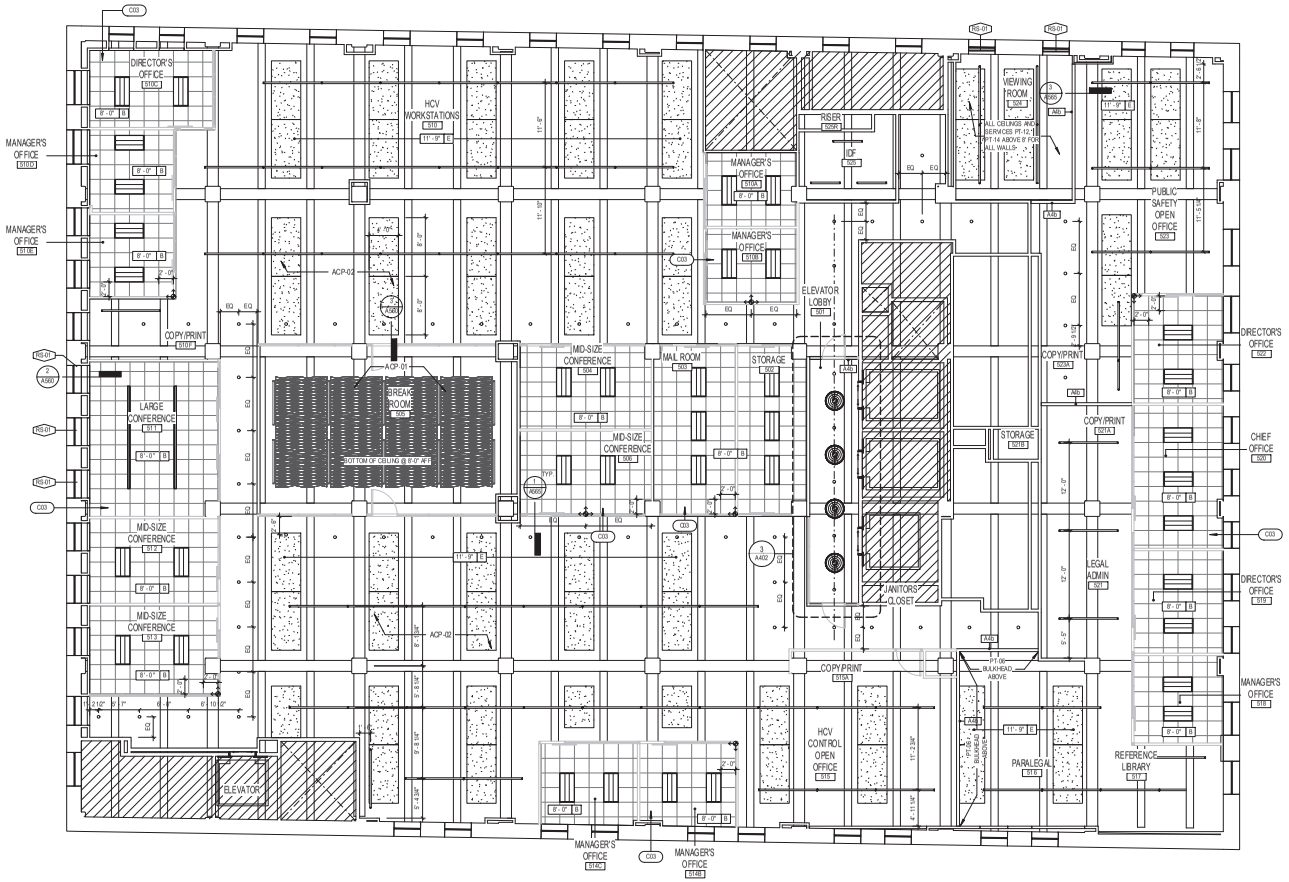

1 OVERALL REFLECTED CEILING PLAN - LEVEL 05
1/8" = 1'-0"

CEILING NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. ALL EXPOSED CEILINGS, INFRASTRUCTURE AND COLUMNS TO BE PT-10 U.O.N.
3. ACOUSTICAL CEILING GRID IS TO BE LAID IN CONTINUOUS CEILING RUNS. DEMOUNTABLE WALLS COME IN AFTER. IMPARITIVE TO FOLLOW CEILING START POINTS AS NOTED ON REFLECTED CEILING PLANS.
4. COORDINATE REFLECTED CEILING PLAN WITH HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL, AND COMMUNICATION DRAWINGS.
5. REFER TO RCP PLANS AND PARTITION TYPES FOR ELV. HEAD LOCATIONS.
6. ALL 8'-0" GYP AND DEMOUNTABLE WALLS TO RECEIVE ARMSTRONG AXIOM CLASSIC TRIM - WHITE FINISH

RCP KEYED NOTES

NO	DESCRIPTION
C01	EXTENSIVE REPAIR ON EXISTING BEAMS, PREPARE PREP TO RECEIVE NEW PAINT.
C02	PAINT EXISTING RIGID STEEL TO MATCH EXISTING GYPSUM CEILING.
C03	INSTALL ACOUSTICAL CEILING TILE AS ONE CONTINUOUS RUN UNLESS NOTED OTHERWISE. REFER TO OVERALL REFLECTED FINISH PLANS OR ENLARGED REFLECTED FINISH PLANS FOR INSTALL TILE START POINT.

CEILING LEGEND

SYMBOLS

HEIGHT A.F.F. / TYPE — 10'-10" A — CEILING TAG

ROOM NAME / ROOM NUMBER — 100 — 100'-0" — ROOM TAG

KEYNOTE VALUE — 7 — KEYNOTE TAG

TILING START POINT

NOT IN SCOPE

CEILING TYPE CODES

A: --	5/8" GWB WITH PT-03 FINISH U.O.N.
B: ACT 01	REFER TO FINISH LEGEND
C: ACT -02	REFER TO FINISH LEGEND
D: ACP- 01	REFER TO FINISH LEGEND
E: ACP- 02	REFER TO FINISH LEGEND
F: ACP- 03	REFER TO FINISH LEGEND
G: ACP-04	REFER TO FINISH LEGEND

ABBREVIATIONS

RS-01	MANUAL EQUINOX BLACKOUT 0102 ALABASTER ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL, LARGE CONFERENCE/3 VIEWING ROOM)
RS-02	AUTOMATIC (WITH I2 MOTOR AND MHI INTERFACE) EQUINOX BLACKOUT 0105 SILVER ROLLER SHADE WITH CRESTRON SYSTEM. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL (BOARD ROOM/ TRAINING ROOM)
RS-03	MANUAL EQUINOX BLACKOUT 0105 SILVER ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL (LARGE EXECUTIVE CONFERENCE)
RS-04	MANUAL SOHO COLLECTION 1102 CANAL 1% OPEN ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL (LVL 01 CONSULT ROOM EXECUTIVE SUITE)

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HACP - Housing Authority of the City of Pittsburgh
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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #5	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #4	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #3	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
OVERALL REFLECTED CEILING PLAN - LEVEL 05

SHEET NO:
A115

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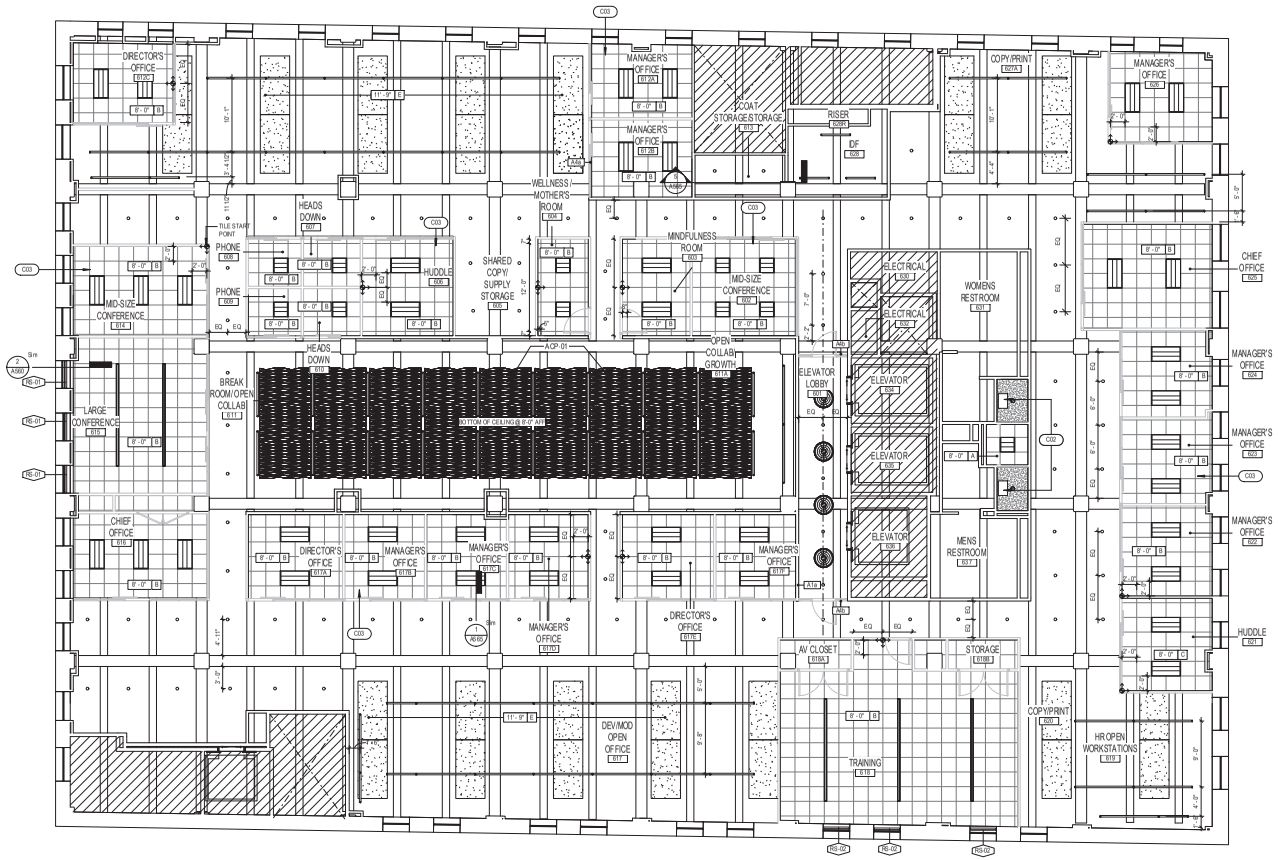

1 OVERALL REFLECTED CEILING PLAN - LEVEL 06
1/8" = 1'-0"

CEILING NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. ALL EXPOSED CEILINGS, INFRASTRUCTURE AND COLUMNS TO BE PT-10 U.O.N.
3. ACOUSTICAL CEILING GRID IS TO BE LAID IN CONTINUOUS CEILING RUNS. DEMOUNTABLE WALLS COME IN AFTER. IMPERATIVE TO FOLLOW CEILING START POINTS AS NOTED ON REFLECTED CEILING PLANS.
4. COORDINATE REFLECTED CEILING PLAN WITH HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL, AND COMMUNICATION DRAWINGS.
5. REFER TO RCP PLANS AND PARTITION TYPES FOR BULKHEAD LOCATIONS.
6. ALL 9'6" GYP AND DEMOUNTABLE WALLS TO RECEIVE AWSTR AXIOM CLASSIC TRIM - WHITE FINISH

RCP KEYED NOTES

NO	DESCRIPTION
C01	EXTENSIVE REPAIR ON EXISTING BEAMS, PREPARE PREP TO RECEIVE NEW PAINT.
C02	PAINT EXISTING RESISTER TO MATCH EXISTING GYPSUM CEILING.
C03	INSTALL ACOUSTICAL CEILING TILE AS ONE CONTINOUS RUN UNLESS NOTED OTHERWISE. REFER TO OVERALL REFLECTED FINISH PLANS OR ENLARGED REFLECTED FINISH PLANS FOR INSTALL TILE START POINT.

CEILING LEGEND

SYMBOLS

HEIGHT A.F.F. / TYPE — 10'-10" A — - CEILING TAG

ROOM NAME / ROOM NUMBER — 101 / 100 SF — - ROOM TAG

KEYNOTE VALUE — 7 — - KEYNOTE TAG

- TILING START POINT

NOT IN SCOPE

CEILING TYPE CODES

A: -	5/8" GWB WITH PT-03 FINISH U.O.N.
B: ACT 01	REFER TO FINISH LEGEND
C: ACT 02	REFER TO FINISH LEGEND
D: ACP-01	REFER TO FINISH LEGEND
E: ACP-02	REFER TO FINISH LEGEND
F: ACP-03	REFER TO FINISH LEGEND
G: ACP-04	REFER TO FINISH LEGEND

ABBREVIATIONS

RS-01	MANUAL EQUINOX BLACKOUT 0102 ALABASTER ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION REFER TO PROJECT MANUAL (LARGE CONFERENCES/ VIEWING ROOM)
RS-02	AUTOMATIC (WITH G2 MOTOR AND MHI INTERFACE), EQUINOX BLACKOUT 0105 SILVER ROLLER SHADE WITH CRESTRON SYSTEM. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION REFER TO PROJECT MANUAL (BOARD ROOM/ TRAINING ROOM)
RS-03	MANUAL EQUINOX BLACKOUT 0105 SILVER ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL (LARGE EXECUTIVE CONFERENCE).
RS-04	MANUAL SOHO COLLECTION 1102 CANAL 1% OPEN ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION REFER TO PROJECT MANUAL (LVL 01 CONSULT ROOM EXECUTIVE SUITE)

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PROFESSIONAL SEAL
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3	100% CONSTRUCTION DOCUMENTS REVISION#3	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
OVERALL REFLECTED CEILING PLAN - LEVEL 06

SHEET NO:
A116

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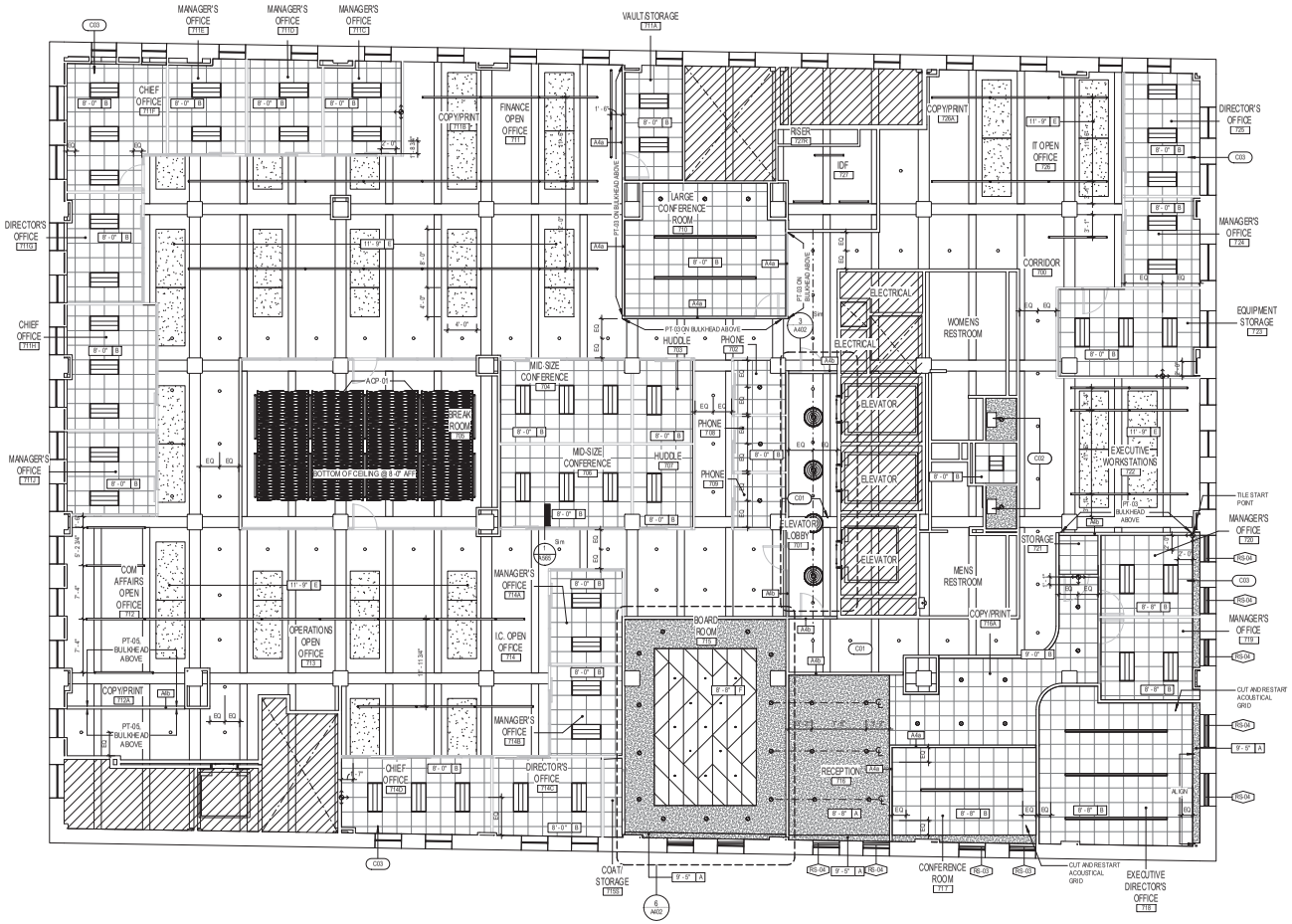

1 OVERALL REFLECTED CEILING PLAN - LEVEL 07
1/8" = 1'-0"

CEILING NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. ALL EXPOSED CEILINGS, INFRASTRUCTURE AND COLUMNS TO BE PT-10 U.O.N.
3. ACOUSTICAL CEILING GRID IS TO BE LAID IN CONTINUOUS CEILING RUNS. DEMOUNTABLE WALLS COME IN AFTER. IMPERATIVE TO FOLLOW CEILING START POINTS AS NOTED ON REFLECTED CEILING PLANS.
4. COORDINATE REFLECTED CEILING PLAN WITH HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL, AND COMMUNICATION DRAWINGS.
5. REFER TO RCP PLANS AND PARTITION TYPES FOR BULKHEAD LOCATIONS.
6. ALL 6'-6" GYP AND DEMOUNTABLE WALLS TO RECEIVE AWISTRAXIOM CLASSIC TRIM - WHITE FINISH

RCP KEYED NOTES

NO	DESCRIPTION
C01	EXTENSIVE REPAIR ON EXISTING BEAMS, PREPARE PREP TO RECEIVE NEW PAINT
C02	PAINT EXISTING RESISTER TO MATCH EXISTING GYPSUM CEILING
C03	INSTALL ACOUSTICAL CEILING TILE AS ONE CONTINOUS RUN UNLESS NOTED OTHERWISE. REFER TO OVERALL REFLECTED FINISH PLANS OR ENLARGED REFLECTED FINISH PLANS FOR INSTALL TILE START POINT.

CEILING LEGEND

SYMBOLS

HEIGHT A.F.F. / TYPE — 10'-10" A — - CEILING TAG

ROOM NAME / ROOM NUMBER — 101 / 100 SF — - ROOM TAG

KEYNOTE VALUE — 7 — - KEYNOTE TAG

- TILING START POINT

NOT IN SCOPE

CEILING TYPE CODES

A: -	5/8" GWB WITH PT-03 FINISH U.O.N.
B: ACT 01	REFER TO FINISH LEGEND
C: ACT 02	REFER TO FINISH LEGEND
D: ACP- 01	REFER TO FINISH LEGEND
E: ACP- 02	REFER TO FINISH LEGEND
F: ACP-03	REFER TO FINISH LEGEND
G: ACP-04	REFER TO FINISH LEGEND

ABBREVIATIONS

RS-01	MANUAL EQUINOX BLACKOUT 0102 ALABASTER ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL (LARGE CONFERENCE/S VIEWING ROOM)
RS-02	AUTOMATIC (WITH G2 MOTOR AND MHI INTERFACE), EQUINOX BLACKOUT 0105 SILVER ROLLER SHADE WITH CRESTRON SYSTEM. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL (BOARD ROOM/ TRAINING ROOM)
RS-03	MANUAL EQUINOX BLACKOUT 0105 SILVER ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL (LARGE EXECUTIVE CONFERENCE)
RS-04	MANUAL SOHO COLLECTION 1102 CANAL 1% OPEN ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL (LVL 01 CONSULT ROOM/ EXECUTIVE SUITE)

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PROFESSIONAL SEAL

REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JOSEPH C. METZEL No. RA-016911

CONSULTANT:

CLIENT:

Housing Authority of the City of Pittsburgh
200 ROSS STREET
PITTSBURGH, PA 15219
(412) 456 60 00
hacp.org

HACP - Housing Authority of the City of Pittsburgh

412 Boulevard of the Allies, Pittsburgh, PA 15219

#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #5	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #4	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #3	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:

OVERALL REFLECTED CEILING PLAN - LEVEL 07

SHEET NO:

A117

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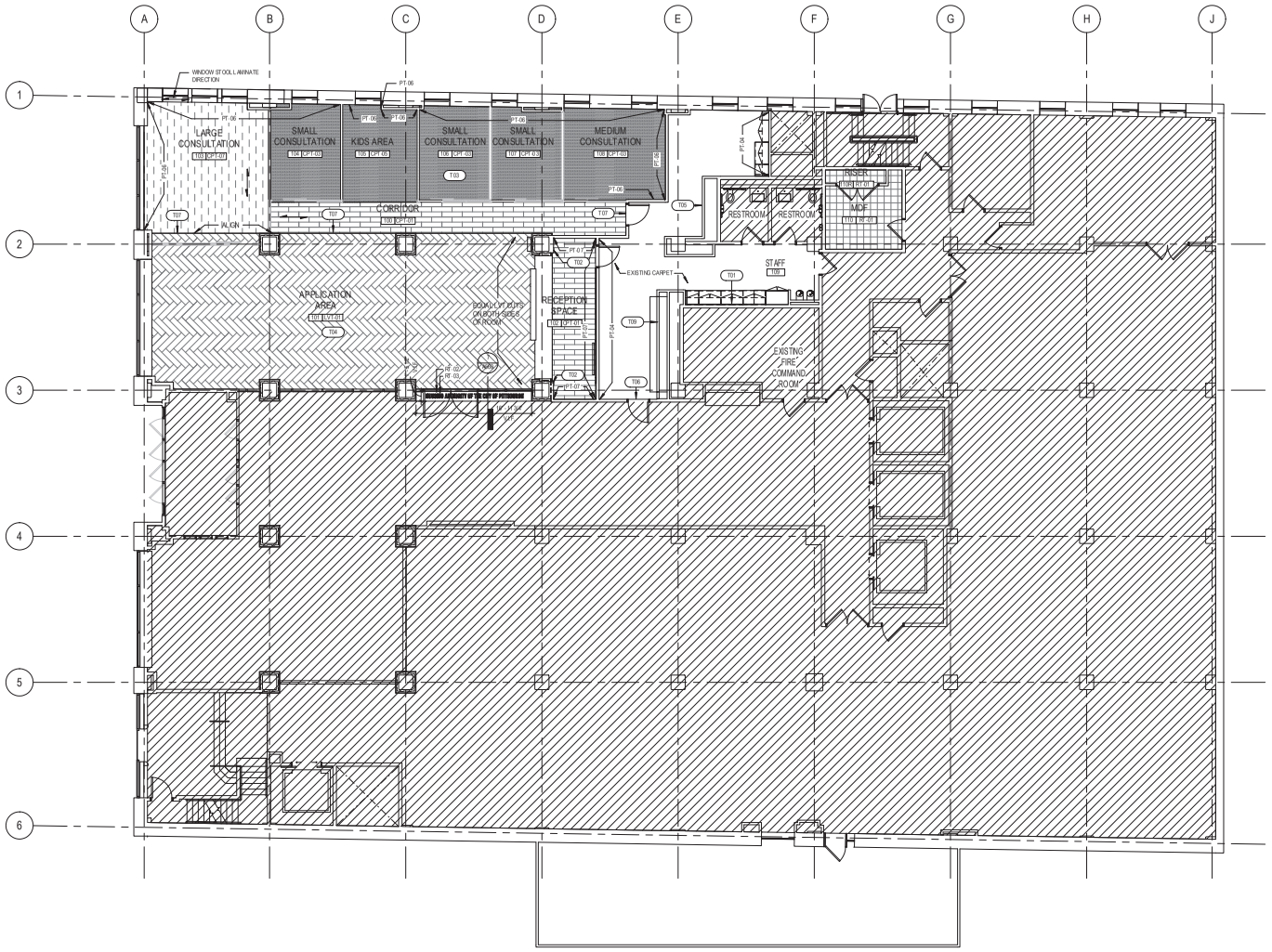

1 OVERALL FINISH PLAN - LEVEL 01
1/8" = 1'-0"

FINISH PLAN NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. REPORT DISCREPANCIES AND UNFORESEEN CONDITIONS TO THE ARCHITECT IMMEDIATELY.
3. GC TO DETERMINE EXISTING FLOOR PREPARATION REQUIREMENTS WITH ALL FLOORING MANUFACTURERS.
4. ALL FINISHES TO BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.
5. ALL DIMENSIONS ARE MEASURED TO THE FINISHED WALL SURFACE UNLESS NOTED OTHERWISE.
6. COORDINATE FINISH LOCATIONS WITH CEILING LOCATIONS AND DEMOUNTABLE WALL LOCATIONS.
7. ALL WALL FINISHES ARE TO RECEIVE PT-01 U.O.N. SEE ROOM FINISH SCHEDULE FOR MORE DETAILED INFORMATION.
8. ALL CEILING FINISHES ARE TO RECEIVE PT-10 U.O.N.
9. ALL EXPOSED COLUMNS ARE TO RECEIVE PT-11 U.O.N.
10. PROVIDE ADA COMPLIANT TRANSITION STRIPS BETWEEN ALL DISSIMILAR FLOOR MATERIALS OF DIFFERING THICKNESSES. SEE FINISH LEGEND FOR PRODUCT INFORMATION. FLOORING MATERIALS OF THE SAME THICKNESS TO BE BUTTED TOGETHER WITHOUT TRANSITIONS.
11. ALL FLOOR FINISHES TO EXTEND UNDERNEATH CASEWORK AND EQUIPMENT.
12. ALL FINISHES BEING APPLIED TO DEMOUNTABLE PARTITIONS ARE TO BE PROVIDED BY THE DEMOUNTABLE PARTITION VENDER AND ARE NOT INCLUDED IN THE GC SCOPE OF WORK.
13. FLOORING PATTERN LAYOUT IS TO BE CENTERED WITHIN THE EXTENTS OF THE FINISH U.O.N.

FINISH PLAN LEGEND

SYMBOLS

FLOORING TYPE A / FLOORING TYPE B — FLOOR TRANSITION

Room Name
101 | CP-101
FLOOR FINISH
ROOM NUMBER
ROOM TAG WITH FLOOR FINISH

FLOOR PATTERN DIRECTION

NOT IN SCOPE

FINISH PLAN KEYED NOTES

NO.	DESCRIPTION
T01	KEEP EXISTING WALL CO VERING AND TOUCH UP EXISTING WALL PAINT AS NEEDED.
T02	WING WALLS WILL MATCH THE ADJACENT REBUILT COLUMN COLOR.
T03	FINISH ALTI DEDUCT 1 - KEEP EXISTING CARPET
T04	FINISH ALTI DEDUCT 2 - KEEP EXISTING PORCELAIN TILE
T05	KEEP EXISTING FIREPLACE WALL
T06	TREDS RF EMETAL TRANSITION DTO60 - BETWEEN SIMILAR HEIGHT FLOORING MATERIALS
T07	TARKETT SLIM LINE TRANSITION GRAY HAZER/RUBBER TRANSITION - CARPET TO LVT
T09	KEEP EXISTING WOOD WALL, SEATING, AND PAINT COLOR. TOUCH UP PAINT AS NEEDED.

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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
OVERALL FINISH PLAN - LEVEL 01

SHEET NO:
A121

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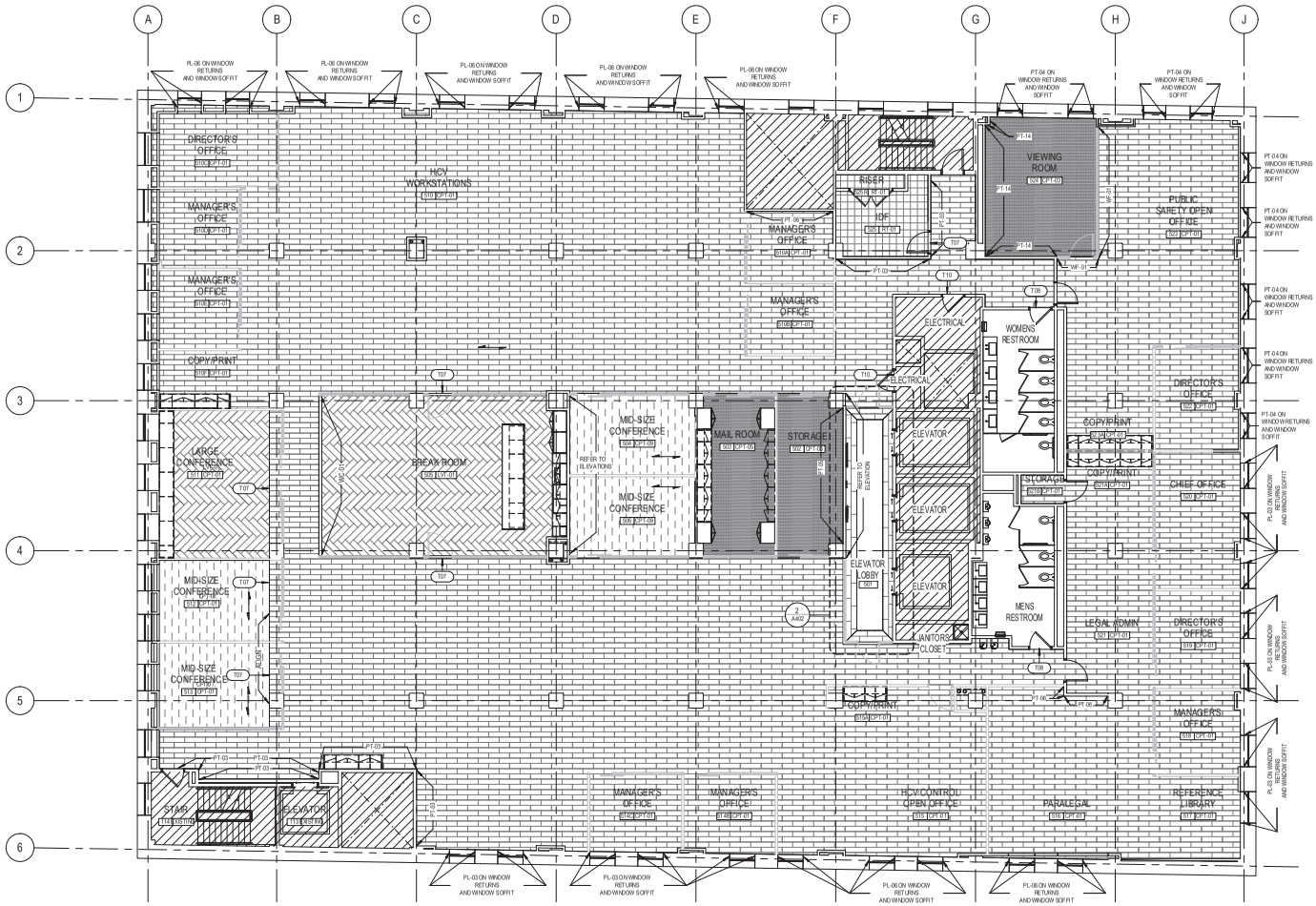

1 OVERALL FINISH PLAN - LEVEL 05
1/8" = 1'-0"

FINISH PLAN NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. IT IS THE RESPONSIBILITY OF THE CONTRATOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. REPORT DISCREPANCIES AND UNFORESEEN CONDITIONS TO THE ARCHITECT IMMEDIATELY.
3. G.C. TO DETERMINE EXISTING FLOOR PREPARATION REQUIREMENTS WITH ALL FLOORING MANUFACTURERS.
4. ALL FINISHES TO BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.
5. ALL DIMENSIONS ARE MEASURED TO THE FINISHED WALL SURFACE UNLESS NOTED OTHERWISE.
6. COORDINATE FINISH LOCATIONS WITH CEILING LOCATIONS AND DEMOUNTABLE WALL LOCATIONS.
7. ALL WALL FINISHES ARE TO RECEIVE PT-01 U.O.N. SEE ROOM FINISH SCHEDULE FOR MORE DETAILED INFORMATION.
8. ALL CEILING FINISHES ARE TO RECEIVE PT-10 U.O.N.
9. ALL EXPOSED COLUMNS ARE TO RECEIVE PT-11 U.O.N.
10. PROVIDE ADA COMPLIANT TRANSITION STRIPS BETWEEN ALL DISSIMILAR FLOOR MATERIALS OF DIFFERING THICKNESSES. SEE FINISH LEGEND FOR PRODUCT INFORMATION. FLOORING MATERIALS OF THE SAME THICKNESS TO BE BUTTED TOGETHER WITHNO TRANSITIONS.
11. ALL FLOOR FINISHES TO EXTEND UNDERNEATH CASEWORK AND EQUIPMENT.
12. ALL FINISHES BEING APPLIED TO DEMOUNTABLE PARTITIONS ARE TO BE PROVIDED BY THE DEMOUNTABLE PARTITION VENDER AND ARE NOT INCLUDED IN THE G.C SCOPE OF WORK.
13. FLOORING PATTERN LAYOUT IS TO BE CENTERED WITH IN THE EXTENTS OF THE FINISH U.O.N.

FINISH PLAN LEGEND

SYMBOLS

FLOORING TYPE A / FLOORING TYPE B — FLOOR TRANSITION

Room Name 101 | CPT-01 — ROOM TAG WITH FLOOR FINISH
FLOOR FINISH
ROOM NUMBER

FLOOR PATTERN DIRECTION

NOT IN SCOPE

FINISH PLAN KEYED NOTES

NO.	DESCRIPTION
T07	TARKETT SLIM LINE TRANSITION GRAY HAZE RUBBER TRANSITION - CARPET TO LVT
T08	SCHLUTER RENO TK - BETWEEN FLOORING MATERIAL OF DIFFERING HEIGHTS
T10	TARKETT SLIM LINE TRANSITION GRAY HAZE RUBBER TRANSITION - CARPET TO SUB FLOOR

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2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
OVERALL FINISH PLAN - LEVEL 05

SHEET NO:
A125

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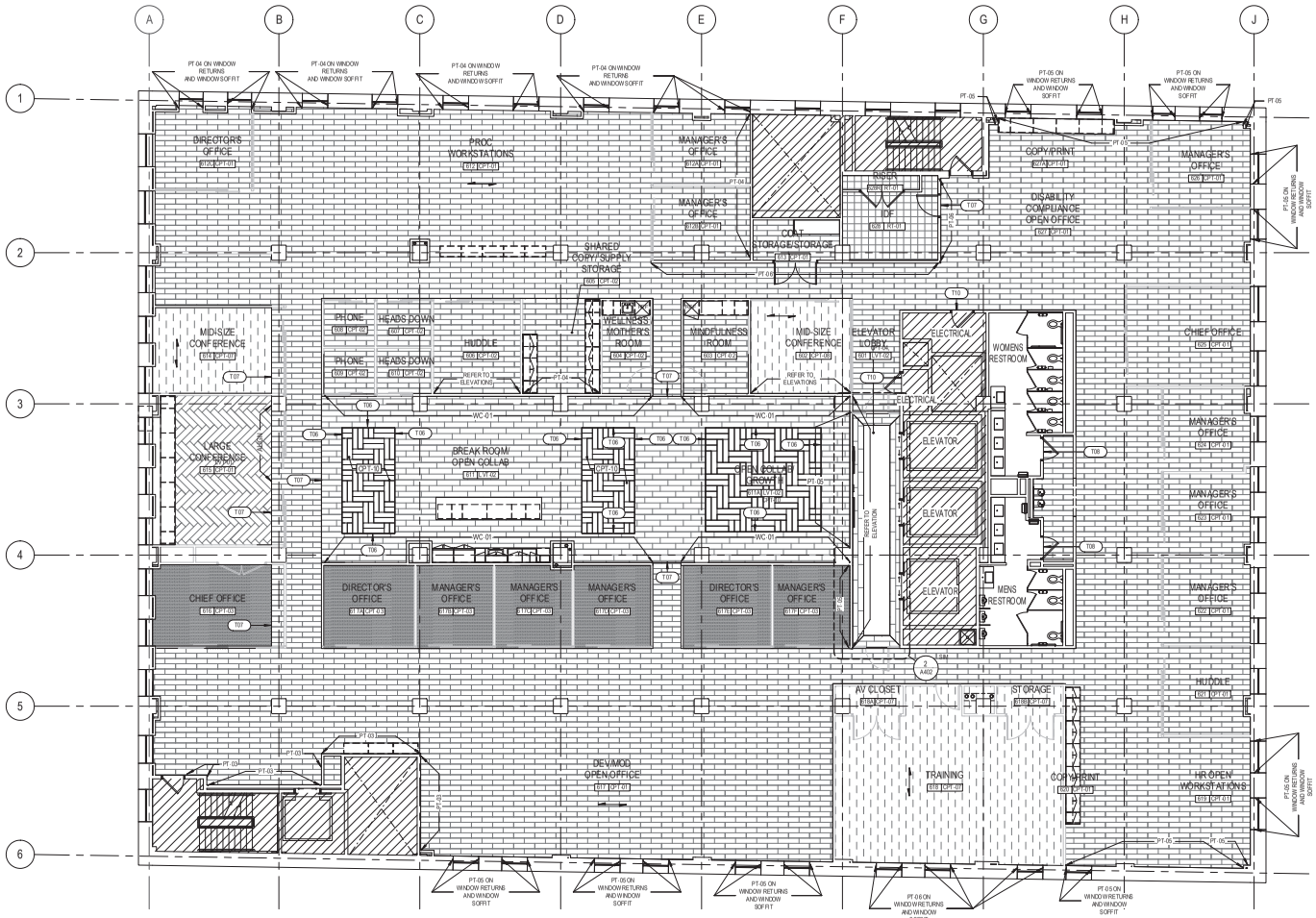

1 OVERALL FINISH PLAN - LEVEL 06
1/8" = 1'-0"

FINISH PLAN NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. REPORT DISCREPANCIES AND UNFORSEEN CONDITIONS TO THE ARCHITECT IMMEDIATELY.
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12. ALL FINISHES BEING APPLIED TO DEMOUNTABLE PARTITIONS ARE TO BE PROVIDED BY THE DEMOUNTABLE PARTITION VENDER AND ARE NOT INCLUDED IN THE GC SCOPE OF WORK.
13. FLOORING PATTERN LAYOUT IS TO BE CENTERED WITH THE EXTENTS OF THE FINISH U.O.N.

FINISH PLAN LEGEND

SYMBOLS

FLOORING TYPE A / FLOORING TYPE B — FLOOR TRANSITION

Room Name
101 CPT-01
FLOOR FINISH
ROOM NUMBER
ROOM TAG WITH FLOOR FINISH

FLOOR PATTERN DIRECTION

NOT IN SCOPE

FINISH PLAN KEYED NOTES

NO.	DESCRIPTION
T06	TREDSAFE METAL TRANSITION DT040 - BETWEEN SIMILAR HEIGHT FLOORING MATERIALS
T07	TARKETT SLIM LINE TRANSITION GRAY HAZE RUBBER TRANSITION - CARPET TO LVT
T08	SCHLUTER RENOTK - BETWEEN FLOORING MATERIAL OF DIFFERING HEIGHTS
T10	TARKETT SLIM LINE TRANSITION GRAY HAZE RUBBER TRANSITION - CARPET TO SUB FLOOR

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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
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SHEET NAME:
OVERALL FINISH PLAN - LEVEL 06

SHEET NO:
A126

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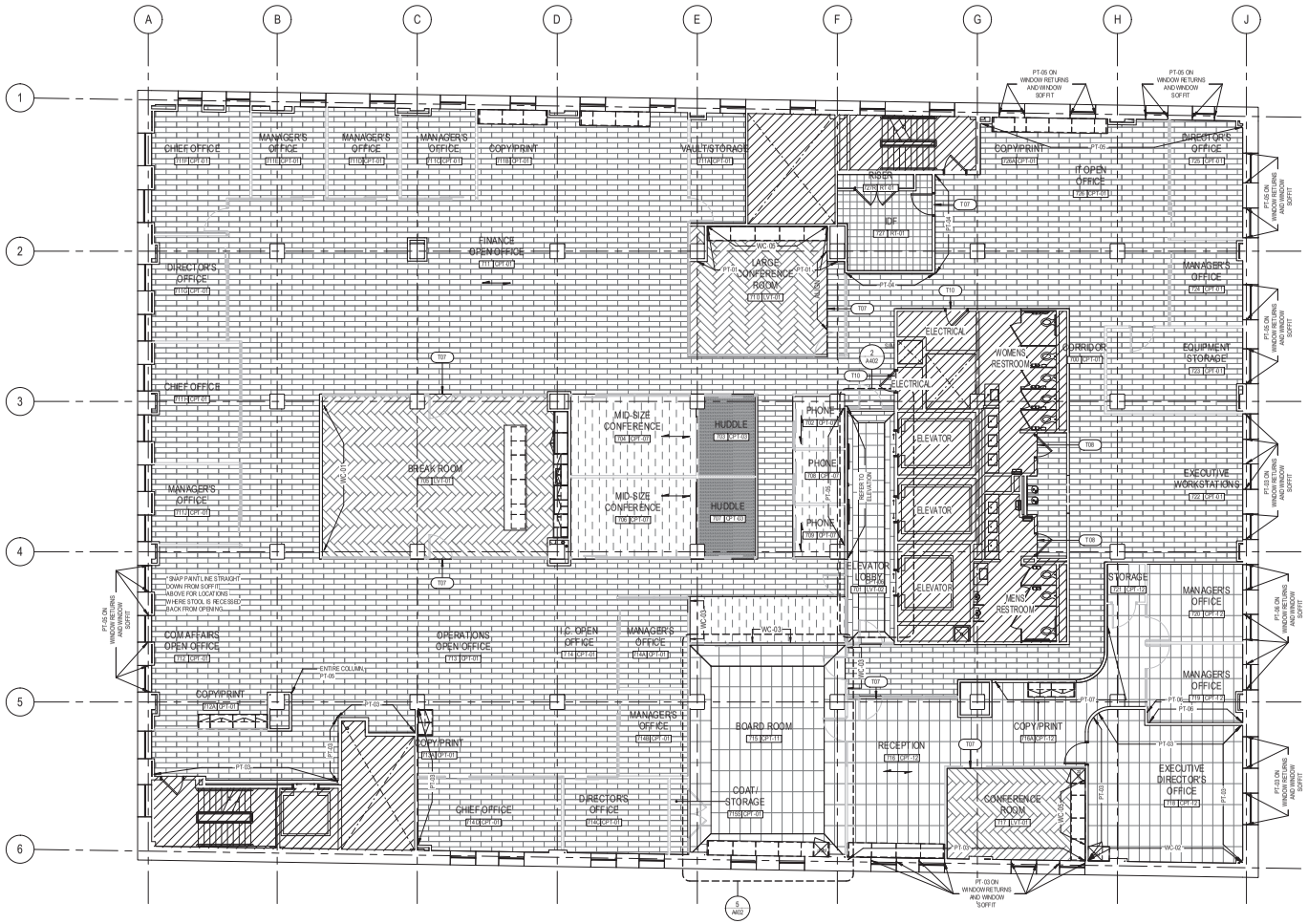

1 OVERALL FINISH PLAN - LEVEL 07
1/8" = 1'-0"

FINISH PLAN NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. IT IS THE RESPONSIBILITY OF THE CONTRATOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. REPORT DISCREPANCIES AND UNFORSEEN CONDITIONS TO THE ARCHITECT IMMEDIATELY.
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13. FLOORING PATTERN LAYOUT IS TO BE CENTERED WITHIN THE EXTENTS OF THE FINISH U.O.N.

FINISH PLAN LEGEND

SYMBOLS

FLOORING TYPE A / FLOORING TYPE B — FLOOR TRANSITION

NOT IN SCOPE

Room Name
101 | CPT-01 — ROOM TAG WITH FLOOR FINISH
FLOOR FINISH
ROOM NUMBER

FLOOR PATTERN DIRECTION

NOT IN SCOPE

FINISH PLAN KEYED NOTES

NO.	DESCRIPTION
T07	TARKETT SLIM LINE TRANSITION GRAY HAZE RUBBER TRANSITION - CARPET TO LVT
T08	SCHLUTER RENO TK - BETWEEN FLOORING MATERIAL OF DIFFERING HEIGHTS
T10	TARKETT SLIM LINE TRANSITION GRAY HAZE RUBBER TRANSITION - CARPET TO SUB FLOOR

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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
OVERALL FINISH PLAN - LEVEL 07

SHEET NO:
A127

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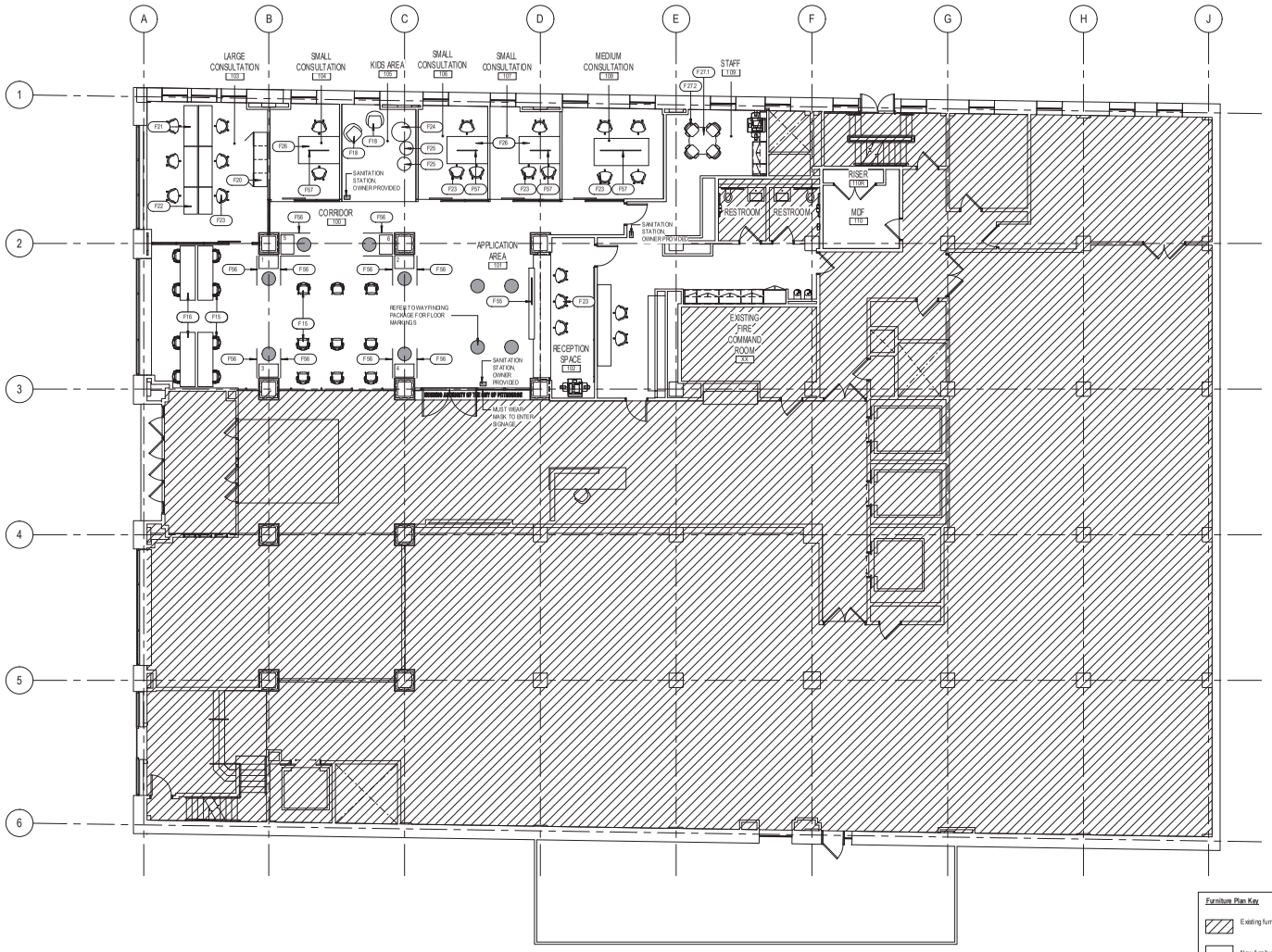

1 OVERALL FURNITURE PLAN - LEVEL 01 (FOR REFERENCE ONLY)
1/8" = 1'-0"

FURNITURE KEYED NOTES

Key Value	Keynote Text
F15	ALLSEAIR AXYL S AGE
F16	OFS APPLAUSE WITH SYMMETRY PANELS
F18	TENJAM MIBSTER
F20	OFS ROWAN CREDENZA
F21	OFS LARGE APPLAUSE TABLE
F22	OFS SMALL APPLAUSE TABLE
F23	MARTIN SWIVEL
F24	SIESTA ON CIRCLE LARGE
F25	SIESTA ON CIRCLE SMALL
F26	KIRKTEEL ELIGA TABLE
F27.1	HON PRESIDE BREAK TABLE
F27.2	HON MOTIVATE SLED STACKER
F55	LOFTWALL CLASSIC 63"X29" SCREEN
F56	LOFTWALL FRAME WALL 52"X78"
F57	LOFTWALL CLASSIC 39"X29" SCREEN

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3	100% CONSTRUCTION DOCUMENTS REVISIONS	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
OVERALL FURNITURE PLAN - LEVEL 01 (FOR REFERENCE ONLY)

SHEET NO:
A141

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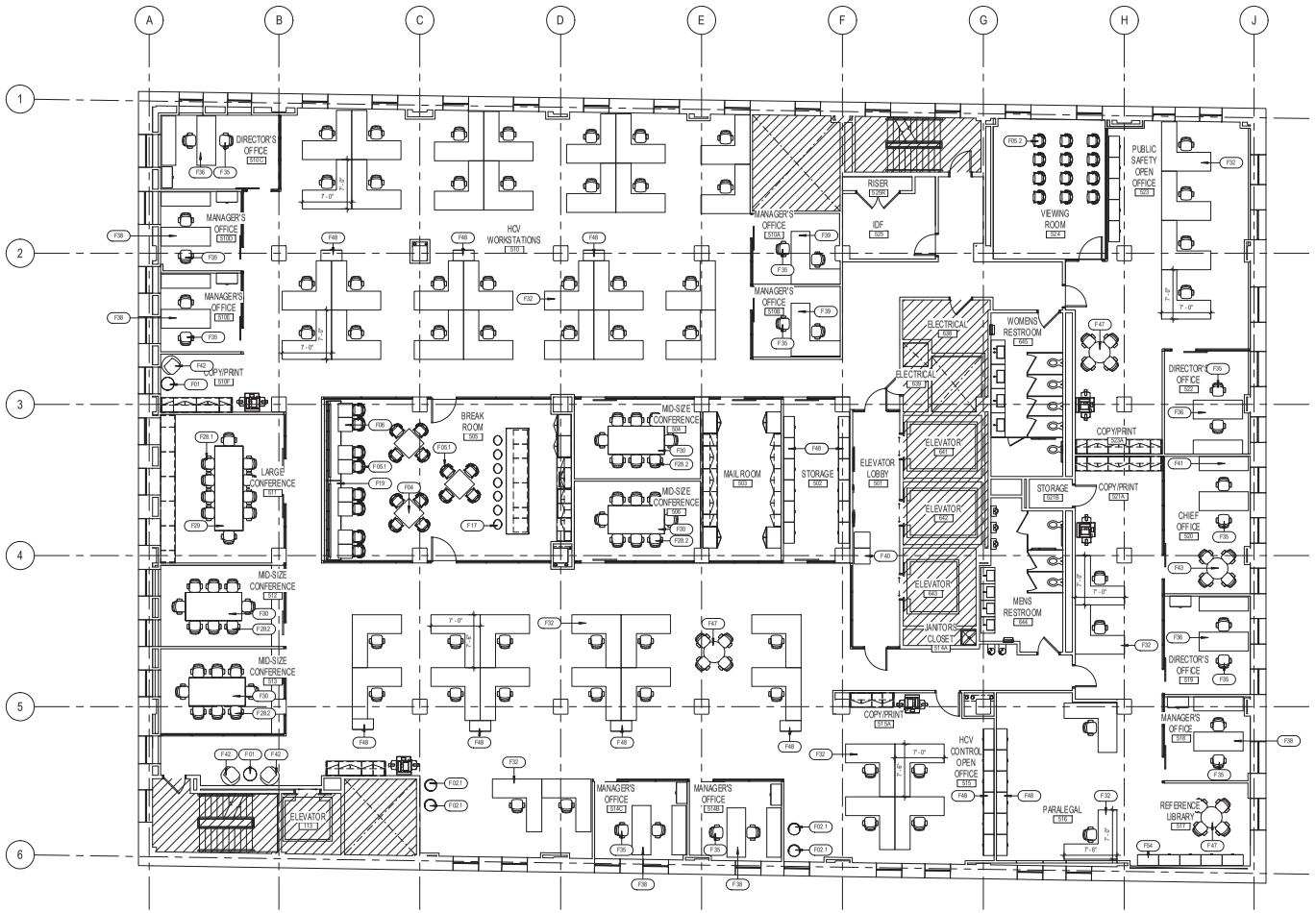

1 OVERALL FURNITURE PLAN - LEVEL 05 (FOR REFERENCE ONLY)
1/8" = 1'-0"

Furniture Plan Key

- Existing furniture to be reused
- New furniture, for reference only

FURNITURE KEYED NOTES

Key Value	Keynote Text
F01	OFS MAVE END TABLE
F02.1	OFS ROUND OTTOMAN WITH BACKREST, BLUE
F04	VIRSTEEL PLATFORM SQUARE TABLE
F05.1	JSI WINK ARMLESS CHAIR, NAVY
F05.2	SIT ON IT RO CHAIR, TANGERINE
F06	VIRSTEEL PLATFORM RECT ANGULAR TABLE
F17	JSI WINK STOOL
F19	OFS COACT BANQUETTE
F28.1	HON IGNITION CHAIR, ORANGE
F28.2	HON IGNITION CHAIR, TAUPE
F29	HON PRESIDE CONFT ABLE
F30	HON PRESIDE CONFT ABLE
F32	HON WORKSTATION AND HON SOLVE CHAIR
F35	HON IGNITION GUEST CHAIR
F36	HON DX OFFICE EXTERIOR
F38	HON MGR OFFICE EXTERIOR
F39	HON MGR OFFICE INTERIOR
F40	OFS HEYA BUNCH
F41	HON CHIEF OFFICE
F42	OFS MAURA GUEST CHAIR
F43	HON PRESIDE ROUND CONF TABLE, IGNITION TASK CHAIR
F47	HON PRESIDE BREAK TABLE, IGNITION GUEST CHAIR
F48	3 DRAWER LATERAL FILE, CITY DEFINED BY CLIENT
F54	HON S SHELF BOOKCASE

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PROFESSIONAL SEAL

REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JEFFREY C. METZEL No. RA-016911

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2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
OVERALL FURNITURE PLAN - LEVEL 05 (FOR REFERENCE ONLY)

SHEET NO:
A145

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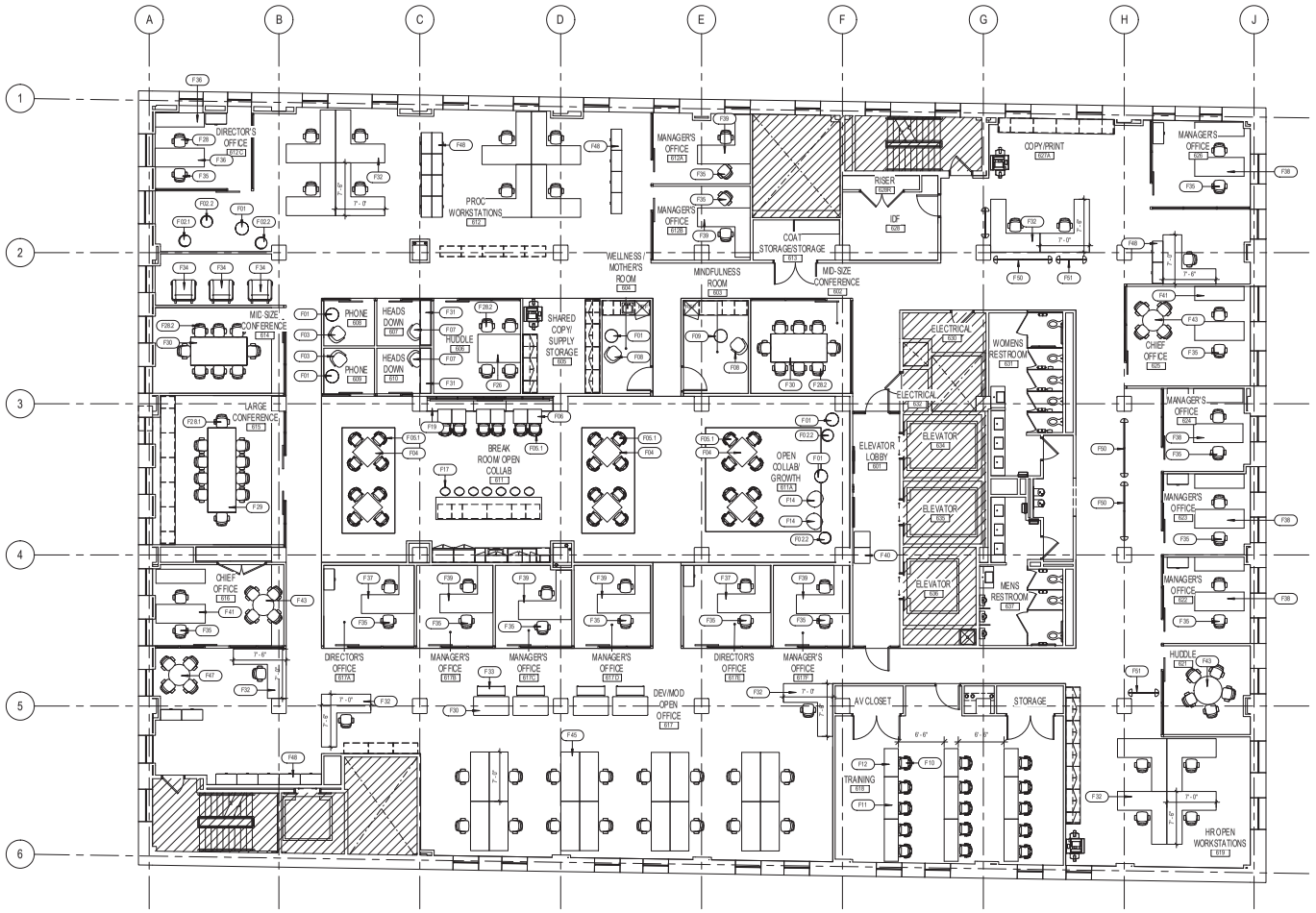

Furniture Plan Key

- Existing furniture to be reused
- New furniture, for reference only

1 OVERALL FURNITURE PLAN - LEVEL 06 (FOR REFERENCE ONLY)
1/8" = 1'-0"

FURNITURE KEYED NOTES

Key Value	Keynote Text
F01	OFS MAIVE END TABLE
F02.1	OFS ROUND OTTOMAN WITH BACKREST, BLUE
F02.2	OFS ROUND OTTOMAN WITH BACKREST, ORANGE
F03	HON FLOCK CHAIR
F04	VERSITEL PLATFORM SQUARE TABLE
F05.1	JSI WINK ARMLESS CHAIR, NAVY
F06	VERSITEL PLATFORM RECTANGULAR TABLE
F07	OFS HARRYN
F08	OFS SKARA CHAIR
F09	OFS SKARA OTTOMAN
F10	GLOBAL SONIC
F11	HON HUDDLE NESTING LARGE
F12	HON HUDDLE NESTING SMALL
F14	SOURCE SAY O LOUNGE CHAIR
F17	JSI WINK STOOL
F19	OFS COACT BANQUETTE
F26	VERSITEL ELGA TABLE
F28	
F28.1	HON IGNITION CHAIR, ORANGE
F28.2	HON IGNITION CHAIR, TAUPE
F29	HON PRESIDE CONF TABLE
F30	HON PRESIDE CONF TABLE
F31	OFS KINTRA TABLE
F32	HON WORKSTATION AND HON SOLVE CHAIR
F33	HON PRESIDE SEATED HEIGHT TABLE AND BENCH
F34	JSI CAAV CHAIR
F35	HON IGNITION GUEST CHAIR
F36	HON DR OFFICE EXTERIOR
F37	HON DR OFFICE INTERIOR
F38	HON MGR OFFICE EXTERIOR
F39	HON MGR OFFICE INTERIOR
F40	OFS HEYA BENCH
F41	HON CHIEF OFFICE
F43	HON PRESIDE ROUND CONF TABLE, IGNITION TASK CHAIR
F45	HON BENCHING WORKSTATION AND HON SOLVE CHAIR
F47	HON PRESIDE BREAK TABLE, IGNITION GUEST CHAIR
F48	3 DRAWER LATERAL FILE, QTY DEFINED BY CLIENT
F50	LOFT WALL 156"W, 78"H
F51	LOFT WALL 53"W, 78"H

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PROFESSIONAL SEAL
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4	100% CONSTRUCTION DOCUMENTS REVISIONS	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISIONS	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
OVERALL FURNITURE PLAN - LEVEL 06 (FOR REFERENCE ONLY)

SHEET NO:
A146

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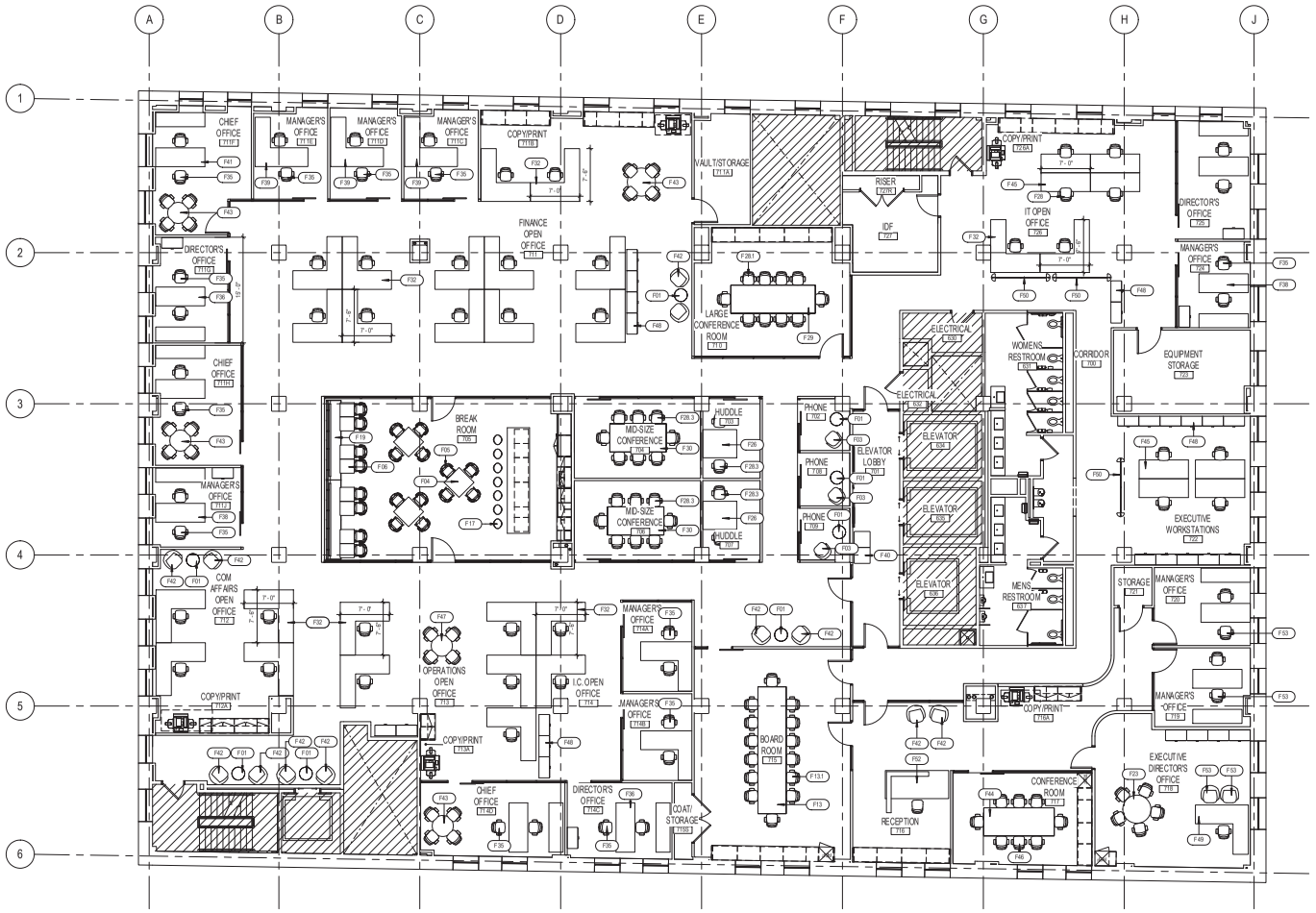

Furniture Plan Key

Existing furniture to be reused

New furniture, for reference only

1 OVERALL FURNITURE PLAN - LEVEL 07 (FOR REFERENCE ONLY)
1/8" = 1'-0"

FURNITURE KEYED NOTES

Key Value	Keynote Text
F01	OFS MAME END TABLE
F03	HON FLOCK CHAIR
F04	VERSITEEL PLATFORM SQUARE TABLE
F05	
F06	VERSITEEL PLATFORM RECT ANGULAR TABLE
F13	OFS CONF TABLE WITH PEDESTAL BASE
F13.1	OFS SLEEK HIGH BACK CHAIRS
F17	JSI WINK STOOL
F19	OFS COACT BANQUETTE
F23	MARTIN SWIVEL
F26	VERSITEEL ELIOSA TABLE
F28	
F28.1	HON IGNITION CHAIR, ORANGE
F28.3	HON IGNITION CHAIR, NAVY
F29	HON PRESIDE CONF TABLE
F30	HON PRESIDE CONF TABLE
F32	HON WORKSTATION AND HON SOLVE CHAIR
F35	HON IGNITION GUEST CHAIR
F36	HON DIR OFFICE EXTERIOR
F38	HON MGR OFFICE EXTERIOR
F39	HON MGR OFFICE INTERIOR
F40	OFS HEYA BENCH
F41	HON CHIEF OFFICE
F42	OFS NAGURA GUEST CHAIR
F43	HON PRESIDE ROUND CONF TABLE, IGNITION TASK CHAIR
F44	JSI CONFERENCE TABLE
F45	HON BENCHING WORKSTATION AND HON SOLVE CHAIR
F46	HON CIERES MULTI PURPOSE CHAIR
F47	HON PRESIDE BREAK TABLE, IGNITION GUEST CHAIR
F48	3 DRAWER LATERAL FILE, QTY DEFINED BY CLIENT
F49	JSI CEO OFFICE SUITE
F50	LOFTWALL, 78W W, 78W H
F52	OFS RECEPTION DESK
F53	JSI GALLERY GUEST CHAIR

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#	DESCRIPTION	DATE
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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

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OVERALL FURNITURE PLAN - LEVEL 07 (FOR REFERENCE ONLY)

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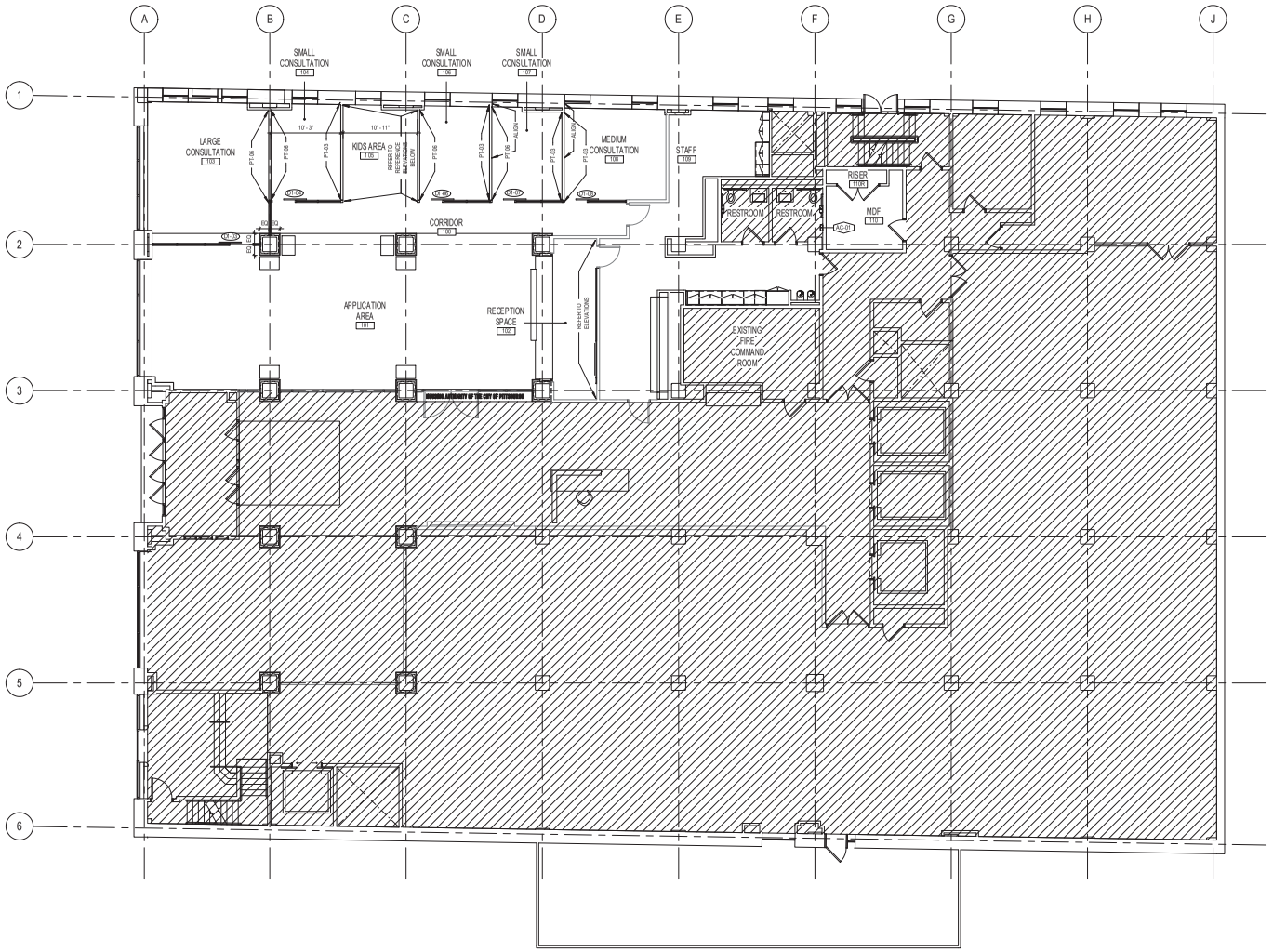
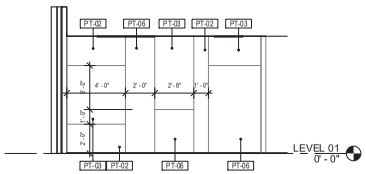
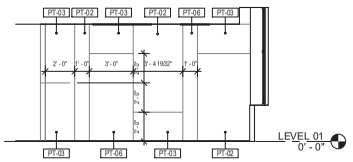


1 OVERALL DEMOUNTABLE WALL PARTITION PLAN - LEVEL 01 (FOR REFERENCE ONLY)
1/8" = 1'-0"



3 KIDS AREA - ELEVATION 2 (for reference only)
1/4" = 1'-0"



2 KIDS AREA - ELEVATION 1 (for reference only)
1/4" = 1'-0"

DEMOUNTABLE PLAN NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. REFER TO RESPONSIBILITY MATRIX ON SHEET G020 FOR ADDITIONAL CLARIFICATION REGARDING GC VS. DEMOUNTABLE PARTITION VENDER SCOPE.

PLAN LEGEND

- EXISTING CONSTRUCTION
- DEMOUNTABLE WALL PARTITION
- NEW CONSTRUCTION
- ROOM NAME / ROOM NUMBER / AREA — ROOM TAG
- DOOR TAG — REFER TO SHEET A60.CP1
- PARTITION TAG — REFER TO SHEET A630
- KEYED NOTE VALUE — KEYNOTE
- NOT IN SCOPE

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2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
OVERALL DEMOUNTABLE WALL PARTITION PLAN - LEVEL 01

SHEET NO:
A151

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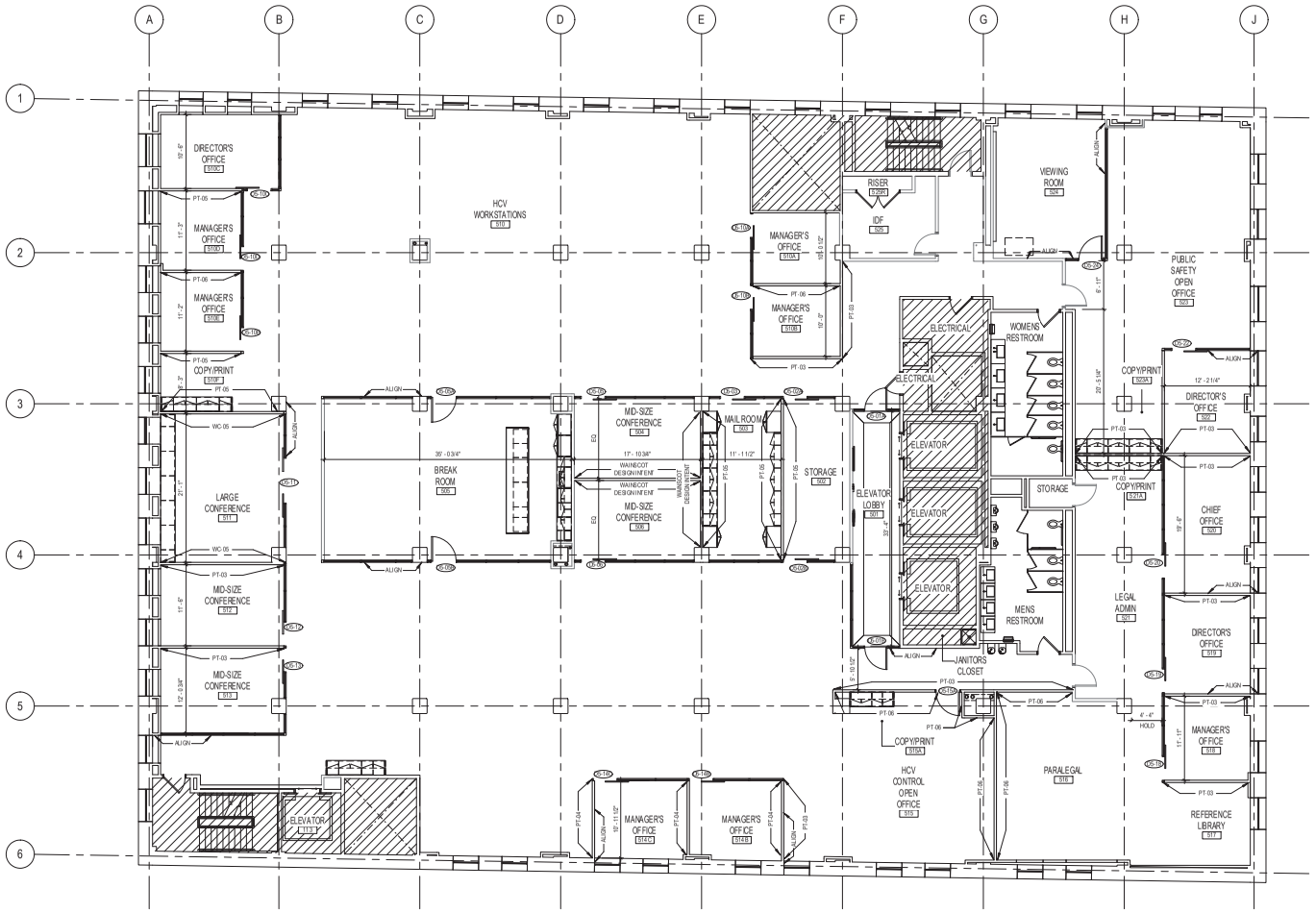
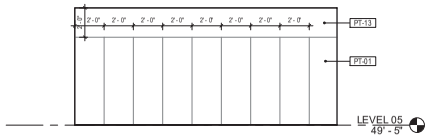


1 OVERALL DEMOUNTABLE WALL PARTITION PLAN - LEVEL 05 (FOR REFERENCE ONLY)
1/8" = 1'-0"



2 MID SIZE CONF & HUDDLE - (design reference only for demountable wall manuf.)
1/4" = 1'-0"

DEMOUNTABLE PLAN NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. REFER TO RESPONSIBILITY MATRIX ON SHEET G020 FOR ADDITIONAL CLARIFICATION REGARDING GC VS DEMOUNTABLE PARTITION VENDER SCOPE.

PLAN LEGEND

- EXISTING CONSTRUCTION
- DEMOUNTABLE WALL PARTITION
- NEW CONSTRUCTION
- ROOM TAG (ROOM NAME / 111 / 1234 SF / ROOM NUMBER / AREA)
- DOOR TAG (KK10A) REFER TO SHEET A601.P1
- PARTITION TAG (A01) REFER TO SHEET A630
- KEYNOTE (00)
- NOT IN SCOPE

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1	100% DESIGN DEVELOPMENT	01/23/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
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5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020

PROJECT NO:	DRAWN BY:	REVIEWED BY:
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SHEET NAME:
OVERALL DEMOUNTABLE WALL PARTITION PLAN - LEVEL 05

SHEET NO:
A155

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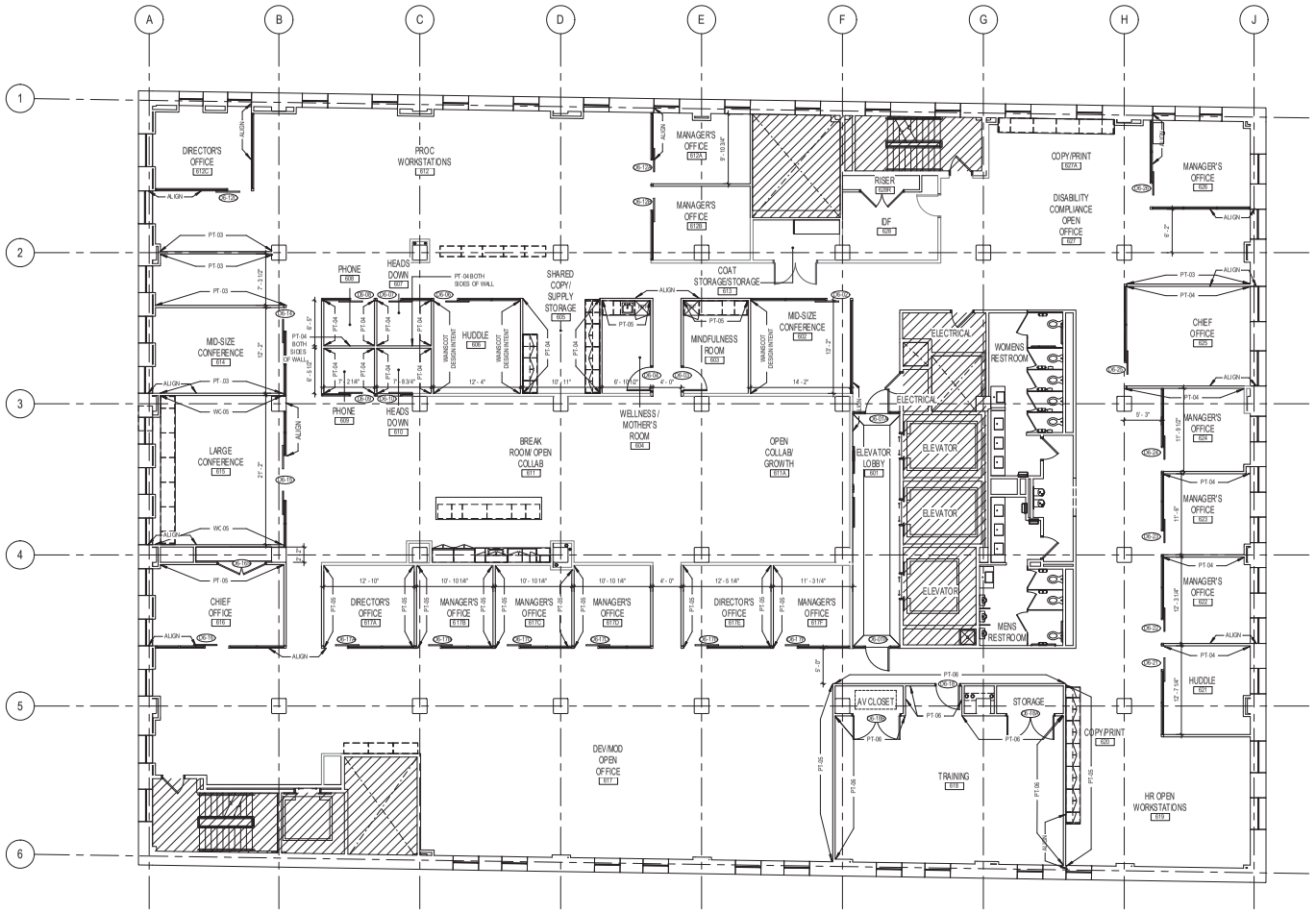

1 OVERALL DEMOUNTABLE WALL PARTITION PLAN - LEVEL 06 (FOR REFERENCE ONLY)
1/8" = 1'-0"

DEMOUNTABLE PLAN NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. REFER TO RESPONSIBILITY MATRIX ON SHEET G020 FOR ADDITIONAL CLARIFICATION REGARDING GC VS. DEMOUNTABLE PARTITION VENDER SCOPE.

PLAN LEGEND

- EXISTING CONSTRUCTION
- DEMOUNTABLE WALL PARTITION
- NEW CONSTRUCTION
- ROOM TAG (ROOM NAME, ROOM NUMBER, AREA)
- DOOR TAG REFER TO SHEET A60.CP1
- PARTITION TAG REFER TO SHEET A630
- KEY NOTE (KEYED NOTE VALUE)
- NOT IN SCOPE

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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
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SHEET NAME: OVERALL DEMOUNTABLE WALL PARTITION PLAN - LEVEL 06

SHEET NO: A156

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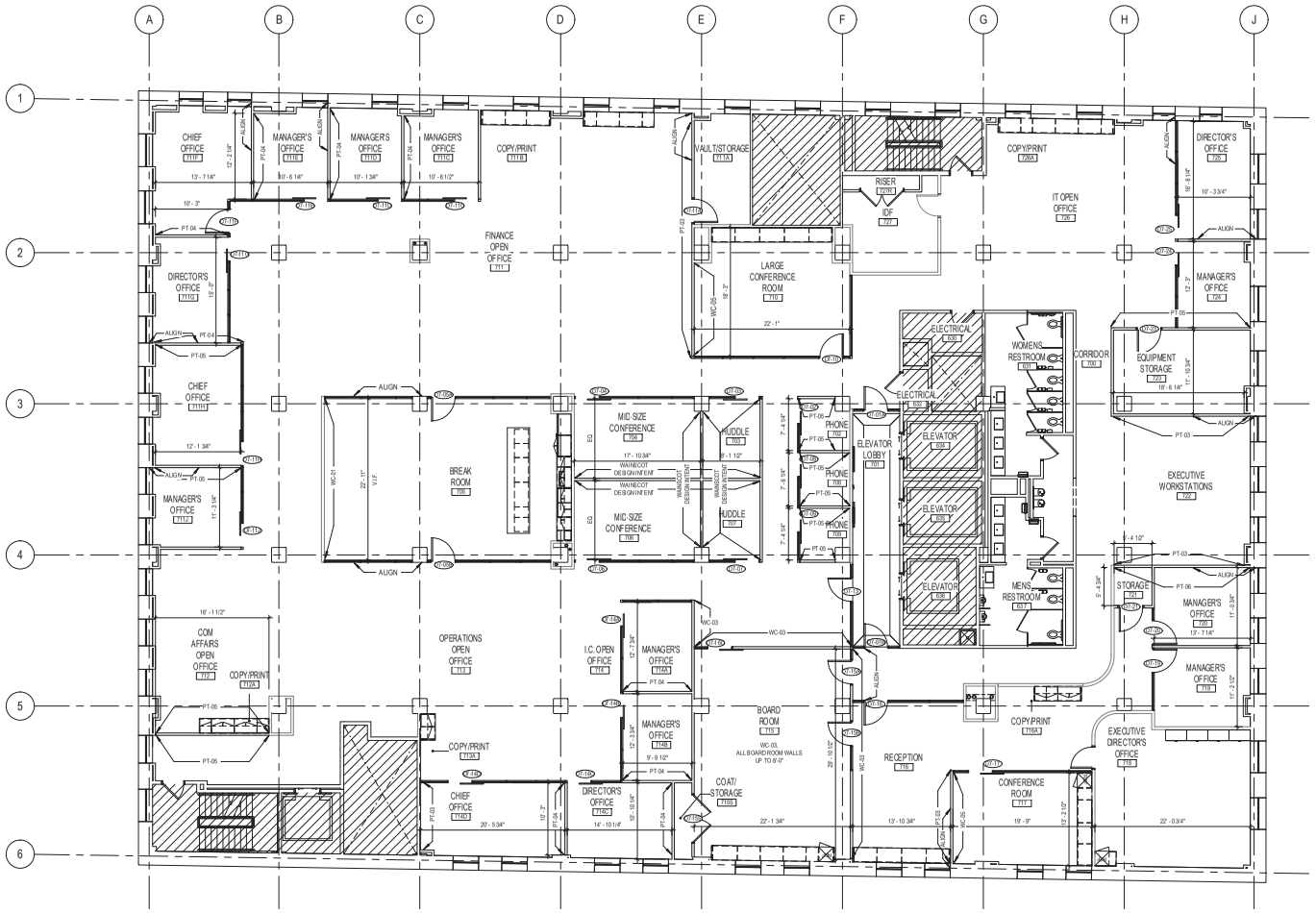

1 OVERALL DEMOUNTABLE WALL PARTITION PLAN - LEVEL 07
1/8" = 1'-0"

DEMOUNTABLE PLAN NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. REFER TO RESPONSIBILITY MATRIX ON SHEET G020 FOR ADDITIONAL CLARIFICATION REGARDING GC VS DEMOUNTABLE PARTITION VENDER SCOPE.

PLAN LEGEND

- EXISTING CONSTRUCTION
- DEMOUNTABLE WALL PARTITION
- NEW CONSTRUCTION
- ROOM NAME / ROOM NUMBER / AREA — ROOM TAG
- DOOR TAG — REFER TO SHEET A60.LP1
- PARTITION TAG — REFER TO SHEET A630
- KEYED NOTE VALUE — KEYNOTE
- NOT IN SCOPE

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2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
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SHEET NAME:
OVERALL DEMOUNTABLE WALL PARTITION PLAN - LEVEL 07

SHEET NO:
A157

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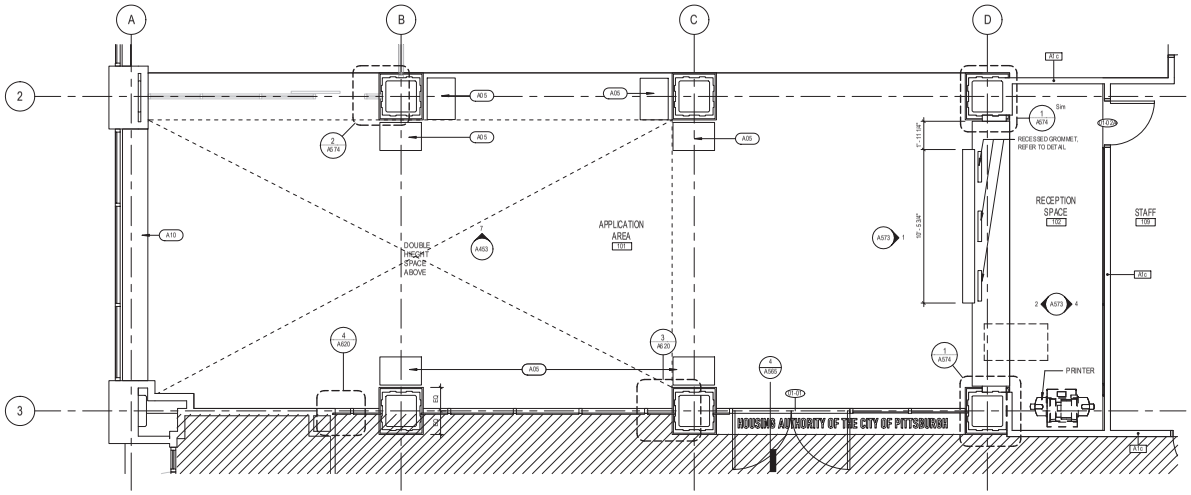
PLAN KEYED NOTES

NO	DESCRIPTION
A05	FREE STANDING ROOKS OWNER PROVIDED. COORDINATE WITH ELECTRICAL DRAWINGS.
A10	REPAINT EXISTING RADIATORS TO MATCH BASE BUILDING

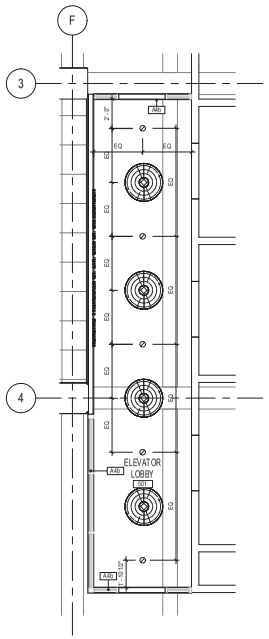

A
B
C
D
2
3
A05
A10
A15
A05
A05
A05

FINISH PLAN KEYED NOTES

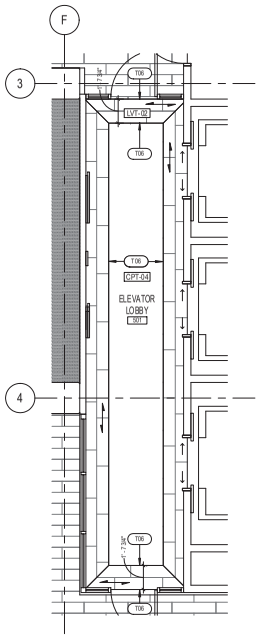
NO	DESCRIPTION
T06	TREDSAFE METAL TRANSITION DT040 - BETWEEN SIMILAR HEIGHT FLOORING MATERIALS
T07	TARKETT SLIM LINE TRANSITION GRAY HAZE RUBBER TRANSITION - CARPET TO LVT

RCP KEYED NOTES

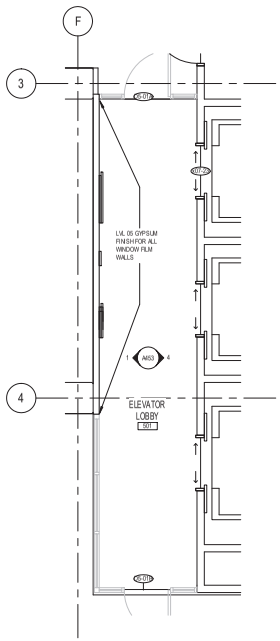
NO	DESCRIPTION
C01	EXTEND/MAKE REPAIR ON EXISTING BEAMS, PREPARE PREP TO RECEIVE NEW PAINT.
C02	PAINT EXISTING REGISTER TO MATCH EXISTING GYPSUM CEILING.
C03	INSTALL ACOUSTICAL CEILING TILE AS ONE CONTINUOUS RUN UNLESS NOTED OTHERWISE. REFER TO OVERALL REFLECTED FINISH PLANS OR ENLARGED REFLECTED FINISH PLANS FOR INSTALL TILE START POINT.



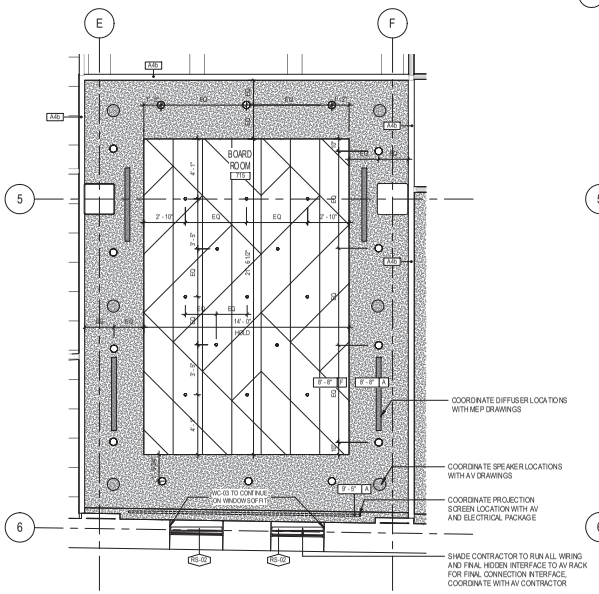
3 ENLARGED RCP - ELEVATOR LOBBY LEVEL 05
1/4" = 1'-0"



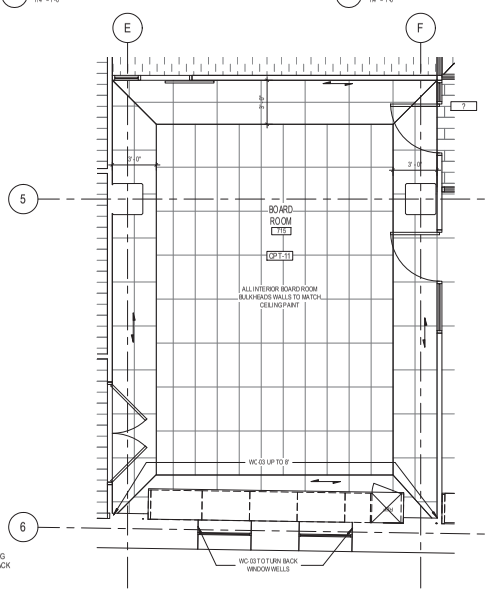
2 ENLARGED FINISH PLAN - ELEVATOR LOBBY LEVEL 05
1/4" = 1'-0"



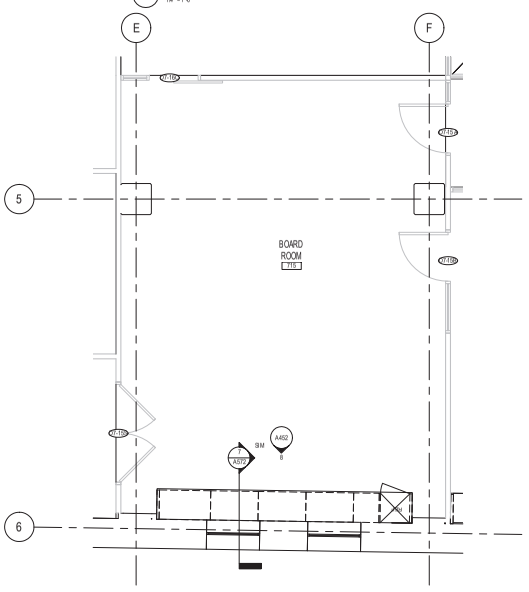
1 ENLARGED FLOOR PLAN - ELEVATOR LOBBY LEVEL 05
1/4" = 1'-0"



6 ENLARGED REFLECTED CEILING PLAN - BOARD ROOM LEVEL 07
1/4" = 1'-0"



5 ENLARGED FINISH PLAN - BOARD ROOM LEVEL 07
1/4" = 1'-0"



4 ENLARGED FLOOR PLAN - BOARD ROOM LEVEL 07
1/4" = 1'-0"

PLAN NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. INTERIOR DIMENSIONS ARE TO CENTER OF WALL U.O.N.
3. DOORS WITHIN STUD WALLS TO BE A TYPICAL 4" OFFSET DISTANCE ON HINGE SIDE FROM ADJACENT WALL. DOORS WITHIN MASONRY WALLS TO BE A TYPICAL SINGLE UNIT DISTANCE ON HINGE SIDE FROM ADJACENT WALL.
4. RETURN FURRED/LAMINATED GYP. BD. TO DOOR AND/OR WINDOW FRAMES AS REQUIRED - TYP.
5. CONSTRUCT PARTITIONS FROM FLOOR SLAB TO UNDERSIDE OF DECK U.O.N.
6. STUD PARTITIONS SHALL HAVE DOUBLE STUDS AT DOOR JAMBS, OPENINGS, AND CORNERS.
7. PROVIDE FIRE RETARDANT WOOD BLOCKING FOR WALL MOUNTED ITEMS, INCLUDING ITEMS FURNISHED BY THE OWNER.
8. AT STUD PARTITIONS PROVIDE DIAGONAL BRACING AT OPENINGS GREATER THAN 4'-0" WIDE.
9. PARTITIONS DESIGNATED AS SOUND RATED SHALL BE:
   1. SEALED WITH ACOUSTICAL SEALANT AT EACH FACE OF PARTITION WHERE PENETRATED BY DUCT, PIPE, CONDUIT, OR OTHER APPERTENANCES.
   2. SEALED WITH ACOUSTICAL SEALANT CONTINUOUSLY AT PERIMETER, SILLS, JAMBS, AND HEADS - EACH SIDE.
10. PARTITIONS DESIGNATED TO BE FIRE RATED SHALL BE:
    1. SET TOP AND BOTTOM PARTITION RUNNER TRACKS IN BEDS OF SEALANT.
    2. PACK VOIDS BETWEEN TOP OF PARTITION AND UNDERSIDE OF STRUCTURE WITH FIRE SAFING.
    3. CLOSE PENETRATIONS WITH FIRE-STOPPING MATERIALS PER U.L. DESIGN.
11. GYPSUM BOARD PARTITIONS DESIGNATED IN WET AREAS SHALL HAVE PROVIDED GALVANIZED STUDS, FASTENERS AND MISC. METAL ACCESSORIES.
12. PARTITION TYPES OVER OPENINGS SHALL MATCH ADJACENT PARTITIONS U.O.N.

PLAN LEGEND

- EXISTING CONSTRUCTION
- DEMOUNTABLE WALL PARTITION (NOT INCLUDED IN GC SCOPE)
- NEW CONSTRUCTION
- ROOM NAME / ROOM NUMBER / AREA — ROOM TAG
- XXX — DOOR TAG, REFER TO SHEET A600-PI
- A101 — PARTITION TAG, REFER TO SHEET A630
- W1 — WINDOW TAG
- 00 — KEYED NOTE VALUE — KEYNOTE
- NOT IN SCOPE

REFLECTED CEILING NOTES

1. COORDINATE REFLECTED CEILING PLAN WITH HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL, AND COMMUNICATION DRAWINGS.
2. ANY MECHANICAL AND INFRASTRUCTURE CONDITIONS NEED TO BE COORDINATED TO MAINTAIN CEILING HEIGHTS.
3. PROVIDE BULKHEAD ABOVE PARTITION OPENINGS TO MATCH ADJACENT CONSTRUCTION.
4. CENTER ACOUSTICAL CEILING SYSTEMS IN ROOM BOTH WAYS U.O.N.
5. PAINT CEILINGS AND EXPOSED SURFACES PT-03 U.O.N.

CEILING LEGEND

SYMBOLS

- HEIGHT A.F.F. / TYPE — 10' - 10" / A1 — CEILING TAG
- ROOM NAME / ROOM NUMBER — 101 — ROOM TAG

CEILING TYPE CODES

A --	58" GWB WITH PT-03 FINISH U.O.N.
B ACT-01	REFER TO FINISH LEGEND
C ACT-02	REFER TO FINISH LEGEND
D ACP-03	REFER TO FINISH LEGEND
E ACP-04	REFER TO FINISH LEGEND

ROLLER SHADE TYPE CODES

RS-01	MANUAL EQUINOX BLACKOUT 0102 ALABASTER ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL.
RS-02	AUTOMATIC EQUINOX BLACKOUT 0105 SILVER ROLLER SHADE. WITH CRESTRON SYSTEM. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL.
RS-03	MANUAL EQUINOX BLACKOUT 0105 SILVER ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL.
RS-04	MANUAL SOHO COLLECTION 1102 CANAL 1% OPEN ROLLER SHADE. REFER TO DETAIL DRAWINGS FOR MOUNTING. FOR FINISH SPECIFICATION, REFER TO PROJECT MANUAL.

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5	100% CONSTRUCTION DOCUMENTS REVISION 01	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION 02	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION 01	07/06/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	PROJECT ISSUANCE	

PROJECT NO: 190427.00 | DRAWN BY: AE7 | REVIEWED BY: JW

SHEET NAME: ENLARGED FLOOR PLANS

SHEET NO: A402

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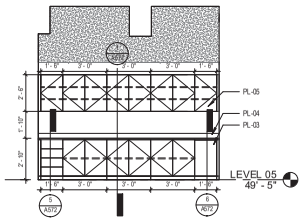
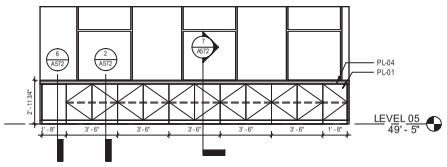
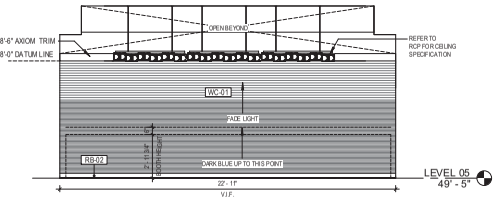


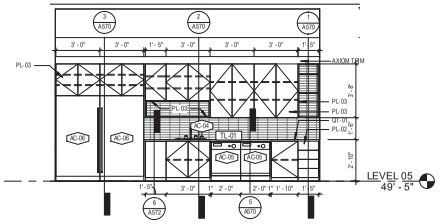
4 LEGAL COPY/PRINT - ELEVATION 1
1/4" = 1'-0"



3 LARGE CONFERENCE ROOM - ELEVATION 1
1/4" = 1'-0"



2 TYPICAL BREAK ROOM FEATURE WALL LVL 05/07
1/4" = 1'-0"



1 LVL 05/ LVL 07 BREAK ROOM - ELEVATION 1
1/4" = 1'-0"

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(412) 932 2044
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PROFESSIONAL SEAL

REGISTERED ARCHITECT
COMMONWEALTH OF PENNSYLVANIA
JOSEPH C. METZEL JR.

CONSULTANT:

CLIENT:

Housing Authority of the City of Pittsburgh
200 ROSS STREET
PITTSBURGH, PA 15219
(412) 456 60 00
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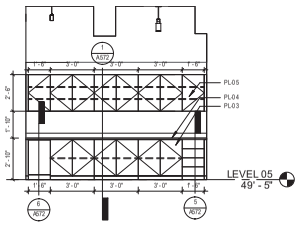

8 PUBLIC SAFETY COPY/PRINT - ELEVATION 1
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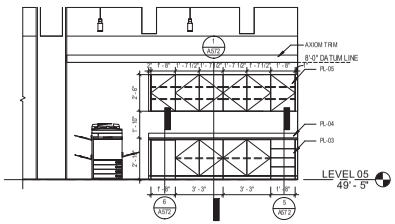

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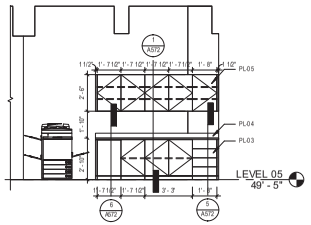
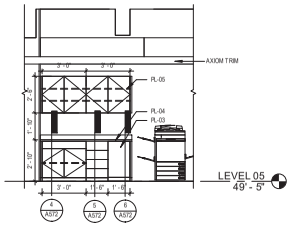


6 OCCUPANCY COPY/PRINT - ELEVATION 1
1/4" = 1'-0"



5 HCV CONTROL COPY/PRINT - ELEVATION 1
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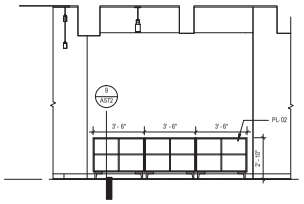
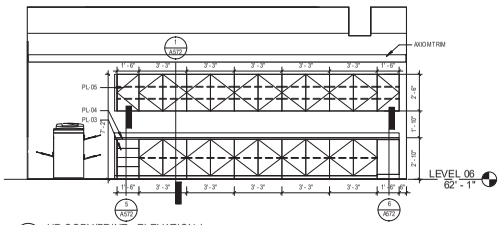
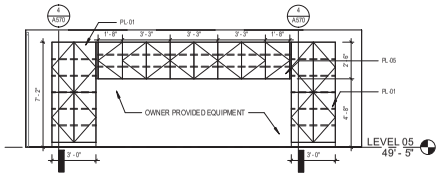


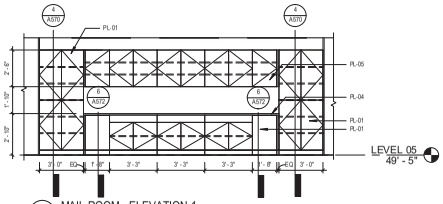
13 DEV/MOD SUPPLY STORAGE - ELEVATION 1
1/4" = 1'-0"



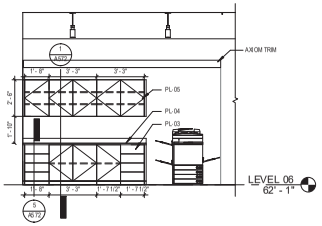
12 HR COPY/PRINT - ELEVATION 1
1/4" = 1'-0"



11 MAIL ROOM - ELEVATION 2
1/4" = 1'-0"



10 MAIL ROOM - ELEVATION 1
1/4" = 1'-0"



17 SHARED COPY/STORAGE ROOM - ELEVATION 2
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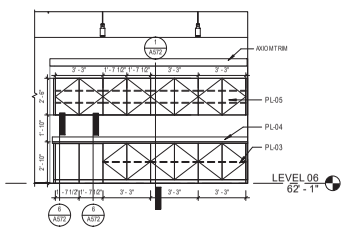

16 SHARED COPY/STORAGE ROOM - ELEVATION 1
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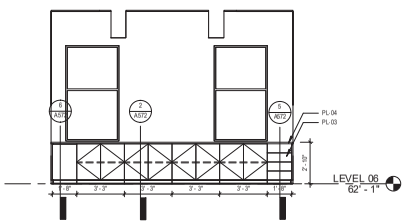

15 DISABILITY COMPLIANCE COPY/PRINT - ELEVATION 1
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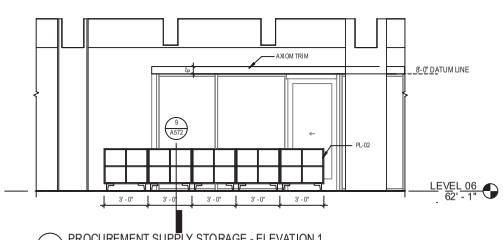

14 PROCUREMENT SUPPLY STORAGE - ELEVATION 1
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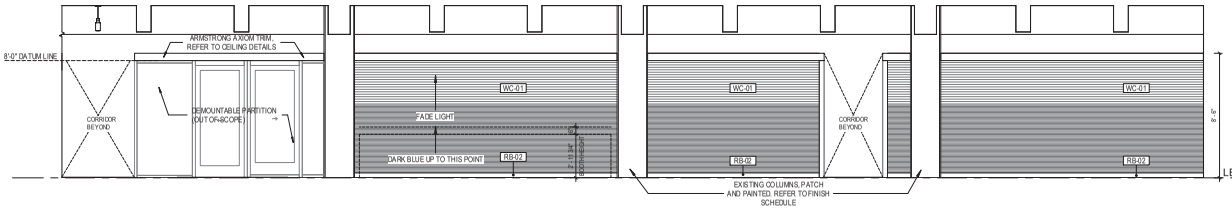
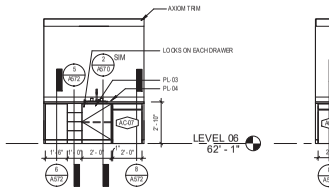
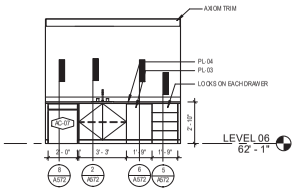


20 BREAK ROOM/COLLAB - ELEVATION 1
1/4" = 1'-0"



19 MOTHER'S ROOM - ELEVATION 1
1/4" = 1'-0"



18 MINDFULNESS ROOM - ELEVATION 1
1/4" = 1'-0"

HACP - Housing Authority of the City of Pittsburgh
412 Boulevard of the Allies, Pittsburgh, PA 15219

#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISIONS	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISIONS	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISIONS	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
ELEVATIONS

SHEET NO:
A451

TRUE NORTH
PLAN NORTH

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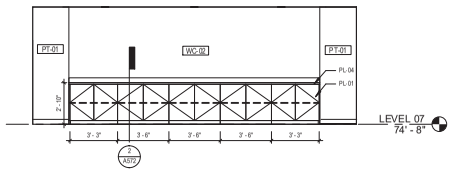
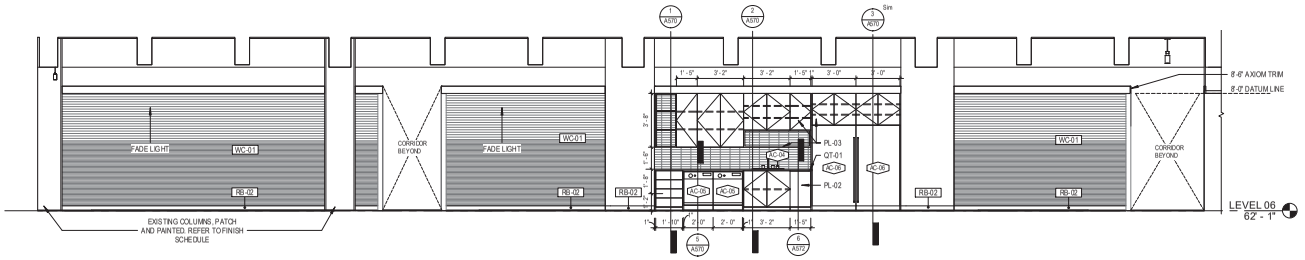
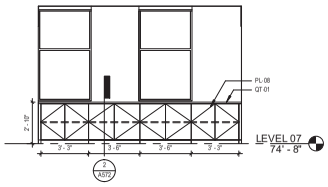


2 LARGE CONFERENCE CASEWORK - ELEVATION 1
1/4" = 1'-0"



1 BREAK ROOM/ COLLAB - ELEVATION 2
1/4" = 1'-0"



7 EXECUTIVE RECEPTION CASEWORK - ELEVATION 1
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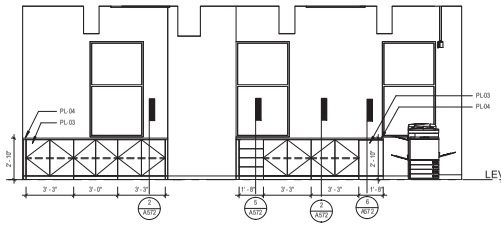
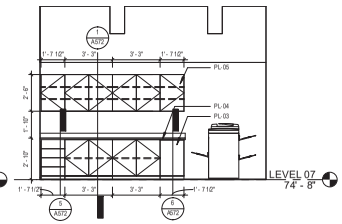


6 FINANCE COPY/PRINT - ELEVATION 1
1/4" = 1'-0"



5 COMMUNITY AFFAIRS COPY/PRINT - ELEVATION 1
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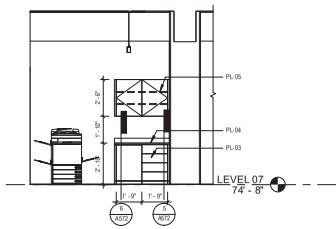

4 OPERATIONS COPY/PRINT - ELEVATION 1
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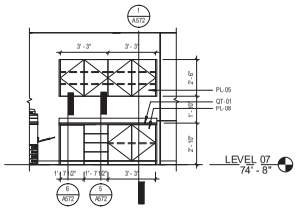
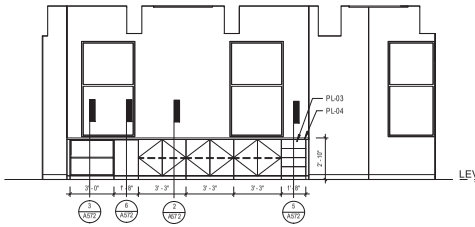
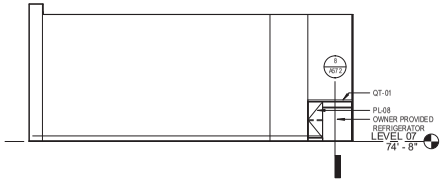


3 EXECUTIVE COPY/PRINT - ELEVATION 1
1/4" = 1'-0"



11 IT SUPPLY STORAGE/ COPY/ PRINT - ELEVATION 1
1/4" = 1'-0"



10 EXECUTIVE DIRECTORS CASEWORK - ELEVATION 2
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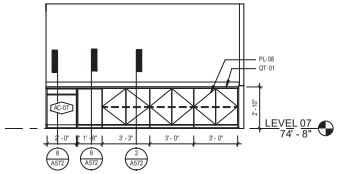
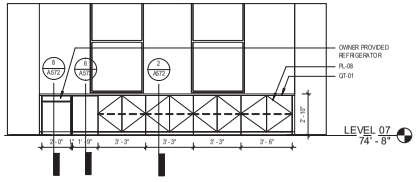
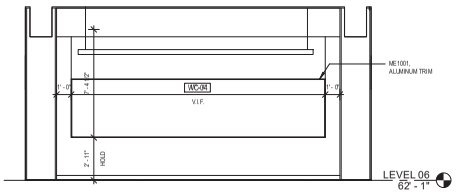


9 EXECUTIVE CONFERENCE CASEWORK - ELEVATION 1
1/4" = 1'-0"



8 BOARD ROOM CASEWORK - ELEVATION 1
1/4" = 1'-0"



15 DEV/MOD COLLABORATION WHITEBOARD - ELEVATION 1
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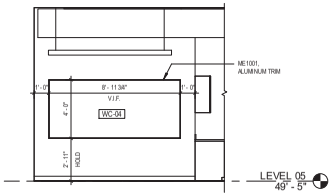

14 OCCUPANCY WHITEBOARD - ELEVATION 1
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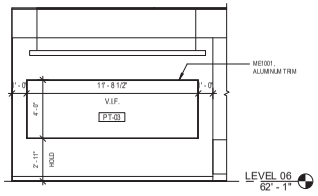
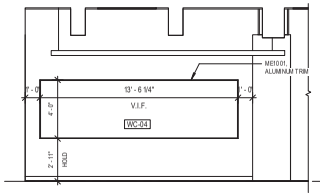


13 DEV/MOD WHITEBOARD - ELEVATION 1
1/4" = 1'-0"



12 HR WHITEBOARD - ELEVATION 1
1/4" = 1'-0"

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PROFESSIONAL SEAL

CONSULTANT:

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PITTSBURGH PA 15219
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HACP - Housing Authority of the City of Pittsburgh
412 Boulevard of the Allies, Pittsburgh, PA 15219

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PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
ELEVATIONS

SHEET NO:
A452

TRUE NORTH
PLAN NORTH

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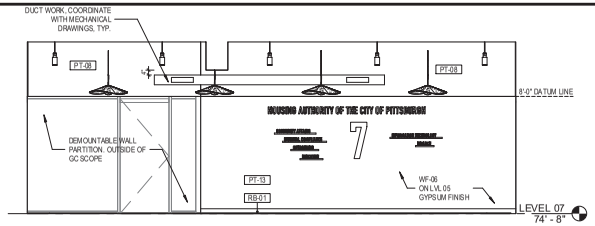
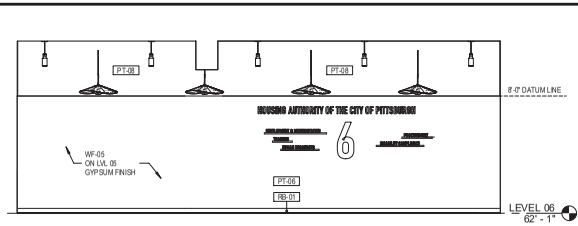


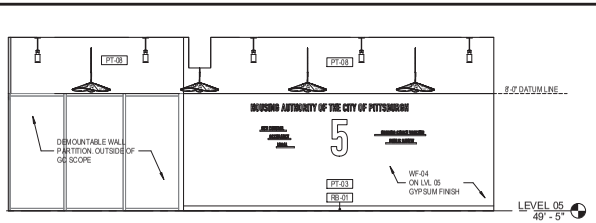
3 LEVEL 07 ELEVATOR LOBBY - ELEVATION 1
1/4" = 1'-0"

SIGNAGE BY OTHERS CONTRACTOR TO PROVIDE BLOCKING IN THE WALL LOCATIONS BE COORDINATED BY SIGNAGE CONTRACTOR. SHOWN FOR REFERENCE ONLY



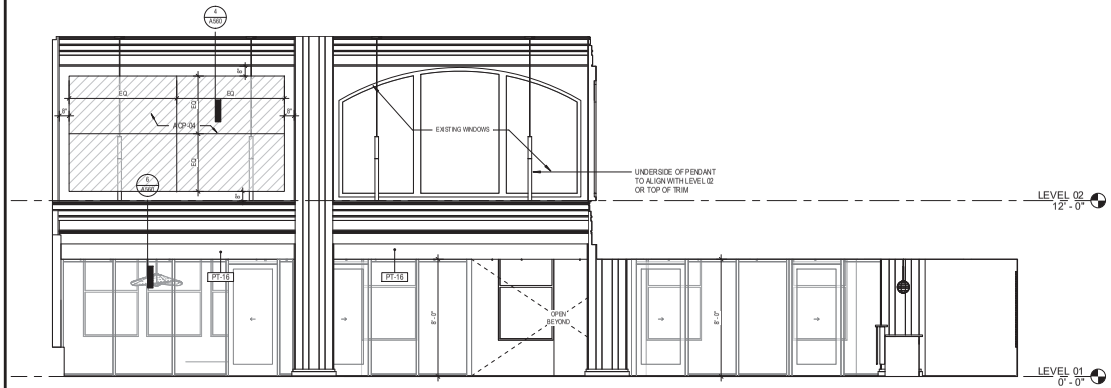
2 LEVEL 06 ELEVATOR LOBBY - ELEVATION 1
1/4" = 1'-0"

SIGNAGE BY OTHERS CONTRACTOR TO PROVIDE BLOCKING IN THE WALL LOCATIONS BE COORDINATED BY SIGNAGE CONTRACTOR. SHOWN FOR REFERENCE ONLY

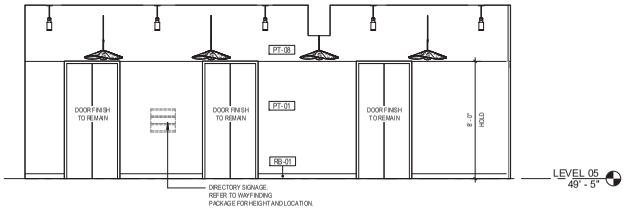


1 LEVEL 05 ELEVATOR LOBBY - ELEVATION 1
1/4" = 1'-0"

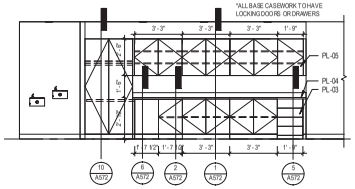
SIGNAGE BY OTHERS CONTRACTOR TO PROVIDE BLOCKING IN THE WALL LOCATIONS BE COORDINATED BY SIGNAGE CONTRACTOR. SHOWN FOR REFERENCE ONLY



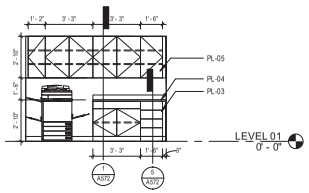
7 APPLICATION AREA - ELEVATION 2
1/4" = 1'-0"



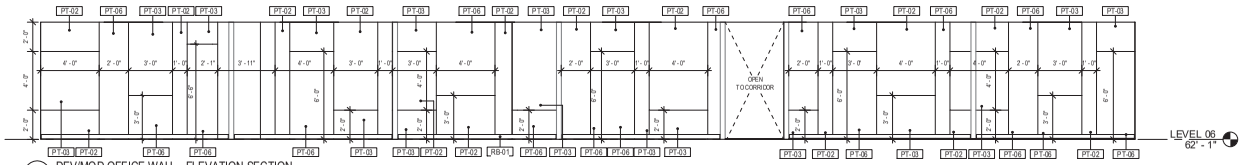
4 TYPICAL ELEVATOR LOBBY - ELEVATION 1
1/4" = 1'-0"



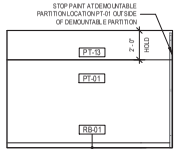
6 STAFF CORRIDOR - ELEVATION 1
1/4" = 1'-0"



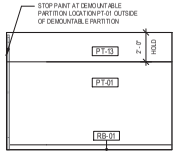
5 STAFF CORRIDOR - ELEVATION 2
1/4" = 1'-0"



8 DEV/MOD OFFICE WALL - ELEVATION SECTION
1/4" = 1'-0"



9 MID SIZE CONFERENCE - ELEVATION 1
1/4" = 1'-0"



10 MID SIZE CONFERENCE - ELEVATION 2
1/4" = 1'-0"

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PROFESSIONAL SEAL

REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JEFFREY C. METZEL 1991

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISIONS	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISIONS	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISIONS	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:

ELEVATIONS

SHEET NO:

A453

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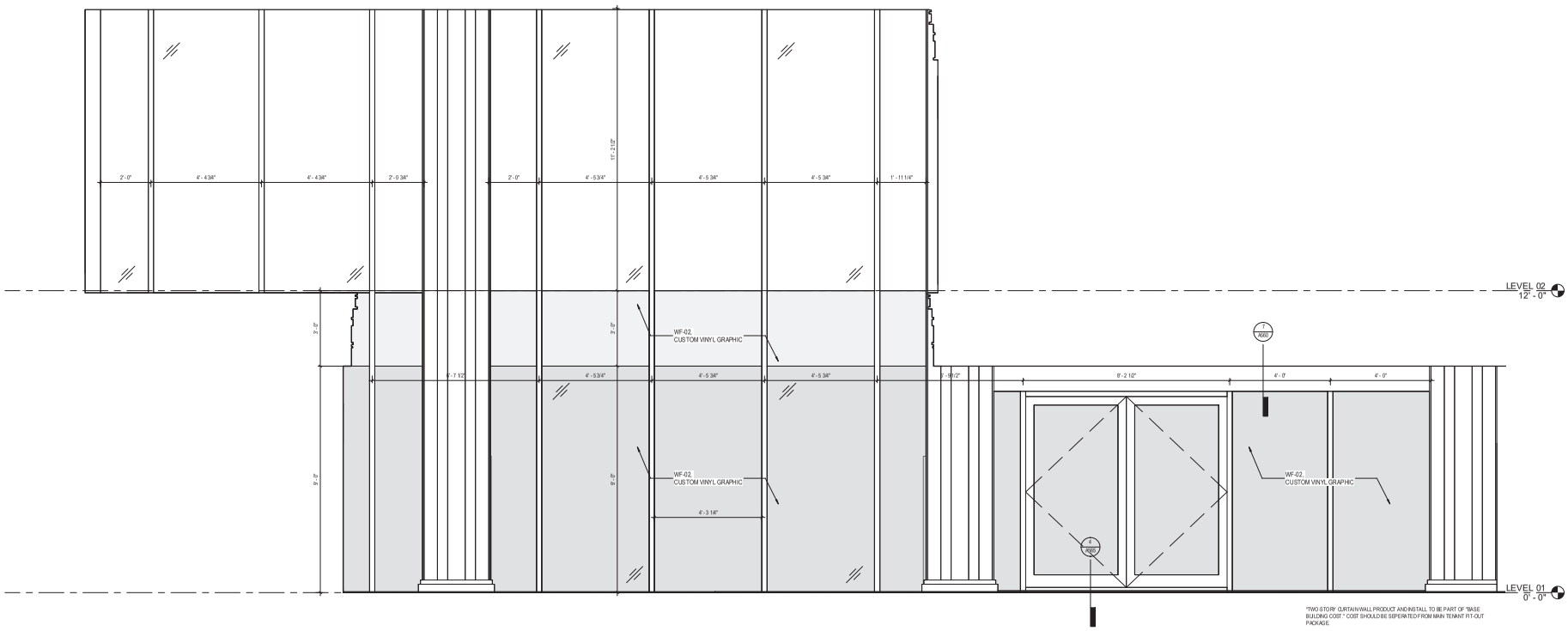
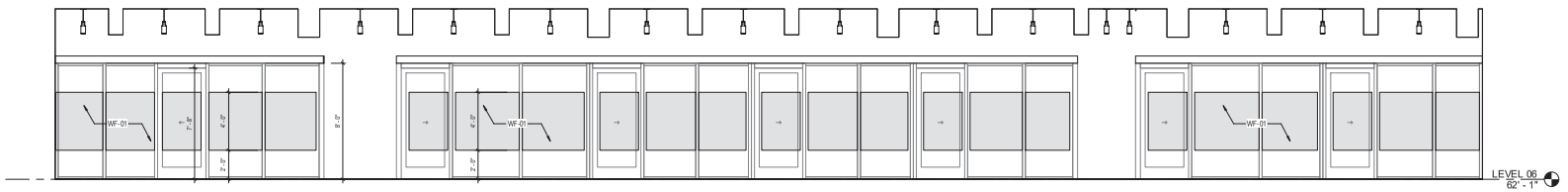


*TWO STORY CURTAIN WALL PRODUCT AND INSTALL TO BE PART OF "BASE BUILDING COST." COST SHOULD BE SEPERATED FROM MAIN TENANT FIT-OUT PACKAGE.

1 ENTRANCE LOBBY - CUSTOM WINDOW FILM GRAPHIC ELEVATION
1/2" = 1'-0"



2 TYPICAL OFFICE/ VIEWING ROOM/ BREAK ROOM WINDOW FILM ELEVATION
1/4" = 1'-0"

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2	100% CONSTRUCTION DOCUMENTS	06/22/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
ELEVATIONS

SHEET NO:
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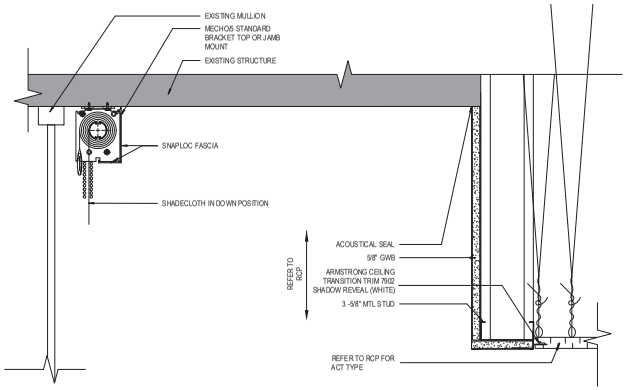
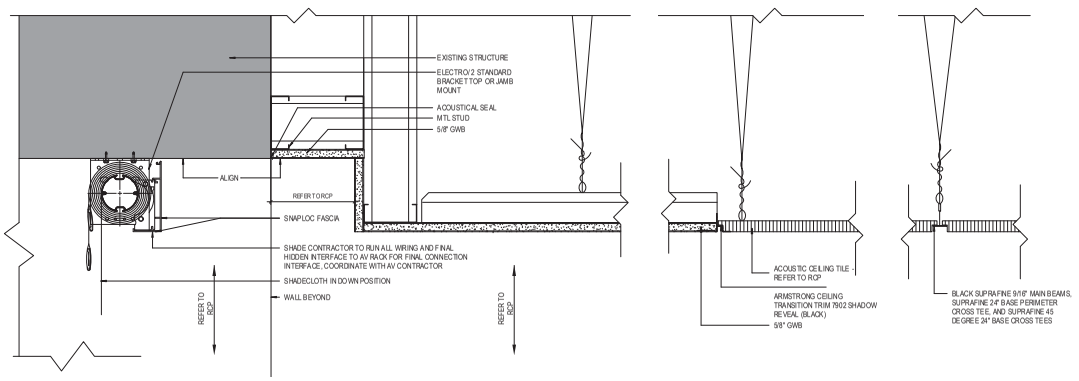


2 MANUAL ROLLER SHADE DETAIL - RS-01, RS-03, RS-04
3" = 1'-0"



1 BOARD ROOM / TRAINING ROOM ROLLER SHADE AND POCKET DETAIL - RS-02
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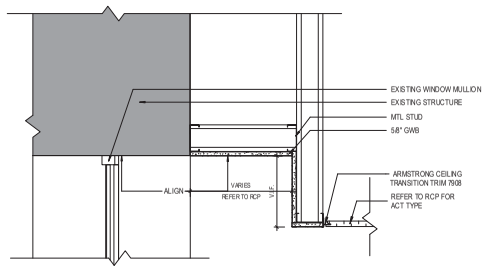
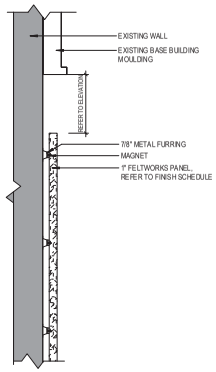
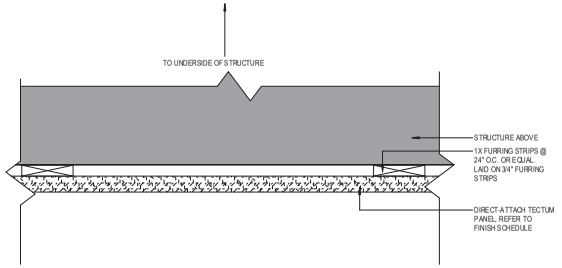


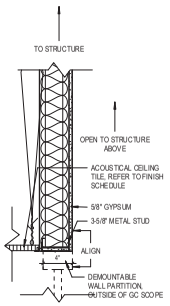
5 GYPSUM POCKET @ LVL 01 WINDOWS
1 1/2" = 1'-0"



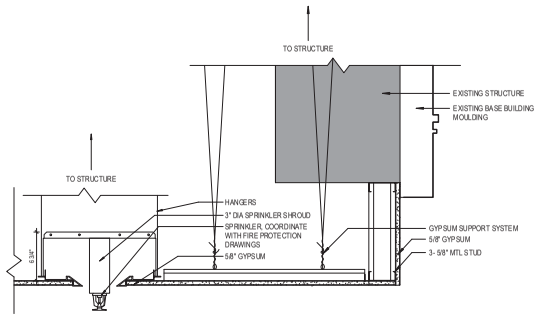
4 FELTWORKS PANEL @ LVL 01 WALL
1 1/2" = 1'-0"



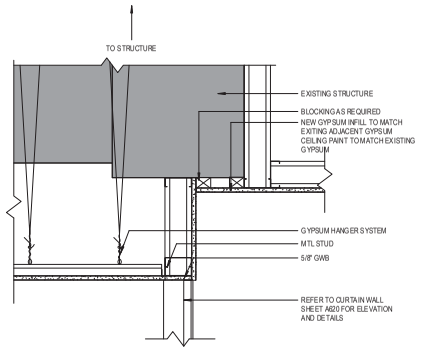
3 DETAIL @ CEILING TECTUM PANEL
3" = 1'-0"



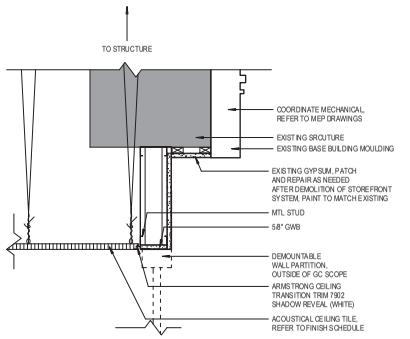
9 BULKHEAD @ LVL 01 CONSULT ROOMS
1 1/2" = 1'-0"



8 SERVICE INTEGRATION CEILING DETAIL @ LVL 01 APPLICATION
1 1/2" = 1'-0"



7 CEILING @ BULKHEAD/STOREFRONT
1 1/2" = 1'-0"



6 CEILING DETAIL @ LVL 01 LARGE CONSULT
1 1/2" = 1'-0"

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2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	PROJECT ISSUANCE	

PROJECT NO: 190427.00 | DRAWN BY: AE7 | REVIEWED BY: JW

SHEET NAME:
CEILING DETAILS

SHEET NO:
A560

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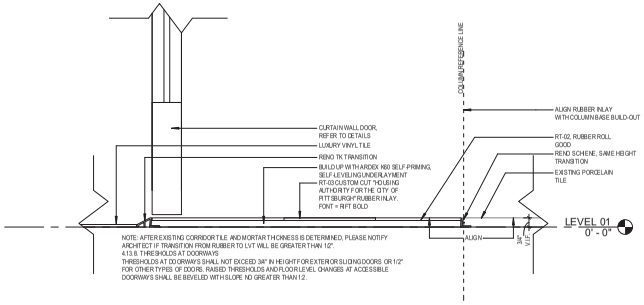
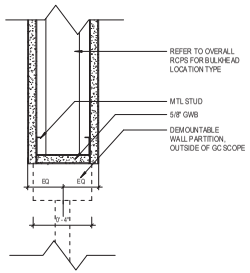
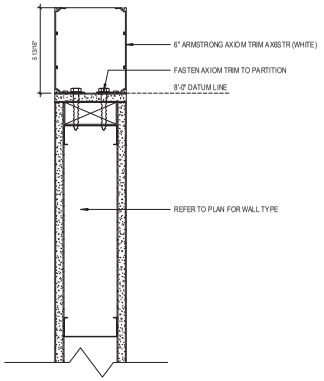


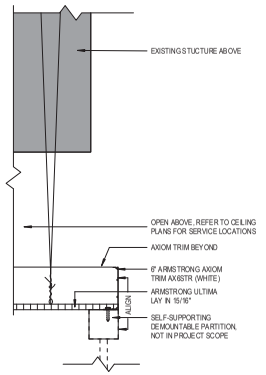
4 DETAIL @ LVL 01 ENTRY
3" = 1'-0"



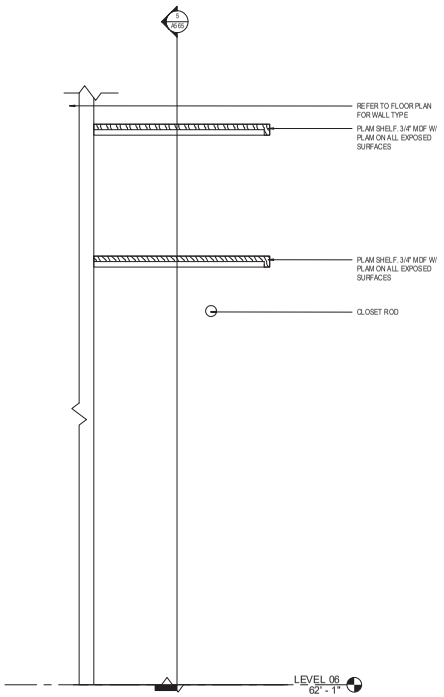
3 TYPICAL BULKHEAD ABOVE DEMOUNTABLE PARTITION
3" = 1'-0"



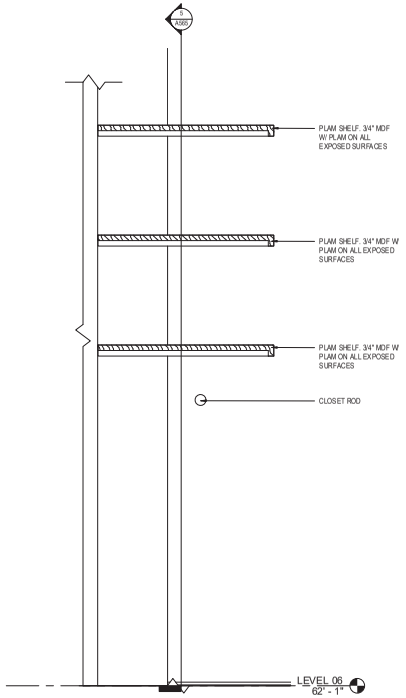
2 ARMSTRONG CEILING - AXIOM CLASSIC COMPONENT DETAIL
3" = 1'-0"



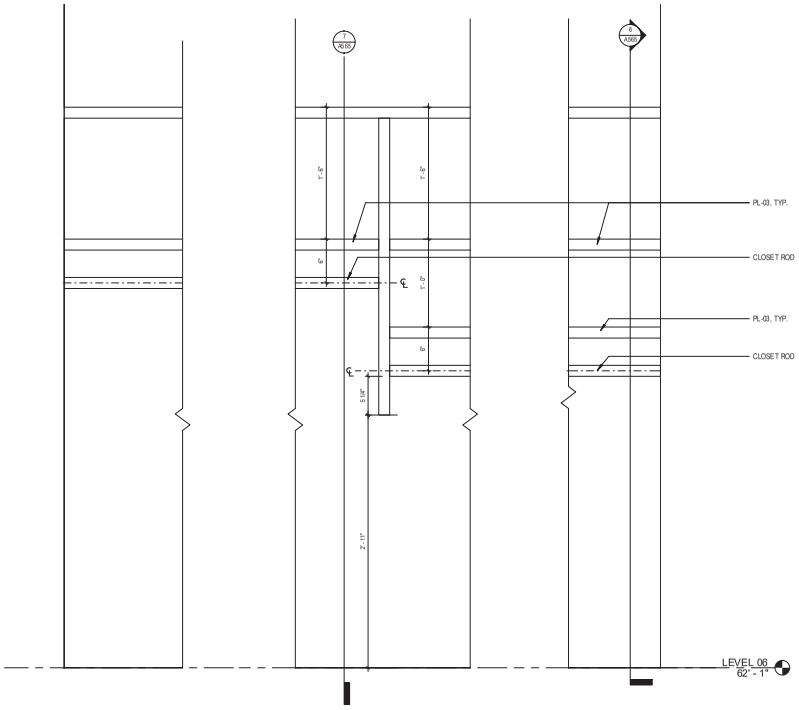
1 TYPICAL DEMOUNTABLE WALL/ACT/AXIOM DETAIL
1 1/2" = 1'-0"



7 COAT CLOSET - SECTION 1
1 1/2" = 1'-0"



6 COAT CLOSET - SECTION 2
1 1/2" = 1'-0"



5 TYPICAL SPLIT COAT CLOSET SECTION
1 1/2" = 1'-0"

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PROFESSIONAL SEAL

REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JEFFREY C. METZEL No. RA-016911

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CLIENT:

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2	100% CONSTRUCTION DOCUMENTS	06/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:

DETAILS

SHEET NO:

A565

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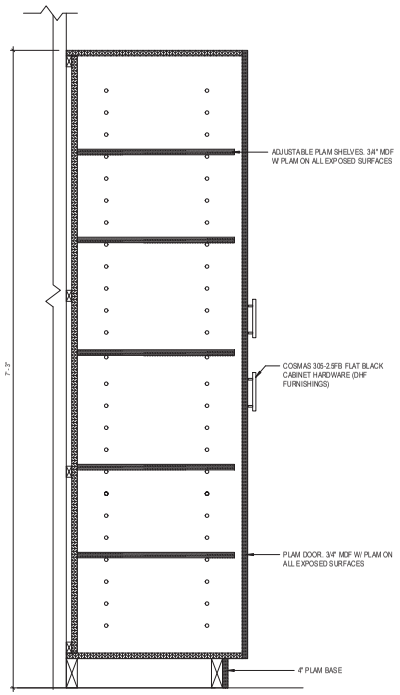
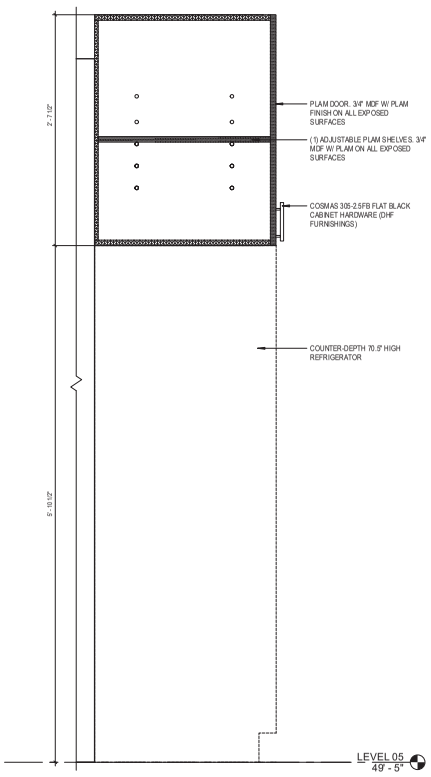
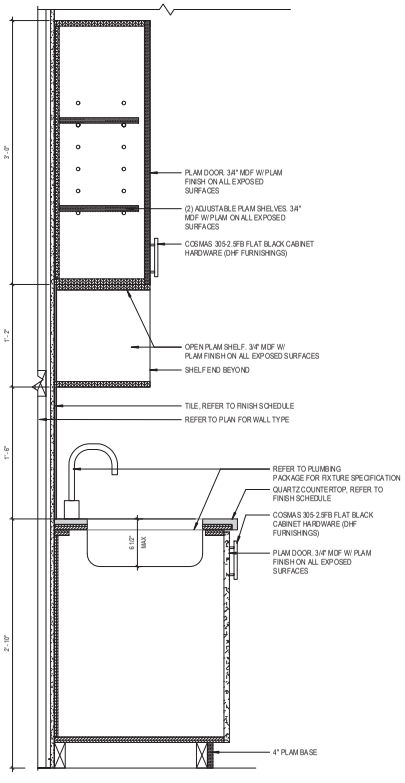


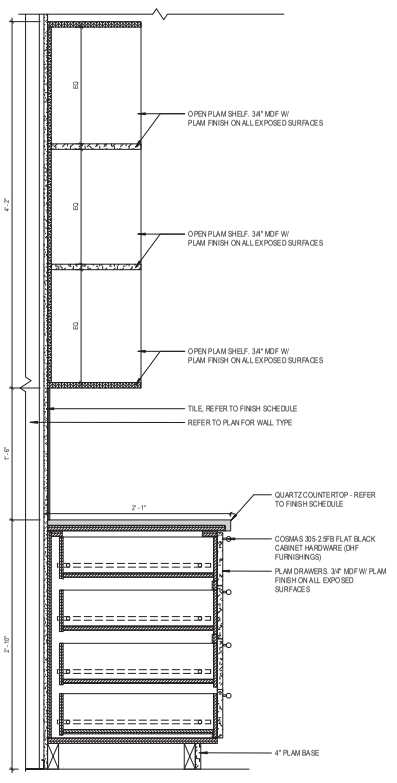
4 TALL CABINET
1 1/2" = 1'-0"



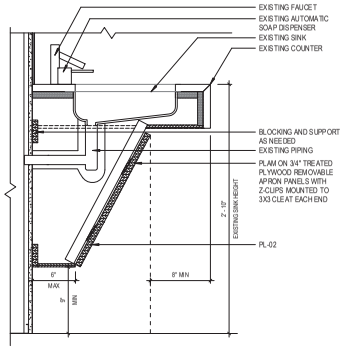
3 REFRIGERATOR CASEWORK
1 1/2" = 1'-0"



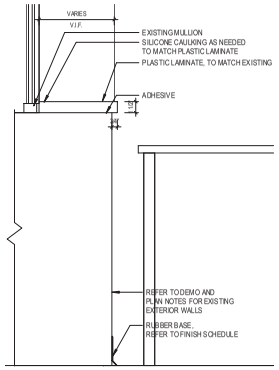
2 BREAK ROOM TYPICAL SINK DETAIL
1 1/2" = 1'-0"



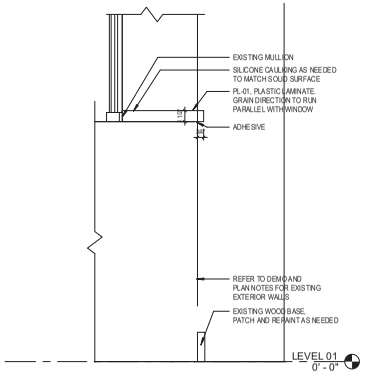
1 BREAK ROOM OPEN SHELF/ 4 DRAWER DETAIL
1 1/2" = 1'-0"



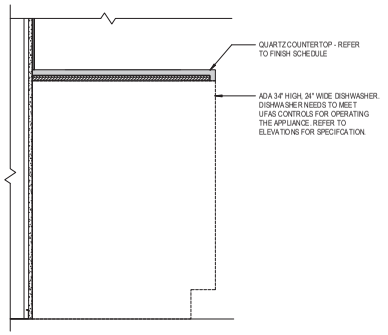
8 EXISTING SINK WITH NEW PLUMBING PROTECTION DETAIL
1 1/2" = 1'-0"



7 TYPICAL WINDOW STOOL DETAIL - LVL 05, 06, & 07
1 1/2" = 1'-0"



6 LVL 01 TYPICAL WINDOW STOOL DETAIL
1 1/2" = 1'-0"



5 BREAK ROOM CASEWORK @ DISHWASHER
1 1/2" = 1'-0"

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PROFESSIONAL SEAL

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CONSULTANT:

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2	100% CONSTRUCTION DOCUMENTS	06/22/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
MILLWORK DETAILS

SHEET NO:
A570

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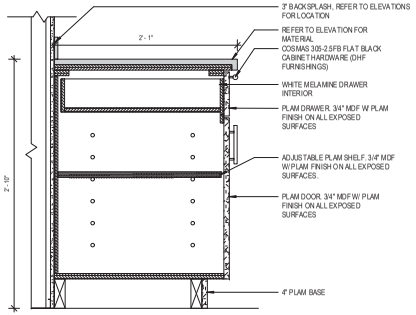
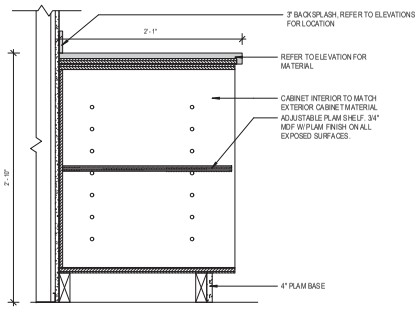


4 TYPICAL BASE CABINET WITH TOP DRAWER
1 1/2" = 1'-0"



3 OPEN CABINET
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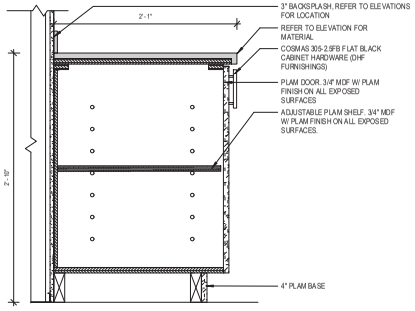
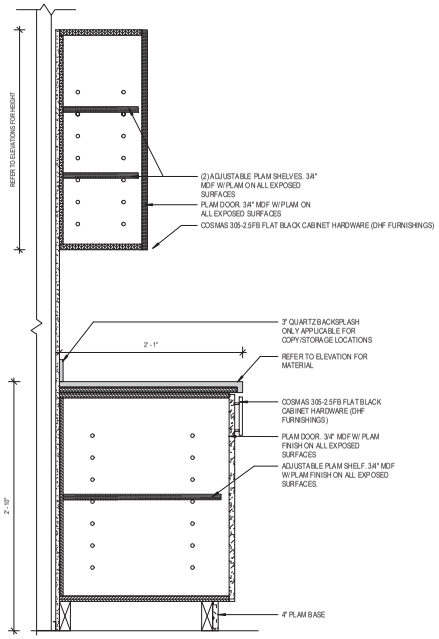
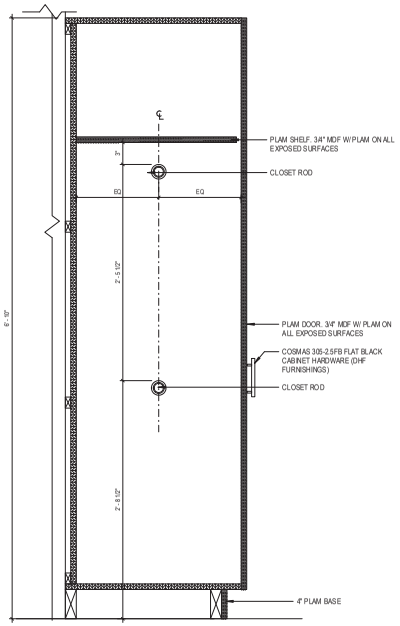


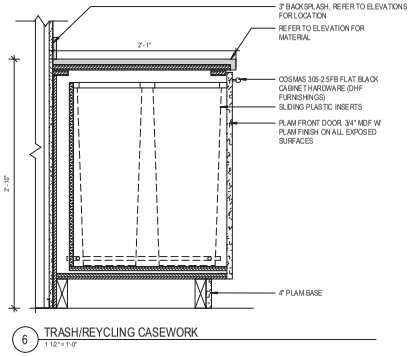
2 TYPICAL BASE CABINET
1 1/2" = 1'-0"



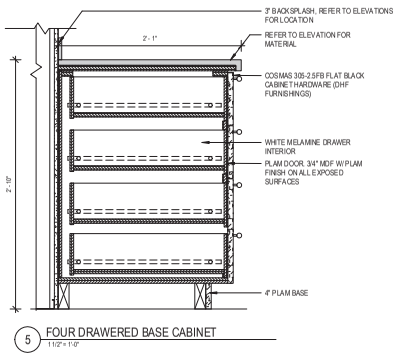
1 TYPICAL LOWER AND UPPER CABINET SECTION
1 1/2" = 1'-0"



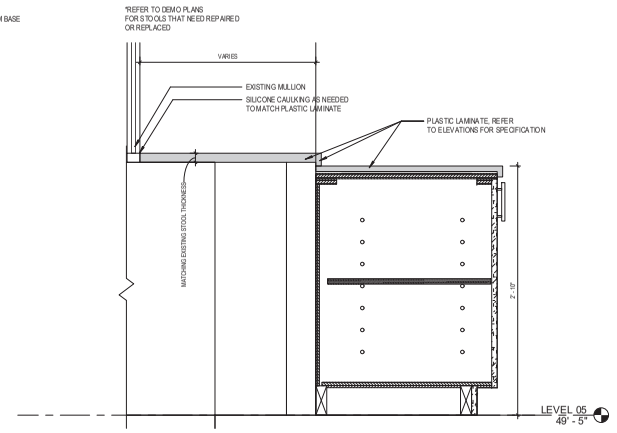
10 TALL COAT CABINET
1 1/2" = 1'-0"



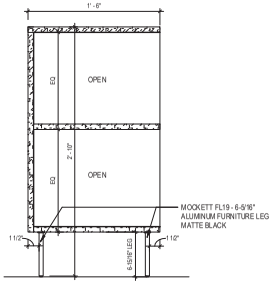
6 TRASH/REYCLING CASEWORK
1 1/2" = 1'-0"



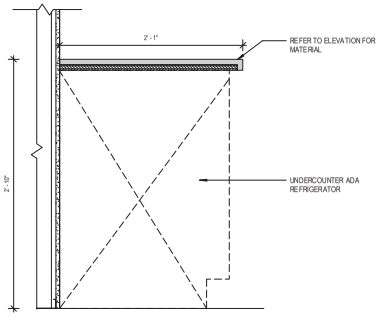
5 FOUR DRAWERED BASE CABINET
1 1/2" = 1'-0"



7 TYPICAL WINDOW STOOL DETAIL @ CONFERENCE ROOM
1 1/2" = 1'-0"



9 MOVEABLE REFERENCE LIBRARY SHELVES
1 1/2" = 1'-0"



8 CASEWORK @ UNDERCOUNTER FRIDGE
1 1/2" = 1'-0"

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PROFESSIONAL SEAL

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2	100% CONSTRUCTION DOCUMENTS	06/22/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
MILLWORK DETAILS

SHEET NO:
A572

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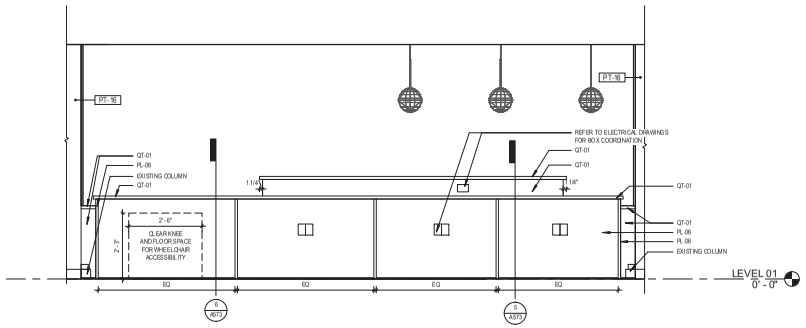
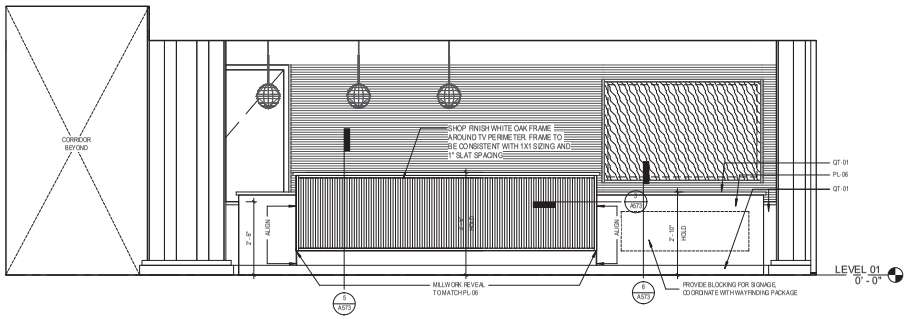
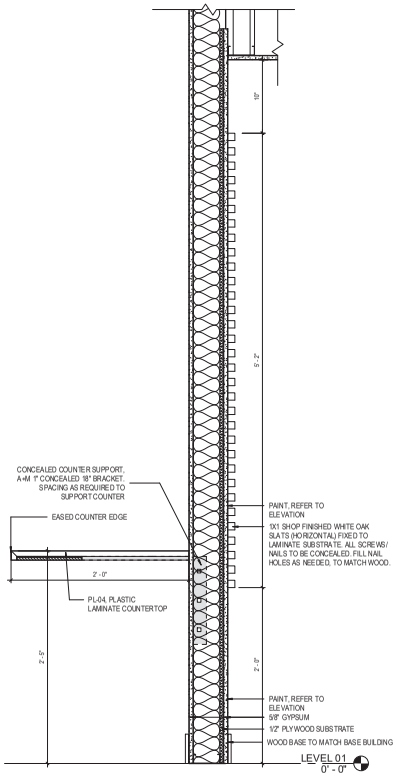


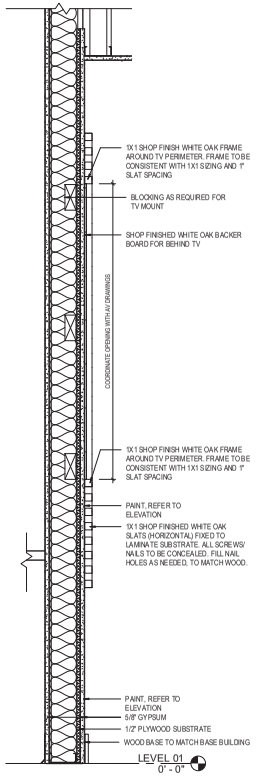
2 RECEPTION SPACE - ELEVATION 2
1/2" = 1'-0"



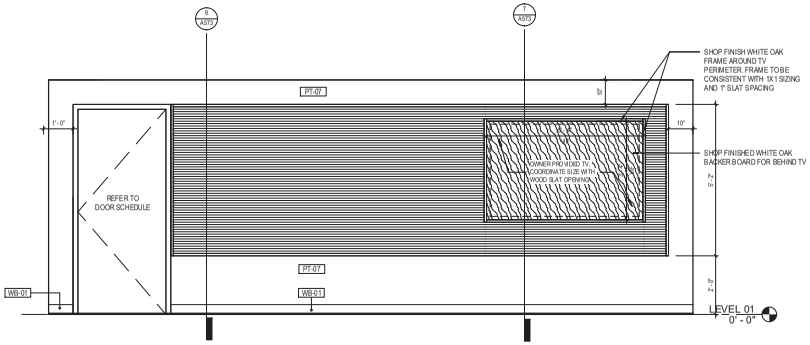
1 APPLICATION AREA - ELEVATION 1
1/2" = 1'-0"



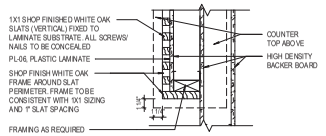
8 DETAIL @ RECEPTION WOOD WALL
1 1/2" = 1'-0"



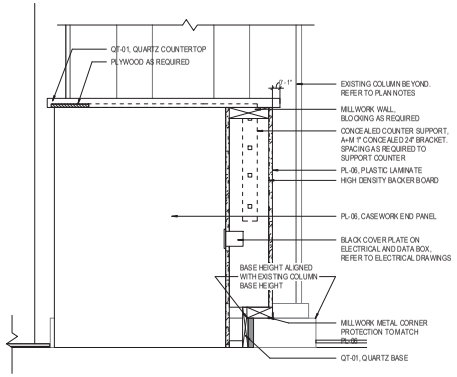
7 DETAIL @ WOOD WALL/ TV
1 1/2" = 1'-0"



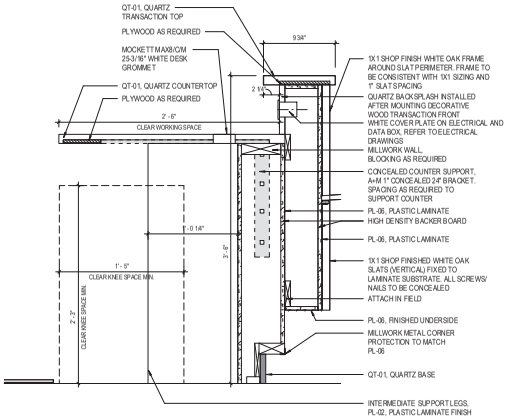
4 RECEPTION SPACE - ELEVATION 1
1/2" = 1'-0"



3 RECEPTION DESK CORNER DETAIL
1 1/2" = 1'-0"



6 RECEPTION - DETAIL 2
1 1/2" = 1'-0"



5 RECEPTION - DETAIL 1
1 1/2" = 1'-0"

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HACP - Housing Authority of the City of Pittsburgh
412 Boulevard of the Allies, Pittsburgh, PA 15219

#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #5	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #4	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #3	07/06/2020
2	100% CONSTRUCTION DOCUMENTS REVISION #2	06/22/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
MILLWORK DETAILS

SHEET NO:
A573

TRUE NORTH
PLAN NORTH

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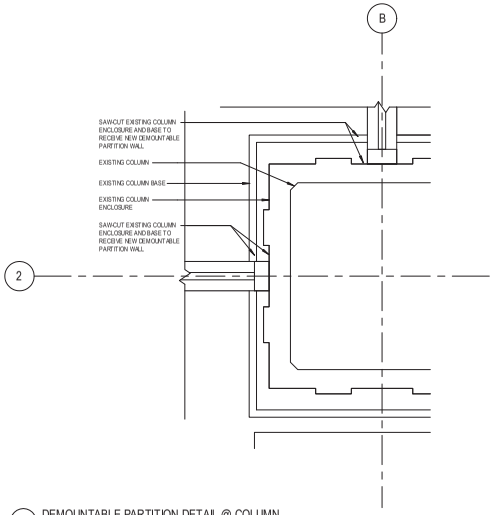
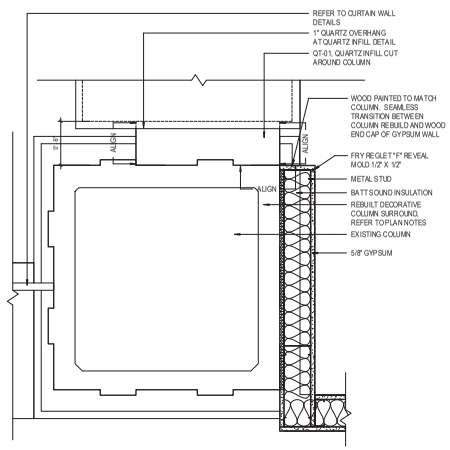
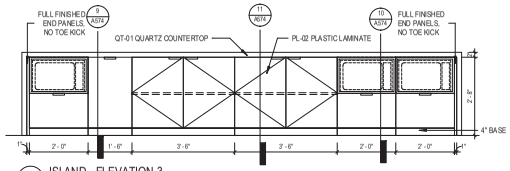


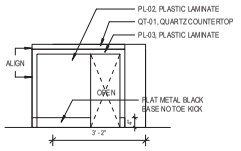
2 DEMOUNTABLE PARTITION DETAIL @ COLUMN
1 1/2" = 1'-0"



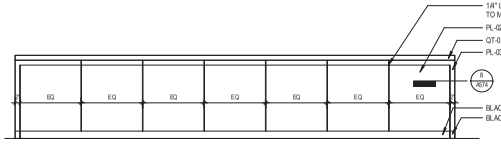
1 INFILL DETAIL @ COLUMN
1 1/2" = 1'-0"



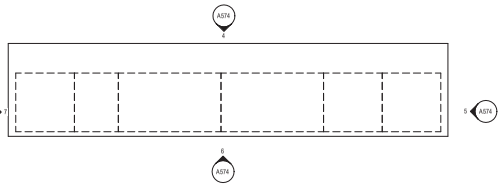
6 ISLAND - ELEVATION 3
1/2" = 1'-0"



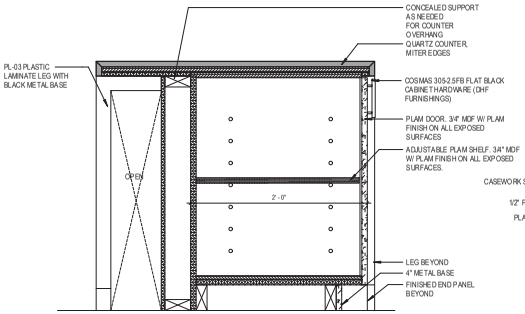
5 ISLAND - ELEVATION 2
1/2" = 1'-0"



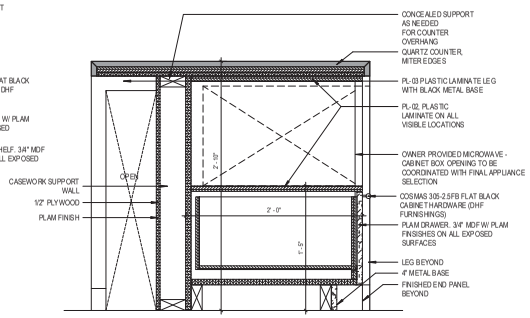
4 ISLAND - ELEVATION 1
1/2" = 1'-0"



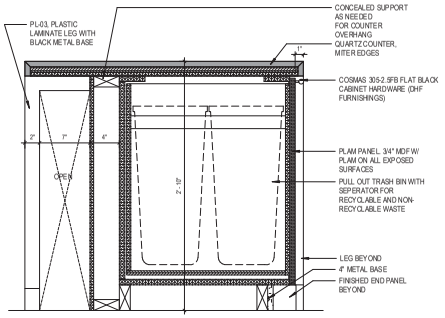
3 ENLARGED ISLAND
1/2" = 1'-0"



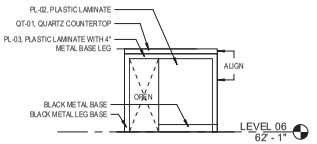
11 STORAGE @ ISLAND
1 1/2" = 1'-0"



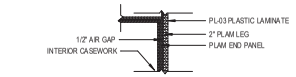
10 MICROWAVE @ ISLAND
1 1/2" = 1'-0"



9 TRASH/RECYCLING @ ISLAND
1 1/2" = 1'-0"



7 ISLAND - ELEVATION 4
1/2" = 1'-0"



8 ISLAND SECTION DETAIL
1/2" = 1'-0"

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION#3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION#2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION#1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:
MILLWORK DETAILS

SHEET NO:
A574

TRUE NORTH
PLAN NORTH

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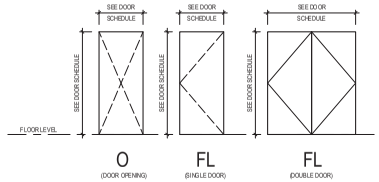
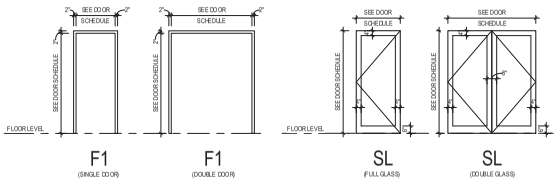
DOOR SCHEDULE

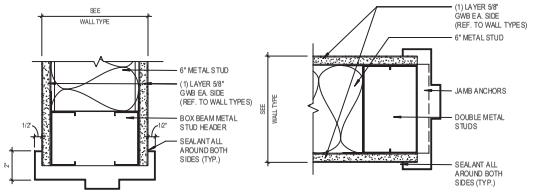
DOOR NUMBER	DOORS SIZE PANEL 1 WIDTH	PANEL 2 WIDTH	PANEL HEIGHT	PANEL THICKNESS	PANEL 1 TYPE	PANEL 2 TYPE	MATERIAL	FINISH	FRAMES TYPE	MATERIAL	FINISH	DETAILS HEAD	JAMB	SILL	HARDWARE SET	FIRE RATING	ACOUSTIC RATING	REMARKS
01-01	4' - 0"	4' - 0"	7' - 7"	2"	RL	FL	ALUM	PNT	A454	ALUM	- -	H4		S4	1			
01-02	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1					
01-02A	3' - 0"		7' - 0"	2"	SL	- -	WD	PNT	F1	HM	PNT	H3	J3		1			
01-02E	3' - 2"		0' - 1"	2"	NA													
01-03	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1					
01-04	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1		8			
01-05	2' - 6"	2' - 6"	7' - 0"	2"	RL	FL	HM	PNT	F1	ALUM	- -	H4		S4	1			EXTERIOR
01-09A	3' - 0"		7' - 0"	2"	SL	- -	HM	PNT	F1	HM	PNT	H1	J1		2			
01-09B	3' - 0"		7' - 0"	2"	SL	- -	HM	PNT	F1	HM	PNT	H1	J1		2			
01-10	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1		1			
01-10R	3' - 0"	3' - 0"	7' - 0"	1 3/4"	RL	FL	EXIST	PNT	F1	EXIST	PNT	H1	J1					
05-01	3' - 0"		7' - 0"	2"	RL	- -	HM	PNT	F1	HM	PNT	H2	J2		4	90 MIN		
05-02	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1		1			
05-02A	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1					
05-03	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1					
05-04	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1					
05-05	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H2	J2			90 MIN		
05-21	3' - 0"		7' - 0"	2"	SL	- -	HM	PNT	F1	HM	PNT	H1	J1		1			
05-21B	3' - 0"		7' - 0"	2"	RL	- -	HM	PNT	F1	HM	PNT	H1	J1		5			1/2" UNDERCUT
05-23	3' - 0"		7' - 0"	2"	SL	- -	HM	PNT	F1	HM	PNT	H1	J1		1			
05-25	3' - 0"		7' - 0"	2"	RL	- -	HM	PNT	F1	HM	PNT	H1	J1		1			
05-29R	3' - 0"	3' - 0"	7' - 0"	1 3/4"	RL	FL	EXIST	PNT	F1	EXIST	PNT	H1	J1					
06-01	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H2	J2			90 MIN		
06-02	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1					
06-02A	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1					
06-03	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1					
06-04	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1					
06-05	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H2	J2			90 MIN		
06-13	3' - 0"	3' - 0"	7' - 0"	1 3/4"	RL	FL	HM	PNT	F1	HM	PNT	H1	J1		7			
06-28	3' - 0"		7' - 0"	2"	RL	- -	HM	PNT	F1	HM	PNT	H1	J1		1			
06-28R	3' - 0"	3' - 0"	7' - 0"	1 3/4"	RL	FL	EXIST	PNT	F1	EXIST	PNT	H1	J1					
07-01	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H2	J2		3	90 MIN		
07-02	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1					
07-02A	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1					
07-03	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1					
07-04	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H1	J1					
07-05	3' - 0"		7' - 0"	2"	RL	- -	EXIST	PNT	F1	EXIST	PNT	H2	J2			90 MIN		
07-16	3' - 0"		7' - 0"	2"	SL	- -	HM	PNT	F1	HM	PNT	H1	J1		1			
07-27	3' - 0"		7' - 0"	2"	RL	- -	HM	PNT	F1	HM	PNT	H1	J1		1			
07-27R	3' - 0"	3' - 0"	7' - 0"	1 3/4"	RL	FL	EXIST	PNT	F1	EXIST	PNT	H1	J1					



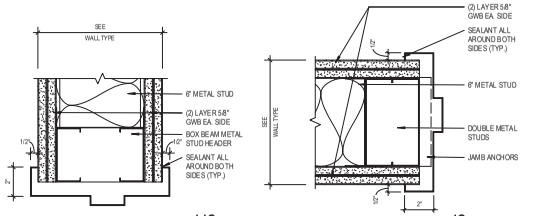


3 DOOR FRAME TYPES
1/8" = 1'-0"

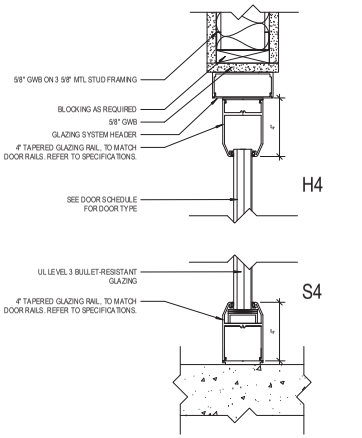
1 DOOR PANEL TYPES
1/8" = 1'-0"



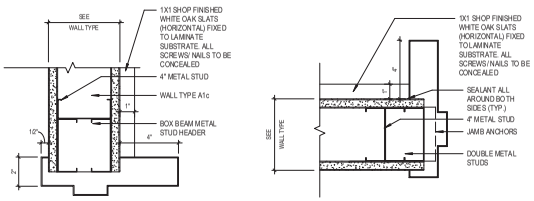
4 DOOR FRAME @ GWB PARTITION
3" = 1'-0"



5 DOOR FRAME @ 2HR GWB PARTITION
3" = 1'-0"



7 DOOR FRAME @ GLASS PARITION
3" = 1'-0"



6 DOOR FRAME @ RECEPTION DESK
3" = 1'-0"

DOOR HARDWARE SETS

I. MANUFACTURERS:

HINGES	HAGER
LOCKSETS, LATCHSETS	FALCON
PANIC DEVICES	FALCON
CLOSERS	HAGER
STOPS, BOLTS	HAGER
OVERHEAD STOP	ABH
ELECTRIC STRIKES	H.E.S

II. FINISH:

US26D (SATIN CHROME); US32D (SATIN STAINLESS) CLOSERS SPRAYED TO MATCH.

IV. KEYING:

FALCON, 6 PIN, INTERCHANGEABLE CORES

V. HARDWARE SETS:

SET #1
3 HINGES BB1279 4.5" X 4.5" 26 D
1 STOREROOM LOCKSET B581BD-C 626
1 CLOSER 5200-AL
1 KICK PLATE 8" X 34" X .050 X 32D
1 WALL STOP 236W 32D
1 ELECTRIC STRIKE 5210C-630
(CARD READER, POWER, CONTROLS BY SECURITY VENDOR)

SET #2
3 HINGES BB1279 4.5" X 4.5" 26 D
1 PANIC DEVICE 25-R-510L-630
1 CYLINDER, INT. CORE
1 CLOSER 5200-AL
1 KICK PLATE 8" X 34" X .050 X 32D
1 ELECTRIC STRIKE 5210C-630
(CARD READER, POWER, CONTROLS BY SECURITY VENDOR)

SET #3
3 HINGES BB1279 4.5" X 4.5" 26 D
1 STOREROOM LOCKSET B581BD-C 262 1 CLOSER 5200-AL
1 KICK PLATE 8" X 34" X .050 X 32D
1 WALL STOP 236W 32D

SET #4
2 HINGES BB1279 4.5" X 4.5" 26 D
1 ELECTRIC HINGE BB1279 ETW 4.5" X 4.5" 26 D
1 ELECTRIC CTRN PANIC DEVICE FSA-F-25-R-510NL-630 (FAIL SAFE) 1 CYLINDER
1 CLOSER 5200-AL
1 KICK PLATE 8" X 34" X .050 X 32D
1 WALL STOP 236W 32D
1 POWER SUPPLY PS902
(CARD READER, POWER & WIRING BY THE SECURITY VENDOR)

SET #5
3 HINGES BB1279 4.5" X 4.5" 26 D
1 STOREROOM LOCKSET B581BD-C 626 1 OVERHEAD STOP 4423 32D

SET #6
3 HINGES BB1279 4.5" X 4.5" 26 D
1 ENTRY LOCKSET B571BD-C42 61 WALL STOP 236W 32D

SET #7
6 HINGES BB1279 4.5" X 4.5" 26 D
1 CLASSROOM LOCKSET B661BD-D-626
2 FLUSH BOLTS 282D 26D
1 DUST PROOF STRIKE 280X 26D
2 OVERHEAD STOPS 4423 32D

SET #8
1 PANIC DEVICE 25-R-510NL-630 1 CYLINDER, INT. CORE
(BALANCE OF HARDWARE EXISTING)

SET #9
1 STOREROOM LOCKSET B581BD-C 626
1 ELECTRIC STRIKE 5210C-630
(BALANCE OF HARDWARE EXISTING)

SET #10
1 STOREROOM LOCKSET B581BD-C 626 (BALANCE OF HARDWARE EXISTING)

SET #11
1 OFFICE LOCKSET B511BC-D 626 (BALANCE OF HARDWARE EXISTING)

DOOR NOTES

1. REFER TO FLOOR PLANS FOR DIRECTION OF SLIDE, SWING, AND HAND OF EACH DOOR PANEL.
2. REFER TO SCHEDULE FOR DESCRIPTION OF HARDWARE SET
3. PROVIDE RESILIENT 'BLENDERS' AT HOLLOW METAL FRAMES - 3 PER DOOR PANEL.
4. PROVIDE BLOCKING AS REQUIRED.
5. DIMENSIONS AT EXISTING OPENINGS REQUIRE FIELD VERIFICATION PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS.
6. ALL DOORS WILL RECEIVE NEW FALCON LOCKSETS, LATCHSETS.
7. COORDINATE ALL KEYING WITH HACP LOCKSMITH.

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PROFESSIONAL SEAL

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412 Boulevard of the Allies, Pittsburgh, PA 15219

#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/06/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020

PROJECT ISSUANCE

PROJECT NO: 190427.00 | DRAWN BY: Author | REVIEWED BY: Checker

SHEET NAME:
DOOR TYPES, DETAILS & SCHEDULE

SHEET NO:
A600

TRUE NORTH / PLAN NORTH

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DOOR SCHEDULE

wt	DOORS								FRAMES			DETAILS			HARDWARE SET	REMARKS
	SIZE															
	PANEL 1 WIDTH	PANEL 2 WIDTH	PANEL HEIGHT	PANEL THICKNESS	PANEL 1 TYPE	PANEL 2 TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH	HEAD	JAMB	SILL		
D1-03	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D1-04	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D1-06	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D1-07	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D1-08	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-01A	3' - 2"		7' - 7"	2"	NA										06	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-01B	3' - 2"		7' - 7"	2"	NA										06	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-02A	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-02B	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-03	3' - 4"		7' - 8"	1 3/4"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-05	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-05A	3' - 6"		7' - 7"	2"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-05B	3' - 6"		7' - 7"	2"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-06	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-10A	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-10B	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-10C	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-10D	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-10E	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-11	3' - 4"	3' - 4"	7' - 8"	1 3/4"	NA	NA									01	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-12	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-13	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-14B	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-14C	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-15A	3' - 4"		7' - 7"	2"	NA	NA									04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-18	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-19	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-20	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-22	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-24	3' - 4"		7' - 8"	2"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-01A	3' - 4"		7' - 7"	2"	NA										06	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-01B	3' - 4"		7' - 7"	2"	NA										06	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-02	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-03	3' - 4"		7' - 10"	2"	NA	NA									05	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-04	3' - 4"		7' - 10"	2"	NA	NA									05	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-06	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-07	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-08	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-09	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-10	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-12A	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-12B	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-12C	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-14	3' - 4"		7' - 8"	1 3/4"	NA										03	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-15	3' - 4"	3' - 4"	7' - 8"	1 3/4"	NA	NA									01	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-16	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-16S	3' - 4"	3' - 4"	7' - 10"	1 3/4"	F	F									05	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-17A	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-17B	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-17C	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-17D	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-17E	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-17F	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-18	3' - 4"		7' - 7"	2"	NA	NA									04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-18A	3' - 4"	3' - 4"	7' - 10"	1 3/4"	F	F									05	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-18B	3' - 4"	3' - 4"	7' - 10"	1 3/4"	F	F									05	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS: 1/2" UNDERCUT.
D6-21	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-22	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-23	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-24	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-25	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-26	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-01A	3' - 4"		7' - 7"	2"	NA										06	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-01B	3' - 4"		7' - 7"	2"	NA										06	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-02	3' - 4"		7' - 8"	1 3/4"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-03	3' - 4"		7' - 8"	1 3/4"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-04	3' - 4"		7' - 8"	1 3/4"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-05A	3' - 4"		7' - 7"	2"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-05B	3' - 4"		7' - 7"	2"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-06	3' - 4"		7' - 8"	1 3/4"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-07	3' - 4"		7' - 8"	1 3/4"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-08	3' - 4"		7' - 8"	1 3/4"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-09	3' - 4"		7' - 8"	1 3/4"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-10	3' - 4"		7' - 8"	2"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-11A	3' - 4"		7' - 10"	2"	NA	NA									05	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-11C	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-11D	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-11E	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-11F	3' - 4"		7' - 8"	2"	NA										05	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-11G	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-11H	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-11J	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-13	3' - 4"		7' - 7"	2"	NA										06	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-14A	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-14B	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-14C	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-14D	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-15A	3' - 4"		7' - 8"	2"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-19B	3' - 4"		7' - 8"	2"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-19S	3' - 4"	3' - 4"	7' - 10"	1 3/4"	F	F									05	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-16	3' - 4"		7' - 7"	2"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-16C	3' - 4"		7' - 7"	1 3/4"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-17	3' - 4"		7' - 8"	1 3/4"	NA										04	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-19	3' - 4"		7' - 8"	2"	NA										05	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-20	3' - 4"		7' - 8"	2"	NA										05	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-21	3' - 4"		7' - 10"	2"	NA	NA									05	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-23	3' - 4"		7' - 10"	2"	NA	NA									05	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-24	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-25	3' - 4"		7' - 8"	1 3/4"	NA										02	REFER TO DEMOUNTABLE PARTITION SHOP DRAWINGS

DEMOUNTABLE PARTITION DOOR HARDWARE SETS

I. MANUFACTURERS

HINGES	HAGER
LOCKSETS, LATCHSETS	FALCON
PANIC DEVICES	FALCON
CLOSERS	HAGER
STOPS, BOLTS	HAGER
OVERHEAD STOP	ABH
ELECTRIC STRIKES	H.E.S

II. FINISH

630 FINISH

IV. KEYING

F-ALCON 6 PIN, INTERCHANGEABLE CORES

V. HARDWARE SETS

SET #01 (DOUBLE SLIDER)
1 BLADE BACK TO BACK BAR PULL – 30"
1 DOUBLE BARN DOOR V4 TRACK
1 SOFT CLOSE

SET #02 (LOCKING)
1 BLADE BACK TO BACK BAR PULL 630 FINISH – 30"
1 ADAMS LOCK
1 BARN DOOR SLIM TRACK
1 SOFT CLOSE

SET #03 (NON-LOCKING)
1 BLADE BACK TO BACK BAR PULL 630 FINISH – 30"
1 BARN DOOR SLIM TRACK
1 SOFT CLOSE

SET #04 (PIVOTING)
1 BLADE BACK TO BACK BAR PULL 630 FINISH – 30"
1 SOFT CLOSE

SET #05 (PIVOTING, LOCKING)
1 BLADE BACK TO BACK BAR PULL 630 FINISH – 30"
1 SOFT CLOSE

SET #06 (PIVOTING, CARD READER)
1 BLADE BACK TO BACK BAR PULL 630 FINISH – 30"
1 CLOSER 9200-AL
1 ELECTRIC STRIKE 9200C-630
(CARD READER, POWER, CONTROLS BY SECURITY VENDOR)

DOOR NOTES

1. REFER TO FLOOR PLANS FOR DIRECTION OF SLIDE, SWING, AND HAND OF EACH DOOR PANEL.
2. REFER TO SCHEDULE FOR DESCRIPTION OF HARDWARE SET
3. PROVIDE RESILIENT SILENCERS AT HOLLOW METAL FRAMES - 3 PER DOOR PANEL.
4. PROVIDE BLOCKING AS REQUIRED
5. DIMENSIONS AT EXISTING OPENINGS REQUIRE FIELD VERIFICATION PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS.
6. ALL DOORS WILL RECEIVE NEW FALCON LOCKSETS, LATCHSETS.
7. COORDINATE ALL KEYING WITH HACP LOCKSMITH.

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PROFESSIONAL SEAL
REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JEFFREY C. METZEL No. RA016811

CONSULTANT:

CLIENT:
Housing Authority of the City of Pittsburgh
200 ROSS STREET
PITTSBURGH, PA 15219
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HACP - Housing Authority of the City of Pittsburgh
412 Boulevard of the Allies, Pittsburgh, PA 15219

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5	100% CONSTRUCTION DOCUMENTS REVISION 05	09/03/2020
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3	100% CONSTRUCTION DOCUMENTS REVISION 03	07/06/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	Author	Checker

SHEET NAME:
DOOR SCHEDULE - DEMOUNTABLE PARTITIONS

SHEET NO:
A601

TRUE NORTH
PLAN NORTH

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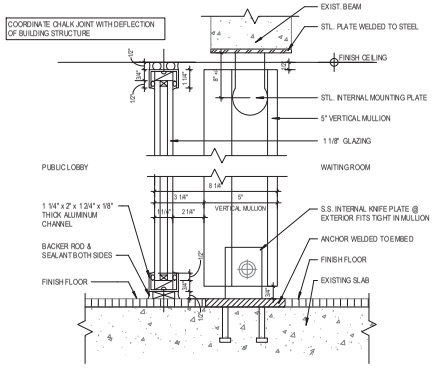
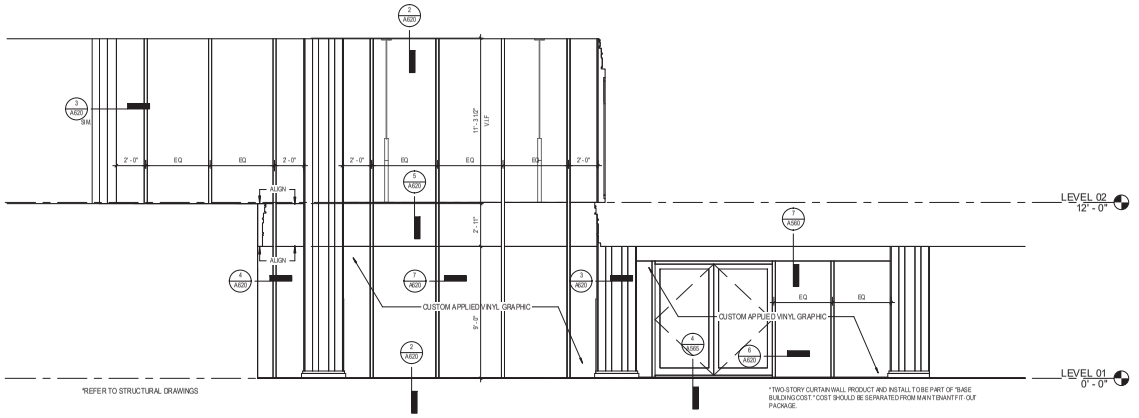
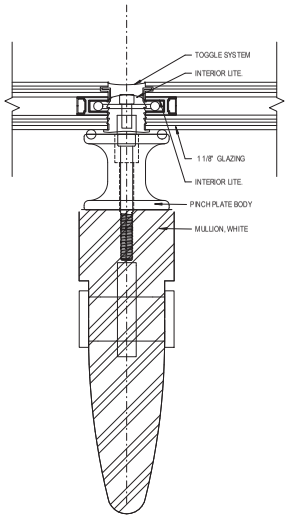


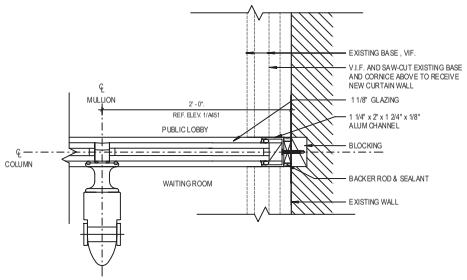
2 STOREFRONT DETAIL - HEAD & BASE
3" = 1'-0"



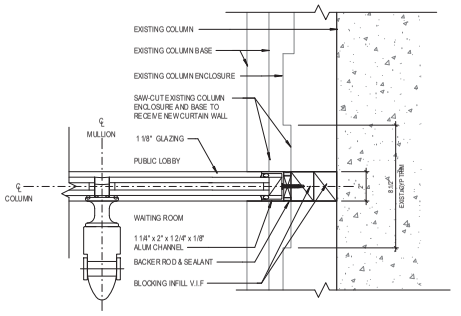
1 ENTRANCE LOBBY - ELEVATION 1
1/4" = 1'-0"



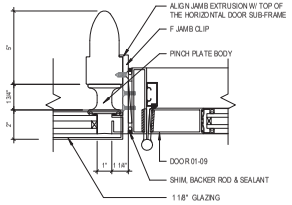
7 STOREFRONT DETAIL - MULLION
3" = 1'-0"



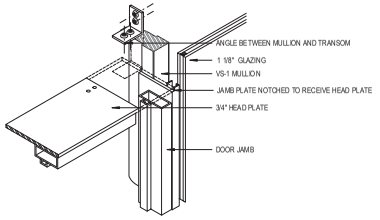
4 STOREFRONT DETAIL - JAMB @ WALL
3" = 1'-0"

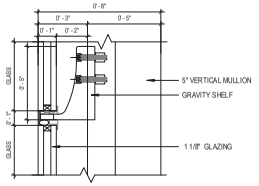


3 STOREFRONT DETAIL - JAMB @ COLUMN
3" = 1'-0"



6 STOREFRONT DETAIL - JAMB @ DOOR
3" = 1'-0"





5 STOREFRONT DETAIL - GRAVITY FITTING
3" = 1'-0"

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PROFESSIONAL SEAL

REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA JEFFREY C. METZEL No. RA016851

CONSULTANT:

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2	100% CONSTRUCTION DOCUMENTS	06/22/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	Author	Checker

SHEET NAME:
CURTAIN WALL TYPES AND DETAILS

SHEET NO:
A620

TRUE NORTH
PLAN NORTH

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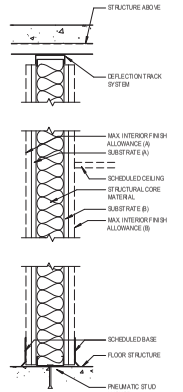
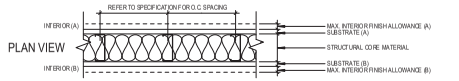


SECTION VIEW

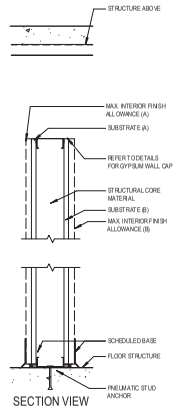


PLAN VIEW

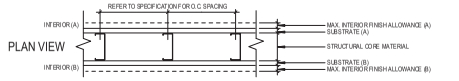
'A' SERIES - METAL STUDS / SUBSTRATE FULL HEIGHT TO DECK

*WHERE APPLICABLE PROVIDE SEALANT AT PENETRATIONS FOR STC RATINGS. REFER TO SPECIFICATIONS FOR PARTITION ASSEMBLY COMPONENTS. ADD DEFLECTION HEAD AT ALL LOCATIONS. REFER TO INTERIOR ELEVATIONS AND FINISH SCHEDULE FOR WALL FINISHES**

Wall Type	Width	Structural Core Type	Substrate (A)	Max. Finish Allowance (A)	Substrate (B)	Max. Finish Allowance (B)	FR	STC#	UL#/ Rating	Comments
A1a	5"	3 5/8" METAL STUDS	5/8" GYP		5/8" GYP					
A1c	5"	3 5/8" METAL STUDS	5/8" GYP		5/8" GYP		BATTINS			
A2	4 1/4"	3 5/8" METAL STUDS	5/8" GYP							
A4a	4 1/4"	3 5/8" METAL STUDS	5/8" GYP							BULKHEAD
A4b	4 7/8"	3 5/8" METAL STUDS	5/8" GYP		5/8" GYP					BULKHEAD



SECTION VIEW

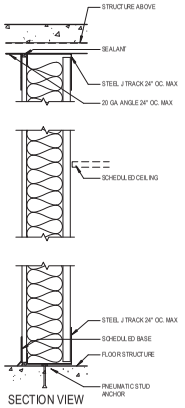


PLAN VIEW

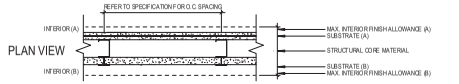
'B' SERIES - METAL STUDS / SUBSTRATE TO 8' AFF

*WHERE APPLICABLE PROVIDE SEALANT AT PENETRATIONS FOR STC RATINGS. REFER TO SPECIFICATIONS FOR PARTITION ASSEMBLY COMPONENTS. REFER TO INTERIOR ELEVATIONS AND FINISH SCHEDULE FOR WALL FINISHES**

Wall Type	Width	Structural Core Type	Substrate (A)	Max. Finish Allowance (A)	Substrate (B)	Max. Finish Allowance (B)	FR	STC#	UL#/ Rating	Comments
B1	5"	3 5/8" METAL STUDS	5/8" GYP		5/8" GYP					
B2	2 5/8"	2" METAL STUDS	5/8" GYP		5/8" GYP					



SECTION VIEW



PLAN VIEW

'D' SERIES - RATED PARTITION, METAL STUDS / SUBSTRATE FULL HEIGHT TO DECK

*WHERE APPLICABLE PROVIDE SEALANT AT PENETRATIONS FOR FIRE RATINGS. REFER TO SPECIFICATIONS FOR PARTITION ASSEMBLY COMPONENTS. ADD FIRE RATED DEFLECTION HEAD AT ALL LOCATIONS. REFER TO INTERIOR ELEVATIONS AND FINISH SCHEDULE FOR WALL FINISHES**

Wall Type	Width	Structural Core Type	Substrate (A)	Max. Finish Allowance (A)	Substrate (B)	Max. Finish Allowance (B)	FR	STC#	UL#/ Rating	Comments
D1	6"	5 5/8" METAL STUDS	(1) 5/8" GYP		(1) 5/8" GYP				UL U419 - 2 HOUR	

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:

INTERIOR PARTITION TYPES

SHEET NO:

A630

TRUE NORTH

PLAN NORTH

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ROOM FINISH SCHEDULE

NO	ROOM NAME	FLOOR	BASE	WALLS				CEILING	NOTES
				N	S	E	W		
52ER	RISER	RT-01	RB-01	PT-01	PT-01	PT-01	PT-01	EXISTING	
103	LARGE CONSULTATION	CPT-07	EXISTING WOOD BASE, TOUCH UP AS NEEDED	PT-06	WF-01	WC-05	PT-06	ACT-02	
106	SMALL CONSULTATION	CPT-03	EXISTING WOOD BASE, TOUCH UP AS NEEDED	PT-06	WF-01	PT-06	PT-01	ACT-02	
101	APPLICATION AREA	LVT-01	EXISTING WOOD BASE, TOUCH UP AS NEEDED	REFER TO ELEVATION	WF-02	REFER TO ELEVATION	EXISTING, TOUCH UP AS NEEDED	GWB, ACP-04	
102	RECEPTION SPACE	CPT-01	WB-01, TO MATCH EXISTING	PT-01	PT-01	REFER TO ELEVATION	PT-10	GWB	
123	EQUIPMENT STORAGE	CPT-01	RB-01	PT-01	PT-01	PT-01	PT-01	ACT-01	
125	DIRECTOR'S OFFICE	CPT-01	RB-01	PT-05	PT-01	PT-01	WF-01	ACT-01	
124	MANAGERS OFFICE	CPT-01	RB-01	PT-01	PT-05	PT-01	WF-01	ACT-01	
122	EXECUTIVE WORKSTATIONS	CPT-01	RB-01	PT-03	PT-03	PT-01	PT-01	PT-10, ACP-02	
120	MANAGERS OFFICE	CPT-12	RB-01	PT-06	PT-01	PT-01	WF-01, PT-01	ACT-01	
119	MANAGERS OFFICE	CPT-12	RB-01	PT-01	PT-01	PT-01	WF-01, PT-01	ACT-01	
118	EXECUTIVE DIRECTORS OFFICE	CPT-12	RB-01	PT-03	WC-02	PT-03	PT-03	ACT-01	
114C	DIRECTOR'S OFFICE	CPT-01	RB-01	WF-01	PT-01	PT-04	PT-01	ACT-01	
108	PHONE	CPT-07	RB-01	PT-01	PT-01	PT-05	WF-01	ACT-01	
104	MID-SIZE CONFERENCE	CPT-07	RB-01	WF-01	REFER TO ELEVATION	REFER TO ELEVATION	REFER TO ELEVATION	ACT-01	
111D	MANAGERS OFFICE	CPT-01	RB-01	PT-01	WF-01	WF-01	PT-04	ACT-01	
111E	MANAGERS OFFICE	CPT-01	RB-01	PT-01	WF-01	PT-01	PT-04	ACT-01	
111F	CHIEF OFFICE	CPT-01	RB-01	PT-01	PT-04, WF-01	PT-01, WF-01	PT-01	ACT-01	
116	BOARD ROOM	CPT-11	RB-01	WC-03 (UPT O 8'-0" AFF, PT-08 ABOVE	WC-03 (UP TO 8'-0" AFF, PT-08 ABOVE	WC-03 (UPT O 8'-0" AFF, PT-08 ABOVE	WC-03 (UP TO 8'-0" AFF, PT-08 ABOVE	GWB, ACP-03	
116	RECEPTION	CPT-12	RB-01	WF-01	PT-03	PT-03	WC-03	GWB	
110C	DIRECTOR'S OFFICE	CPT-01	RB-01	PT-06	PT-01	WF-01	PT-01	ACT-01	
110D	MANAGERS OFFICE	CPT-01	RB-01	PT-05	PT-01	WF-01	PT-01	ACT-01	
110E	MANAGERS OFFICE	CPT-01	RB-01	PT-06	PT-01	WF-01	PT-01	ACT-01	
111	LARGE CONFERENCE	LVT-01, CPT-01	RB-01	WC-05	WC-05	WF-01	PT-01	ACT-01	
112	MID-SIZE CONFERENCE	CPT-07, CPT-01	RB-01	PT-03	PT-01	WF-01	PT-01	ACT-01	
113	MID-SIZE CONFERENCE	CPT-07, CPT-01	RB-01	PT-03	WF-01	WF-01	PT-01	ACT-01	
111H	CHIEF OFFICE	CPT-01	RB-01	PT-05	PT-01	WF-01	PT-01	ACT-01	
108	MID-SIZE CONFERENCE	CPT-09	RB-01	WF-01	REFER TO ELEVATION	REFER TO ELEVATION	REFER TO ELEVATION	ACT-01	
108	MID-SIZE CONFERENCE	CPT-09	RB-01	REFER TO ELEVATION	WF-01	REFER TO ELEVATION	REFER TO ELEVATION	ACT-01	
109	IDF	RT-01	RB-01	PT-01	PT-01	PT-01	PT-01	PT-10	
111J	MANAGERS OFFICE	CPT-01	RB-01	PT-05	PT-01	WF-01	PT-01	ACT-01	RB-01 ON EXISTING EXTERIOR WALLS, EXISTING WALLS, OR NEW GYPSUM WALLS
114D	CHIEF OFFICE	CPT-01	RB-01	WF-01	PT-01	PT-04	PT-03	ACT-01	
114C	MANAGERS OFFICE	CPT-01	RB-01	WF-01	PT-01	PT-04	PT-01	ACT-01	REFER TO FINISH PLANS FOR PAINTS ON EXTERIOR OF OFFICE
102	STORAGE	CPT-05	RB-01	WF-01	PT-05	PT-05	PT-05	ACT-01	
122	DIRECTOR'S OFFICE	CPT-01	RB-01	WF-01	PT-03	PT-01	PT-01	ACT-01	
128	VIEWING ROOM	CPT-03	RB-01	REFER TO FINISH PLANS	PT-14, WF-01	WF-01	PT-14	PT-12, AP-02 (PAINTED TO MATCH CEILING)	
120	CHIEF OFFICE	CPT-01	RB-01	PT-03	PT-01	PT-01	WF-01	ACT-01	
117	REFERENCE LIBRARY	CPT-01	RB-01	PT-03	PT-01	PT-01	N/A	PT-10	
117A	DIRECTOR'S OFFICE	CPT-03	RB-01	REFER TO ELEVATION	WF-01	PT-05	PT-05	ACT-01	
117B	MANAGERS OFFICE	CPT-03	RB-01	REFER TO ELEVATION	WF-01	PT-05	PT-05	ACT-01	
117C	MANAGERS OFFICE	CPT-03	RB-01	REFER TO ELEVATION	WF-01	PT-05	PT-05	ACT-01	
117D	MANAGERS OFFICE	CPT-03	RB-01	REFER TO ELEVATION	WF-01	PT-05	PT-05	ACT-01	
117E	DIRECTOR'S OFFICE	CPT-03	RB-01	REFER TO ELEVATION	WF-01	PT-05	PT-05	ACT-01	
117F	MANAGERS OFFICE	CPT-03	RB-01	REFER TO ELEVATION	WF-01	PT-05	PT-05	ACT-01	
114	CHIEF OFFICE	CPT-03	RB-01	WF-01	PT-01	PT-01	PT-01	ACT-01	
115	LARGE CONFERENCE	LVT-01, CPT-01	RB-01	WC-05	WC-05	WF-01	PT-01	ACT-01	
114	MID-SIZE CONFERENCE	CPT-07	RB-01	PT-01	PT-03	WF-01	PT-01	ACT-01	
112C	DIRECTOR'S OFFICE	CPT-01	RB-01	PT-01, REFER TO FINISH PLAN	WF-01	WF-01	PT-01, REFER TO FINISH PLAN	ACT-01	
112B	MANAGERS OFFICE	CPT-01	RB-01	PT-01	PT-01	PT-04	WF-01	ACT-01	
105	CHIEF OFFICE	CPT-01	RB-01	PT-04	PT-01	PT-01	WF-01	ACT-01	
104	MANAGERS OFFICE	CPT-01	RB-01	PT-04	PT-01	PT-01	WF-01	ACT-01	
103	MANAGERS OFFICE	CPT-01	RB-01	PT-04	PT-01	PT-01	WF-01	ACT-01	
101	TRAINING	CPT-07	RB-01	PT-06	PT-01	PT-06	PT-06	ACT-01	
102	MID-SIZE CONFERENCE	CPT-08	RB-01	WF-01	REFER TO ELEVATION	WF-01	REFER TO ELEVATION	ACT-01	
106	HUDDLE	CPT-02	RB-01	WF-01	REFER TO ELEVATION	REFER TO ELEVATION	REFER TO ELEVATION	ACT-01	
105	SHRED COPY / SUPPLY STORAGE	CPT-02	RB-01	N/A	PT-04	PT-04	PT-04	PT-10	
103	MINDFULNESS ROOM	CPT-02	RB-01	PT-05	PT-01	PT-01	PT-01	ACT-01	
104	WELLNESS / MOTHERS ROOM	CPT-02	RB-01	PT-05	PT-01	PT-01	PT-01	ACT-01	
115	BREAK ROOM	LVT-01	RB-02	REFER TO ELEVATION	WF-01	REFER TO ELEVATION	WC-01	PT-10, ACP-01	
111G	DIRECTOR'S OFFICE	CPT-01	RB-01	PT-01	PT-04	WF-01	PT-01	ACT-01	
12F	IDF	RT-01	RB-01	PT-01	PT-01	PT-01	PT-01	PT-10	
62B	IDF	RT-01	RB-01	PT-01	PT-01	PT-01	PT-01	PT-10	
611	BREAK ROOM OPEN COLLAB	LVT-02	RB-02	WC-01	WC-01	PT-05	N/A	PT-10, ACP-01	
108	MID-SIZE CONFERENCE	CPT-07	RB-01	REFER TO ELEVATION	WF-01	REFER TO ELEVATION	REFER TO ELEVATION	ACT-01	
103	HUDDLE	CPT-03	RB-01	WF-01	REFER TO ELEVATION	REFER TO ELEVATION	REFER TO ELEVATION	ACT-01	
107	HUDDLE	CPT-03	RB-01	REFER TO ELEVATION	WF-01	REFER TO ELEVATION	REFER TO ELEVATION	ACT-01	
114B	MANAGERS OFFICE	CPT-01	RB-01	WF-01	PT-01	PT-04	PT-01	ACT-01	REFER TO FINISH PLANS FOR PAINTS ON EXTERIOR OF OFFICE
111C	MANAGERS OFFICE	CPT-01	RB-01	PT-01	WF-01	PT-01	PT-04	ACT-01	
110B	MANAGERS OFFICE	CPT-01	RB-01	PT-06	PT-01	PT-01	WF-01	ACT-01	
114A	MANAGERS OFFICE	CPT-01	RB-01	WF-01	PT-04	PT-01	WF-01	ACT-01	
114B	MANAGERS OFFICE	CPT-01	RB-01	PT-01	PT-04	PT-01	WF-01	ACT-01	
117	CONFERENCE ROOM	LVT-01	RB-01	PT-03	WC-05	WC-05	WC-05	ACT-01	
001	ELEVATOR LOBBY	CPT-04, LVT-02	RB-01	PT-08 ABOVE 8'	PT-08 ABOVE 8'	PT-01, PT-08 ABOVE 8'	PT-06, WF-05, PT-08 ABOVE 8'	PT-10	
108	PHONE	CPT-07	RB-01	PT-01	PT-01	PT-05	WF-01	ACT-01	
102	PHONE	CPT-07	RB-01	PT-01	PT-01	PT-05	WF-01	ACT-01	
007	HEADS DOWN	CPT-02	RB-01	WF-01	PT-04	PT-04	PT-04	ACT-01	
010	HEADS DOWN	CPT-02	RB-01	PT-04	WF-01	PT-04	PT-04	ACT-01	
009	PHONE	CPT-02	RB-01	WF-01	PT-04	PT-04	PT-04	ACT-01	
003	PHONE	CPT-02	RB-01	PT-04	WF-01	PT-04	PT-04	ACT-01	
012	COMMAFFAIRS OPEN OFFICE	CPT-01	RB-01	PT-01	PT-05	N/A	PT-01	PT-10, ACP-02	
005	BREAK ROOM	LVT-01	RB-02	WF-01	WF-01	REFER TO ELEVATION	WC-01	PT-10, ACP-01	
003	MAIL ROOM	CPT-05	RB-01	WF-01	WF-01	PT-05	PT-05	ACT-01	
110	LARGE CONFERENCE ROOM	LVT-01	RB-01	WC-05, REFER TO FINISH PLAN	WF-01	WF-01	WC-05	ACT-01	
52EB	STORAGE	CPT-01	RB-01	PT-01	PT-01	PT-01	PT-01	PT-10	
101	ELEVATOR LOBBY	CPT-06, LVT-02	RB-01	PT-08 ABOVE 8'	PT-08 ABOVE 8'	PT-01, PT-08 ABOVE 8'	PT-13, WF-06, PT-08 ABOVE 8'	PT-10	
001	ELEVATOR LOBBY	CPT-04, LVT-02	RB-01	PT-08 ABOVE 8'	PT-08 ABOVE 8'	PT-01, PT-08 ABOVE 8'	PT-03, WF-04, PT-08 ABOVE 8'	PT-10	
013	COAT STORAGE/ BTORAGE	CPT-01	RB-01	PT-01	PT-01	PT-01	PT-01	PT-10	
016A	MANAGERS OFFICE	CPT-01	RB-01	PT-06	PT-01	PT-01	WF-01	ACT-01	
017A	OPEN COLLAB/ GRDVITH	LVT-02	RB-02	VIC-01	VIC-01	PT-05	N/A	PT-10, ACP-01	
017	DEVMOD OPEN OFFICE	CPT-01	RB-01	WF-01	REFER TO FINISH PLANS	PT-05	REFER TO FINISH PLANS	PT-10, ACP-02	
019	HR OPEN WORKSTATIONS	CPT-01	RB-01	PT-01	PT-05	PT-01	PT-05	PT-10, ACP-02	
011	FINANCE OPEN OFFICE	CPT-01	RB-01	PT-01	WF-01	PT-03	WF-01	PT-10, ACP-02	
013	OPERATIONS OPEN OFFICE	CPT-01	RB-01	WF-01	PT-03	WF-01	PT-03	PT-10, ACP-02	
010	HCV WORKSTATIONS	CPT-01	RB-01	PT-01	N/A	PT-01	N/A	PT-10, ACP-02	
023	PUBLIC SAFETY OPEN OFFICE	CPT-01	RB-01	REFER TO FINISH PLANS	N/A	REFER TO FINISH PLANS	N/A	PT-10, ACP-02	
76S	COAT STORAGE	CPT-01	RB-01	PT-01	PT-01	PT-01	PT-01	ACT-01	COORDINATE SHELVING INTERIOR WITH DEMOUNTABLE WALL MANUF.
121	STORAGE	CPT-12	RB-01	PT-01	PT-01	PT-01	PT-01	ACT-01	COORDINATE SHELVING INTERIOR WITH DEMOUNTABLE WALL MANUF.
126	IT OPEN OFFICE	CPT-01	RB-01	PT-05	PT-01	WF-01	PT-04	PT-10, ACP-02	
51ER	RISER	RT-01	RB-01	PT-01	PT-01	PT-01	PT-01	EXISTING	
52ER	RISER	RT-01	RB-01	PT-01	PT-01	PT-01	PT-01	EXISTING	
12ER	RISER	RT-01	RB-01	PT-01	PT-01	PT-01	PT-01	EXISTING	
015	HCV CONTROL OPEN OFFICE	CPT-01	RB-01	PT-06	PT-01	PT-06	PT-03	PT-10, ACP-02	
150	CORRIDOR	CPT-01	RB-01	REFER TO FINISH PLANS	REFER TO FINISH PLANS	REFER TO FINISH PLANS	REFER TO FINISH PLANS	PT-10	
114	I.C. OPEN OFFICE	CPT-01	RB-01	WF-01	WF-01	WF-01	PT-03	PT-10, ACP-02	
100	CORRIDOR	CPT-01	WB-01, TO MATCH EXISTING	WF-01	PT-01	PT-01	WF-01	EXISTING, TOUCH UP AS NEEDED	
111A	VAULT STORAGE	CPT-01	RB-01	PT-01	PT-01	PT-01	PT-01	ACT-01	
109	KOS AREA	CPT-05	EXISTING WOOD BASE, TOUCH UP AS NEEDED	PT-06	N/A	REFER TO ELEVATION	REFER TO ELEVATION	ACT-02	
108	SMALL CONSULTATION	CPT-03	EXISTING WOOD BASE, TOUCH UP AS NEEDED	PT-06	WF-01	PT-06	PT-01	ACT-02	
107	SMALL CONSULTATION	CPT-03	EXISTING WOOD BASE, TOUCH UP AS NEEDED	PT-06	WF-01	PT-03	PT-01	ACT-02	
109	MED UM CONSULTATION	CPT-03	EXISTING WOOD BASE, TOUCH UP AS NEEDED	PT-06	WF-01	PT-06	PT-06	ACT-02	
110	MDF	RT-01	RB-01	PT-01	PT-01	PT-01	PT-01	ACT-01	
012	PROC WORKSTATIONS	CPT-01	RB-01	REFER TO FINISH PLANS	N/A	WF-01	PT-04	PT-10, ACP-02	
016A	MANAGERS OFFICE	CPT-01	RB-01	PT-01	PT-01	PT-04	WF-01	ACT-01	
016A	COAT STORAGE	CPT-01	RB-01	PT-01	PT-01	PT-01	PT-01	ACT-01	COORDINATE SHELVING INTERIOR WITH DEMOUNTABLE WALL MANUF.
019	DIRECTOR'S OFFICE	CPT-01	RB-01	PT-06	PT-01	PT-01	WF-01	ACT-01	
018	MANAGERS OFFICE	CPT-01	RB-01	PT-06	PT-01	PT-01	WF-01	ACT-01	
016	PARALEGAL	CPT-01	RB-01	PT-06	PT-01	N/A	PT-06	PT-10, ACP-02	
008	MANAGERS OFFICE	CPT-01	RB-01	REFER TO FINISH PLANS	WF-01	PT-01	WF-01	ACT-01	
016A	AV CLOSET	CPT-07	RB-01	PT-01	PT-01	PT-01	PT-01	ACT-01	
016B	STORAGE	CPT-07	RB-01	PT-01	PT-01	PT-01	PT-01	ACT-01	
002	MANAGERS OFFICE	CPT-01	RB-01	PT-04	PT-01	PT-01	WF-01	ACT-01	
001	HUDDLE	CPT-01	RB-01	PT-04	PT-01	PT-01	WF-01	ACT-01	
02F	DISABILITY COMPLIANCE OPEN OFFICE	CPT-01	RB-01	PT-05	N/A	WF-01	PT-01	PT-10, ACP-02	
02F	LEGAL ADMIN	CPT-01	RB-01	PT-01	PT-01	WF-01	PT-01	PT-10	
014	OCCUPANCY OPEN OFFICE	CPT-01	RB-01	N/A	REFER TO FINISH PLANS	REFER TO FINISH PLANS	N/A	PT-10, ACP-02	
50D	CORRIDOR	CPT-04	RB-01	REFER TO FINISH PLANS	REFER TO FINISH PLANS	REFER TO FINISH PLANS	REFER TO FINISH PLANS	PT-10	
200	CORRIDOR	CPT-04	RB-01	REFER TO FINISH PLANS	REFER TO FINISH PLANS	REFER TO FINISH PLANS	REFER TO FINISH PLANS	PT-10	

*ROOM FINISH SCHEDULE FOLLOWS TITLEBLOCK PLAN NORTH

GENERAL FINISH NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. SEE FULL SET OF DOCUMENTS FOR COMPLETE SET OF WORK.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. REPORT DISCREPANCIES AND UNFORSEEN CONDITIONS TO THE ARCHITECT IMMEDIATELY.
4. GC TO DETERMINE EXISTING FLOOR PREPARATION REQUIREMENTS WITH ALL FLOORING MANUFACTURERS.
5. ALL FINISHES TO BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.
6. ALL DIMENSIONS ARE MEASURED TO THE FINISHED WALL SURFACE UNLESS NOTED OTHERWISE.
7. COORDINATE FINISH LOCATIONS WITH CEILING LOCATIONS AND DEMOUNTABLE WALL LOCATIONS.
8. ALL WALL FINISHES ARE TO RECEIVE PT-01 U.O.N. SEE ROOM FINISH SCHEDULE FOR MORE DETAILED INFORMATION.
9. ALL CEILING FINISHES ARE TO RECEIVE PT-10 U.O.N.
10. ALL EXPOSED COLUMNS ARE TO RECEIVE PT-11 U.O.N.
11. PROVIDE ADA COMPLIANT TRANSITION STRIPS BETWEEN ALL DISSIMILAR FLOOR MATERIALS OF DIFFERING THICKNESSES. SEE FINISH LEGEND FOR PRODUCT INFORMATION. FLOORING MATERIALS OF THE SAME THICKNESS TO BE BUTTED TOGETHER WITH NO TRANSITIONS.
12. ALL FLOOR FINISHES TO EXTEND UNDER NEATH CASEWORK AND EQUIPMENT.
13. ALL FINISHES BEING APPLIED TO DEMOUNTABLE PARTITIONS ARE TO BE PROVIDED BY THE DEMOUNTABLE PARTITION VENDER AND ARE NOT INCLUDED IN THE GC SCOPE OF WORK.
14. FLOORING PATTERN LAYOUT IS TO BE CENTERED WITHIN THE EXTENTS OF THE FINISH U.O.N.

FINISH SCHEDULE NOTES

1. REFER TO FINISH PLANS FOR ACCENT WALLS IN G.C. SCOPE.
2. REFERENCE DEMOUNTABLE WALL PLANS FOR ACCENT WALLS IN DEMOUNTABLE WALL SCOPE.
3. RUBBER BASE IS ONLY APPLIED TO EXISTING EXTERIOR WALLS, NEW GYPSUM WALLS AND COLUMNS U.O.N. BASE FOR DEMOUNTABLE WALLS ARE PROVIDED BY DEMOUNTABLE PARTITION VENDER.
4. ALL BULKHEADS ARE PT-08 U.O.N.
5. ALL EXPOSED CEILINGS TO RECEIVE PT-10, INCLUDING MEP, CABLING, AND ALL CEILING SERVICES. COORDINATE WITH ARCHITECT.

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PROFESSIONAL SEAL

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION 05	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION 04	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION 03	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
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PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	AE7	JW

SHEET NAME:

INTERIOR ROOM FINISH SCHEDULE

SHEET NO:

A640

TRUE NORTH / PLAN NORTH

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FINISH TYPES

FINISH TYPE	MANUFACTURER	MODEL	DESCRIPTION	MATERIAL TYPE	MATERIAL FINISH	SIZING	LOCATION	COMMENTS	CONTACT INFO
FLOORING									
CPT-01	SHAW CONTRACT	COMMUNITY FLAT WEAVE ST32 | 01101 WITH ECOWORX SOLUTION Q BACKING	ARGAN EARTH	CARPET TILE	N/A	9" x 36"	REFER TO FINISH PLANS	BRICK INSTALL	DAVE SAVILLE; 412.779.7079
CPT-02	SHAW CONTRACT	HAVEN SHELTER TILE ST240/ 33875 WITH ECOWORX SOLUTION Q BACKING	APRICOT	CARPET TILE	N/A	9" x 36"	REFER TO FINISH PLANS	BRICK INSTALL	DAVE SAVILLE; 412.779.7079
CPT-03	SHAW CONTRACT	HAVEN SHELTER TILE ST240/ 33876 WITH ECOWORX SOLUTION Q BACKING	TRUFFLE	CARPET TILE	N/A	9" x 36"	REFER TO FINISH PLANS	BRICK INSTALL	DAVE SAVILLE; 412.779.7079
CPT-04	FLOR (INTERFACE)	2|1455 OASIS RETREAT WITH GLASBAC TILE BACKING TYPE 6 NYLON	COPPER	CARPET TILE	N/A	19.7" x 19.7"	REFER TO FINISH PLANS	QUARTER TURNED/ RANDOM INSTALL	JULIE KOCZKO; 412.738.4076
CPT-05	SHAW CONTRACT	HAVEN SHELTER TILE ST240/ 33827 WITH ECOWORX SOLUTION Q BACKING	MINT	CARPET TILE	N/A	9" x 36"	REFER TO FINISH PLANS	BRICK INSTALL	DAVE SAVILLE; 412.779.7079
CPT-06	FLOR (INTERFACE)	2|1455 OASIS RETREAT WITH GLASBAC TILE BACKING TYPE 6 NYLON	GRANITE	CARPET TILE	N/A	19.7" x 19.7"	REFER TO FINISH PLANS	STACKED INSTALL	JULIE KOCZKO; 412.738.4076
CPT-07	SHAW CONTRACT	HAVEN HONEST ST236/ 35760 WITH ECOWORX SOLUTION Q BACKING	TRUFFLE	CARPET TILE	N/A	9" x 36"	REFER TO FINISH PLANS	BRICK INSTALL	DAVE SAVILLE; 412.779.7079
CPT-08	SHAW CONTRACT	HAVEN HONEST ST236/ 33675 WITH ECOWORX SOLUTION Q BACKING	APRICOT	CARPET TILE	N/A	9" x 36"	REFER TO FINISH PLANS	BRICK INSTALL	DAVE SAVILLE; 412.779.7079
CPT-09	SHAW CONTRACT	HAVEN HONEST ST236/ 35027 WITH ECOWORX SOLUTION Q BACKING	MINT	CARPET TILE	N/A	9" x 36"	REFER TO FINISH PLANS	BRICK INSTALL	DAVE SAVILLE; 412.779.7079
CPT-10	SHAW CONTRACT	HAVEN HONEST FOG 25%, HAVEN HONEST MINT 25%, HAVEN FAMILIAR FOG 25% HAVEN FAMILIAR MINT 25%	MINT AND FOG	CARPET TILE	N/A	9" x 36"	REFER TO FINISH PLANS	BRICK INSTALL	DAVE SAVILLE; 412.779.7079
CPT-11	SHAW CONTRACT	COMMUNITY EXCHANGE TILE - ST304/ 01100 WITH ECOWORX SOLUTION Q BACKING	ARGAN	CARPET TILE	N/A	18" X36"	REFER TO FINISH PLANS	BRICK INSTALL	DAVE SAVILLE; 412.779.7079
CPT-12	SHAW CONTRACT	COMMUNITY KNOTTED TILE - ST301/ 01100 WITH ECOWORX SOLUTION Q BACKING	ARGAN	CARPET TILE	N/A	18" X36"	REFER TO FINISH PLANS	BRICK INSTALL	DAVE SAVILLE; 412.779.7079
LVT-01	INTERFACE	LEVEL SET TEXTURED WOODGRAINS A004/ A00406	ANTIQUE LIGHT OAK	LUXURY VINYL TILE	N/A	25CMX 9M	REFER TO FINISH PLANS	HERRINGBONE LOOSELAY INSTALL	JULIE KOCZKO; 412.738.4076
LVT-02	INTERFACE	LEVEL SET TEXTURED WOODGRAINS A004/ A00406	ANTIQUE LIGHT OAK	LUXURY VINYL TILE	N/A	25CMX 9M	REFER TO FINISH PLANS	ASHLAR LOOSELAY INSTALL	JULIE KOCZKO; 412.738.4076
RT-01	NORA	NORAPLAN SENTICA 6520	SNOW DAY	RUBBER TILE	SMOOTH	1'2" x 1'2"	REFER TO FINISH PLANS	STACK INSTALL	MICHELLE COADY; 585.281.6446
RT-02	NORA	NORAMENT ARAGO 5179	TRANQUIL	RUBBER TILE	N/A	20" X40"	REFER TO FINISH PLANS	REFER TO FLOOR PLAN FOR DETAIL	MICHELLE COADY; 585.281.6446
RT-03	NORA	NORAMENT ARAGO 5181	COMFORT	RUBBER TILE	N/A	20" X40"	REFER TO FINISH PLANS	REFER TO FLOOR PLAN FOR DETAIL	MICHELLE COADY; 585.281.6446
BASE									
QB-01	TO MATCH QT-01	TO MATCH QT-01	TO MATCH QT-01	QUARTZ BASE	N/A	REFER TO DETAILS	LVL 01 SERVICE COUNTER BASE		KALINA BOBYN; 952.944.1676
RB-01	TARKETT (FORMERLY JOHNSONITE)	DURACOVE THERMOPLASTIC RUBBER BASE WG STRAIGHT (NO TOE)	24 GRAY HAZE	RUBBER	N/A	4" H	GYPSUM WALL LOCATIONS ONLY		ROWAN BROSIOM, FISHMAN FLOORING; 412.303.0078
RB-02	TARKETT (FORMERLY JOHNSONITE)	DURACOVE THERMOPLASTIC RUBBER BASE WG STRAIGHT (NO TOE)	92 BLUE LAGOON	RUBBER	N/A	4" H	BREAK ROOM FEATURE WALLS		ROWAN BROSIOM, FISHMAN FLOORING; 412.303.0078
WB-01	N/A	STRAIGHT PAINTED POPLAR WOOD BASE TO MATCH WALL	PAINTED TO MATCH BASE BUILDING WOOD OR ACCENT WALL	WOOD	SATIN FINISH	1" D X 4" H	NEW FRONT OF HOUSE LVL 01 GYPSUM WALL LOCATIONS		N/A
WALLS									
PT-01	BENJAMIN MOORE	MATCH TO SW 7014	MATCH TO SW EIDER WHITE	PAINT	SATIN	N/A	ALL GYPSUM AND DIRTT WALLS U.O.N.		DOROTHY HAZINSKI; 330.353.3850
PT-02	BENJAMIN MOORE	CSP-1563	QUIET MOMENTS	PAINT	SATIN	N/A	LVL 01 KIDS ACCENT WALL AND LVL 06 OFFICE ACCENT WALL		DOROTHY HAZINSKI; 330.353.3850
PT-03	BENJAMIN MOORE	CW-645	APOLLO BLUE	PAINT	SATIN	N/A	ACCENT WALL		DOROTHY HAZINSKI; 330.353.3850
PT-04	BENJAMIN MOORE	CSP-1095	FIRE GLOW	PAINT	SATIN	N/A	ACCENT WALL		DOROTHY HAZINSKI; 330.353.3850
PT-05	BENJAMIN MOORE	CW-640 (DIRTT'S SUCCULENT EQUIVALENT)	PEARL	PAINT	SATIN	N/A	ACCENT WALL		DOROTHY HAZINSKI; 330.353.3850
PT-06	BENJAMIN MOORE	CSP-735	SEA GLASS	PAINT	SATIN	N/A	ACCENT WALL		DOROTHY HAZINSKI; 330.353.3850
PT-07	BENJAMIN MOORE	CW-630	WASHINGTON BLUE	PAINT	SATIN	N/A	ACCENT WALL		DOROTHY HAZINSKI; 330.353.3850
PT-08	BENJAMIN MOORE	MATCH TO SW 7014	MATCH TO SW EIDER WHITE	PAINT	SEMI GLOSS	N/A	EXISTING AND NEW HOLLOW METAL DOOR FRAMES U.O.N.		DOROTHY HAZINSKI; 330.353.3850
PT-13	BENJAMIN MOORE	CSP-40	MUSEUM PIECE	PAINT	SATIN	N/A	CONFERENCE ACCENT		DOROTHY HAZINSKI; 330.353.3850
PT-14	BENJAMIN MOORE	2128-10	BLACK BEAUTY	PAINT	SATIN	N/A	PUBLIC SAFETY ACCENT WALL		DOROTHY HAZINSKI; 330.353.3850
PT-15	BENJAMIN MOORE	2126-20	RACCOON FUR	PAINT	EG-SHEL	N/A	LVL 01 BOH PAINT TOUCH UP		DOROTHY HAZINSKI; 330.353.3850
PT-16	BENJAMIN MOORE	OC-64	PURE WHITE (OR TO MATCH BASE BUILDING WHITE)	PAINT	EG-SHEL	N/A	LVL 01 BASE BUILDING TOUCH UPS. DOUBLE HEIGHT SPACE, DECORATIVE COLUMNS, RADIATOR COVERS, EXTERIOR WALLS U.O.N.	PROVIDE ARCHITECT SAMPLE	DOROTHY HAZINSKI; 330.353.3850
TL-01	TILE BAR	CADENZA STROKE	VINTAGE WHITE	CEMENT TILE	MATTE	2" x 9"	BREAK ROOM BACKSPLASH	STACKED INSTALL	AARON YERES; 888.541.3840 X182
WC-01	KNOLL TEXTILES	BESPOKE WALL WC23916	FICUS	VINYL WALLCOVERING	N/A	50" W	BREAK ROOM FEATURE WALLS		NICOLE LANIER; 614.271.5456
WC-02	CARNEGIE	AERIAL 8084 42	AERIAL	VINYL WALLCOVERING	N/A	52" W	EXECUTIVE SUITE		SUSAN WONSOCK, DAN BINFORD & ASSOCIATES; 412.877.7022
WC-03	J JOSEPHSON TOWER	TEV-653	VALUES 6	VINYL WALLCOVERING	N/A	54" W	EXECUTIVE SUITE		JENNA TUTTLE, MOMENTUM TEXTILES & WALLCOVERING; 800.366.6809 x349
WC-04	MDC INTERIOR SOLUTIONS	DEW15303	48" MAGNETIC RECEPTIVE DRY ERASE WALLCOVERING	MAGNETIC DRY ERASE WALLCOVERING	N/A	48" ROLLED GOOD	REFER TO FINISH PLANS AND ELEVATIONS		WILL MICHAEL; 724.261.8359
WC-05	CARNEGIE FABRICS	6039-1	XOREL TRACE	XOREL WALLCOVERING	N/A	56" W	LARGE CONFERENCE ROOMS		SUSAN WONSOCK, DAN BINFORD & ASSOCIATES; 412.877.7022
WF-01	US FILM CREW	N/A	4" WHITE PRIVACY GRADIENT BAND	WINDOW FILM		N/A	ALL PRIVATE OFFICES WITH GLASS AND BREAK ROOM GLASS U.O.N.	BREAK ROOMS CONTACT KNOLL TEXTILES FOR SHOP DRAWING MOCKUPS	MARK YOCCA; 877.946.3693
WF-02	US FILM CREW	CUSTOM	CUSTOM DOT PATTERN	WINDOW FILM	WHITE, PROVIDE ARCHITECT MOCKUP SAMPLE	REFER TO ELEVATIONS	LVL 01 CURTAIN WALL AND STOREFRONT GLASS	COORDINATE WITH U.S. FILM	MARK YOCCA; 877.946.3693
WF-03	NOT USED								
WF-04	US FILM CREW	CUSTOM	CUSTOM PHOTOGRAPH DOT PATTERN ON LVL 05 GYPSUM FINISH	WINDOW FILM	COORDINATE COLORS AND MOCKUP SAMPLE WITH ARCHITECT	REFER TO ELEVATIONS	LVL 05 ELEVATOR LOBBY	COORDINATE OPACITY AND MOCKUPS WITH ARCHITECT	MARK YOCCA; US FILM; 877.946.3693
WF-05	US FILM CREW	CUSTOM	CUSTOM PHOTOGRAPH DOT PATTERN ON LVL 05 GYPSUM FINISH	WINDOW FILM	COORDINATE COLORS AND MOCKUP SAMPLE WITH ARCHITECT	REFER TO ELEVATIONS	LVL 06 ELEVATOR LOBBY	COORDINATE OPACITY AND MOCKUPS WITH ARCHITECT	MARK YOCCA; US FILM; 877.946.3693
WF-06	US FILM CREW	CUSTOM	CUSTOM PHOTOGRAPH DOT PATTERN ON LVL 05 GYPSUM FINISH	WINDOW FILM	COORDINATE COLORS AND MOCKUP SAMPLE WITH ARCHITECT	REFER TO ELEVATIONS	LVL 07 ELEVATOR LOBBY	COORDINATE OPACITY AND MOCKUPS WITH ARCHITECT	MARK YOCCA; US FILM; 877.946.3693
CEILINGS									
ACP-01	ARKTURA	SOFTFOLD MODULAR ACOUSTIC CEILING SYSTEM	HEATHER GREY	ACOUSTICAL CEILING PANEL		REFER TO DRAWINGS	BREAK ROOMS		MIKE CEBULAK; ENVIRON CONTRACT LLC; 412.253.6549
ACP-02	ARMSTRONG CEILINGS	TECTUM DIRECT ATTACH CEILINGS NO DESIGN	WHITE	ACOUSTICAL CEILING PANEL		REFER TO DRAWINGS	OPEN OFFICES		WILLIAM T. CAILEY; 878.600.1893
ACP-03	ARMSTRONG CEILINGS	WOODWORKS SHAPES FOR DESIGNFLEX - PATTERN SH 3	CONSTANTS WALNUT REDUX WOOD WHEAT	ACOUSTICAL CEILING PANEL		REFER TO DRAWINGS	BOARD ROOM	REFER TO DETAILS FOR TRIM PEICES AND GRID	WILLIAM T. CAILEY; 878.600.1893
ACP-04	ARMSTRONG CEILINGS	FELTWORKS ACOUSTIC PANELS BPSM1049FWH	WHITE	ACOUSTICAL CEILING PANEL		1" THICK, REFER TO DRAWINGS FOR SIZE	LVL 01 DOUBLE HEIGHT APPLICATION SPACE	REFER TO DETAILS	WILLIAM T. CAILEY; 878.600.1893
ACT-01	ARMSTRONG CEILINGS	ULTIMA HIGH NRC SQUARE LAY IN 15'/16"	WHITE	ACOUSTICAL CEILING TILE	WHITE	24"X24"	REFER TO RCP		WILLIAM T. CAILEY; 878.600.1893
ACT-02	ARMSTRONG CEILINGS	CALLA HIGH CAC 45-50 PRVA SSURE PERFORMANCE TEGULAR 15/16"	WHITE	ACOUSTICAL CEILING TILE	WHITE	24"X24"	REFER TO RCP		WILLIAM T. CAILEY; 878.600.1893
PT-08	BENJAMIN MOORE	CSP-725	BARELY THERE	PAINT	FLAT	N/A	GYPSUM CEILINGS U.O.N.		DOROTHY HAZINSKI; 330.353.3850
PT-10	SHERWIN WILLIAMS	PRO INDUSTRIAL WATERBORNE ACRYLIC DRYFALL B42W00181	BRIGHT WHITE	PAINT	FLAT	N/A	ALL EXPOSED CEILINGS AND SERVICES U.O.N.	PRIMER IS NEED IF PH LEVELS ARE NOT WITHIN 6-9 RANGE	JAMES GEIST: 724.933. 1900 x 104
PT-11	SHERWIN WILLIAMS	PRO INDUSTRIAL ACRYLIC EG-SHEL, B66-660 SERIES	TO MATCH DRYFALL CEILING	PAINT	EG-SHEL	N/A	AL EXPOSED COLUMNS U.O.N.		JAMES GEIST: 724.933. 1900 x 104
PT-12	SHERWIN WILLIAMS	PRO INDUSTRIAL WATERBORNE ACRYLIC DRYFALL B42W00181	BLACK BASE	PAINT	FLAT	N/A	VIEWING ROOM	PRIMER IS NEED IF PH LEVELS ARE NOT WITHIN 6-9 RANGE	JAMES GEIST: 724.933. 1900 x 104
COUNTERTOPS									
PL-04	PIONITE	AG640SD	SOOTHING WHITE CAPS	PLASTIC LAMINATE	TEXTURED/SUEDE	REFER TO DRAWINGS	USED WITH PL-03 U.O.N.		JULIE BACQUET; 937.477.7837
QT-01	CAMBRIA	SMITHFIELD	SMITHFIELD	QUARTZ	POLISHED	REFER TO DRAWINGS	LVL 01 RECEPTION COUNTER, BREAK ROOM COUNTERS, EXECUTIVE SUITE COUNTER U.O.N.		KALINA BOBYN; 952.944.1676
ADDITIONAL MATERIALS									
PL-01	TAFISA	SOMMET SERIES T2007 (VA)	CASTING AT FIRST LIGHT	PLASTIC LAMINATE	VIVA	REFER TO DRAWINGS	LARGE CONFERENCE CASEWORK		SANDRA WILSON; 267.229.5507
PL-02	NEVAMAR DECORATIVE SURFACES	ARMOURED PROTECTION S3022T	DEEP BLUE	PLASTIC LAMINATE	TEXTURED	REFER TO DRAWINGS	BREAKROOM BASE CASEWORK		JULIE BACQUET; 937.477.7837
PL-03	TAFISA	SOMMET SERIES T2003 (VA)	WEEKEND GETAWAY	PLASTIC LAMINATE	VIVA	REFER TO DRAWINGS	ALL BASE CASEWORK U.O.N.		SANDRA WILSON; 267.229.5507
PL-05	TAFISA	SOMMET SERIES T2004 (VA)	WINTER FUN	PLASTIC LAMINATE	VIVA	REFER TO DRAWINGS	ALL UPPER WALL CASEWORK U.O.N.		SANDRA WILSON; 267.229.5507
PL-06	NEVAMAR DECORATIVE SURFACES	ARMOURED PROTECTION S3022T	DEEP BLUE	PLASTIC LAMINATE	TEXTURED	REFER TO DRAWINGS	LVL 01 RECEPTION		JULIE BACQUET; 937.477.7837
PL-07	WILSONART	TRACELESS LAMINATE 1590T	SLATE VELVET	PLASTIC LAMINATE	TRACELESS	REFER TO DRAWINGS	EXISTING LVL 05, LVL 06, LVL 07 RESTROOMS		AMBER LEDDON; 412.335.5620
PL-08	WILSONART	7992K-12	PINNACLE WALNUT	PLASTIC LAMINATE	FINE VELVET TEXTURE	REFER TO DRAWINGS	LVL 07 EXECUTIVE SUITE		AMBER LEDDON; 412.335.5620

ACCESSORY & APPLIANCE SCHEDULE

CODE	DESCRIPTION	MANUFACTURER	MODEL NUMBER	COMMENTS
AC-01	SEMI-RECESSED AUTOMATIC, UNIVERSAL ROLL PAPER TOWEL DISPENSER	BOBRICK WASHROOM EQUIPMENT, INC.	B-29744	MOUNTED TO COMPLY WITH ADA AND UFAS GUIDELINES
AC-02	AUTOMATIC WALL-MOUNTED FOAM SOAP DISPENSER	BOBRICK WASHROOM EQUIPMENT, INC.	B-2013	MOUNTED TO COMPLY WITH ADA AND UFAS GUIDELINES
AC-03	RECESSED CONVERTIBLE AUTOMATIC, UNIVERSAL ROLL TOWEL DISPENSER/ WASTE RECEPTACLE	BOBRICK WASHROOM EQUIPMENT, INC.	B-39747	MOUNTED TO COMPLY WITH ADA AND UFAS GUIDELINES
AC-04	FOAMING SOAP DISPENSER	SLOAN	ESD2030-BN	DECK MOUNTED
AC-05	24 INCH BUILT IN ADA COMPLIANT DISHWASHER, STAINLESS STEEL	GE APPLIANCES	GDT226SSLSS	ENERGY STAR
AC-06	36 INCH COUNTER DEPTH FRENCH DOOR REFRIGERATOR, EXTERNAL WATER/ICE DISPENSER, ADA COMPLIANT, STAINLESS STEEL	GE APPLIANCES	GYE22JSYNFS	ENERGY STAR
AC-07	24 INCH BUILT IN UNDERCOUNTER ADA REFRIGERATOR, STAINLESS STEEL (REFER TO PLANS FOR DOOR SWING HINGE)	MARVEL	MA24RAS1	ENERGY STAR

GENERAL FINISH NOTES

1. REFER TO SHEET G010 FOR PROJECT GENERAL NOTES.
2. SEE FULL SET OF DOCUMENTS FOR COMPLETE SET OF WORK.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. REPORT DISCREPANCIES AND UNFORSEEN CONDITIONS TO THE ARCHITECT IMMEDIATELY.
4. GC TO DETERMINE EXISTING FLOOR PREPARATION REQUIREMENTS WITH ALL FLOORING MANUFACTURERS.
5. ALL FINISHES TO BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.
6. ALL DIMENSIONS ARE MEASURED TO THE FINISHED WALL SURFACE UNLESS NOTED OTHERWISE.
7. COORDINATE FINISH LOCATIONS WITH CEILING LOCATIONS AND DEMOUNTABLE WALL LOCATIONS.
8. ALL WALL FINISHES ARE TO RECEIVE PT-01 U.O.N. SEE ROOM FINISH SCHEDULE FOR MORE DETAILED INFORMATION.
9. ALL CEILING FINISHES ARE TO RECEIVE PT-10 U.O.N.
10. ALL EXPOSED COLUMNS ARE TO RECEIVE PT-11 U.O.N.
11. PROVIDE ADA COMPLIANT TRANSITION STRIPS BETWEEN ALL DISSIMILAR FLOOR MATERIALS OF DIFFERING THICKNESSES. SEE FINISH LEGEND FOR PRODUCT INFORMATION. FLOORING MATERIALS OF THE SAME THICKNESS TO BE BUTTED TOGETHER WITH NO TRANSITIONS.
12. ALL FLOOR FINISHES TO EXTEND UNDERNEATH CASEWORK AND EQUIPMENT.
13. ALL FINISHES BEING APPLIED TO DEMOUNTABLE PARTITIONS ARE TO BE PROVIDED BY THE DEMOUNTABLE PARTITION VENDER AND ARE NOT INCLUDED IN THE GC SCOPE OF WORK.
14. FLOORING PATTERN LAYOUT IS TO BE CENTERED WITHIN THE EXTENTS OF THE FINISH U.O.N.

FINISH SCHEDULE NOTES

1. REFER TO FINISH PLANS FOR ACCENT WALLS IN G.C. SCOPE.
2. REFERENCE DEMOUNTABLE WALL PLANS FOR ACCENT WALLS IN DEMOUNTABLE WALL SCOPE.
3. RUBBER BASE IS ONLY APPLIED TO EXISTING EXTERIOR WALLS, NEW GYPSUM WALLS AND COLUMNS U.O.N. BASE FOR DEMOUNTABLE WALLS ARE PROVIDED BY DEMOUNTABLE PARTITION VENDER.
4. ALL BULKHEADS ARE PT-08 U.O.N.
5. ALL EXPOSED CEILINGS TO RECEIVE PT-10, INCLUDING MEP, CABLING, AND ALL CEILING SERVICES. COORDINATE WITH ARCHITECT.

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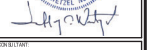

CONSULTANT:

CLIENT:

Housing Authority of the City of Pittsburgh

200 ROSS STREET
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hacp.org

HACP - Housing Authority of the City of Pittsburgh
412 Boulevard of the Allies, Pittsburgh, PA 15219

#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION 05	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION 04	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION 01	07/09/2020

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190427.00	Author	Checker

SHEET NAME:

INTERIOR FINISH SCHEDULES

SHEET NO:

A641

TRUE NORTH

PLAN NORTH

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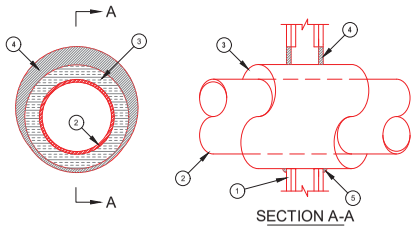


SECTION A-A

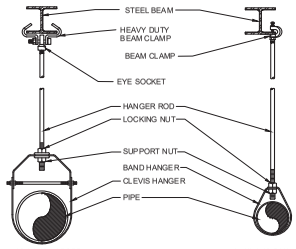
WALL ASSEMBLY RATING HR	THROUGH PENETRANT		PIPE COVERING THKNS IN.	ANNULAR SPACE		T RATING HR
	TYPE +	MAX DIAM IN.		MIN IN.	MAX. IN.	
1	A	4	1	0	1-1/2	1/2
1	B or C	2	1 or 1-1/2	0	1-1/2	1/2
1	A	4	1-1/2	0	1-1/2	1
1	A	12	2	0	1-7/8	3/4
1	B or C	6	2	0	1-7/8	1
2	A	4	1	0	1-1/2	1
2	B or C	4	1 or 1-1/2	0	1-1/2	1
2	B or C	6	2	0	1-7/8	1
2	A	4	1-1/2	0	1-1/2	1-3/4
2	A	12	2	0	1-7/8	1-1/2
2	B or C	6	2	0	1-7/8	1

+INDICATES PENETRANT TYPE AS ITEMIZED IN ITEM 2.

1. WALL ASSEMBLY — THE 1 OR 2 HR FIRE-RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. STUDS — WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. OC.
   B. GYPSUM BOARD* — 5/8 IN. THICK, 4 FT WIDE, WITH SQUARE OR TAPERED EDGES. THE GYPSUM BOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIAM OF OPENING IS 18-5/8 IN. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
2. THROUGH PENETRANTS — ONE METALLIC PIPE OR TUBING TO BE CENTERED WITHIN THE FIRESTOP SYSTEM. PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED:
   A. STEEL PIPE — NOM 12 IN. DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE.
   B. IRON PIPE — NOM 12 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
   C. COPPER TUBING — NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
   D. COPPER PIPE — NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
3. PIPE COVERING* — NOM 1, 1-1/2 OR 2 IN. THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN 3.5 PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT.
3A. PIPE COVERING* — (NOT SHOWN) — AS AN ALTERNATE TO ITEM 3, MAX 2 IN. THICK CYLINDRICAL CALCIUM SILICATE (MIN 14 PCF) UNITS SIZED TO THE OUTSIDE DIAM OF THE PIPE OR TUBE MAY BE USED. PIPE INSULATION SECURED WITH STAINLESS STEEL BANDS OR MIN 8 AWG STAINLESS STEEL WIRE SPACED MAX 12 IN. OC. WHEN THE ALTERNATE PIPE COVERING IS USED, THE T RATING SHALL BE DETERMINED FROM THE TABLE ABOVE.
4. FILL, VOID OR CAVITY MATERIAL* — SEALANT — MIN 5/8 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE COVERING AND GYPSUM BOARD, A MIN 1/2 IN. DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE PIPE COVERING/GYPSUM BOARD INTERFACE ON BOTH SURFACES OF WALL.
5. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE SEALANT
*BEARING THE UL CLASSIFICATION MARK

SYSTEM NO. W-L-5029
F RATINGS — 1 AND 2 HR (SEE ITEM 1)
T RATINGS — 1/2, 3/4, 1, 1-1/2 AND 1-3/4 HR (SEE ITEM 3)
L RATING AT AMBIENT — 4 CFM/SQ FT
L RATING AT 400 F — LESS THAN 1 CFM/SQ FT

1 F0.01 PIPE PENETRATION DETAIL - DRYWALL
NOT TO SCALE



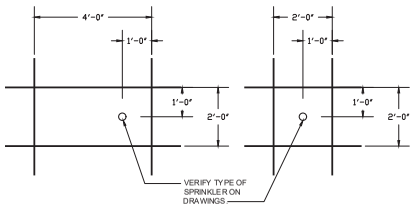
3 INCH AND LARGER

2 1/2" AND SMALLER

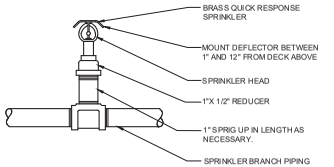
HANGER ROD SCHEDULE	
PIPE SIZE	ROD SIZE
UP TO 2"	3/8" DIA.
2 1/2" THRU 3"	1/2" DIA.
4" AND 5"	5/8"

HANGER ROD SPACING	
PIPE SIZE	MAX. SPACING
1"	7'
1 1/4"	8'
1 1/2"	9'
2"	10'
2 1/2"	11'
3" THRU 8"	12'

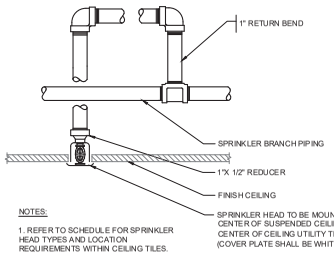
2 F0.01 SPRINKLER PIPE HANGER INSTALLATION DETAIL
NOT TO SCALE



5 F1.01 ACOUSTICAL CEILING TILE SPRINKLER LOCATION DETAIL
N.T.S.



3 F0.01 TYPICAL UPRIGHT SPRINKLER HEAD
NOT TO SCALE



NOTES:
1. REFER TO SCHEDULE FOR SPRINKLER HEAD TYPES AND LOCATION REQUIREMENTS WITHIN CEILING TILES.

4 F0.01 TYPICAL CONCEALED SPRINKLER HEAD RETURN BEND DROP
NOT TO SCALE

NOTE:
THE INDICATED SCOPE OF WORK LINE IS FOR GUIDANCE ONLY AND REPRESENTS THE LIMIT OF GENERAL CONSTRUCTION WORK. THIS CONTRACTOR MAY BE REQUIRED TO DO WORK IN AREAS OUTSIDE OF THIS SCOPE LINE WHERE NECESSARY TO DEMOLISH, INSTALL NEW SYSTEMS OR EXTEND TO EXISTING SYSTEMS IN ORDER TO PERFORM THE WORK INDICATED ON THESE DRAWINGS. COORDINATE WITH OWNER'S REPRESENTATIVE TO GAIN ACCESS TO ADJOINING SPACES AND TO MINIMIZE DISRUPTION OF SERVICES.

NOTE:

THESE FIRE PROTECTION DRAWINGS REPRESENT A PERFORMANCE DESIGN LEVEL OF DESIGN AND DO NOT SHOW ALL THE PIPING AND EQUIPMENT REQUIRED FOR FINAL INSTALLATION. CONTRACTOR SHALL EXPAND ON THESE DRAWINGS TO COMPLETE THE DESIGN WITH HIS FINAL SYSTEM DRAWINGS. PRICING PREPARED BASED ON THESE DRAWINGS SHALL MAKE ALLOWANCES FOR ITEMS NOT SHOWN BUT NEEDED FOR COMPLETE SYSTEMS.

FIRE PROTECTION NOTES AND DESIGN PARAMETERS:

1. THESE DRAWINGS ARE DIAGRAMMATICAL AND SHOW THE GENERAL INTENT OF THE FIRE SUPPRESSION SYSTEM. THE CONTRACTOR SHALL PROVIDE FULL SPRINKLER COVERAGE IN THE PROJECT AREAS - MAKE ADJUSTMENTS TO PIPE RUNS AND SPRINKLER LOCATIONS SHOWN ON THESE DRAWINGS AS NECESSARY TO COORDINATE WITH OTHER TRADES.
2. CONTRACTOR SHALL PERFORM A NEW WATER FLOW TEST OR OBTAIN WATER FLOW INFORMATION FROM BUILDING MANAGEMENT STAFF. FLOW TEST INFORMATION MUST BE NOT MORE THAN 1 YEAR OLD TO BE VALID FOR USE.
3. PROJECT SCOPE INCLUDES: RENOVATION OF A WET SPRINKLER SYSTEM IN THE OCCUPIED SPACES COMPLETE WITH NEW BRANCH LINES TAPPED INTO EXISTING CROSS MAINS, NEW ARM-OVERS, NEW SPRINKLERS, AND SYSTEM TESTING.
4. THE CONTRACTOR SHALL HYDRAULICALLY CALCULATE AND DESIGN THE SUPPRESSION SYSTEMS BASED ON THE RESULTS OF THE NEW WATER FLOW TEST. A 10 PERCENT PRESSURE FACTOR SHALL BE USED BETWEEN THE FLOW TEST RESULTS AND THE DESIGN PRESSURE. DO NOT USE THE QUICK RESPONSE DERATING FACTOR FOR COVERAGE AREA.
5. DESIGN STANDARDS SHALL INCLUDE: INTERNATIONAL BUILDING CODE - CURRENTLY ENFORCED EDITION; NFPA -13 STANDARD FOR AUTOMATIC SPRINKLERS - CURRENTLY ENFORCED EDITION.
6. GENERAL BUILDING CLASSIFICATION: LIGHT HAZARD IN PUBLIC SPACES AND ORDINARY HAZARD IN MECHANICAL OR ELECTRICAL ROOMS.
7. DESIGN DENSITY: LIGHT HAZARD = 0.10 GPM/SQ. FT. OVER 1,500 SQ. FT. 225 SQ. FT. MAXIMUM PER SPRINKLER, EXCEPT FOR USE OF EXTENDED COVERAGE SPRINKLERS - THEN USE THE MANUFACTURER'S PRINTED INFORMATION ON EXTENDED COVERAGE FOR REQUIRED FLOW AND PRESSURE BASED ON COVERAGE AREA. ORDINARY HAZARD - 0.15 GPM/SQ. FT. OVER 1,500 SQ. FT. WITH 130 SQ. FT. MAX PER SPRINKLER.
8. LOCATE SPRINKLERS AS NECESSARY TO MEET NFPA-13 AND FM-GLOBAL SPACING RULES AS THEY APPLY TO NEW BUILDING CONSTRUCTION OF NON-COMBUSTIBLE CONSTRUCTION.
9. PROVIDE A COMPLETE SET OF LAYOUT DRAWINGS AND HYDRAULIC CALCULATIONS. SUBMIT (3) COPIES OF DRAWINGS AND CALCULATIONS TO THE CITY AND OWNER'S INSURANCE COMPANY FOR REVIEW AND APPROVAL PRIOR TO START OF CONSTRUCTION.
10. SYSTEM COMPONENTS SHALL BE UL LISTED AND FM/GLOBAL APPROVED.
11. PROVIDE INSPECTOR'S TEST VALVE AT MOST REMOTE AREA AS REQUIRED BY THE CITY, AND AUXILIARY DRAINS AS NECESSITATED BY THE SYSTEM LAYOUT.
12. PROVIDE A STANDPIPE FOR USE DURING CONSTRUCTION IN COMPLIANCE WITH SECTION 9 OF THE BUILDING CODE. WHEN EXISTING SYSTEMS ARE SHUT DOWN FOR CONSTRUTION, PROVIDE FIRE WATCH SERVICES UNTIL THE SUPPRESSION SYSTEM IS REACTIVTED.
13. COORDINATE FINAL LOCATION OF SPRINKLERS WITH FINAL LOCATION OF LIGHTS, DUCTWORK, DIFFUSERS, STRUCTURAL ELEMENTS AND CEILING ELEVATIONS. CONTRACTOR SHALL PROVIDE AN END PRODUCT OF A FULLY CODE COMPLIANT SPRINKLERED PROJECT SITE WITH THE ENTIRE WORK AREA SPACE COVERED UNDER THE CONTRACT. SOME AREAS MAY REQUIRE MORE THAN CODE MINIMUM NUMBER OF SPRINKLERS TO COINCIDE WITH ARCHITECTURAL LAYOUTS AND CENTER OF TILE REQUIREMENTS.
14. CONTRACTOR SHALL OBTAIN NECESSARY FIRE PROTECTION SYSTEMS PERMITS, TESTS, APPROVALS, AND INSPECTIONS AS PART OF THE SCOPE OF THIS PROJECT.
15. COORDINATE WITH BUILDING MANAGEMENT FOR ACCEPTABLE TIMES TO SHUT SYSTEM OFF FOR CONSTRUCTION, AND FOR TIMES TO ENTER SECTIONS OF THE BUILDING NOT PART OF THIS PROJECT. PROVIDE FIRE WATCH WHILE SYSTEM IS SHUT DOWN.
16. SPRINKLERS SHALL BE ALL NEW EQUIPMENT. COMPLY AND PROVIDE SPRINKLERS MATCHING BUILDING MINIMUM STANDARDS - COORDINATE WITH BUILDING MANAGEMENT. IN THE ABSENCE OF BUILDING STANDARDS, PROVIDE SPRINKLERS EQUAL TO THOSE LISTED IN THE SCHEDULE. DO NOT REUSE EXISTING SPRINKLERS

PROJECT SPRINKLER DESIGN SUMMARY	
DESIGN AREA	DESIGN AREA IS 1,500 SQ. FT.
CEILING HEIGHT	CEILINGS VARY FROM 9'-0" TO OPEN TO DECK ABOVE
TYPE OF SYSTEM	WET SPRINKLER SYSTEM RENOVATION
DESIGN CRITERIA	NFPA - 13; NFPA - 14; NFPA - 20
AHJ	CITY OF PITTSBURGH BUILDING INSPECTION AND FIRE DEPARTMENT
DESIGN DENSITY	ORDINARY HAZARD = 0.15 GPM OVER 1,500 SQ. FT. LIGHT HAZARD = 0.10 GPM OVER 1,500 SQ. FT.
HOSE STREAM ALLOWANCE	ORDINARY HAZARD = 250 GPM LIGHT HAZARD = 100 GPM
SPRINKLER SPACING	ORDINARY HAZARD = 200 SQ. FT. PER SPRINKLER LIGHT HAZARD = 130 SQ. FT. PER SPRINKLER
K-FACTOR	ORDINARY HAZARD - K = 5.6 LIGHT HAZARD - K = 5.6
FIRE PUMP INFO	750 GPM FIRE PUMP - 60 HP-208V, 3 PH, 60 AMP 116 PSI BOOST; JOCKEY PUMP - 11 GPM AT 140 PSI

FIRE PROTECTION SCHEDULE AND LEGEND		
SYMBOL	ABRV.	DESCRIPTION
		PIPE TURNED UP
		PIPE TURNED DOWN
		PIPE TEE UP
		PIPE TEE DOWN
		CAPPED PIPE
		PIPE BREAK
		CONCEALED PENDENT SPRINKLER
		SEMI RECESSED SPRINKLER
		UPRIGHT SPRINKLER
		PENDENT SPRINKLER
		HORIZONTAL SIDEWALL SPRINKLER
EC		CONCEALED EXTENDED COVERAGE SPRINKLER
DP		DRY PENDENT (USE IN FREEZING ENVIRONMENTS)
DS		DRY SPRINKLER
EX		EXISTING SPRINKLER TO REMAIN
RX		EXISTING SPRINKLER TO BE REMOVED
		CHECK VALVE
	FHV	FIRE HOSE VALVE
		FLOW SWITCH
		TAMPER SWITCH
		PRESSURE SWITCH
	PG	PRESSURE GAUGE
		FIRE HOSE RACK IN CABINET
		FIRE HOSE RACK
		WET PIPE SPRINKLER ALARM VALVE
		DRY PIPE SPRINKLER ALARM VALVE
		OS&Y VALVE
		OS&Y VALVE WITH TAMPER SWITCH
		FIRE DEPARTMENT SIAMESE CONNECTION
		FIRE PUMP TEST MANIFOLD
F	F	FIRE PROTECTION PIPING
DF	DF	DRY FIRE PROTECTION PIPING
PAF	PAF	PRE-ACTION FIRE PROTECTION PIPING
D	D	FIRE PROTECTION DRAIN PIPING
SP	SP	SPRINKLER PIPING
DSP	DSP	DRY SPRINKLER PIPING
EXF	EXF	EXISTING FIRE PROTECTION PIPING
RXF	RXF	REMOVE EXISTING FIRE PROTECTION PIPING

NOTE: SOME SYMBOLS MAY NOT BE USED ON DRAWINGS.

SPRINKLER SCHEDULE							
TYPE SYMBOL	TYPE DESCRIPTION	MANUFACTURER & MODEL NUMBER	SIN	K-FACTOR	FINISH	TEMP RATING	PSI RATING	COMMENTS
	UPRIGHT SPRINKLER	VIKING MICROFAST QUICK RESPONSE	VK300	5.6	BRASS/CHROME	155 °F TYPICAL, 212 °F MECHANICAL AND ELECTRICAL SPACES	175	2
	SEMI RECESSED SPRINKLER	VIKING MICROFAST QUICK RESPONSE	VK302	5.6	WHITE	155 °F	175	1
	CONCEALED PENDENT SPRINKLER	VIKING MIRAGE QUICK RESPONSE	VK462	5.6	BRASS WITH COLORED COVER PLATE	155 °F WITH 135 °F COVER PLATE	175	1
	PENDENT SPRINKLER	VIKING MICROFAST QUICK RESPONSE	VK302	5.6	WHITE	155 °F TYPICAL, 212 °F MECHANICAL AND ELECTRICAL SPACES	175	1
DP	DRY PENDENT (USE IN FREEZING ENVIRONMENTS)	VIKING STANDARD RESPONSE	VK154	5.6	CHROME	155 °F	175	3
	HORIZONTAL SIDEWALL SPRINKLER	VIKING MICROFAST QUICK RESPONSE	VK305	5.6	WHITE	155 °F WITH CHROME MODEL	175	1

NOTES:
1. PROVIDE WHITE OR BLACK COVER PLATES OR SPRINKLERS AND ESCUTCHEONS AS NEEDED BY THE ARCHITECTURAL FINISH SCHEDULE. COORDINATE WITH GC.
2. PROVIDE UPRIGHT SPRINKLERS WITH CHROME FINISH TO PROTECT SPRINKLER BODY.
3. PROVIDE DRY PENDENT SPRINKLERS WITH CHROME FINISH AND CHROME ESCUTCHEON.

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HACP - Housing Authority of the City of Pittsburgh
412 Boulevard of the Allies, Pittsburgh, PA 15219

#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020
	PROJECT ISSUANCE	

PROJECT NO. 19047.00 | DRAWN BY: TJT | REVIEWED BY: DCP

SHEET NAME:
FIRE PROTECTION DATA SHEET

SHEET NO:
FP-001

TRUE NORTH
PLAN NORTH

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FIRE PROTECTION SPECIFICATIONS

GENERAL INFORMATION

A. GENERAL

1. CONFORM TO GENERAL AND SPECIAL CONDITIONS OF CONTRACT.
2. CHECK OTHER PLANS AND SPECIFICATIONS AND FULLY COORDINATE WITH OTHER TRADES, OWNER AND ARCHITECT REQUIREMENTS.
3. VISIT SITE, CHECK FACILITIES AND CONDITIONS MAKE NECESSARY OBSERVATIONS, MEASUREMENTS, NOTE CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED, AND TAKE ITEMS INTO CONSIDERATION IN BID.
4. SYSTEMS SHALL BE COMPLETE AND WORKABLE IN RESPECTS, AND PLACED IN OPERATION.
5. CONTRACTOR SHALL PROVIDE FOR HIS OWN CLEAN-UP, REMOVAL AND LEGAL DISPOSAL OF RUBBISH DAILY. CONTRACTOR SHALL PROTECT THEIR WORK AND EXISTING OR ADJACENT PROPERTY AGAINST WEATHER, TO MAINTAIN THEIR WORK, MATERIALS, APPARATUS AND FIXTURES FREE FROM INJURY OR DAMAGE. ANY WORK DAMAGED BY FAILURE TO PROVIDE PROTECTION REQUIRED, SHALL BE REMOVED AND REPLACED WITH NEW WORK AT THE CONTRACTOR'S EXPENSE.
6. CONTRACTORS SHALL CONFIRM TO UTILITY COMPANY REQUIREMENTS. COORDINATE CONNECTION POINTS IN FIELD.
7. ARRANGE FOR AND OBTAIN OWNER'S AND INSURANCE REPRESENTATIVE'S PERMISSION FOR ANY SERVICE SHUTDOWNS.
8. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, SEQUENCES OF CONSTRUCTION AND THE SAFETY OF WORKMEN.
9. PIPING, CONTROLS, ETC., SHALL NOT BE INSTALLED, OR ROUTED ABOVE, ELECTRICAL PANELS AND EQUIPMENT OR THROUGH ELEVATOR MACHINE ROOMS.
10. THE CONTRACTOR SHALL COORDINATE AND OBTAIN A WRITTEN LISTING OF ELECTRICAL CHARACTERISTICS OF MECHANICAL EQUIPMENT FROM ELECTRICAL CONTRACTOR PRIOR TO ORDERING OF EQUIPMENT. ADDITIONAL COMPENSATION WILL NOT BE MADE FOR LACK OF CONTRACTOR COORDINATION OF EQUIPMENT ELECTRICAL CHARACTERISTICS.
11. DURING THE BUILDING CONSTRUCTION SOME EXISTING INSTALLATION MAY BE EXPOSED THAT WILL HAVE TO BE CHANGED, ALTERED, REROUTED AND/OR ABANDONED. ANY SUCH WORK WHICH COMES UNDER THE JURISDICTION OF THIS CONTRACTOR SHALL BE DONE BY THIS CONTRACTOR WITHOUT ADDITIONAL COST TO THE OWNER.
12. WORK RELATED TO THE EXISTING BUILDING SHALL BE COORDINATED TO MINIMIZE INTERFERENCE OR INTERRUPTION OF NORMAL BUILDING USE BY OWNER. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR PHASING REQUIREMENTS.
13. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING CONDITIONS THAT MAY AFFECT THE BID. ADDITIONAL COMPENSATION WILL NOT BE PROVIDED FOR FAILURE TO REVIEW EXISTING CONDITIONS PRIOR TO BIDDING.

B. CODES, PERMITS, STANDARDS AND REGULATIONS

1. CONFORM TO APPLICABLE CODES (LOCAL, STATE, NATIONAL CODES, NFPA, OSHA, ETC.), GOVERNMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, AND APPLICABLE STANDARDS.
2. OBTAIN PERMITS AND PAY FEES. ARRANGE FOR ALL REQUIRED TESTS, INSPECTIONS AND APPROVALS. PROVIDE COPIES OF INSPECTIONS AND APPROVALS TO THE A/E.

C. RELATED WORK SPECIFIED ELSEWHERE

1. OPENINGS AND CHASES, WHEN SHOWN ON ARCHITECTURAL DRAWINGS.
2. TEMPORARY FIRE PROTECTION.
3. POURED-IN-PLACE CONCRETE.
4. FINISH PAINTING.
5. ELECTRIC POWER WIRING.

D. DRAWINGS

1. THE SYSTEMS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC. CONFIRM DIMENSIONS BY FIELD MEASUREMENT.
2. THE EXACT LOCATIONS FOR APPARATUS, FIXTURES, EQUIPMENT AND PIPING WHICH IS NOT COVERED BY DRAWINGS, SHALL BE OBTAINED FROM THE ARCHITECT OR HIS REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY.
3. DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT ONE ANOTHER. ANY MATERIALS OR LABOR CALLED FOR IN ONE BUT NOT THE OTHER SHALL BE PROVIDED.

E. DEMOLITION AND REMOVAL

1. DISCONNECT, DISASSEMBLE, CAP, PLUG AND REMOVE PIPING, DUCTS AND EQUIPMENT INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR THE PROJECT.
2. ANY EQUIPMENT DESIGNATED BY OWNER TO BE SALVAGED SHALL BE PROTECTED AND DELIVERED TO THE OWNER'S STORAGE.
3. DEMOLITION TO BE DONE IN A MANNER NOT TO DAMAGE ADJACENT WORK AND NOT AFFECT THE OPERATION OF SYSTEMS TO REMAIN IN USE. ANY ITEM TO REMAIN THAT IS DAMAGED BY THE CONTRACTOR OR THAT REQUIRES DAMAGE DUE TO THE ABSOLUTE NECESSITY FOR DEMOLITION REQUIREMENTS SHALL BE REPLACED AND/OR REPAIRED AT HIS EXPENSE.
4. OPENINGS ON PIPING AND DUCTS THAT REMAIN SHALL BE CAPPED AND PROPERLY SECURED.
5. ASBESTOS REMOVAL WILL BE HANDLED BY THE OWNER AND IS NOT A PART OF THIS WORK.
6. EXAMINE AREAS AND CONDITIONS UNDER WHICH DEMOLITION WORK SHALL BE PERFORMED. CONTRACTOR SHALL COORDINATE WORK WITH OTHER DEMOLITION WORK.
7. REMOVE SUPPORTS, HANGERS, AND ACCESSORIES FROM EQUIPMENT AND MATERIAL INDICATED TO BE REMOVED.

F. BASE EQUIPMENT, MATERIALS AND SUBSTITUTIONS

1. EQUIPMENT AND MATERIALS SHALL BE NEW, FREE OF DEFECTS AND U.L. LISTED AND F.M. APPROVED IF APPROPRIATE.
2. BASE BID MANUFACTURERS ARE INCLUDED IN SPECIFICATIONS OR LISTED IN SCHEDULE ON DRAWINGS. ANY OTHER MANUFACTURER'S ARE CONSIDERED A SUBSTITUTION.
3. THE NAME, OR MAKE OF ANY ARTICLE, DEVICE, MATERIAL, FORM OF CONSTRUCTION, FIXTURE, ETC., STATED IN THIS SPECIFICATION, SHALL BE KNOWN AS A "STANDARD".
4. PROPOSALS SHALL BE BASED ON "STANDARDS" SPECIFIED.
5. THE EQUIPMENT SCHEDULES ON DRAWINGS INDICATE MANUFACTURER'S EQUIPMENT MODEL NUMBERS UPON WHICH DESIGN HAS BEEN BASED. THE USE OF OTHER MANUFACTURERS EQUIPMENT THAT IS LISTED AS ACCEPTABLE ALTERNATES THAT REQUIRES STRUCTURAL CHANGES, CHANGES IN ROOF OPENINGS, CHANGE OF PIPE SIZES & BUILDING CONFIGURATION, ARCHITECTURAL CHANGES, ETC., SHALL BE THE CONTRACTOR'S RESPONSIBILITY. ADDITIONAL COSTS OF SUCH CHANGES SHALL BE PAID BY THE CONTRACTOR SUBMITTING THE ALTERNATES.
6. SUBSTITUTIONS ARE SUBJECT TO THE APPROVAL OF THE OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE AND CERTIFY WITH DOCUMENTATION THAT THE SUBSTITUTION IS EQUIVALENT IN ALL RESPECTS TO THE BASE SPECIFICATIONS.
7. IF SUBSTITUTIONS ARE APPROVED, NOTIFY ALL OTHER CONTRACTORS, SUBCONTRACTORS OR TRADES AFFECTED BY SUBSTITUTION AND FULLY COORDINATE. ANY COSTS RESULTING FROM SUBSTITUTION, WHETHER BY CONTRACTOR OR OTHERS, SHALL BE RESPONSIBILITY OF, AND PAID FOR BY SUBSTITUTING CONTRACTOR. APPROVED SHOP DRAWINGS DOES NOT ABSOLVE THIS CONTRACTOR FROM THIS RESPONSIBILITY.
8. EQUIPMENT SHALL BE INSTALLED IN FULL ACCORDANCE WITH THE MANUFACTURER'S DATA AND INSTALLATION INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CHECK AND CONFORM TO THESE REQUIREMENTS.

G. CHECK, TEST, START, ADJUST, BALANCE AND INSTRUCTIONS

1. AFTER INSTALLATION, CHECK ALL EQUIPMENT, AND PERFORM START UP IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AND REQUIREMENTS OF THE SPECIFICATIONS.
2. PIPING SHALL BE TESTED AND FREE OF LEAKS. MAKE REPAIRS NEEDED FOR A LEAK FREE SYSTEM.
3. CONCEALED OR INSULATED WORK SHALL REMAIN UNCOVERED UNTIL REQUIRED INSPECTIONS, AND TESTS HAVE BEEN COMPLETED. IF CONSTRUCTION SCHEDULE REQUIRES IT, ARRANGE FOR TESTS ON PARTS OF SYSTEM AS REQUIRED.
4. INSTRUCT OWNER IN OPERATION OF SYSTEMS AND SUBMIT OPERATING AND MAINTENANCE MANUAL ON EQUIPMENT AND SYSTEMS AS REQUIRED BY THE SPECIFICATIONS. PROVIDE A MINIMUM OF 16 HOURS OF INSTRUCTION TO OWNER'S REPRESENTATIVE.

H. CUTTING, PATCHING AND DRILLING

1. CUTTING AND PATCHING OF THE BUILDING CONSTRUCTION REQUIRED FOR THIS WORK SHALL BE BY THIS CONTRACTOR. CUTTING SHALL BE IN A NEAT AND WORKMANLIKE MANNER.
2. NEATLY SAW CUT RECTANGULAR OPENINGS, SET SLEEVE THROUGH OPENING, AND FINISH PATCH OR PROVIDE TRIM FLANGE AROUND OPENING.
3. CORE DRILL AND SLEEVE ROUND OPENINGS.
4. DO NOT CUT ANY STRUCTURAL COMPONENTS WITHOUT ARCHITECT'S/ENGINEER'S APPROVAL.
5. PATCH AND FINISH TO MATCH ADJACENT AREAS THAT HAVE BEEN CUT, DAMAGED OR MODIFIED AS A RESULT OF THE INSTALLATION OF THE MECHANICAL OR ELECTRICAL EQUIPMENT. FIRE STOP PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER, AND MAINTAIN FIRE RATING OF ASSEMBLY.
6. CONTRACTORS SHALL CONFIRM WITH OWNER/ARCHITECT, PRIOR TO BID, TIMES AVAILABLE FOR NOISE PRODUCING WORK SUCH AS CUTTING AND CORE DRILLING OF FLOORS, WALLS, ETC., AS WELL AS TIMES FOR WORK WHICH REQUIRE ACCESS INTO ADJOINING TENANT SPACES. INCLUDE PREMIUM TIME IN BID.
7. INFORMATION REGARDING REQUIRED PIPE OPENINGS IN WALLS, FLOORS, CHASES, ETC., AND CONCRETE EQUIPMENT PADS OR FOUNDATIONS SHALL BE GIVEN TO THE GENERAL CONTRACTOR BY THIS CONTRACTOR PRIOR TO THE CONSTRUCTION PERIOD. IF THIS CONTRACTOR FAILS TO COMPLY WITH THIS REQUEST, OR IF INCORRECT INFORMATION IS GIVEN, THE NECESSARY CUTTING AND PATCHING WILL BE PERFORMED BY THE GENERAL CONTRACTOR, AT THIS CONTRACTOR'S EXPENSE.

I. WARRANTY

1. FULLY WARRANT MATERIALS, EQUIPMENT AND WORKMANSHIP FOR ONE (1) YEAR FROM DATE OF ACCEPTANCE.
2. PROVIDE MANUFACTURER'S WARRANTIES TO OWNER, INCLUDING EXTENDED WARRANTIES.
3. REPAIR OR REPLACE WITHOUT CHARGE TO THE OWNER ITEMS FOUND DEFECTIVE DURING THE WARRANTY PERIOD. IN THE CASE OF REPLACEMENT OR REPAIR DUE TO FAILURE WITHIN THE WARRANTY PERIOD, THE WARRANTY ON THAT PORTION OF THE WORK SHALL BE EXTENDED FOR A MINIMUM PERIOD OF ONE (1) YEAR FROM THE DATE OF SUCH REPLACEMENT OR REPAIR.

J. SHOP DRAWING SUBMITTALS

1. SUBMIT SHOP DRAWINGS FOR MECHANICAL EQUIPMENT, FIRE PROTECTION SYSTEMS, DUCTWORK, AND PLUMBING FIXTURES AND EQUIPMENT WITH ADEQUATE DETAILS AND SCALES TO CLEARLY SHOW CONSTRUCTION. INDICATE THE OPERATING CHARACTERISTICS FOR EACH REQUIRED ITEM. CLEARLY IDENTIFY EACH ITEM ON THE SUBMITTAL AS TO MARK, LOCATION AND USE, USING SAME IDENTIFICATION AS PROVIDED ON DESIGN DRAWINGS. SUBMITTALS WITH MULTIPLE ITEMS MUST BE MARKED FOR PROPOSED ITEM OR SUBMITTAL WILL BE REJECTED.
2. FIRE PROTECTION DRAWINGS SHALL BE FULLY DIMENSIONED BASED ON FIELD VERIFIED BUILDING CLEARANCES AND ARCHITECTURAL CEILING LAYOUTS. INDICATE STRUCTURAL, LIGHTING, DUCTWORK AND PIPING AT ALL CRITICAL LOCATIONS.
3. CONTRACTOR SHALL REVIEW AND INDICATE HIS APPROVAL OF EACH SHOP DRAWING PRIOR TO SUBMITTAL FOR REVIEW. DO NOT START WORK OR FABRICATION UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED BY THE ENGINEER AND RETURNED TO THE CONTRACTOR.
4. SUBMITTALS SHALL BE REVIEWED ONLY FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS AND NOT FOR DIMENSIONS OR QUANTITIES. THE SUBMITTAL REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PURCHASE OF ANY ITEM IN FULL COMPLIANCE WITH THE CONTRACT DOCUMENTS OR ITS COMPLETE AND PROPER INSTALLATION.
5. WHERE SUBMITTALS VARY FROM THE CONTRACT REQUIREMENTS, THE CONTRACTOR SHALL CLEARLY INDICATE ON SUBMITTAL OR ACCOMPANYING DOCUMENTS THE NATURE AND REASON FOR VARIATIONS.
6. REFER TO VARIOUS SECTIONS FOR LISTING OF SHOP DRAWINGS REQUIRED ON THIS PROJECT.
7. EACH MANUFACTURER OR HIS REPRESENTATIVE SHALL CHECK THE APPLICATION OF HIS EQUIPMENT AND CERTIFY AT TIME OF SHOP DRAWING SUBMITTAL THAT EQUIPMENT HAS BEEN PROPERLY SELECTED AND CAN BE INSTALLED, SERVICED AND MAINTAINED WHERE INDICATED ON DRAWINGS. ADVISE ENGINEER IN WRITING WITH SUBMITTAL DRAWINGS OF ANY POTENTIAL PROBLEMS. THE MANUFACTURER SHALL BE RESPONSIBLE FOR ANY CHANGES THAT MIGHT BE NECESSARY BECAUSE OF PHYSICAL CHARACTERISTICS OF EQUIPMENT THAT HAVE NOT BEEN CALLED TO THE ENGINEER'S ATTENTION AT THE TIME OF SUBMITTAL.
8. FIRE PROTECTION SUBMITTAL SHALL BE SUBMITTED AS A COMPLETE PACKAGE CONSISTING OF PRODUCT CUT SHEETS, DRAWING AND CALCULATIONS. INCOMPLETE PACKAGE WILL BE REJECTED.

K. RECORD DRAWINGS

1. EACH CONTRACTOR OR SUBCONTRACTOR SHALL KEEP ONE (1) COMPLETE SET OF THE CONTRACT WORKING DRAWINGS ON THE JOB SITE, THE CONTRACTOR SHALL REGULARLY RECORD ANY DEVIATIONS, AND/OR CHANGES FROM CONTRACT DRAWINGS MADE DURING CONSTRUCTION.
2. THESE DRAWINGS SHALL RECORD THE LOCATION OF EQUIPMENT, PIPING, ELECTRIC SERVICE, SEWERS, WASTES, VENTS, DUCTS, CONDUIT AND OTHER PIPING, BY MEASURED DIMENSIONS TO EACH SUCH ITEM FROM READILY IDENTIFIABLE AND ACCESSIBLE WALLS OR CORNERS OF THE BUILDING. PLANS ALSO SHALL SHOW INVERT ELEVATION OF SANITARY, AND/OR STORM SEWERS AND TOP ELEVATION OF OTHER BELOW-GRADE LINES.
3. RECORD DRAWINGS SHALL BE KEPT CLEAN AND UNDAMAGED AND SHALL NOT BE USED FOR ANY PURPOSE OTHER THAN RECORDING DEVIATIONS FROM WORKING DRAWINGS AND EXACT LOCATIONS OF CONCEALED WORK.
4. AFTER THE PROJECT IS COMPLETED, THESE SETS OF DRAWINGS SHALL BE DELIVERED TO THE ARCHITECT IN GOOD CONDITION, AS A PERMANENT RECORD OF THE INSTALLATION.

FIRE PROTECTION SPRINKLER SYSTEM

A. SCOPE

1. FURNISH LABOR, MATERIALS AND EQUIPMENT AS REQUIRED TO INSTALL COMPLETE FIRE PROTECTION SYSTEMS FOR PROJECT. SPRINKLER SYSTEM DESIGN AND HYDRAULIC CALCULATIONS SHALL BE PROVIDED WITH THIRD PARTY PROFESSIONAL ENGINEER'S STAMP.
2. SPRINKLER WORK FOR PROJECT ESSENTIALLY CONSISTS OF, BUT NOT LIMITED TO, THE FOLLOWING:
   a. MODIFY EXISTING WET PIPE SPRINKLER SYSTEM AS REQUIRED TO CONFORM TO NEW CEILING AND/OR WALL LAYOUT, AND NEW SYSTEMS.
   b. EXTEND WET SPRINKLER SYSTEM FOR NEW OR REMODELED AREAS FROM EXISTING SYSTEM IN BUILDING.
   c. PREPARE SUBMITTAL DRAWINGS AND HYDRAULIC CALCULATIONS AS REQUIRED FOR APPROVAL BY OWNER'S INSURANCE COMPANY, BUILDING DEPARTMENT, LOCAL AUTHORITY HAVING JURISDICTION AND NFPA REQUIREMENTS. COMPLY WITH NFPA-13 REQUIREMENTS FOR PREPARATION OF DRAWINGS AND CALCULATIONS.
   d. FLUSH AND CONDUCT PRESSURE TEST OF COMPLETED SYSTEM IN ACCORDANCE WITH NFPA AND AUTHORITIES HAVING JURISDICTION. DELIVER ALL CERTIFICATES TO OWNER.
   e. OTHER ITEMS INDICATED ON DRAWINGS OR REQUIRED FOR COMPLETE INSTALLATION AND TO SATISFY ALL CODE REQUIREMENTS.
   f. PIPING SHALL NOT BE INSTALLED AT LOCATIONS SUBJECT TO FREEZING, UNLESS PROVIDED AS DRY PIPE SYSTEM, OR ANTI-FREEZE SYSTEM. PROVIDE FIRE WATCH.

B. DESIGN BASIS

1. DESIGN BASIS FOR SYSTEM SHALL BE PER NFPA 13, LIFE SAFETY CODE 101 IN ACCORDANCE WITH CODE AND LOCAL AUTHORITY HAVING JURISDICTION. SYSTEM SHALL BE A HYDRAULICALLY DESIGNED.
2. PIPE SIZES INDICATED ON DRAWING ARE APPROXIMATE AND SHALL BE VERIFIED BY CONTRACTORS HYDRAULIC DESIGN.
3. STANDARD-PRESSURE PIPING SYSTEM COMPONENT: LISTED FOR 175-PSIG MAXIMUM WORKING PRESSURE.
4. SPRINKLER SYSTEM DESIGN SHALL BE APPROVED BY AUTHORITIES HAVING JURISDICTION, AND OWNER'S INSURANCE UNDERWRITER. PRIOR TO START OF CONSTRUCTION.
5. PROVIDE MARGIN OF SAFETY FOR AVAILABLE WATER FLOW AND PRESSURE AND 10 PERCENT.
6. SPRINKLER OCCUPANCY HAZARD CLASSIFICATIONS:
   a. BUILDING SERVICE AREAS: ORDINARY HAZARD, GROUP 1.
   b. RESTROOMS: LIGHT HAZARD.
   c. ELECTRICAL EQUIPMENT ROOMS: ORDINARY HAZARD, GROUP 1.
   d. GENERAL STORAGE AREAS: ORDINARY HAZARD, GROUP 1.
   e. MECHANICAL EQUIPMENT ROOMS: ORDINARY HAZARD, GROUP 1.
   f. OFFICE AND PUBLIC AREAS: LIGHT HAZARD.
7. MINIMUM DENSITY FOR AUTOMATIC-SPRINKLER PIPING DESIGN:
   a. LIGHT-HAZARD OCCUPANCY: 0.10 GPM OVER 1500-SQ. FT. AREA.
   b. ORDINARY-HAZARD, GROUP 1 OCCUPANCY: 0.15 GPM OVER 1500-SQ. FT. AREA.
8. MAXIMUM PROTECTION AREA PER SPRINKLER:
   a. OFFICE AND PUBLIC SPACES: 225 SQ. FT. (20.9 SQ. M)
   b. STORAGE AREAS: 130 SQ. FT.
   c. MECHANICAL EQUIPMENT ROOMS: 130 SQ. FT.
   d. ELECTRICAL EQUIPMENT ROOMS: 130 SQ. FT.
   e. OTHER AREAS: ACCORDING TO NFPA 13 RECOMMENDATIONS UNLESS OTHERWISE INDICATED.
9. TOTAL COMBINED HOSE-STREAM DEMAND REQUIREMENT: ACCORDING TO NFPA 13 UNLESS OTHERWISE INDICATED.
   a. LIGHT-HAZARD OCCUPANCIES: 100 GPM (6.3 L/S) FOR 30 MINUTES.
   b. ORDINARY-HAZARD OCCUPANCIES: 250 GPM (15.75 L/S) FOR 60 TO 90 MINUTES.

C. DRAWINGS AND CALCULATIONS

1. CONTRACTOR SHALL PREPARE SUBMITTAL DRAWING AND HYDRAULIC CALCULATIONS FOR SPACE IN ACCORDANCE WITH OWNER'S INSURANCE COMPANY AND BUILDING DEPARTMENT REQUIREMENTS. DRAWINGS AND CALCULATIONS SHALL BE PERFORMED BY A REGISTERED PROFESSIONAL ENGINEER. PROVIDE PROFESSIONAL ENGINEERS STAMP AND SIGNATURE ON DRAWINGS AND HYDRAULIC CALCULATIONS.
2. CONTRACTOR SHALL OBTAIN FLOW TEST DATA ON CITY WATER MAIN AND SUBMIT DATA WITH CALCULATIONS. PERFORM FLOW TEST IF DATA IS OLDER THAN ONE YEAR.
3. PROVIDE WET STANDPIPE SYSTEM FOR PROJECT IN ACCORDANCE WITH NFPA 14 REQUIREMENTS, AND AUTHORITY HAVING JURISDICTION.
4. CONTRACTOR AND DESIGNER SHALL BE STATE AND LOCAL CERTIFIED. DESIGNER SHALL BE MINIMUM LEVEL 3 NICET CERTIFIED. CONTRACTOR DRAWINGS AND CALCULATIONS SHALL BE REVIEWED AND STAMPED BY REGISTERED ENGINEER.

D. EXCAVATION AND BACKFILL

1. PERFORM EXCAVATION AND BACKFILL REQUIRED FOR INSTALLATION OF PIPING.
2. EXCAVATE TO DEPTH REQUIRED TO INSTALL PIPING AT REQUIRED LEVEL AND PITCH. PIPE SHALL BE INSTALLED ON SAND BEDDING TO GIVE UNIFORM BEARING ALONG LENGTH OF PIPE (SAND INSIDE BUILDING AND INTERLOCKING AGGREGATE OUTSIDE BUILDING).
3. BACKFILL WITH BEDDING MATERIAL TO A MINIMUM OF TWELVE (12) INCHES ABOVE TOP OF PIPES AND COMPACT. BALANCE OF BACKFILL IN GRASS AREAS SHALL BE CLEAN EARTH UP TO SIX (6) INCHES ABOVE SURROUNDING GRADES, UNDER FLOORS SAND, AND UNDER PAVING INTERLOCKING AGGREGATE. BACKFILL SHALL BE COMPACTED IN MAXIMUM SIX (6) INCH LAYERS.
4. EXCAVATIONS SHALL BE BACKFILLED WITH CLEAN EARTH, EXCLUDING RUBBISH AND BOULDERS AND THE DIRT SHALL BE PROPERLY COMPACTED.
5. PATCH FLOOR TO MATCH EXISTING.

E. PIPING

1. PIPING SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 13, 14 AND 24 REQUIREMENTS.
2. FIRE PROTECTION PIPING SHALL BE AS FOLLOWS:
   a. UNDERGROUND SERVICE-ENTRANCE PIPING:
      - DUCTILE-IRON, MECHANICAL-JOINT PIPE AND FITTINGS AND RESTRAINED JOINTS.[INCLUDE CORROSION-PROTECTIVE ENCASEMENT.]
   b. INSIDE BUILDING:
      - 2 INCH AND SMALLER: THREADED-END, SCHEDULE 40 STEEL PIPE; CAST- OR MALLEABLE-IRON THREADED FITTINGS; AND THREADED JOINTS.
      - 2 1/2 INCH AND LARGER: GROOVED-END, SCHEDULE 10 STEEL PIPE; GROOVED-END FITTINGS; GROOVED-END-PIPE COUPLINGS; AND GROOVED JOINTS.
   c. INSTALL STANDPIPES WHERE INDICATED ON DRAWINGS, INCLUDING SUPERVISED ISOLATION VALVE, AND WATERFLOW SWITCH AT BASE OF RISER. PROVIDE FIRE DEPARTMENT VALVE WITH CAP AND CHAIN AT EACH FLOOR.
   d. PROVIDE GALVANIZED PIPING AND FITTINGS FOR DRY FIRE PROTECTION SYSTEM.
   e. CONTRACTOR SHALL ARRANGE FOR SHUTDOWN OF EXISTING SYSTEM WITH LANDLORD, OWNER MAINTENANCE AND FIRE ALARM PERSONNEL, AND INSURANCE UNDERWRITER. PROVIDE FIRE WATCH WHILE SYSTEM IS SHUT DOWN.
   f. FLUSH PIPING UPON COMPLETION OF PROJECT AND TEST PER NFPA 13.
   g. INSTALL INSPECTOR'S TEST CONNECTION WITH DRAIN VALVE AND TERMINATE DRAIN THROUGH EXTERIOR WALL WITH GALVANIZED PIPE, TEST FITTING AND SPLASH BLOCK.
   h. SYSTEMS REQUIRING GALVANIZED PIPING SHALL BE PROVIDED WITH SCREWED FITTINGS, AND UNIONS.

F. SPRINKLERS

1. SPRINKLERS SHALL BE AS SCHEDULED ON DRAWINGS.
2. SPRINKLERS SHALL MATCH EXISTING BASE BUILDING STANDARDS.
3. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE PRODUCT INDICATED IN SPECIFICATION OR A COMPARABLE PRODUCT BY ONE OF THE FOLLOWING MANUFACTURERS:
   a. VIKING CORPORATION
   b. VICTAULIC CO.
   c. TYCO
4. INSTALL HIGHER TEMPERATURE SPRINKLER HEADS AS REQUIRED BY CODE OR APPLICATION.
5. SUBMIT SAMPLES OF SPRINKLERS TO ARCHITECT PRIOR TO FABRICATION OF ANY PIPING.

I. HANGERS AND SUPPORTS

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SHEET NAME:
FIRE PROTECTION SPECIFICATIONS

SHEET NO.
FP-002

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1. HANGERS FOR BLACK OR GALVANIZED STEEL PIPE SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL NO. 100, OR APPROVED EQUAL.

2. HANGERS FOR COPPER TUBING SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL NO. 102-A, OR APPROVED EQUAL.

3. TRAPEZE HANGERS OF A TYPE APPROVED BY THE ENGINEER MAY BE USED WHERE PIPES ARE DESIGNED TO RUN PARALLEL AND AT THE SAME ELEVATION.

4. STRAP HANGERS SHALL NOT BE PERMITTED.

5. CONTRACTOR SHALL PROVIDE RISER CLAMPS FOR VERTICAL PIPING AT EACH LEVEL. RISER CLAPS SHALL BE MICHIGAN HANGER CO., MODEL NO. 510 FOR STEEL PIPING AND MODEL NO. 511 FOR COPPER TUBING OR APPROVED EQUAL. USE "SHORT-END" RISER CLAMPS WHERE SPACE IS LIMITED.

6. IN CONCRETE, MICHIGAN HANGER CO., MODEL NO. 355 INSERTS, OR APPROVED EQUAL. INSERTS SHALL PERMIT ADJUSTMENT FROM 3/4 INCH THROUGH 1-1/4 INCH. IN METAL DECKS, CONTRACTOR SHALL PROVIDE REDHEAD SDI INSERTS, OR APPROVED EQUAL. POWDER PROPELLED INSERTS WILL BE PERMITTED IN NEW CONSTRUCTION WHERE TYPE AND LOCATION ARE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

7. CONTRACTOR SHALL PROVIDE SIDE BEAM CLAMPS FOR SUPPORTING PIPING FROM STRUCTURAL STEEL MEMBERS. BEAM CLAMPS SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL 300 OR APPROVED EQUAL.

8. WHERE OTHER MEANS OF SUPPORT PIPING ARE REQUIRED OR DESIRED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE ENGINEER'S APPROVAL PRIOR TO INSTALLING THOSE SUPPORTS.

9. HANGER SHALL BE PROVIDED AT EACH CHANGE OF DIRECTION.

10. HANGERS AND SUPPORTS SHALL BE SPACED AT INTERVALS WHICH WILL PREVENT SAGGING AND REDUCE STRAIN ON VALVES AND SPECIALTIES. HANGER SPACING SHALL BE NO GREATER AND ROD SIZE SHALL BE NO SMALLER THAN THAT SHOWN IN THE FOLLOWING TABLE. HANGERS SHALL ALLOW FOR EXPANSION AND CONTRACTION. HANGERS AND SUPPORTS MUST COMPLY WITH NFPA-13 REQUIREMENTS.

FERROUS PIPING AND COPPER TUBING:

DIAMETER OF PIPE	MAXIMUM SPACING	ROD SIZE
UP TO 1"	8 FT.	3/8"
1-1/4" T0 1-1/2"	10 FT	3/8"
2" THRU 3"	12 FT	3/8"
4" AND 5"	15 FT	1/2"
6" AND LARGER	15 FT	5/8"

11. RISER CLAMPS SHALL BE INSTALLED ABOVE THE FLOOR AT EACH LEVEL. RISER CLAMPS MAY BE SUSPENDED BELOW FLOOR LEVEL, WITH HANGER RODS AND INSERTS, WHERE THE INSTALLATION OF ESCUTCHEON PLATES IS REQUIRED.

J. PIPE WALL SEALS

1. WALL PIPE SEALS WITH RUBBER LINKS SHALL BE THUNDERLINE LINK SEAL, OR APPROVED EQUAL. WALL PIPE SEALS WITH INORGANIC MATERIAL LINKS THE PENETRATIONS OF FIRE RATED WALLS SHALL BE THUNDERLINE PYRO-PAC, OR APPROVED EQUAL.

2. SEALS SHALL BE MODULAR MECHANICAL TYPE CONSISTING OF INTERLOCKING SYNTHETIC RUBBER OR INORGANIC MATERIAL LINKS SHAPED TO CONTINUOUSLY FILL THE ANNULAR SPACE BETWEEN THE PIPE AND WALL OPENING.

3. LINKS SHALL BE LOOSELY ASSEMBLED WITH BOLTS TO FORM A CONTINUOUS BELT AROUND THE PIPE. A PRESSURE PLATE SHALL BE PROVIDED UNDER THE BOLT HEAD AND NUT OF EACH LINK.

4. AFTER THE SEAL ASSEMBLY IS POSITIONED IN THE SLEEVE, THE TIGHTENING OF THE BOLTS SHALL CAUSE THE SEALING ELEMENTS TO EXPAND AND PROVIDE AN ABSOLUTELY WATER-TIGHT SEAL BETWEEN THE PIPE AND SLEEVE.

5. SEALS SHALL BE CONSTRUCTED TO PROVIDE ELECTRICAL INSULATION BETWEEN THE PIPE AND SLEEVE, THUS REDUCING CHANCES OF CATHODIC REACTION BETWEEN THESE TWO MEMBERS.

6. SLEEVES SHALL BE MANUFACTURED FROM HEAVY-WALL, WELDED OR SEAMLESS STEEL PIPE. A FULL CIRCLE CONTINUOUSLY WELDED WATER STOP PLATE SHALL BE PROVIDED TO ASSURE POSITIVE WATER SEALING OF THE SLEEVE. SLEEVE SHALL BE PROTECTED BY A COATING OF ENRICHED RED PRIMER.

L. PIPE IDENTIFICATION

11. CONTRACTOR SHALL PROVIDE IDENTIFICATION LABELS, TAGS, ETC., FOR FIRE PROTECTION PIPING AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.

12. THE IDENTIFICATION OF PLUMBING PIPING SHALL BE IN ACCORDANCE WITH ANSI STANDARD A13.1.

13. PRESSURE SENSITIVE PIPE MARKERS SHALL BE MANUFACTURED BY THE BRADY CO., OR APPROVED EQUAL. PIPE MARKERS SHALL BE MANUFACTURER'S STANDARD PRODUCT.

M. ACCESS DOORS

1. ACCESS DOORS SHALL BE PROVIDED IN WALLS AND CEILINGS WHERE REQUIRED TO PERMIT PROPER ACCESS TO VALVES AND ANY OTHER SUCH DEVICES WHICH REQUIRE MAINTENANCE OR SERVICE. DOORS PLACED IN WALLS, PARTITIONS OR OTHER FIRE-RATED CONSTRUCTION SHALL HAVE A LABEL SIGNIFYING THAT THE DOOR HAS THE SAME FIRE RATING AS THE FIRE-RATED CONSTRUCTION.

2. THIS CONTRACTOR SHALL FURNISH ACCESS PANELS TO THE GENERAL CONTRACTOR FOR INSTALLATION.

3. ACCESS PANELS SHALL BE CONSTRUCTED OF 14 GAUGE STEEL, WITH 16 GAUGE STEEL FRAMES. DOORS SHALL FINISH FLUSH WITH THE SURROUNDING SURFACE. FRAMES SHALL HAVE 3 INCH WIDE EXPANDED METAL FOR PLASTERED SURFACES AND PLAIN FLANGED TYPE FRAME FOR TILE, MASONRY OR GYPSUM BOARD SURFACES. DOORS AND FRAMES SHALL BE FURNISHED PRIME COATED. DOORS INSTALLED IN CERAMIC TILE OR OTHER NON-PAINTED SURFACES SHALL BE STAINLESS STEEL.

4. HINGES SHALL BE CONCEALED SPRING TYPE, TO ALLOW DOORS TO BE OPENED 175 DEGREES. LOCKS SHALL BE FLUSH SCREWDRIVER TYPE WITH STEEL CAMS.
5. ACCESS PANELS SHALL BE 16 INCHES BY 16 INCHES OR LARGER AS MAY BE REQUIRED FOR PROPER ACCESS TO THE DEVICE BEING SERVED.

6. ACCESS PANELS ARE NOT REQUIRED IN COMPLETELY ACCESSIBLE LIFT OUT TILE CEILINGS. CONTRACTOR SHALL REVIEW THE ROOM FINISH SCHEDULE ON THE ARCHITECTURAL DRAWINGS TO VERIFY THE NEED FOR ACCESS PANELS.

N. FIRESTOPPING

1. SERVICES THAT PASS THRU FIRE OR SMOKE RATED PARTITIONS, WALLS, FLOORS, SHALL BE FIRESTOPPED. FIRE STOPPING SYSTEM RATING SHALL MATCH PARTITION RATING. FIRE STOPPING SYSTEM SHALL MEET THE REQUIREMENTS OF BUILDING CODE.

2. FIRESTOPING AND/OR SMOKE STOPPING MATERIAL AND INSTALLATION SHALL BE AS MANUFACTURED BY HILTI OR APPROVED EQUAL.

END OF FIRE PROTECTION SPECIFICATIONS

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SHEET NAME:

FIRE PROTECTION SPECIFICATIONS

SHEET NO.

FP-003

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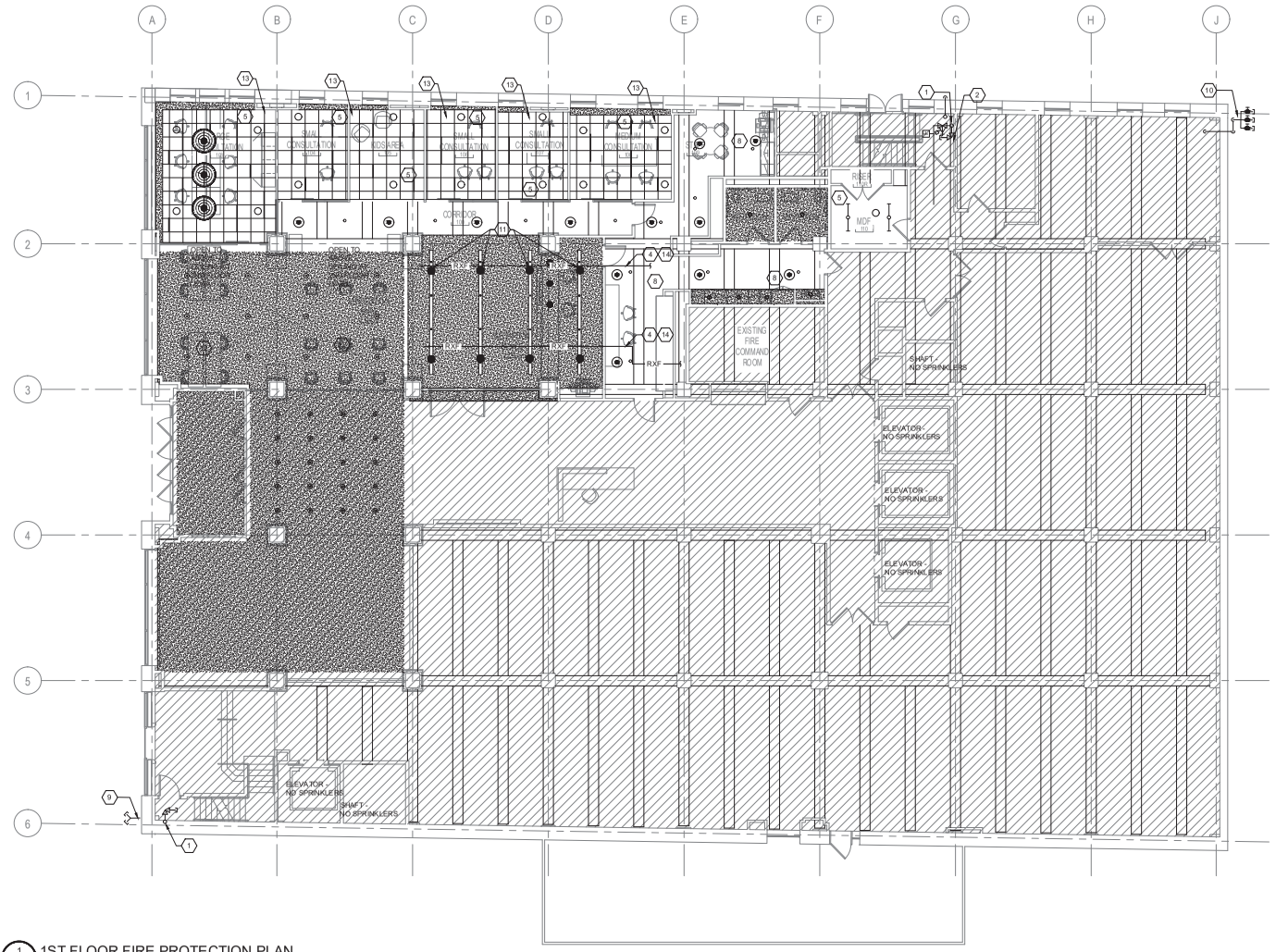

1 FP-201 1ST FLOOR FIRE PROTECTION PLAN
1/8" = 1'-0"

FIRE PROTECTION KEY NOTES:

1. EXISTING 6 INCH STANDPIPE AND FIRE HOSE VALVE SHALL REMAIN AT THIS APPROXIMATE LOCATION AND CONTINUE IN USE.
2. EXISTING SPRINKLER SYSTEM FLOOR CONTROL VALVE SHALL REMAIN AT THIS APPROXIMATE LOCATION AND CONTINUE IN USE. TO COMPLY WITH CITY INSPECTOR, PROVIDE NEW PRESSURE GAUGES UP AND DOWN STREAM OF THE EXISTING PRESSURE REGULATING VALVE AND PROVIDE NEW 3/4" 175 PSI PRESSURE RELIEF VALVE DOWNSTREAM OF THE PRESSURE REGULATING VALVE. EXTEND DRAIN FROM RELIEF VALVE AND CONNECT TO EXISTING DRAIN RISER. PROVIDE NEW SIGNS TO COMPLY WITH SECTION 6.7.4 OF NFPA-13 TO INDICATE ALL CONTROL, DRAIN AND TEST CONNECTION VALVES.
3. DISCONNECT AND REMOVE EXISTING SPRINKLERS MARKED WITH "RX" TO MAKE WAY FOR NEW TENANT SPACE LAYOUT. (TYPICAL)
4. DISCONNECT AND REMOVE EXISTING SPRINKLER PIPING MARKED WITH "RXP" TO MAKE WAY FOR NEW TENANT SPACE LAYOUT. (TYPICAL)
5. PROVIDE NEW WHITE CONCEALED SPRINKLERS WITH WHITE COVER PLATES IN NEW OFFICES FITTED WITH LAY-IN TILE CEILINGS. (TYPICAL) PROVIDE DESIGN DENSITY OF 0.10 GPM OVER 1,500 SF FOR LIGHT HAZARD OCCUPANCY.
6. RE-ROUTE EXISTING CROSS MAIN PIPING TO PROVIDE CLEAR SPACE FOR NEW TENANT DUCTWORK.
7. PROVIDE NEW BRANCH PIPING TO NEW SPRINKLER LOCATIONS. CONNECT TO EXISTING PIPING.
8. PROVIDE NEW BRASS UPRIGHT SPRINKLERS IN THIS AREA AND COORDINATE WITH NEW OFFICE WALLS, DUCT WORK AND OTHER ITEMS MOUNTED IN CEILINGS. (TYPICAL)
9. EXISTING FIRE DEPARTMENT INLET CONNECTION SHALL REMAIN AT THIS LOCATION AND CONTINUE IN SERVICE.
10. EXISTING FIRE PUMP TEST HEADER SHALL REMAIN AT THIS LOCATION AND CONTINUE IN USE.
11. PROVIDE CHROME PLATED PENDENT SPRINKLERS IN THE ARCHITECTURAL UTILITY TROUGH IN CEILING. SEE DETAIL ON ARCHITECTURAL DRAWINGS FOR DETAIL AND FIELD COORDINATE WITH GC FOR INSTALLATION WITHIN THE TROUGH. (TYPICAL FOR ALL TROUGHS)
12. EXISTING SPRINKLERS IN THIS AREA ARE AT THE 2ND FLOOR CEILING AND SHALL REMAIN AND CONTINUE IN SERVICE.
13. REMOVE EXISTING EXPOSED UPRIGHT SPRINKLERS AND BRANCH PIPING UNDER DUCTWORK IN THIS AREA AND CAP AT MAIN.
14. RAISE EXISTING PIPING CURRENTLY AT 8'-8" TO BOTTOM OF PIPE TO MAINTAIN A MINIMUM OF 9'-5" TO MAKE CLEARANCE FOR NEW 9 FOOT CEILING.

FIRE PROTECTION GENERAL NOTES:

A. SPRINKLER CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ELEVATIONS OF ALL EXISTING CROSS MAINS AND BRANCH PIPING.

B. SPRINKLER CONTRACTOR SHALL COORDINATE LOCATIONS AND ELEVATIONS OF ALL EXISTING PIPING WITH NEW DUCTWORK, LIGHTS, CEILINGS AND OTHER CEILING MOUNTED EQUIPMENT. SPRINKLER CONTRACTOR SHALL RELOCATE ANY EXISTING PIPING THAT IS BLOCKING NEW DUCTWORK RUNS.

C. SPRINKLER CONTRACTOR SHALL ADJUST THE ELEVATION OF ANY EXISTING BRANCH PIPING CURRENTLY BELOW 9 FEET TO MAINTAIN A MINIMUM OF 9 FEET CLEAR TO THE BOTTOM OF PIPE.

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SHEET NAME:
1ST FLOOR
FIRE PROTECTION PLAN

SHEET NO.
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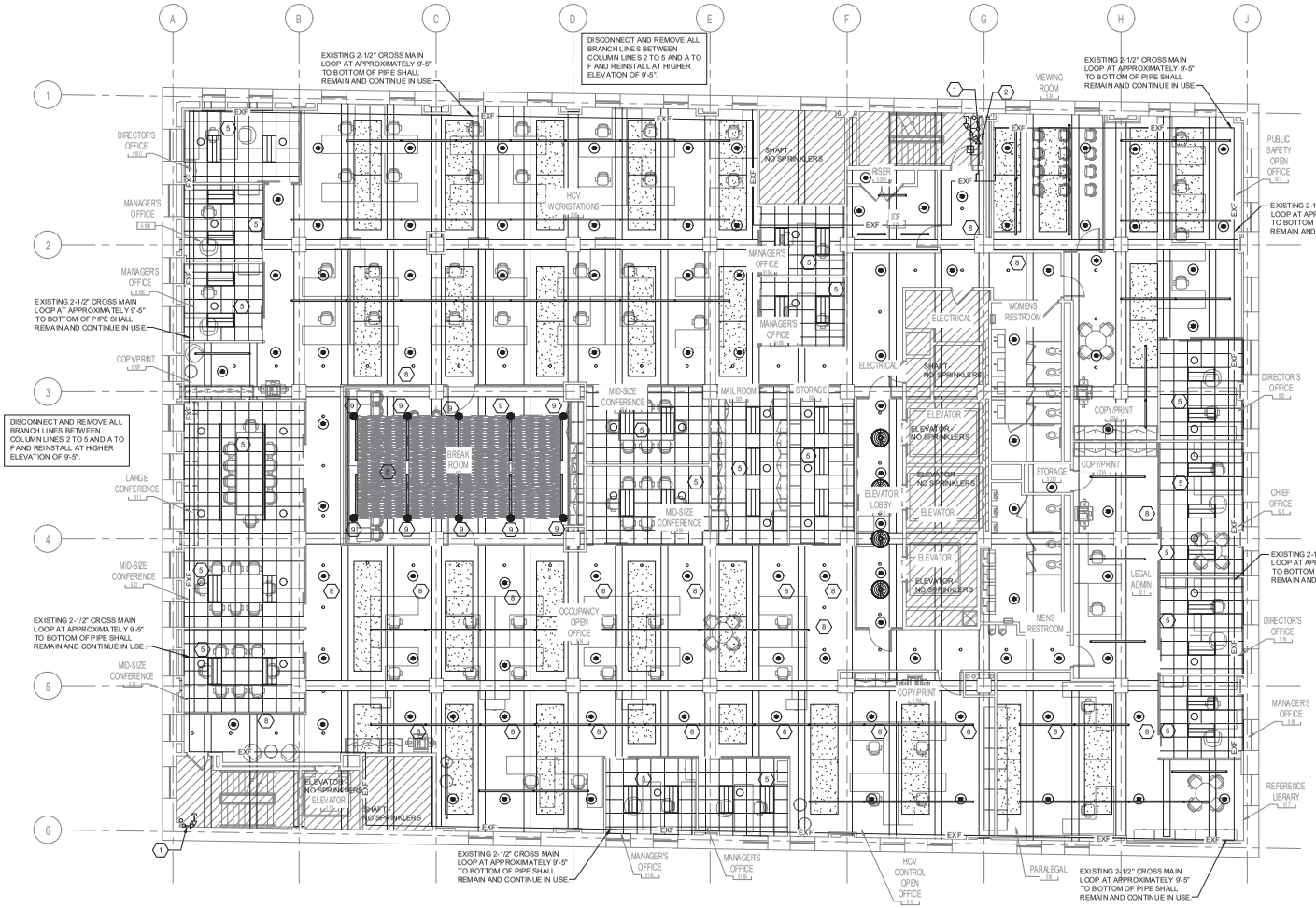

1 5TH FLOOR FIRE PROTECTION PLAN
FP-202 1/8" = 1'-0"

FIRE PROTECTION KEY NOTES:

1. EXISTING STANDPIPE AND FIRE HOSE VALVE SHALL REMAIN AT THIS APPROXIMATE LOCATION AND CONTINUE IN USE.
2. EXISTING SPRINKLER SYSTEM FLOOR CONTROL VALVE SHALL REMAIN AT THIS APPROXIMATE LOCATION AND CONTINUE IN USE. TO COMPLY WITH CITY INSPECTOR, PROVIDE NEW PRESSURE GAUGES UP AND DOWN STREAM OF THE EXISTING PRESSURE REGULATING VALVE AND PROVIDE NEW 3/4" 175 PSI PRESSURE RELIEF VALVE DOWNSTREAM OF THE PRESSURE REGULATING VALVE. EXTEND DRAIN FROM RELIEF VALVE AND CONNECT TO EXISTING DRAIN RISER. PROVIDE NEW SIGNS TO COMPLY WITH SECTION 6.7.4 OF NFPA-13 TO INDICATE ALL CONTROL DRAIN AND TEST CONNECTION VALVES.
3. WHERE NOT OTHERWISE NOTED TO BE REMOVED, EXISTING SPRINKLERS MAY BE REUSED IF THEY COMPLY WITH NEW TENANT SPACE LAYOUT. (TYPICAL)
4. WHERE NOT OTHERWISE NOTED TO BE REMOVED, EXISTING SPRINKLER PIPING MAY BE REUSED IF THEY COMPLY WITH NEW TENANT SPACE LAYOUT. (TYPICAL)
5. PROVIDE NEW WHITE CONCEALED SPRINKLERS WITH WHITE COVER PLATES IN NEW OFFICES FITTED WITH LAY-IN TILE CEILINGS. (TYPICAL) PROVIDE DESIGN DENSITY OF 0.10 GPM OVER 1,500 SF FOR LIGHT HAZARD OCCUPANCY.
6. RE-ROUTE EXISTING CROSS MAIN PIPING TO PROVIDE CLEAR SPACE FOR NEW TENANT DUCTWORK.
7. PROVIDE NEW BRANCH PIPING TO NEW SPRINKLER LOCATIONS. CONNECT TO EXISTING PIPING.
8. PROVIDE NEW BRASS UPRIGHT SPRINKLERS IN THIS AREA AND COORDINATE WITH NEW OFFICE WALLS, DUCT WORK AND OTHER ITEMS MOUNTED IN CEILINGS. (TYPICAL)
9. PROVIDE NEW BRASS UPRIGHT SPRINKLERS ABOVE THE SPECIAL SOFT-FOLD CEILING AND AT THE CEILING ELEVATION PROVIDE CHROME PLATED PENDENT SPRINKLERS WITH PROTECTION DISC TO PROTECT FROM THE UPRIGHT SPRINKLERS ABOVE .

FIRE PROTECTION GENERAL NOTES:

A. SPRINKLER CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ELEVATIONS OF ALL EXISTING CROSS MAINS AND BRANCH PIPING.

B. SPRINKLER CONTRACTOR SHALL COORDINATE LOCATIONS AND ELEVATIONS OF ALL EXISTING PIPING WITH NEW DUCTWORK, LIGHTS, CEILINGS AND OTHER CEILING MOUNTED EQUIPMENT. SPRINKLER CONTRACTOR SHALL RELOCATE ANY EXISTING PIPING THAT IS BLOCKING NEW DUCTWORK RUNS.

C. SPRINKLER CONTRACTOR SHALL ADJUST THE ELEVATION OF ANY EXISTING BRANCH PIPING CURRENTLY BELOW 9 FEET TO MAINTAIN A MINIMUM OF 9 FEET CLEAR TO THE BOTTOM OF PIPE.

D. PROVIDE SPRINKLERS WITH PROTECTIVE CAGES UNDER ALL DUCTWORK 48 INCHES WIDE AND GREATER. FIELD COORDINATE WITH HVAC CONTRACTOR.

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19042F.00	TJT	DCP

SHEET NAME:
5TH FLOOR
FIRE PROTECTION PLAN

SHEET NO.
FP-202

TRUE NORTH
PLAN NORTH

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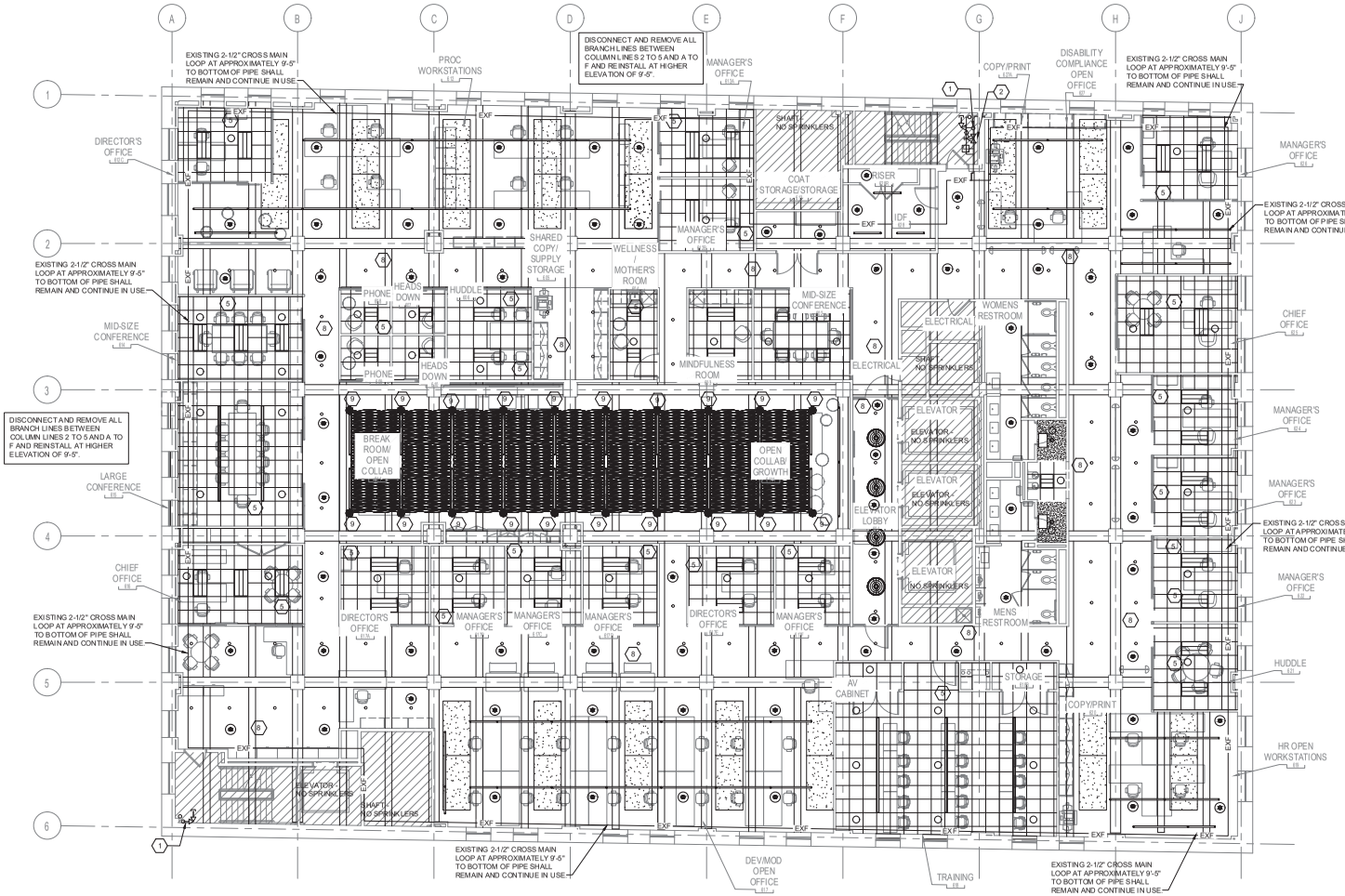

1 6TH FLOOR FIRE PROTECTION PLAN
FP-203 1/8" = 1'-0"

FIRE PROTECTION KEY NOTES:

1. EXISTING STANDPIPE AND FIRE HOSE VALVE SHALL REMAIN AT THIS APPROXIMATE LOCATION AND CONTINUE IN USE.
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5. PROVIDE NEW WHITE CONCEALED SPRINKLERS WITH WHITE COVER PLATES IN NEW OFFICES FITTED WITH LAY-IN TILE CEILINGS. (TYPICAL) PROVIDE DESIGN DENSITY OF 0.10 GPM OVER 1,500 SF FOR LIGHT HAZARD OCCUPANCY.
6. RE-ROUTE EXISTING CROSS MAIN PIPING TO PROVIDE CLEAR SPACE FOR NEW TENANT DUCTWORK.
7. PROVIDE NEW BRANCH PIPING TO NEW SPRINKLER LOCATIONS. CONNECT TO EXISTING PIPING.
8. PROVIDE NEW BRASS UPRIGHT SPRINKLERS IN THIS AREA AND COORDINATE WITH NEW OFFICE WALLS, DUCT WORK AND OTHER ITEMS MOUNTED IN CEILINGS. (TYPICAL)
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3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/08/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/28/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	TJT	DCP

SHEET NAME:
6TH FLOOR
FIRE PROTECTION PLAN

SHEET NO.
FP-203

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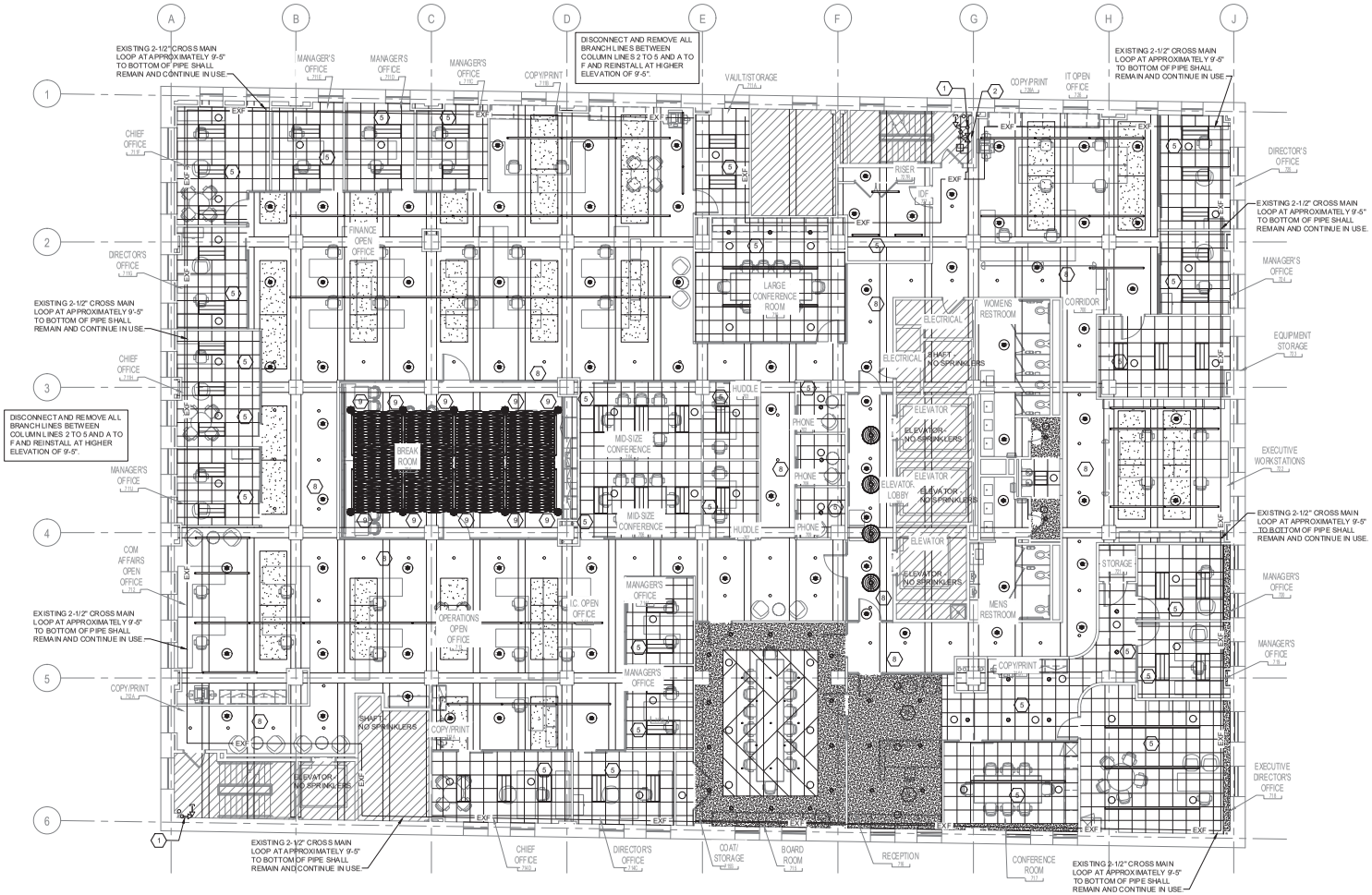

1 FP-204 7TH FLOOR FIRE PROTECTION PLAN
1/8" = 1'-0"

FIRE PROTECTION KEY NOTES: (#)

1. EXISTING STANDPIPE AND FIRE HOSE VALVE SHALL REMAIN AT THIS APPROXIMATE LOCATION AND CONTINUE IN USE.
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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19042F.00	TJT	DCP

SHEET NAME:
7TH FLOOR
FIRE PROTECTION PLAN

SHEET NO.
FP-204

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PLUMBING FIXURE CONNECTION SCHEDULE

MARK	FIXTURE TYPE	CW	CW SFU's	HW	HW S.F.U's	WASTE	WASTE DFU'S	VENT	MANUFACTURER	MODEL NUMBER	FAUCET/FLUSH VALVE	ACCESSORIES	REMARKS
S-1	STAINLESS STEEL SINGLE BOWL UNDER MOUNT SINK - ADA ACCESSIBLE	1/2"	1.0	1/2"	1.0	1 1/2"	2	1 1/2"	ELKAY	LUSTERTONE SINK MODEL #ELUHAD161655-5.5" DEEP, 18 GAUGE	KOHLER PURIST FAUCET #K-7505-VS SINGLE HANDLE FAUCET WITH 8" REACH AND PULL OUT SPOUT; SINGLE HOLE MOUNT; VIBRANT STAINLESS STEEL FINISH ; WITH 1.5 GPM AERATOR FOR LEED	McGUIRE GRID DRAIN AND 17 GA TAILPIECE # 155A; McGUIRE 17 GA TRAP #9802CNC, McGUIRE QUARTER TURN SUPPLY VALVES #LFBV02-SS, TRUEBRO LAV-SHIELD #2018-AS-L1	1, 2,3, 4
S-2	STAINLESS STEEL DOUBLE BOWL UNDER MOUNT SINK - ADA ACCESSIBLE	1/2"	1.0	1/2"	1.0	1 1/2"	2	1 1/2"	ELKAY	LUSTERTONE SINK MODEL #ELUHA0321655-5.5" DEEP, 18 GAUGE	KOHLER PURIST FAUCET #K-7505-VS SINGLE HANDLE FAUCET WITH 8" REACH AND PULL OUT SPOUT; SINGLE HOLE MOUNT; VIBRANT STAINLESS STEEL FINISH ; WITH 1.5 GPM AERATOR FOR LEED	McGUIRE GRID DRAIN # 152LT; TOMAHAWK #216-0.86 CHROME TAILPIECE WITH SIDE INLET; McGUIRE 17 GA TRAP #9812C15DF, McGUIRE QUARTER TURN SUPPLY VALVES #LFBV02-SS, TRAP INSULATION; KOHLER SOAP/LOTION DISPENSER #K-1995 -VS VIBRANT STAINLESS STEEL FINISH	1, 2, 3, 4
WC-1	WALL HUNG WATER CLOSET	1"	10	---	---	4"	6	2"	AMERICAN STANDARD - ELONGATED	EXISTING CHINA FIXTURE TO REMAIN AND BE FITTED WITH NEW LOW FLOW FLUSH VALVE	AMERICAN STANDARD SELECTRONIC SENSOR OPERATED 4 YEAR BATTERY POWERED FLUSH VALVE #6065.121.002 - 1.28 GPF	MUST USE AMERICAN STANDARD PISTON STYLE FLUSH VALVE TO CONVERT TO LOW FLOW FIXTURE; PROVIDE NEW WHITE ELONGATED OPEN FRONT SEAT CHURCH MODEL #9500-SSCT SELF SUSTAINING STAINLESS STEEL CHECK HINGE.	1, 4
WC-2	WALL HUNG WATER CLOSET - ADA ACCESSIBLE	1"	10	---	---	4"	6	2"	AMERICAN STANDARD - ELONGATED	EXISTING CHINA FIXTURE TO REMAIN AND BE FITTED WITH NEW LOW FLOW FLUSH VALVE	AMERICAN STANDARD SELECTRONIC SENSOR OPERATED 4 YEAR BATTERY POWERED FLUSH VALVE #6065.121.002 - 1.28 GPF	MUST USE AMERICAN STANDARD PISTON STYLE FLUSH VALVE TO CONVERT TO LOW FLOW FIXTURE; PROVIDE NEW WHITE ELONGATED OPEN FRONT SEAT CHURCH MODEL #9500-SSCT SELF SUSTAINING STAINLESS STEEL CHECK HINGE.	1, 2, 4
U-1	WALL HUNG URINAL	1"	10	---	---	2"	4	2"	AMERICAN STANDARD	EXISTING CHINA FIXTURE TO REMAIN AND BE FITTED WITH NEW LOW FLOW FLUSH VALVE	AMERICAN STANDARD SELECTRONIC SENSOR OPERATED FLUSH VALVE #6063.051.002-0.5 GPF, BATTERY OPERATED	MUST USE AMERICAN STANDARD PISTON STYLE FLUSH VALVE TO CONVERT TO LOW FLOW FIXTURE; FACTORY INSTALLED 4 YEAR CR-P2 LITHIUM BATTERY; MANUAL OVERRIDE BUTTON	1, 4
U-2	WALL HUNG URINAL - ADA ACCESSIBLE	1"	10	---	---	2"	4	2"	AMERICAN STANDARD	EXISTING CHINA FIXTURE TO REMAIN AND BE FITTED WITH NEW LOW FLOW FLUSH VALVE	AMERICAN STANDARD SELECTRONIC SENSOR OPERATED FLUSH VALVE #6063.051.002-0.5 GPF, BATTERY OPERATED	MUST USE AMERICAN STANDARD PISTON STYLE FLUSH VALVE TO CONVERT TO LOW FLOW FIXTURE; FACTORY INSTALLED 4 YEAR CR-P2 LITHIUM BATTERY; MANUAL OVERRIDE BUTTON	1, 2, 4
L-1	EXISTING LAVATORY	1/2"	1.0	1/2"	1.0	1 1/2"	2	1 1/2"	EXISTING SINK BOWL TOR EMAIN	EXISTING SINK BOWL TO REMAIN	AMERICAN STANDARD NEXTGEN SELECTRONIC FAUCET MODEL #7758.305-0.5 GPM WITH #PK001.WRK 13 YEAR BATTERY POWER PACK; ASSE 1070 INTERNAL SMART THERM TEMPERATURE LIMITER; #775P.800 -8" METAL DECK PLATE	RECONNECT TO EXISTING SUPPLIES AND REUSE EXISTING TRAP WITH INSULATION WRAP.	1, 2
CM-1	COFFEE MAKER CONNECTION	1/2"	0.5	---	---	---	---	---	DAHL ANGLE SUPPLY STOP WITH HAMMER ARRESTER	211-53-3-1-14WHA	1/2" FEMALE IRON THREAD x 3/8" COMPRESSION OUTLET	QUARTER TURN BALL VALVE - CHROME PLATED	SEE DETAIL ON P301
WD-1	WATER DISPENSER CONNECTION	1/2"	0.5	---	---	---	---	---	DAHL ANGLE SUPPLY STOP WITH HAMMER ARRESTER	211-53-3-1-14WHA	1/2" FEMALE IRON THREAD x 3/8" COMPRESSION OUTLET	QUARTER TURN BALL VALVE - CHROME PLATED	SEE DETAIL ON P301
IM-1	ICE MAKER MAKER CONNECTION	1/2"	0.5	---	---	---	---	---	DAHL ANGLE SUPPLY STOP WITH HAMMER ARRESTER	211-53-3-1-14WHA	1/2" FEMALE IRON THREAD x 3/8" COMPRESSION OUTLET	QUARTER TURN BALL VALVE - CHROME PLATED	SEE DETAIL ON P301
DW-1	DISH WASHER CONNECTION	1/2"	0.5	---	---	---	---	---	DAHL ANGLE SUPPLY STOP WITH HAMMER ARRESTER	211-53-3-1-14WHA	1/2" FEMALE IRON THREAD x 3/8" COMPRESSION OUTLET	QUARTER TURN BALL VALVE - CHROME PLATED	SEE DETAIL ON P301

REMARKS:
1. PROVIDE ALL REQUIRED COMPONENTS FOR COMPLETE FIXTURE ROUGH-IN, I.E., QUARTER TURN CONVERTIBLE SUPPLIES & STOPS - MCGUIRE #LFBV02-SS WITH BRAIDED STAINLESS STEEL SUPPLIES , TRAPS - MCGUIRE #9812C15DF, GRID DRAINS & TAILPIECES - MCGUIRE #152MN, NOT ALL REQUIRED COMPONENTS ARE SPECIFIED ABOVE.
2. FIXTURES SHALL BE ADA COMPLIANT AND PROVIDED WITH ADA COMPLIANT ACCESSORIES. MOUNT AT ADA COMPLIANT ELEVATIONS. SEE ARCHITECTURAL PLAN FOR ELEVATIONS.
3.PROVIDE MCGUIRE PRO-WRAP WHITE ANTI-MICROBIAL INSULATING WRAP ON EXPOSED UNDER ADA SINK SUPPLY AND WASTE PLUMBING.
4. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE PLAN LOCATION DIMENSION REQUIREMENTS AND COORDINATE PLUMBING ROUGH-IN ACCORDINGLY.

ELECTRIC WATER HEATER SCHEDULE

MARK	DESCRIPTION	MANUFACTURER & MODEL NUMBER (BASIS OF DESIGN)	LOCATION	STORAGE VOLUME	GPH RECOVERY @ 90 DEG F RISE	POWER	VOLTAGE	EFFICIENCY	NOTES
WH-1	ELECTRIC WATER HEATER	A. O. SMITH MODEL #DEL-20	ABOVE 5th FLR CEILING AT ROOM 506	20 GALLONS	23 GALLONS	5.0 KW - 24.0 AMPS	208 VOLT, 1 PHASE	98%	1, 2, 3, 4, 5
WH-2	ELECTRIC WATER HEATER	A. O. SMITH MODEL #DEL-20	ABOVE 6th FLR CEILING AT ROOM 625C	20 GALLONS	23 GALLONS	5.0 KW - 24.0 AMPS	208 VOLT, 1 PHASE	98%	1, 2, 3, 4, 5
WH-3	ELECTRIC WATER HEATER	A. O. SMITH MODEL #DEL-20	ABOVE 7th FLR CEILING AT ROOM 706	20 GALLONS	23 GALLONS	5.0 KW - 24.0 AMPS	208 VOLT, 1 PHASE	98%	1, 2, 3, 4, 5

NOTES -
1. PROVIDE EXPANSION TANK. REFER TO EXPANSION TANK SCHEDULE ON THIS DRAWING.
2. THIS WATER HEATER IS TO BE MOUNTED ABOVE CEILING WITH PRE-MANUFACTURED DRAIN PAN AND SUPPORT - SEE DETAIL.
3. PROVIDE HEAT TRAPS ON WATER HEATER IF NOT INTEGRAL TO HEATER.
4. DISCONNECTS BY PLUMBING CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR.
5. ACCEPTABLE MANUFACTURERS - A.O.SMITH, BRADFORD WHITE, LOCHINVAR.

EXPANSION TANK SCHEDULE

MARK	DESCRIPTION	MANUFACTURER & MODEL NUMBER (BASIS OF DESIGN)	LOCATION	TANK SIZE	ACCEPTANCE VOLUME	NOTES
ET-1	DOMESTIC WATER EXPANSION TANK	AMTROL ST-5	ONE AT EACH WATER HEATER WH-1, 2, 3	2 GALLONS	0.9 GALLONS	1, 2

NOTES -
1. WORKING PRESSURE - 150 PSIG.
2. MAXIMUM SYSTEM TEMPERATURE - 140 DEG F.
3. ACCEPTABLE MANUFACTURERS - WESSELS, WATTS

PUMP SCHEDULE

MARK	DESCRIPTION	MANUFACTURER & MODEL NUMBER (BASIS OF DESIGN)	MODEL NUMBER	LOCATION	FLOW RATE	HEAD PRESSURE	POWER	VOLTAGE	NOTES/ACCESSORIES
CP-1	120 DEGREE CIRCULATION PUMP	BELL & GOSSETT	NBF-12U/LW	AT 6th FLR WATER HEATER	2 GPM	11 FEET	.55 WATTS	120 VOLT, 1 PHASE	BRONZE CONSTRUCTION, 24 HR TIME CLOCK, CIRCUIT SETTER VALVE, TC-1 TIMER KIT, PILOT LIGHT SWITCH

MIXING VALVE SCHEDULE

MARK	DESCRIPTION	LOCATION	MANUFACTURER & MODEL NUMBER	OPTIONS/NOTES	LOAD RANGE
MV-1	120 DEG TO 105 DEG FOR PUBLIC LAVATORIES	UNDER HAND SINKS	"BRADLEY VERNATHERM MODEL # 5594-008"	ADJUSTABLE SET POINT, INTEGRAL STRAINERS ON SUPPLY INLET, BRONZE FINISH, MOUNTING BRACKET, PROVIDED IN ACCESS PANEL	2.5 GPM AT 5 PSI DROP

PLUMBING GENERAL NOTES:

1. CONFORM TO ALL APPLICABLE CODES (LOCAL, STATE, NATIONAL CODES, NFPA, OSHA, ETC.), GOVERNMENT REGULATIONS , UTILITY COMPANY REQUIREMENTS, AND APPLICABLE STANDARDS.
2. OBTAIN PERMITS AND PAY ALL FEES. ARRANGE FOR ALL REQUIRED TESTS, INSPECTIONS AND APPROVALS.
3. FURNISH ALL PLUMBING FIXTURES, EQUIPMENT AND MATERIAL INDICATED AND SHOWN ON DRAWINGS AND INSTALL COMPLETE AND PLACE IN PROPER OPERATION.
4. PROVIDE SANITARY WASTE AND VENT PIPING AND SANITARY SEWER AND EXTEND TO EXISTING BUILDING FACILITIES. CONTRACTOR SHALL MAKE THE TIE-INS TO THE EXISTING SERVICES WHERE INDICATED ON DRAWINGS. EXISTING LINE SIZES, CONDITIONS, INVERT ELEVATIONS, AND CAPACITIES SHALL BE FIELD VERIFIED. CLEAN AND TEST PIPING FOR PROPER OPERATION BEFORE FINAL CONNECTION FOR ALL UTILITIES. IMMEDIATELY REPORT TO THE ARCHITECT OR ENGINEER ANY INSTANCES WHERE CONNECTIONS CANNOT BE MADE BETWEEN NEW AND EXISTING SYSTEMS AS INDICATED ON PLANS. NO EXTRA COMPENSATION WILL BE GRANTED FOR NEW WORK THAT MUST BE ABANDONED AND REPLACED BECAUSE LOCATION AND ELEVATION OF EXISTING WAS NOT DETERMINED BEFORE STARTING NEW WORK.
5. EXTEND DOMESTIC WATER FROM EXISTING BUILDING FACILITIES AS INDICATED ON DRAWINGS. INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING SAME. INCLUDE ALL FITTINGS, VALVES, HANGERS, INSULATION, AND OTHER ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION.
6. PROVIDE PLUMBING FIXTURES, DRAINS AND EQUIPMENT WITH ALL PLUMBING CODE REQUIRED TRIM, CONTROLS AND ACCESSORIES.
7. INSULATE HOT AND COLD WATER PIPING PER ASHRAE GUIDELINES - MINIMUM OF 1 INCH THICK FIBERGLASS INSULATION WITH ALL SERVICE JACKET.
8. SEWERS TO BE PITCHED A MINIMUM OF 1/4" PER FOOT FOR SIZES 3" AND UNDER, AND 1/8" PER FOOT FOR SIZES 4 " AND LARGER OR TO GRADES INDICATED ON DRAWINGS.
9. CHANGES IN DIRECTION AND BRANCH CONNECTIONS SHALL BE MADE WITH APPROVED DRAINAGE FITTINGS COMPATIBLE WITH THE PIPING SYSTEM MATERIAL IN WHICH IT IS INSTALLED.
10. FIXTURES AND SANITARY DRAINS SHALL BE VENTED AS INDICATED ON DRAWINGS AND IN ACCORDANCE WITH CODE. VENTS ARE TO BE EXTENDED TO EXISTING BUILDING FACILITIES OR UP THROUGH ROOF.
11. THIS PROJECT HAS A RETURN AIR PLENUM AND PVC SHALL NOT BE INSTALLED IN RETURN AIR PLENUMS, USE NO-HUB CAST IRON, DWV COPPER ASTM B306 PIPING, OR PRESS FIT STAINLESS STEEL PIPING IN PLENUMS.
12. EXISTING PVC PIPING IN PLENUM CEILINGS SHALL BE INSULATED TO MEET PLENUM RATINGS. IF FOUND IN PLENUM, NOTIFY THE ARCHITECT.
13. INCLUDE UNIONS, OR OTHER DISCONNECT MEANS, STOPS OR VALVES FOR ISOLATION OF FIXTURES AND EQUIPMENT. VALVES TO BE FULLY COMPATIBLE WITH PIPING FOR SERVICE INTENDED AS MANUFACTURED BY APOLLO, NIBCO, WATTS, CRANE OR OTHER APPROVED MANUFACTURER. INCLUDE HOSE OR DRAIN VALVES AT LOW POINTS WHERE FIXTURES CANNOT BE USED FOR DRAINAGE.
14. HANGERS ON INSULATED PIPE SHALL BE OUTSIDE OF INSULATION, SIZED ACCORDINGLY AND WITH SUFFICIENT SADDLE TO PROTECT INSULATION.
15. FLUSH, VENT AND SANITIZE ALL WATER PIPING WITH EQUIVALENT SOLUTION OF 50 PPM OF AVAILABLE CHLORINE UPON COMPLETION. COMPLY WITH PLUMBING CODE REQUIREMENTS FOR SANITIZATION.
16. COORDINATE FINAL PIPE ROUTING WITH ARCHITECT AND OTHER TRADES.
17. NO WORK SHALL BE INSTALLED UNTIL ALL TRADES HAVE SIGNED OFF ON THE COORDINATION DRAWINGS AND THE COORDINATION DRAWINGS ARE APPROVED BY THE ARCHITECT.
18. COORDINATE AND FIELD VERIFY SANITARY PIPE ROUTING WITH OWNER ON THIS FLOOR AND FLOOR BELOW. DUE TO UNKNOWN CONDITIONS IN THE CEILING OF SPACE BELOW THIS FLOOR, PIPING MAY BE RE-ROUTED TO MISS CONFLICTS WITH DUCTWORK AND STRUCTURE.
19. NEW SUPPLY BRANCH LINES MAY USE "PRESS TYPE" HEAVY DUTY HIGH COMPRESSION COPPER FITTINGS AND COUPLINGS WITH O-RING SEALS OR TRADITIONAL LEAD-FREE SOLDER JOINTS AND FITTINGS. TEE-DRILL FITTINGS WITH BRAZED JOINTS ARE PERMITTED AT THE SUPPLY MANIFOLDS BEHIND BANKS OF PLUMBING FIXTURES.
20. THE INDICATED SCOPE OF THE DRAWINGS ARE FOR GUIDANCE ONLY AND REPRESENTS THE LIMIT OF GENERAL CONSTRUCTION WORK. THIS CONTRACTOR MAY BE REQUIRED TO DO WORK IN AREAS OUTSIDE OF THIS SCOPE WHERE NECESSARY TO DEMOLISH, INSTALL NEW SYSTEMS OR EXTEND TO EXISTING SYSTEMS IN ORDER TO PERFORM THE WORK INDICATED ON THESE DRAWINGS. COORDINATE WITH OWNER'S REPRESENTATIVE TO GAIN ACCESS TO ADJOINING SPACES AND TO MINIMIZE DISRUPTION OF SERVICES.

PLUMBING DEMOLITION NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PLUMBING RELATED DEMOLITION WORK. VERIFY WITH ARCHITECT ALL WALLS, PARTITIONS, CEILINGS, ETC. THAT ARE TO BE REMOVED.
2. DEMOLITION SHALL BE COORDINATED AND SCHEDULED WITH THE OWNER, PRIOR TO BEGINNING CONSTRUCTION.
3. DEMOLITION WORK SHALL BE REMOVED COMPLETELY INCLUDING ALL ASSOCIATED APPURTENANCES. UNDER NO CIRCUMSTANCES SHALL WORK BE LEFT ABANDONED IN PLACE, UNLESS OTHERWISE SPECIFIED. REMOVE ALL UNUSED PIPING AND HANGERS AND DISCARD.
4. ANY SALVAGEABLE MATERIAL AT THE REQUEST OF THE OWNER SHALL BE RETURNED TO THE OWNER DURING DEMOLITION.
5. CAP ALL PIPE CUT OR DISMANTLED DURING DEMOLITION TO MAINTAIN SYSTEM INTEGRITY. CAP BRANCHES AT MAINS TO PREVENT DEAD LEGS. PATCH HOLES IN FLOORS AND WALLS TO MATCH EXISTING - COORDINATE WITH GC.
6. THE PIPING SHOWN ON THESE DRAWINGS IS DIAGRAMMATIC AND SHOWS THE BASIC ROUTING OF THE MAINS. THE CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY ALL EXISTING PIPING BOTH FOR SIZE AND LOCATION. EXISTING PIPING MAY BE REUSED WHERE PRACTICAL. FIELD VERIFY BEST ROUTING FOR NEW PIPING INSTALLATIONS AND MAKE NECESSARY ADJUSTMENTS IN THE FIELD.

PLUMBING LEGEND

SYMBOL	ABRV.	DESCRIPTION	SYMBOL	ABRV.	DESCRIPTION
SAN	SAN	SANITARY PIPING			PIPE UP
KW	KW	KITCHEN WASTE PIPING (TO GREASE INTERCEPTOR)			PIPE DOWN
ST	ST	STORM PIPING (PRIMARY)			PIPE TEE DOWN
OD	OD	SECONDARY / OVERFLOW DRAIN PIPING			PIPE UNION
V	V	VENT PIPING			PIPE CAP
CW	CW	COLD WATER PIPING			PIPE TRAP
HW	HW	HOT WATER PIPING			BALL VALVE
HWR	HWR	HOT WATER RETURN PIPING			BALL VALVE OR SHUTOFF VALVE IN RISE
TP	TP	TRAP PRIMER PIPING			GLOBE VALVE
G	G	GAS PIPING (NATURAL OR PROPANE)			BUTTERFLY VALVE
FO	FO	FUEL OIL PIPING			GATE VALVE
S	S	SPRINKLER PIPING			GAS COCK
CD	CD	CONDENSATE DRAIN PIPING		MV	MIXING VALVE
		PIPING ROUTED BELOW GRADE / SLAB (LINE TYPE INDICATES SERVICE TYPE UNO)			VACUUM RELIEF VALVE
EX (X)	EX	EXISTING PIPING TO REMAIN - (X) DESIGNATES SERVICE		VB	VACUUM BREAKER
RX (X)	RX	EXISTING PIPING TO BE REMOVED - (X) DESIGNATES SERVICE			GAS SOLENOID VALVE
VAC	VAC	MEDICAL VACUUM PIPING		BV	BALANCING VALVE
MA	MA	MEDICAL AIR PIPING		PRV	PRESSURE REDUCING VALVE
OXY	OXY	OXYGEN PIPING		PRV	PRESSURE REGULATING VALVE
HEX	HEX	HELIX PIPING		CV	CHECK VALVE
N	N	NITROGEN PIPING			STRAINER
CA	CA	COMPRESSED AIR PIPING		T&P	TEMPERATURE AND PRESSURE RELIEF VALVE
AV	AV	ACID VENT PIPING		BFP	BACK FLOW PREVENTER
AW	AW	ACID WASTE PIPING		PG	PRESSURE GAUGE
CO2	CO2	CARBON DIOXIDE PIPING			THERMOMETER
MAI	MAI	MEDICAL AIR INTAKE PIPING			AQUASTAT
MVD	MDV	MEDICAL VACUUM DISCHARGE PIPING			HOT WATER RECIRC. PUMP
NO	NO	NITROUS OXIDE PIPING			INTERIOR HOSE BIBB OR HOSE END DRAIN VALVE
PD	PD	PUMP DISCHARGE			EXTERNAL WALL HYDRANT
WAGD	WAGD	WASTE ANESTHETIC GAS DISCHARGE	X		DOMESTIC SHOCK ABSORBER/WATER HAMMER ARRESTER; TEXT DENOTES SIZE (PDI: A ~ F)
X		MEDICAL GAS OUTLET (LETTER DESIGNATES GAS TYPE)		FCO	CLEAN OUT, FLOOR
				CO	CLEAN OUT, EXPOSED
				FD	FLOOR DRAIN
				RD	ROOF DRAIN
					FLOOR DRAIN WITH TRAP PRIMER
					FLOOR SINK/RECEPTOR WITH HALF GRATE
				OS&Y	OS&Y VALVE
				T.S.	OS&Y VALVE WITH TAMPER SWITCH
					FIRE DEPARTMENT SIAMESE CONNECTION
					FIRE PUMP TEST HEADER
				FHV	FIRE HOSE VALVE CABINET
			IE XX.XX		INVERT ELEVATION B.F.F. (IN FEET)
			XX		KITCHEN EQUIPMENT DESIGNATION: REFER TO KITCHEN EQUIPMENT DRAWINGS FOR DETAILS
			M		UTILITY METER
					CONNECT TO EXISTING
					DISCONNECT FROM EXISTING
					FLEXIBLE PIPE CONNECTION

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PRO JECT NO. 19047.00 | DRAWN BY: TJT | REVIEWED BY: DCP

SHEET NAME:
PLUMBING DATA SHEET

SHEET NO:
P-001

TRUE NORTH
PLAN NORTH

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PLUMBING SPECIFICATION

SECTION 019113 - GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. COMMISSIONING IS A SYSTEMATIC PROCESS OF ENSURING THAT THE BUILDING SYSTEMS PERFORM INTERACTIVELY ACCORDING TO THE DESIGN INTENT AND THE OWNER'S OPERATIONAL NEEDS. THIS IS ACHIEVED BY BEGINNING IN THE DESIGN PHASE AND DOCUMENTING DESIGN INTENT AND CONTINUING THROUGH CONSTRUCTION, ACCEPTANCE AND THE WARRANTY PERIOD WITH ACTUAL VERIFICATION OF PERFORMANCE. THE COMMISSIONING PROCESS SHALL ENCOMPASS AND COORDINATE THE TRADITIONALLY SEPARATE FUNCTIONS OF SYSTEM DOCUMENTATION, EQUIPMENT START-UP, CONTROL SYSTEMS CALIBRATION, TESTING AND BALANCING, PERFORMANCE TESTING AND TRAINING.

B. COMMISSIONING DURING THE CONSTRUCTION PHASE IS INTENDED TO ACHIEVE THE FOLLOWING SPECIFIC OBJECTIVES ACCORDING TO THE CONTRACT DOCUMENTS:

1. VERIFY THAT APPLICABLE EQUIPMENT AND SYSTEMS ARE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AND TO INDUSTRY ACCEPTED MINIMUM STANDARDS AND THAT THEY RECEIVE ADEQUATE OPERATIONAL CHECKOUT BY INSTALLING CONTRACTORS.
2. VERIFY AND DOCUMENT PROPER PERFORMANCE OF EQUIPMENT AND SYSTEMS.
3. VERIFY THAT OWNER'S OPERATING PERSONNEL ARE ADEQUATELY TRAINED.

C. THE COMMISSIONING PROCESS DOES NOT TAKE AWAY FROM OR REDUCE THE RESPONSIBILITY OF THE SYSTEM DESIGNERS OR INSTALLING CONTRACTORS TO PROVIDE A FINISHED AND FULLY FUNCTIONING PRODUCT.

1.02 RESPONSIBILITIES

A. ARCHITECT & ENGINEER

1. RESOLVE OPERATIONAL AND DESIGN ISSUES TO ACHIEVE PROPERLY FUNCTIONING SYSTEMS.
2. MAY ATTEND CX SCOPING MEETING AND OTHER MEETINGS NECESSARY TO FACILITATE THE CX PROCESS.
3. PROVIDE THE BOD TO THE CXA FOR REVIEW. THIS DOCUMENT SHOULD BE AVAILABLE EARLY IN THE DESIGN STAGE AND FORWARDED TO THE CXA WITHIN 2 WEEKS OF THE FINAL CONSTRUCTION DOCUMENT ISSUE.
4. PROVIDE O&M MANUALS TO THE CXA FOR REVIEW AND INCLUSION OF THE SYSTEMS MANUAL (ENHANCED ONLY).

B. OWNER

1. MAY ATTEND CX SCOPING MEETING AND OTHER MEETINGS NECESSARY TO FACILITATE THE CX PROCESS.
2. ARRANGE FOR FACILITY OPERATING AND MAINTENANCE PERSONNEL TO ATTEND MEETINGS NECESSARY TO FACILITATE THE CX PROCESS.
3. PROVIDE THE OPR DOCUMENTATION TO THE CXA FOR USE IN DEVELOPING THE CX PLAN, ASSISTING IN SUBMITTAL REVIEW, PRE FUNCTIONAL TEST SCRIPTS CREATION, FUNCTIONAL TEST SCRIPTS CREATION AND LEED DOCUMENT SUBMISSION. THIS DOCUMENT SHOULD BE AVAILABLE EARLY IN THE DESIGN STAGE AND FORWARDED TO THE CXA WITHIN 2 WEEKS OF CXA CONTRACT APPROVAL.

C. MECHANICAL: REFER TO DIVISION 23

D. ELECTRICAL: REFER TO DIVISION 26

1.03 DEFINITIONS

A. BOD: BASIS OF DESIGN: A DOCUMENT THAT RECORDS CONCEPTS, CALCULATIONS, DECISION AND PRODUCT SELECTIONS USED TO MEET THE OPR AND TO SATISFY APPLICABLE REGULATORY REQUIREMENTS, STANDARDS AND GUIDELINES. THE DOCUMENT INCLUDES BOTH NARRATIVE DESCRIPTIONS AND LISTS OF INDIVIDUAL ITEMS THAT SUPPORT THE DESIGN PROCESS.

B. COMMISSIONING PLAN: A DOCUMENT THAT OUTLINES THE ORGANIZATION, SCHEDULE, ALLOCATION OF RESOURCES AND DOCUMENTATION REQUIREMENTS OF THE COMMISSIONING PROCESS.

C. CXA: COMMISSIONING AUTHORITY

D. OPR: OWNER'S PROJECT REQUIREMENTS: A DOCUMENT THAT DETAILS THE FUNCTIONAL REQUIREMENTS OF A PROJECT AND THE EXPECTATIONS OF HOW IT WILL BE USED AND OPERATED. THESE INCLUDE PROJECT GOALS, MEASURABLE PERFORMANCE CRITERIA, COST CONSIDERATIONS, BENCHMARKS, SUCCESS CRITERIA AND SUPPORTING INFORMATION. THE OPR WILL FORM THE BASIS FROM WHICH ALL DESIGN, CONSTRUCTION, ACCEPTANCE AND OPERATIONAL DECISIONS ARE MADE.

E. SYSTEMS, SUBSYSTEMS, EQUIPMENT AND COMPONENTS: WHERE THESE TERMS ARE USED TOGETHER OR SEPARATELY, THEY SHALL MEAN "AS-BUILT" SYSTEMS, SUBSYSTEMS, EQUIPMENT AND COMPONENTS.

1.04 RELATED WORK

1. DIVISION 23 - "MECHANICAL SYSTEMS COMMISSIONING"
2. DIVISION 26 - "ELECTRICAL SYSTEMS COMMISSIONING"
3. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND OTHER DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
4. OPR AND BOD DOCUMENTATION ARE INCLUDED BY REFERENCE FOR INFORMATION ONLY.
5. PRELIMINARY CX PLAN FOUND IN THIS SECTION

1.05 COMMISSIONING TEAM

A. MEMBERS APPOINTED BY CONTRACTOR: INDIVIDUALS, EACH HAVING THE AUTHORITY TO ACT ON BEHALF OF THE ENTITY HE OR SHE REPRESENTS, EXPLICITLY ORGANIZED TO IMPLEMENT THE COMMISSIONING PROCESS THROUGH COORDINATED ACTION. THE COMMISSIONING TEAM SHALL CONSIST OF, BUT NOT BE LIMITED TO, REPRESENTATIVES OF CONTRACTOR, INCLUDING PROJECT SUPERINTENDENT AND SUBCONTRACTORS, INSTALLERS, SUPPLIERS AND SPECIALISTS DEEMED APPROPRIATE BY THE CXA.

B. MEMBERS APPOINTED BY OWNER:

1. CXA: THE DESIGNATED PERSON, COMPANY, OR ENTITY THAT PLANS, SCHEDULES AND COORDINATES THE COMMISSIONING TEAM TO IMPLEMENT THE COMMISSIONING PROCESS. OWNER WILL ENGAGE THE CXA UNDER A SEPARATE CONTRACT.
2. REPRESENTATIVES OF THE FACILITY USER AND OPERATION AND MAINTENANCE PERSONNEL.
3. ARCHITECT AND ENGINEERING DESIGN PROFESSIONALS.

END OF SECTION 019113

GENERAL INFORMATION

A. GENERAL

1. CONFORM TO GENERAL AND SPECIAL CONDITIONS OF CONTRACT.
2. SPECIFICATIONS ARE APPLICABLE TO CONTRACTORS AND/OR SUBCONTRACTORS.
3. THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING AND EQUIPMENT DRAWINGS AND SPECIFICATIONS ARE INCORPORATED INTO, AND BECOME A PART OF THIS DIVISION. THIS CONTRACTOR SHALL EXAMINE ALL SUCH DRAWINGS AND SPECIFICATIONS AND BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS CONTAINED THEREIN. THE SUBMISSION OF THE BID SHALL INDICATE SUCH KNOWLEDGE.
4. VISIT SITE, CHECK FACILITIES AND CONDITIONS.
5. SYSTEMS SHALL BE COMPLETE AND WORKABLE IN ALL RESPECTS AND PLACED IN OPERATION.
6. EACH CONTRACTOR SHALL PROVIDE FOR HIS OWN CLEAN-UP, REMOVAL AND LEGAL DISPOSAL OF ALL RUBBISH DAILY. CONTRACTOR SHALL PROTECT THEIR WORK AND EXISTING OR ADJACENT PROPERTY AGAINST WEATHER, TO MAINTAIN THEIR WORK, MATERIALS, APPARATUS AND FIXTURES FREE FROM INJURY OR DAMAGE. ANY WORK DAMAGED BY FAILURE TO PROVIDE PROTECTION REQUIRED, SHALL BE REMOVED AND REPLACED WITH NEW WORK AT THE CONTRACTOR'S EXPENSE.
7. CONTRACTORS SHALL CONFIRM AND COMPLY WITH ALL UTILITY COMPANY REQUIREMENTS, COORDINATE CONNECTION POINTS IN FIELD.
8. ARRANGE FOR AND OBTAIN OWNER'S AND INSURANCE REPRESENTATIVE'S PERMISSION FOR ANY SERVICE SHUTDOWNS.
9. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, SEQUENCES OF CONSTRUCTION AND THE SAFETY OF WORKMEN.
10. PIPING, CONTROLS, ETC., SHALL NOT BE INSTALLED, OR ROUTED ABOVE, ELECTRICAL PANELS AND EQUIPMENT OR THROUGH ELEVATOR MACHINE ROOMS.
11. THE CONTRACTOR SHALL COORDINATE AND PROVIDE A WRITTEN LISTING OF ELECTRICAL CHARACTERISTICS OF ALL MECHANICAL EQUIPMENT TO ELECTRICAL CONTRACTOR PRIOR TO ORDERING OF EQUIPMENT. NO ADDITIONAL COMPENSATION WILL NOT BE MADE FOR LACK OF CONTRACTOR COORDINATION OF ELECTRICAL EQUIPMENT CHARACTERISTICS.
12. DURING THE BUILDING CONSTRUCTION SOME EXISTING INSTALLATION MAY BE EXPOSED THAT WILL HAVE TO BE CHANGED, ALTERED, REROUTED AND/OR ABANDONED. ANY SUCH WORK WHICH COMES UNDER THE JURISDICTION OF THIS CONTRACTOR SHALL BE DONE BY THIS CONTRACTOR WITHOUT ADDITIONAL COST TO THE OWNER.
13. WORK RELATED TO THE EXISTING BUILDING SHALL BE COORDINATED TO MINIMIZE INTERFERENCE OR INTERRUPTION OF NORMAL BUILDING USE BY OWNER. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR PHASING REQUIREMENTS.
14. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIRIZE THEMSELVES WITH EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING CONDITIONS THAT MAY AFFECT THE BID. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR FAILURE TO REVIEW EXISTING CONDITIONS PRIOR TO BIDDING.

B. CODES, PERMITS, STANDARDS AND REGULATIONS

1. CONFORM TO APPLICABLE CODES (LOCAL, STATE, NATIONAL CODES, NFPA, OSHA, ETC.), GOVERNMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, AND APPLICABLE STANDARDS.
2. OBTAIN PERMITS AND PAY FEES. ARRANGE FOR REQUIRED TESTS, INSPECTIONS AND APPROVALS. PROVIDE COPIES OF INSPECTIONS, AND APPROVALS TO THE ARCHITECT-ENGINEER.

C. RELATED WORK SPECIFIED ELSEWHERE

1. OPENINGS AND CHASES, WHEN SHOWN ON ARCHITECTURAL DRAWINGS.
2. TEMPORARY WATER SERVICE, SANITARY FACILITIES, FIRE PROTECTION AND HEATING DURING CONSTRUCTION.
3. POURED-IN-PLACE CONCRETE.
4. FINISH PAINTING.
5. ELECTRIC POWER WIRING.

D. DRAWINGS

1. THE SYSTEMS SHOWN THE DRAWINGS ARE DIAGRAMMATIC. CONFIRM DIMENSIONS BY FIELD MEASUREMENT.
2. THE EXACT LOCATIONS FOR APPARATUS, FIXTURES, EQUIPMENT AND PIPING WHICH IS NOT COVERED BY DRAWINGS, SHALL BE OBTAINED FROM THE ARCHITECT OR HIS REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY.
3. DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT ONE ANOTHER. ANY MATERIALS OR LABOR CALLED FOR IN ONE BUT NOT THE OTHER SHALL BE PROVIDED.

E. DEMOLITION AND REMOVAL

1. DISCONNECT, DISASSEMBLE, CAP, PLUG AND REMOVE ALL PIPING, DUCTS AND EQUIPMENT INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR THE PROJECT.
2. ANY EQUIPMENT DESIGNATED BY OWNER TO BE SALVAGED SHALL BE PROTECTED AND DELIVERED TO THE OWNER'S ON SITE.
3. DEMOLITION TO BE DONE IN A MANNER NOT TO DAMAGE ADJACENT WORK AND NOT AFFECT THE OPERATION OF SYSTEMS TO REMAIN IN USE. ANY ITEM TO REMAIN THAT IS DAMAGED BY THE CONTRACTOR OR THAT REQUIRES DAMAGE DUE TO THE ABSOLUTE NECESSITY FOR DEMOLITION REQUIREMENTS SHALL BE REPLACED AND/OR REPAIRED AT HIS EXPENSE.
4. OPENINGS ON PIPING AND DUCTS THAT REMAIN SHALL BE CAPPED AND PROPERLY SECURED.
5. EXAMINE AREAS AND CONDITIONS UNDER WHICH DEMOLITION WORK SHALL BE PERFORMED. CONTRACTOR SHALL COORDINATE WORK WITH OTHER TRADES PERFORMING DEMOLITION WORK.
6. REMOVE SUPPORTS, HANGERS, AND ACCESSORIES FROM EQUIPMENT AND MATERIAL INDICATED TO BE REMOVED.

F. BASE EQUIPMENT, MATERIALS AND SUBSTITUTIONS

1. EQUIPMENT AND MATERIALS SHALL BE NEW, FREE OF DEFECTS AND U.L. LABELED.
2. BASE BID MANUFACTURERS ARE INCLUDED IN SPECIFICATIONS OR LISTED IN SCHEDULE ON DRAWINGS. OTHER MANUFACTURERS ARE CONSIDERED A SUBSTITUTION.
3. THE NAME OR MAKE OF ANY ARTICLE, DEVICE, MATERIAL, FORM OF CONSTRUCTION, FIXTURE, ETC., STATED IN THIS SPECIFICATION, SHALL BE KNOWN AS A "STANDARD".
4. PROPOSALS SHALL BE BASED ON "STANDARDS" SPECIFIED.
5. THE EQUIPMENT SCHEDULES ON DRAWINGS INDICATE MANUFACTURERS EQUIPMENT MODEL NUMBERS UPON WHICH DESIGN HAS BEEN BASED. THE USE OF OTHER MANUFACTURERS EQUIPMENT THAT IS LISTED AS ACCEPTABLE ALTERNATES THAT REQUIRES STRUCTURAL CHANGES, CHANGES IN ROOF OPENINGS, CHANGE OF PIPE SIZES & BUILDING CONFIGURATION, ARCHITECTURAL CHANGES, ETC., SHALL BE THE CONTRACTOR'S RESPONSIBILITY. ADDITIONAL COSTS OF SUCH CHANGES SHALL BE PAID BY THE CONTRACTOR SUBMITTING THE ALTERNATE.
6. SUBSTITUTIONS ARE SUBJECT TO THE APPROVAL OF THE OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE AND CERTIFY WITH DOCUMENTATION THAT THE SUBSTITUTION IS EQUIVALENT IN ALL RESPECTS TO THE BASE SPECIFICATIONS.
7. IF SUBSTITUTIONS ARE APPROVED, NOTIFY ALL OTHER CONTRACTORS, SUBCONTRACTORS OR TRADES AFFECTED BY SUBSTITUTION AND FULLY COORDINATE. ANY COSTS RESULTING FROM SUBSTITUTION, WHETHER BY CONTRACTOR OR OTHERS, SHALL BE RESPONSIBILITY OF, AND PAID FOR BY SUBSTITUTING CONTRACTOR. APPROVED SHOP DRAWINGS DOES NOT ABSOLVE THIS CONTRACTOR FROM THIS RESPONSIBILITY.
8. ALL EQUIPMENT SHALL BE INSTALLED IN FULL ACCORDANCE WITH THE MANUFACTURER'S DATA AND INSTALLATION INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CHECK AND CONFORM TO THESE REQUIREMENTS.

G. CHECK, TEST, START, ADJUST, BALANCE AND INSTRUCTIONS

1. AFTER INSTALLATION, CHECK ALL EQUIPMENT, AND PERFORM START UP IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AND REQUIREMENTS OF THE SPECIFICATIONS.
2. PIPING SHALL BE TESTED AND FREE OF LEAKS. MAKE REPAIRS NEEDED FOR LEAK FREE SYSTEMS.
3. CONCEALED OR INSULATED WORK SHALL REMAIN UNCOVERED UNTIL REQUIRED INSPECTIONS, AND TESTS HAVE BEEN COMPLETED. IF CONSTRUCTION SCHEDULE REQUIRES IT, ARRANGE FOR PRIOR TESTS ON PARTS OF SYSTEM AS APPROVED BY THE TENANT.
4. INSTRUCT OWNER IN OPERATION OF SYSTEMS AND SUBMIT OPERATING AND MAINTENANCE MANUAL ON ALL EQUIPMENT AND SYSTEMS AS REQUIRED BY THE SPECIFICATION. PROVIDE A MINIMUM OF 16 HOURS INSTRUCTION TO OWNER'S REPRESENTATIVES.

H. CUTTING, PATCHING AND DRILLING

1. CUTTING AND PATCHING OF THE BUILDING CONSTRUCTION REQUIRED FOR THIS WORK SHALL BE BY THIS CONTRACTOR. CUTTING SHALL BE IN A NEAT AND WORKMANLIKE MANNER.
2. NEATLY SAW CUT RECTANGULAR OPENINGS, SET SLEEVE THROUGH OPENING, AND FINISH PATCH OR PROVIDE TRIM FLANGE AROUND OPENINGS.
3. NEATLY SAW CUT FLOORS FOR SEWER INSTALLATION AND PATCH FLOOR TO MATCH EXISTING, INCLUDING FLOOR COVERING. PROVIDE IRON DOWEL RODS TO ANCHOR CONCRETE PATCH TO EXISTING CONCRETE FLOORS. RODS SHALL BE PLACED @ 12" ON CENTER FOR THE ENTIRE LENGTH OF PATCH.
4. CORE DRILL AND SLEEVE ROUND OPENINGS.
5. DO NOT CUT ANY STRUCTURAL COMPONENTS WITHOUT ARCHITECTS/ENGINEER'S APPROVAL.
6. PATCH AND FINISH TO MATCH ADJACENT AREAS THAT HAVE BEEN CUT, DAMAGED OR MODIFIED AS A RESULT OF THE INSTALLATION OF THE MECHANICAL OR ELECTRICAL EQUIPMENT. FIRE STOP PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER. MAINTAIN FIRE RATING OF ASSEMBLY. COORDINATE FIRE RATING ASSEMBLIES WITH ARCHITECT.
7. CONTRACTORS SHALL CONFIRM WITH OWNER, PRIOR TO BID, TIMES AVAILABLE FOR NOISE PRODUCING WORK SUCH AS CUTTING AND CORE DRILLING OF FLOORS, WALLS, ETC., AS WELL AS TIMES FOR WORK WHICH REQUIRE ACCESS INTO ADJOINING TENANT SPACES. INCLUDE PREMIUM TIME IN BID.
8. INFORMATION REGARDING REQUIRED PIPE OPENINGS IN WALLS, FLOORS, CHASES, ETC., AND CONCRETE EQUIPMENT PADS OR FOUNDATIONS SHALL BE GIVEN TO THE GENERAL CONTRACTOR BY THIS CONTRACTOR PRIOR TO THE CONSTRUCTION PERIOD. IF THIS CONTRACTOR FAILS TO COMPLY WITH THIS REQUEST, OR IF INCORRECT INFORMATION IS GIVEN, THE NECESSARY CUTTING AND PATCHING WILL BE PERFORMED BY THE GENERAL CONTRACTOR, AT THIS CONTRACTOR'S EXPENSE.

I. WARRANTY

1. FULLY WARRANT MATERIALS, EQUIPMENT AND WORKMANSHIP FOR ONE (1) YEAR FROM DATE OF ACCEPTANCE.
2. PROVIDE MANUFACTURER'S WARRANTIES TO OWNER, INCLUDING ALL AVAILABLE EXTENDED WARRANTIES.
3. REPAIR OR REPLACE WITHOUT CHARGE TO THE OWNER ITEMS FOUND DEFECTIVE DURING THE WARRANTY PERIOD. IN THE CASE OF REPLACEMENT OR REPAIR DUE TO FAILURE WITHIN THE WARRANTY PERIOD, THE WARRANTY ON THAT PORTION OF THE WORK SHALL BE EXTENDED FOR A MINIMUM PERIOD OF ONE (1) YEAR FROM THE DATE OF SUCH REPLACEMENT OR REPAIR.

J. SHOP DRAWING SUBMITTALS

1. SUBMIT SHOP DRAWINGS WITH ADEQUATE DETAILS AND SCALES TO CLEARLY SHOW CONSTRUCTION. INDICATE THE OPERATING CHARACTERISTICS FOR EACH REQUIRED ITEM. CLEARLY IDENTIFY EACH ITEM ON THE SUBMITTAL AS TO MARK, LOCATION AND USE, USING SAME IDENTIFICATION AS PROVIDED ON DESIGN DRAWINGS. SUBMITTAL WITH MULTIPLE ITEMS MUST BE MARKED FOR PROPOSED ITEM OR SUBMITTAL WILL BE REJECTED.
2. PLUMBING DRAWINGS SHALL BE FULLY DIMENSIONED BASED ON FIELD VERIFIED BUILDING CLEARANCES AND ARCHITECTURAL CEILING LAYOUTS. INDICATE STRUCTURAL, LIGHTING, DUCTWORK AND PIPING AT ALL CRITICAL LOCATIONS.
3. CONTRACTOR SHALL REVIEW AND INDICATE HIS APPROVAL OF EACH SHOP DRAWING PRIOR TO SUBMITTAL FOR REVIEW. DO NOT START WORK OR FABRICATION UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED BY THE ENGINEER AND RETURNED TO THE CONTRACTOR.
4. SUBMITTALS SHALL BE REVIEWED ONLY FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS AND NOT FOR DIMENSIONS OR QUANTITIES. THE SUBMITTAL REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PURCHASE OF ANY ITEM IN FULL COMPLIANCE WITH THE CONTRACT DOCUMENTS OR ITS COMPLETE AND PROPER INSTALLATION.
5. WHERE SUBMITTALS VARY FROM THE CONTRACT REQUIREMENTS, THE CONTRACTOR SHALL CLEARLY INDICATE ON SUBMITTAL OR ACCOMPANYING DOCUMENTS THE NATURE AND REASON FOR VARIATIONS.
6. REFER TO VARIOUS SECTIONS FOR LISTING OF SHOP DRAWINGS REQUIRED ON THIS PROJECT.
7. EACH MANUFACTURER OR HIS REPRESENTATIVE SHALL CHECK THE APPLICATION OF HIS EQUIPMENT AND CERTIFY AT TIME OF SHOP DRAWING SUBMITTAL THAT EQUIPMENT HAS BEEN PROPERLY SELECTED AND CAN BE INSTALLED, SERVICED AND MAINTAINED WHERE INDICATED ON DRAWINGS. ADVISE ENGINEER IN WRITING WITH SUBMITTAL DRAWINGS OF ANY POTENTIAL PROBLEMS. THE MANUFACTURER SHALL BE RESPONSIBLE FOR ANY CHANGES THAT MIGHT BE NECESSARY BECAUSE OF PHYSICAL CHARACTERISTICS OF EQUIPMENT THAT HAVE NOT BEEN CALLED TO THE ENGINEER'S ATTENTION AT THE TIME OF SUBMITTAL.

K. RECORD DRAWINGS

1. EACH CONTRACTOR OR SUBCONTRACTOR SHALL KEEP ONE (1) COMPLETE SET OF THE CONTRACT WORKING DRAWINGS ON THE JOB SITE. THE CONTRACTOR SHALL REGULARLY RECORD DEVIATIONS OR CHANGES FROM SUCH CONTRACT DRAWINGS MADE DURING CONSTRUCTION.
2. THESE DRAWINGS SHALL RECORD THE LOCATION OF ALL CONCEALED EQUIPMENT, PIPING, ELECTRIC SERVICE, SEWERS, WASTES, VENTS, DUCTS, CONDUIT AND OTHER PIPING, BY MEASURED DIMENSIONS TO EACH SUCH ITEM FROM READILY IDENTIFIABLE AND ACCESSIBLE WALLS OR CORNERS OF THE BUILDING. PLANS ALSO SHALL SHOW INVERT ELEVATION OF SANITARY AND/OR STORM SEWERS AND TOP ELEVATION OF OTHER BELOW-GRADE LINES.
3. RECORD DRAWINGS SHALL BE KEPT CLEAN AND UNDAMAGED AND SHALL NOT BE USED FOR ANY PURPOSE OTHER THAN RECORDING DEVIATIONS FROM WORKING DRAWINGS AND EXACT LOCATIONS OF CONCEALED WORK.
4. AFTER THE PROJECT IS COMPLETED, THESE SETS OF DRAWINGS SHALL BE DELIVERED TO THE ARCHITECT IN GOOD CONDITION, AS A PERMANENT RECORD OF THE INSTALLATION.

PLUMBING SYSTEMS

A. SCOPE

1. PROVIDE PLUMBING FIXTURES, EQUIPMENT AND MATERIAL INDICATED AND SHOWN ON DRAWINGS AND PLACE IN PROPER OPERATION.
2. PLUMBING SYSTEMS TO ESSENTIALLY CONSIST OF BUT NOT LIMITED TO THE FOLLOWING:
   a. SANITARY WASTE AND VENT PIPING AND SANITARY SEWER EXTENDED TO EXISTING BUILDING FACILITIES. CONTRACTOR SHALL MAKE THE CONNECTIONS TO THE EXISTING SERVICES AS INDICATED ON DRAWINGS. EXISTING LINE SIZES, CONDITIONS, INVERT ELEVATIONS, AND CAPACITIES SHALL BE VERIFIED, CLEAN, TEST, AND VIDEO TAPE PIPING FOR PROPER OPERATION BEFORE FINAL CONNECTION FOR ALL UTILITIES. IMMEDIATELY REPORT TO THE ARCHITECT OR ENGINEER ANY INSTANCES WHERE CONNECTIONS CANNOT BE MADE BETWEEN NEW AND EXISTING SYSTEMS AS INDICATED ON PLANS. ADDITIONAL COMPENSATION WILL NOT BE GRANTED FOR NEW WORK THAT MUST BE ABANDONED AND REPLACED BECAUSE LOCATION AND ELEVATION OF EXISTING WAS NOT DETERMINED BEFORE STARTING NEW WORK.
   b. EXTEND DOMESTIC WATER FROM EXISTING BUILDING FACILITIES AS INDICATED ON DRAWINGS. INSTALL WATER METER WITH REMOTE REGISTER AS INDICATED ON DRAWINGS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING SAME. INCLUDE ALL FITTINGS, VALVES, HANGERS, AND OTHER ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION. PROVIDE INSTALLATION AS REQUIRED BY AUTHORITY HAVING JURISDICTION.
   c. GAS SERVICE EXTENDED FROM EXISTING BUILDING FACILITIES TO ALL GAS USING EQUIPMENT, AND SUB METERS IF SO REQUIRED.
   d. PLUMBING FIXTURES, DRAINS AND EQUIPMENT WITH REQUIRED TRIM, CONTROLS AND ACCESSORIES.
   e. INSULATION OF PLUMBING PIPING.
   f. OTHER ITEMS INDICATED ON DRAWINGS OR REQUIRED FOR COMPLETE INSTALLATION.

B. EXCAVATION AND BACKFILL

1. PERFORM EXCAVATION AND BACKFILL REQUIRED FOR INSTALLATION OF PIPING.
2. EXCAVATE TO DEPTH REQUIRED TO INSTALL PIPING AT REQUIRED LEVEL AND PITCH. PIPE SHALL BE INSTALLED ON SAND BEDDING TO GIVE UNIFORM BEARING ALONG LENGTH OF PIPE (SAND INSIDE BUILDING AND INTERLOCKING AGGREGATE OUTSIDE BUILDING).
3. BACKFILL WITH BEDDING MATERIAL TO A MINIMUM OF TWELVE (12) INCHES ABOVE TOP OF PIPES AND COMPACT. BALANCE OF BACKFILL IN GRASS AREAS SHALL BE CLEAN EARTH UP TO SIX (6) INCHES ABOVE SURROUNDING GRADES, UNDER FLOORS SAND, AND UNDER PAVING INTERLOCKING AGGREGATE. ALL BACKFILL SHALL BE COMPACTED IN MAXIMUM SIX (6) INCH LAYERS.
4. OTHER EXCAVATIONS SHALL BE BACKFILLED WITH CLEAN EARTH, EXCLUDING RUBBISH AND BOULDERS AND THE DIRT SHALL BE PROPERLY COMPACTED.
5. PATCH FLOOR TO MATCH EXISTING.

C. CONNECTIONS TO EQUIPMENT FURNISHED BY OTHERS

1. PROVIDE VALVED WATER AND/OR GAS CONNECTION FOR EQUIPMENT FURNISHED BY OTHER CONTRACTORS OR OWNER. PROVIDE SANITARY DRAINAGE AND VENT CONNECTIONS FOR EQUIPMENT FURNISHED BY OTHERS.
2. INCLUDE ACCESSORIES REQUIRED BY CODE, DRAWINGS, OR MANUFACTURER'S INSTRUCTIONS.
3. FULLY COORDINATE WITH KITCHEN EQUIPMENT SUPPLIER AND CONFIRM ALL ROUGH-IN REQUIREMENTS PRIOR TO STARTING WORK. PROVIDE FINAL CONNECTIONS TO EQUIPMENT.

D. SANITARY DRAINAGE PIPING AND SEWERS

1. PROVIDE SANITARY SEWERS, STACKS, VENTS, FLOOR DRAINS, AND CLEANOUTS FOR PROJECT AND EXTEND TO EXISTING BUILDING FACILITIES AS INDICATED ON THE DRAWINGS.
2. DRAINAGE PIPING SHALL BE PITCHED A MINIMUM OF 1/4" PER FOOT FOR SIZES 3" AND UNDER, AND 1/8" PER FOOT FOR SIZES 4" AND LARGER OR TO GRADES INDICATED ON DRAWINGS.
3. CHANGES IN DIRECTION AND BRANCH CONNECTIONS SHALL BE MADE WITH CODE APPROVED DRAINAGE FITTINGS COMPATIBLE WITH THE PIPING SYSTEM MATERIAL.
4. FIXTURES AND SANITARY DRAINS SHALL BE VENTED AS INDICATED ON DRAWINGS AND IN ACCORDANCE WITH CODE. VENTS ARE TO BE EXTENDED TO EXISTING BUILDING FACILITIES THROUGH ROOF AS INDICATED ON DRAWING AND FLASHED WITH 4 LB. LEAD WITH VENT FLASHING TOP TURNED DOWN TWO (2) INCHES MINIMUM INSIDE PIPE. COORDINATE WITH ROOFING CONTRACTOR.
5. PVC PIPING
   a. THIS PROJECT HAS A RETURN AIR PLENUM AND PVC SHALL NOT BE INSTALLED IN RETURN AIR PLENUMS, USE NO-HUB CAST IRON, DWV COPPER ASTM B306 PIPING, OR PRESS FIT STAINLESS STEEL.
   b. WHERE PVC PIPING IS USED OUTSIDE OF AIR PLENUMS, PROVIDE CODE APPROVED FIRE STOPPING MATERIAL AT FIRE RATED WALL PENETRATIONS.
6. SEWER AND VENT MATERIAL SHALL BE AS FOLLOWS:
   a. BELOW GRADE STORM AND SANITARY INSIDE BUILDING
      - SERVICE WEIGHT - CAST IRON PIPE ASTM A-74-82 WITH ASTM C-564-70 NEOPRENE COMPRESSION JOINTS. ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.
      - NO-HUB COUPLINGS
        HEAVY-DUTY, 4 BAND, SHIELDED FOR 4" AND SMALLER.
        HEAVY-DUTY, 6 BAND, SHIELDED FOR 5" AND LARGER.
      - PVC-DWV PLASTIC ASTM D-1785 WITH ASTM D-2665 DWV SOLVENT WELD SOCKET FITTINGS.
   b. ABOVE GRADE DRAINAGE, WASTE, AND VENTS -
      - NO-HUB CAST IRON PIPE CISPI 1-301-78. ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.
      - NO-HUB COUPLINGS
        HEAVY-DUTY, 4 BAND, SHIELDED FOR 4" AND SMALLER.
        HEAVY-DUTY, 6 BAND, SHIELDED FOR 5" AND LARGER.
      - PVC-DWV PLASTIC ASTM D-1785 WITH ASTM D-2665 DWV SOLVENT WELD SOCKET FITTINGS. NOT FOR USE IN RETURN AIR PLENUM.
      - DWV COPPER ASTM B306.
      - FOR HIGH RISE TENANT SPACE: PIPING 2 INCH AND SMALLER SHALL BE DWV GRADE COPPER.
      - STAINLESS STEEL

E. WATER PIPING

1. INCLUDE UNIONS, OR OTHER DISCONNECT MEANS, STOPS OR VALVES FOR ISOLATION OF FIXTURES AND EQUIPMENT. VALVES SHALL FULLY COMPATIBLE WITH PIPING FOR SERVICE INTENDED. AS MANUFACTURED BY APOLLO, NIBCO, CRANE OR OTHER APPROVED MANUFACTURER. INCLUDE HOSE OR DRAIN VALVES AT LOW POINTS WHERE FIXTURES CANNOT BE USED FOR DRAINAGE.
2. INSTALL SHOCK ABSORBERS AT EACH FIXTURE OR WHERE REQUIRED TO PREVENT WATER HAMMER.
3. HANGERS ON INSULATED PIPE SHALL BE OUTSIDE OF INSULATION, SIZED ACCORDINGLY AND WITH SUFFICIENT SADDLE TO PROTECT INSULATION.
4. WATER PIPING ABOVE GRADE SHALL BE -
   a. TYPE "L" HARD COPPER ASTM B 88-832 WITH WROUGHT COPPER FITTINGS ASTM B 16.22 1980 AND NON-LEAD OR ANTIMONY SOLDER JOINTS.
   b. TYPE "L" HARD COPPER ASTM B 88-832 WITH WROUGHT COPPER FITTINGS ASTM B 16.22 1980 AND PRESS-FIT JOINTS.
6. WATER PIPING BELOW GRADE SHALL BE TYPE "K" SOFT COPPER WITHOUT JOINTS OR PEX TUBING TYPE "A" (CROSS-LINKED POLYETHYLENE) MEETING SECTION 6.6 OF ASTM F876 AND USING "PROPEX" FITTINGS MEETING ASTM F1960, CSA B137.5, NSF/ANSI 14, AND CNP/ANSI-61.
7. FLUSH, VENT AND SANITIZE ALL WATER PIPING WITH EQUIVALENT SOLUTION OF 50 PPM OF AVAILABLE CHLORINE UPON COMPLETION. COMPLY WITH PLUMBING CODE REQUIREMENTS FOR SANITIZATION. SUBMIT WRITTEN VERIFICATION OF PIPING SANITIZATION.
8. DOM

J. INSULATION

1. INSULATE ABOVE-GRADE HOT AND COLD WATER PIPING, RAIN CONDUCTORS AND ROOF DRAIN SUMPS WITH ONE (1") INCH THICK MOLDED FIBERGLASS HAVING TYPE ASJ JACKET AND MANUFACTURED BY OWENS-CORNING FIBERGLASS COMPANY.

2. INCLUDE INSULATION OF FITTINGS AND VALVES. KEEP VAPOR BARRIERS INTACT. APPLY TO MANUFACTURER'S RECOMMENDATIONS.

3. AT PIPE HANGERS, PROVIDE SOLID INSULATION COUPLING SYSTEM TO PREVENT INSULATION DAMAGE OR COMPRESSION. INSULATION COUPLINGS SHALL BE THE KLO-SHURE INSULATION COUPLING SYSTEM AS MANUFACTURED BY ANVIL-STRUT.

4. INSULATE BELOW-GRADE PIPING INSIDE BUILDING WITH 3/8" FOAMED PLASTIC INSULATION.

5. INSULATE EXPOSED WASTE AND SUPPLY PIPING UNDER LAVATORIES WITH THE LAV-SHIELD SAFETY COVERS AS PER "PLUMBEREX SPECIALTY PRODUCTS, INC." OR EQUAL.

6. REPAIR DAMAGED SECTIONS OF EXISTING PIPING INSULATION, BOTH PREVIOUSLY DAMAGED OR DAMAGED DURING THIS CONSTRUCTION PERIOD. USE INSULATION OF SAME THICKNESS AS SPECIFIED, INSTALL NEW JACKET LAPPING AND SEALED OVER EXISTING.

7. EXISTING PVC PIPING IN PLENUM CEILINGS SHALL BE INSULATED TO MEET PLENUM RATINGS, WITH PRODUCT TYPICAL TO FYR-WRAP. INSTALL AS REQUIRED BY MANUFACTURER.

K. HANGERS AND SUPPORTS

1. HANGERS FOR BLACK OR GALVANIZED STEEL PIPE SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL NO. 100, OR APPROVED EQUAL.

2. HANGERS FOR CAST IRON PIPE SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL NO. 400, OR APPROVED EQUAL.

3. HANGERS FOR COPPER TUBING SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL NO. 102-A, OR APPROVED EQUAL.

4. TRAPEZE HANGERS OF A TYPE APPROVED BY THE ENGINEER. MAINTAIN PIPE INSULATION AT PIPE ANCHORS. PROVIDE INSULATION COUPLERS AS SPECIFIED ABOVE.

5. CONTRACTOR SHALL PROVIDE INSULATION HANGER WITH PROTECTIVE SHIELDS, SUCH AS MICHIGAN HANGER CO., MODEL NO. 103, OR APPROVED EQUAL. 5 INCH LONG SECTION OF 1/2 INCH THICK CALCIUM SILICATE SECTIONAL PIPE INSULATION WITH FACTORY LONGITUDINAL LAP SHALL BE PROVIDED AT HANGER POINTS. BUTT JOINTS SHALL BE SEALED WITH INSULATING CEMENT.

6. STRAP HANGERS SHALL NOT BE PERMITTED.

7. CONTRACTOR SHALL PROVIDE RISER CLAMPS FOR VERTICAL PIPING AT EACH LEVEL. RISER CLAPS SHALL BE MICHIGAN HANGER CO., MODEL NO. 510 FOR STEEL PIPING AND MODEL NO. 511 FOR COPPER TUBING OR APPROVED EQUAL. USE "SHORT-END" RISER CLAMPS WHERE SPACE IS LIMITED.

8. IN CONCRETE, MICHIGAN HANGER CO., MODEL NO. 355 INSERTS, OR APPROVED EQUAL. INSERTS SHALL PERMIT ADJUSTMENT FROM 3/4 INCH THROUGH 1-1/4 INCH. IN METAL DECKS, CONTRACTOR SHALL PROVIDE RED HEAD SDI INSERTS, OR APPROVED EQUAL. POWDER PROPELLED INSERTS WILL BE PERMITTED IN NEW CONSTRUCTION WHERE TYPE AND LOCATION ARE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

9. CONTRACTOR SHALL PROVIDE SIDE BEAM CLAMPS FOR SUPPORTING PIPING FROM STRUCTURAL STEEL MEMBERS. BEAM CLAMPS SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL 300 OR APPROVED EQUAL.

10. WHERE OTHER MEANS OF SUPPORT PIPING ARE REQUIRED OR DESIRED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE ENGINEER'S APPROVAL PRIOR TO INSTALLING THOSE SUPPORTS.

11. HANGER SHALL BE PROVIDED AT EACH CHANGE OF DIRECTION.

12. HANGERS AND SUPPORTS SHALL BE SPACED AT INTERVALS WHICH WILL PREVENT SAGGING AND REDUCE STRAIN ON VALVES AND SPECIALTIES. HANGER SPACING SHALL BE NO GREATER AND ROD SIZE SHALL BE NO SMALLER THAN THAT SHOWN IN THE FOLLOWING TABLE. HANGERS SHALL ALLOW FOR EXPANSION AND CONTRACTION.

FERROUS PIPING AND COPPER TUBING:

DIAMETER OF PIPE	MAXIMUM SPACING	ROD SIZE
1/2" THRU 1-1/2"	6 FT.	3/8"
2" THRU 3"	10 FT	1/2"
4" THRU 5"	12 FT	5/8"
6" AND LARGER	16 FT	3/4

CAST IRON PIPING:

DIAMETER OF PIPE	MAXIMUM SPACING	ROD SIZE
1 1/2" THRU 3"	EACH JOINT	3/8"
4" AND 5"	EACH JOINT	1/2"
6" AND 8"	EACH JOINT	3/4"
10" THRU 15" (TWO HANGERS)	EACH JOINT	3/4"

13. RISER CLAMPS SHALL BE INSTALLED ABOVE THE FLOOR AT EACH LEVEL. RISER CLAMPS MAY BE SUSPENDED BELOW FLOOR LEVEL, WITH HANGER RODS AND INSERTS, WHERE THE INSTALLATION OF ESCUTCHEON PLATES IS REQUIRED.

L. PIPE WALL SEALS

1. WALL PIPE SEALS WITH RUBBER LINKS SHALL BE THUNDERLINE LINK SEAL, OR APPROVED EQUAL. WALL PIPE SEALS WITH INORGANIC MATERIAL LINKS THE PENETRATIONS OF FIRE RATED WALLS SHALL BE THUNDERLINE PYRO-PAC, OR APPROVED EQUAL.

2. SEALS SHALL BE MODULAR MECHANICAL TYPE CONSISTING OF INTERLOCKING SYNTHETIC RUBBER OR INORGANIC MATERIAL LINKS SHAPED TO CONTINUOUSLY FILL THE ANNULAR SPACE BETWEEN THE PIPE AND WALL OPENING.

3. LINKS SHALL BE LOOSELY ASSEMBLED WITH BOLTS TO FORM A CONTINUOUS BELT AROUND THE PIPE. A PRESSURE PLATE SHALL BE PROVIDED UNDER THE BOLT HEAD AND NUT OF EACH LINK.

4. AFTER THE SEAL ASSEMBLY IS POSITIONED IN THE SLEEVE, THE TIGHTENING OF THE BOLTS SHALL CAUSE THE SEALING ELEMENTS TO EXPAND AND PROVIDE AN ABSOLUTELY WATER-TIGHT SEAL BETWEEN THE PIPE AND SLEEVE.

5. SEALS SHALL BE CONSTRUCTED TO PROVIDE ELECTRICAL INSULATION BETWEEN THE PIPE AND SLEEVE, THUS REDUCING CHANCES OF CATHODIC REACTION BETWEEN THESE TWO MEMBERS.

6. SLEEVES SHALL BE MANUFACTURED FROM HEAVY-WALL, WELDED OR SEAMLESS STEEL PIPE. A FULL CIRCLE CONTINUOUSLY WELDED WATER STOP PLATE SHALL BE PROVIDED TO ASSURE POSITIVE WATER SEALING OF THE SLEEVE. SLEEVE SHALL BE PROTECTED BY A COATING OF ENRICHED RED PRIMER.

M. VALVES

1. BALL VALVES 2-INCHES AND SMALLER SHALL BE 150 PSI SWP, 600 PSI WOG. BRONZE, 2-PIECE DESIGN, WITH PTFE TEFLON SEATS AND SEALS, AND BLOW-OUT PROOF STEMS MADE OF LEAD FREE BRONZE. VALVES SHALL HAVE THREADED ENDS FOR USE IN STEEL PIPING AND SOLDER OR PRESS-FIT ENDS FOR USE IN COPPER TUBING. BALL VALVES SHALL BE APOLLO 70LF-1170LF-200-11, OR APPROVED EQUAL. PROVIDE THERMA-SEAL INSULATING TEE HANDLES FOR VALVES USED IN LINES WHICH ARE TO BE INSULATED.

2. BUTTERFLY VALVES SHALL BE LUG WAFER TYPE, SUITABLE FOR 150 PSI WOG AT TEMPERATURE RANGING FROM 25 DEGREES F THROUGH 230 DEGREES F.

3. BUTTERFLY VALVES SHALL HAVE FULLY REPLACEABLE SEATS MADE OF EPDM ELASTOMER. BUTTERFLY VALVES CLOSURE SHALL BE BUBBLE TIGHT.

4. BUTTERFLY VALVES SHALL HAVE CAST IRON OR SEMI-STEEL BODIES, ONE PIECE TYPE 416 STAINLESS STEEL STEMS, AND BRONZE DISCS. DISCS SHALL BE ANCHORED TO STEM WITH BRONZE DRIVE PINS. SEMI-STEEL DISCS WITH WELDED NICKEL EDGE MAY BE USED IN LIEU OF BRONZE DISCS.

5. PROVIDE 2 INCH EXTENSION NECKS ON ALL VALVES INSTALLED IN INSULATED LINES.

6. LEVER TYPE HANDLE OPERATORS SHALL BE PROVIDED ON VALVES UP TO 4 INCHES IN SIZE. GEAR OPERATORS SHALL BE PROVIDED ON VALVES OVER 4 INCHES IN SIZE, AND ON VALVES REQUIRING CHAIN OPERATION. VALVES USED FOR BALANCING SHALL HAVE INFINITE POSITION LEVER OR GEAR OPERATORS WITH ADJUSTABLE, OPEN POSITION "MEMORY" STOP.

7. BUTTERFLY VALVES SHALL BE NIBCO LD-2000, ITT GRINNELL 8000 SERIES, OR APPROVED EQUAL.

8. GLOBE VALVES (3 INCH AND SMALLER) SHALL BE 150#, TEFLON DISC, UNION BONNET TYPE VALVES WITH THREADED OR SOLDER JOINT ENDS, GLOVE VALVES WITH THREADED ENDS SHALL BE HAMMOND, MODEL 1B413T, OR APPROVED EQUAL. GLOBE VALVES FOR INSTALLATION IN COPPER TUBING SHALL BE HAMMOND, MODEL 1B423, OR APPROVED EQUAL

9. CHECK VALVES (3 INCH AND SMALLER) SHALL BE 125# WITH REMOVABLE, REGRINDABLE DISCS AND THREADED OR SOLDER JOINT ENDS. CHECK VALVES TO BE INSTALLED IN HORIZONTAL LINES SHALL BE HAMMOND, MODEL IB940, OR APPROVED EQUAL, (SCREWED JOINTS) OR HAMMOND, MODEL IB941, OR APPROVED EQUAL (SOLDER JOINTS). CHECK VALVES TO BE INSTALLED IN VERTICAL PIPING SHALL BE HAMMOND, MODEL IB939, OR APPROVED EQUAL. CONTRACTOR SHALL PROVIDE SWEAT-TO-THREAD ADAPTERS FOR SOLDER JOINT CONNECTIONS.

10. GATE VALVES FOR UNDERGROUND WATER SERVICE SHALL BE UL LISTED AND FM APPROVED, 175#, WWP, WITH CAST IRON BODIES BRONZE MOUNTED, NON-RISING STEMS, SOLID WEDGE DISCS, AND INDICATOR POST FLANGES. VALVES SHALL BE STOCKHAM VALVE MODEL, G-635, WITH CONVENTIONAL PACKING AND MECHANICAL JOINT ENDS.

11. PROVIDE VALVE TAGS AND VALVE CHART PER ASME A13.1 SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS.

N. STRAINERS

1. Y-TYPE STRAINERS - BRONZE 3" AND SMALLER

   a. STRAINER BODY TO BE ASTM B584 OR B62 BRONZE WITH THREADED OR SOLDER END CONNECTIONS AND .033 INCH PERFORATED TYPE 304 STAINLESS STEEL SCREEN OR 20 MESH TYPE 304 STAINLESS STEEL SCREEN ACCESSIBLE WITHOUT REMOVING THE STRAINER FROM THE LINE.

2. Y-TYPE STRAINERS - IRON 3" AND SMALLER

   a. STRAINER BODY TO BE CLASS 250 THREADED, TAPPED SCREW-IN BONNET WITH PLUG AND STAINLESS STEEL SCREEN. BODY AND BONNET TO BE ASTM A126. SCREEN MUST BE ACCESSIBLE WITHOUT REMOVING THE STRAINER FROM THE LINE.

3. Y-TYPE STRAINERS - IRON 2 1/2" AND LARGER

   a. STRAINER BODY TO BE CLASS 125 FLANGED, TAPPED BOLTED BONNET WITH PLUG AND STAINLESS STEEL SCREEN. BODY AND BONNET TO BE ASTM A126. SCREEN MUST BE ACCESSIBLE WITHOUT REMOVING THE STRAINER FROM THE LINE.

4. ACCEPTABLE MANUFACTURERS -

   a. NIBCO
   b. APOLLO
   c. WATTS

O. PIPE IDENTIFICATION

1. CONTRACTOR SHALL PROVIDE IDENTIFICATION LABELS, TAGS, ETC., FOR PLUMBING AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.

2. THE IDENTIFICATION OF PLUMBING PIPING SHALL BE IN ACCORDANCE WITH ANSI STANDARD A13.1, EXCEPT AS HEREINAFTER SPECIFIED.

3. PRESSURE SENSITIVE PIPE MARKERS SHALL BE MANUFACTURED BY THE BRADY CO., OR APPROVED EQUAL. PIPE MARKERS SHALL BE MANUFACTURER'S STANDARD PRODUCT.

P. VACUUM BREAKERS

1. VACUUM BREAKERS SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL CODE AND SHALL BE PROVIDED FOR HOSE BIBBS, WALL HYDRANTS, FLUSHOMETERS AND ANY FIXTURE OR EQUIPMENT HAVING DOMESTIC WATER SUPPLY.

Q. ACCESS DOORS

1. ACCESS DOORS SHALL BE PROVIDED IN WALLS AND CEILINGS WHERE REQUIRED TO PERMIT PROPER ACCESS TO VALVES AND ANY OTHER SUCH DEVICES WHICH REQUIRE MAINTENANCE OR SERVICE. DOORS PLACED IN WALLS, PARTITIONS OR OTHER FIRE-RATED CONSTRUCTION SHALL HAVE A LABEL SIGNIFYING THAT THE DOOR HAS THE SAME FIRE RATING AS THE FIRE-RATED CONSTRUCTION.

2. THIS CONTRACTOR SHALL FURNISH ACCESS PANELS TO THE GENERAL CONTRACTOR FOR INSTALLATION.

3. ACCESS PANELS SHALL BE CONSTRUCTED OF 14 GAUGE STEEL, WITH 16 GAUGE STEEL FRAMES. DOORS SHALL FINISH FLUSH WITH THE SURROUNDING SURFACE. FRAMES SHALL HAVE 3 INCH WIDE EXPANDED METAL FOR PLASTERED SURFACES AND PLAIN FLANGED TYPE FRAME FOR TILE, MASONRY OR GYPSUM BOARD SURFACES. DOORS AND FRAMES SHALL BE FURNISHED PRIME COATED. DOORS INSTALLED IN CERAMIC TILE OR OTHER NON-PAINTED SURFACES SHALL BE STAINLESS STEEL.

4. HINGES SHALL BE CONCEALED SPRING TYPE, TO ALLOW DOORS TO BE OPENED 175 DEGREES. LOCKS SHALL BE FLUSH SCREWDRIVER TYPE WITH STEEL CAMS.

5. ACCESS PANELS SHALL BE 16 INCHES BY 16 INCHES OR LARGER AS MAY BE REQUIRED FOR PROPER ACCESS TO THE DEVICE BEING SERVED.

6. ACCESS PANELS ARE NOT REQUIRED IN COMPLETELY ACCESSIBLE LIFT OUT TILE CEILINGS. PRIOR TO BIDDING CONTRACTOR SHALL REVIEW THE ROOM FINISH SCHEDULE ON THE ARCHITECTURAL DRAWINGS IN ORDER TO VERIFY THE NEED FOR ACCESS PANELS.

R. MOTOR STARTERS

1. UNLESS OTHERWISE INDICATED, EVERY MOTOR NOT SPECIFIED TO BE PROVIDED WITH A CONTROLLER AT THE FACTORY SHALL BE PROVIDED WITH A CONTROLLER AS SPECIFIED HEREIN. CONTROLLERS SHALL BE FURNISHED BY THIS CONTRACTOR. INSTALLATION OF CONTROLLERS SHALL BE BY THE ELECTRICAL CONTRACTOR.

2. MOTOR CONTROLLERS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF NEMA STANDARD IC-1, INDUSTRIAL CONTROL AND BE HEAVY DUTY CONSTRUCTION. CONTROLLER SIZES SHALL BE VERIFIED TO BE COMPATIBLE WITH HORSEPOWER OF THE MOTOR. CONTROLLERS SHALL BE MANUFACTURED BY ALLEN-BRADLEY CO., GENERAL ELECTRIC, CUTLER-HAMMER OR APPROVED EQUAL.

3. MANUAL MOTOR STARTERS

   a. SWITCHES SHALL BE TUMBLER-SWITCH STYLE. THE MANUAL MOTOR STARTERS SHALL PROVIDE OVERLOAD PROTECTION WHICH CLOSELY FOLLOWS THE MOTOR LOAD. MANUAL MOTOR STARTERS FOR OUTDOOR USE SHALL BE NEMA TYPE 4 X, INDOOR USE SHALL BE NEMA TYPE 1, EXPLOSION PROOF USE SHALL BE NEMA TYPE 7.

S. DISCONNECT SWITCHES

1. THIS CONTRACTOR SHALL FURNISH SAFETY DISCONNECT SWITCHES (FUSED AND NON-FUSED) REQUIRED FOR EQUIPMENT FURNISHED UNDER THIS CONTRACT. IN ADDITION, THIS CONTRACTOR SHALL FURNISH A SAFETY DISCONNECT SWITCH FOR MOTORS AND EQUIPMENT WHICH DO NOT HAVE COMBINATION STARTERS OR INTEGRAL DISCONNECTING MEANS. FUSIBLE DISCONNECT SWITCHES SHALL BE PROVIDED FOR EQUIPMENT RATED FOR USE ONLY WITH FUSES (SUCH AS CONDENSING UNITS, COMPRESSORS, ETC.). SUCH SWITCHES SHALL BE ONE, TWO OR THREE POLE TYPE, WITH SOLID NEUTRAL FOR 4 WIRE SERVICE, AND SHALL HAVE THE PROPER CURRENT AND VOLTAGE RATING AS REQUIRED. INSTALLATION OF ALL DISCONNECT SWITCHES SHALL BE BY THE ELECTRICAL CONTRACTOR.

2. SAFETY SWITCHES SHALL BE NEMA HEAVY DUTY TYPE AND SHALL CARRY THE UNDERWRITERS' LABORATORIES LABEL. FUSIBLE SWITCHES SHALL INCORPORATE CLASS "R" FUSE REJECTION FEATURE AND SHALL BE BRACED TO WITHSTAND 200,000 AMPERE RMS SYMMETRICAL FAULT CURRENT. SAFETY SWITCHES SHALL CONFORM TO FEDERAL SPECIFICATION W-S-865.

3. PROVIDE HEAVY-DUTY TYPE, SHEET ENCLOSED, SAFETY SWITCHES. THE TYPE, SIZE, AND RATING SHALL BE AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE MOTOR OR EQUIPMENT SERVED. THE ENCLOSURE FOR DISCONNECT SWITCHES SHALL BE NEMA TYPE 1 FOR INDOOR USE, NEMA TYPE 4X FOR OUTDOOR USE AND NEMA TYPE 7 FOR EXPLOSION PROOF USE. DISCONNECTS SHALL BE MANUFACTURED BY ALLEN-BRADLEY, GENERAL ELECTRIC, CUTLER-HAMMER APPROVED EQUAL.

4. SWITCHES SHALL INCORPORATE QUICK-MAKE, QUICK-BREAK OPERATING HANDLES. THE MECHANISM SHALL BE AN INTEGRAL PART OF THE BOX, NOT THE COVER, AND SWITCHES SHALL HAVE A COVER INTERLOCK TO PREVENT UNAUTHORIZED OPENING OF THE SWITCH DOOR IN THE ON POSITION OR CLOSING OF THE SWITCH MECHANISM WITH THE DOOR OPEN. CURRENT CARRYING PARTS SHALL BE CONSTRUCTED OF HIGH-CONDUCTIVITY COPPER WITH SILVER-TUNGSTEN TYPE SWITCH CONTACT.

5. FUSE CLIPS SHALL BE POSITIVE PRESSURE TYPE REINFORCED FUSE CLIPS.

T. FIRESTOPPING

1. SERVICES THAT PASS THRU FIRE OR SMOKE RATED PARTITIONS, WALLS, FLOORS, SHALL BE FIRESTOPPED. FIRE STOPPING SYSTEM RATING SHALL MATCH PARTITION RATING. FIRE STOPPING SYSTEM SHALL MEET THE REQUIREMENTS OF ASTM E 814, UL 1479, AND BE FACTORY MUTUAL APPROVED.

2. FIRESTOPING AND/OR SMOKE STOPPING MATERIAL AND INSTALLATION SHALL BE AS MANUFACTURED BY HILTI OR APPROVED EQUAL.

U. WATER HEATERS

1. DOMESTIC WATER HEATERS MARKED WH ON THE DRAWINGS SHALL BE MANUFACTURED BY "LOCHINVAR", "STATE", OR "BRADFORD-WHITE". WATER HEATERS SHALL BE AS SPECIFIED ON THE WATER HEATER SCHEDULE OF THE DRAWINGS AND SHALL HAVE MINIMUM STORAGE CAPACITIES AND RECOVERY RATES NOTED. HEATERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

2. PROPERLY SUPPORT HEATER AND WATER. THE BASE SHALL BE COMPRISED OF A STEEL CHANNEL SYSTEM AS MANUFACTURED BY "UNISTRUT", OR ARCHITECT/ENGINEER APPROVED EQUIVALENT. THE SYSTEM SHALL BE FACTORY FABRICATED FOR FIELD INSTALLATION. BASE SHALL BE EQUIPPED WITH A STEEL PLATE PLATFORM AND SHALL BE ANCHORED TO THE BUILDING CONSTRUCTION WITH POWDER ACTIVATED OR MECHANICAL TYPE FASTENERS ("HILTI" OR ARCHITECT APPROVED EQUIVALENT) WITH THREADED HANGER RODS. ANCHORING SYSTEM SHALL BE COMPATIBLE WITH TYPE OF BUILDING CONSTRUCTION. ANCHOR FASTENERS TO BUILDING CONSTRUCTION WITH PULL-OUT AND SHEAR CAPACITIES APPROPRIATE FOR THE SUSPENDED CEILING.

3. WATER HEATERS SHALL BE EQUIPPED WITH TEMPERATURE AND PRESSURE RELIEF VALVES AND STAINLESS STEEL DRIP PANS WITH MINIMUM 4" RAISED EDGES. CONTRACTOR SHALL PIPE THE DRAIN PANS AND THE T&P VALVES TO INDIRECT WASTE AS SEMBLIES AS INDICATED ON THE PLANS OR AS REQUIRED BY CODE.

END OF PLUMBING SPECIFICATIONS

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#	DESCRIPTION	DATE

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
190427.00	TJT	DCP

SHEET NAME:

PLUMBING SPECIFICATIONS

SHEET NO:

TRUE NORTH

P-003

PLAN NORTH

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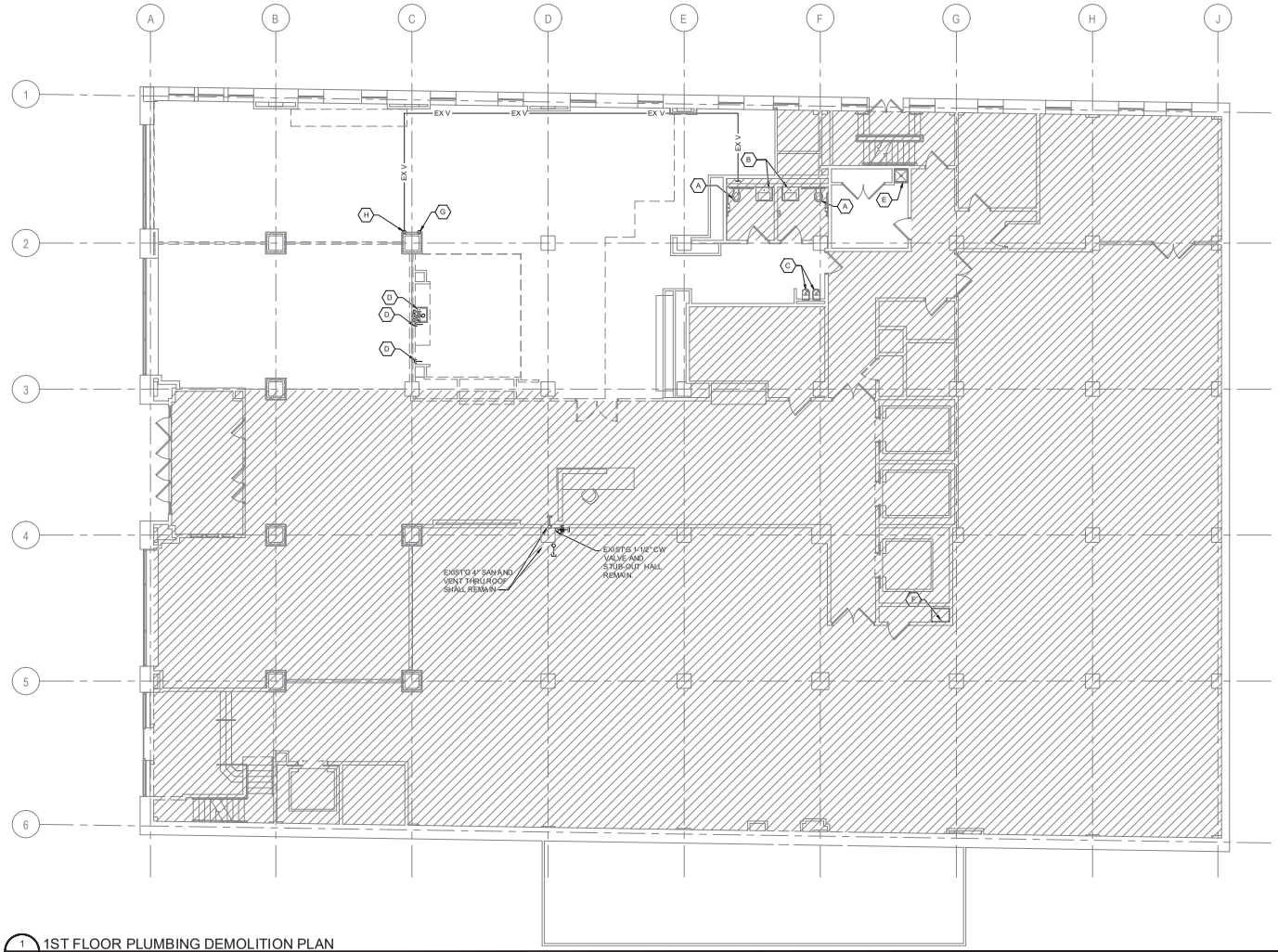

1 P-101 1ST FLOOR PLUMBING DEMOLITION PLAN
1/8" = 1'-0"

PLUMBING DEMOLITION KEY NOTES: (#)

A. EXISTING WATER CLOSET FIXTURE SHALL REMAIN AT THIS LOCATION AND CONTINUE IN USE. DISCONNECT AND REMOVE MANUAL FLUSH VALVE AND REPLACE WITH NEW BATTERY OPERATED FLUSH VALVE. PROVIDE NEW TOILET SEAT.

B. EXISTING LAVATORY SINK SHALL REMAIN AT THIS LOCATION AND CONTINUE IN USE. REMOVE EXISTING FAUCET AND PREPARE SINK AND ROUGH-INS TO RECEIVE NEW HANDS FREE AUTO FAUCET.

C. EXISTING ELECTRIC WATER COOLER AT THIS LOCATION SHALL REMAIN AND CONTINUE IN USE.

D. DISCONNECT AND REMOVE EXISTING KITCHEN SINK, COFFEE MAKER CONNECTION AND ICE MAKER CONNECTION AT THESE APPROXIMATE LOCATIONS. CAP PIPING AT THE MAINS IN THE CEILING OF BASEMENT LEVEL AND PATCH FLOOR PENETRATIONS.

E. DISCONNECT AND REMOVE EXISTING MOP BASIN AT THIS APPROXIMATE LOCATION. REMOVE BRANCH LINES BACK TO MAINS AND CAP PIPING.

F. EXISTING JANITOR MOP SINK SHALL REMAIN AT THIS LOCATION AND CONTINUE IN USE.

G. DISCONNECT AND REMOVE A 10 FOOT SECTION OF CRACKED COST IRON 4 INCH SANITARY STACK AT THIS LOCATION AND REPLACE WITH NEW PIPING. STANDARD CAST IRON NO-HUB COUPLINGS EXIST AT THE TOP BUT PIPING WILL NEED TO BE SNAP-CUT NEAR FLOOR LINE BELOW THE CRACKED PORTION OF PIPING.

H. EXISTING 3 INCH VENT STACK AT THIS LOCATION SHALL REMAIN AND CONTINUE IN USE.

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1	100% DESIGN DEVELOPMENT	01/28/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	TJT	DCP

SHEET NAME:
1ST FLOOR PLUMBING DEMOLITION PLAN

SHEET NO.
P-101

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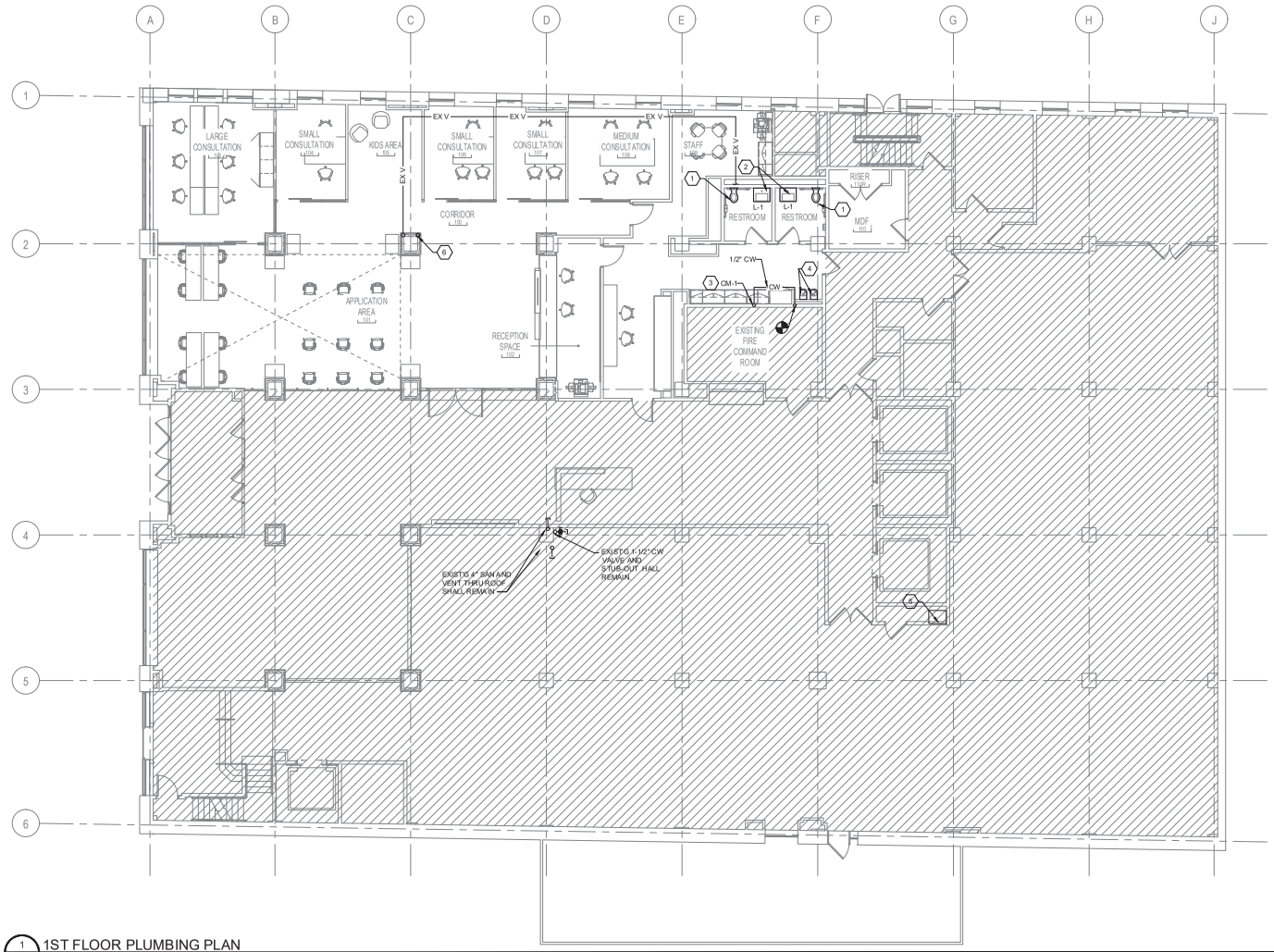

1 P-201 1ST FLOOR PLUMBING PLAN
1/8" = 1'-0"

PLUMBING KEY NOTES: (#)

1. EXISTING WATER CLOSET FIXTURE SHALL REMAIN AT THIS LOCATION AND CONTINUE IN USE. PROVIDE NEW BATTERY OPERATED FLUSH VALVE AND PROVIDE NEW TOILET SEAT. SEE PLUMBING FIXTURE SCHEDULE FOR WC-1.
2. EXISTING LAVATORY SINK SHALL REMAIN AT THIS LOCATION AND CONTINUE IN USE. PROVIDE NEW HANDS-FREE AUTOMATIC FAUCET - SEE PLUMBING FIXTURE SCHEDULE FOR FIXTURE L-1.
3. PROVIDE CHROME PLATED COFFEE MAKER SHUT OFF VALVE WITH INTEGRAL SHOCK ARRESTOR IN BASE CABINET UNDER COFFEE MAKER. EXTEND BRAIDED STAINLESS STEEL FLEX HOSE FROM SHUT OFF VALVE TO COFFEE MAKER. EXTEND 1/2" CW TO LOCATION OF EXISTING ELECTRIC WATER COOLERS AND CONNECT TO EXISTING COLD WATER - FIELD VERIFY EXACT LOCATION.
4. EXISTING ELECTRIC WATER COOLER AT THIS LOCATION SHALL REMAIN AND CONTINUE IN USE.
5. EXISTING JANITOR MOP SINK SHALL REMAIN AT THIS LOCATION AND CONTINUE IN USE.
6. SNAP CUT EXISTING CRACKED 4 INCH CAST IRON SANITARY STACK JUST ABOVE FLOOR LINE AND REPLACE 10 FOOT SECTION OF DAMAGED PIPING UP TO EXISTING NO-HUB COUPLING AND PROVIDE NEW NO-HUB COUPLING.

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1	100% DESIGN DEVELOPMENT	01/28/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19067.00	TJT	DCP

SHEET NAME:
1ST FLOOR PLUMBING PLAN

SHEET NO.
P-201

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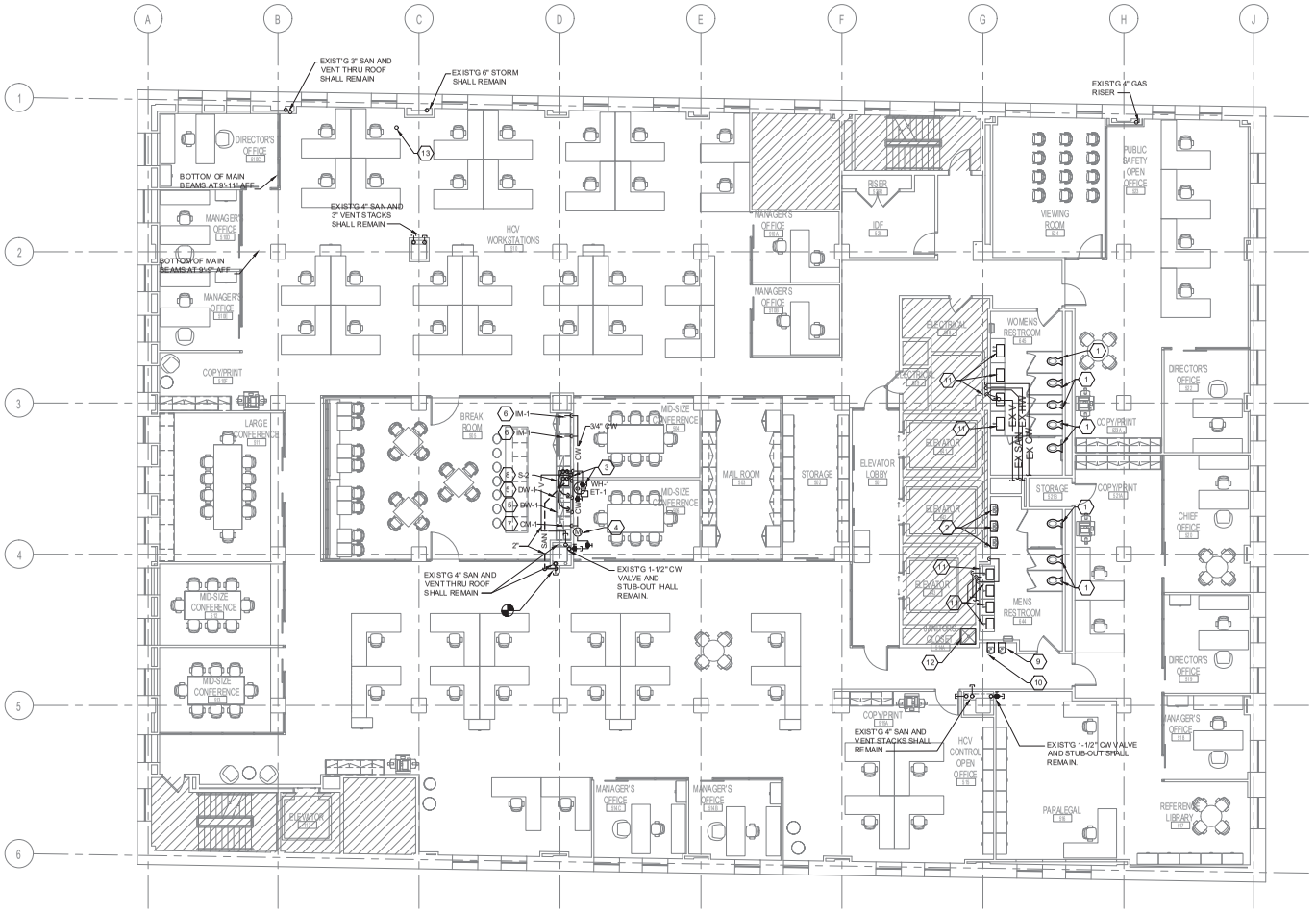

1 5TH FLOOR PLUMBING PLAN
P-202 1/8" = 1'-0"

PLUMBING KEY NOTES: (#)

1. EXISTING LOW FLOW 1.28 GPF WATER CLOSET WITH MANUAL OPERATED 1.28 GPF WATER CLOSET FLUSH VALVE RECENTLY INSTALLED SHALL REMAIN IN THIS LOCATION AND CONTINUE IN USE. REPLACE THE MANUAL FLUSH VALVE WITH NEW BATTERY OPERATED UNIT LISTED FOR WC-1 IN THE FIXTURE SCHEDULE.
2. EXISTING RECENTLY INSTALLED LOW FLOW 0.5 GPF BATTERY OPERATED PISTON STYLE URINAL FLUSH VALVE SHALL REMAIN AT THIS LOCATION AND CONTINUE IN USE.
3. PROVIDE NEW ELECTRIC WATER HEATER ABOVE CEILING WITH SUPPORT PLATFORM. EXTEND 3/4" COLD AND HOT WATER TO HEATER CONNECTION PORTS. PROVIDE WITH EXPANSION TANK ON COLD WATER SUPPLY LINE. EXTEND HEATER DRAIN AND T&P VALVE DRAIN TO SAFE WASTE RECESSED IN WALL BOX. SEE DETAIL.
4. PROVIDE 3/4" WATER METER WITH REMOTE READER TO COMPLY WITH LEED REQUIREMENTS OF TENANT WATER METERING. MOUNT METER ABOVE CEILING AND REMOTE READER IN LOCATION SELECTED BY ARCHITECT ON SITE.
5. EXTEND DISHWASHER DRAIN HOSE TO UNDERSIDE OF COUNTER TOP AND ANCHOR PRIOR TO EXTENDING AND CONNECTING TO SINK TAIL PIECE WITH SIDE INLET CONNECTION.
6. PROVIDE RECESSED WALL BOX WITH ICE MAKER CONNECTION SHUT OFF VALVE WITH INTEGRAL SHOCK ARRESTOR.
7. PROVIDE CHROME PLATED COFFEE MAKER SHUT OFF VALVE WITH INTEGRAL SHOCK ARRESTOR IN BASE CABINET UNDER COFFEE MAKER. EXTEND BRAIDED STAINLESS STEEL FLEX HOSE FROM SHUT OFF VALVE TO COFFEE MAKER.
8. PROVIDE DOUBLE BOWL STAINLESS STEEL UNDER COUNTER MOUNTED KITCHEN SINK WITH CHROME PLATED SINGLE LEVER FAUCET WITH PULL-OUT SPRAY HOSE TYPE SPOUT. INCLUDE TAIL PIECES WITH SIDE INLET FOR DISHWASHER CONNECTION AT EACH BOWL.
9. EXISTING RECENTLY INSTALLED ELECTRIC WATER COOLER AT STANDARD MOUNTING HEIGHT SHALL REMAIN AT THIS LOCATION AND CONTINUE IN USE.
10. EXISTING RECENTLY INSTALLED ELECTRIC WATER COOLER MOUNTED AT ADA ACCESSIBILITY HEIGHT SHALL REMAIN AT THIS LOCATION AND CONTINUE IN USE.
11. EXISTING COUNTER TOP MOUNTED LAVATORY SINK AND FAUCET SHALL REMAIN AND CONTINUE IN USE.
12. EXISTING JANITOR MOP SINK SHALL REMAIN AT THIS LOCATION AND CONTINUE IN USE.
13. DISCONNECT AND REMOVE EXISTING WATER CLOSET FLOOR FLANGE AT THIS APPROXIMATE LOCATION - FIELD VERIFY EXACT LOCATION. REMOVE BRANCH LINE BACK TO MAIN AND CAP.

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SHEET NAME:
5TH FLOOR PLUMBING PLAN

SHEET NO.
P-202

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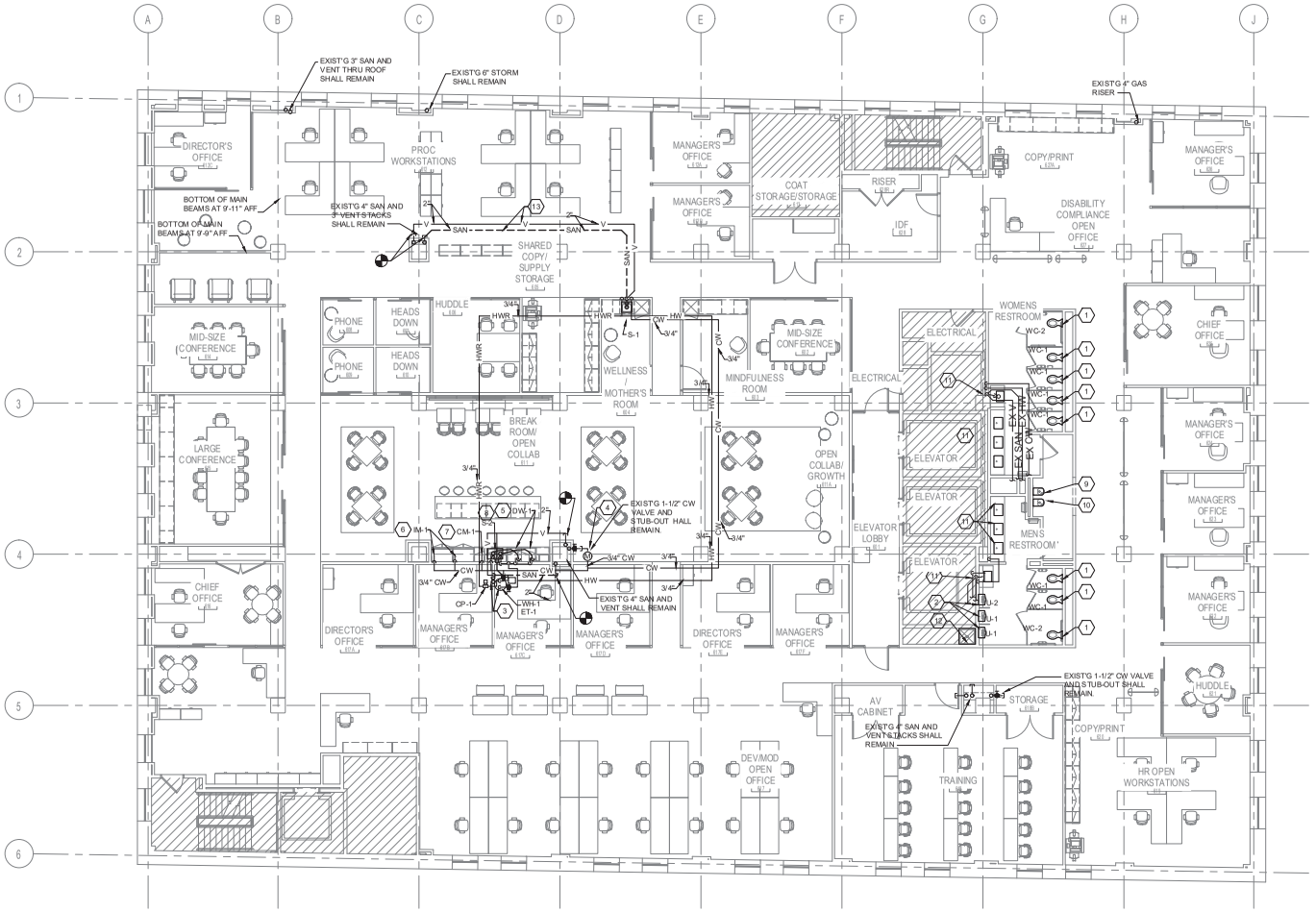

1 6TH FLOOR PLUMBING PLAN
P-203 1/8" = 1'-0"

PLUMBING KEY NOTES: (#)

1. DISCONNECT AND REMOVE EXISTING 1.6 GPF MANUAL FLUSH VALVE AND PREP FOR NEW LOW FLOW 1.28 GPF PISTON STYLE WATER CLOSET FLUSH VALVE. PROVIDE NEW PISTON STYLE BATTERY POWERED SENSOR OPERATED 1.28 GPF WATER CLOSET FLUSH VALVE AND CONNECT TO EXISTING WATER CLOSET AND SUPPLY PIPING - FIELD ADJUST AS NEEDED. ALSO PROVIDE NEW TOILET SEAT.
2. DISCONNECT AND REMOVE EXISTING 1.0 GPF MANUAL URINAL FLUSH VALVE AND PREP FOR NEW LOW FLOW 0.5 GPF BATTERY OPERATED PISTON STYLE URINAL FLUSH VALVE. PROVIDE NEW PISTON STYLE 0.5 GPF BATTERY POWERED SENSOR OPERATED URINAL FLUSH VALVE AND CONNECT TO EXISTING URINAL AND SUPPLY PIPING - FIELD ADJUST AS NEEDED.
3. PROVIDE NEW ELECTRIC WATER HEATER ABOVE CEILING WITH SUPPORT PLATFORM. EXTEND 3/4" COLD AND HOT WATER TO HEATER CONNECTION PORTS. PROVIDE WITH EXPANSION TANK ON COLD WATER SUPPLY LINE. EXTEND HEATER DRAIN AND T&P VALVE DRAIN TO SAFE WASTE RECESSED IN WALL BOX. SEE DETAIL.
4. PROVIDE 3/4" WATER METER WITH REMOTE READER TO COMPLY WITH LEED REQUIREMENTS OF TENANT WATER METERING. MOUNT METER ABOVE CEILING AND REMOTE READER IN LOCATION SELECTED BY ARCHITECT ON SITE.
5. EXTEND DISHWASHER DRAIN HOSE TO UNDERSIDE OF COUNTER TOP AND ANCHOR PRIOR TO EXTENDING AND CONNECTING TO SINK TAIL PIECE WITH SIDE INLET CONNECTION.
6. PROVIDE RECESSED WALL BOX WITH ICE MAKER CONNECTION SHUT OFF VALVE WITH INTEGRAL SHOCK ARRESTOR.
7. PROVIDE CHROME PLATED COFFEE MAKER SHUT OFF VALVE WITH INTEGRAL SHOCK ARRESTOR IN BASE CABINET UNDER COFFEE MAKER. EXTEND BRAIDED STAINLESS STEEL FLEX HOSE FROM SHUT OFF VALVE TO COFFEE MAKER.
8. PROVIDE DOUBLE BOWL STAINLESS STEEL UNDER COUNTER MOUNTED KITCHEN SINK WITH CHROME PLATED SINGLE LEVER FAUCET WITH PULL-OUT SPRAY HOSE TYPE SPOUT. INCLUDE TAIL PIECES WITH SIDE INLET FOR DISHWASHER CONNECTION AT EACH BOWL.
9. PROVIDE NEW ELECTRIC WATER COOLER AT STANDARD MOUNTING HEIGHT COMPLETE WITH NEW TRAP AND SUPPLY VALVE. ADJUST EXISTING ROUGH-INS AS NEEDED FOR NEW FIXTURE.
10. PROVIDE NEW ELECTRIC WATER COOLER MOUNTED AT ADA ACCESSIBILITY HEIGHT COMPLETE WITH BOTTLE FILL STATION, TRAP AND SUPPLY VALVE. ADJUST EXISTING ROUGH-INS AS NEEDED FOR NEW FIXTURE.
11. EXISTING COUNTER TOP MOUNTED LAVATORY SINK AND FAUCET SHALL REMAIN AND CONTINUE IN USE.
12. EXISTING JANITOR MOP SINK SHALL REMAIN AT THIS LOCATION AND CONTINUE IN USE.
13. APPROXIMATE LOCATION OF NEW SANITARY AND VENT PIPING. FIELD COORDINATE WITH OTHER DISCIPLINES FOR BEST LOCATION OF THIS PIPING ON BOTH FLOORS AND MAKE ADJUSTMENTS AS NEEDED.

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SHEET NAME:
6TH FLOOR PLUMBING PLAN

SHEET NO.
P-203

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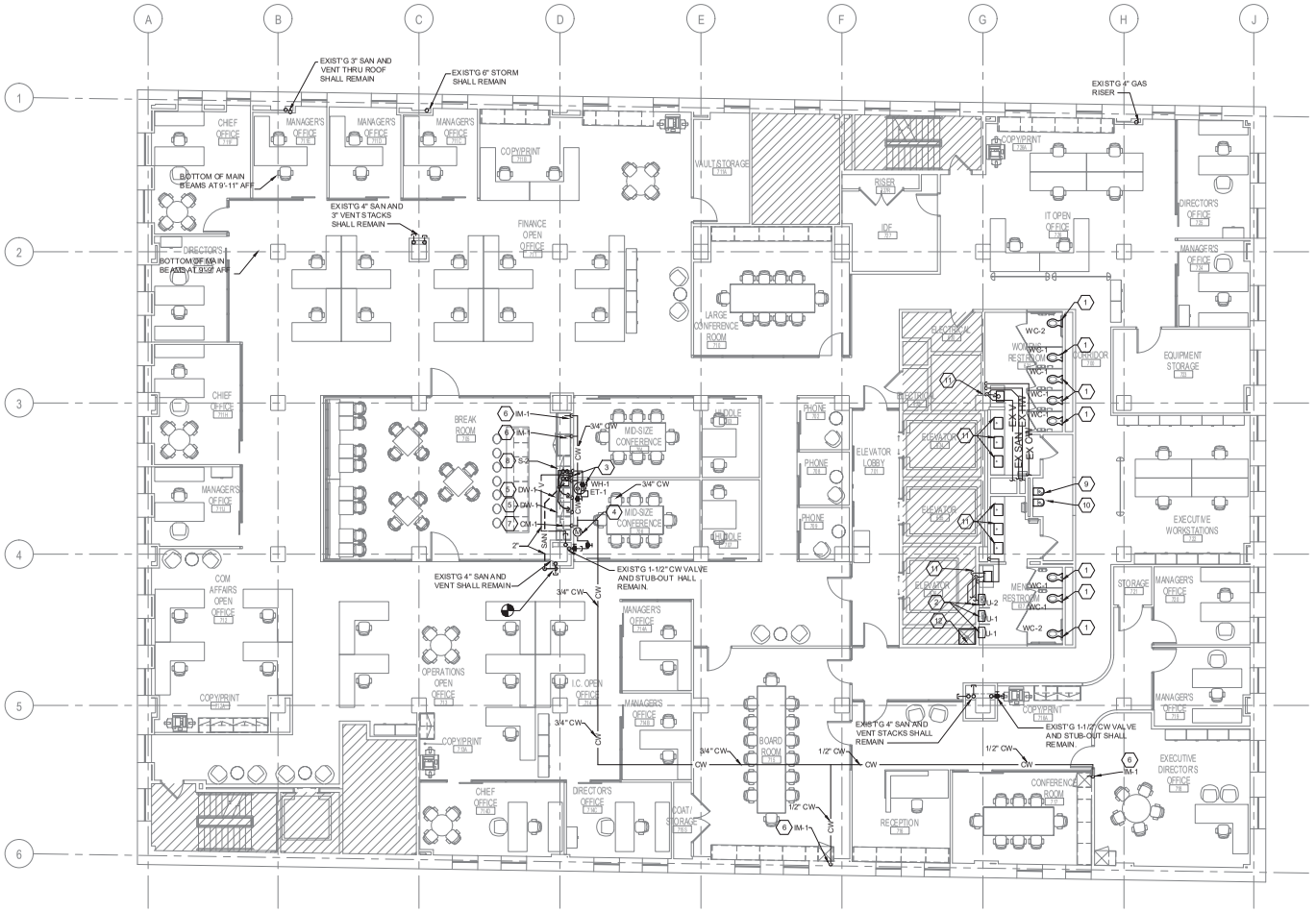

1 7TH FLOOR PLUMBING PLAN
P-204 1/8" = 1'-0"

PLUMBING KEY NOTES: (#)

1. DISCONNECT AND REMOVE EXISTING 1.6 GPF MANUAL FLUSH VALVE AND PREP FOR NEW LOW FLOW 1.28 GPF PISTON STYLE WATER CLOSET FLUSH VALVE. PROVIDE NEW PISTON STYLE BATTERY POWERED SENSOR OPERATED 1.28 GPF WATER CLOSET FLUSH VALVE AND CONNECT TO EXISTING WATER CLOSET AND SUPPLY PIPING - FIELD ADJUST AS NEEDED. ALSO PROVIDE NEW TOILET SEAT.
2. DISCONNECT AND REMOVE EXISTING 1.0 GPF MANUAL URINAL FLUSH VALVE AND PREP FOR NEW LOW FLOW 0.5 GPF BATTERY POWERED SENSOR OPERATED PISTON STYLE URINAL FLUSH VALVE. PROVIDE NEW PISTON STYLE 0.5 GPF BATTERY OPERATED URINAL FLUSH VALVE AND CONNECT TO EXISTING URINAL AND SUPPLY PIPING - FIELD ADJUST AS NEEDED.
3. PROVIDE NEW ELECTRIC WATER HEATER ABOVE CEILING WITH SUPPORT PLATFORM. EXTEND 3/4" COLD AND HOT WATER TO HEATER CONNECTION PORTS. PROVIDE WITH EXPANSION TANK ON COLD WATER SUPPLY LINE. EXTEND HEATER DRAIN AND T&P VALVE DRAIN TO SAFE WASTE RECESSED IN WALL BOX. SEE DETAIL.
4. PROVIDE 3/4" WATER METER WITH REMOTE READER TO COMPLY WITH LEED REQUIREMENTS OF TENANT WATER METERING. MOUNT METER ABOVE CEILING AND REMOTE READER IN LOCATION SELECTED BY ARCHITECT ON SITE.
5. EXTEND DISHWASHER DRAIN HOSE TO UNDERSIDE OF COUNTER TOP AND ANCHOR PRIOR TO EXTENDING AND CONNECTING TO SINK TAIL PIECE WITH SIDE INLET CONNECTION.
6. PROVIDE RECESSED WALL BOX WITH ICE MAKER CONNECTION SHUT OFF VALVE WITH INTEGRAL SHOCK ARRESTOR.
7. PROVIDE CHROME PLATED COFFEE MAKER SHUT OFF VALVE WITH INTEGRAL SHOCK ARRESTOR IN BASE CABINET UNDER COFFEE MAKER. EXTEND BRAIDED STAINLESS STEEL FLEX HOSE FROM SHUT OFF VALVE TO COFFEE MAKER.
8. PROVIDE DOUBLE BOWL STAINLESS STEEL UNDER COUNTER MOUNTED KITCHEN SINK WITH CHROME PLATED SINGLE LEVER FAUCET WITH PULL-OUT SPRAY HOSE TYPE SPOUT. INCLUDE TAIL PIECES WITH SIDE INLET FOR DISHWASHER CONNECTION AT EACH BOWL.
9. PROVIDE NEW ELECTRIC WATER COOLER AT STANDARD MOUNTING HEIGHT COMPLETE WITH NEW TRAP AND SUPPLY VALVE. ADJUST EXISTING ROUGH-INS AS NEEDED FOR NEW FIXTURE.
10. PROVIDE NEW ELECTRIC WATER COOLER MOUNTED AT ADA ACCESSIBILITY HEIGHT COMPLETE WITH BOTTLE FILL STATION, TRAP AND SUPPLY VALVE. ADJUST EXISTING ROUGH-INS AS NEEDED FOR NEW FIXTURE.
11. EXISTING COUNTER TOP MOUNTED LAVATORY SINK AND FAUCET SHALL REMAIN AND CONTINUE IN USE.
12. EXISTING JANITOR MOP SINK SHALL REMAIN AT THIS LOCATION AND CONTINUE IN USE.

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SHEET NAME:
7TH FLOOR PLUMBING PLAN

SHEET NO:
P-204

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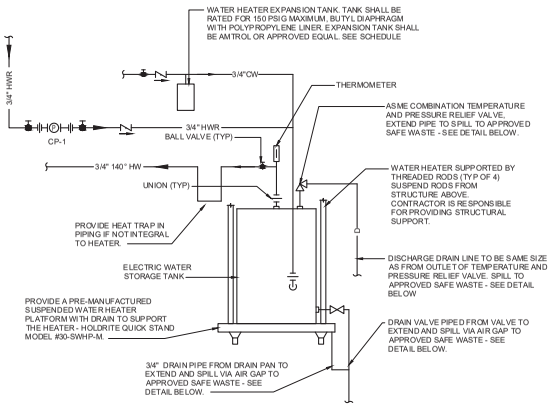
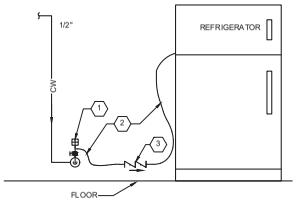
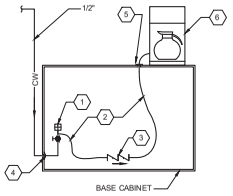


1 P401 ELECTRIC WATER HEATER (CEILING MOUNTED) WITH RECIRC
NOT TO SCALE



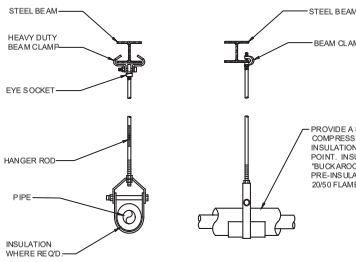
1. CHROME PLATED ANGLE VALVE, CHROME ESCUTCHEON, AND INLINE SHOCK ARRESTOR. (DAHL # 211-QG3-30-14WHA)
2. 3/8" FLEXIBLE HOSE WITH BRAIDED STAINLESS STEEL JACKET (WATTS # 4548DWSS)
3. DUAL CHECK BACKFLOW PREVENTER (WATTS # LF-7C)

2 P401 ICE MAKER WITHOUT FILTER CONNECTION SCHEMATIC
NOT TO SCALE

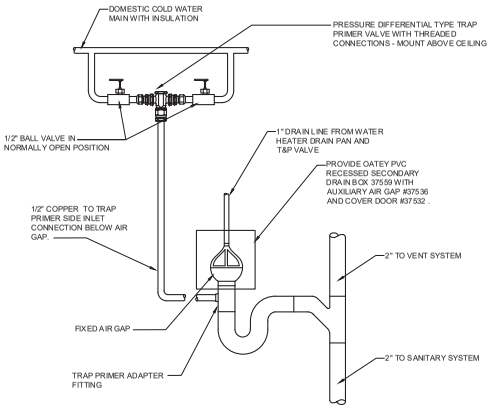


1. CHROME PLATED 1/2" X 1/4" ANGLE PATTERN SHUT OFF VALVE AND SHOCK ARRESTOR MOUNTED IN BASE CABINET (DAHL # 211-QG3-30-14WHA). COORDINATE LOCATION IN FIELD WITH ARCHITECT.
2. 3/8" FLEXIBLE HOSE WITH BRAIDED JACKET (WATTS # 4548DWSS)
3. DUAL CHECK BACKFLOW PREVENTER (WATTS LF7C).
4. CHROME PLATED PVC ESCUTCHEON AT ALL WALL OR CABINET PENETRATIONS.
5. DRILL HOLE AND PROVIDE GROMMET THROUGH COUNTER TOP BY GC.
6. COFFEE MAKER, WATER DISPENSER, OR SLUSHIE MAKER EQUIPMENT BY OWNERS LEASING SERVICE.

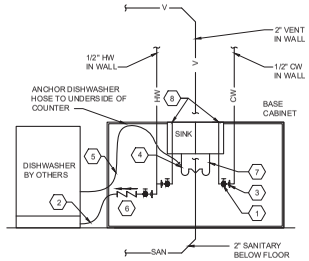
3 P-401 COFFEE MAKER (CM-1) CONNECTION SCHEMATIC AND WATER DISPENSER (WD-1) CONNECTION SCHEMATIC
NOT TO SCALE



4 P401 CLEVIS PIPE HANGER - STEEL CONSTRUCTION
NOT TO SCALE



5 P401 SAFE WASTE WITH TRAP PRIMER DETAIL
NOT TO SCALE



1. WATTS KWIKSTOP OR McGUIRE QUARTER TURN SUPPLY STOP (TYPICAL) PROVIDE WITH ADA ACCESSIBLE INSULATION WRAP.
2. 3/8" FLEXIBLE HOSE WITH BRAIDED JACKET (WATTS # FS-4560DWSS) PROVIDE WITH ADA ACCESSIBLE INSULATION WRAP.
3. CHROME PLATED PVC ESCUTCHEON (TYPICAL)
4. SINK TAILPIECE WITH DISHWASHER DRAIN CONNECTION (SIOUX CHIEF # 216-086) .
5. DISHWASHER DRAIN LINE - EXTEND TO UNDERSIDE OF COUNTER TOP AND ANCHOR TO COUNTER TOP. PROVIDE 3/8" FLEXIBLE INSULATION ON DRAIN HOSE TO PROVIDE ADA ACCESSIBLE PROTECTION.
6. PROVIDE AN INLINE DUAL CHECK VALVE BACKFLOW PREVENTER (ASSE 1024) WATTS MODEL #LF-7 C ON THE HOT WATER SUPPLY. PROVIDE WITH ADA ACCESSIBLE INSULATION WRAP.
7. STANDARD 1-1/2" SINK TAILPIECE AND GRID DRAIN. PROVIDE WITH ADA ACCESSIBLE INSULATION WRAP.
8. PROVIDE CONNECTION TO FAUCET

6 P401 SINK WITH DISHWASHER CONNECTIONS SCHEMATIC
NOT TO SCALE

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/08/2020
2	100% CONSTRUCTION DOCUMENTS	05/27/2020
1	100% DESIGN DEVELOPMENT	01/28/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	TJT	DCP

SHEET NAME:
PLUMBING DETAILS

SHEET NO:
P-401

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GENERAL MECHANICAL NOTES (ALL DRAWINGS):

1. MECHANICAL CONTRACTOR SHALL PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE HVAC SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND REQUIRED BY CODE.
2. THE CONTRACT DOCUMENT DRAWINGS ARE DIAGRAMMATIC ONLY, AND ARE INTENDED TO CONVEY THE SCOPE AND GENERAL ARRANGEMENT OF WORK.
3. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR BY FIELD INSPECTION PRIOR TO BIDDING. ANY INTERFERENCES TO INSTALLATION SHALL BE NOTED AND THE CONTRACTOR SHALL INCLUDE IN HIS BID PRICE THE COST TO AVOID OR RELOCATE ALL ITEMS, INCLUDING ITEMS OF OTHER TRADES, THAT INTERFERE. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. ALL OFFSETS, RISES, TRANSITIONS AND DROPS IN DUCTS AND PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
4. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS OR PIPE ADAPTERS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
5. PROVIDE ACCESS IN WALLS & CEILINGS TO ACCESS ALL EQUIPMENT, VALVES, CONTROL DEVICES, VOLUME DAMPERS, AND FIRE/SMOKE DAMPERS. ACCESS SHALL BE RATED IN ACCORDANCE WITH FIRE RATING OF CEILING AND WALLS AS NOTED IN THE ARCHITECTURAL DRAWINGS.
6. FOLLOW MANUFACTURE'S RECOMMENDATIONS FOR INSTALLATION OF EQUIPMENT. ALSO REFER TO TYPICAL DETAILS FOR INSTALLATION OF EQUIPMENT.
7. ALL MATERIALS FURNISHED, AND ALL WORK PERFORMED BY THE MECHANICAL CONTRACTOR SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS, INCLUDING BUT NOT LIMITED TO THE LATEST APPLICABLE EDITIONS OF NFPA, IEEE, OSHA, SMACNA, INTERNATIONAL MECHANICAL CODE, INTERNATIONAL BUILDING CODE, AND ANY STATE, COUNTY, AND LOCAL CODES.
8. ALL EQUIPMENT, DUCTWORK, ETC., SHALL BE SUPPORTED SUFFICIENTLY AND ANY ADDITIONAL SUPPORT SHALL BE PROVIDED AS REQUIRED TO PROVIDE VIBRATION FREE AND SAFE INSTALLATION. ALL MISCELLANEOUS STEEL REQUIRED AND/OR AS SHOWN IN DETAILS FOR DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR. SUPPORT ALL DUCTWORK, PIPING AND EQUIPMENT MOUNTED ABOVE THE CEILING DIRECTLY FROM THE STRUCTURE. ALL ATTACHMENTS TO BEAMS, TRUSSES, OR JOIST SHALL BE MADE AT PANEL POINTS WITH BEAM CLAMPS MEETING MSS STANDARDS.
9. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH NEC AND ELECTRICAL SPECIFICATIONS FOR THIS PROJECT.

DUCTWORK GENERAL NOTES (ALL DRAWINGS):

1. ALL DUCTWORK INDICATED IS SCHEMATIC AND SHOW ONLY RELATIVE POSITIONS. PROVIDE OFFSETS, RISES, TRANSITIONS AND ELBOWS AS NEEDED TO INSTALL PROPERLY.
2. PROVIDE ACCESS DOORS IN DUCTWORK FOR OPERATION, ADJUSTMENT, AND MAINTENANCE OF ALL HVAC DEVICES, FANS, DAMPERS, (FIRE, SMOKE, BALANCING) COILS, AND TERMINAL EQUIPMENT.
3. LOCATIONS OF TERMINAL DEVICES, AIR OUTLETS AND INLETS ARE APPROXIMATE. LOCATE PER THE ARCHITECTURAL DRAWINGS AND TO AVOID OTHER TRADE'S WORK. COORDINATE LOCATIONS WITH OTHER TRADES. CONSULT ARCHITECT/ENGINEER FOR CLARIFICATION IF CONFLICTS OCCUR.
4. DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE FACE-TO-FACE DIMENSIONS AND DO NOT INCLUDE DUCT LINER WHERE SPECIFIED. INCREASE DIMENSIONS OF LINED DUCTWORK TO PROVIDE FREE INSIDE AREA EQUAL DIMENSIONS SHOWN. REFER TO THE SPECIFICATIONS FOR LOCATION OF LINED DUCTWORK.
5. FINAL CONNECTIONS FROM HIGH VELOCITY MAIN DUCTS TO AIR TERMINAL UNITS SHALL BE MADE WITH FLEXIBLE DUCTWORK NOT EXCEEDING 3 FEET IN LENGTH. CONNECTIONS BETWEEN LOW VELOCITY DUCTWORK AND/OR TERMINAL UNITS TO AIR INLETS AND OUTLETS SHALL BE MADE WITH FLEXIBLE DUCTWORK NOT EXCEEDING 6 FEET IN LENGTH. LONGER DUCT RUN OUTS SHALL BE CONSTRUCTED OF HARD DUCT OF THE SAME MATERIAL SPECIFIED FOR THE SYSTEM SERVED AND INSULATED AS SPECIFIED FOR THAT SYSTEM. FLEXIBLE DUCTWORK SHALL BE OF THE PRESSURE CLASS AND FACTORY INSULATED AS SPECIFIED FOR THE SYSTEM WHERE INSTALLED.
6. FLEXIBLE DUCTWORK SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS WITHOUT ANY SAGS, SHARP TURNS OR KINKS. AT THE MINIMUM, THE FLEXIBLE DUCTWORK SHALL BE FASTENED TO THE HARD DUCT BY A NYLON STRAP SECURED BY SHEETMETAL SCREWS TO PREVENT SLIPPING OFF FROM COLLAR.
7. PROVIDE VOLUME DAMPERS AT EACH AIR OUTLET, AIR INLET AND TERMINAL DEVICE AND AT EACH BRANCH TAKE-OFF CONNECTION FROM THE MAIN.

MECHANICAL PIPING GENERAL NOTES (ALL DRAWINGS):

1. ALL PIPING SHOWN HAS BEEN DRAWN SCHEMATICALLY FOR CLARITY AND SHOW ONLY RELATIVE POSITIONS. PROVIDE OFFSETS AND ELBOWS AS NEEDED TO INSTALL PROPERLY AND TO AVOID INTERFERENCES.
2. ALL NEW OR REPLACED HYDRONIC PIPING SHALL BE INSTALLED SO THAT IT CAN BE COMPLETELY VENTED AT HIGH POINTS AND DRAINED AT LOW POINTS. PROVIDE AIR VENTS AT HIGH POINTS, TYPE PER SPECIFICATIONS. PROVIDE 1/2" BALL VALVES WITH HOSE END CONNECTIONS AND CAPS AT LOW POINT. ALL WATER MAINS SHALL BE INSTALLED LEVEL, UNLESS OTHERWISE NOTES.
3. PROVIDE SERVICE VALVES AT EACH BRANCH CONNECTION FROM MAINS AND AT EACH TERMINAL DEVICE OR EQUIPMENT CONNECTION.
4. CONTRACTOR SHALL PROVIDE NEW VALVES ON EXISTING PIPING WHERE THE PIPES ARE TO BE REMOVED SO THAT THE SYSTEM DOES NOT HAVE TO BE DRAINED WHILE REMOVING EXISTING UNITS, INSTALLING NEW UNITS AND MAKING CONNECTIONS TO NEW EQUIPMENT.

MECHANICAL DUCTWORK & GENERAL SYMBOLS LEGEND

SYMBOL	ABRV.	DESCRIPTION
	XTR	EXISTING EQUIPMENT OR DUCTWORK TO REMAIN
	RX	EXISTING EQUIPMENT OR DUCTWORK TO BE REMOVED
		NEW EQUIPMENT OR DUCTWORK
		LINED DUCTWORK
		SUPPLY DUCT UP
		SUPPLY DUCT DOWN
		RETURN / EXHAUST DUCT UP
		RETURN / EXHAUST DUCT DOWN
		ROUND DUCT ELBOW UP
		ROUND DUCT ELBOW DOWN
		ELBOW WITH TURNING VANES
R		DUCT OFFSET UP
D		DUCT OFFSET DOWN
		SQUARE / RECTANGULAR DUCT TRANSITION
		SQUARE/RECTANGULAR TO ROUND DUCT TRANSITION
	CD	CEILING DIFFUSER. - ROUND NECK - # THROW DIRECTIONS
	SD	SUPPLY DIFFUSER - RECTANGULAR - MULTI-DIRECT.
	SG/EG	SIDEWALL SUPPLY or RETURN GRILLE - (R = REGISTER)
	LD	LINEAR DIFFUSER. SEE SCHEDULE FOR INFORMATION.
	RG/EG	RETURN or EXHAUST GRILLE - (R = REGISTER)
		FLEXIBLE DUCT
	FLEX	FLEXIBLE DUCT CONNECTION (TO EQUIPMENT)
		SPIN TAP WITH VOLUME CONTROL DAMPER
AD	AD	DUCT ACCESS DOOR
	VD	VOLUME CONTROL DAMPER
BDD	BDD	BACKDRAFT DAMPER
M	MD	MOTORIZED DAMPER
	FD	VERTICAL FIRE DAMPER (WALL)
	HFD	HORIZONTAL FIRE DAMPER (FLOOR)
	SD	VERTICAL SMOKE DAMPER (WALL)
	HSD	HORIZONTAL SMOKE DAMPER (FLOOR)
	FD/SD	COMBINATION VERTICAL FIRE & SMOKE DAMPER
	HFD/SD	COMBINATION HORIZONTAL FIRE & SMOKE DAMPER
	RD	CEILING RADIATION FIRE DAMPER
DD	DD	DUCT SMOKE DETECTOR
T		THERMOSTAT
T10		THERMAL DIFFUSER THERMOSTAT
SP		STATIC PRESSURE SENSOR
CO2		CARBON DIOXIDE SENSOR
TAG 2		EQUIPMENT UNIT DESIGNATION
TAG CFM		DIFFUSER, REGISTER & GRILLE UNIT DESIGNATION W/ CFM
U		UNDER CUT DOOR
L		LOUVERED DOOR
		CONNECTION POINT, NEW TO EXISTING
		DISCONNECTION POINT
1		DRAWING KEYNOTE
1		DEMOLITION DRAWING KEYNOTE
1		REVISION NUMBER
	RA or EA	RETURN OR EXHAUST AIR
	SA or OA	SUPPLY OR OUTSIDE AIR

MECHANICAL PIPING SYMBOLS LEGEND

SYMBOL	ABRV.	DESCRIPTION
HWS	HWS	HEATING WATER SUPPLY PIPING
HWR	HWR	HEATING WATER RETURN PIPING
CWS	CWS	CONDENSER WATER SUPPLY PIPING
CWR	CWR	CONDENSER WATER RETURN PIPING
CHWS	CHWS	CHILLED WATER SUPPLY PIPING
CHWR	CHWR	CHILLED WATER RETURN PIPING
G	G	NATURAL GAS PIPING
D	D	CONDENSATE DRAIN PIPING
R	R	REFRIGERANT PIPING
LPS	LPS	LOW PRESSURE STEAM SUPPLY PIPING (0-15 PSIG)
MPS	MPS	MEDIUM PRESSURE STEAM SUPPLY PIPING (16-60 PSIG)
HPS	HPS	HIGH PRESSURE STEAM SUPPLY PIPING (61 TO 200 PSIG)
LPR	LPR	LOW PRESSURE STEAM CONDENSATE RETURN
MPR	MPR	MEDIUM PRESSURE STEAM CONDENSATE RETURN
HPR	HPR	HIGH PRESSURE STEAM CONDENSATE RETURN
PC	PC	PUMPED STEAM CONDENSATE
V	V	VENT PIPING
CW	CW	CITY (DOMESTIC) WATER
FOS	FOS	FUEL OIL SUPPLY PIPING
FOR	FOR	FUEL OIL RETURN PIPING
		ELBOW TURNED UP
		ELBOW TURNED DOWN
		BOTTOM PIPE CONNECTION
		TOP PIPE CONNECTION
		PIPING CAP
		UNION
		FLANGED CONNECTION
		CONCENTRIC PIPE REDUCER
		ECCENTRIC PIPE REDUCER
		FLOW ARROW
	BV	BALL VALVE
	BFV	BUTTERFLY VALVE
	PV	PLUG VALVE
	GV	GATE VALVE
	GBV	GLOBE VALVE
	CV	CHECK VALVE
		2-WAY CONTROL VALVE
		3-WAY CONTROL VALVE
		CIRCUIT SETTER (BALANCING VALVE)
		STRAINER (W/ BALL VALVE AND CAP)
		BACKFLOW PREVENTER
		PRESSURE REGULATING VALVE
		PRESSURE RELIEF VALVE
		TRIPLE DUTY VALVE WITH MEASURING CONNECTIONS
		PRESSURE GAGE W/ SHUT-OFF

MECHANICAL ABBREVIATIONS

ABRV.	DESCRIPTION
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
MBH	1000 - BRITISH THERMAL UNITS
KW	1000-WATT (1 KW = 3,412 BTUH)
SENS.	SENSIBLE
LAT.	LATENT
E.A.T.	ENTERING AIR TEMPERATURE
L.A.T.	LEAVING AIR TEMPERATURE
E.W.T.	ENTERING WATER TEMPERATURE
L.W.T.	LEAVING WATER TEMPERATURE
DB/WB	DRY BULB / WET BULB
IN. W.G.	INCHES WATER GAUGE (AIR)
FT. W.G.	FEET WATER GAUGE (HYDRONIC)
E.S.P.	EXTERNAL STATIC PRESSURE
T.S.P.	TOTAL STATIC PRESSURE
TG	TRANSFER GRILLE
TR	TOP REGISTER
(E)	EXISTING
R / R	REMOVE EXISTING ITEM & RELOCATE TO NEW LOCATION
UNO	UNLESS NOTED OTHERWISE
NTS	NOT TO SCALE
NIC	NOT IN CONTRACT
Ø OR PH	PHASE
Ø	DIAMETER
AFF	ABOVE FINISHED FLOOR
ELEV.	ELEVATION FROM DATUM

NOTES:
1. NOT ALL SYMBOLS AND ABBREVIATIONS ARE IN USE FOR THIS PROJECT.

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3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	NAS & AGR	DCP

SHEET NAME:
MECHANICAL DATA SHEET

SHEET NO:
M-001

TRUE NORTH
PLAN NORTH

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MECHANICAL SPECIFICATIONS

SECTION 019113 - GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. COMMISSIONING IS A SYSTEMATIC PROCESS OF ENSURING THAT THE BUILDING SYSTEMS PERFORM INTERACTIVELY ACCORDING TO THE DESIGN INTENT AND THE OWNER'S OPERATIONAL NEEDS. THIS IS ACHIEVED BY BEGINNING IN THE DESIGN PHASE AND DOCUMENTING DESIGN INTENT AND CONTINUING THROUGH CONSTRUCTION, ACCEPTANCE AND THE WARRANTY PERIOD WITH ACTUAL VERIFICATION OF PERFORMANCE. THE COMMISSIONING PROCESS SHALL ENCOMPASS AND COORDINATE THE TRADITIONALLY SEPARATE FUNCTIONS OF SYSTEM DOCUMENTATION, EQUIPMENT START-UP, CONTROL SYSTEMS CALIBRATION, TESTING AND BALANCING, PERFORMANCE TESTING AND TRAINING.

B. COMMISSIONING DURING THE CONSTRUCTION PHASE IS INTENDED TO ACHIEVE THE FOLLOWING SPECIFIC OBJECTIVES ACCORDING TO THE CONTRACT DOCUMENTS:

1. VERIFY THAT APPLICABLE EQUIPMENT AND SYSTEMS ARE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AND TO INDUSTRY ACCEPTED MINIMUM STANDARDS AND THAT THEY RECEIVE ADEQUATE OPERATIONAL CHECKOUT BY INSTALLING CONTRACTORS.
2. VERIFY AND DOCUMENT PROPER PERFORMANCE OF EQUIPMENT AND SYSTEMS THROUGH DEVELOPMENT AND IMPLEMENTATION OF SYSTEM TEST PROCEDURES AND EXECUTION.
3. VERIFY THAT OWNER'S OPERATING PERSONNEL ARE ADEQUATELY TRAINED.
4. DEVELOP AND IMPLEMENT A COMMISSIONING PLAN.
5. MAINTAIN AN ISSUES AND BENEFITS LOG THROUGHOUT THE COMMISSIONING PROCESS.
6. DOCUMENT ALL FINDINGS AND RECOMMENDATIONS AND REPORT DIRECTLY TO THE OWNER THROUGHOUT THE PROCESS.
7. PREPARE AND MAINTAIN A CURRENT FACILITIES REQUIREMENTS AND OPERATIONS PLAN WHICH CONTAINS INFORMATION NECESSARY TO OPERATE BUILDING EFFICIENTLY IN ACCORDANCE WITH LEED V4.1 FUNDAMENTAL COMMISSIONING REQUIREMENTS.

C. DEDUCT ALTERNATE: ELIMINATE ENHANCED COMMISSIONING IN ACCORDANCE WITH LEED V4.1 ENHANCED COMMISSIONING AND VERIFICATION FROM SCOPE OF WORK. ENHANCED COMMISSIONING CONSISTS OF MEETING ALL REQUIREMENTS DOCUMENTED IN LEED V4.1 FUNDAMENTAL COMMISSIONING REQUIREMENTS AND THE FOLLOWING:

1. REVIEW CONTRACTOR SUBMITTALS.
2. INCLUDE SYSTEMS MANUAL REQUIREMENTS IN CONSTRUCTION DOCUMENTS.
3. INCLUDE OPERATOR AND OCCUPANT TRAINING REQUIREMENTS IN CONSTRUCTION DOCUMENTS.
4. VERIFY SYSTEMS MANUAL UPDATES FOR DELIVERY.
5. VERIFY OPERATOR AND OCCUPANT TRAINING DELIVERY AND EFFECTIVENESS.
6. VERIFY SEASONAL TESTING.
7. REVIEW BUILDING OPERATIONS 10 MONTHS AFTER SUBSTANTIAL COMPLETION.
8. DEVELOP AN ONGOING COMMISSIONING PLAN.

D. THE COMMISSIONING PROCESS DOES NOT TAKE AWAY FROM OR REDUCE THE RESPONSIBILITY OF THE SYSTEM DESIGNERS OR INSTALLING CONTRACTORS TO PROVIDE A FINISHED AND FULLY FUNCTIONING PRODUCT.

1.02 RESPONSIBILITIES

A. ARCHITECT & ENGINEER

1. RESOLVE OPERATIONAL AND DESIGN ISSUES TO ACHIEVE PROPERLY FUNCTIONING SYSTEMS.
2. MAY ATTEND CX SCOPING MEETING AND OTHER MEETINGS NECESSARY TO FACILITATE THE CX PROCESS.
3. PROVIDE THE BOD TO THE CXA FOR REVIEW. THIS DOCUMENT SHOULD BE AVAILABLE EARLY IN THE DESIGN STAGE AND FORWARDED TO THE CXA WITHIN 2 WEEKS OF THE FINAL CONSTRUCTION DOCUMENTS ISSUE.
4. PROVIDE O&M MANUALS TO THE CXA FOR REVIEW AND INCLUSION OF THE SYSTEMS MANUAL (ENHANCED ONLY).

B. OWNER

1. MAY ATTEND CX SCOPING MEETING AND OTHER MEETINGS NECESSARY TO FACILITATE THE CX PROCESS.
2. ARRANGE FOR FACILITY OPERATING AND MAINTENANCE PERSONNEL TO ATTEND MEETINGS NECESSARY TO FACILITATE THE CX PROCESS.
3. PROVIDE THE OPR DOCUMENTATION TO THE CXA FOR USE IN DEVELOPING THE CX PLAN, ASSISTING IN SUBMITTAL REVIEW, PRE FUNCTIONAL TEST SCRIPTS CREATION, FUNCTIONAL TEST SCRIPTS CREATION AND LEED DOCUMENT SUBMISSION. THIS DOCUMENT SHOULD BE AVAILABLE EARLY IN THE DESIGN STAGE AND FORWARDED TO THE CXA WITHIN 2 WEEKS OF CXA CONTRACT APPROVAL.

C. MECHANICAL: REFER TO DIVISION 23

D. ELECTRICAL: REFER TO DIVISION 26

1.03 DEFINITIONS

A. BOD: BASIS OF DESIGN: A DOCUMENT THAT RECORDS CONCEPTS, CALCULATIONS, DECISION AND PRODUCT SELECTIONS USED TO MEET THE OPR AND TO SATISFY APPLICABLE REGULATORY REQUIREMENTS, STANDARDS AND GUIDELINES. THE DOCUMENT INCLUDES BOTH NARRATIVE DESCRIPTIONS AND LISTS OF INDIVIDUAL ITEMS THAT SUPPORT THE DESIGN PROCESS.

B. COMMISSIONING PLAN: A DOCUMENT THAT OUTLINES THE ORGANIZATION, SCHEDULE, ALLOCATION OF RESOURCES AND DOCUMENTATION REQUIREMENTS OF THE COMMISSIONING PROCESS.

C. CXA: COMMISSIONING AUTHORITY

D. OPR: OWNER'S PROJECT REQUIREMENTS: A DOCUMENT THAT DETAILS THE FUNCTIONAL REQUIREMENTS OF A PROJECT AND THE EXPECTATIONS OF HOW IT WILL BE USED AND OPERATED. THESE INCLUDE PROJECT GOALS, MEASURABLE PERFORMANCE CRITERIA, COST CONSIDERATIONS, BENCHMARKS, SUCCESS CRITERIA AND SUPPORTING INFORMATION. THE OPR WILL FORM THE BASIS FROM WHICH ALL DESIGN, CONSTRUCTION, ACCEPTANCE AND OPERATIONAL DECISIONS ARE MADE.

E. SYSTEMS, SUBSYSTEMS, EQUIPMENT AND COMPONENTS: WHERE THESE TERMS ARE USED TOGETHER OR SEPARATELY, THEY SHALL MEAN "AS-BUILT" SYSTEMS, SUBSYSTEMS, EQUIPMENT AND COMPONENTS.

1.04 RELATED WORK

1. DIVISION 23 - "MECHANICAL SYSTEMS COMMISSIONING"
2. DIVISION 26 - "ELECTRICAL SYSTEMS COMMISSIONING"
3. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND OTHER DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
4. OPR AND BOD DOCUMENTATION ARE INCLUDED BY REFERENCE FOR INFORMATION ONLY.
5. PRELIMINARY CX PLAN FOUND IN THIS SECTION

1.05 COMMISSIONING TEAM

A. MEMBERS APPOINTED BY CONTRACTOR: INDIVIDUALS, EACH HAVING THE AUTHORITY TO ACT ON BEHALF OF THE ENTITY HE OR SHE REPRESENTS, EXPLICITLY ORGANIZED TO IMPLEMENT THE COMMISSIONING PROCESS THROUGH COORDINATED ACTION. THE COMMISSIONING TEAM SHALL CONSIST OF, BUT NOT BE LIMITED TO, REPRESENTATIVES OF CONTRACTOR, INCLUDING PROJECT SUPERINTENDENT AND SUBCONTRACTORS, INSTALLERS, SUPPLIERS AND SPECIALISTS DEEMED APPROPRIATE BY THE CXA.

B. MEMBERS APPOINTED BY OWNER:

1. CXA: THE DESIGNATED PERSON, COMPANY, OR ENTITY THAT PLANS, SCHEDULES AND COORDINATES THE COMMISSIONING TEAM TO IMPLEMENT THE COMMISSIONING PROCESS. OWNER WILL ENGAGE THE CXA UNDER A SEPARATE CONTRACT.
2. REPRESENTATIVES OF THE FACILITY USER AND OPERATION AND MAINTENANCE PERSONNEL.
3. ARCHITECT AND ENGINEERING DESIGN PROFESSIONALS.

END OF SECTION 019113

MECHANICAL GENERAL CONDITIONS (230010)

A. GENERAL

1. CONFORM TO ALL GENERAL AND SPECIAL CONDITIONS OF CONTRACT AS SPECIFIED BY ARCHITECT AND/OR OWNER.

2. PRODUCTS AND INSTALLATION SHALL COMPLY WITH ALL APPLICABLE LAWS, CODES, GOVERNMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, ETC. OF ALL AUTHORITIES HAVING JURISDICTION. WORK SHALL COMPLY WITH THE FOLLOWING CODES, STANDARDS AND ORGANIZATIONS: INTERNATIONAL MECHANICAL CODE (IMC), INTERNATIONAL PLUMBING CODE (IPC), INTERNATIONAL ENERGY CODE, NATIONAL ELECTRIC CODE, NFPA, UNDERWRITERS LABORATORY (UL), IRI, FM, SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" GUIDELINES, DETAILS, & MODEL SPECIFICATION, ASHRAE. WHERE CONFLICTS EXIST BETWEEN CODES, STANDARDS OR THIS SPECIFICATION THE HIGHER REQUIREMENT SHALL APPLY. DEVIATIONS FROM THE CONTRACT DOCUMENTS REQUIRED BY THE ABOVE AUTHORITIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. OBTAIN PERMITS AND PAY ALL FEES. ARRANGE FOR ALL REQUIRED INSPECTIONS AND APPROVALS. CONFIRM ALL UTILITY COMPANY REQUIREMENTS AND CONNECTION POINTS IN FIELD, PRIOR TO STARTING WORK.

3. ALL SPECIFICATIONS AND DRAWINGS, I.E., ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL ARE COMPLIMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION. ANY INFORMATION CONFLICTS WITHIN THE SPECIFICATIONS AND DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION. DRAWINGS ARE DIAGRAMMATIC. CONFIRM ALL DIMENSIONS BY FIELD MEASUREMENT. THE EXACT LOCATIONS FOR APPARATUS, FIXTURES, EQUIPMENT AND PIPING WHICH IS NOT COVERED BY DRAWINGS, SHALL BE OBTAINED FROM THE ARCHITECT OR HIS REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY.

4. VISIT SITE, CHECK FACILITIES AND CONDITIONS MAKE ALL NECESSARY OBSERVATIONS, MEASUREMENTS, NOTE CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED, AND TAKE ALL ITEMS INTO CONSIDERATION IN BID.

5. EACH CONTRACTOR SHALL PROVIDE FOR HIS OWN CLEAN-UP, REMOVAL AND LEGAL DISPOSAL OF ALL RUBBISH DAILY. CONTRACTOR SHALL PROTECT THEIR WORK AND EXISTING OR ADJACENT PROPERTY AGAINST WEATHER, TO MAINTAIN THEIR WORK, MATERIALS, APPARATUS AND FIXTURES FREE FROM INJURY OR DAMAGE. ANY WORK DAMAGED BY FAILURE TO PROVIDE PROTECTION REQUIRED, SHALL BE REMOVED AND REPLACED WITH NEW WORK AT THE CONTRACTOR'S EXPENSE.

6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, SEQUENCES OF CONSTRUCTION AND THE SAFETY OF WORKMEN.

7. NO PIPING, DUCTWORK, CONTROLS, ETC., SHALL BE INSTALLED OR ROUTED ABOVE ELECTRICAL PANELS AND EQUIPMENT OR THROUGH ELEVATOR ROOMS.

8. THE CONTRACTOR SHALL COORDINATE AND OBTAIN A WRITTEN LISTING OF ELECTRICAL CHARACTERISTICS OF ALL MECHANICAL EQUIPMENT FROM ELECTRICAL CONTRACTOR PRIOR TO ORDERING OF EQUIPMENT. NO ADDITIONAL PAYMENT WILL BE MADE FOR LACK OF CONTRACTOR COORDINATION OF ELECTRICAL CHARACTERISTICS.

9. DURING THE BUILDING CONSTRUCTION SOME EXISTING INSTALLATION MAY BE EXPOSED THAT WILL HAVE TO BE CHANGED, ALTERED, REROUTED AND/OR ABANDONED. ANY SUCH WORK WHICH COMES UNDER THE JURISDICTION OF THIS CONTRACTOR SHALL BE DONE BY THIS CONTRACTOR WITHOUT EXTRA COST TO THE OWNER, AS THOUGH FULLY DETAILED ON PLANS AND/OR DESCRIBED IN THE SPECIFICATIONS.

10. WORK RELATED TO THE EXISTING BUILDING SHALL BE COORDINATED TO MINIMIZE INTERFERENCE OR INTERRUPTION OF NORMAL BUILDING USE BY OWNER. REFER TO ARCHITECTURAL PLANS FOR PHASING REQUIREMENTS.

11. IN CASES OF DOUBT AS TO THE WORK INTENDED, OR IN THE EVENT OF NEED FOR EXPLANATION THEREOF, THE CONTRACTOR SHALL REQUEST SUPPLEMENTARY INSTRUCTIONS FROM THE ENGINEER. NO CHANGES ARE TO BE MADE TO THE WORK OF THIS CONTRACT WITHOUT PRIOR KNOWLEDGE AND APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL HOLD THE OWNER AND ITS CONSULTANTS HARMLESS AGAINST ALL CLAIMS AND JUDGMENTS ARISING OUT OF THE CONTRACTORS PERFORMANCE OF THE WORK OF THIS CONTRACT. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK WHICH HE EXPECTS ADDITIONAL COMPENSATION BEYOND THE CONTRACT AMOUNT, WITHOUT WRITTEN AUTHORIZATION FROM THE APPROPRIATE AUTHORITY. FAILURE TO OBTAIN SUCH AUTHORIZATION SHALL INVALIDATE ANY CLAIM FOR EXTRA COMPENSATION.

12. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO INSTALL THE HEATING, VENTILATION AND AIR CONDITIONING SYSTEM SO AS TO INSURE QUIET OPERATION. NO VIBRATION OR SOUND SHALL BE TRANSMITTED TO THE BUILDING, STRUCTURE OR OCCUPIED AREAS. THE DECISION OF THE ENGINEER AS TO THE QUIETNESS OF THE SYSTEM AND EQUIPMENT SHALL BE FINAL. IT SHALL BE THIS CONTRACTORS RESPONSIBILITY TO CORRECT OR REPLACE ANY NOISY SYSTEM OR EQUIPMENT AS REQUIRED.

13. OBTAIN PERMITS AND PAY ALL FEES. ARRANGE FOR ALL REQUIRED INSPECTIONS AND APPROVALS.

B. DEMOLITION

1. DISCONNECT, DISASSEMBLE, CAP, PLUG AND REMOVE ALL MEP ELEMENTS (PIPING, DUCTS, ELECTRICAL DEVICES, WIRING, CONDUIT, EQUIPMENT, HANGERS, SUPPORTS, ETC) INDICATED ON THE DRAWINGS OR NOT OTHERWISE REQUIRED FOR COMPLETED PRODUCT. NO MEP ELEMENTS ARE TO BE ABANDONED IN PLACE UNLESS SPECIFICALLY NOTED. NOT ALL ITEMS TO BE REMOVED ARE INDICATED ON DRAWING.

2. ALL OPENINGS ON PIPING AND DUCTS THAT REMAIN SHALL BE CAPPED AND PROPERLY SECURED. WIRING SHALL BE DISCONNECTED AT CIRCUIT BREAKERS AND REMOVED AND BREAKERS MARKED "SPARE." REMOVE AND RECLAIM ANY REFRIGERANT IN EXISTING SYSTEMS PRIOR TO DEMOLITION OF ANY EQUIPMENT ACCORDING TO FEDERAL REQUIREMENT.

3. ANY EQUIPMENT DESIGNATED BY OWNER TO BE SALVAGED SHALL BE PROTECTED AND DELIVERED TO AN OWNER DESIGNATED AREA ON SITE.

4. ALL ASBESTOS REMOVAL (IF REQUIRED) WILL BE HANDLED BY THE OWNER AND IS NOT A PART OF THIS WORK. IF MATERIALS SUSPECTED OF CONTAINING HAZARDOUS MATERIALS ARE ENCOUNTERED, DO NOT DISTURB; NOTIFY ARCHITECT AND OWNER IMMEDIATELY.

C. BASIS OF DESIGN AND SUBSTITUTIONS

1. MANUFACTURERS LISTED ARE BASIS OF DESIGN. SUBSTITUTIONS ARE SUBJECT TO THE APPROVAL OF THE OWNER, ARCHITECT & ENGINEER. IF SUBSTITUTION IS SUBMITTED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE IT AND CERTIFY THAT THE SUBSTITUTION IS EQUIVALENT IN ALL RESPECTS TO THE BASIS OF DESIGN. WHERE SUBMITTALS VARY FROM THE CONTRACT REQUIREMENTS, THE CONTRACTOR SHALL CLEARLY INDICATE ON SUBMITTAL OR ACCOMPANYING DOCUMENTS THE NATURE AND REASON FOR VARIATIONS. IF SUBSTITUTIONS ARE APPROVED, NOTIFY ALL OTHER CONTRACTORS, SUBCONTRACTORS OR TRADES AFFECTED BY SUBSTITUTION AND FULLY COORDINATE. ANY COSTS RESULTING FROM SUBSTITUTION, WHETHER BY CONTRACTOR OR OTHERS, SHALL BE RESPONSIBILITY OF AND PAID FOR BY SUBSTITUTING CONTRACTOR. APPROVED SHOP DRAWINGS DOES NOT ABSOLVE THIS CONTRACTOR FROM THIS RESPONSIBILITY. APPROVAL OF SUBSTITUTIONS IS AT THE DISCRETION OF THE ARCHITECT & ENGINEER AND IF SUBMITTED AFTER THE BID, AT THE RISK OF THE CONTRACTOR.

2. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, FREE OF DEFECTS AND U.L. LABELED.

D. CUTTING, PATCHING AND DRILLING

1. ALL CUTTING AND PATCHING OF THE BUILDING CONSTRUCTION REQUIRED FOR THIS WORK SHALL BE BY THIS CONTRACTOR UNLESS SHOWN ON ARCHITECTURAL DRAWINGS AND CONFIRMED AS TO SIZE AND LOCATION PRIOR TO NEW CONSTRUCTION. CUTTING SHALL BE IN A NEAT AND WORKMANLIKE MANNER. NEATLY SAW CUT ALL RECTANGULAR OPENINGS, SET SLEEVE THROUGH OPENING, AND FINISH PATCH OR PROVIDE TRIM FLANGE AROUND OPENING. CORE DRILL AND SLEEVE ALL ROUND OPENINGS. DO NOT CUT ANY STRUCTURAL COMPONENTS WITHOUT ARCHITECT'S APPROVAL.

2. PATCH AND FINISH TO MATCH ADJACENT AREAS THAT HAVE BEEN CUT, DAMAGED OR MODIFIED AS A RESULT OF THE INSTALLATION OF THE MECHANICAL OR ELECTRICAL EQUIPMENT. FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER.

3. ALL CONTRACTORS SHALL CONFIRM WITH OWNER, PRIOR TO BID, TIMES AVAILABLE FOR NOISE PRODUCING WORK SUCH AS CUTTING AND CORE DRILLING OF FLOORS, WALLS, ETC., AS WELL AS TIMES FOR WORK WHICH REQUIRE ACCESS INTO ADJOINING TENANT SPACES. INCLUDE ANY PREMIUM TIME IN BID.

4. INFORMATION REGARDING REQUIRED PIPE OPENINGS IN WALLS, FLOORS, CHASES, ETC., AND CONCRETE EQUIPMENT PADS OR FOUNDATIONS SHALL BE GIVEN TO THE GENERAL CONTRACTOR BY THIS CONTRACTOR PRIOR TO THE CONSTRUCTION PERIOD. IF THIS CONTRACTOR FAILS TO COMPLY WITH THIS REQUEST, OR IF INCORRECT INFORMATION IS GIVEN, THE NECESSARY CUTTING AND PATCHING WILL BE PERFORMED BY THE GENERAL CONTRACTOR, AT THIS CONTRACTOR'S EXPENSE.

E. WARRANTY

1. FULLY WARRANT ALL MATERIALS, EQUIPMENT AND WORKMANSHIP FOR ONE (1) YEAR FROM DATE OF ACCEPTANCE. EXTEND ALL MANUFACTURER'S WARRANTIES TO OWNER, INCLUDING ALL EXTENDED WARRANTIES ON HVAC EQUIPMENT.

2. REPAIR OR REPLACE WITHOUT CHARGE TO THE OWNER ALL ITEMS FOUND DEFECTIVE DURING THE WARRANTY PERIOD. IN THE CASE OF REPLACEMENT OR REPAIR DUE TO FAILURE WITHIN THE WARRANTY PERIOD, THE WARRANTY ON THAT PORTION OF THE WORK SHALL BE EXTENDED FOR A MINIMUM PERIOD OF ONE (1) YEAR FROM THE DATE OF SUCH REPLACEMENT OR REPAIR.

F. SHOP DRAWING SUBMITTALS

1. SUBMIT SHOP DRAWINGS FOR MECHANICAL EQUIPMENT, FIRE PROTECTION SYSTEMS, DUCTWORK, AND PLUMBING FIXTURES AND EQUIPMENT WITH ADEQUATE DETAILS AND SCALES TO CLEARLY SHOW CONSTRUCTION. INDICATE THE OPERATING CHARACTERISTICS FOR EACH REQUIRED ITEM. CLEARLY IDENTIFY EACH ITEM ON THE SUBMITTAL AS TO MARK, LOCATION AND USE, USING SAME IDENTIFICATION AS PROVIDED ON DESIGN DRAWINGS.

2. DUCTWORK AND FIRE PROTECTION DRAWINGS SHALL BE FULLY DIMENSIONED BASED ON FIELD VERIFIED BUILDING CLEARANCES AND ARCHITECTURAL CEILING LAYOUTS, AND INDICATE STRUCTURAL, LIGHTING, DUCTWORK AND PIPING AT ALL CRITICAL LOCATIONS.

3. CONTRACTOR SHALL REVIEW AND INDICATE HIS APPROVAL OF EACH SHOP DRAWING PRIOR TO SUBMITTAL FOR REVIEW. DO NOT START WORK OR FABRICATION UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED BY THE ENGINEER AND RETURNED TO THE CONTRACTOR.

4. SUBMITTALS WILL BE REVIEWED ONLY FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS AND NOT FOR DIMENSIONS OR QUANTITIES. THE SUBMITTAL REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PURCHASE OF ANY ITEM IN FULL COMPLIANCE WITH THE CONTRACT DOCUMENTS OR ITS COMPLETE AND PROPER INSTALLATION.

5. WHERE SUBMITTALS VARY FROM THE CONTRACT REQUIREMENTS, THE CONTRACTOR SHALL CLEARLY INDICATE ON SUBMITTAL OR ACCOMPANYING DOCUMENTS THE NATURE AND REASON FOR VARIATIONS.

6. REFER TO VARIOUS SECTIONS FOR LISTING OF SHOP DRAWINGS REQUIRED ON THIS PROJECT.

7. EACH MANUFACTURER OR HIS REPRESENTATIVE MUST CHECK THE APPLICATION OF HIS EQUIPMENT AND CERTIFY AT TIME OF SHOP DRAWING SUBMITTAL THAT EQUIPMENT HAS BEEN PROPERLY APPLIED AND CAN BE INSTALLED, SERVICED AND MAINTAINED WHERE INDICATED ON DRAWINGS. ADVISE ENGINEER IN WRITING WITH SUBMITTAL DRAWINGS OF ANY POTENTIAL PROBLEMS. THE MANUFACTURER SHALL BE RESPONSIBLE FOR ANY CHANGES THAT MIGHT BE NECESSARY BECAUSE OF PHYSICAL CHARACTERISTICS OF EQUIPMENT THAT HAVE NOT BEEN CALLED TO THE ENGINEER'S ATTENTION AT THE TIME OF SUBMITTAL.

G. RECORD DRAWINGS

1. EACH CONTRACTOR OR SUBCONTRACTOR SHALL KEEP ONE (1) COMPLETE SET OF THE CONTRACT WORKING DRAWINGS ON THE JOB SITE ON WHICH HE SHALL REGULARLY RECORD ANY DEVIATIONS OR CHANGES FROM SUCH CONTRACT DRAWINGS MADE DURING CONSTRUCTION.

2. THESE DRAWINGS SHALL RECORD THE LOCATION OF ALL CONCEALED EQUIPMENT, PIPING, ELECTRIC SERVICE, SEWERS, WASTES, VENTS, DUCTS, CONDUIT AND OTHER PIPING, BY MEASURED DIMENSIONS TO EACH SUCH ITEM FROM READILY IDENTIFIABLE AND ACCESSIBLE WALLS OR CORNERS OF THE BUILDING. PLANS ALSO SHALL SHOW INVERT ELEVATION OF SEWERS AND TOP ELEVATION OF ALL OTHER BELOW-GRADE LINES.

3. RECORD DRAWINGS SHALL BE KEPT CLEAN AND UNDAMAGED AND SHALL NOT BE USED FOR ANY PURPOSE OTHER THAN RECORDING DEVIATIONS FROM WORKING DRAWINGS AND EXACT LOCATIONS OF CONCEALED WORK.

4. AFTER THE PROJECT IS COMPLETED, THESE SETS OF DRAWINGS SHALL BE DELIVERED TO THE ARCHITECT IN GOOD CONDITION, AS A PERMANENT RECORD OF THE INSTALLATION AS ACTUALLY CONSTRUCTED.

H. FIRESTOPPING

1. ALL SERVICES THAT PASS THRU FIRE OR SMOKE RATED PARTITIONS, WALLS, FLOORS, SHALL BE FIRESTOPPED. FIRE STOPPING RATING SHALL MATCH PARTITION RATING. ALL FIRE STOPPING SYSTEM SHALL MEET THE REQUIREMENTS OF ASTM E 814, UL 1479, AND BE FACTORY MUTUAL APPROVED.

2. ALL FIRESTOPING AND/OR SMOKE STOPPING MATERIAL AND INSTALLATION SHALL BE AS MANUFACTURED BY HILTI OR APPROVED EQUAL.

I. ACCESS DOORS & PANELS

1. ACCESS DOORS SHALL BE PROVIDED IN WALLS AND CEILINGS WHERE REQUIRED TO PERMIT PROPER ACCESS TO VALVES AND ANY OTHER SUCH DEVICES WHICH REQUIRE MAINTENANCE OR SERVICE. DOORS PLACED IN WALLS, PARTITIONS OR OTHER FIRE-RATED CONSTRUCTION SHALL HAVE A LABEL SIGNIFYING THAT THE DOOR HAS THE SAME FIRE RATING AS THE FIRE-RATED CONSTRUCTION.

2. THIS CONTRACTOR SHALL FURNISH ACCESS PANELS TO THE GENERAL CONTRACTOR FOR INSTALLATION.

3. ACCESS PANELS SHALL BE CONSTRUCTED OF 14 GAUGE STEEL, WITH 16 GAUGE STEEL FRAMES. DOORS SHALL FINISH FLUSH WITH THE SURROUNDING SURFACE. FRAMES SHALL HAVE 3 INCH WIDE EXPANDED METAL FOR PLASTERED SURFACES AND PLAIN FLANGED TYPE FRAME FOR TILE, MASONRY OR GYPSUM BOARD SURFACES. DOORS AND FRAMES SHALL BE FURNISHED PRIME COATED. DOORS INSTALLED IN CERAMIC TILE OR OTHER NON-PAINTED SURFACES SHALL BE STAINLESS STEEL. HINGES SHALL BE CONCEALED SPRING TYPE, TO ALLOW DOORS TO BE OPENED 175 DEGREES. LOCKS SHALL BE FLUSH SCREWDRIVER TYPE WITH STEEL CAMS. ACCESS PANELS SHALL BE 16 INCHES BY 16 INCHES OR LARGER AS MAY BE REQUIRED FOR PROPER ACCESS TO THE DEVICE BEING SERVED.

4. ACCESS PANELS ARE NOT REQUIRED IN COMPLETELY ACCESSIBLE LIFT OUT TILE CEILINGS. CONTRACTOR SHALL REVIEW THE ROOM FINISH SCHEDULE ON THE ARCHITECTURAL DRAWINGS IN ORDER TO VERIFY THE NEED FOR ACCESS PANELS.

DUCTWORK (233113)

1. FABRICATE AND ERECT ALL DUCTWORK TO ASHRAE AND SMACNA STANDARDS FROM NO. 1 GALVANIZED STEEL. COMPLY WITH NFPA BULLETIN 90A REQUIREMENTS.

2. SUPPLY DUCTWORK UPSTREAM OF TERMINAL UNITS AND WITHIN 15' OF ANY AHU FAN OUTLET SHALL HAVE A SMACNA 3" STATIC PRESSURE RATING WITH SEAL CLASS A SEAMS AND JOINTS.

3. GENERAL SUPPLY AND RETURN DUCTWORK HAVE A SMACNA 2" STATIC PRESSURE RATING WITH SEAL CLASS B SEAMS AND JOINTS.

4. OUTDOOR AIR INTAKE DUCTWORK SHALL HAVE A SMACNA 2" STATIC PRESSURE RATING WITH SEAL CLASS A SEAMS AND JOINTS.

5. ALL EXPOSED ROUND AND OVAL DUCTWORK IN SHALL HAVE SPIRAL LOCKSEAM CONSTRUCTION.

6. ALL RECTANGULAR TRANSFER DUCTWORK SHALL HAVE 1" THICK ACOUSTICAL LINER.

7. GENERAL EXHAUST DUCTWORK UNDER 4.5' IN LENGTH SHALL HAVE A SMACNA 1" STATIC PRESSURE RATING WITH SEAL CLASS B SEAM AND JOINTS. EXHAUST DUCTWORK OVER 45" IN LENGTH SHALL HAVE A SMACNA 2" STATIC PRESSURE RATING WITH SEAL CLASS A SEAM AND JOINTS.

8. ALL FLEXIBLE DUCTWORK SHALL BEAR THE UL 181 LABEL (CLASS 1 AIR DUCT) AND SHALL BE FACTORY INSULATED (1-1/2 ", 0.6 LB., FIBERGLASS) ATCO UPC #07611 OR EQUAL. FLEXIBLE DUCTWORK SHALL COMPLY W/ NFPA 90A, AND NFPA 90B. ALL FLEXIBLE DUCTWORK CONNECTED TO DIFFUSERS SHALL NOT BE LESS THAN THE NECK SIZE OF THE DIFFUSER. MINIMUM FLEXIBLE DUCT BEND RADIUS OF CURVATURE SHALL BE 3 DUCT DIAMETERS, MAXIMUM LENGTH SHALL BE 8-0". NO MORE THAN THE EQUIVALENT OF TWO (2) 90 DEGREE BENDS WILL BE ACCEPTABLE. FLEXIBLE DUCTS SHALL BE INDEPENDENTLY SUPPORTED FROM THE STRUCTURE AND CONNECTED WITH PLASTIC DRAW BANDS TIGHTENED WITH MANUFACTURER'S TOOL. FLEXIBLE DUCTS ARE NOT PERMITTED IN ROOMS WITHOUT CEILINGS.

9. INCLUDE ALL ACOUSTIC, DOUBLE RADIUS AIRFOIL SHAPED PERFORATED ALUMINUM TURNING VANES, MANUAL DAMPERS, FLEXIBLE CONNECTORS, GRILLES AND DIFFUSERS, ACOUSTIC LINING, AND OTHER SHEET METAL ACCESSORIES FOR THE PROJECT. VOLUME DAMPERS TO BE OF OPPOSED BLADE TYPE CONSTRUCTED IN ACCORDANCE WITH "SMACNA" STANDARDS.

10. ALL BRANCH CONNECTION FITTINGS IN RECTANGULAR DUCTWORK SHALL BE 45 DEGREE TRANSITION TYPE, CONICAL FITTINGS OR SPIN-IN FITTINGS. BUTT FITTINGS ARE NOT ACCEPTABLE.

11. PROVIDE FIRE DAMPERS WITH ACCESS DOORS AT ALL FIRE RATED WALLS, PARTITIONS AND CEILINGS. DAMPERS SHALL HAVE RATING EQUIVALENT TO BARRIER. DAMPER SHALL BE THE DYNAMIC TYPE AND SHALL BE ABLE TO CLOSE AGAINST AN AIRSTREAM. DAMPERS SHALL MEET ALL NFPA AND IBC REQUIREMENTS.

12. PROVIDE SMOKE DAMPERS WITH ACCESS DOORS AT ALL SMOKE BARRIERS/PARTITIONS. UNIT SHALL INCORPORATE BLADE END SWITCHES (OPEN AND CLOSED), AND OUTSIDE THE DUCT MOUNTED UL LISTED MOTOR. PROVIDE MANUFACTURER'S STANDARD U.L. LISTED OPEN – CLOSE – RESET SWITCH AND POSITION PILOT LIGHTS IN UNIT MOUNTED ENCLOSURE. ENCLOSURE TO BE CAPABLE OF BEING REMOVED FOR REMOTE MOUNTING TO ENSURE VISIBILITY AFTER SYSTEM INSTALLATION.

13. PROVIDE COMBINATION FIRE/SMOKE DAMPERS AT ALL FIRE/SMOKE RATED SHAFT AND WALL LOCATIONS. EACH COMBINATION FIRE SMOKE DAMPER SHALL HAVE FABRICATED AIRFOIL BLADES MEETING REQUIREMENTS OF UL STANDARD 555 & 555S AND HAVE AN 1-1/2 HOUR RATING. BASIS OF DESIGN SHALL BE GREENHECK MODEL FSD 200 SERIES. DAMPERS SHALL BE EQUIPPED STANDARD WITH AN ELECTRIC HEAT-RESPONSIVE DEVICE THAT PERFORMS THE SAME FUNCTION AS A FUSIBLE LINK TO CLOSE DAMPER AT 350 °F. **PROVIDE POSITION INDICATING SWITCHES TO MEET REQUIREMENTS OF SMOKE PURGE CONTROL AND/OR BUILDING MANAGEMENT SYSTEM CONTROLS. THE DAMPER OPERATION AND CONSTRUCTION SHALL MEET UL REQUIREMENTS.**

14. **PROVIDE CURBS FOR ALL ROOF OPENINGS FOR DUCTS, FLUES, PIPING AND EQUIPMENT. CURBS SHALL BE FURNISHED AS ACCESSORIES TO THE EQUIPMENT OR 8" HIGH PATE OR EQUAL EQUIPMENT SUPPORTS SPANNING STRUCTURE AND FLASHED INTO ROOFING. ALL CUTTING, FLASHING, AND PATCHING OF ROOF SHALL BE BY OWNER'S ROOFING CONTRACTOR AND PAID FOR BY MECHANICAL CONTRACTOR.**

15. **PROVIDE BIG FOOT H FRAME SETS SUPPORT SYSTEM OR SIMILAR FOR ALL ROOFTOP DUCTWORK. SPACING SHALL BE PER SMACNA GUIDELINES.**

HYDRONIC PIPING (232113)

1. PIPE AND FITTINGS -- HYDRONIC PIPING 2" AND SMALLER SHALL BE TYPE "L" HARD COPPER TUBING ASTM B 88-832 WITH SWEATED JOINTS

ASTM B 16.22 USING 95_5 OR ANTIMONY SOLDER OR "PRESS-FIT" MECHANICAL JOINTING. FITTINGS SHALL BE CAST BRASS OR WROUGHT COPPER. PROVIDE SCREWED UNIONS AT FINAL CONNECTIONS TO EQUIPMENT TO ALLOW DISCONNECTION FOR REPAIR OR SERVICING.

2. PIPING 2 -1/2" AND LARGER SHALL BE SCHEDULE 40, WELDED BLACK STEEL (ASTM A53) WITH BLACK WROUGHT STEEL, BUTT WELDING TYPE (ASTM B 16.9) FITTINGS, OR SCHEDULE 40, GROOVED BLACK STEEL (ASTM A53) WITH GROOVED FITTINGS SIMILAR TO VICTAULIC OR APPROVED EQUAL MAY BE USED.

3. BALL VALVES --- UP TO 2": BRONZE TWO PIECE BODY, STAINLESS STEEL BALL, TEFLON SEATS AND BLOW-OUT PROOF STUFFING BOX RING, LEVER HANDLE, AND BALANCING STOPS, UNION SOLDER ENDS. ACCEPTABLE MANUFACTURERS: CONBRACO (APOLLO), WATTS, INC., CRANE, INC., OR STOCKHAM, INC.

4. BUTTERFLY VALVES -- BUTTERFLY VALVES SHALL BE DEZURIK 680 OR EQUAL WITH SEMI_STEEL LUG STYLE BODY, BRONZE DISC, 416 STAINLESS STEEL SHAFT, BRONZE BEARINGS, "NORDEL" RUBBER SEAT, LEVER HANDLE OPERATORS AND SHALL BE RATED AT 175 POUNDS CWP. VALVES SHALL PROVIDE DEAD TIGHT SHUTOFF CAPABILITY IN EITHER DIRECTION UP TO 150 PSI WHEN THE DOWNSTREAM FLANGES ARE REMOVED.

5. VENT AND DRAIN VALVES -- ALL WATER PIPING SYSTEMS SHALL BE INSTALLED IN SUCH A MANNER THAT THEY CAN BE COMPLETELY VENTED AND DRAINED. UNLESS OTHERWISE NOTED, PROVIDE AT ALL HIGH POINTS WHERE AIR CAN COLLECT 1/4" BRASS COMPRESSION VENT COCKS, AND AT ALL LOW POINTS ½" BALL VALVES WITH HOSE BIB ENDS AND CAPS.

6. PRESSURE/TEMPERATURE PLUGS -- PROVIDE SISCO OR PETERSON 1/4_INCH NPT FITTING OF SOLID BRASS, FOR 1/8" O.D. PROBE. VALVE CORE SHALL BE NEOPRENE FOR TEMPERATURE TO 200 F, AND RATED FOR ZERO LEAKAGE FROM VACUUM TO 1,000 PSIG. PROVIDE TEST KIT CONSISTING OF TWO PRESSURE GAGES WITH PROBES AND 2 DIAL THERMOMETERS WITH CARRYING CASE.

7. STRAINERS – Y-PATTERN, BODY: ASTM A 126, CLASS B CAST IRON, WITH BOLTED OR SCREWED COVER AND BOTTOM DRAIN CONNECTION. END CONNECTIONS: THREADED ENDS FOR STRAINERS NPS 2 AND SMALLER; FLANGED ENDS FOR STRAINERS NPS 2-1/2 AND LARGER. STRAINER SCREEN: STAINLESS-STEEL, 20-MESH STRAINER, OR PERFORATED STAINLESS-STEEL BASKET. WITH TAPPED BLOWOFF PLUG. RATING: 150-PSIG WORKING PRESSURE.

8. BALANCING VALVES – PROVIDE BELL & GOSSETT "CIRCUIT SETTER PLUS" BALANCING VALVES WHERE SHOWN IN PIPING DETAILS ON THE DRAWINGS. VALVES SHALL BE OF BRONZE BODY/BRASS BALL CONSTRUCTION (½" TO 3" SIZES) WITH GLASS AND CARBON FILLED TFE SEAT RINGS. VALVES SHALL HAVE DIFFERENTIAL PRESSURE READOUT PORTS, MEMORY STOP, CALIBRATED NAMEPLATE AND DRAIN PORT. EACH VALVE SHALL HAVE POSITIVE SHUTOFF AND SHALL BE CONSTRUCTED FOR 125 PSIG WORKING PRESSURE AT 250 DEGREES. PROVIDE TWO "CIRCUIT SETTER" CALCULATORS FOR THE OWNER'S USE.

9. AUTOMATIC BALANCING VALVES -- PROVIDE HAYS FLUID CONTROLS "MEASURFLO" AUTOMATIC BALANCING VALVES, OR APPROVED EQUAL, WHERE SHOWN IN PIPING DETAILS ON DRAWINGS. VALVES SHALL HAVE BRASS BODIES AND CHANGEABLE FLOW CARTRIDGES.

10. PROVIDE VALVES AND UNIONS WHERE NEEDED TO PERMIT DISCONNECTIONS OF EACH PIECE OF EQUIPMENT FOR REPAIRS. MAKE CONNECTIONS TO EQUIPMENT WITH SHUT-OFF VALVES ON SUPPLY AND BALANCE VALVES ON RETURNS. INSTALL UNIONS IN PIPES 2" AND SMALLER, ADJACENT TO EACH VALVE, AT FINAL CONNECTIONS EACH PIECE OF EQUIPMENT, AND ELSEWHERE AS INDICATED. UNIONS ARE NOT REQUIRED ON FLANGED DEVICES.

11. CONNECTIONS BETWEEN DISSIMILAR PIPING MATERIALS SHALL BE MADE WITH SUITABLE DIELECTRIC INSULATING UNIONS. ISOLATE COPPER PIPING FROM DISSIMILAR METALS, SUCH AS METAL STUDS AND VENT PIPING.

12. PROVIDE CONDENSATE DRAIN FOOR ALL COOLING COILS. ALL CONDENSATE DRAINS SHALL BE TRAPPED PER THE COOLING COIL TRAP DETAIL OR MANUFACTURERS RECOMMENDATIONS, WHICH EVER IS MORE STRINGENT/DEEPER. PROVIDE CLEANOUT.

13. CONDENSATE DRAIN PIPING IN RETURN AIR RATED PLENUMS SHALL BE TYPE L COPPER WITH 1/2" FIBERGLASS INSULATION (MIN. R-VALUE = 3). SCHEDULE 40 PVC WITHOUT INSULATION MAY BE USED IN ALL OTHER LOCATIONS.

14. WHERE DAMAGE TO ANY BUILDING COMPONENT COULD OCCUR AS A RESULT OF OVERFLOW OR STOPPAGE OF THE PRIMARY CONDENSATE DRAIN SYSTEM, PROVIDE UL 508 WATER-LEVEL DETECTION DEVICE IN THE PRIMARY DRAIN PAN. OVERFLOW OUTLET OR IN A SECONDARY DRAIN PAN PER IMC REQUIREMENTS. COOLING SYSTEM SHALL DISABLE UPON DETECTION OF WATER AND GENERATE A BAS ALARM(IF APPLICABLE).

REFRIGERANT PIPING (232300)

1. INSTALL REFRIGERANT PIPING BETWEEN CONDENSING UNIT AND DX COIL. PIPING SHALL BE REFRIGERANT GRADE TYPE "L" OR ACR COPPER WITH BRAZED JOINTS. PIPE PER MANUFACTURER'S PIPING DIAGRAMS AND RECOMMENDATIONS.

2. ISOLATE PIPING FROM STRUCTURE WITH ONE (1) INCH INSULATION BETWEEN ALL PIPING AND SUPPORT POINTS.

3. AFTER COMPLETION, PRESSURE TEST PIPING, PURGE AND EVACUATE SYSTEM TWICE AND CHARGE SYSTEM WITH REFRIGERANT AND OIL.

4. INSTALL PIPING IN AS SHORT AND DIRECT ARRANGEMENT AS POSSIBLE TO MINIMIZE PRESSURE DROP. PROVIDE OIL TRAP AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.

5. INSTALL UNIONS TO ALLOW REMOVAL OF SOLENOID VALVES, PRESSURE REDUCING VALVES, EXPANSION VALVES, AND AT CONNECTIONS TO COMPRESSORS AND EVAPORATORS.

6. FILL THE PIPE AND FITTINGS DURING BRAZING, WITH NITROGEN TO PREVENT FORMATION OF SCALE.

DUCTWORK & PIPE INSULATION (230713, 230719)

1. INSULATE ALL ACCESSIBLE CONCEALED SUPPLY DUCTS WITH 1-1/2" THICK FOIL FACED REINFORCED KRAFT JACKET, FIBERGLASS DUCT WRAP FULLY SECURED TO DUCT. LAP AND TAPE SEAMS AND SECURE TIGHTLY TO THE DUCTS WITH WIRE OR STICK PINS. 2" THICK RIGID FIBERGLASS BOARD INSULATION SHALL BE USED FOR ALL INDOOR EXPOSED APPLICATIONS. INSULATION SHALL HAVE A MINIMUM R-VALUE OF 6.

2. ALL DUCTWORK INSTALLED OUTSIDE OF THE BUILDING ENVELOPE SHALL BE INSULATED WITH 2" THICK FIBERGLASS BOARD INSULATION HAVING A MINIMUM R-VALUE OF 8.

3. DO NOT INSULATE:
   3.1. MAKE-UP AIR DUCTWORK OPERATING AT SURROUNDING AMBIENT CONDITIONS.
   3.2. RETURN AND EXHAUST AIR DUCTWORK LOCATED WITHIN THE BUILDING ENVELOPE. (DOES NOT INCLUDE BUILDING SHAFTS.)
   3.3. TRANSFER AIR DUCTWORK (ACOUSTICALLY LINE DUCT, CLEAR INSIDE DIMENSIONS SHOWN ON PLANS)
   3.4. EXPOSED SUPPLY DUCTWORK LOCATED IN CONDITIONED SPACE. (DOES NOT INCLUDE RETURN AIR PLENUM.)

4. INTERNAL DUCT INSULATION -- DUCTWORK INDICATED TO HAVE INTERNAL NON-FIBEROUS INSULATION SHALL BE INTERNALLY COVERED WITH 1" THICK FLEXIBLE HYPOALLERGENIC POLYESTER FIBER INSULATION WITH FSK FACING. FOR DUCTWORK LOCATED OUTDOORS USE 3" THICK INTERNAL POLYESTER INSULATION. INSULATION SHALL HAVE AN "R" RATING OF 5 FOR 1" THICK INSULATION, R-8 FOR 2" THICK INSULATION, AND R-12 FOR 3" THICK INSULATION. INSULATION SHALL HAVE FLAME/SMOKE RATING OF 2.5/21. ONE INCH THICK INSULATION TO HAVE NRC COEFFICIENT OF 0.65. INSULATION SHALL WITHSTAND DUCT VELOCITIES OF 4000 FPM. DUCT SIZES SHOWN IS CLEAR INSIDE. WHERE LINER IS USED INCREASE OUTSIDE DIMENSIONS OF SHEET METAL TO MAINTAIN INSIDE DUCT AREA. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

5. HYDRONIC PIPING TO BE INSULATED SHALL BE COVERED WITH 1-1/2" THICKNESS 4 POUND DENSITY (MAXIMUM CONDUCTIVITY = 0.27 BTU/HR FT□ °F□) SECTIONAL GLASS FIBER PIPE INSULATION HAVING FACTORY APPLIED WHITE "ALL SERVICE" JACKET. PIPING LOCATED OUTDOORS SHALL BE INSULATED WITH 2" THICK INSULATION. LONGITUDINAL FLAPS SHALL BE SELF-SEALING TYPE ADDITIONALLY SECURED WITH NONFERROUS FLARE DOOR STAPLES SPACED 6" ON CENTERS. END JOINTS SHALL BE CLOSED WITH 4" WIDE SELF-SEALING TAPE STAPLED IN PLACE. ALL FITTINGS TO BE FINISHED WITH PRE_MOLDED ONE-PIECE ZESTON TYPE PVC COVERS WITH FIBERGLASS INSULATION INSIDE. SEAL ALL VISIBLE RAW FIBERGLASS WITH BENJAMIN FOSTER #30/06 WHITE MASTIC.

6. INSULATE REFRIGERANT PIPING LINES WITH 1-1/2" THICK CLOSED CELL ELASTOMERIC FOAM INSULATION WITH SELF-SEALING SEAM. ARMACELL - AP ARMAFLEX SS INSULATION. PAINT CLOSED CELL INSULATION OUTDOORS WITH TWO COATS OF UV RESISTANT PAINT PER MANUFACTURER'S RECOMMENDATIONS. USE PRE-MOLDED COVERS OVER FITTINGS, VALVES, ELBOWS AND CONTROL DEVICES SEALED VAPOR TIGHT.

7. INSULATION SHALL BE OMITTED FROM HOT SYSTEM VALVE BODIES STRAINERS AND UNIONS. SYSTEMS OPERATING BELOW AMBIENT TEMPERATURE SHALL HAVE ALL VALVE BODIES AND PIPING SPECIALTIES FULLY INSULATED. ALL GLYCOL AND CITY WATER PIPING SHALL BE COVERED SAME AS HOT WATER PIPING. ALL VALVE BODIES, STRAINERS, UNIONS, PUMP CASING, WATER SEPARATORS, ETC. IN COLD PIPING SHALL BE COVERED SAME AS PIPING SYSTEM. PIPE HANGERS ON INSULATED PIPE SHALL BE OUTSIDE OF THE INSULATION, SIZED ACCORDINGLY AND WITH SADDLE INSERT SUFFICIENT TO PROTECT INSULATION FROM CRUSHING.

8. ALL INSULATION TO BE APPLIED IN FULL ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL INSULATION SHALL COMPLY WITH 25/50 FLAME AND SMOKE HAZARD RATINGS PER ASTM E-84, NFPA 255 AND UL 723.

9. PROVIDE REMOVABLE INSULATION SECTIONS TO COVER PARTS OF EQUIPMENT WHICH MUST BE OPENED PERIODICALLY FOR MAINTENANCE; INCLUDE METAL VESSEL COVERS, FASTENERS, FLANGES, CHILLED WATER PUMPS, FRAMES AND ACCESSORIES.

10. REPLACE DAMAGED INSULATION WHICH CANNOT BE REPAIRED SATISFACTORILY, INCLUDING UNITS WITH VAPOR BARRIER DAMAGE AND MOISTURE SATURATED UNITS.

EQUIPMENT (235000)

1. MAKE ALL FINAL EQUIPMENT CONNECTIONS AND PROVIDE THE NECESSARY ADAPTORS, FITTINGS, VALVES, DEVICES, ETC. FOR A COMPLETE AND OPERABLE SYSTEM. PROVIDE COMPLETE WITH BASES, ISOLATORS, SUPPORTS AND OTHER REQUIRED ACCESSORIES.

2. EQUIPMENT SHALL BE INSTALLED IN FULL ACCORDANCE WITH THE MANUFACTURER'S DATA AND INSTALLATION INSTRUCTIONS, INCLUDING CLEARANCES; LUBRICATE AND ADJUST AS REQUIRED. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO CHECK AND CONFORM TO THESE REQUIREMENTS PRIOR TO STARTING WORK. FURNISH AND INSTALL CLEAN SET OF FILTERS PRIOR TO BALANCING.

3. THE CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS OF ALL MECHANICAL EQUIPMENT PRIOR TO ORDERING OF EQUIPMENT. COORDINATE REQUIREMENT FOR PROVISION OF MOTOR STARTERS, DISCONNECTS, CONTACTORS, CONTROL WIRING, ETC. AS REQUIRED FOR PROPER FUNCTIONING SYSTEM WITH ELECTRICAL CONTRACTOR. NO ADDITIONAL PAYMENT WILL BE MADE FOR LACK OF CONTRACTOR COORDINATION OF ELECTRICAL CHARACTERISTICS.

4. ALL FLOOR MOUNTED EQUIPMENT SHALL BE INSTALLED ON CONCRETE HOUSEKEEPING PADS. MINIMUM PAD THICKNESS SHALL BE NOMINAL 4". PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 4" ON EACH SIDE. CONCRETE PADS SHALL BE PROVIDED BY THIS CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE THIS CONTRACTOR TO COORDINATE THE SIZE AND LOCATION OF THE CONCRETE HOUSEKEEPING PADS WITH THE GENERAL CONTRACTOR.

5. ALL EQUIPMENT SHALL BE MOUNTED ON VIBRATION ISOLATORS TO PREVENT THE TRANSMISSION OF VIBRATION AND MECHANICALLY TRANSMITTED SOUND TO THE BUILDING STRUCTURE.

6. ISOLATION EQUIPMENT SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER, AND SHALL BE DESIGNED SPECIFICALLY FOR THE APPLICATION REQUIRED. THIS INCLUDES, BUT IS NOT LIMITED TO, PIPING DUCTWORK, PUMPS, COMPRESSORS. VIBRATION ISOLATORS SHALL BE RATED FOR THE WEIGHT AND SPACING REQUIRED FOR THE EQUIPMENT REQUIRING ISOLATION.

7. PROVIDE CURBS FOR ALL ROOF OPENINGS FOR DUCTS, FLUES, PIPING AND EQUIPMENT. CURBS SHALL BE FURNISHED AS ACCESSORIES TO THE EQUIPMENT OR 8" HIGH PATE OR EQUAL EQUIPMENT SUPPORTS SPANNING STRUCTURE AND FLASHED INTO ROOFING. ALL CUTTING, FLASHING, AND PATCHING OF ROOF SHALL BE BY OWNER'S ROOFING CONTRACTOR AND PAID FOR BY MECHANICAL CONTRACTOR.

CONTROLS (230910)

1. EXISTING CONTROL SYSTEM HAS BEEN INSTALLED (CARRIER I-VUE) AND CONSISTS OF THE FOLLOWING ESSENTIAL DEVICES;
   1.1. FLOOR BY FLOOR COMMUNICATION LOOPS, INCLUDING BACNET ROUTERS, TERMINAL DEVICE CONTROLLERS, NETWORK CONTROL WIRING.
   1.2. ROOF LEVEL COMMUNICATION LOOP, INCLUDING BACNET ROUTER, UNIT CONTROLLERS (FOR PACKAGED RTU'S) NETWORK CONTROL WIRING.
   1.3. CENTRAL HYDRONIC SYSTEM CONTROL, INCLUDING HEATING CONTROLLERS, SENSORS, BOILER AND PUMP CONTROLS, AND NETWORK WIRING.
   1.4. BUILDING STATIC PRESSURE CONTROL.

2. EXISTING BASE BUILDING SYSTEM SEQUENCE OF OPERATIONS (FOR REFERENCE)
   2.1. HYDRONIC HEATING SYSTEM (EXISTING BOILERS & PUMPING)
      2.1.1. THE BOILERS ARE SET UP TO RUN AS LEAD/LAG WITH BOILER B-1 BEING THE LEAD BOILER. ROTATION TO THE LAG BOILER WILL ONLY OCCUR IF THE LEAD BOILER IS BEING SERVICED OR IF THERE IS A CRITICAL FAILURE TO B-1 RESULTING IN A LOSS OF HEAT PRODUCTION. THE BAS WILL ENABLE THE LEAD BOILER ONCE THE OUTSIDE AIR TEMPERATURE FALLS BELOW 60°F AND STATUS IS PROVEN FROM EITHER HOT WATER HEATING PUMP. ONCE ENABLED THE ONBOARD CONTROLS OF THE BOILER WILL ENABLE ITS ASSOCIATED PUMP. CONTROL OF THE PUMP IS FROM THE THE BOILER ON BOARD CONTROLLER. THE BAS MONITORS THE STATUS, SPEED, AND ALARM CONTACTS OF THE PUMP. ONCE ALL SAFETY CRITERIA ARE SATISFIED, THE BOILER WILL FIRE. THE ONBOARD CONROLLER AND ALERT VIA EMAIL SHOULD A CONDITION ARISE THAT RESULTS IN A LOSS OF HEAT PRODUCTION. IN THE EVENT THAT THE LAG BOILERS NEEDS TO BECOME THE LEAD BOILER, BOILER B-1 WILL ENABLE THE SECOND BOILER AS THE LEAD UNTIL THE RESULT FAILURE CONDITIONS IS RESOLVED. ONCE ENABLED THE ONBOARD CONTROLS OF THE BOILER WILL ENALBED ITS ASSOCIATED BOILER PUMP. AFTER ALL SAFETY CRITERIA ARE SATISFIED, THE BOILER WILL FIRE. ONCE THE SECOND BOILER IS ESTABLISHED AS THE LEAD BOILER, THE HOT WATER RESET WILL BE DISABLED AND THE SECOND BOILER WILL MAINTAIN A HOT WATER TEMPERATURE OF 160°F. A THERMOSTATIC 3-WAY VALVE WILL MAINTAIN 140°F WATER SET POINT AT THE BOILER INLET.
      2.1.2. THE PUMPS OPERATE IN A LEAD/LAG CONFIGURATION WITH ONE PUMP CONTINUOUSLY ENABLED. THE BAS ENABLES A PUMP ONCE THE OUTSIDE AIR TEMPERATURE FALLS BELOW 60°F. ONCE ENABLED, THE LEAD PUMP REMAINS IN THE LEAD POSITION UNTIL 760 HOURS OF ACCUMULATED RUN TIME OR FAILURE RESULTING IN LOSS OF FLOW. THE BAS WILL MONITOR THE RUN TIME AND ALARM CONTACT OF EACH PUMP AND WILL ROTATE THE PUMPS FROM LEAD TO LAG. SPEED CONTROL OF THE PUMPS IS BY THE BAS. THE BAS MONITORS THE DIFFERENTIAL PRESSURE ACROSS THE SUPPLY AND RETURN PIPING FROM THE HOT WATER LOOP AND MODULATES THE SPEED OF THE PUMPS TO MAINTAIN A DIFFERENTIAL PRESSURE SET POINT.
   2.2. EXISTING PACKAGED VARIABLE AIR VOLUME (VAV) ROOFTOP UNITS
      2.2.1. TWO (2) UNITS SERVE THE LOWER LEVEL THRU 4TH FLOOR WHILE THE OTHER TWO (2) UNITS SERVE FLOORS 5 THRU 9. ALL ARE VAV CONTROL TYPE DISCHARGING A CONSTANT AIR TEMPERATURE OF 55°F AS SENSED AT THE FIELD INSTALLED DISCHARGE AIR SENSOR. FACTORY LOGIC WILL ALLOW FOR A DISCHARGE AIR RESET BASED ON OUTSIDE AIR TEMPERATURE. THE BAS ENABLES THE UNIT MATCHING THE OCCUPANCY OF THE BUILDING. ONCE ENABLED, THE SUPPLY FANS AND RETURN FANS WILL RUN CONTINUOUSLY. CONTROL OF THE SUPPLY FAN SPEED IS BASED ON STATIC PRESSURE CONTROL. STATIC PRESSURE IS SAMPLED AT THE SUPPLY DUCT AT EACH FLOOR. THE STATIC PRESSURE SETPOINT HAS BEEN ESTABLISHED BY THE BASE BUILDING TAB CONTRACTOR DURING BALANCING. CONTROL OF THE RETURN FANS IS ALSO BASED ON BUILDING PRESSURE. BUILDING PRESSURE IS SENSED ON THE 1ST FLOOR FOR THE UNITS WHICH SERVE THAT AREA AND ON THE 9TH FLOOR FOR UNITS THAT SERVE THOSE AREAS. THE UNIT FOLLOWS THE FACTORY CONTROL SEQUENCE AT THIS POINT. ALL UNITS ARE CAPABLE OF GAS HEATING, DX COOLING, FREE COOLING W/ ENTHALPY CONTROLS, AND SUPPLY AIR RESET BASED ON OUTSIDE AIR TEMPERATURE. DUCT SMOKE DETECTOR (INSTALLED IN THE SUPPLY AND RETURN DUCTWORK) MONITOR FOR SMOKE IN THE DUCT. SHOULD A SMOKE EVENT OCCUR ALL FUNCTIONS OF THE UNITS WILL BE DISABLED EITHER DIRECTORY OR INDIRECTLY BY COMMAND FROM THE FIRE ALARM PANEL.

3. PROVIDE COMPLETE TEMPERATURE CONTROLS FOR ALL HVAC SYSTEMS. PROVIDE NEW CONTROL DEVICES INCLUDING DAMPER OPERATORS, TEMPERATURE SENSORS, STAGING RELAYS AND OTHER REQUIRED DEVICES TO PROVIDE A COMPLETE OPERATIONAL SYSTEM PER THE FOLLOWING OPERATING SEQUENCE. MOUNT ALL CONTROLS FURNISHED AS ACCESSORIES TO EQUIPMENT AND PROVIDE ALL CONTROL WIRING REQUIRED FOR PROPER OPERATION WHERE NOT SPECIFICALLY SHOWN ON ELECTRICAL PLANS. ALL WIRING SHALL BE IN CONDUIT OR PER N.E.C. AND LOCAL CODE REQUIREMENTS. STANDARD MOUNTING HEIGHT TO TOP OF THERMOSTAT IS 48" ABOVE FINISHED FLOOR OR AS INDICATED ON THE ARCHITECTURAL DRAWINGS. DO NOT INSTALL THERMOSTATS NEAR DIMMER SWITCHES. WIRING OF ALL MOTORIZED OPERATORS AND THERMOSTATS (REGARDLESS OF VOLTAGE) ARE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

4. THE CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE, WEB-BASED, NATIVE BACNET-INTEGRATED BUILDING AUTOMATION SYSTEM (BAS) INCLUDING ALL NECESSARY HARDWARE, ALL OPERATING AND APPLICATIONS SOFTWARE NECESSARY TO PERFORM THE HVAC CONTROL SEQUENCES OF OPERATION AS CALLED FOR IN THIS SPECIFICATION OR AS SHOWN ON THE DRAWINGS. BAS CONTRACTOR SHALL FURNISH AND INSTALL ALL RELATED SOFTWARE AND HVAC-DDC CONTROLS AS SPECIFIED WITHIN THIS SPECIFICATION. IT SHALL BE THE RESPONSIBILITY OF THE BAS CONTRACTOR TO COORDINATE THIS WORK WITH THE GENERAL CONTRACTOR, MECHANICAL CONTRACTOR, AND THE ELECTRICAL CONTRACTOR AS IT RELATES TO THE INSTALLATION AND WIRING OF ALL RELATED HVAC SYSTEMS.

5. IT SHALL BE THE RESPONSIBILITY OF THE BAS CONTRACTOR TO PROVIDE ALL THE REQUIRED LABOR AND PROGRAMMING TO SEAMLESSLY INTEGRATE THE NEW BAS BACNET SYSTEM AND ITS DDC POINTS, GRAPHICS, ALARMS, ETC. INTO AN EXISTING BAS IF PRESENT.

6. THE CONTROLS CONTRACTOR SHALL WARRANT THE SYSTEM FOR 24 MONTHS AFTER SUBSTANTIAL COMPLETION. DURING THE WARRANTY PERIOD, THE BUILDING SYSTEM CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY REVISIONS TO THE SOFTWARE AS REQUIRED TO PROVIDE A COMPLETE AND WORKABLE SYSTEM CONSISTENT WITH THE LETTER AND INTENT OF THE SEQUENCE OF OPERATION SECTION OF THE SPECIFICATION.

7. SYSTEM SHALL BE FULLY INTEGRATED AND COORDINATED WITH MECHANICAL EQUIPMENT DDC CONTROLLERS FURNISHED AND INSTALLED IN THE EQUIPMENT MANUFACTURER'S FACTORY. THE INTENT OF THE BUILDING AUTOMATION SYSTEM IS TO INTEGRATE ALL EXISTING MECHANICAL EQUIPMENT INTO ONE SYSTEM FOR GLOBAL MONITORING, CONTROL, AND ALARMING ASSOCIATED WITH THE BUILDING. IT IS THE BAS MANUFACTURER'S RESPONSIBILITY TO PROVIDE ALL THE DESIGN, ENGINEERING, AND FIELD COORDINATION REQUIRED TO ENSURE ALL EQUIPMENT SEQUENCE OF OPERATIONS ARE MET AS SPECIFIED AND THE DESIGNATED BAS OPERATORS HAVE THE CAPABILITY OF MANAGING THE BUILDING MECHANICAL SYSTEM TO ENSURE OCCUPANT COMFORT WHILE MAINTAINING ENERGY EFFICIENCY.

8. BUILDING AUTOMATION SYSTEM SHALL INTEGRATE WITH EXISTING CORE AND SHELL CONTROL SYSTEM. INDEPENDENT REPRESENTATIVES OF BAS MANUFACTURERS ARE NOT ACCEPTABLE. BAS VENDOR MUST BE CORPORATE OWNED ENTITY OF BAS MANUFACTURER. THE BAS MANUFACTURER SHALL HAVE FACTORY TRAINED AND CERTIFIED PERSONNEL PROVIDING ALL ENGINEERING, SERVICE, START-UP, AND COMMISSIONING FIELD LABOR FOR THE PROJECT FROM THEIR LOCAL OFFICE LOCATION. BAS MANUFACTURER SHALL BE ABLE TO PROVIDE TRAINING CERTIFICATIONS FOR ALL LOCAL OFFICE PERSONNEL UPON REQUEST.

9. THE FOLLOWING ARE THE APPROVED BAS MANUFACTURERS:

- TRANE
- CARRIER I-VUE (BASE BUILDING INSTALL)
- JCI PITTSBURGH BRANCH OFFICE
- SIEMENS PITTSBURGH

2. CONTROL SEQUENCE SHALL BE AS FOLLOWS:
   2.1. VARIABLE AIR VOLUME BOXES W/O REHEAT
      2.1.1. A WALL MOUNTED TEMPERATURE SENSOR WILL BE USED BY THE VAV BOX CONTROLLER FOR ITS CONTROL LOGIC POINT.
      2.1.2. THE CONTROLLER WILL STORE BOTH OCCUPIED AND UNOCCUPIED SCHEDULES AND SET POINTS THROUGH LINKAGE CONTROL, THE CONTROLLER WILL MONITOR THE PRIMARY AIR TEMPERATURE TO THE VAV BOX AND MODULATE THE PRIMARY AIR DAMPER FROM ITS MINIMUM CFM SET POINT TO ITS MAXIMUM CFM SET POINT IN ORDER TO MAINTAIN THE SPACE WITHIN THE HEATING AND COOLING SETPOINTS.
      2.1.3. SINCE HEAT IS UNAVAILABLE THE CONTROLLER WILL COMPARE THE PRIMARY AIR TEMPERATURE TO THE SPACE TEMPERATURE AND DETERMINE IF THE THE AIR IS SUITABLE FOR MEETING SPACE DEMANDS.
      2.1.4. IF THE AIR IS NOT SUITABLE, THE PRIMARY AIR DAMPER CFM WILL BE MAINTAINED AT ITS OCCUPIED MINIMUM AIRFLOW SETPOINT.
      2.1.5. PROVIDE WIRELESS THERMOSTATS/CONTROLLERS.
   2.2. VARIABLE AIR VOLUME BOXES W/ REHEAT
      2.2.1. A WALL MOUNTED TEMPERATURE SENSOR WILL BE USED BY THE VAV BOX CONTROLLER FOR ITS CONTROL LOGIC POINT.
      2.2.2. THE CONTROLLER WILL STORE BOTH OCCUPIED AND UNOCCUPIED SCHEDULES AND SET POINTS THROUGH LINKAGE CONTROL, THE CONTROLLER WILL MONITOR THE PRIMARY AIR TEMPERATURE TO THE VAV BOX AND MODULATE THE PRIMARY AIR DAMPER FROM ITS MINIMUM CFM SETPOINT TO ITS MAXIMUM CFM SETPOINT TO SATISFY ITS DEMAND.
      2.2.3. IF HEAT IS REQUIRED AND THE PRIMARY AIR DAMPER IS NOT SUITABLE FOR HEATING, THE CONTROLLER WILL OPERATE ITS NORMALLY CLOSED MODULATING TWO WAY VALVE TO MEET SPACE DEMAND.
      2.2.4. THE CONTROLLER WILL MONITOR THE DISCHARGE AIR TEMPERATURE AFTER THE COIL AND WILL NOT ALLOW THE AIR TO EXCEED THE MAXIMUM HEATING SUPPLY AIR TEMPERATURE SETPOINT OF 95°F.
      2.2.5. DURING HEATING THE CONTROLLER WILL MAINTAIN THE CONFIGURED AUXILIARY HEATING CFM SET POINT.
      2.2.6. PROVIDE WIRELESS THERMOSTATS/CONTROLLERS.
   2.3. VARIABLE AIR VOLUME BOXES W/ REHEAT & THERMAL DIFFUSERS
      2.3.1. A WALL MOUNTED THERMOSTAT WILL BE USED BY EACH MASTER THERMAL DIFFUSER CONTROLLER FOR ITS CONTROL LOGIC POINT.
      2.3.2. THE THERMAL DIFFUSER CONTROLLER WILL STORE BOTH OCCUPIED AND UNOCCUPIED SCHEDULES AND SET POINTS THROUGH LINKAGE CONTROL. THE CONTROLLER WILL MONITOR THE SPACE TEMPERATURE AS MEASURED BY THE WALL MOUNTED THERMOSTAT AND SHALL MODULATE THE DIFFUSER'S INTERNAL DAMPER OPEN AND CLOSED AS NECESSARY TO MEET THE SPACE TEMPERATURE SETPOINT.
      2.3.3. THE VAV CONTROLLER SHALL MODULATE THE VAV BOX AIRFLOW DAMPER VIA A DUCT STATIC PRESSURE SENSOR LOCATED DOWNSTREAM OF THE VAV BOX. THE DAMPER SHALL MODULATE VIA THE CONTROLLER TO MAINTAIN A STATIC PRESSURE OF NO GREATER THAN .25" WC DOWNSTREAM OF THE VAV BOX.
      2.3.4. IF HEAT IS REQUIRED AND THE PRIMARY AIR TEMPERATURE IS NOT SUITABLE FOR HEATING, THE VAV CONTROLLER SHALL COMMUNICATE WITH THE THERMAL DIFFUSER CONTROLLER AND WILL OPERATE ITS NORMALLY CLOSED MODULATING TWO WAY VALVE TO MEET SPACE DEMAND.
      2.3.5. THE VAV CONTROLLER WILL MONITOR THE DISCHARGE AIR TEMPERATURE AFTER THE COIL AND WILL NOT ALLOW THE AIR TO EXCEED THE MAXIMUM HEATING SUPPLY AIR TEMPERATURE SETPOINT OF 95°F.
      2.3.6. DURING HEATING THE VAV CONTROLLER WILL MAINTAIN THE CONFIGURED AUXILIARY HEATING CFM SET POINT.
   2.4. FAN POWERED VAV BOXES WITH REHEAT
      2.4.1. A WALL MOUNTED TEMPERATURE SENSOR WILL BE USED BY THE CARRIER CONTROLLER FOR ITS CONTROL LOGIC POINT.
      2.4.2. THE CONTROLLER WILL STORE BOTH OCCUPIED AND UNOCCUPIED SCHEDULES AND SET POINTS THROUGH LINKAGE CONTROL, THE CONTROLLER WILL MONITOR THE PRIMARY AIR TEMPERATURE TO THE FP/AV BOX AND MODULATE THE PRIMARY AIR DAMPER FORM ITS MINIMUM CFM SET POINT TO ITS MAXIMUM CFM SET POINT IN ORDER TO MAINTAIN THE SPACE WITHIN THE HEATING AND COOLING SETPOINTS.
      2.4.3. IF COOLING IS REQUIRED AND THE PRIMARY AIR IS SUITABLE FOR COOLING, THE CONTROLLER WILL MODULATE ITS DAMPER FROM ITS MINIMUM CFM SETPOINT TO ITS MAXIMUM CFM SETPOINT TO SATISFY THE DEMAND.
      2.4.4. IF HEAT IS REQUIRED AND THE PRIMARY AIR IS NOT SUITABLE FOR HEATING, TEH CONTROLLER WILL ENERGIZE THE FAN FOR A CONFIGURABLE LENGTH OF TIME IN ORDER TO UTILIZE THE PLENUM AIR TO SATISFY THE HEATING DEMAND.
      2.4.5. IF THE DEMAND IS STILL PRESENT, THE CONTROLLER WILL MODULATE ITS NORMALLY CLOSED MODULATING TWO WAY VALVE TO MEET SPACE DEMAND.
      2.4.6. THE CONTROLLER WILL MONITOR THE DISCHARGE AIR TEMPERATURE AFTER THE COIL AND WILL NOT ALLOW THE AIR TO EXCEED THE MAXIMUM SUPPLY AIR SETPOINT OF 95°F. DURING HEATING SEASON, THE CONTROLLER WILL MAINTAIN THE CONFIGURED AUXILIARY HEATING CFM SETPOINT.
      2.4.7. PROVIDE WIRELESS THERMOSTATS/CONTROLLERS.
   2.5. DUCTLESS SPLIT SYSTEM
      2.5.1. A WALL MOUNTED SENSOR WILL BE USED AS THE CONTROL POINT FOR THE SYSTEM. THE UNIT WILL BE COOLING ONLY AND WILL MAINTAIN THE SPACE AT 70°F (ADJ.) AT THE WALL SENSOR.

HANGERS AND SUPPORTS (230529)

1. SUPPORT ALL PIPING FROM STRUCTURE WITH UL LISTED HANGERS AND SUPPORTS SUITABLE FOR THE INTENDED INSTALLATION. DESIGN, SELECTION, SPACING, AND APPLICATION OF HANGERS AND SUPPORTS SHALL COMPLY WITH ANSI B 31.1 AND MSS SP-69. HANGERS SHALL BE MANUFACTURED BY PENTAIR., OR APPROVED EQUAL. BLACK OR GALVANIZED STEEL PIPE = MODEL NO. 100, CAST IRON

PIPE WALL SEALS (230517)

1. WALL PIPE SEALS WITH RUBBER LINKS SHALL BE THUNDERLINE LINK SEAL, OR APPROVED EQUAL. WALL PIPE SEALS WITH INORGANIC MATERIAL LINKS THE PENETRATIONS OF FIRE RATED WALLS SHALL BE THUNDERLINE PYRO-PAC, OR APPROVED EQUAL.

2. SEALS SHALL BE MODULAR MECHANICAL TYPE CONSISTING OF INTERLOCKING SYNTHETIC RUBBER OR INORGANIC MATERIAL LINKS SHAPED TO CONTINUOUSLY FILL THE ANNULAR SPACE BETWEEN THE PIPE AND WALL OPENING. LINKS SHALL BE LOOSELY ASSEMBLED WITH BOLTS TO FORM A CONTINUOUS BELT AROUND THE PIPE. A PRESSURE PLATE SHALL BE PROVIDED UNDER THE BOLT HEAD AND NUT OF EACH LINK. SEALS SHALL BE CONSTRUCTED TO PROVIDE ELECTRICAL INSULATION BETWEEN THE PIPE AND SLEEVE, THUS REDUCING CHANCES OF CATHODIC REACTION BETWEEN THESE TWO MEMBERS.

3. AFTER THE SEAL ASSEMBLY IS POSITIONED IN THE SLEEVE, THE TIGHTENING OF THE BOLTS SHALL CAUSE THE SEALING ELEMENTS TO EXPAND AND PROVIDE AN ABSOLUTELY WATER-TIGHT SEAL BETWEEN THE PIPE AND SLEEVE.

4. SLEEVES SHALL BE MANUFACTURED FROM HEAVY-WALL, WELDED OR SEAMLESS STEEL PIPE. A FULL CIRCLE CONTINUOUSLY WELDED WATER STOP PLATE SHALL BE PROVIDED TO ASSURE POSITIVE WATER SEALING OF THE SLEEVE. SLEEVE SHALL BE PROTECTED BY A COATING OF ENRICHED RED PRIMER.

IDENTIFICATION (230593)

1. CONTRACTOR SHALL PROVIDE IDENTIFICATION LABELS, TAGS, ETC. AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.THE IDENTIFICATION SHALL BE IN ACCORDANCE WITH ANSI STANDARD A13.1. PRESSURE SENSITIVE MARKERS SHALL BE MANUFACTURED BY THE BRADY CO., OR APPROVED EQUAL. MARKERS SHALL BE MANUFACTURER'S STANDARD PRODUCT. PRESSURE SENSITIVE PIPE MARKERS SHALL BE MANUFACTURED BY THE BRADY CO., OR APPROVED EQUAL. PIPE MARKERS SHALL BE MANUFACTURER'S STANDARD PRODUCT.

MOTOR CONTROLLERS (230513)

1. UNLESS OTHERWISE INDICATED, EVERY MOTOR NOT SPECIFIED TO BE PROVIDED WITH A CONTROLLER AT THE FACTORY SHALL BE PROVIDED WITH A CONTROLLER AS SPECIFIED HEREIN. CONTROLLERS SHALL BE FURNISHED BY THIS CONTRACTOR. INSTALLATION OF ALL CONTROLLERS SHALL BE BY THE ELECTRICAL CONTRACTOR.

2. MOTOR CONTROLLERS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF NEMA STANDARD IC-1, INDUSTRIAL CONTROL AND BE HEAVY DUTY CONSTRUCTION. CONTROLLER SIZES SHALL BE VERIFIED TO BE COMPATIBLE WITH HORSEPOWER OF THE MOTOR. CONTROLLERS SHALL BE MANUFACTURED BY ALLEN-BRADLEY CO., GENERAL ELECTRIC, CUTLER-HAMMER OR APPROVED EQUAL.

3. MANUAL MOTOR STARTERS:
   a. SWITCHES SHALL BE TUMBLER-SWITCH STYLE. THE MANUAL MOTOR STARTERS SHALL PROVIDE OVERLOAD PROTECTION WHICH CLOSELY FOLLOWS THE MOTOR LOAD. MANUAL MOTOR STARTERS FOR OUTDOOR USE SHALL BE NEMA TYPE 4X, INDOOR USE SHALL BE NEMA TYPE 1, EXPLOSION PROOF USE SHALL BE NEMA TYPE 7.

4. COMBINATION MOTOR CONTROLLERS:
   a. COMBINATION MOTOR CONTROLLERS SHALL BE PROVIDED WITH MOLDED CASE MOTOR CIRCUIT PROTECTORS OR MOLDED CASE CIRCUIT BREAKERS AS INDICATED. MOTOR CIRCUIT PROTECTIVE DEVICES SHALL HAVE SHORT CIRCUIT CAPACITY AS REQUIRED. UNIT CONTROL CIRCUIT FUSING SHALL BE PROVIDED. THE MOTOR CIRCUIT PROTECTIVE DEVICE SHALL BE MOUNTED IN THE SAME ENCLOSURE AS THE MAGNETIC CONTROLLER AND SHALL BE OPERABLE BY HAND FROM OUTSIDE THE ENCLOSURE. THE HANDLE SHALL BE SO INTERLOCKED WITH THE DOOR THAT IT MUST BE RETURNED TO THE "OFF" POSITION BEFORE THE DOOR CAN BE OPENED, BUT A COIN-PROOF DEFEAT MECHANISM SHALL BE PROVIDED TO ALLOW AUTHORIZED PERSONNEL TO OPEN THE ENCLOSURE DOOR WITHOUT OPENING THE DISCONNECTING DEVICE. PROVISIONS FOR PADLOCKING THE DISCONNECT HANDLE IN THE "OFF" POSITION SHALL BE MADE. THE ENCLOSURE FOR COMBINATION STARTERS SHALL BE NEMA TYPE 1 FOR INDOOR USE AND NEMA TYPE 4X FOR OUTDOOR USE, AND NEMA TYPE 7 FOR EXPLOSION PROOF USE.
   b. MOTOR CIRCUIT PROTECTORS SHALL BE THE CONTINUOUSLY ADJUSTABLE, INSTANTANEOUS MAGNETIC TRIP TYPE CIRCUIT BREAKER AND SHALL BE SO CONSTRUCTED THAT ALL POLES OPEN, CLOSE AND TRIP SIMULTANEOUSLY.

6. OVERLOAD AND SHORT CIRCUIT PROTECTION:
   a. HEATER ELEMENTS SHALL BE PROVIDED FOR OVERLOAD PROTECTION. MOTOR CIRCUIT PROTECTOR SHALL BE PROVIDED FOR MOTOR SHORT CIRCUIT PROTECTION.

DISCONNECT SWITCHES (230514)

1. THIS CONTRACTOR SHALL FURNISH ALL SAFETY DISCONNECT SWITCHES (FUSED AND NON-FUSED) REQUIRED FOR EQUIPMENT FURNISHED UNDER THIS CONTRACT. IN ADDITION, THIS CONTRACTOR SHALL FURNISH A SAFETY DISCONNECT SWITCH FOR ALL MOTORS AND EQUIPMENT WHICH DO NOT HAVE COMBINATION STARTERS OR INTEGRAL DISCONNECTING MEANS. FUSIBLE DISCONNECT SWITCHES SHALL BE PROVIDED FOR ALL EQUIPMENT RATED FOR USE ONLY WITH FUSES (SUCH AS CONDENSING UNITS, COMPRESSORS, ETC.). SUCH SWITCHES SHALL BE ONE, TWO OR THREE POLE TYPE, WITH SOLID NEUTRAL FOR 4 WIRE SERVICE, AND SHALL HAVE THE PROPER CURRENT AND VOLTAGE RATING AS REQUIRED. INSTALLATION OF ALL DISCONNECT SWITCHES SHALL BE BY THE ELECTRICAL CONTRACTOR.

2. ALL SAFETY SWITCHES SHALL BE NEMA HEAVY DUTY TYPE AND SHALL CARRY THE UNDERWRITERS' LABORATORIES LABEL. FUSIBLE SWITCHES SHALL INCORPORATE CLASS "R" FUSE REJECTION FEATURE AND SHALL BE BRACED TO WITHSTAND 200,000 AMPERE RMS SYMMETRICAL FAULT CURRENT. SAFETY SWITCHES SHALL CONFORM TO FEDERAL SPECIFICATION W-S-865.

3. PROVIDE HEAVY-DUTY TYPE, SHEET ENCLOSED, SAFETY SWITCHES. THE TYPE, SIZE, AND RATING SHALL BE AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE MOTOR OR EQUIPMENT SERVED. THE ENCLOSURE FOR DISCONNECT SWITCHES SHALL BE NEMA TYPE 1 FOR INDOOR USE, NEMA TYPE 4X FOR OUTDOOR USE AND NEMA TYPE 7 FOR EXPLOSION PROOF USE. DISCONNECTS SHALL BE MANUFACTURED BY ALLEN-BRADLEY, GENERAL ELECTRIC, CUTLER-HAMMER APPROVED EQUAL.

4. SWITCHES SHALL INCORPORATE QUICK-MAKE, QUICK-BREAK OPERATING HANDLES. THE MECHANISM SHALL BE AN INTEGRAL PART OF THE BOX, NOT THE COVER, AND SWITCHES SHALL HAVE A COVER INTERLOCK TO PREVENT UNAUTHORIZED OPENING OF THE SWITCH DOOR IN THE ON POSITION OR CLOSING OF THE SWITCH MECHANISM WITH THE DOOR OPEN. CURRENT CARRYING PARTS SHALL BE CONSTRUCTED OF HIGH-CONDUCTIVITY COPPER WITH SILVER-TUNGSTEN TYPE SWITCH CONTACT.

5. FUSE CLIPS SHALL BE POSITIVE PRESSURE TYPE REINFORCED FUSE CLIPS.

6. THE ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL AND CONNECT ALL POWER WIRING TO ALL MECHANICAL CONTRACTOR FURNISHED EQUIPMENT. THE MECHANICAL CONTRACTOR SHALL FURNISH, INSTALL AND CONNECT ALL CONTROL WIRING TO ALL FURNISHED EQUIPMENT, INCLUDING CONTROL DEVICES, STARTERS AND INTEGRAL DISCONNECT SWITCHES OF CONTRACTOR FURNISHED EQUIPMENT.

CHECK, TEST, START, ADJUST, BALANCE AND INSTRUCTIONS (230593)

1. AFTER INSTALLATION, CHECK ALL EQUIPMENT, AND PERFORM START UP IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

2. ALL PIPING SHALL BE TESTED AND FREE OF LEAKS.

3. CONCEALED OR INSULATED WORK SHALL REMAIN UNCOVERED UNTIL REQUIRED TESTS HAVE BEEN COMPLETED, BUT IF CONSTRUCTION SCHEDULE REQUIRES IT, ARRANGE FOR PRIOR TESTS ON PARTS OF SYSTEM AS APPROVED BY THE TENANT.

4. BALANCE ALL SYSTEMS, CALIBRATE CONTROLS, CHECK FOR PROPER OPERATION AND SEQUENCE UNDER ALL CONDITIONS AND MAKE ALL NECESSARY ADJUSTMENTS.

5. AFTER INSTALLATION AND EQUIPMENT IS PLACED IN OPERATION, HVAC CONTRACTOR IS RESPONSIBLE FOR BALANCING SYSTEMS. BALANCING SHALL BE PERFORMED BY AN INDEPENDENT AABC CERTIFIED CONTRACTOR.

6. ADJUST AND BALANCE THE AIR SYSTEMS BEFORE HYDRONIC, STEAM, AND REFRIGERANT SYSTEMS. TESTING AND BALANCING SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT AABC NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE. GPM'S SHALL BE BALANCED WITHIN 10% OF DESIGN. AFTER ALL AIR SYSTEMS ARE INSTALLED, EACH SUPPLY AIR OUTLET SHALL BE AIR BALANCED TO WITHIN 10% OF THE CFM SHOWN WITH AIR PATTERNS SET AS INDICATED ON DRAWINGS (OR WITHIN 10 CFM WHEN BELOW 100 CFM). FAN RPMS AND ZONE DAMPERS SHALL BE ADJUSTED AND SHEAVES SHALL BE REPLACED AS REQUIRED TO ACHIEVE AIR BALANCE. ALL ZONES OR PORTIONS THEREOF SERVING OTHER SPACES AND WHICH MAY BE AFFECTED BY THE PROJECT SHALL BE TRAVERSED PRIOR TO CONSTRUCTION. THE FINAL AIR BALANCE SHALL RESTORE THESE AIR QUANTITIES. BEFORE AND AFTER AIR QUANTITIES SHALL BE LISTED IN THE AIR BALANCE REPORT

7. START UP AND PLACE ALL SYSTEMS IN OPERATION AND TAG ALL SWITCHES AND CONTROLS WITH PERMANENT LABELS.

5. INSTRUCT OWNER IN OPERATION OF SYSTEMS AND SUBMIT OPERATING AND MAINTENANCE MANUAL ON ALL EQUIPMENT AND SYSTEMS.

BUILDING FLUSH-OUT AND AIR TESTING (NO SPECIFICATION SECTION)

1. IN ACCORDANCE WITH THE INDOOR AIR QUALITY ASSESSMENT CREDIT OF LEED V4.1, THE MECHANICAL CONTRACTOR SHALL PERFORM ONE OF THE FOLLOWING TWO OPTIONS AFTER CONSTRUCTION HAS CONCLUDED. ALL INTERIOR FINISHES, SUCH AS MILLWORK, DOORS, PAINT, CARPET, ACOUSTIC TILES, AND MOVEABLE FURNISHINGS MUST BE INSTALLED PRIOR TO EITHER OPTION BEING IMPLEMENTED.
2. OPTION 1 : FLUSH-OUT: PATH 1 OR PATH 2 CAN BE PURSUED. PATH SHALL BE DETERMINED IN COORDINATION WITH OWNER PREFERENCE.
   2.1. PATH 1 : PRIOR TO OCCUPANCY FLUSH-OUT
   a. INSTALL NEW FILTRATION MEDIA
   b. PERFORM A BUILDING FLUSHOUT BY SUPPLYING A TOTAL AIR VOLUME OF 14,000 CUBIC FEET OF OUTDOOR AIR PER SQUARE FOOT OF GROSS FLOOR AREA WHILE MAINTAINING AN INTERNAL TEMPERATURE OF AT LEAST 60 DEGREES FAHRENHEIT AND NO HIGHER THAN 80 DEGREES FAHRENHEIT AND RELATIVE HUMIDITY NO HIGHER THAN 60%.
   c. ESTIMATED TIME OF BUILDING FLUSH-OUT : 180 HOURS (7.5 DAYS)
   2.1. PATH 2 : DURING OCCUPANCY
   a. PERFORM A BUILDING FLUSHOUT BY SUPPLYING A TOTAL AIR VOLUME OF 3,500 CUBIC FEET OF OUTDOOR AIR PER SQUARE FOOT OF GROSS FLOOR AREA WHILE MAINTAINING AN INTERNAL TEMPERATURE OF AT LEAST 60 DEGREES FAHRENHEIT AND NO HIGHER THAN 80 DEGREES FAHRENHEIT AND RELATIVE HUMIDITY NO HIGHER THAN 60%. ONCE SPACE IS OCCUPIED, IT MUST BE VENTILATED AT A MINIMUM OF 0.30 CFM PER SQUARE FOOT OF OUTDOOR AIR OR THE DESIGN MINIMUM OUTDOOR AIR RATE DETERMINED IN EQ PREREQUISITE MINIMUM INDOOR AIR QUALITY PERFORMANCE IN LEED V4.1, WHICHEVER IS GREATER.
   b. DURING EACH DAY OF THE FLUSHOUT PERIOD, VENTILATION MUST BEGIN AT LEAST 3 HOURS BEFORE OCCUPANCY AND CONTINUE DURING OCCUPANCY. CONDITIONS SHALL BE MAINTAINED UNTIL A TOTAL OF 14,000 CUBIC FEET PER SQUARE FOOT OF OUTDOOR AIR HAS BEEN DELIVERED TO THE SPACE.
   c. ESTIMATED TIME OF BUILDING FLUSH-OUT PRIOR TO OCCUPANCY : 45 HOURS (1.9 DAYS)
   d. ESTIMATED TIME OF COMPLETE BUILDING FLUSH-OUT: 135 HOURS (11.6 DAYS AT 4AM STARTUP TO 6PM)
   3.1 PATH 1 : PRIOR TO OCCUPANCY FLUSH-OUT
   a. PARTICULATE MATTER AND INORGANIC GASES - TEST FOR PARTICULATE MATTER (PM) AND INORGANIC GASES LISTED IN LEED V4.1 TABLE 1 OF INDOOR AIR QUALITY ASSESSMENT CREDIT, USING AN ALLOWED TEST METHOD AND DEMONSTRATE THE CONTAMINANTS DO NOT EXCEED CONCENTRATION LIMITS LISTED IN TABLE.
   b. VOLATILE ORGANIC COMPOUNDS (VOC) - PERFORM A SCREEN TEST FOR TOTAL VOCs. UTILIZE ISO 16000-6, EPA TO-17, OR EPA TO-15 TO COLLECT AND ANALYZE AIR SAMPLE.
   c. PROVIDE CALCULATIONS OF TVOC VALUE PER EN 16515:2017, CDPH STANDARD METHOD V1.2 2017 SECTION 3.9.4 OR ALTERNATIVE CALCULATION METHOD.
   d. TVOC LEVELS EXCEEDING 500 MICROGRAMS PER CUBED METER SHALL RESULT IN AN INVESTIGATION OF POTENTIAL ISSUES IN ACCORDANCE WITH LEED V4.1 INDOOR AIR QUALITY ASSESSMENT.

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PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	NAS & AGR	DCP

SHEET NAME:
MECHANICAL SPECIFICATIONS

SHEET NO:
M-004

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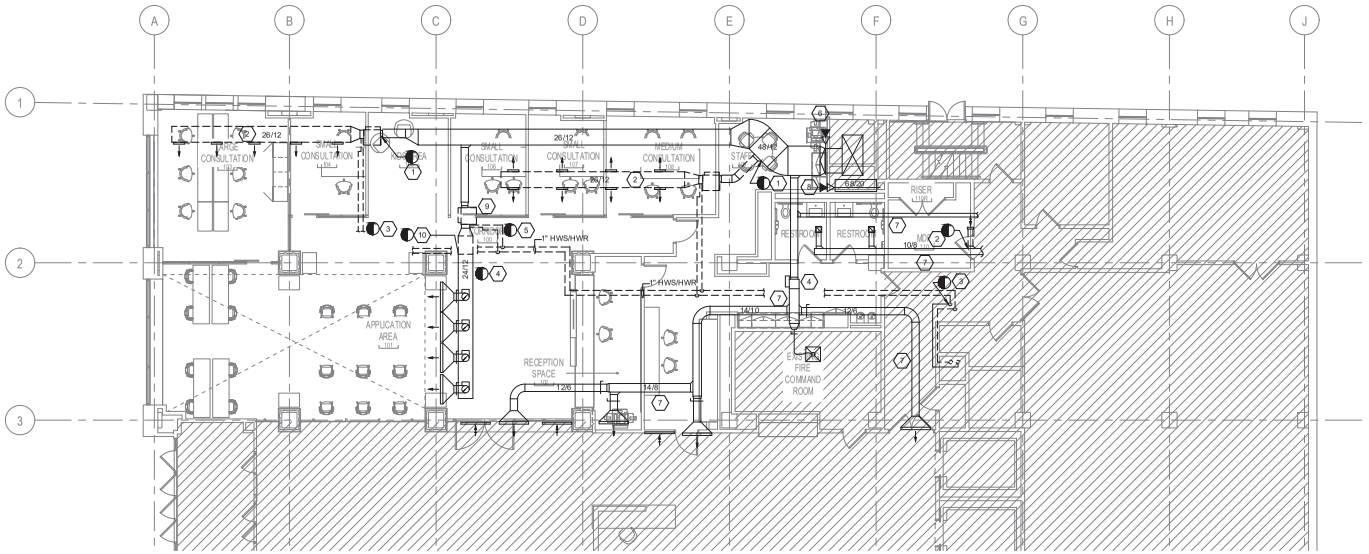

1 M-101 1ST FLOOR MECHANICAL PLAN - DEMOLITION
1/8" = 1'-0"

MECHANICAL DEMOLITION GENERAL NOTES:

1. MC SHALL VERIFY ALL EXISTING EQUIPMENT, PIPING, DUCTWORK, AND APPURTENANCE SIZES AND LOCATION IN FIELD PRIOR TO BID.
2. MC SHALL VERIFY ALL EQUIPMENT TO REMAIN IS FUNCTIONING PROPERLY AND IS IN GOOD WORKING CONDITION.
3. MC SHALL PROVIDE NEW ISOLATION VALVES AT ANY PIPING CAP AS A RESULT OF DEMOLITION OF PORTION OF HYDRONIC SYSTEM.
4. VERIFY EXISTING BACNET ROUTER INSTALLED IN PREVIOUS WORK TO REMAIN. HVAC CONTROLS ON THIS FLOOR SHALL BE ROUTED TO FIFTH FLOOR BACNET ROUTER UNLESS OTHERWISE NOTED.

MECHANICAL KEY NOTES: (#)

1. EXISTING MECHANICAL EQUIPMENT, ASSOCIATED APPURTENANCES, AND DUCTWORK DOWNSTREAM OF MECHANICAL EQUIPMENT SHALL BE DEMOLISHED. VERIFY LOCATION AND SIZE OF EQUIPMENT AND DUCTWORK IN FIELD.
2. EXISTING DUCTWORK AND ALL ASSOCIATED GRILLES, REGISTERS, DIFFUSERS AND APPURTENANCES SHALL BE DISCONNECTED AND DEMOLISHED. VERIFY SIZE AND LOCATION IN FIELD. MC SHALL PROVIDE NEW SECTION OF DUCTWORK IN MAIN AT POINT OF DISCONNECT SIZED IN ACCORDANCE WITH EXISTING DUCTWORK SIZE.
3. EXISTING HOT WATER PIPING AND ALL ASSOCIATED APPURTENANCES TO BE DEMOLISHED. PROVIDE ISOLATION VALVES AT DISCONNECT POINT FOR FUTURE CONNECTION.
4. EXISTING MECHANICAL EQUIPMENT, ASSOCIATED APPURTENANCES, AND DUCTWORK DOWNSTREAM OF MECHANICAL EQUIPMENT SHALL REMAIN. VERIFY LOCATION AND SIZE OF EQUIPMENT AND DUCTWORK IN FIELD.
5. EXISTING HOT WATER BRANCH PIPING AND ALL ASSOCIATED APPURTENANCES TO REMAIN AND SHALL BE DISCONNECTED FROM MAIN PIPING. PROVIDE ISOLATION VALVES AT DISCONNECT POINT FOR FUTURE CONNECTION.
6. EXISTING SUPPLY DUCTWORK INTO CHASE TO REMAIN. MC TO VERIFY SIZE AND EXACT LOCATION OF DUCTWORK IN FIELD. EXISTING MOTORIZED DAMPER AND COMBINATION FIRE/SMOKE DAMPER TO REMAIN.
7. EXISTING DUCTWORK AND ALL ASSOCIATED GRILLES, REGISTERS, DIFFUSERS AND APPURTENANCES TO REMAIN. VERIFY SIZE AND LOCATION IN FIELD.
8. EXISTING RETURN DUCTWORK INTO CHASE TO REMAIN. MC TO VERIFY SIZE AND EXACT LOCATION OF DUCTWORK IN FIELD. EXISTING COMBINATION FIRE/SMOKE DAMPER TO REMAIN. MC TO VERIFY PRESENCE OF BIRDSCREEN AT DUCT STUB. MC TO PROVIDE BIRDSCREEN IF NOT CURRENTLY INSTALLED.
9. EXISTING PARALLEL FAN POWERED BOX AND ALL ASSOCIATED APPURTENANCES TO BE RELOCATED. VERIFY EXACT LOCATION IN FIELD.
10. SUPPLY DUCT TO BE DEMOLISHED FROM FAN POWERED BOX SUPPLY AIR OPENING UP TO THIS POINT. VERIFY SIZE AND EXACT LOCATION IN FIELD.

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PROJECT ISSUANCE

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19067.00	NAS & AGR	DCP

SHEET NAME
1ST FLOOR MECHANICAL DEMOLITION PLAN

SHEET NO.
M-101

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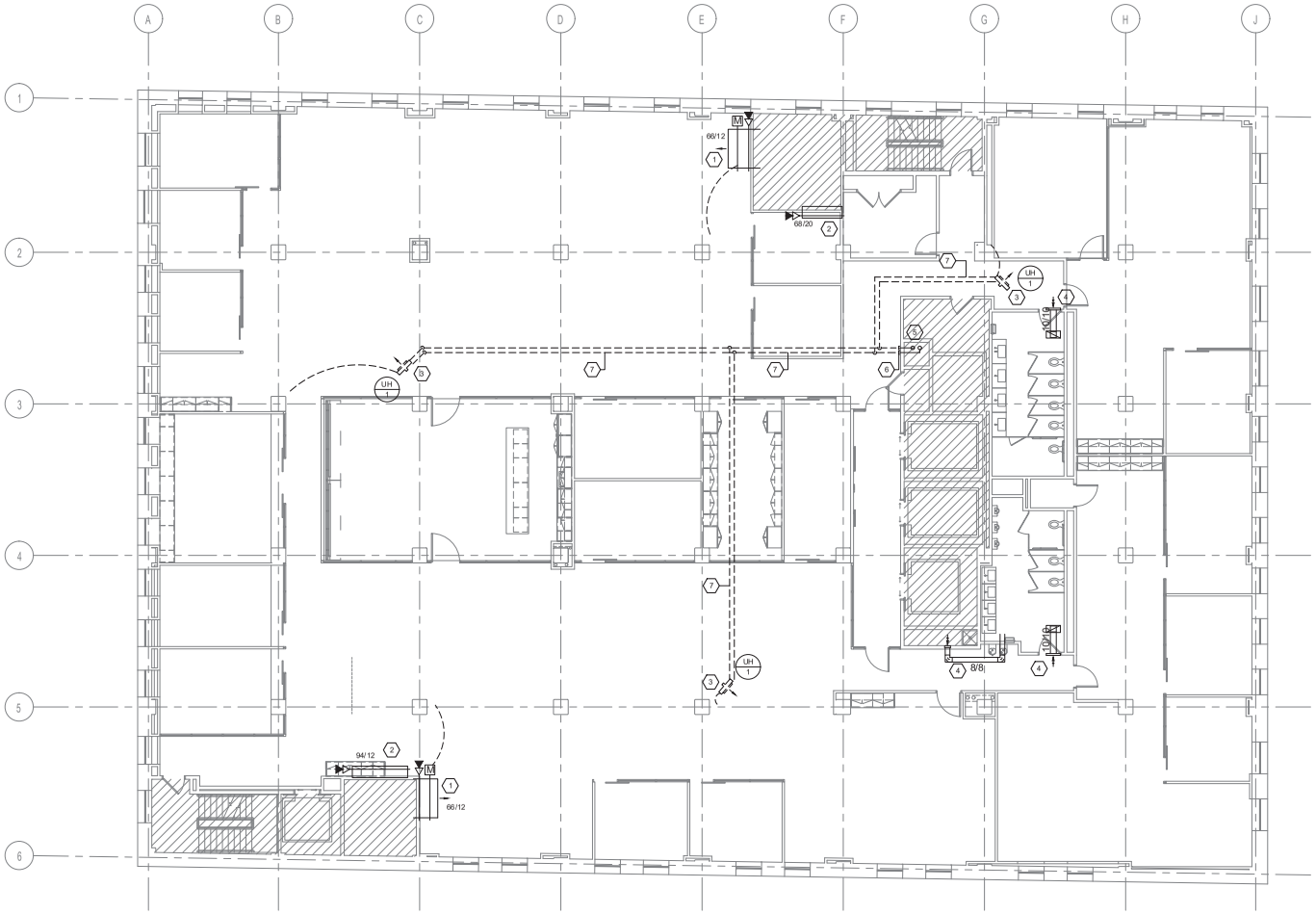

1 M-102 5TH FLOOR MECHANICAL PLAN - DEMOLITION
1/8" = 1'-0"

MECHANICAL DEMOLITION GENERAL NOTES:

1. MC SHALL VERIFY ALL EXISTING EQUIPMENT, PIPING, DUCTWORK, AND APPURTENANCE SIZES AND LOCATION IN FIELD PRIOR TO BID.
2. MC SHALL VERIFY ALL EQUIPMENT TO REMAIN IS FUNCTIONING PROPERLY AND IS IN GOOD WORKING CONDITION.
3. MC SHALL PROVIDE NEW ISOLATION VALVES AT ANY PIPING CAP AS A RESULT OF DEMOLITION OF PORTION OF HYDRONIC SYSTEM .
4. VERIFY EXISTING BACNET ROUTER INSTALLED IN PREVIOUS WORK TO REMAIN. HVAC CONTROLS ON THIS FLOOR SHALL BE ROUTED TO FIFTH FLOOR BACNET ROUTER UNLESS OTHERWISE NOTED.
5. ALL EXISTING HOT WATER SUPPLY AND RETURN PIPING ASSOCIATED WITH MECHANICAL HEATING SYSTEM, AS WELL AS ALL HANGERS, INSULATION AND OTHER APPURTENANCES, SHALL BE DEMOLISHED ON FLOOR. VERIFY SIZE, LOCATION AND QUANTITY IN FIELD.
6. ALL EXISTING FAN POWERED VAV BOXES AND SINGLE DUCT VAV BOXES, AS WELL AS ALL APPURTENANCES AND DUCTWORK CONNECT TO UNITS, SHALL BE DEMOLISHED. VERIFY QUANTITY, SIZE, AND LOCATION IN FIELD.

MECHANICAL DEMOLITION KEY NOTES: (#)

1. EXISTING SUPPLY DUCTWORK INTO CHASE TO REMAIN. MC TO VERIFY SIZE AND EXACT LOCATION OF DUCTWORK IN FIELD. EXISTING MOTORIZED DAMPER AND COMBINATION FIRE/SMOKE DAMPER TO REMAIN.
2. EXISTING RETURN DUCTWORK INTO CHASE TO REMAIN. MC TO VERIFY SIZE AND EXACT LOCATION OF DUCTWORK IN FIELD. EXISTING COMBINATION FIRE/SMOKE DAMPER TO REMAIN. MC TO VERIFY PRESENCE OF BIRDSCREEN AT DUCT STUB. MC TO PROVIDE BIRDSCREEN IF NOT CURRENTLY INSTALLED.
3. EXISTING HOT WATER UNIT HEATER AND ALL ASSOCIATED APPURTENANCES TO BE DISCONNECTED AND RETURNED TO OWNER IN GOOD CONDITION. VERIFY LOCATION IN FIELD.
4. EXISTING DUCTWORK TO REMAIN. VERIFY SIZE AND LOCATION IN FIELD.
5. EXISTING HOT WATER SUPPLY AND RETURN RISERS IN SHAFT TO REMAIN.
6. EXISTING HOT WATER SUPPLY AND RETURN PIPING FROM SHAFT INTO FUTURE TENANT SPACE TO BE CAPPED NO LESS THAN 5 FEET FROM SHAFT FOR FUTURE CONNECTION. MC TO PROVIDE MANUAL ISOLATION VALVES ON SUPPLY AND RETURN PIPING IF NOT CURRENTLY INSTALLED.
7. EXISTING HOT WATER SUPPLY AND RETURN PIPING AND ALL ASSOCIATED APPURTENANCES TO BE DEMOLISHED. MC TO VERIFY EXACT ROUTING AND LOCATION OF PIPING IN FIELD.

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19067.00	NAS & AGR	DCP

SHEET NAME
5TH FLOOR MECHANICAL DEMOLITION PLAN

SHEET NO.
M-102

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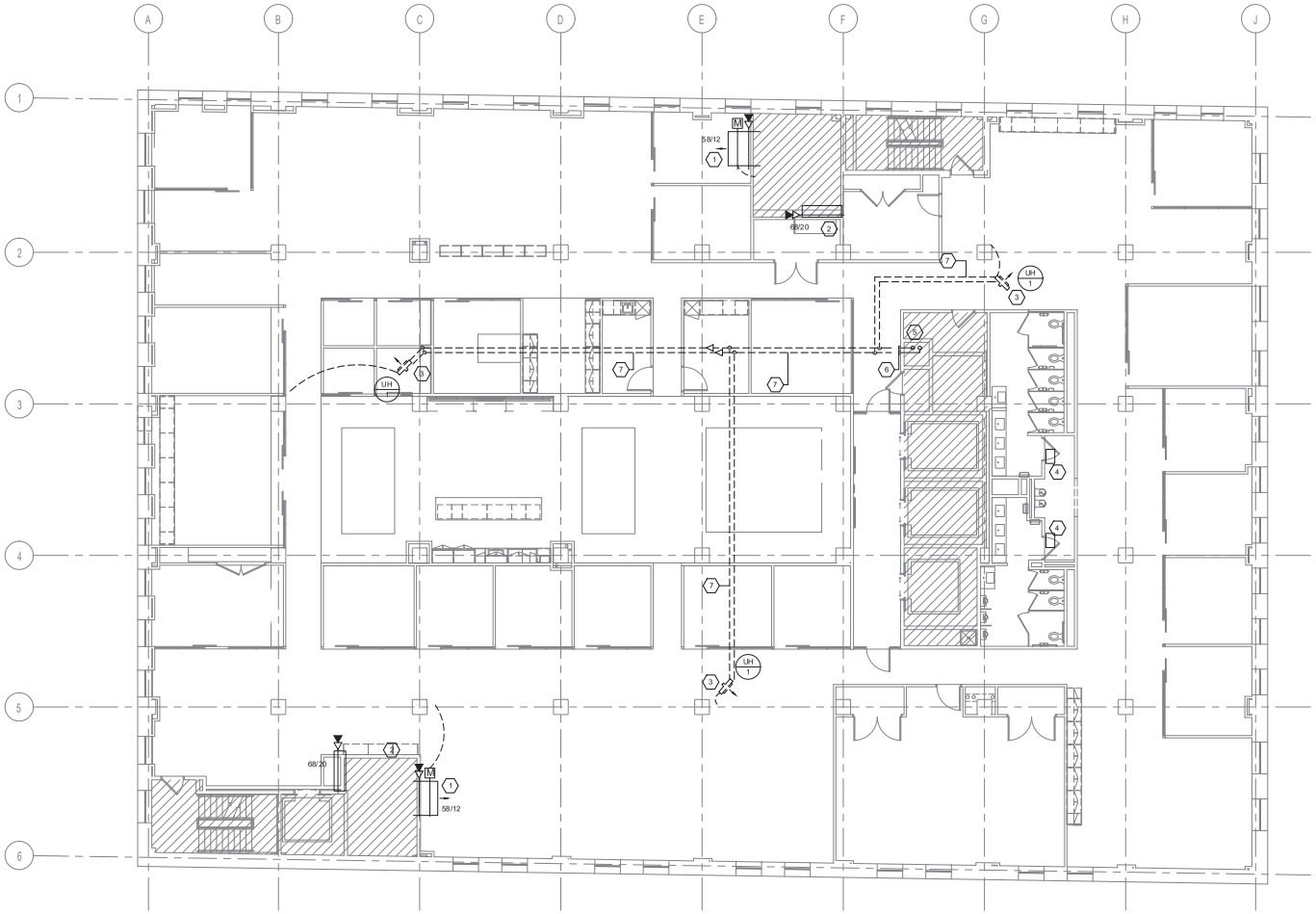

1 M-103 6TH FLOOR MECHANICAL PLAN - DEMOLITION
1/8" = 1'-0"

MECHANICAL DEMOLITION GENERAL NOTES:

1. MC SHALL VERIFY ALL EXISTING EQUIPMENT, PIPING, DUCTWORK, AND APPURTENANCE SIZES AND LOCATION IN FIELD PRIOR TO BID.
2. MC SHALL VERIFY ALL EQUIPMENT TO REMAIN IS FUNCTIONING PROPERLY AND IS IN GOOD WORKING CONDITION.
3. MC SHALL PROVIDE NEW ISOLATION VALVES AT ANY PIPING CAP AS A RESULT OF DEMOLITION OF PORTION OF HYDRONIC SYSTEM.
4. VERIFY EXISTING BACNET ROUTER INSTALLED IN PREVIOUS WORK TO REMAIN. HVAC CONTROLS ON THIS FLOOR SHALL BE ROUTED TO FIFTH FLOOR BACNET ROUTER UNLESS OTHERWISE NOTED.
5. ALL EXISTING HOT WATER SUPPLY AND RETURN PIPING ASSOCIATED WITH MECHANICAL HEATING SYSTEM, AS WELL AS ALL HANGERS, INSULATION AND OTHER APPURTENANCES, SHALL BE DEMOLISHED ON FLOOR. VERIFY SIZE, LOCATION AND QUANTITY IN FIELD.
6. ALL EXISTING FAN POWERED VAV BOXES AND SINGLE DUCT VAV BOXES, AS WELL AS ALL APPURTENANCES AND DUCTWORK CONNECT TO UNITS, SHALL BE DEMOLISHED. VERIFY QUANTITY, SIZE, AND LOCATION IN FIELD.

MECHANICAL DEMOLITION KEY NOTES: (#)

1. EXISTING SUPPLY DUCTWORK INTO CHASE TO REMAIN. MC TO VERIFY SIZE AND EXACT LOCATION OF DUCTWORK IN FIELD. EXISTING MOTORIZED DAMPER AND COMBINATION FIRE/SMOKE DAMPER TO REMAIN.
2. EXISTING RETURN DUCTWORK INTO CHASE TO REMAIN. MC TO VERIFY SIZE AND EXACT LOCATION OF DUCTWORK IN FIELD. EXISTING COMBINATION FIRE/SMOKE DAMPER TO REMAIN. MC TO VERIFY PRESENCE OF BIRDSCREEN AT DUCT STUB. MC TO PROVIDE BIRDSCREEN IF NOT CURRENTLY INSTALLED.
3. EXISTING HOT WATER UNIT HEATER AND ALL ASSOCIATED APPURTENANCES TO BE DISCONNECTED AND RETURNED TO OWNER IN GOOD CONDITION. VERIFY LOCATION IN FIELD.
4. EXISTING TRANSFER GRILLES AND DUCTWORK FOR BATHROOMS TO REMAIN. VERIFY SIZE AND LOCATION IN FIELD.
5. EXISTING HOT WATER SUPPLY AND RETURN RISERS IN SHAFT TO REMAIN.
6. EXISTING HOT WATER SUPPLY AND RETURN PIPING FROM SHAFT INTO FUTURE TENANT SPACE TO BE CAPPED NO LESS THAN 3 FEET FROM SHAFT FOR FUTURE CONNECTION. MC TO PROVIDE MANUAL ISOLATION VALVES ON SUPPLY AND RETURN PIPING IF NOT CURRENTLY INSTALLED.
7. EXISTING HOT WATER SUPPLY AND RETURN PIPING AND ALL ASSOCIATED APPURTENANCES TO BE DEMOLISHED. MC TO VERIFY EXACT ROUTING AND LOCATION OF PIPING IN FIELD.

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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

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SHEET NAME
6TH FLOOR MECHANICAL DEMOLITION PLAN

SHEET NO.
M-103

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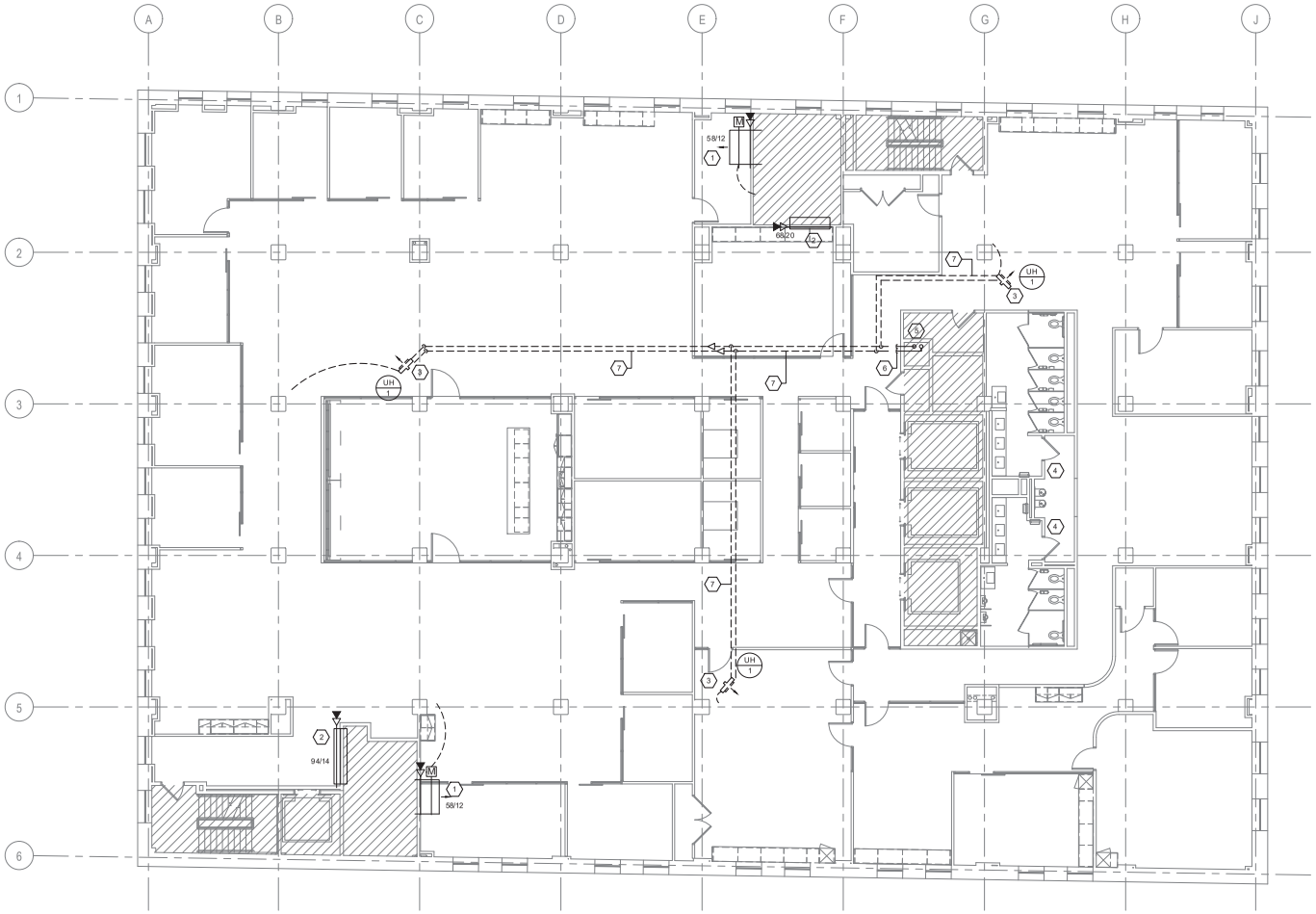

1 M-104 7TH FLOOR MECHANICAL PLAN - DEMOLITION
1/8" = 1'-0"

MECHANICAL DEMOLITION GENERAL NOTES:

1. MC SHALL VERIFY ALL EXISTING EQUIPMENT, PIPING, DUCTWORK, AND APPURTENANCE SIZES AND LOCATION IN FIELD PRIOR TO BID.
2. MC SHALL VERIFY ALL EQUIPMENT TO REMAIN IS FUNCTIONING PROPERLY AND IS IN GOOD WORKING CONDITION.
3. MC SHALL PROVIDE NEW ISOLATION VALVES AT ANY PIPING CAP AS A RESULT OF DEMOLITION OF PORTION OF HYDRONIC SYSTEM.
4. VERIFY EXISTING BACNET ROUTER INSTALLED IN PREVIOUS WORK TO REMAIN. HVAC CONTROLS ON THIS FLOOR SHALL BE ROUTED TO FIFTH FLOOR BACNET ROUTER UNLESS OTHERWISE NOTED.
5. ALL EXISTING HOT WATER SUPPLY AND RETURN PIPING ASSOCIATED WITH MECHANICAL HEATING SYSTEM, AS WELL AS ALL HANGERS, INSULATION AND OTHER APPURTENANCES, SHALL BE DEMOLISHED ON FLOOR. VERIFY SIZE, LOCATION AND QUANTITY IN FIELD.
6. ALL EXISTING FAN POWERED VAV BOXES AND SINGLE DUCT VAV BOXES, AS WELL AS ALL APPURTENANCES AND DUCTWORK CONNECT TO UNITS, SHALL BE DEMOLISHED. VERIFY QUANTITY, SIZE, AND LOCATION IN FIELD.

MECHANICAL DEMOLITION KEY NOTES: (#)

1. EXISTING SUPPLY DUCTWORK INTO CHASE TO REMAIN. MC TO VERIFY SIZE AND EXACT LOCATION OF DUCTWORK IN FIELD. EXISTING MOTORIZED DAMPER AND COMBINATION FIRE/ SMOKE DAMPER TO REMAIN.
2. EXISTING RETURN DUCTWORK INTO CHASE TO REMAIN. MC TO VERIFY SIZE AND EXACT LOCATION OF DUCTWORK IN FIELD. EXISTING COMBINATION FIRE/SMOKE DAMPER TO REMAIN. MC TO VERIFY PRESENCE OF BIRDSCREEN AT DUCT STUB. MC TO PROVIDE BIRDSCREEN IF NOT CURRENTLY INSTALLED.
3. EXISTING HOT WATER UNIT HEATER AND ALL ASSOCIATED APPURTENANCES TO BE DISCONNECTED AND RETURNED TO OWNER IN GOOD CONDITION. VERIFY LOCATION IN FIELD.
4. EXISTING TRANSFER GRILLES AND DUCTWORK FOR BATHROOMS TO REMAIN. VERIFY SIZE AND LOCATION IN FIELD.
5. EXISTING HOT WATER SUPPLY AND RETURN RISERS IN SHAFT TO REMAIN.
6. EXISTING HOT WATER SUPPLY AND RETURN PIPING FROM SHAFT INTO FUTURE TENANT SPACE TO BE CAPPED NO LESS THAN 3 FEET FROM SHAFT FOR FUTURE CONNECTION. MC TO PROVIDE MANUAL ISOLATION VALVES ON SUPPLY AND RETURN PIPING IF NOT CURRENTLY INSTALLED.
7. EXISTING HOT WATER SUPPLY AND RETURN PIPING AND ALL ASSOCIATED APPURTENANCES TO BE DEMOLISHED. MC TO VERIFY EXACT ROUTING AND LOCATION OF PIPING IN FIELD.

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19067.00	NAS & AGR	DCP

SHEET NAME
7TH FLOOR MECHANICAL DEMOLITION PLAN

SHEET NO.
M-104

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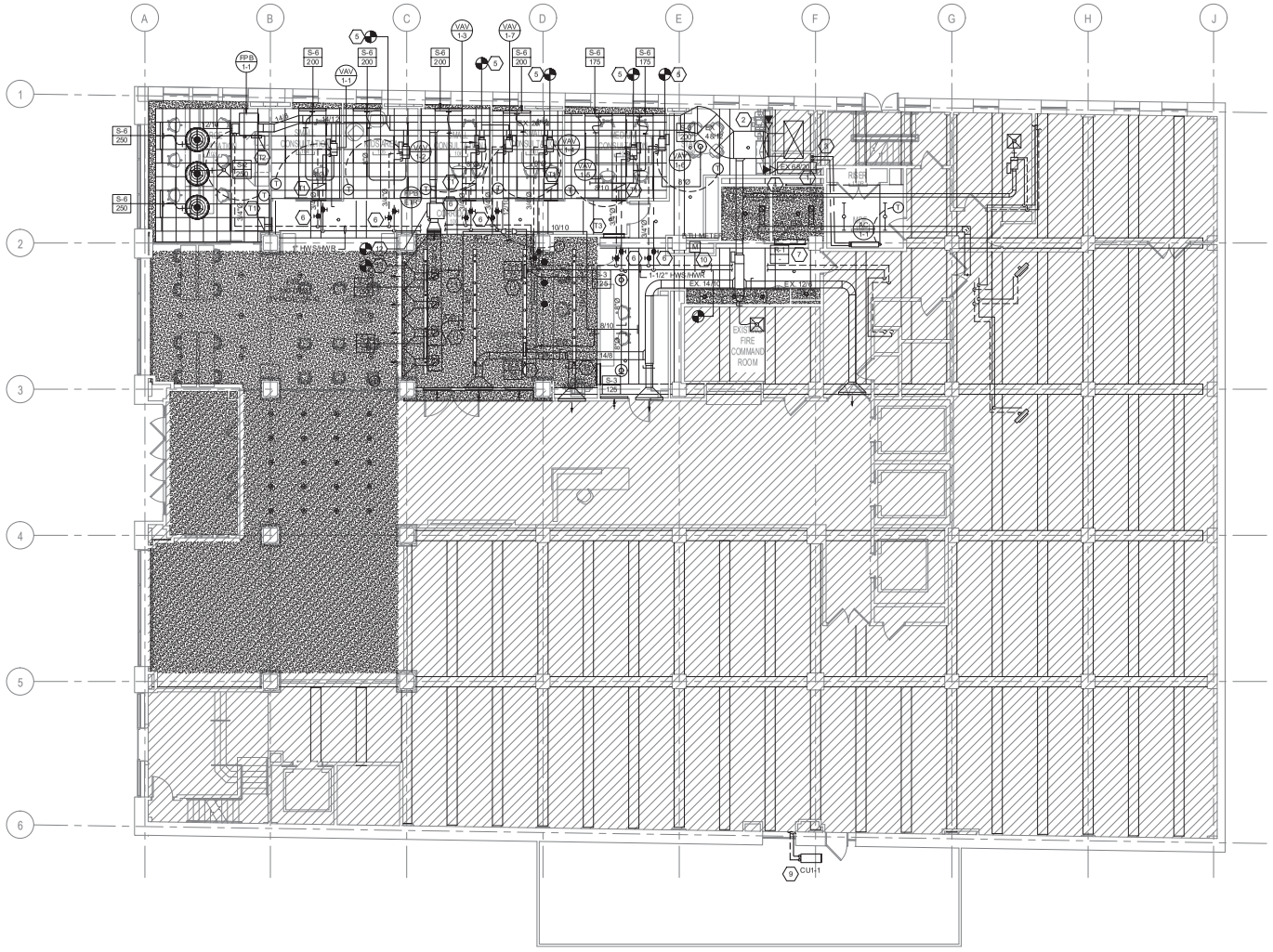

1 M-201 1ST FLOOR MECHANICAL PLAN - NEW WORK
1/8" = 1'-0"

MECHANICAL GENERAL NOTES:

1. PROVIDE MERV 8 FILTERS AT ALL PARELLEL FAN POWERED BOX RETURN OPENINGS.
2. THERMOSTATS SHALL BE COMPATIBLE WITH THE EXISTING BAS CONTROLS. MC SHALL VERIFY EXISTING CONTROLS SYSTEM IN BUILDING PRIOR TO BID.
3. THERMOSTATS SHALL BE INSTALLED AT 44" ABOVE FINISHED FLOOR.
4. PROVIDE CONDENSATE PUMP FOR INDOOR SPLIT SYSTEM COOLING ONLY AIR HANDLING UNIT.
5. ALL CONDENSATE PIPING SHALL SLOPE NO LESS THAN 1/4" PER FOOT TOWARDS TERMINATION POINT.
6. VERIFY EXISTING BACNET ROUTER INSTALLED IN PREVIOUS WORK. HVAC CONTROLS ON THIS FLOOR SHALL BE ROUTED TO FIFTH FLOOR BACNET ROUTER UNLESS OTHERWISE NOTED.
7. INLET AND OUTLET OF FAN POWERED BOXES AND SINGLE DUCT VAV BOXES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION REQUIREMENTS.
8. NEW MECHANICAL EQUIPMENT SHALL BE INSTALLED NO LESS THAN 10 FEET FROM THE ROOF EDGE OR PARAPET. ANY MECHANICAL EQUIPMENT INSTALLED WITHIN 10 FEET OF ROOF EDGE SHALL BE PROVIDED WITH PROTECTIVE SERVICE RAILING FOR PROPER SERVICE AND MAINTENANCE OF EQUIPMENT.
9. MC TO PROVIDE PIPE SUPPORT STANDS ON ROOF FOR REFRIGERANT LINESETS. PIPE SUPPORTS SHALL BE PROVIDED EVERY 5'-0" OF HORIZONTAL RUN.
10. NEW SPLIT SYSTEM CONDENSING UNITS SHALL BE MOUNTED ON THE MANUFACTURER'S 18" UNIT STANDS WITH VIBRATION ISOLATION PADS.

MECHANICAL KEY NOTES: (#)

1. FIELD CONFIRM SIZE AND LOCATION OF RETURN AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY.
2. 68X20 RETURN AIR DUCT STUBS INTO PLENUM CEILING. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING SHALL BE EXISTING TO REMAIN. PROVIDE BIRDSCREEN AT DUCT OPENING.
3. FIELD CONFIRM SIZE AND LOCATION OF SUPPLY AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING AND MOTORIZED DAMPER DOWNSTREAM OF FSD SHALL BE EXISTING TO REMAIN. MOTORIZED DAMPER SHALL BE REPROGRAMMED TO BE CONTROLLED BY THE OWNER AND SHALL BE NORMALLY OPEN.
4. 5/8" SUCTION AND 3/8" LIQUID REFRIGERANT LINE SET UP IN MECHANICAL CHASE TO ASSOCIATED OUTDOOR SPLIT SYSTEM CONDENSING UNIT ON ROOF. PROVIDE FIRESTOPPING AROUND PIPING AT SHAFT PENETRATION. COORDINATE ROUTING IN FIELD WITH EXISTING CONDITIONS.
5. 5/8" CONDENSATE DRAIN SHALL BE ROUTED TO AND TERMINATE AT NEW SAFEWASTE CONNECTION (BY P.C.) IN EXISTING RESTROOM AT LAVATORY SINK. MC SHALL COORDINATE FINAL INDIRECT CONNECTION WITH PC.
6. MEDIUM PRESSURE SUPPLY BRANCH CONNECTS TO EXISTING SUPPLY MAIN. MC TO VERIFY SIZE AND LOCATION OF EXISTING SUPPLY AIR DUCT IN FIELD AND PROVIDE TRANSITIONS AS NECESSARY FOR DUCT CONNECTION.
7. HOT WATER SUPPLY AND RETURN PIPING SHALL CONNECTS TO EXISTING HOT WATER PIPING. MC TO VERIFY LOCATION AND SIZE OF EXISTING PIPING IN FIELD.
8. TRANSFER GRILLE TO BE INSTALLED AT PARTITION WALL IN CORRIDOR AND SHALL BE DUCTED INTO RETURN CEILING PLENUM ABOVE RESTROOM.
9. CONDENSING UNIT TO BE INSTALLED ON OVERHANG ABOVE RAISED CONCRETE PATIO AT FIRST FLOOR. SUCTION AND LIQUID LINESET SHALL BE ROUTED TO AHU-1-1. COORDINATE ROUTING IN FIELD. PROVIDE LONG LINE KIT APPLICATION FOR ALL REFRIGERANT LINESETS EXCEEDING 80 FEET. ACCESS TO MECHANICAL EQUIPMENT SHALL BE VIA TEMPORARY LADDER FROM PATIO LANDING, AS DISTANCE FROM LOW ROOF LEVEL TO LANDING IS LESS THAN 16 FEET. PROVIDE MANUFACTURER PROVIDED 12" MINIMUM HEAT PUMP STANDS WITH VIBRATION ISOLATION PADS. MC SHALL VERIFY ROOF WARRANTY IS NOT VOIDED BY INSTALLATION OF HEAT PUMP STANDS.
10. INSTALL BTU METERING SYSTEM ON HOT WATER LINES ENTERING TENANT SPACE CONSISTING OF (2) TEMPERATURE SENSORS, (1) FLOW SENSOR, AND LOCAL DISPLAY. SYSTEM SHALL INCLUDE BACNET MSTP INTERFACE FOR DATA LOGGING.
11. LINEAR SLOT DIFFUSER TO BE INSTALLED IN RECESSED MODULAR LINEAR LIGHTING TRACK SYSTEM. DIFFUSER AND ENGINEERED PLENUM BOX TO BE HUNG FROM CEILING OR STRUCTURE ABOVE. FINAL LOCATION OF DIFFUSER SHALL BE COORDINATED WITH ARCHITECTURAL REFLECTED CEILING PLAN. BRANCH DUCTWORK CONNECTING TO DIFFUSER SHALL TRANSITION AND SHALL BE ROUTED AS NECESSARY TO AVOID STRUCTURAL BEAMS, EXISTING DUCTWORK AND PIPING.
12. EXISTING PARALLEL FAN POWERED VAV BOX AND ALL ASSOCIATED APPURTENANCES TO BE RELOCATED TO THIS LOCATION. HOT WATER SUPPLY AND RETURN PIPING SHALL BE RECONNECTED TO FAN POWERED BOX. EXTEND PIPING AS NECESSARY. VERIFY EXISTING SIZE AND LOCATION IN FIELD.
13. NEW SUPPLY DUCTWORK SHALL CONNECT TO RELOCATED FAN POWERED BOX. TRANSITION NEW DUCTWORK UP TO EXISTING ELEVATION OF SUPPLY DUCTWORK CONCEALED ABOVE DROPPED CEILING IN RECEPTION SPACE 102. MAKE TRANSITIONS AS NECESSARY TO CONNECT TO EXISTING DUCTWORK.

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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	NAS & AGR	DCP

SHEET NAME:
1ST FLOOR MECHANICAL PLAN

SHEET NO:
M-201

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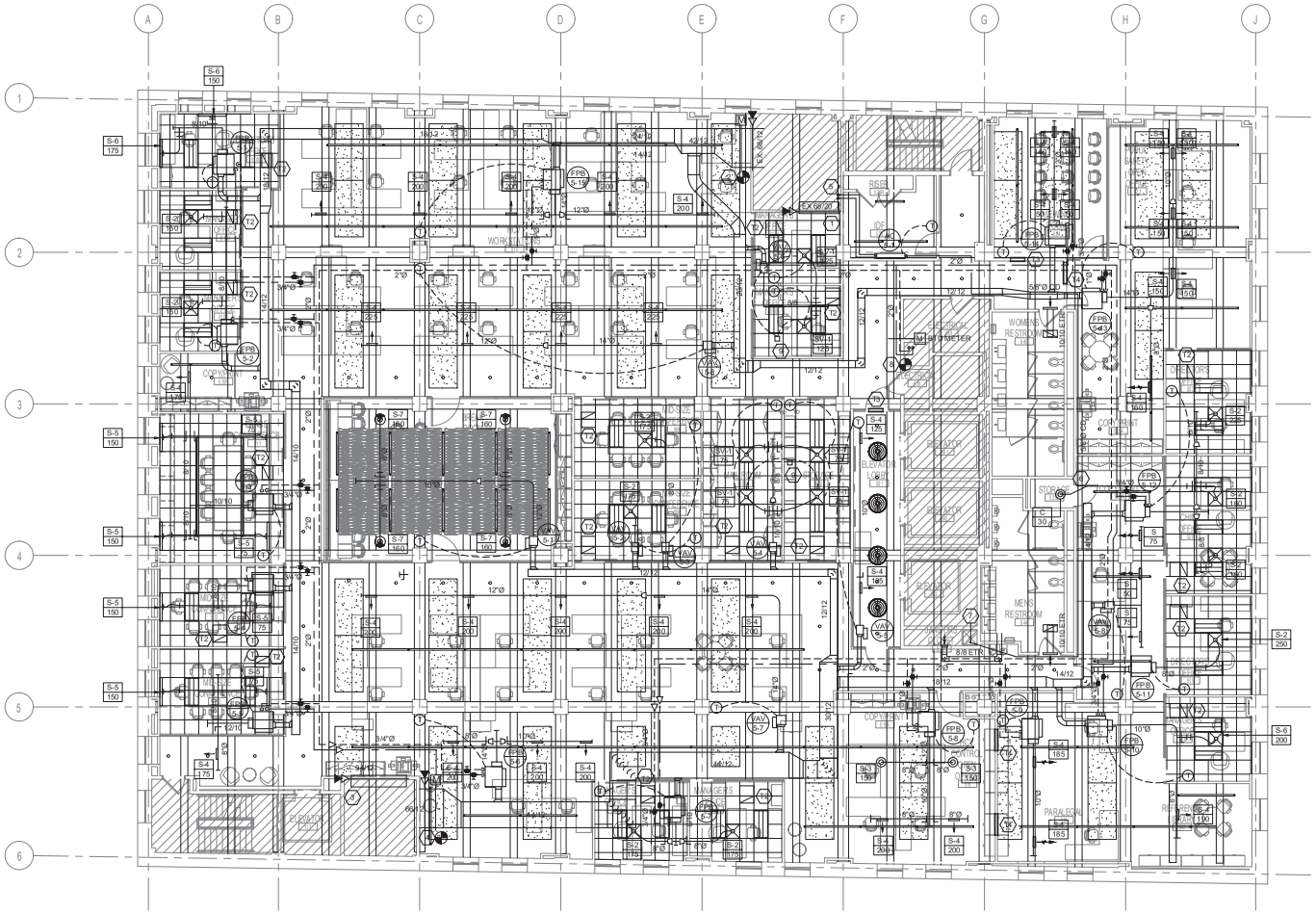

1 M-202 5TH FLOOR MECHANICAL PLAN
1/8" = 1'-0"

MECHANICAL GENERAL NOTES:

1. PROVIDE MERV 8 FILTERS AT ALL PARELLEL FAN POWERED BOX RETURN OPENINGS.
2. THERMOSTATS SHALL BE COMPATIBLE WITH THE EXISTING BAS CONTROLS. MC SHALL VERIFY EXISTING CONTROLS SYSTEM IN BUILDING PRIOR TO BID.
3. THERMOSTATS SHALL BE INSTALLED AT 44" ABOVE FINISHED FLOOR.
4. PROVIDE CONDENSATE PUMP FOR INDOOR SPLIT SYSTEM COOLING ONLY AIR HANDLING UNIT.
5. ALL CONDENSATE PIPING SHALL SLOPE NO LESS THAN 1/4" PER FOOT TOWARDS TERMINATION POINT UNLESS EQUIPPED WITH CONDENSATE PUMP.
6. VERIFY EXISTING BACNET ROUTER INSTALLED IN PREVIOUS WORK. HVAC CONTROLS ON THIS FLOOR SHALL BE ROUTED TO FIFTH FLOOR BACNET ROUTER UNLESS OTHERWISE NOTED.

MECHANICAL KEY NOTES: (#)

1. FIELD CONFIRM SIZE AND LOCATION OF RETURN AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY. 68X20 RETURN AIR DUCT STUBS INTO PLENUM CEILING. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING SHALL BE EXISTING TO REMAIN. PROVIDE BIRDSCREEN AT DUCT OPENING.
2. FIELD CONFIRM SIZE AND LOCATION OF SUPPLY AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY. 66X12 SUPPLY AIR DUCT CONNECTS TO EXISTING DUCT RISER IN MECHANICAL SHAFT. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING AND MOTORIZED DAMPER DOWNSTREAM OF FSD SHALL BE EXISTING TO REMAIN. MOTORIZED DAMPER SHALL BE REPROGRAMMED TO BE CONTROLLED BY THE OWNER AND SHALL BE NORMALLY OPEN.
3. FIELD CONFIRM SIZE AND LOCATION OF RETURN AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY. 94X12 RETURN AIR DUCT STUBS INTO PLENUM CEILING. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING SHALL BE EXISTING TO REMAIN. PROVIDE BIRDSCREEN AT DUCT OPENING.
4. FIELD CONFIRM SIZE AND LOCATION OF SUPPLY AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY. 66X12 SUPPLY AIR DUCT CONNECTS TO EXISTING DUCT RISER IN MECHANICAL SHAFT. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING AND MOTORIZED DAMPER DOWNSTREAM OF FSD SHALL BE EXISTING TO REMAIN. MOTORIZED DAMPER SHALL BE REPROGRAMMED TO BE CONTROLLED BY THE OWNER AND SHALL BE NORMALLY OPEN.
5. 1/2" SUCTION AND 1/4" LIQUID REFRIGERANT LINE SET UP IN MECHANICAL CHASE TO ASSOCIATED OUTDOOR SPLIT SYSTEM CONDENSING UNIT ON ROOF. PROVIDE FIRESTOPPING AROUND PIPING AT SHAFT PENETRATION. COORDINATE ROUTING IN FIELD WITH EXISTING CONDITIONS.
6. PROVIDE 1/2" UNDERCUT OF DOOR.
7. 5/8" CONDENSATE DRAIN SHALL BE ROUTED TO AND TERMINATE AT EXISTING JANITOR'S SINK IN EXISTING JANITOR'S CLOSET. MC SHALL COORDINATE FINAL INDIRECT CONNECTION WITH PC.
8. 2" HOT WATER SUPPLY AND RETURN CONNECT TO EXISTING RISER STACK AT CHASE. MC TO VERIFY EXISTING LOCATION OF RISER IN FIELD PRIOR TO BID AND SHALL LENGTHEN PIPING AS NECESSARY TO MAKE CONNECTION. PROVIDE FIRESTOPPING AT CHASE PENETRATION IN ACCORDANCE WITH THE IBC. INSTALL BTU METERING SYSTEM ON HOT WATER LINES ENTERING TENANT SPACE CONSISTING OF (2) TEMPERATURE SENSORS, (1) FLOW SENSOR, AND LOCAL DISPLAY. SYSTEM SHALL INCLUDE BACNET MSTP INTERFACE FOR DATA LOGGING. PROVIDE ISOLATION MANUAL SHUTOFF VALVES AT RISER IF NOT EXISTING.
9. PRICE PRODIGY PPM POWER MODULE TO BE INSTALLED ABOVE CEILING. EC TO PROVIDE 120V ELECTRICAL CONNECTION TO MODULE. 96 VA 115/24 VAC TRANSFORMER AND DISCONNECT TO BE INTEGRAL WITH POWER MODULE.

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PROJECT ISSUANCE

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19067.00	NAS & AGR	DCP

SHEET NAME:
5TH FLOOR MECHANICAL PLAN

SHEET NO:
M-202

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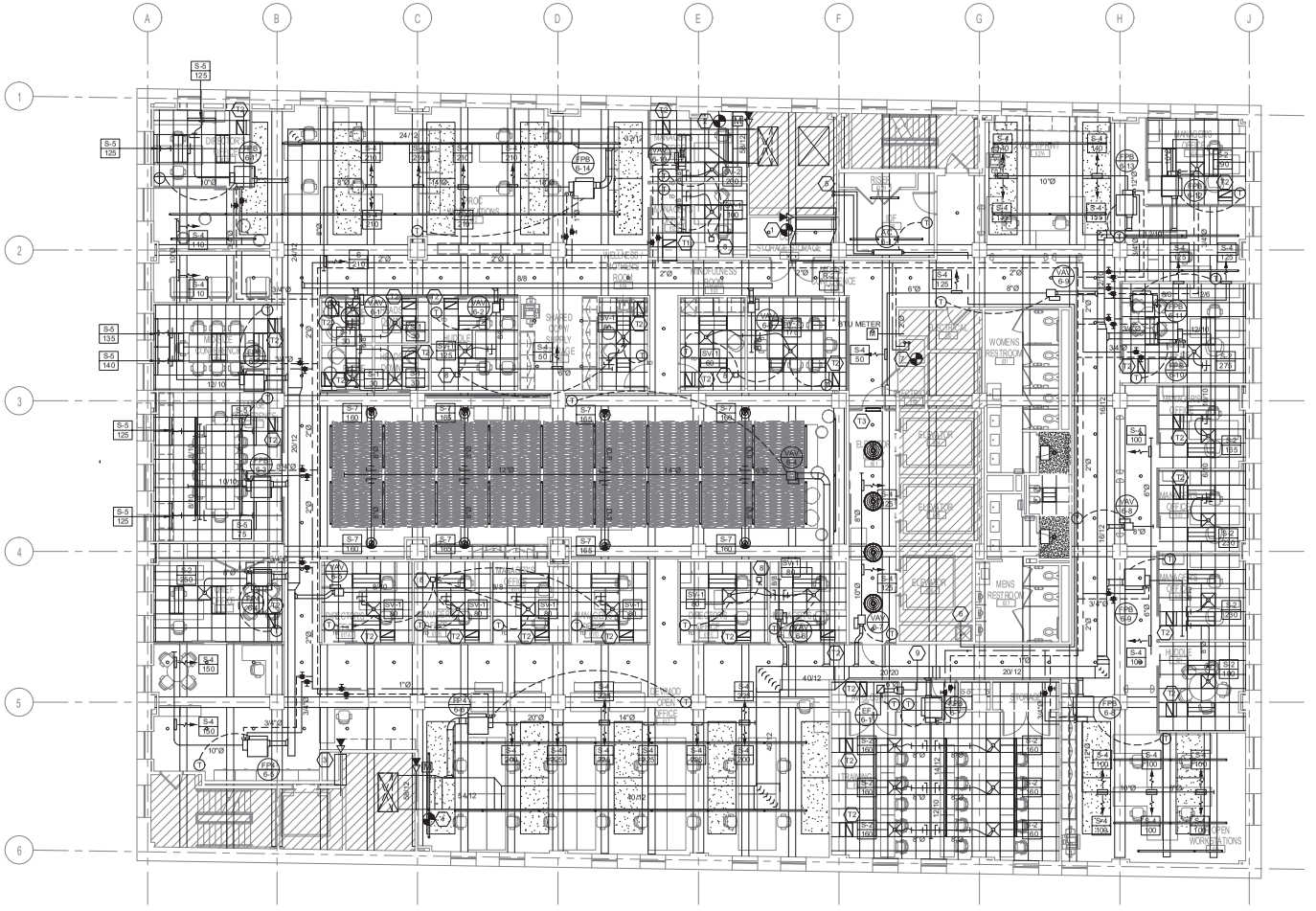

1 M-203 6TH FLOOR MECHANICAL PLAN
1/8" = 1'-0"

MECHANICAL GENERAL NOTES:

1. PROVIDE MERV 8 FILTERS AT ALL PARELLEL FAN POWERED BOX RETURN OPENINGS.
2. THERMOSTATS SHALL BE COMPATIBLE WITH THE EXISTING BAS CONTROLS. MC SHALL VERIFY EXISTING CONTROLS SYSTEM IN BUILDING PRIOR TO BID.
3. THERMOSTATS SHALL BE INSTALLED AT 44" ABOVE FINISHED FLOOR.
4. PROVIDE CONDENSATE PUMP FOR INDOOR SPLIT SYSTEM COOLING ONLY AIR HANDLING UNIT.
5. ALL CONDENSATE PIPING SHALL SLOPE NO LESS THAN 1/4" PER FOOT TOWARDS TERMINATION POINT UNLESS EQUIPPED WITH CONDENSATE PUMP.
6. VERIFY EXISTING BACNET ROUTER INSTALLED IN PREVIOUS WORK. HVAC CONTROLS ON THIS FLOOR SHALL BE ROUTED TO SIXTH FLOOR BACNET ROUTER UNLESS OTHERWISE NOTED.

MECHANICAL KEY NOTES: (#)

1. FIELD CONFIRM SIZE AND LOCATION OF RETURN AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY. 68X20 RETURN AIR DUCT RUNS TO GRILLE AT WALL PARTITION. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING SHALL BE EXISTING TO REMAIN. PROVIDE BIRDSCREEN AT DUCT OPENING.
2. FIELD CONFIRM SIZE AND LOCATION OF SUPPLY AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY. 58X12 SUPPLY AIR DUCT CONNECTS TO EXISTING DUCT RISER IN MECHANICAL SHAFT. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING AND MOTORIZED DAMPER DOWNSTREAM OF FSD SHALL BE EXISTING TO REMAIN. MOTORIZED DAMPER SHALL BE REPROGRAMMED TO BE CONTROLLED BY THE OWNER AND SHALL BE NORMALLY OPEN.
3. FIELD CONFIRM SIZE AND LOCATION OF RETURN AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY 94X12 RETURN AIR DUCT STUBS INTO OPEN OFFICE SPACE. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING SHALL BE EXISTING TO REMAIN. PROVIDE BIRDSCREEN AT DUCT OPENING.
4. FIELD CONFIRM SIZE AND LOCATION OF SUPPLY AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY. 58X12 SUPPLY AIR DUCT CONNECTS TO EXISTING DUCT RISER IN MECHANICAL SHAFT. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING AND MOTORIZED DAMPER DOWNSTREAM OF FSD SHALL BE EXISTING TO REMAIN. MOTORIZED DAMPER SHALL BE REPROGRAMMED TO BE CONTROLLED BY THE OWNER AND SHALL BE NORMALLY OPEN.
5. 3/8" SUCTION AND 1/4" LIQUID REFRIGERANT LINE SET UP IN MECHANICAL CHASE TO ASSOCIATED OUTDOOR SPLIT SYSTEM CONDENSING UNIT ON ROOF. PROVIDE FIRESTOPPING AROUND PIPING AT SHAFT PENETRATION. COORDINATE ROUTING IN FIELD WITH EXISTING CONDITIONS.
6. 5/8" CONDENSATE DRAIN SHALL BE ROUTED TO AND TERMINATE AT EXISTING JANITOR'S SINK IN EXISTING JANITOR'S CLOSET. MC SHALL COORDINATE FINAL INDIRECT CONNECTION WITH PC.
7. 2" HOT WATER SUPPLY AND RETURN CONNECT TO EXISTING RISER STACK AT CHASE. MC TO VERIFY EXISTING LOCATION OF RISER IN FIELD PRIOR TO BID AND SHALL LENGTHEN PIPING AS NECESSARY TO MAKE CONNECTION. PROVIDE FIRESTOPPING AT CHASE PENETRATION IN ACCORDANCE WITH THE IBC. INSTALL BTU METERING SYSTEM ON HOT WATER LINES ENTERING TENANT SPACE CONSISTING OF (2) TEMPERATURE SENSORS, (1) FLOW SENSOR, AND LOCAL DISPLAY. SYSTEM SHALL INCLUDE BACNET MSTP INTERFACE FOR DATA LOGGING. PROVIDE ISOLATION MANUAL SHUTOFF VALVES AT RISER IF NOT EXISTING.
8. PRICE PRODIGY PPM POWER MODULE TO BE INSTALLED ABOVE CEILING. ECTO PROVIDE 120V ELECTRICAL CONNECTION TO MODULE. 96 VA 115/24 VAC TRANSFORMER AND DISCONNECT TO BE INTEGRAL WITH POWER MODULE.
9. EXHAUST DUCTWORK TRANSITIONS TO 12"X6" DUCTSTUBS INTO PLENUM SPACE ABOVE ACOUSTIC TILE CEILING.

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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

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SHEET NAME:
6TH FLOOR MECHANICAL PLAN

SHEET NO.
M-203

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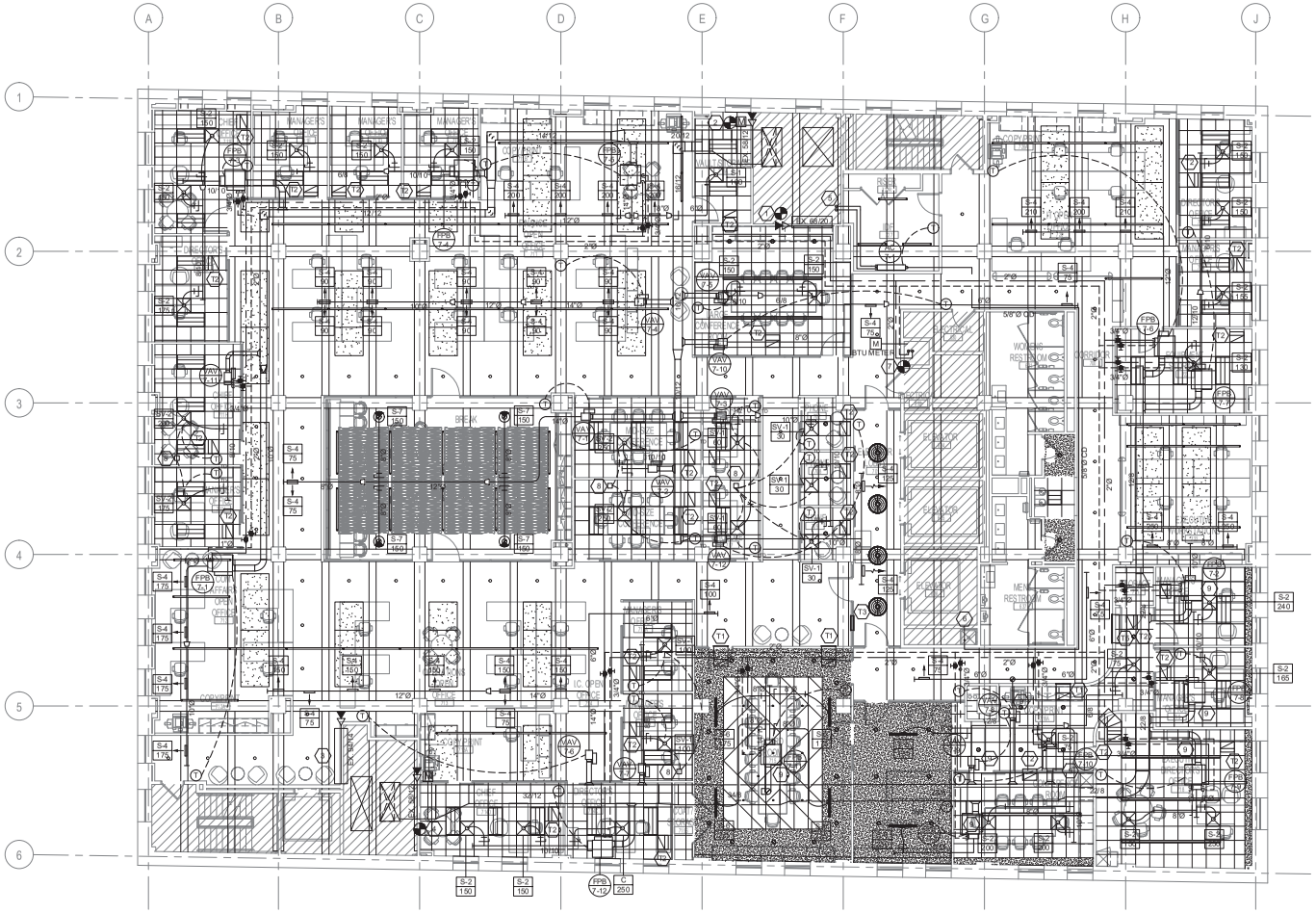

1 M-204 7TH FLOOR MECHANICAL PLAN
1/8" = 1'-0"

MECHANICAL GENERAL NOTES:

1. PROVIDE MERV 8 FILTERS AT ALL PARELLEL FAN POWERED BOX RETURN OPENINGS.
2. THERMOSTATS SHALL BE COMPATIBLE WITH THE EXISTING BAS CONTROLS. MC SHALL VERIFY EXISTING CONTROLS SYSTEM IN BUILDING PRIOR TO BID.
3. THERMOSTATS SHALL BE INSTALLED AT 44" ABOVE FINISHED FLOOR.
4. PROVIDE CONDENSATE PUMP FOR INDOOR SPLIT SYSTEM COOLING ONLY AIR HANDLING UNIT.
5. ALL CONDENSATE PIPING SHALL SLOPE NO LESS THAN 1/4" PER FOOT TOWARDS TERMINATION POINT UNLESS EQUIPPED WITH CONDENSATE PUMP.
6. VERIFY EXISTING BACNET ROUTER INSTALLED IN PREVIOUS WORK. HVAC CONTROLS ON THIS FLOOR SHALL BE ROUTED TO FIFTH FLOOR BACNET ROUTER UNLESS OTHERWISE NOTED.

MECHANICAL KEY NOTES: (#)

1. FIELD CONFIRM SIZE AND LOCATION OF RETURN AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY. 68X20 RETURN AIR DUCT STUBS INTO PLENUM CEILING. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING SHALL BE EXISTING TO REMAIN. PROVIDE BIRDSCREEN AT DUCT OPENING.
2. FIELD CONFIRM SIZE AND LOCATION OF SUPPLY AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY. 58X12 SUPPLY AIR DUCT CONNECTS TO EXISTING DUCT RISER IN MECHANICAL SHAFT. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING AND MOTORIZED DAMPER DOWNSTREAM OF FSD SHALL BE EXISTING TO REMAIN. MOTORIZED DAMPER SHALL BE REPROGRAMMED TO BE CONTROLLED BY THE OWNER AND SHALL BE NORMALLY OPEN.
3. FIELD CONFIRM SIZE AND LOCATION OF RETURN AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY. 94X14 RETURN AIR DUCT STUBS INTO OPEN OFFICE SPACE. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING SHALL BE EXISTING TO REMAIN. PROVIDE BIRDSCREEN AT DUCT OPENING.
4. FIELD CONFIRM SIZE AND LOCATION OF SUPPLY AIR OPENING INTO SHAFT. CREATE NEW OPENING AS NECESSARY. 58X12 SUPPLY AIR DUCT CONNECTS TO EXISTING DUCT RISER IN MECHANICAL SHAFT. VERTICAL COMBINATION FIRE/SMOKE DAMPER (FSD) AT SHAFT OPENING AND MOTORIZED DAMPER DOWNSTREAM OF FSD SHALL BE EXISTING TO REMAIN. MOTORIZED DAMPER SHALL BE REPROGRAMMED TO BE CONTROLLED BY THE OWNER AND SHALL BE NORMALLY OPEN.
5. 3/8" SUCTION AND 1/4" LIQUID REFRIGERANT LINE SET UP IN MECHANICAL CHASE TO ASSOCIATED OUTDOOR SPLIT SYSTEM CONDENSING UNIT ON ROOF. PROVIDE FIRESTOPPING AROUND PIPING AT SHAFT PENETRATION. COORDINATE ROUTING IN FIELD WITH EXISTING CONDITIONS.
6. 5/8" CONDENSATE DRAIN SHALL BE ROUTED TO AND TERMINATE AT EXISTING JANITOR'S SINK IN EXISTING JANITOR'S CLOSET. MC SHALL COORDINATE FINAL INDIRECT CONNECTION WITH PC.
7. 2" HOT WATER SUPPLY AND RETURN CONNECT TO EXISTING RISER STACK AT CHASE. MC TO VERIFY EXISTING LOCATION OF RISER IN FIELD PRIOR TO BID AND SHALL LENGTHEN PIPING AS NECESSARY TO MAKE CONNECTION. PROVIDE FIRESTOPPING AT CHASE PENETRATION IN ACCORDANCE WITH THE IBC. INSTALL BTU METERING SYSTEM ON HOT WATER LINES ENTERING TENANT SPACE CONSISTING OF (2) TEMPERATURE SENSORS, (1) FLOW SENSOR, AND LOCAL DISPLAY. SYSTEM SHALL INCLUDE BACNET MSTP INTERFACE FOR DATA LOGGING. PROVIDE ISOLATION MANUAL SHUTOFF VALVES AT RISER IF NOT EXISTING.
8. PRICE PRODIGY PPM POWER MODULE TO BE INSTALLED ABOVE CEILING. EC TO PROVIDE 120 V ELECTRICAL CONNECTION TO MODULE. 96 VA 115/24 VAC TRANSFORMER AND DISCONNECT TO BE INTEGRAL WITH POWER MODULE.
9. PARALLEL FAN POWERED BOX OR SINGLE DUCT VAV BOX SHALL BE INSTALLED IN BETWEEN STRUCTURAL MEMBERS SUCH THAT EQUIPMENT FITS ABOVE CEILING HEIGHT DENOTED IN ARCHITECT'S REFLECTED CEILING PLANS. PROVIDE DUCT TRANSITIONS AS NECESSARY FROM SUPPLY MAIN TO EQUIPMENT AND FROM DISCHARGE OUTLET TO ASSOCIATED DIFFUSERS AND GRILLES SUCH THAT CEILING HEIGHT IS MAINTAINED.

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19067.00	NAS & AGR	DCP

SHEET NAME:
7TH FLOOR MECHANICAL PLAN

SHEET NO.
M-204

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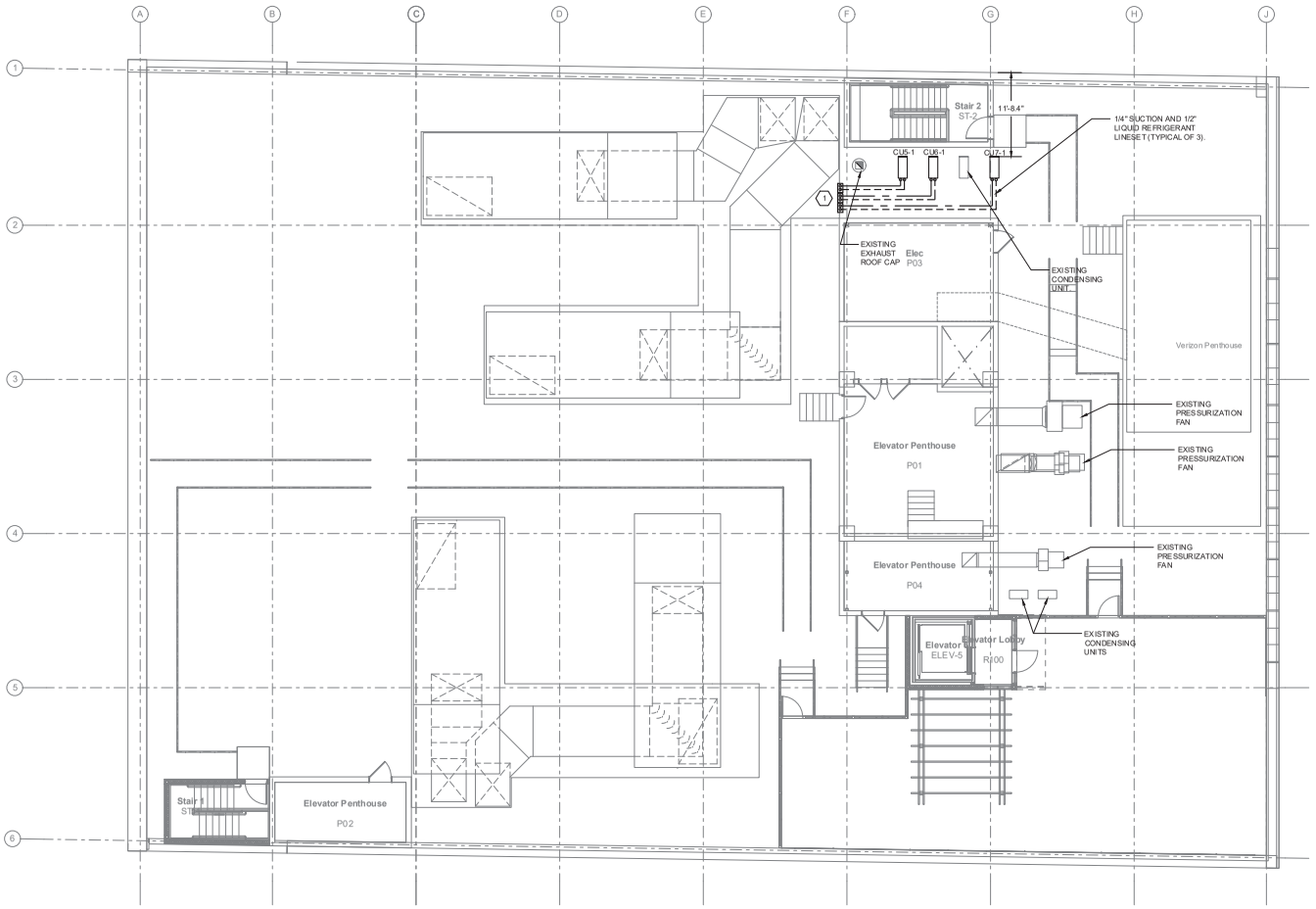

1 ROOF MECHANICAL PLAN
M-205 1/8" = 1'-0"

MECHANICAL GENERAL NOTES:

1. VERIFY LOCATION OF ALL EXISTING EQUIPMENT, DUCTWORK, AND PIPING ON ROOF PRIOR TO BID. COORDINATE LOCATION OF NEW EQUIPMENT WITH EXISTING CONDITIONS.
2. NEW MECHANICAL EQUIPMENT SHALL BE INSTALLED NO LESS THAN 10 FEET FROM THE ROOF EDGE OR PARAPET. ANY MECHANICAL EQUIPMENT INSTALLED WITHIN 10 FEET OF ROOF EDGE SHALL BE PROVIDED WITH PROTECTIVE SERVICE RAILING FOR PROPER SERVICE AND MAINTENANCE OF EQUIPMENT.
3. MC TO PROVIDE INSULATED PIPE PORTAL FOR EACH NEW REFRIGERANT LINESET. COORDINATE FINAL LOCATION OF PIPE PORTAL WITH EXISTING EQUIPMENT ON ROOF AND STRUCTURE BELOW.
4. MC TO PROVIDE PIPE SUPPORT STANDS ON ROOF FOR REFRIGERANT LINESETS. PIPE SUPPORTS SHALL BE PROVIDED EVERY 5'-0" OF HORIZONTAL RUN.
5. NEW SPLIT SYSTEM CONDENSING UNITS SHALL BE MOUNTED ON THE MANUFACTURER'S 18" UNIT STANDS WITH VIBRATION ISOLATION PADS.

MECHANICAL KEY NOTES: (#)

1. 1/4" SUCTION AND 1/2" LIQUID REFRIGERANT LINESET IN IN INSULATED PIPE PORTAL TO CHASE BELOW. COORDINATE FINAL LOCATION OF PIPE PORTAL WITH EXISTING DUCTWORK, PIPES, AND STRUCTURE WITHIN CHASE. (TYPICAL OF 3)

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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

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SHEET NAME:
ROOF MECHANICAL PLAN

SHEET NO.
M-205

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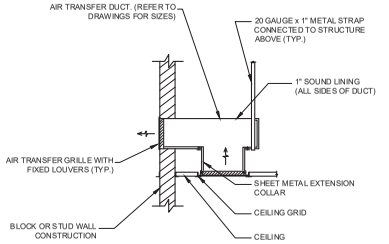
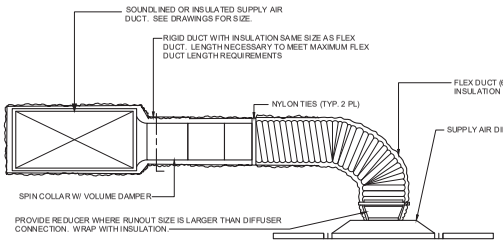
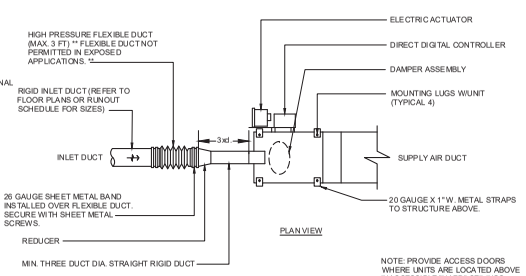


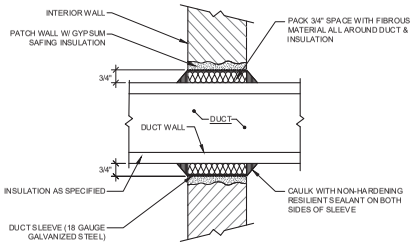
1 M301 AIR TRANSFER DUCT WITH FIXED LOUVER GRILLES DETAIL
NO SCALE



2 M301 SUPPLY AIR DIFFUSER CONNECTION DETAIL
NOT TO SCALE

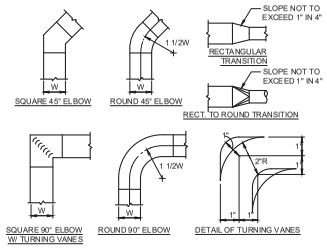


3 M301 COOLING ONLY VARIABLE VOLUME TERMINAL DETAIL
NOT TO SCALE



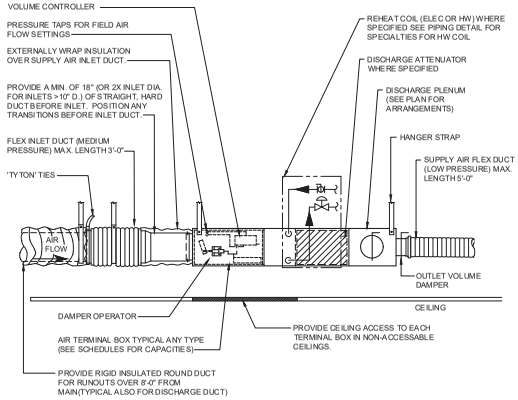
4 M301 INSULATED DUCT AND DUCT SLEEVE THRU NON-RATED WALL DETAIL
NO SCALE

NOTES:
1. FOR INSTALLATION IN 2 HOUR RATED FIRE WALL CONSTRUCTION, SEE FIRE DAMPER DIAGRAM.
2. FOR INFORMATION ON DUCT SLEEVES THRU RATED WALLS AND FLOORS SEE SPECIFICATIONS SECTION 15055.
3. 3/4" MIN. SPACE IS REQUIRED BETWEEN SLEEVE & DUCT INSULATION IN AREA WHERE DUCT IS SPECIFIED TO BE INSULATED.
4. ONLY 1 HOUR RATED SMOKE PARTITIONS & 2 HOUR RATED FIRE WALLS ARE INDICATED ON HEATING DRAWINGS. FOR ADDITIONAL RATED WALLS SEE ARCHITECTURAL DRAWINGS.
5. CONTRACTOR TO EXTEND FLOOR SLEEVES IN EQUIPMENT ROOMS & OVER HABITABLE SPACES 2 INCHES ABOVE FINISHED FLOOR.



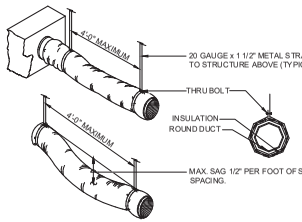
5 M301 LOW VELOCITY DUCTWORK DIAGRAMS
NO SCALE

NOTE:
PROVIDE RADIUS ELBOWS, 18" AND LARGER WITH TURNING BLADES AT 1/3 AND 1/2 THE WIDTH OF THE DUCT FROM THE INSIDE RADIUS. TURNING BLADES SHALL BE PROVIDED WITH HEMMED ENDS. (SEE SECTION 15840 OF MECHANICAL SPECIFICATIONS FOR ADDITIONAL DUCT CONSTRUCTION INFORMATION AND RESTRICTIONS.)

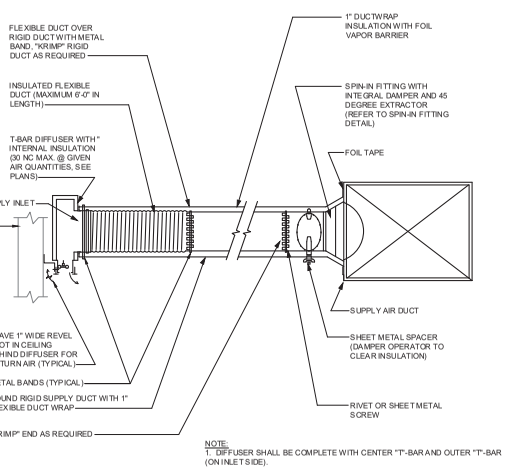


6 M301 VAV BOX W/ HEAT DETAIL
NO SCALE

NOTES:
1. FLEXIBLE DUCT SHOULD EXTEND STRAIGHT FOR SEVERAL INCHES FROM RECTANGULAR DUCT CONNECTION BEFORE BENDING.
2. FLEXIBLE DUCT SHOULD NOT EXCEED 4'-0" IN LENGTH. USE RIGID ROUND DUCTWORK WHEN RUNOUTS EXCEED 4'-0".

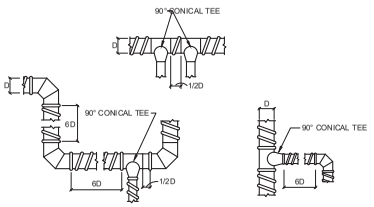


7 M301 FLEXIBLE DUCT RUN-OUT SUPPORT DETAIL
NO SCALE



NOTE:
1. DIFFUSER SHALL BE COMPLETE WITH CENTER "T"-BAR AND OUTER "T"-BAR (ON INLET SIDE).

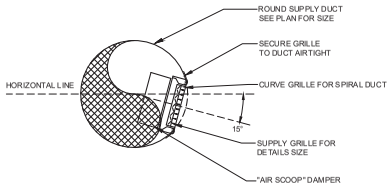
8 M301 FLEXIBLE DUCT WITH LINEAR SUPPLY AIR DIFFUSER DETAIL
NOT TO SCALE



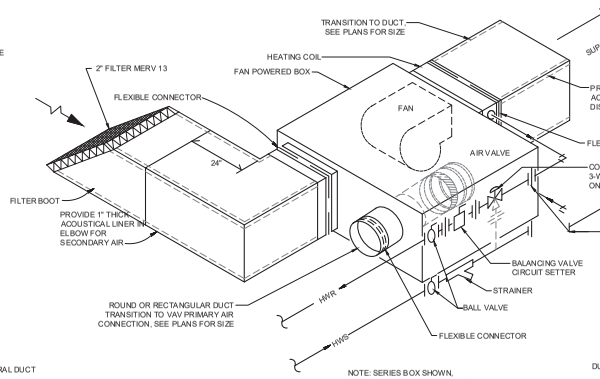
SPACING OF FITTINGS WHEN USING 90° CONICAL TEE

9 M301 MEDIUM AND HIGH VELOCITY DUCTWORK
NO SCALE

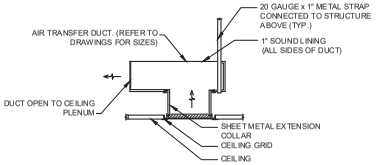
NOTE:
TURNING VANES IN HIGH AND MEDIUM PRESSURE DUCTWORK SHALL BE DOUBLE WIDTH. (SEE SECTION 15840 OF MECHANICAL SPECIFICATION FOR ADDITIONAL DUCT CONSTRUCTION INFORMATION AND RESTRICTIONS.)



10 M301 DUCT MOUNTED SUPPLY AIR GRILLE
NO SCALE



11 M301 FAN POWERED BOX W/ HOT WATER REHEAT DETAIL
NOT TO SCALE



12 M301 AIR TRANSFER DUCT WITH FIXED LOUVER GRILLE & OPEN STUB DETAIL
NO SCALE

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MECHANICAL DETAILS

SHEET NO:
M-301

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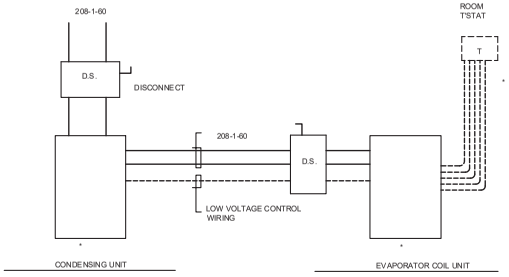
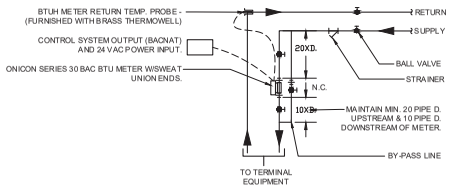
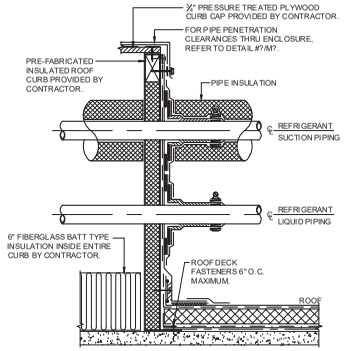


1 M-302 DUCTLESS SPLIT SYSTEM UNIT WIRING DIAGRAM
NO SCALE



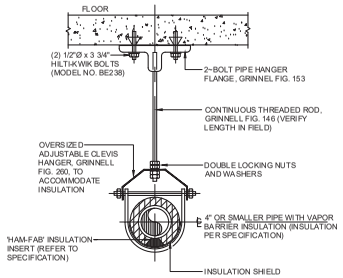
2 M-302 BTU METER INSTALLATION DETAIL
NO SCALE



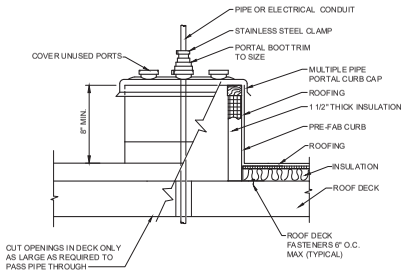
NOTES:

1. REFER TO THE ARCHITECTURAL DRAWINGS FOR ALL ROOFING AND FLASHING REQUIREMENTS.
2. ALL ROOFING WORK INCLUDING FLASHINGA ND COUNTER FLASHING SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
3. ROOF OPENINGS FOR PIPE/CONDUIT PENETRATIONS SHALL BE PROVIDED BY THE GNERAL CONTRACTOR.

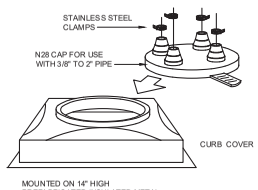
5 M-302 ROOF CURB/PIPE PORTAL DETAIL
NO SCALE

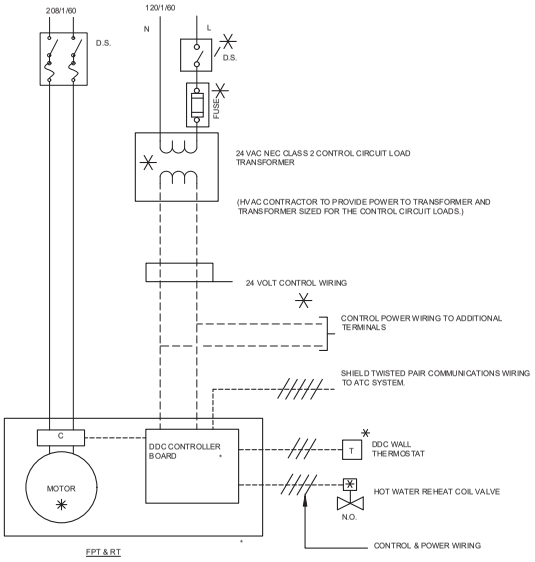


3 M-302 PIPE HANGER DETAIL
NO SCALE

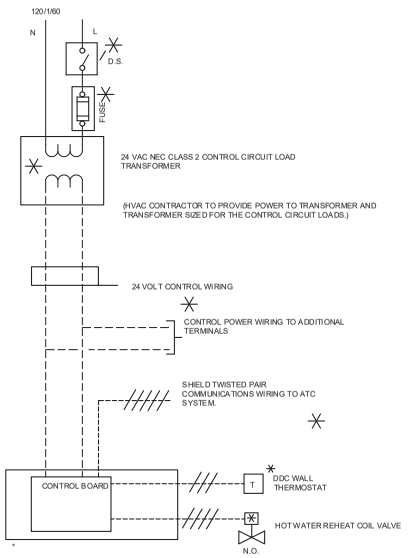


4 M-302 PIPE PORTAL DETAIL
NOT TO SCALE





6 M-302 FAN POWERED BOX WITH HOT WATER REHEAT WIRING DIAGRAM
NO SCALE



7 M-302 VAV BOX WITH HOT WATER REHEAT WIRING DIAGRAM
NO SCALE

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SHEET NAME:
MECHANICAL DETAILS

SHEET NO:
M-302

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PARALLEL FAN POWERED VAV- BOX W/ HOT WATER REHEAT COIL SCHEDULE

TAG	SERVES	PRIMARY AIR			FAN			HOT WATER HEATING COIL DATA								BASIS OF DESIGN		ELECTRICAL		REMARKS
		MAX. CFM	MIN. CFM	INLET DIA.	CFM	EXT. S.P. IN. W.C.	HP	HEATING CFM	MBH	GPM	ROWS	COIL CAPACITY	EWT (°F)	EAT/ LAT (°F)	MAX. WTR. P.D. (FT. HD.)	MFR.	MODEL - UNIT SIZE	MCA/MOCP	VOLS/PH	
FPB- 1.1	CONSULTATION 103	750	225	8"Ø	375	0.50"	1 / 2	600	24.0	3.0	2	STD	140	60/97	1.90	PRICE	FDVLP 30	6.2 / 15	208 / 1	1 THRU 8
FPB-5.1	DIRECTOR'S OFFICE 510C	325	98	6"Ø	163	0.50"	1 / 3	260	11.8	2.0	1	STD	140	60/97	2.53	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-5.2	MANAGER'S OFFICES 510D & 510E	300	90	6"Ø	150	0.50"	1 / 3	250	9.9	1.0	1	STD	140	60/97	0.73	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-5.3	LARGE CONFERENCE 511	625	188	8"Ø	313	0.50"	1 / 2	500	19.9	2.0	2	STD	140	60/97	0.94	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 8
FPB-5.4	MID SIZE CONFERENCE 512	250	75	6"Ø	125	0.50"	1 / 3	250	9.9	1.0	1	STD	140	60/97	0.73	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-5.5	MID SIZE CONF. 513	400	120	6"Ø	200	0.50"	1 / 3	320	12.8	2.0	1	STD	140	60/97	2.53	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-5.6	HCV CONTROL OFFICE 515	600	180	8"Ø	300	0.50"	1 / 2	480	19.2	2.0	2	STD	140	60/97	0.94	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-5.7	MANAGER'S OFFICES 514B & 514C	350	105	6"Ø	175	0.50"	1 / 3	280	11.2	1.0	1	HIGH	140	60/97	0.99	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-5.8	HCV CONTROL OFFICE 515	700	210	8"Ø	350	0.50"	1 / 3	560	22.4	3.0	2	STD	140	60/97	0.94	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-5.9	PARALEGAL 526	400	120	6"Ø	200	0.50"	1 / 3	320	12.8	2.0	1	STD	140	60/97	2.53	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-5.10	MANAGER'S OFFICE 524 & STORAGE 519	400	120	6"Ø	200	0.50"	1 / 3	320	12.8	2.0	1	STD	140	60/97	2.53	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-5.11	DIRECTOR'S OFFICE 523	250	75	6"Ø	125	0.50"	1 / 3	250	9.9	1.0	1	HIGH	140	60/97	0.73	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-5.12	CHIEF'S OFFICE 518A & DIRECTOR'S OFFICE 519A	545	164	8"Ø	273	0.50"	1 / 3	436	17.4	2.0	1	HIGH	140	60/97	2.53	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-5.13	PUBLIC SAFETY OFFICE 519	1060	318	10"Ø	530	0.50"	1 / 2	848	33.9	4.0	2	STD	140	60/97	1.76	PRICE	FDV 4010	6.2 / 15	208 / 1	1 THRU 7
FPB-5.14	VIEWING ROOM 519C	400	120	6"Ø	200	0.50"	1 / 3	320	12.8	2.0	1	STD	140	60/97	2.53	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-5.15	HCV WORKSTATIONS 510	1000	300	10"Ø	500	0.50"	1 / 2	800	31.2	4.0	2	STD	140	60/97	1.76	PRICE	FDV 4010	6.2 / 15	208 / 1	1 THRU 7
FPB-6.1	DIRECTOR'S OFFICE 620C	250	75	6"Ø	125	0.50"	1 / 3	250	8.0	1.0	1	STD	140	60/97	0.73	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-6.2	MID-SIZE CONFERENCE 622	495	149	8"Ø	248	0.50"	1 / 2	396	16.0	2.0	1	HIGH	140	60/97	3.43	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-6.3	LARGE CONFERENCE 623	400	120	6"Ø	200	0.50"	1 / 3	320	12.8	2.0	1	STD	140	60/97	3.43	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-6.4	CHIEF OFFICE 624	250	75	6"Ø	125	0.50"	1 / 3	250	8.0	1.0	1	STD	140	60/97	0.73	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-6.5	DEV/MOD. OFFICE 625	300	90	6"Ø	150	0.50"	1 / 3	240	9.6	1.0	1	STD	140	60/97	0.99	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-6.6	DEV/MOD. OFFICE 625	1750	525	12"Ø	875	0.50"	1.0	1550	61.9	3.0	2	HIGH	140	60/97	0.98	PRICE	FDV 5012	9.2 / 20	208 / 1	1 THRU 7
FPB-6.7	TRAINING 626A	960	288	10"Ø	480	0.50"	1 / 3	768	30.7	2.0	2	STD	140	60/97	0.94	PRICE	FDV 2010	3.2 / 15	208 / 1	1 THRU 7
FPB-6.8	HR OPEN WORKSTATIONS 626	600	180	8"Ø	300	0.50"	1 / 3	480	19.2	2.0	2	HIGH	140	60/97	0.76	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-6.9	MANAGER'S OFFICE 626G & HUDDLE 633	420	126	8"Ø	210	0.50"	1 / 3	336	13.4	2.0	1	STD	140	60/97	3.43	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-6.10	MAN.OFFICES 626E, 626F & DIR. OFFICE 627A	670	201	8"Ø	335	0.50"	1 / 3	536	21.4	2.0	2	STD	140	60/97	0.94	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-6.11	COPY/PRINT 627D	250	75	6"Ø	125	0.50"	1 / 3	250	8.0	1.0	1	STD	140	60/97	0.73	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-6.12	MANAGER'S OFFICE 627E	290	87	6"Ø	145	0.50"	1 / 3	250	9.6	1.0	1	STD	140	60/97	0.99	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-6.13	COPY/PRINT 627D	550	165	8"Ø	275	0.50"	1 / 3	440	17.6	2.0	1	STD	140	60/97	0.50	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-7.1	COPY/PRINT 710D	700	210	8"Ø	350	0.50"	1 / 2	560	22.4	3.0	2	STD	140	60/97	0.60	PRICE	FDV 3008	6.2 / 15	208 / 1	1 THRU 7
FPB-7.2	EXECUTIVE WORKSTATION 717G	500	150	8"Ø	250	0.50"	1 / 3	400	15.9	2.0	1	HIGH	140	60/97	0.60	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-7.3	OFFICE 709F & 710A	475	143	8"Ø	238	0.50"	1 / 2	380	15.1	2.0	1	HIGH	140	60/97	3.43	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-7.4	OFFICE 709 C, D & E	450	135	8"Ø	225	0.50"	1 / 2	360	15.1	2.0	1	HIGH	140	60/97	3.43	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-7.5	COPY/PRINT 709B	900	270	8"Ø	450	0.50"	1 / 2	720	28.7	2.0	2	STD	140	60/97	0.50	PRICE	FDV 3010	6.2 / 15	208 / 1	1 THRU 7
FPB-7.6	IT OPEN OFFICE 718	620	186	8"Ø	310	0.50"	1 / 3	496	19.8	2.0	2	HIGH	140	60/97	0.76	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-7.7	OFFICE 718B, 718C & STORAGE 718D	586	176	8"Ø	293	0.50"	1 / 3	469	18.7	2.0	2	HIGH	140	60/97	0.76	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-7.8	OFFICE 717D & 717E	500	150	8"Ø	250	0.50"	1 / 3	400	15.9	2.0	1	HIGH	140	60/97	0.60	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-7.9	OFFICE 717C	400	120	6"Ø	200	0.50"	1 / 3	320	12.8	2.0	1	STD	140	60/97	3.43	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-7.10	CONFERENCE ROOM 717A	400	120	6"Ø	200	0.50"	1 / 3	320	12.8	2.0	1	STD	140	60/97	3.43	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7
FPB-7.11	BOARD ROOM 716	800	240	8"Ø	400	0.60"	1 / 2	640	25.6	2.0	2	STD	140	60/97	0.94	PRICE	FDV 3008	6.2 / 15	208 / 1	1 THRU 7
FPB-7.12	OFFICE 711C & 712B	550	165	8"Ø	275	0.55"	1 / 3	440	17.6	2.0	1	STD	140	60/97	0.50	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7
FPB-7.13	RECEPTION 717	250	75	6"Ø	125	0.50"	1 / 3	250	9.9	1.0	1	HIGH	140	60/97	0.73	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7

REMARKS:
1. DDC CONTROLS COMPATIBLE WITH BUILDING CONTROL SYSTEM.
2. 1/2" THICK FIBRE FREE LINER.
3. SINGLE POINT POWER CONNECTION AND DOOR INTERLOCK DISCONNECT SWITCH.
4. FAN MOTOR SHALL BE ECM TYPE WITH MANUAL AND REMOTE PWM CONTROL.
5. SPRING HANGER BRACKETS.
6. 2" THICK PLEATED MERV 13 FILTERS WITH SLANTED FILTER BOOT.
7. HOT WATER COIL - 10 FINS PER INCH WITH SLIP AND DRIVE CONNECTION. COILS INDICATED AS 'HIGH' CAPACITY SHALL BE 12 FINS PER INCH.
8. LOW PROFILE FAN POWERED VAV BOX.

SINGLE DUCT VAV BOX SCHEDULE

TAG	SERVES	BASIS OF DESIGN MANU./ MODEL#	PRIMARY AIR			HEATING COIL DATA							ELECTRICAL VOLTS/ PHASE	REMARKS
			DESIGN CFM	MIN. CFM	INLET DIA.	CAPACITY MBH	GPM	ROWS	COIL CAPACITY	EWT/ LWT	EAT/LAT	MAX. WTR. P.D. (FT. HD)		
VAV-1.1	CONSULTATION 104	PRICE - SDV 04	200	125	4"Ø	5.5	0.5	1	STD	140 / 115	60 / 95	0.14	120 / 1	1 THRU 5
VAV-1.2	KID'S AREA 105	PRICE - SDV 04	200	125	4"Ø	5.5	0.5	1	STD	140 / 115	60 / 95	0.14	120 / 1	1 THRU 5
VAV-1.3	CONSULTATION 106	PRICE - SDV 04	200	125	4"Ø	5.5	0.5	1	STD	140 / 115	60 / 95	0.14	120 / 1	1 THRU 5
VAV-1.4	CONSULTATION 107	PRICE - SDV 04	200	125	4"Ø	5.5	0.5	1	STD	140 / 115	60 / 95	0.14	120 / 1	1 THRU 5
VAV-1.5	CONSULTATION 108	PRICE - SDV 05	350	175	6"Ø	7.5	1.0	1	STD	140 / 115	60 / 95	0.46	120 / 1	1 THRU 5
VAV-1.6	STAFF 121	PRICE - SDV 04	200	125	4"Ø	5.5	0.5	1	STD	140 / 115	60 / 95	0.14	120 / 1	1 THRU 5
VAV-1.7	RECEPTION 102	PRICE - SDV 08	700	350	6"Ø	13.2	2.0	1	HIGH	140 / 115	60 / 95	2.34	120 / 1	1 THRU 5
VAV-5.1	BREAK ROOM 505	PRICE - SDV 08	640	192	8"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-5.2	MID SIZE CONFERENCE 506	PRICE - SDV 04	175	53	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-5.3	MID SIZE CONFERENCE 504	PRICE - SDV 04	175	53	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-5.4	MAIL ROOM 503 & STORAGE 502	PRICE - SDV 05	300	90	5"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4, 6
VAV-5.5	ELEVATOR LOBBY 501	PRICE - SDV 04	250	75	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-5.6	MANAGER'S OFFICE 510A & 510B	PRICE - SDV 04	250	75	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4, 6
VAV-5.7	HCV CONTROL OPEN OFFICE 515	PRICE - SDV 09	1000	300	9"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-5.8	HCV WORKSTATIONS 510	PRICE - SDV 09	1000	300	9"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-5.9	COPY/PRINT 527	PRICE - SDV 04	175	53	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-6.1	PHONE 608, 609 & HEADS DOWN 607, 610	PRICE - SDV 04	120	36	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-6.2	HUDDLE 606, COPY/STORAGE 605 & MOTHER'S ROOM 604	PRICE - SDV 04	225	68	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4, 6
VAV-6.3	MINDFULNESS 603 & MID. CONFERENCE 602	PRICE - SDV 04	235	71	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4, 6
VAV-6.4	OPEN COLLAB 612	PRICE - SDV 12	1300	390	12"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-6.5	OFFICES 625A, 625B, 625C, 625D	PRICE - SDV 06	320	96	6"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4, 6
VAV-6.6	OFFICES 625E, 625F	PRICE - SDV 04	160	48	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4, 6
VAV-6.7	ELEVATOR LOBBY 601	PRICE - SDV 05	250	75	5"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-6.8	6TH FLOOR CORRIDOR	PRICE - SDV 04	200	60	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-6.9	6TH FLOOR CORRIDOR	PRICE - SDV 04	175	53	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-6.10	OFFICE 620A & 620B	PRICE - SDV 05	300	150	5"Ø	6.9	1.0	1	STD	140 / 115	60 / 95	1.61	120 / 1	1 THRU 6
VAV-7.1	BREAK ROOM 705	PRICE - SDV 08	750	225	8"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-7.2	CONFERENCE 704 & 706	PRICE - SDV 07	500	150	7"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4, 6
VAV-7.3	HUDDLE 703, 707, PHONE 713, 714 & 715	PRICE - SDV 04	210	63	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4, 6
VAV-7.4	FINANCE OFFICE 709	PRICE - SDV 09	900	270	9"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-7.5	CONFERENCE 708	PRICE - SDV 05	300	90	5"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-7.6	OPEN OFFICE 712	PRICE - SDV 09	1000	300	9"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-7.7	OFFICE 712A & 712B	PRICE - SDV 04	200	60	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4, 6
VAV-7.8	CORRIDOR	PRICE - SDV 04	150	45	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-7.9	COPY/PRINT 717B	PRICE - SDV 04	275	83	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-7.10	CORRIDOR	PRICE - SDV 04	150	45	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4
VAV-7.11	OFFICE 710B & 710C	PRICE - SDV 06	375	200	6"Ø	8.7	2.0	1	STD	140 / 115	60 / 95	1.61	120 / 1	1 THRU 6
VAV-7.12	ELEVATOR LOBBY 701	PRICE - SDV 04	250	75	4"Ø	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120 / 1	1 THRU 4

REMARKS:
1. PROVIDE SPRING HANGER BRACKETS
2. SOUND BASED ON 1" INLET S.P. , CAP. 0.25" DOWNSTREAM.
3. 1/2" THICK FIBRE FREE LINER.
4. SINGLE POINT POWER CONNECTION AND DOOR INTERLOCK DISCONNECT SWITCH.
5. DDC CONTROLS COMPATIBLE WITH BUILDING CONTROL SYSTEM.
6. HOT WATER COIL - 10 FINS PER INCH WITH SLIP AND DRIVE CONNECTION. COILS INDICATED AS 'HIGH' CAPACITY SHALL BE 12 FINS PER INCH.
7. SINGLE DUCT BOX SHALL OPERATE VIA STATIC PRESSURE TO MAINTAIN NO GREATER THAN .25 IN. WC. AT THERMAL VAV DIFFUSER.

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	NAS & AGR	DCP

SHEET NAME:
MECHANICAL SCHEDULES

SHEET NO:
M-401

TRUE NORTH
PLAN NORTH

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THERMAL INSULATION SCHEDULE

SYSTEM	SYSTEM- LOCATION	OPERATING TEMPERATURE	MATERIAL	SMACNA CLASS					REMARKS
				TYPE	THICKNESS IN.S	DENSITY LB/CU. FT.	INSTALLED "R" VALUE/ CONDUCTIVITY	JACKET	
DUCT	SUPPLY AIR DUCT - INDOOR CONCEALED, ACCESSIBLE	40-120	MINERAL-FIBER	BLANKET	2.0"	0.75	5.0	FSK	1, 5
DUCT	SUPPLY AIR DUCT - INDOOR CONCEALED, INACCESSIBLE	40-120	MINERAL-FIBER	BOARD	1.5 "	2.25	6.5	FSK	2
DUCT	SUPPLY AIR DUCT - INDOOR EXPOSED	40-120	MINERAL-FIBER	BOARD	1.0	2.25	5.0	ASJ	1, 5
DUCT	SUPPLY, RETURN, RELIEF, EXHAUST DUCT - OUTDOORS AND UNCONDITIONED	40-120	*	*	*	*	12	FSK	7
DUCT	EXHAUST DUCT WITHIN 10 FEET OF EXTERIOR OPENING - INDOOR	40-120	MINERAL-FIBER	BOARD	1.0 "	2.25	4.3	FSK	
PIPING	HEATING WATER SUPPLY AND RETURN	120-200	MINERAL-FIBER	PRE-MOLDED	REFER TO PIPING INSULATION THICKNESS SCHEDULE			ASJ+SSL	6
PIPING	CHILLED WATER/REFRIGEANT/ GLYCOL - CONDITIONED SPACE	40-60	MINERAL-FIBER	PRE-MOLDED				ASJ+SSL	6
PIPING	CHILLED WATER/REFRIGERANT/ GLYCOL - UNCONDITIONED SPACE	40-60	MINERAL-FIBER WICKING	PRE-MOLDED				ASJ+SSL	6
PIPING	COLD CONDENSATE DRAIN - INDOOR, ONLY ON METAL PIPE	40-60	MINERAL-FIBER	PRE-MOLDED				ASJ+SSL	7
PIPING	OUTDOOR PIPING EXPOSED TO FREEZING (HEAT TRACED PIPE)	40-100	MINERAL-FIBER	PRE-MOLDED				ALUM.	

NOTES:
1. CONCEALED, ACCESSIBLE LOCATIONS - ABOVE LAY-IN OR ACCESSIBLE CEILINGS, ACCESSIBLE MECHANICAL SHAFTS.
2. CONCEALED, INACCESSIBLE LOCATIONS - ABOVE HARD CEILINGS, (DRY WALL, PLASTER), MECHANICAL SHAFTS, BEHIND WALLS.
3. FOR DUCTS LOCATED OUTDOORS PROVIDE WATERPROOF CONSTRUCTION WITH WATER & UV RESISTANT MASTIC ON ALL JOINTS. INTERNALLY LINE WITH ACOUSTICAL DUCT LINER. CROSS-BREAK TOP TO SHED WATER.
4. CONSTRUCT PER NFPA 96 STANDARDS FOR KITCHEN EXHAUST. WHERE LOCATED WITH 3" OF COMBUSTIBLE PROTECT COMBUSTIBLE MATERIALS, WRAP EXTERIOR WITH FIRE RESISTANT INSULATION.
5. DO NOT INSULATE:
   - MAKE-UP AIR DUCTWORK OPERATING AT SURROUNDING AMBIENT CONDITIONS
   - RETURN AND EXHAUST AIR DUCTWORK LOCATED INDOORS.
   - TRANSFER AIR DUCTWORK (ACOUSTICALLY LINE DUCT)
   - EXPOSED SUPPLY DUCTWORK LOCATED IN CONDITIONED SPACE. (DOES NOT INCLUDE RETURN AIR PLENUM)
6. COVER ALL EXPOSED PIPING LOCATED BELOW 7' 0" ABOVE FINISHED FLOOR WITH PVC JACKET.
7. MULTIPLE INSULATION METHODS MAY BE USED TO ACHIEVE THE TOTAL REQUIRED R-VALUE.
8. DUCTWORK SHALL BE PAINTED WHERE EXPOSED OR VISIBLE TO OCCUPANTS. COLOR TO BE SELECTED BY ARCHITECT.

SPLIT SYSTEM AIR-COOLED A/C UNIT SCHEDULE

	EVAPORATOR							CONDENSER							
TAG	NOMINAL TONS	TOTAL CAPACITY MBH	SENS. CAPACITY MBH	CFM (DRY COIL)	MCA/MFS	ELECTRICAL VOLTS/PH.	MANUF / EVAPORATOR MODEL	TAG	EAT COOL/ HTG	SEER	MCA/MOCP	ELECTRICAL VOLTS/PH.	MANUF / CONDENSER MODEL	WEIGHT	REMARKS
AC 1-1	2.0	24.0	18.0	635-775	1.0A/SERVED FROM CONDENSER	208 V/1Ø	MITSUBISHI PKA-A24HA7	CU 1-1	95.0 / 5.0	21.4	19.0/30 A.	208 V/1Ø	MITSUBISHI PUY-A24NKA7	151 LBS.	1,2,3,4 ,5,6,7,8,9, 10
AC 5-1	1.0	12.0	9.0	320-425	1.0A/SERVED FROM CONDENSER	208 V/1Ø	MITSUBISHI PKA-A12HA7	CU 5-1	95.0 / 5.0	20.8	12.0/30 A.	208 V/1Ø	MITSUBISHI PUY-A12NKA7	92 LBS.	1,2,3,4 ,5,6,7,8,9, 10
AC 6-1	1.0	12.0	9.0	320-425	1.0A/SERVED FROM CONDENSER	208 V/1Ø	MITSUBISHI PKA-A12HA7	CU 6-1	95.0 / 5.0	20.8	12.0/30 A.	208 V/1Ø	MITSUBISHI PUY-A12NKA7	92 LBS.	1,2,3,4 ,5,6,7,8,9, 10
AC 7-1	1.0	12.0	9.0	320-425	1.0A/SERVED FROM CONDENSER	208 V/1Ø	MITSUBISHI PKA-A12HA7	CU 7-1	95.0 / 5.0	20.8	12.0/30 A.	208 V/1Ø	MITSUBISHI PUY-A12NKA7	92 LBS.	1,2,3,4 ,5,6,7,8,9, 10

NOTES:
1. CAPACITY BASED ON 80 DEG. F. DB/67 DEG. F. WB EAT ON EVAPORATOR
2. UNIT SHALL BE EQUIPPED WITH A WIND BAFFLE FOR OPERATION DOWN TO 0 DEG. S F.
3. PROVIDE DISCONNECT AT EACH OUTDOOR AND INDOOR UNITS.
4. PROVIDE INTEGRAL UNIT CONTROLS AND A WALL MOUNTED THERMOSTAT/CONTROLLER MODEL.
5. PROVIDE LOW AMBIENT KIT ACCESSORY.
6. PROVIDE CONDENSATE PUMP WITH RESERVOIR AND SENSOR THAT SHALL SHUT UNIT DOWN UPON ALARM OF SENSOR.
7. DDC CONTROLS COMPATIBLE WITH BUILDING CONTROL SYSTEM.
8. PROVIDE 18" UNIT STANDS FOR CONDENSING UNIT WITH VIBRATION ISOLATION PADS.
9. RATED VERTICAL HEIGHT DIFFERENCE BETWEEN EVAPORATOR AND CONDENSER SHALL BE 100 FEET. PROVIDE LONG LINE APPLICATIONS FOR ALL LINESETS EXCEEDING 80 FEET IN LENGTH.
10. POWER FROM CONDENSER TO INDOOR FAN COIL UNIT SHALL BE PROVIDED AND COORDINATED WITH EC.

PIPE INSULATION THICKNESS SCHEDULE

FLUID OPERATING TEMPERATURE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (IN)				
	CONDUCTIVITY BTU IN./(h FT²·°F)	MEAN RATING TEMPERATURE (°F)	< 1	1 to < 1½	1½ < 4	4 to < 8	≥ 8
> 350	0.32 - 0.34	250	4.5	5.0	5.0	5.0	5.0
251 - 350	0.29 - 0.32	200	3.0	4.0	4.5	4.5	4.5
201 - 250	0.27 - 0.30	150	2.5	2.5	2.5	3.0	3.0
141 - 200	0.25 - 0.29	125	1.5	1.5	2.0	2.0	2.0
105 - 140	0.21 - 0.28	100	1.0	1.0	1.5	1.5	1.5
40 - 60	0.21 - 0.27	75	0.5	0.5	1.0	1.0	1.0
40	0.20 - 0.26	50	0.5	1.0	1.0	1.0	1.5

REMARKS:

PIPING SERVING A S PART OF A HEATING OR COOLING SYSTEM SHALL BE THERMALLY INSULATED IN ACCORDANCE WITH TABLE ABOVE (IECC 2015 TABLE C403.2.1.0) WITH THE FOLLOWING EXCEPTIONS:
1. FACTORY-INSTALLED PIPING WITHIN HVAC EQUIPMENT TESTED AND RATED IN ACCORDANCE WITH A TEST PROCEDURE REFERENCED BY THIS CODE.
2. FACTORY-INSTALLED PIPING WITHIN ROOM FAN-COILS AND UNIT VENTILATORS TESTED AND RATED ACCORDING TO AHRI 330 (EXCEPT THAT THE SAMPLING AND VARIATION PROVISIONS OF SECTION 6.5 SHALL NOT APPLY) AND AHRI 840, RESPECTIVELY.
3. PIPING THAT CONVEYS FLUIDS THAT HAVE A DESIGN OPERATING TEMPERATURE RANGE BETWEEN 60°F AND 105°F.
4. PIPING THAT CONVEYS FLUIDS THAT HAVE NOT BEEN HEATED OR COOLED THROUGH THE USE OF FOSSIL FUELS OR ELECTRIC POWER.
5. STRAINERS, CONTROL VALVES, AND BALANCE VALVES ASSOCIATED WITH PIPING 1 INCH OR LESS IN DIAMETER.
6. DIRECT BURIED PIPING THAT CONVEYS FLUIDS AT OR BELOW 60°F.

TRANSFER AIR DUCT SCHEDULE

DESIGNATION	DUCT SIZE	CFM RANGE	DETAIL
T1	24 x 12	0-1200	#1/M301
T2	24 x 12	0-1200	#12/M301
T3	24 x 12	0-1200	-
T4	36 x 12	1201-2400	-
T5	48 x 12	2401-3600	-

NOTES:
1. SIZING BASED ON 0.05"/100 FT. P.D. ~ 700 FPM
2. REFER TO DETAIL FOR DUCT CONFIGURATION.
3. PROVIDE 1" THICK ACOUSTICAL LINER.

EXHAUST FAN SCHEDULE

MARK	SERVES	TYPE	BASIS OF DESIGN (GREENHECK)	CFM	SP IN WC	RPM	MAX SONES (INLET)	WALL/ ROOF OPENING SIZE	MOTOR		REMARKS
									HP (WATT)	VOLTS/ PH	
EF 6-1	205 RESTROOM	CABINET	QTXE080	75	0.3	950	0.3	6"Ø	(23.3)	120/1	1,2,3,4

REMARKS:
1. PROVIDE INTEGRAL BACKDRAFT DAMPER.
2. PROVIDE DISCONNECT SWITCH.
3. FAN SHALL BE CONTROLLED VIA WALL MOUNTED THERMOSTAT SET TO MAINTAIN A SPACE TEMPERATURE SETPOINT OF NO GREATER THAN 80 DEGREES FAHRENHEIT.
4. PROVIDE SPRING VIBRATION ISOLATION HANGERS.

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412 Boulevard of the Allies, Pittsburgh, PA 15219

#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19067.00	NAS & AGR	DCP

SHEET NAME:
MECHANICAL SCHEDULES

SHEET NO.
M-402

TRUE NORTH
PLAN NORTH

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GRILLE, REGISTER & DIFFUSER SCHEDULE

TAG	FACE SIZE (SLOT WIDTH)	# SLOTS/ BAR, GRID SPACE	DEFLECTION/ THROW	CONN. SIZE	MAX CFM	P.D. IN. W.C.	MAX. NC	BASIS OF DESIGN	MODEL	REMARKS
S-1	24/24	N/A	4W	6"Ø	160	0.06	27	PRICE	SPD	1,2,5
S-2	24/24	N/A	4W	8"Ø	280	0.08	27	PRICE	SPD	1,2,5
S-3	18"Ø	N/A	N/A	8"Ø	280	0.20	27	PRICE	RCD	1,2,5
S-4	14X8	N/A	2W	12X6	273	0.03	19	PRICE	SDGE	1,2,4,5
S-5	3/4" SLOT	2 SLOT 48" LENGTH	35°	7"Ø	190	0.13	27	PRICE	SDA075	1,2,3,5
S-6	1" SLOT	2 SLOT 48" LENGTH	35°	7"Ø	250	0.15	27	PRICE	SDA100	1,2,3,5
S-7	18"Ø	N/A	N/A	8"Ø	280	0.20	27	PRICE	RCD	1,2,5,6
S-8	3/4" SLOT	2 SLOT 24" LENGTH	35°	6"Ø	95	0.13	27	PRICE	SDB075	1,2,3,5
R-1	56/20	1/2"	45°	54/18	4400	0.14	29	PRICE	530D	1,2,5
R-2	70/22	1/2"	45°	68/20	6000	0.14	29	PRICE	530D	1,2,5

REMARKS:
1. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR CEILING TYPES AND MOUNTING REQUIREMENTS.
2. COLOR SELECTED BY ARCHITECT.
3. LINEAR SLOT DIFFUSER WITH INSULATED ENGINEERED PLENUM. PROVIDE PATTERN CONTROLLERS AND CABLE OPERATED DAMPER FOR SLOT DIFFUSERS INSTALLED IN HARD CEILINGS.
4. SPIRAL DUCT MOUNTED SUPPLY DIFFUSER WITH AIR SCOOP DAMPER AND DOUBLE DEFLECTION GRILLE.
5. PROVIDE OPPOSED BLADE DAMPERS AT DIFFUSERS, GRILLES, OR REGISTERS IF INSTALLED IN HARD CEILING.
6. PROVIDE 45 DEGREE SECTORIZING BAFFLE FOR BLANK-OFF OF ONE QUARTER OF DIFFUSER.

THERMAL VAV DIFFUSER SCHEDULE

TAG	FACE SIZE (SLOT WIDTH)	NECK SIZE (SLOT WIDTH)	# SLOTS/ BAR, GRID SPACE	DEFLECTION/ THROW	CONN. SIZE	MAX CFM	P.D. IN. W.C.	MAX. NC	BASIS OF DESIGN	MODEL	REMARKS
SV-1	24/24	6"Ø	N/A	4W	PER SCH.	120	0.20	29	PRICE	PRODIGY VAV	1,2,3,4,5,6
SV-2	24/24	8"Ø	N/A	4W	PER SCH.	240	0.14	29	PRICE	PRODIGY VAV	1,2,3,4,5,6

REMARKS:
1. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR CEILING TYPES AND MOUNTING REQUIREMENTS.
2. *PROVIDE PRESSURE RELIEF COLLAR (ONLY TO BE USED IN PLENUM RETURN APPLICATION)
3. COLOR SELECTED BY ARCHITECT.
4. THERMAL DIFFUSER TO BE POWERED BY PRODIGY POWER MODULE.
5. THERMAL DIFFUSER AND POWER MODULE SHALL BE PROVIDED WITH BACNET INTERFACE OPTION.
6. SEE MECHANICAL FLOOR PLANS FOR WIRING SCHEME FOR MASTER/SLAVE CONTROL OF DIFFUSERS.

VENTILATION SCHEDULE (1)

AIR HANDLING UNIT	AREA SERVED	SPACE DESIGNATION	AREA RATE			PEOPLE RATE				TOTAL REQ'D VENT @ ROOM (CFM)	VENT EFFECTIVENESS (%)	TOTAL REQ'D VENT @ AHU INLET (CFM)	REMARKS
			AREA (SQFT)	REQ'D VENT (CFM/SQFT)	REQ'D VENT (CFM)	PEOPLE	REQ'D VENT (CFM/PERSON)	DIVERSITY	REQ'D VENT (CFM)				
RTU-2	100 CORRIDOR	CORRIDOR	319	0.06	19	0	5.0	1.0	0	19	0.8	23.9	
RTU-2	101 APPLICATION AREA	OFFICE - RECEPTION AREA	1,231	0.06	74	37	5.0	1.0	185	259	0.8	323.1	
RTU-2	102 RECEPTION AREA	OFFICE - RECEPTION AREA	591	0.06	35	18	5.0	1.0	89	124	0.8	155.1	
RTU-2	103 LARGE CONSULTATION	CONFERENCE/MEETING	379	0.06	23	10	5.0	1.0	50	73	0.8	90.9	
RTU-2	104 SMALL CONSULTATION	CONFERENCE/MEETING	153	0.06	9	4	5.0	1.0	20	29	0.8	36.5	
RTU-2	105 KID'S AREA	DAYCARE	159	0.18	29	4	10.0	1.0	40	68	0.8	85.5	
RTU-2	106 SMALL CONSULTATION	CONFERENCE/MEETING	155	0.06	9	4	5.0	1.0	20	29	0.8	36.6	
RTU-2	107 SMALL CONSULTATION	CONFERENCE/MEETING	146	0.06	9	4	5.0	1.0	20	29	0.8	36.0	
RTU-2	108 MEDIUM CONSULTATION	CONFERENCE/MEETING	214	0.06	13	6	5.0	1.0	30	43	0.8	53.6	
RTU-2	121 STAFF AREA	BREAK ROOM	196	0.06	12	5	5.0	1.0	25	36	0.8	45.3	
												887.000	TOTAL FOR FIRST FLOOR
RTU-3	501 ELEVATOR LOBBY	MAIN ENTRY LOBBIES	230	0.06	14	2	5.0	1.0	12	25	0.8	31.6	
RTU-3	502 STORAGE ROOM	STORAGE ROOM - DRY MATERIALS	216	0.06	13	1	5.0	1.0	5	18	0.8	22.5	
RTU-3	503 MAIL ROOM	SORTING, PACKING, LIGHT ASSEMBLY	266	0.12	32	2	7.5	1.0	14	46	0.8	57.4	
RTU-3	504 MID SIZE CONFERENCE	CONFERENCE/MEETING	202	0.06	12	8	5.0	1.0	40	52	0.8	65.1	
RTU-3	505 BREAK ROOM	BREAK ROOM	771	0.06	46	27	5.0	1.0	135	181	0.8	226.6	
RTU-3	506 MID SIZE CONFERENCE	CONFERENCE/MEETING	213	0.06	13	8	5.0	1.0	40	53	0.8	66.0	
RTU-1	510 HCV WORKSTATIONS	OFFICE	2,939	0.06	176	28	5.0	1.0	140	316	0.8	395.4	
RTU-1	510A MANAGER'S OFFICE	OFFICE	122	0.06	7	1	5.0	1.0	5	12	0.8	15.4	
RTU-1	510B MANAGER'S OFFICE	OFFICE	127	0.06	8	1	5.0	1.0	5	13	0.8	15.8	
RTU-1	510C DIRECTOR'S OFFICE	OFFICE	220	0.06	13	1	5.0	1.0	5	18	0.8	22.8	
RTU-1	510D MANAGER'S OFFICE	OFFICE	134	0.06	8	1	5.0	1.0	5	13	0.8	16.3	
RTU-1	510E MANAGER'S OFFICE	OFFICE	128	0.06	8	1	5.0	1.0	5	13	0.8	15.9	
RTU-1	510F COPY/PRINT	OFFICE	151	0.06	9	1	5.0	1.0	5	14	0.8	17.6	
RTU-1	511 LARGE CONFERENCE	CONFERENCE/MEETING	376	0.06	23	10	5.0	1.0	50	73	0.8	90.7	
RTU-1	512 MID-SIZE CONFERENCE	CONFERENCE/MEETING	205	0.06	12	8	5.0	1.0	40	52	0.8	65.4	
RTU-1	513 MID-SIZE CONFERENCE	CONFERENCE/MEETING	210	0.06	13	8	5.0	1.0	40	53	0.8	65.8	
RTU-3	514B MANAGER'S OFFICE	OFFICE	147	0.06	9	1	5.0	1.0	5	14	0.8	17.3	
RTU-3	514C MANAGER'S OFFICE	OFFICE	147	0.06	9	1	5.0	1.0	5	14	0.8	17.3	
RTU-3	515 HCV OPEN OFFICE	OFFICE	377	0.06	23	25	5.0	1.0	125	148	0.8	184.5	
RTU-3	517 REFERENCE LIBRARY	OFFICE	295	0.06	18	4	5.0	1.0	20	38	0.8	47.1	
RTU-3	518 CHIEF'S OFFICE	OFFICE	236	0.06	14	1	5.0	1.0	5	19	0.8	24.0	
RTU-1	519 PUBLIC SAFETY OPEN OFFICE	OFFICE	660	0.06	40	6	5.0	1.0	30	70	0.8	87.0	
RTU-3	519A DIRECTOR'S OFFICE	OFFICE	186	0.06	11	1	5.0	1.0	5	16	0.8	20.2	
RTU-1	519B COPY/PRINT	OFFICE	256	0.06	15	6	5.0	1.0	30	45	0.8	56.7	
RTU-1	519C VIEWING ROOM	CONFERENCE/MEETING	323	0.06	19	16	5.0	1.0	80	99	0.8	124.2	
RTU-3	523 DIRECTOR'S OFFICE	OFFICE	174	0.06	10	1	5.0	1.0	5	15	0.8	19.3	
RTU-3	524 MANAGER'S OFFICE	OFFICE	146	0.06	9	1	5.0	1.0	5	14	0.8	17.2	
RTU-3	526 PARALEGAL	OFFICE	437	0.06	26	3	5.0	1.0	15	41	0.8	51.5	
RTU-3	527 COPY/PRINT	OFFICE	426	0.06	26	3	5.0	1.0	15	41	0.8	50.7	
												1907.000	TOTAL FOR FIFTH FLOOR

REMARKS:
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2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	NAS & AGR	DCP

SHEET NAME:
MECHANICAL SCHEDULES

SHEET NO.
M-403

TRUE NORTH
PLAN NORTH

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VENTILATION SCHEDULE (CONTINUED)

AIR HANDLING UNIT	AREA SERVED	SPACE DESIGNATION	AREA RATE			PEOPLE RATE				TOTAL REQ'D VENT @ ROOM (CFM)	VENT EFFECTIVENESS (%)	TOTAL REQ'D VENT @ AHU INLET (CFM)	REMARKS
			AREA (SQFT)	REQ'D VENT (CFM/SQFT)	REQ'D VENT (CFM)	PEOPLE	REQ'D VENT (CFM/PERSON)	DIVERSITY	REQ'D VENT (CFM)				
RTU-3	601 ELEVATOR LOBBY	MAIN ENTRY LOBBIES	230	0.06	14	2	5.0	1.0	12	25	0.8	31.6	
RTU-1	602 MID SIZE CONFERENCE	CONFERENCE/MEETING	184	0.06	11	8	5.0	1.0	40	51	0.8	63.8	
RTU-1	603 MINDFULNESS ROOM	OFFICE	122	0.06	7	1	5.0	1.0	5	12	0.8	15.4	
RTU-1	604 WELLNESS / MOTHER'S ROOM	OFFICE	92	0.06	6	2	5.0	1.0	10	16	0.8	19.4	
RTU-1	605 SHARED COPY/PRINT STORAGE	STORAGE - DRY MATERIALS	147	0.12	18	1	5.0	1.0	5	23	0.8	28.3	
RTU-1	606 HUDDLE	CONFERENCE/MEETING	163	0.06	10	4	5.0	1.0	20	30	0.8	37.2	
RTU-1	607 HEAD'S DOWN	OFFICE	52	0.06	3	1	5.0	1.0	5	8	0.8	10.2	
RTU-1	608 PHONE ROOM	OFFICE	46	0.06	3	1	5.0	1.0	5	8	0.8	9.7	
RTU-1	609 PHONE ROOM	OFFICE	46	0.06	3	1	5.0	1.0	5	8	0.8	9.7	
RTU-1	610 HEAD'S DOWN	OFFICE	52	0.06	3	1	5.0	1.0	5	8	0.8	10.2	
RTU-3	612 OPEN COLLAB/GROWTH	OFFICE	2,056	0.06	123	42	5.0	1.0	210	333	0.8	416.7	
RTU-1	620 PROC WORKSTATIONS	OFFICE	2,022	0.06	121	15	5.0	1.0	75	196	0.8	245.4	
RTU-1	620A MANAGER'S OFFICE	OFFICE	140	0.06	8	1	5.0	1.0	5	13	0.8	16.8	
RTU-1	620B MANAGER'S OFFICE	OFFICE	146	0.06	9	1	5.0	1.0	5	14	0.8	17.2	
RTU-1	620C MANAGER'S OFFICE	OFFICE	156	0.06	9	1	5.0	1.0	5	14	0.8	18.0	
RTU-1	622 MID-SIZE CONFERENCE	CONFERENCE/MEETING	235	0.06	14	8	5.0	1.0	40	54	0.8	67.6	
RTU-1	623 LARGE CONFERENCE	CONFERENCE/MEETING	402	0.06	24	10	5.0	1.0	50	74	0.8	92.7	
RTU-1	624 CHIEF'S OFFICE	OFFICE	265	0.06	16	1	5.0	1.0	5	21	0.8	26.1	
RTU-3	625 DEV/MOD OPEN OFFICE	OFFICE	2,666	0.06	160	28	5.0	1.0	140	300	0.8	375.0	
RTU-1	625A DIRECTOR'S OFFICE	OFFICE	154	0.06	9	4	5.0	1.0	20	29	0.8	36.6	
RTU-1	625B MANAGER'S OFFICE	OFFICE	123	0.06	7	1	5.0	1.0	5	12	0.8	15.5	
RTU-1	625C MANAGER'S OFFICE	OFFICE	130	0.06	8	1	5.0	1.0	5	13	0.8	16.0	
RTU-1	625D MANAGER'S OFFICE	OFFICE	133	0.06	8	1	5.0	1.0	5	13	0.8	16.2	
RTU-3	625E DIRECTOR'S OFFICE	OFFICE	148	0.06	9	1	5.0	1.0	5	14	0.8	17.4	
RTU-3	625F MANAGER'S OFFICE	OFFICE	122	0.06	7	1	5.0	1.0	5	12	0.8	15.4	
RTU-3	626 HR OPEN WORKSTATIONS	OFFICE	1,086	0.06	65	10	5.0	1.0	50	115	0.8	144.0	
RTU-3	626A TRAINING	LECTURE CLASSROOM	826	0.06	50	54	7.5	1.0	403	452	0.8	565.3	
RTU-3	626D HUDDLE	CONFERENCE/MEETING	155	0.06	9	5	5.0	1.0	25	34	0.8	42.9	
RTU-3	626E MANAGER'S OFFICE	OFFICE	146	0.06	9	1	5.0	1.0	5	14	0.8	17.2	
RTU-3	626F MANAGER'S OFFICE	OFFICE	149	0.06	9	1	5.0	1.0	5	14	0.8	17.4	
RTU-3	626G MANAGER'S OFFICE	OFFICE	160	0.06	10	1	5.0	1.0	5	15	0.8	18.3	
RTU-3	627A CHIEF'S OFFICE	OFFICE	245	0.06	15	1	5.0	1.0	5	20	0.8	24.6	
RTU-3	627F COPY/PRINT OFFICE	OFFICE	1,065	0.06	64	10	5.0	1.0	50	114	0.8	142.4	
RTU-3	627E MANAGER'S OFFICE	OFFICE	177	0.06	11	10	5.0	1.0	50	61	0.8	75.8	
												2676.000	TOTAL FOR SIXTH FLOOR
RTU-1	701 ELEVATOR LOBBY	MAIN ENTRY LOBBIES	230	0.06	14	2	5.0	1.0	12	25	0.8	31.6	
RTU-1	703 HUDDLE	CONFERENCE/MEETING	96	0.06	6	2	5.0	1.0	10	16	0.8	19.7	
RTU-1	704 MID-SIZE CONFERENCE	CONFERENCE/MEETING	204	0.06	12	8	5.0	1.0	40	52	0.8	65.3	
RTU-1	706 MID-SIZE CONFERENCE	CONFERENCE/MEETING	201	0.06	12	8	5.0	1.0	40	52	0.8	65.1	
RTU-1	707 HUDDLE	CONFERENCE/MEETING	98	0.06	6	2	5.0	1.0	10	16	0.8	19.9	

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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

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19047.00	NAS & AGR	DCP

SHEET NAME:

MECHANICAL SCHEDULES

SHEET NO.

TRUE NORTH
PLAN NORTH

M-404

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VENTILATION SCHEDULE (CONTINUED)

AIR HANDLING UNIT	AREA SERVED	SPACE DESIGNATION	AREA RATE			PEOPLE RATE				TOTAL REQ'D VENT @ ROOM (CFM)	VENT EFFECTIVENESS (%)	TOTAL REQ'D VENT @ AHU INLET (CFM)	REMARKS
			AREA (SQFT)	REQ'D VENT (CFM/SQFT)	REQ'D VENT (CFM)	PEOPLE	REQ'D VENT (CFM/PERSON)	DIVERSITY	REQ'D VENT (CFM)				
RTU-1	708 LARGE CONFERENCE	CONFERENCE/MEETING	407	0.06	24	10	5.0	1.0	50	74	0.8	93.0	
RTU-1	709 FINANCE OPEN OFFICE	OFFICE	2,333	0.06	140	14	5.0	1.0	70	210	0.8	262.5	
RTU-1	709B COPY/PRINT	OFFICE	383	0.06	23	6	5.0	1.0	30	53	0.8	66.2	
RTU-1	709C MANAGER'S OFFICE	OFFICE	134	0.06	8	1	5.0	1.0	5	13	0.8	16.3	
RTU-1	709D MANAGER'S OFFICE	OFFICE	140	0.06	8	1	5.0	1.0	5	13	0.8	16.8	
RTU-1	709E MANAGER'S OFFICE	OFFICE	136	0.06	8	1	5.0	1.0	5	13	0.8	16.5	
RTU-1	709F CHIEF'S OFFICE	OFFICE	243	0.06	15	1	5.0	1.0	5	20	0.8	24.5	
RTU-1	710 COMM AFFAIRS OPEN OFFICE	OFFICE	514	0.06	31	6	5.0	1.0	30	61	0.8	76.1	
RTU-1	710A DIRECTOR'S OFFICE	OFFICE	161	0.06	10	1	5.0	1.0	5	15	0.8	18.3	
RTU-1	710B CHIEF'S OFFICE	OFFICE	214	0.06	13	1	5.0	1.0	5	18	0.8	22.3	
RTU-1	710C MANAGER'S OFFICE	OFFICE	144	0.06	9	1	5.0	1.0	5	14	0.8	17.1	
RTU-3	711 OPERATIONS OPEN OFFICE	OFFICE	1,554	0.06	93	12	5.0	1.0	60	153	0.8	191.6	
RTU-3	711A COPY/PRINT	OFFICE	300	0.06	18	6	5.0	1.0	30	48	0.8	60.0	
RTU-3	711B CHIEF'S OFFICE	OFFICE	211	0.06	13	1	5.0	1.0	5	18	0.8	22.1	
RTU-3	712A MANAGER'S OFFICE	OFFICE	131	0.06	8	1	5.0	1.0	5	13	0.8	16.1	
RTU-3	712B MANAGER'S OFFICE	OFFICE	124	0.06	7	1	5.0	1.0	5	12	0.8	15.6	
RTU-3	712C DIRECTOR'S OFFICE	OFFICE	161	0.06	10	1	5.0	1.0	5	15	0.8	18.3	
RTU-1	713 PHONE	OFFICE	54	0.06	3	1	5.0	1.0	5	8	0.8	10.3	
RTU-1	714 PHONE	OFFICE	54	0.06	3	1	5.0	1.0	5	8	0.8	10.3	
RTU-1	715 PHONE	OFFICE	54	0.06	3	1	5.0	1.0	5	8	0.8	10.3	
RTU-3	716 BOARD ROOM	CONFERENCE/MEETING	679	0.06	41	14	5.0	1.0	70	111	0.8	138.4	
RTU-3	717 RECEPTION AREA	OFFICE - RECEPTION AREA	340	0.06	20	9	5.0	1.0	43	63	0.8	78.6	
RTU-3	717A CONFERENCE	CONFERENCE/MEETING	271	0.06	16	8	5.0	1.0	40	56	0.8	70.3	
RTU-3	717B COPY/PRINT	OFFICE	337	0.06	20	5	5.0	1.0	25	45	0.8	56.5	
RTU-3	717C EXECUTIVE DIRECTOR'S OFFICE	OFFICE	370	0.06	22	1	5.0	1.0	5	27	0.8	34.0	
RTU-3	717D MANAGER'S OFFICE	OFFICE	167	0.06	10	1	5.0	1.0	5	15	0.8	18.8	
RTU-3	717E MANAGER'S OFFICE	OFFICE	161	0.06	10	1	5.0	1.0	5	15	0.8	18.3	
RTU-3	717G EXECUTIVE WORKSTATIONS	OFFICE	877	0.06	53	6	5.0	1.0	30	83	0.8	103.3	
RTU-3	718 IT OPEN OFFICE	OFFICE	1,055	0.06	63	8	5.0	1.0	40	103	0.8	129.1	
RTU-3	718B DIRECTOR'S OFFICE	OFFICE	178	0.06	11	1	5.0	1.0	5	16	0.8	19.6	
RTU-3	718C DIRECTOR'S OFFICE	OFFICE	126	0.06	8	1	5.0	1.0	5	13	0.8	15.7	
RTU-3	718D EQUIPMENT STORAGE	OFFICE	225	0.12	27	0	5.0	1.0	0	27	0.8	33.7	
												1902.000	TOTAL FOR SEVENTH FLOOR

REMARKS:
1. CALCULATIONS WERE PERFORMED BASED ON IMC-2015 SECTIONS 402 & 403. MINIMUM OA FOR EXISTING ROOFTOP UNITS HAVE BEEN SET FOR 10,000 CFM EACH (QTY. 4).

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	NAS & AGR	DCP

SHEET NAME:
MECHANICAL SCHEDULES

SHEET NO.
M-405

TRUE NORTH
PLAN NORTH

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GENERAL ELECTRICAL NOTES:

GENERAL: UNLESS SPECIFICALLY INDICATED OTHERWISE, ALL WORK SHOWN ON THE ELECTRICAL DRAWINGS IS NEW WORK TO BE PROVIDED UNDER THIS CONTRACT.

DEMOLITION: SEE "ELECTRICAL GENERAL DEMOLITION NOTES" THIS SHEET .

COORDINATION: COORDINATE AND COOPERATE WITH ALL TRADES ON THE PROJECT.

RECORD DRAWINGS: SECURE AN EXTRA SET OF ELECTRICAL DRAWINGS TO BE KEPT ON SITE AND MARK, DAILY, THE DRAWINGS IN RED AS THE PROJECT PROGRESSES IN ORDER TO KEEP AN ACCURATE RECORD OF ALL DEVIATIONS BETWEEN THE WORK SHOWN ON THE DRAWINGS AND THE WORK WHICH IS ACTUALLY INSTALLED. THESE MARKED DRAWINGS SHALL REFLECT ANY AND ALL CHANGES AND REVISIONS TO THE ORIGINAL DESIGN WHICH EXISTS IN THE COMPLETED WORK. DELIVER THE MARKED DRAWINGS TO THE <ARCHITECT/ENGINEER> AT PROJECT CLOSE-OUT.

TESTS: TEST ALL WIRING FOR CONTINUITY AND GROUNDS BEFORE CONNECTING ANY FIXTURES OR DEVICES. PERFORM INSULATION RESISTANCE TESTS ON ALL WIRING #8 OR LARGER TO ENSURE THAT ALL PORTIONS ARE FREE FROM SHORT-CIRCUITS AND GROUNDS.

INSPECTIONS: ARRANGE ALL NECESSARY INSPECTIONS. DELIVER ALL REQUIRED INSPECTION CERTIFICATES TO THE OWNER.

GROUNDING: PROVIDE GROUNDING IN ACCORDANCE WITH THE NEC FOR THE ELECTRICAL SYSTEM INCLUDING EQUIPMENT FRAMES CONDUITS, SWITCHES, CONTROLLERS, WIRE-WAYS, NEUTRAL CONDUCTORS, AND OTHER EQUIPMENT. PROVIDE A GROUNDING CONDUCTOR IN ALL POWER CIRCUITS.

LABELS: PROVIDE LABELS FOR ALL PANELBOARDS, CABINETS, SAFETY SWITCHES, MOTOR-DISCONNECT SWITCHES, AND MOTOR CONTROLLERS. LABELS SHALL BE MACHINE ENGRAVED, LAMINATED PLASTIC, PERMANENTLY ATTACHED WITH SELF-TAPPING SCREWS OR RIVETS. DO NOT USE SELF-ADHESIVE LABELS.

J-BOX LABELING: LABEL ALL JUNCTION BOXES WITH PERMANENT MARKER IDENTIFYING CIRCUIT NUMBER AND PANELBOARD OF CIRCUITS WITHIN.

PANEL DIRECTORY: PROVIDE TYPEWRITTEN PANELBOARD DIRECTORY CARD IN EACH PANELBOARD INCLUDING EXISTING PANELBOARDS MODIFIED FOR THIS PROJECT WITH CIRCUIT LOAD INFORMATION AND ROOM NUMBER CLEARLY IDENTIFIED. USE ACTUAL ROOM NUMBERS IN THE BUILDING, NOT THE ROOM NUMBERS SHOWN ON THE CONTRACT DRAWINGS, AS THEY ARE OFTEN DIFFERENT.

MOTOR COORDINATION: MOTORS, MOTOR STARTERS, CONTROLLERS, INTEGRAL DISCONNECT SWITCHES, AND CONTACTORS SHALL BE PROVIDED WITH THEIR RESPECTIVE PIECES OF EQUIPMENT BY THE EQUIPMENT SUPPLIER. COMMUNICATE WITH THE TRADES PROVIDING THE EQUIPMENT, VERIFYING ALL REQUIREMENTS, PROVIDE ALL ELECTRICAL CONNECTIONS REQUIRED THEREIN, AND INSTALL MOTOR STARTERS.

MOTOR DISCONNECTS: ALL MOTORS SHALL HAVE DISCONNECTING MEANS.

MOTOR FUSE PROTECTION: WHERE FUSE PROTECTION IS SPECIFICALLY REQUIRED BY THE EQUIPMENT MANUFACTURER, PROVIDE FUSE SWITCHES IN LIEU OF NON-FUSE SWITCHES OR IN LIEU OF ENCLOSED CIRCUIT BREAKERS, OR OTHER DEVICES INDICATED.

CONNECTION DETAILS: SECURE APPROVED SHOP DRAWINGS SHOWING WIRING DIAGRAMS, ROUGH-IN AND HOOK UP DETAILS FROM OTHER INVOLVED CONTRACTORS FOR EQUIPMENT WHICH MUST BE CONNECTED ELECTRICALLY.

EQUIPMENT DETAILS: MECHANICAL EQUIPMENT WILL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR. THE LOCATIONS SHOWN ON THE ELECTRICAL DRAWINGS ARE APPROXIMATE. COORDINATE WITH THE MECHANICAL CONTRACTOR TO DETERMINE THE EXACT LOCATION OF EACH PIECE OF EQUIPMENT AND DETERMINE THE EXACT ROUGH-IN AND CONNECTION REQUIREMENTS.

STARTER MOUNTING: WHERE AN INDIVIDUALLY MOUNTED SAFETY SWITCH, STARTER OR CIRCUIT BREAKER IS SHOWN ADJACENT TO ITS RESPECTIVE LOAD AND NOT MOUNTED ON A WALL, PROVIDE ALL SUPPORTS, BRACKETS, ANCHORING, ETC. NECESSARY TO PROPERLY SUPPORT THE DEVICE.

LIGHTING ARRANGEMENT: ARRANGE LIGHTING FIXTURES IN ACCORDANCE WITH THE ARCHITECTURAL REFLECTED CEILING PLANS.

LIGHTING COORDINATION: COORDINATE LIGHTING FIXTURES WITH GRILLES, DIFFUSERS, SPRINKLER HEADS, AND ACCESS PANELS, ETC.

MATERIAL COORDINATION: VERIFY CEILING AND WALL CONSTRUCTION AND MATERIAL PRIOR TO ORDERING LIGHT FIXTURES OR OTHER DEVICES TO ENSURE PROPER FIXTURES OR DEVICE IS FURNISHED TO MATCH CONSTRUCTION.

MOUNTING HEIGHTS: MOUNTING HEIGHTS INDICATED ARE FROM THE FINISHED FLOOR TO THE CENTERLINE OF THE WIRING DEVICE UNLESS OTHERWISE NOTED. MOUNTING HEIGHTS OF LIGHTING FIXTURES AND FIRE ALARM DEVICES ARE TO THE BOTTOM OF THE FIXTURE OR DEVICE UNLESS OTHERWISE NOTED.

DEVICE LOCATIONS: COORDINATE LOCATIONS OF SWITCHES, RECEPTACLES, AND TELE/DATA OUTLETS WITH OTHER WALL MOUNTED DEVICES SUCH AS THERMOSTATS AND CONTROL STATIONS. DO NOT MOUNT WIRING DEVICES BACK TO BACK. PROVIDE MINIMUM OF ONE STUD SEPARATION.

EWC RECEPTACLES: RECEPTACLES FOR ELECTRIC WATER COOLERS (EWC) SHALL BE INSTALLED OUT OF VIEW AND BEHIND THE EWC ENCLOSURE. VERIFY THE MOUNTING HEIGHT WITH THE EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.

DEVICE COORDINATION: THOROUGHLY REVIEW AND COORDINATE ALL CASEWORK, DOOR SWINGS, AND CABINET DRAWINGS AND ARCHITECTURAL ELEVATIONS WITH DEVICE LOCATIONS PRIOR TO ROUGH-IN OF OUTLET BOXES.

BARRIERS: WHERE A MULTIPLE GANG BOX HAS CIRCUITS OF DIFFERENT VOLTAGES OR SYSTEMS WHICH ARE REQUIRED TO BE SEPARATED, PROVIDE THE CODE-REQUIRED SEPARATION USING A FULL HEIGHT AND DEPTH BARRIER PLATE.

FIRE PROOFING: FOR ANY WALL OR FLOOR PENETRATIONS THROUGH FIRE RATED STRUCTURES PROVIDE FIRE-PROOFING TO SEAL ALL THE PENETRATIONS AFTER THE CONDUIT HAS BEEN INSTALLED. FIRE PROOFING FOR PENETRATIONS SHALL BE UL APPROVED PER THE THE PENETRATION MADE IN ORDER TO MAINTAIN FIRE RATED INTEGRITY OF THE STRUCTURE.

CLEAN UP: ON PROJECT CLOSE-OUT, CLEAN ALL ELECTRICAL DEVICES, LIGHTING FIXTURES, LAMPS AND LENSES, AND REMOVE ALL PAINT SPATTERS FROM DEVICES, FIXTURES, AND PLATES. REPLACE ALL INOPERATIVE LAMPS.

OWNER FURNISHED EQUIPMENT: CONTRACTOR SHALL OBTAIN CUT SHEETS, INSTALLATION DATA, AND ROUGH-IN REQUIREMENTS FOR OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT AND COORDINATE ROUGH-IN AND POWER REQUIREMENTS WITH THE OWNER'S REPRESENTATIVE PRIOR TO STARTING ANY ASSOCIATED WORK.

CONDUIT ROUTING: ALL CONDUIT RUN OVERHEAD SHALL BE RUN AT THE BOTTOM OF THE FLOOR, ROOF STRUCTURE, OR LOWEST CHORD OF JOIST SPACE (AS APPLICABLE) ABOVE IN ORDER TO AVOID CONFLICTS WITH OTHER TRADES.

WIRING DEVICES: ALL RECEPTACLES AND SWITCHES SHALL BE LABELED WITH PLASTIC LAMINATED LABEL WITH THE PANELBOARD DESIGNATION AND CIRCUIT NUMBER FROM WHICH IT IS FED.

EQUIPMENT DEMONSTRATION: PROVIDE A DEMONSTRATION OF THE OPERATION OF ALL ELECTRICAL COMPONENTS UPON REQUEST OF THE OWNER.

CEILING PLENUM: ALL WIRING THAT WILL NOT BE RUN IN CONDUIT SHALL BE PLENUM RATED.

GENERAL SPECIAL SYSTEM NOTES:

FIRE ALARM SYSTEM

ALL FIRE ALARM NOTIFICATION DEVICES SHALL MEET THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA) AND NFPA 72.

ALL WIRING SHALL BE RUN IN CONDUIT (3/4" MINIMUM) OR FIRE ALARM MC CABLE WITH RED STRIPING. MAKE ALL WIRE CONNECTIONS TO DEVICES PER MANUFACTURER'S RECOMMENDATION AND NFPA 72.

MANUFACTURER, IN CONJUNCTION WITH THE CONTRACTOR, SHALL DETERMINE CONDUIT AND WIRING REQUIREMENTS AND DOCUMENT ALL ADDITIONS AND CHANGES ON AS-BUILT RECORD DRAWINGS.

ELECTRICAL GENERAL DEMOLITION NOTES:

GENERAL: DEMOLITION DRAWINGS ARE BASED ON EXISTING PLANS AND FIELD INVESTIGATION PRIOR TO DEMOLITION. VISIT THE EXISTING BUILDING PRIOR TO BID IN ORDER TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND IN ORDER TO AVOID CONFLICTS.

DASHED ITEMS: ALL ITEMS SHOWN DASHED ON DEMOLITION PLANS ARE EXISTING AND SHALL BE REMOVED COMPLETE INCLUDING BOXES, CONDUIT, WIRE, FASTENERS, AND ASSOCIATED APPURTENANCES UON.

SOLID ITEMS: ALL ITEMS SHOWN SOLID ON DEMOLITION PLANS ARE EXISTING TO REMAIN.

CIRCUITING TO REMAIN: EXISTING CIRCUITING TO REMAIN SHALL BE REROUTED OR RECONNECTED, AS REQUIRED, WHERE AFFECTED BY NEW WORK IN ORDER TO MAINTAIN CONTINUITY OF CIRCUIT.

REUSE OF EXISTING CIRCUITRY: EXISTING CIRCUITRY SERVING LIGHTING FIXTURES AND/OR RECEPTACLES FOR A GIVEN AREA SHALL BE REUSED WHERE CONVENIENT TO SERVE THE NEW LAYOUT. PROVIDE CIRCUIT MODIFICATIONS INDICATED OR AS OTHERWISE REQUIRED TO MAINTAIN THE CONTINUITY OF THE EXISTING CIRCUITS THAT REMAIN.

EXISTING CONDUIT: ALL EXISTING CONDUITS AND WIRING THAT WILL NOT BE REUSED SHALL BE REMOVED WHERE THEY WILL BE EXPOSED UPON COMPLETION OF NEW WORK. EXISTING CONDUIT TO REMAIN BELOW FLOOR SLAB SHALL BE CUT OFF ONE INCH BELOW ROUGH FLOOR AND GROUTED FLUSH. ALL EXISTING WIRING IN CONDUITS TO BE ABANDONED SHALL BE DISCONNECTED FROM POWER SOURCE AND REMOVED.

REPAIR DAMAGE: EXERCISE CARE IN REMOVAL OF DEMOLITION ITEMS. REPAIR, AT NO ADDITIONAL COST TO OWNER, ANY DAMAGE CAUSED TO EXISTING CONSTRUCTION AND/OR EQUIPMENT TO REMAIN.

ASSOCIATED APPURTENANCES: REMOVE ALL ELECTRICAL APPURTENANCES (DISCONNECTS, STARTERS, WIRING, CONDUIT, ETC.) ASSOCIATED WITH EQUIPMENT TO BE REMOVED BY OTHERS.

KNOCKOUT PLUGS AND COVERS: ALL CONDUIT REMOVED SHALL BE REMOVED IN ITS ENTIRETY, INCLUDING FITTINGS, MOUNTING DEVICES, MOUNTING HARDWARE, ETC. PROVIDE CONDUIT PLUGS AND BLANKS FOR ALL OPENINGS CREATED BY THE REMOVAL OF CONDUIT. PROVIDE BLANK COVER PLATES FOR ALL OPENED OUTLET BOXES CREATED BY THE REMOVAL OF THE EQUIPMENT AND/OR DEVICES.

DEMOLISHED MATERIALS: ALL MATERIALS REMOVED UNDER DEMOLITION, NOT TO BE RELOCATED OR DESIGNATED TO BE TURNED OVER TO THE OWNER, SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED COMPLETELY FROM THE SITE.

SCHEDULE OUTAGES: ALL WORK AND ALL POWER OUTAGES IN THE EXISTING BUILDING SHALL BE SCHEDULES AT TIMES CONVENIENT TO THE OWNER.

NOTIFICATION: NOTIFY THE OWNER PRIOR TO TURNING OFF ANY CIRCUITS.

EXISTING CIRCUITS: IF DURING THE COURSE OF CONSTRUCTION, IT IS DETERMINED BY THE CONTRACTOR THAT AN EXISTING CIRCUIT BECOMES SPARE, THE CONTRACTOR SHALL UPDATE THE PANELBOARD DIRECTORY TO INDICATE SUCH, EVEN IF IT IS NOT EXPLICITLY MARKED ON THE ELECTRICAL PLANS.

COMMUNICATIONS

- TELE/DATA BOX, 4"X4"X2 1/4"D BOX WITH SINGLE GANG PLASTER RING 18"AFF, UON, WITH 1 1/4"C WITH PULL STRING STUBBED ABOVE ACCESSIBLE CEILING AND TERMINATED WITH PLASTIC BUSHING.
- TELEPHONE PLYWOOD BACKBOARD 3/4"x8'x4', FIRE RETARDANT. BOTTOM AT 0'-4" AFF.
- TV CABLE TELEVISION OUTLET JUNCTION BOX, 4"X4"X2 1/4"D BOX WITH SINGLE GANG PLASTER RING, WITH A 1"C WITH PULL STRING STUBBED ABOVE ACCESSIBLE CEILING AND TERMINATED WITH BUSHING. MOUNT 18"AFF UON.
- CR PROVIDE SINGLE GANG JUNCTION BOX AT 44" AFF, WITH 1" CONDUIT STUBBED UP AT 10'-6". PROVIDE PULLWIRE.
- AV AV JUNCTION BOX, PROVIDE A DOUBLE GANG LOW VOLTAGE BRACKET WITH SINGLE GANG PLASTER RING. PROVIDE A 1 1/2"C WITH PULL STRING FROM BRACKET UP TO ABOVE ACCESSIBLE CEILING. PROVIDE BUSHING AT EACH END OF CONDUIT. PROVIDE PULLWIRE. VERIFY LOCATION WITH AV CONSULTANT PRIOR TO ROUGH-IN.

GENERAL HVAC ELECTRICAL NOTES:

ELECTRICAL CONTRACTOR SHALL INSTALL DISCONNECT SWITCHES PROVIDED BY MECHANICAL CONTRACTOR AND WIRE PER MANUFACTURER'S REQUIREMENTS.

LIGHTING

- LIGHTING FIXTURE.
- LIGHTING FIXTURE ON EMERGENCY CIRCUIT. SUBSCRIPT "NL" WHERE USED, INDICATES NIGHT LIGHT CONNECTED AHEAD OF LIGHTING CONTROLS.
- DOWNLIGHT FIXTURE.
- DOWNLIGHT OR PENDANT LIGHT FIXTURE ON NORMAL/EMERGENCY CIRCUIT. SUBSCRIPT "NL" WHERE USED, INDICATES NIGHT LIGHT CONNECTED AHEAD OF LIGHTING CONTROLS.
- EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS AS INDICATED ON DRAWINGS. CONNECT TO DEDICATED EMERGENCY BRANCH CIRCUIT. SHADED AREA DENOTES LIGHTED FACE.
- S_a SINGLE POLE SWITCH, 20A, 120/277V, 44"AFF UON. SUBSCRIPT "a" INDICATES ASSOCIATED FIXTURES TO BE CONTROLLED.
- S_T DIGITAL TIMED OFF SWITCH UP TO 6 HOURS, 20A, 120/277V, 44"AFF UON.
- S_{LV1a} LOW VOLTAGE SWITCH, 44" AFF UON. SUBSCRIPT "1" INDICATES LOW VOLTAGE SWITCH DESIGNATION. SUBSCRIPT "a" INDICATES LOW VOLTAGE BUTTON DESIGNATION. REFER TO LIGHTING RELAY PANEL SCHEDULES FOR TOTAL NUMBER OF BUTTONS PER SWITCH AND ADDITIONAL INFORMATION.
- S_{LV2} WALL SWITCH MANUFACTURER NLIGHT CAT. #nPODM-2P-DX, 44" AFF UON. WHERE WALL SWITCH IS LOCATED IN 'DEMOUNTABLE' PARTITION, THE DEMOUNTABLE PARTITION MANUFACTURER SHALL PROVIDE A SINGLE GANG JUNCTION BOX AND A 3/4" CONDUIT WITH PULLWIRE, STUBBED UP TO ABOVE ACCESSIBLE CEILING SYSTEM. ELECTRICAL CONTRACTOR SHALL PROVIDE SWITCH, CONTROL CABLING, INSTALLATION AND MAKE ALL FINAL TERMINATIONS.
- S_{LVD} MULTI-BUTTON LOW VOLTAGE SWITCH, 44" AFF UON WITH RAISE LOWER FUNCTION.
- S_{D2} VACANCY SENSOR WALL SWITCH WITH MANUAL ON/AUTO OFF AND RAISE/LOWER BUTTONS, 44" AFF UON. MANUFACTURER SENSOR SWITCH CAT. #WSX DT VA XX. WHERE VACANCY SENSOR SWITCH IS LOCATED IN 'DEMOUNTABLE' PARTITION, THE DEMOUNTABLE PARTITION MANUFACTURER SHALL PROVIDE A SINGLE GANG JUNCTION BOX AND A 3/4" CONDUIT WITH PULLWIRE, STUBBED UP TO ABOVE ACCESSIBLE CEILING SYSTEM. ELECTRICAL CONTRACTOR SHALL PROVIDE SWITCH, CONTROL CABLING, INSTALLATION AND MAKE ALL FINAL TERMINATIONS.
- S_{D3} VACANCY SENSOR WALL SWITCH WITH MANUAL ON/AUTO OFF BUTTONS, 44" AFF UON. WHERE VACANCY SENSOR SWITCH IS LOCATED IN 'DEMOUNTABLE' PARTITION, THE DEMOUNTABLE PARTITION MANUFACTURER SHALL PROVIDE A SINGLE GANG JUNCTION BOX AND A 3/4" CONDUIT WITH PULLWIRE, STUBBED UP TO ABOVE ACCESSIBLE CEILING SYSTEM. ELECTRICAL CONTRACTOR SHALL PROVIDE SWITCH, CONTROL CABLING, INSTALLATION AND MAKE ALL FINAL TERMINATIONS.
- OSM DUAL TECHNOLOGY OCCUPANCY SENSOR, CEILING MOUNTED. "#" DENOTES OCCUPANCY SENSOR TYPE. SUBSCRIPT "a", WHERE USED, INDICATES ASSOCIATED FIXTURES TO BE CONTROLLED.
  - OS1: SENSOR SWITCH MODEL # CM-PDT-9
  - OS2: SENSOR SWITCH MODEL # CM-PDT-10
  - OS3: SENSOR SWITCH MODEL # WV-PDT-19
- VSM DUAL TECHNOLOGY VACANCY SENSOR, CEILING MOUNTED. "#" DENOTES OCCUPANCY SENSOR TYPE. SUBSCRIPT "a", WHERE USED, INDICATES ASSOCIATED FIXTURES TO BE CONTROLLED.
  - VS1: SENSOR SWITCH MODEL # CM-PDT-9-R
  - VS2: SENSOR SWITCH MODEL # CM-PDT-10-R
- PC DAYLIGHT PHOTOSENSOR - NLIGHT CAT. #
- PP$_D$ LIGHTING RELAY POWER PACK WITH 0-10V DIMMING. PROVIDE NLIGHT MODEL NPP16-D OR APPROVED EQUAL.
- PP$_{ER}$ UL 924 LISTED EMERGENCY LIGHTING RELAY POWER PACK FOR ON/OFF CONTROL. PROVIDE NLIGHT MODEL NPP16-ER OR APPROVED EQUAL.
- ERD PP UL 924 LISTED EMERGENCY LIGHTING RELAY POWER PACK WITH 0-10V DIMMING. PROVIDE NLIGHT MODEL NPP16-D-ER OR APPROVED EQUAL.
- PP$_{ID}$ LIGHTING RELAY POWER PACK WITH 2-WIRE DIMMING. PROVIDE NLIGHT MODEL NSP5-PCD-ELV OR APPROVED EQUAL.
- PP LIGHTING RELAY POWER PACK. PROVIDE NLIGHT MODEL NPP16 OR APPROVED EQUAL.
- BR NLIGHT NETWORK BRIDGE MODEL NBRG8 OR EQUIVALENT.
- G NLIGHT NETWORK GATEWAY MODEL NGWY2 OR EQUIVALENT.

GENERAL

1. KEYED WORK NOTE.

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2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/28/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY
19047.00	MWM	DEB

SHEET NAME:
ELECTRICAL DATA SHEET

SHEET NO.
E-001

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POWER

- DUPLEX RECEPTACLE, 20A, 120V
- DUPLEX RECEPTACLE, GROUND FAULT INTERUPTING TYPE, 20A, 120V, 18"AFF, UON.
- DUPLEX RECEPTACLE WITH ADDITIONAL ISOLATED GROUND WIRE, 20A, 120V, 18"AFF, UON.
- AC — DUPLEX RECEPTACLE, 20A, 120V, 40"AFF OR 4" ABOVE COUNTER TOP OR IN CASEWORK (AS APPLICABLE), OR IN CASEWORK, AS APPLICABLE, UON.
- 20A, 120V, 18"AFF, UON.
- DUPLEX RECEPTACLE, GROUND FAULT INTERRUPTING TYPE, 20A, 120V, 44"AFF OR 4" ABOVE COUNTER TOP OR BACKSPLASH (WHICHEVER IS HIGHER), OR IN CASEWORK, AS APPLICABLE, UON.
- TR — DUPLEX RECEPTACLE, TAMPER RESISTANT TYPE, 20A, 120V, 18"AFF, UON.

- PT1 — PROVIDE A 8" FIRE RATED FLOOR POKE-THRU WITH PROVISIONS FOR DATA AND (2) DUPLEX RECEPTACLES. PROVIDE (1) 1" FOR POWER AND (1) 1 1/2" EMT CONDUIT FROM POKE-THRU OVER TO NEAREST ACCESSIBLE WALL AND/OR DEMOUNTABLE PARTITION SYSTEM AND STUBBED UP WALL AND STUBBED OUT TO OPEN OFFICE/CORRIDOR CEILING FOR DATA CABLING. PROVIDE DOUBLE GANG PLATE THAT ACCEPTS INSTITUTIONS AV CONTRACTOR'S MANUFACTURER'S CABLING. PROVIDE BOTTOM HOUSING ASSEMBLIES FOR CONDUITS. PROVIDE GROMMETS AT END OF CONDUIT TO BE STUBBED UP ABOVE ACCESSIBLE CEILING. PROVIDE PULLWIRE IN EMPTY CONDUIT. PROVIDE 120 VOLT BRANCH CIRCUITING FOR RECEPTACLES. PROVIDE A METALLIC COVERPLATE WITH SCRUB SHIELD. ELECTRICAL CONTRACTOR SHALL COORDINATE DEVICE PLATES WITH THE AV CONTRACTOR.
- SPECIAL RECEPTACLE. NEMA CONFIGURATION AS NOTED. MOUNT 18"AFF UON.
- Z1, Z2, Z3 — JUNCTION BOX ABOVE ACCESSIBLE CEILING SYSTEM UTILIZED FOR 'IN-FEED' ELECTRICAL POWER CONNECTION. Z1,Z2,ETC INDICATES ZONE DISTRIBUTION BOX. ELECTRICAL CONTRACTOR SHALL PROVIDE BRANCH CIRCUITS AS INDICATED. ZONE DISTRIBUTION BOX SHALL BE PROVIDED BY DEMOUNTABLE PARTITION MANUFACTURER AND ELECTRICAL CONTRACTOR SHALL INSTALL. DASHED LINES FROM ZONE DISTRIBUTION BOX TO DUPLEX RECEPTACLES WITH A 'D' ADJACENT TO THE DEVICES. INDICATES INDICATES WHIPS TO THE DEMOUNTABLE PARTITION EXTENDER CABLES. DEMOUNTABLE PARTITION MANUFACTURER SHALL MAKE FINAL CONNECTIONS BETWEEN WHIPS AND EXTENDER CABLES.
- J — EQUIPMENT CONNECTION.
- DISCONNECT SWITCH - SIZE AS INDICATED ON PLANS
  - 30/2/20/3R — NEMA RATING (IF OTHER THAN 1)
  - FUSE SIZE (AMPS), N.F. INDICATES NON-FUSED
  - No. OF POLES
  - SIZE (AMPS)
- M — MANUAL MOTOR STARTER SWITCH WITH THERMAL OVERLOAD
- MOTOR CONNECTION.
- ELECTRICAL PANELBOARD
- ELECTRICAL CIRCUIT RUN IN CONDUIT AND CIRCUIT HOMERUN TO PANELBOARD (PANEL AND CIRCUIT DESIGNATION AS INDICATED). AS A MINIMUM CONDITION, EACH SINGLE PHASE CIRCUIT SHALL HAVE 1 #12 PHASE CONDUCTOR, 1 #12 NEUTRAL CONDUCTOR, AND 1 #12 GROUNDING CONDUCTOR IN 3/4" CONDUIT. PROVIDE ADDITIONAL PHASE CONDUCTORS AS REQUIRED FOR "MULTIPLE PHASED" ELECTRICAL LOADS. PROVIDE ADDITIONAL "SWITCH LEG" CONDUCTORS TO PROVIDE THE LIGHT FIXTURE CONTROL INDICATED. MULTIPLE SINGLE PHASE CONDUCTORS SHALL BE GROUPED TOGETHER IN A COMMON CONDUIT IN ACCORDANCE WITH THE NEC AND AT THE CONTRACTOR'S DISCRETION. NEUTRAL AND GROUNDING CONDUCTORS SHALL BE SHARED AS ALLOWED BY THE NEC. CONDUIT LARGER THAN 3/4" AND CONDUCTORS LARGER THAN #12 SHALL BE AS INDICATED.
- USB — RECEPTACLE, 20A, 120V WITH (2) USB PORTS
- D — DUPLEX RECEPTACLE, 20A, 120V. 'D' ADJACENT TO DEVICE INDICATES THAT THE 20 AMP DUPLEX SHALL BE PROVIDED AND INSTALLED PER THE DEMOUNTABLE PARTITION MANUFACTURER. COLOR SHALL BE SELECTED BY ARCHITECT.
- D — DEMOUNTABLE PARTITION MANUFACTURER SHALL PROVIDE A TELE/DATA BOX, 4"X4"X2 1/4"D BOX WITH SINGLE GANG PLASTER RING 18"AFF, UON, WITH 1"C WITH PULL STRING STUBBED OUT TO OPEN OFFICE AREA/CORRIDOR WHERE NO CEILING SYSTEM EXISTS AND TERMINATE WITH PLASTIC BUSHING.
- D TV — DEMOUNTABLE PARTITION MANUFACTURER SHALL PROVIDE A CABLE TELEVISION OUTLET JUNCTION BOX, 4"X4"X2 1/4"D BOX WITH SINGLE GANG PLASTER RING, A 1 1/4"C. WITH PULL STRING STUBBED OUT TO OPEN OFFICE AREA/CORRIDOR WHERE NO CEILING SYSTEM EXISTS AND TERMINATE WITH PLASTIC BUSHING. MOUNT 66"AFF UON.
- CP — PROVIDE A DOUBLE GANG JUNCTION BOX AT 9" AFF AND FROM THE DOUBLE GANG JUNCTION BOX PROVIDE (1) 1" SURFACE MOUNTED CONDUIT UP TO 10'-0" ALONG COLUMN TO SERVE POWER FOR PRE-WIRED FURNITURE SYSTEM. PROVIDE 2-GANG COVERPLATE AND 90° ELBOW FOR FURNITURE POWER WHIP. TERMINATE FURNITURE POWER CONNECTIONS INSIDE JUNCTION BOX. PROVIDE A 1 1/2" CONDUIT SURFACE MOUNTED TO COLUMN AND STARTING AT 9" AFF AND RAN UP TO 10'-0" ALONG COLUMN. PROVIDE GROMMETS ON BOTH ENDS OF 2" CONDUIT. PROVIDE PULLWIRE FOR EACH CONDUIT.
- WP — FLEXIBLE FURNITURE CONNECTION WALL/COLUMN FEED, 12" AFF, UON. PROVIDE (1) JUNCTION BOX FOR CONNECTION OF POWER CIRCUITRY (CIRCUITS AS INDICATED ON DRAWINGS) AND PROVIDE A JUNCTION BOX WITH A 1 1/2" CONDUIT WITH PULL STRING STUBBED OUT TO OPEN OFFICE AREA/CORRIDOR WHERE NO CEILING SYSTEM EXISTS FOR LOW VOLTAGE CABLING. PROVIDE FLEXIBLE POWER AND LOW VOLTAGE WHIPS TO FURNITURE. VERIFY FURNITURE WIRING REQUIREMENTS AND CONNECTIONS WITH FURNITURE EQUIPMENT PROVIDER. REFER TO DETAIL 1/E5.01. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING INTO EXISTING DRYWALL AND PATCHING AND REPAIRING IN PREPARATION OF PRIMER AND PAINT.
- WP — FLEXIBLE FURNITURE CONNECTION DEMOUNTABLE PARTITION FEED, 12" AFF, UON. PROVIDE (1) JUNCTION BOX FOR CONNECTION OF POWER CIRCUITRY (CIRCUITS AS INDICATED ON DRAWINGS) AND PROVIDE A JUNCTION BOX WITH A 1 1/2" CONDUIT WITH PULL STRING STUBBED OUT TO OPEN OFFICE AREA/CORRIDOR WHERE NO CEILING SYSTEM EXISTS FOR LOW VOLTAGE CABLING. PROVIDE FLEXIBLE POWER AND LOW VOLTAGE WHIPS TO FURNITURE. VERIFY FURNITURE WIRING REQUIREMENTS AND CONNECTIONS WITH FURNITURE EQUIPMENT PROVIDER. DEMOUNTABLE PARTITION MANUFACTURER SHALL PROVIDE RACEWAYS AND JUNCTION BOXES IN DEMOUNTABLE PARTITION.
- FP — FLEXIBLE FURNITURE CONNECTION, 6"AFF UON. PROVIDE (1) JUNCTION BOX FOR CONNECTION OF POWER CIRCUITRY (CIRCUITS AS INDICATED ON DRAWINGS) AND PROVIDE (1) JUNCTION BOX WITH 1"C STUBBED ABOVE ACCESSIBLE CEILING FOR TELEPHONE AND DATA CONNECTIONS. PROVIDE POWER AND CONDUIT CONNECTIONS TO FURNITURE. COORDINATE FURNITURE WIRING REQUIREMENTS AND CONNECTIONS WITH FURNITURE EQUIPMENT PROVIDER. PROVIDE LIQUID-TIGHT RACEWAY CONNECTION FROM JUNCTION BOX TO FURNITURE PARTITION.

FIRE ALARM

- FACP — FIRE ALARM CONTROL PANEL, SURFACE MOUNTED, TOP 5'-9" AFF.
- FAAP — FIRE ALARM ANNUNCIATOR PANEL, RECESSED, TOP 5'-0" AFF.
- FACP — FIRE ALARM NOTIFICATION APPLIANCE CIRCUIT EXTENDER PANEL, SURFACE MOUNTED, TOP, 5'-9" AFF.
- FATP — FIRE ALARM TRANSPONDER PANEL, SURFACE MOUNTED, TOP 5'-9" AFF.
- F — FIRE ALARM MANUAL PULL STATION, 44"AFF TO ACTUATING ARM, UON.
- SD — ADDRESSABLE FIRE ALARM SYSTEM PHOTO-ELECTRIC SMOKE DETECTOR, CEILING MOUNTED.
- ER SD — ADDRESSABLE FIRE ALARM SYSTEM PHOTO-ELECTRIC SMOKE DETECTOR FOR ELEVATOR RECALL
- P SD — ADDRESSABLE FIRE ALARM SYSTEM PHOTO-ELECTRIC SMOKE DETECTOR FOR STAIRWELL PRESSURIZATION
- DD — DUCT MOUNTED ADDRESSABLE FIRE ALARM SYSTEM PHOTO-ELECTRIC SMOKE DETECTOR.
- HD — ADDRESSABLE FIRE ALARM SYSTEM HEAT DETECTOR, FIXED TEMPERATURE/RATE OF RISE TYPE. CEILING MOUNTED.
- IM — FIRE ALARM SYSTEM ADDRESSABLE INPUT MONITOR MODULE.
- C V 15 — FIRE ALARM VISUAL (STROBE) APPLIANCE. 'C' SUBSCRIPT DENOTES CEILING MOUNTED.
- W V 15 — FIRE ALARM VISUAL (STROBE) APPLIANCE, MOUNT 80"AFF TO THE BOTTOM OF THE FLASHING ACRYLIC LENS WITH A MAXIMUM HEIGHT OF 96" TO TOP OF LENS.SUBSCRIPT INDICATES MINIMUM CANDELA RATING. 'W' SUBSCRIPT DENOTES WALL MOUNTED.
- C AV 15 — CEILING MOUNTED FIRE ALARM VOICE EVAC/VISUAL NOTIFICATION APPLIANCE. 'C' SUBSCRIPT DENOTES CEILING MOUNTED.
- W AV 15 — FIRE ALARM VOICE EVAC/VISUAL NOTIFICATION APPLIANCE. MOUNT 80"AFF TO THE BOTTOM OF THE FLASHING ACRYLIC LENS WITH A MAXIMUM HEIGHT OF 96" TO TOP OF LENS. SUBSCRIPT INDICATES MINIMUM CANDELA RATING. 'W' SUBSCRIPT DENOTES WALL MOUNTED.
- C A — FIRE ALARM VOICE EVAC SPEAKER NOTIFICATION APPLIANCE. SUBSCRIPT INDICATES MINIMUM CANDELA RATING. 'C' SUBSCRIPT DENOTES CEILING MOUNTED.
- W A — FIRE ALARM VOICE EVAC SPEAKER NOTIFICATION APPLIANCE. SUBSCRIPT INDICATES MINIMUM CANDELA RATING. 'W' SUBSCRIPT DENOTES WALL MOUNTED.
- TS — SPRINKLER SYSTEM SUPERVISORY VALVE TAMPER SWITCH CONNECTION.
- WF — SPRINKLER SYSTEM SUPERVISORY FLOW SWITCH CONNECTION.
- PS — SPRINKLER SYSTEM PRESSURE SWITCH CONNECTION.
- FS — SMOKE DAMPER CONNECTION, 120V.

ABBREVIATIONS

A	AMPERE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CURRENT
AC	ABOVE COUNTER TOP. REFER TO ARCH. DWGS
AV	AUDIO/VISUAL
BFG	BELOW FINISHED GRADE
C	CONDUIT
CATV	CABLE ANTENNA TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CFL	COMPACT FLUORESCENT
CKT	CIRCUIT
EBU	EMERGENCY BATTERY UNIT
EC	EMPTY CONDUIT
EC	ELECTRICAL CONTRACTOR
ECB	ENCLOSED CIRCUIT BREAKER
EF	EXHAUST FAN
ERU	ENERGY RECOVERY UNIT
EQUIP	EQUIPMENT
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXIST	EXISTING
FHP	FRACTIONAL HORSE POWER
FLA	FULL LOAD AMPS
FPC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HID	HIGH INTENSITY DISCHARGE
HP	HORSE POWER/HEAT PUMP
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
IG	ISOLATED GROUND
JB	JUNCTION BOX
KVA	KILO-VOLT AMPERE
KW	KILO-WATT
LC	LIGHTING CONTACTOR
LTG	LIGHTING
MAU	MAKE UP AIR UNIT
MCA	MINIMUM CIRCUIT AMPS
MC	MECHANICAL CONTACTOR
MC	METAL CLAD
MCB	MAIN CIRCUIT BREAKER
MFR	MANUFACTURER
MLO	MAIN LUGS ONLY
MTD	MOUNTED
NEC	NATIONAL ELECTRICAL CODE
NF	NON-FUSED
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT CCT. ON 24/7
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
P	POLE
PC	PLUMBING CONTRACTOR
PCP	PUMP CONTROL PANEL
PF	POWER FACTOR
PL	PROPERTY LINE
PNL	PANEL
PNLBD	PANELBOARD
Ø	PHASE
PRI	PRIMARY
RECP	RECEPTACLE
RTU	ROOF TOP UNIT
SE	SERVICE ENTRANCE
SEC	SECONDARY
TBB	TELEPHONE BACKBOARD
TR	TAMPER RESISTANT
TRT	TRIPLE TUBE FLUORESCENT
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VAC	VOLTS ALTERNATING CURRENT
VAV	VARIABLE AIR VOLUME
VDC	VOLTS DIRECT CURRENT
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS/WIRE
WG	WIRE GUARD
WP	WEATHERPROOF
XFMR	TRANSFORMER
EX	EXISTING TO REMAIN
EXR	EXISTING TO BE DISCONNECTED AND REMOVED
EXIST	EXISTING

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	MWM	DEB

SHEET NAME:
ELECTRICAL DATA SHEET

SHEET NO.
E-001A
TRUE NORTH
PLAN NORTH

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SECTION 019113 - GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. COMMISSIONING IS A SYSTEMATIC PROCESS OF ENSURING THAT THE BUILDING SYSTEMS PERFORM INTERACTIVELY ACCORDING TO THE DESIGN INTENT AND THE OWNER'S OPERATIONAL NEEDS. THIS IS ACHIEVED BY BEGINNING IN THE DESIGN PHASE AND DOCUMENTING DESIGN INTENT AND CONTINUING THROUGH CONSTRUCTION, ACCEPTANCE AND THE WARRANTY PERIOD WITH ACTUAL VERIFICATION OF PERFORMANCE. THE COMMISSIONING PROCESS SHALL ENCOMPASS AND COORDINATE THE TRADITIONALLY SEPARATE FUNCTIONS OF SYSTEM DOCUMENTATION, EQUIPMENT START-UP, CONTROL SYSTEMS CALIBRATION, TESTING AND BALANCING. PERFORMANCE TESTING AND TRAINING.

B. COMMISSIONING DURING THE CONSTRUCTION PHASE IS INTENDED TO ACHIEVE THE FOLLOWING SPECIFIC OBJECTIVES ACCORDING TO THE CONTRACT DOCUMENTS:
1. VERIFY THAT APPLICABLE EQUIPMENT AND SYSTEMS ARE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AND TO INDUSTRY ACCEPTED MINIMUM STANDARDS AND THAT THEY RECEIVE ADEQUATE OPERATIONAL CHECKOUT BY INSTALLING CONTRACTORS.
2. VERIFY AND DOCUMENT PROPER PERFORMANCE OF EQUIPMENT AND SYSTEMS.
3. VERIFY THAT OWNER'S OPERATING PERSONNEL ARE ADEQUATELY TRAINED.

C. THE COMMISSIONING PROCESS DOES NOT TAKE AWAY FROM OR REDUCE THE RESPONSIBILITY OF THE SYSTEM DESIGNERS OR INSTALLING CONTRACTORS TO PROVIDE A FINISHED AND FULLY FUNCTIONING PRODUCT

1.02 RESPONSIBILITIES

A. ARCHITECT & ENGINEER

1. RESOLVE OPERATIONAL AND DESIGN ISSUES TO ACHIEVE PROPERLY FUNCTIONING SYSTEMS.
2. MAY ATTEND CX SCOPING MEETING AND OTHER MEETINGS NECESSARY TO FACILITATE THE CX PROCESS.
3. PROVIDE THE BOD TO THE CXA FOR REVIEW. THIS DOCUMENT SHOULD BE AVAILABLE EARLY IN THE DESIGN STAGE AND FORWARDED TO THE CXA WITHIN 2 WEEKS OF THE FINAL CONSTRUCTION DOCUMENT ISSUE.
4. PROVIDE O&M MANUALS TO THE CXA FOR REVIEW AND INCLUSION OF THE SYSTEMS MANUAL (ENHANCED ONLY).

B. OWNER

1. MAY ATTEND CX SCOPING MEETING AND OTHER MEETINGS NECESSARY TO FACILITATE THE CX PROCESS.
2. ARRANGE FOR FACILITY OPERATING AND MAINTENANCE PERSONNEL TO ATTEND MEETINGS NECESSARY TO FACILITATE THE CX PROCESS.
3. PROVIDE THE OPR DOCUMENTATION TO THE CXA FOR USE IN DEVELOPING THE CX PLAN, ASSISTING IN SUBMITTAL REVIEW, PRE FUNCTIONAL TEST SCRIPTS CREATION, FUNCTIONAL TEST SCRIPTS CREATION AND LEED DOCUMENT SUBMISSION. THIS DOCUMENT SHOULD BE AVAILABLE EARLY IN THE DESIGN STAGE AND FORWARDED TO THE CXA WITHIN 2 WEEKS OF CXA CONTRACT APPROVAL.

C. MECHANICAL: REFER TO DIVISION 23

D. ELECTRICAL: REFER TO DIVISION 26

1.03 DEFINITIONS

A. BOD: BASIS OF DESIGN: A DOCUMENT THAT RECORDS CONCEPTS, CALCULATIONS, DECISION AND PRODUCT SELECTIONS USED TO MEET THE OPR AND TO SATISFY APPLICABLE REGULATORY REQUIREMENTS, STANDARDS AND GUIDELINES. THE DOCUMENT INCLUDES BOTH NARRATIVE DESCRIPTIONS AND LISTS OF INDIVIDUAL ITEMS THAT SUPPORT THE DESIGN PROCESS.

B. COMMISSIONING PLAN: A DOCUMENT THAT OUTLINES THE ORGANIZATION, SCHEDULE, ALLOCATION OF RESOURCES AND DOCUMENTATION REQUIREMENTS OF THE COMMISSIONING PROCESS.

C. CXA: COMMISSIONING AUTHORITY

D. OPR: OWNERS PROJECT REQUIREMENTS: A DOCUMENT THAT DETAILS THE FUNCTIONAL REQUIREMENTS OF A PROJECT AND THE EXPECTATIONS OF HOW IT WILL BE USED AND OPERATED. THESE INCLUDE PROJECT GOALS, MEASURABLE PERFORMANCE CRITERIA, COST CONSIDERATIONS, BENCHMARKS, SUCCESS CRITERIA AND SUPPORTING INFORMATION. THE OPR WILL FORM THE BASIS FROM WHICH ALL DESIGN, CONSTRUCTION, ACCEPTANCE AND OPERATIONAL DECISIONS ARE MADE.

E. SYSTEMS, SUBSYSTEMS, EQUIPMENT AND COMPONENTS: WHERE THESE TERMS ARE USED TOGETHER OR SEPARATELY, THEY SHALL MEAN "A BUILT" SYSTEMS, SUBSYSTEMS, EQUIPMENT AND COMPONENTS.

1.04 RELATED WORK

1. DIVISION 23 - "MECHANICAL SYSTEMS COMMISSIONING"
2. DIVISION 26 - "ELECTRICAL SYSTEMS COMMISSIONING"
3. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND OTHER DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
4. OPR AND BOD DOCUMENTATION ARE INCLUDED BY REFERENCE FOR INFORMATION ONLY.
5. PRELIMINARY CX PLAN FOUND IN THIS SECTION

1.05 COMMISSIONING TEAM

A. MEMBERS APPOINTED BY CONTRACTOR: INDIVIDUALS, EACH HAVING THE AUTHORITY TO ACT ON BEHALF OF THE ENTITY HE OR SHE REPRESENTS, EXPLICITLY ORGANIZED TO IMPLEMENT THE COMMISSIONING PROCESS THROUGH COORDINATED ACTION. THE COMMISSIONING TEAM SHALL CONSIST OF, BUT NOT BE LIMITED TO, REPRESENTATIVES OF CONTRACTOR, INCLUDING PROJECT SUPERINTENDENT AND SUBCONTRACTORS, INSTALLERS, SUPPLIERS AND SPECIALISTS DEEMED APPROPRIATE BY THE CXA.

B. MEMBERS APPOINTED BY OWNER:

1. CXA: THE DESIGNATED PERSON, COMPANY, OR ENTITY THAT PLANS, SCHEDULES AND COORDINATES THE COMMISSIONING TEAM TO IMPLEMENT THE COMMISSIONING PROCESS. OWNER WILL ENGAGE THE CXA UNDER A SEPARATE CONTRACT.
2. REPRESENTATIVES OF THE FACILITY USER AND OPERATION AND MAINTENANCE PERSONNEL.
3. ARCHITECT AND ENGINEERING DESIGN PROFESSIONALS.

END OF SECTION 019113

PART 1 - GENERAL

CODES AND STANDARDS - THE LATEST EFFECTIVE PUBLICATIONS OF ALL APPLICABLE STANDARDS, CODES, ETC., AS THEY APPLY, FORM PART OF THESE SPECIFICATIONS AS IF WERE WRITTEN FULLY HEREIN AND CONSTITUTE MINIMUM REQUIREMENTS. THE FOLLOWING WILL BE REFERRED TO THROUGHOUT IN ABBREVIATED FORMS.

NATIONAL ELECTRICAL CODE. (NFPA 70) (NEC).
INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE).
NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA).
AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI).
APPLICABLE STATE AND LOCAL CODES.
APPLICABLE STANDARDS OF UNDERWRITER'S LABORATORIES, INC. (UL).
APPLICABLE STANDARDS OF NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).
THE INTERNATIONAL BUILDING CODE (IBC).
THE INTERNATIONAL FIRE CODE (IFC).
THE AMERICANS WITH DISABILITIES ACT (ADA).
INTERNATIONAL ELECTRICAL TESTING ASSOCIATION (NETA).
THE INTERNATIONAL ENERGY CONSERVATION CODE (IECC).
ASHRAE 90.1

1. SCOPE OF WORK - PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, APPURTENANCES AND SERVICES TO PROVIDE A COMPLETE ELECTRICAL INSTALLATION AS SHOWN ON THE DRAWINGS AND AS DESCRIBED IN THESE SPECIFICATIONS.
2. SITE VISIT - THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING HIS BID TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND DETERMINE THE EXTENT OF WORK. LACK OF KNOWLEDGE OF EXISTING CONDITIONS WILL NOT BE CONSIDERED A BASIS FOR CHANGE ORDERS. PRIOR TO ORDERING EQUIPMENT, CONTRACTOR SHALL VERIFY THAT EQUIPMENT TO BE PROVIDED UNDER THIS CONTRACT IS ACCEPTABLE AND CAN FIT INTO BUILDING AND ROOM. EXPENSE INCURRED BY THE CONTRACTOR, WHICH IN THE ENGINEER'S OPINION COULD HAVE BEEN AVOIDED BY THIS STEP, SHALL NOT BE A BASIS FOR CHANGE ORDERS.
3. DRAWINGS AND SPECIFICATIONS - THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT, CHARACTER AND ARRANGEMENT OF EQUIPMENT, FIXTURES AND CONDUIT AND WIRING SYSTEMS. IT IS THE INTENTION OF THESE SPECIFICATIONS AND DRAWINGS TO FULLY COVER ALL WORK AND MATERIALS FOR A COMPLETE, FIRST-CLASS ELECTRICAL INSTALLATION, AND ANY DEVICES SUCH AS PULL BOXES AND DISCONNECT SWITCHES, USUALLY EMPLOYED IN THIS CLASS OF WORK THOUGH NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS OR IN THIS SPECIFICATION, BUT WHICH MAY BE NECESSARY FOR THE SATISFACTORY COMPLETION OF THE WORK, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AS A PART OF HIS TOTAL WORK UNDER THIS DIVISION. CONSULT THE SPECIFICATIONS AND DRAWINGS OF ALL OTHER TRADES AND PERFORM ALL ELECTRICAL WORK REQUIRED THEREIN. COOPERATE WITH ALL OTHER CONTRACTORS OR SUBCONTRACTORS TO FURNISH COMPLETE WORKABLE SYSTEMS.
4. DURING CONSTRUCTION - KEEP AN ACCURATE RECORD OF ALL DEVIATIONS BETWEEN THE WORK AS SHOWN ON THE CONTRACT DRAWINGS AND THAT WHICH IS ACTUALLY INSTALLED ON A SET OF PRINTS FURNISHED FOR THIS PURPOSE, RECORDING CHANGES THEREON WITH RED MARKS, IN A NEAT AND ACCURATE MANNER. WHEN ALL REVISIONS HAVE BEEN SHOWN ON THESE PRINTS TO INDICATE THE WORK AS INSTALLED, THE PRINTS SHALL BE DELIVERED TO THE ENGINEER, BEFORE FINAL PAYMENT.
5. PERMITS, INSPECTION AND TESTS - THE RIGHT IS RESERVED TO INSPECT AND TEST ANY PART OR ALL OF THE INSTALLATION/EQUIPMENT DURING THE PROGRESS OF ITS ERECTION. THE CONTRACTOR SHALL BE ALLOWING FOR CONTINUITY AND GROUNDING BEFORE CONNECTING ANY FIXTURES OR DEVICES. THIS CONTRACTOR SHALL TEST THE ENTIRE SYSTEM WHEN THE WORK IS FINALLY COMPLETED TO INSURE THAT ALL PORTIONS ARE FREE FROM SHORT CIRCUITS AND GROUNDS.
6. SECURE AND PAY - FOR ALL REQUIRED PERMITS AND INSPECTIONS. INSPECTION CERTIFICATES FROM LOCAL AUTHORITIES HAVING JURISDICTION SHALL BE DELIVERED TO THE OWNER BEFORE FINAL PAYMENT.
7. SUBMITTALS - SUBMIT SHOP DRAWINGS, PRODUCT DATA AND SAMPLES WITHIN THIRTY (30) DAYS OF AWARD OF CONTRACT AND IN ACCORDANCE WITH THE GENERAL CONDITIONS AND SUPPLEMENTARY CONDITIONS. SUBMITTALS ARE REQUIRED FOR ALL SAFETY SWITCHES, ENCLOSED CIRCUIT BREAKERS, PANELBOARDS, TRANSIENT VOLTAGE SURGE SUPPRESSORS, TRANSFORMERS, LIGHTING FIXTURES, FIRE ALARM SYSTEM, AND SPECIALTY DEVICES PROVIDED UNDER THIS SPECIFICATION. REVIEW OF SUBMITTALS BY THE ENGINEER AND ANY ASSOCIATED ACTION TAKEN BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF ANY REQUIREMENTS SET FORTH BY THE CONTRACT DOCUMENTS.
8. PROVIDE ALL CUTTING, PATCHING, PAINTING AND REFINISHING REQUIRED FOR INSTALLATION OF THE ELECTRICAL WORK.
9. DAILY AND WHEN DIRECTED BY THE OWNER OR ENGINEER REMOVE ALL DEBRIS FROM THE PREMISES.
10. DEFINITIONS:
"FURNISH" SHALL MEAN TO PURCHASE, DELIVER TO JOB SITE, AND UNLOAD FROM TRUCK AT JOB SITE. "INSTALL" SHALL MEAN TO MOUNT IN PLACE, MAKE ALL NECESSARY CONNECTIONS AS SPECIFIED ON PLANS, AND ON SHOP DRAWINGS.
"PROVIDE" SHALL MEAN TO FURNISH AND INSTALL.
11. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL EQUIPMENT VOLTAGES WITH MECHANICAL CONTRACTORS PRIOR TO EQUIPMENT ORDER.

PART 2 - PRODUCTS

1. MANUFACTURING STANDARDS - MATERIAL SHALL BE NEW AND APPROVED AND LABELED BY UL WHERE VARI-STANDARDS HAVE BEEN ESTABLISHED BY THAT AGENCY. DEFECTIVE EQUIPMENT OR EQUIPMENT DAMAGED IN THE COURSE OF INSTALLATION OR TESTING SHALL BE REPAIRED IN A MANNER MEETING THE APPROVAL OF THE OWNER. ALL ITEMS OF THE SAME TYPE AND RATING SHALL BE IDENTICAL.
2. TRADE NAMES - UNLESS SPECIFICALLY IDENTIFIED OTHERWISE, MANUFACTURERS' NAMES AND CATALOG NUMBERS INDICATED HEREIN AND ON THE DRAWINGS ARE NOT INTENDED TO BE PROPRIETARY DESIGNATIONS. THEY ARE TO INDICATE GENERAL TYPE AND QUALITY OF MATERIALS AND EQUIPMENT REQUIRED. EQUIPMENT AND MATERIAL BY OTHER MANUFACTURERS WHICH IN THE OPINION OF THE ENGINEER ARE OF EQUAL QUALITY AND WHICH WILL PRODUCE THE SAME RESULTS WILL BE CONSIDERED ACCEPTABLE.
3. MOTORS - MOTORS SHALL BE PROVIDED WITH DISCONNECTING MEANS.
4. POWER WIRING - UP TO AND INCLUDING MOTOR CONNECTIONS FOR ALL EQUIPMENT PROVIDED UNDER OTHER DIVISIONS OF THIS SPECIFICATION SHALL BE INCLUDED IN THIS DIVISION. WHERE MANUAL MOTOR CONTROL SWITCHES FOR SINGLE PHASE MOTORS ARE INDICATED, THEY SHALL BE FURNISHED AND WIRED COMPLETE UNDER THIS DIVISION. MOTOR CONTROLLERS AND MOTOR STARTERS FURNISHED UNDER OTHER DIVISIONS SHALL BE SET IN PLACE AND CONNECTED TO POWER AND LOAD UNDER THIS DIVISION. IN GENERAL, MOTORS WILL BE PROVIDED WITH THEIR EQUIPMENT, THEY DRIVE AND ARE NOT PART OF THIS WORK UNDER THIS DIVISION, EXCEPT THAT THEY SHALL BE CONNECTED HERE UNDER.
5. OBTAIN APPROVED SHOP DRAWINGS - SHOWING WIRING DIAGRAMS, CONNECTION DIAGRAMS, ROUGH-IN AND HOOKUP DETAILS, FROM ALL CONTRACTORS FOR ALL EQUIPMENT AND COMPLY THEREWITH.
6. CONTROL, INTERLOCK AND INTERNAL EQUIPMENT - WIRING REGARDLESS OF VOLTAGE SHALL BE PROVIDED BY OTHERS UNLESS SPECIFICALLY SHOWN HERE.
7. TEMPORARY ELECTRICAL SERVICE - TEMPORARY ELECTRICAL SERVICE AT 120/240V, 1 PHASE WITH GROUND FAULT INTERRUPTER WITH SUFFICIENT CONVENIENCE OUTLETS SHALL BE PROVIDED. PROVIDE ALL NECESSARY TEMPORARY LIGHTING AND RECEPTACLES. GENERAL CONTRACTOR WILL PAY ALL CHARGES, WHICH MAY BE MADE BY THE POWER COMPANY FOR TEMPORARY SERVICE.
8. GROUNDING - THE ENTIRE ELECTRICAL SYSTEM, INCLUDING EQUIPMENT FRAMES, CONDUIT, SWITCHES, CONTROLLERS, WIREWAYS, NEUTRAL CONDUCTORS, AND ALL OTHER SUCH EQUIPMENT SHALL BE PERMANENTLY AND EFFECTIVELY GROUNDED IN ACCORDANCE WITH THE NEC. GROUNDING OF EACH TRANSFORMER SECONDARY SHALL BE PROVIDED AND EACH SHALL BE CONSIDERED AS A SEPARATE SERVICE GROUND. PROVIDE A SEPARATE GROUND CONDUCTOR IN ALL BRANCH CIRCUIT CONDUITS SIZED IN ACCORDANCE WITH THE NEC.
9. SCHEDULE OF WORK - THE SCHEDULE OF THE ELECTRICAL WORK SHALL BE ARRANGED TO SUIT THE PROGRESS OF WORK BY THE OTHER TRADES AND SHALL IN NO WAY RETARD PROGRESS OF CONSTRUCTION OF THE PROJECT.
10. WORK UNDER THIS DIVISION - SHALL PROCEED IN ADVANCE OF THE WORK OF OTHERS WHENEVER POSSIBLE, ELIMINATING ALL CUTTING AND PATCHING. WHEN SUCH PROCEDURE IS IMPOSSIBLE, CUTTING AND PATCHING SHALL BE DONE IN AN APPROVED MANNER. CUTTING SHALL NOT ENDANGER STRUCTURAL INTEGRITY IN ANY WAY. PATCHING SHALL EXACTLY MATCH CONTIGUOUS WORK. ACTUAL WORK OF CUTTING AND PATCHING OF EXISTING SURFACES SHALL BE PERFORMED BY THE SUBCONTRACTOR WHO ORIGINALLY PREPARED THESE SURFACES, E.G., CUTTING AND PATCHING OF MASONRY WALL WILL BE PERFORMED BY THE MASONRY SUBCONTRACTOR. COSTS OF SUCH CUTTING AND PATCHING SHALL BE BORNE BY THE ELECTRICAL SUBCONTRACTOR. CUTTING SHALL BE CAREFULLY DONE AND DAMAGE TO BUILDING, PIPING, WIRING OR EQUIPMENT AS A RESULT OF CUTTING SHALL BE REPAIRED BY SKILLED MECHANICS OF TRADE INVOLVED.
11. STORAGE AND MATERIALS - SPACE WILL BE ASSIGNED TO THE CONTRACTOR BY THE OWNER FOR THE STORAGE OF MATERIAL. THIS CONTRACTOR WILL BE RESPONSIBLE FOR THE PROTECTION AND SAFEKEEPING OF MATERIALS, TOOLS, AND EQUIPMENT. ALL MATERIALS AND EQUIPMENT SHALL BE KEPT IN ITS ASSIGNED PLACE UNTIL THE TIME OF ITS INSTALLATION. EXCESS MATERIALS, DIRT AND REFUSE SHALL BE PROMPTLY REMOVED FROM THE WORK SITE.
12. LABELING OF EQUIPMENT - ALL PANELBOARDS, CABINETS, SAFETY SWITCHES, MOTOR DISCONNECT SWITCHES, AND MOTOR CONTROLLERS SHALL BE IDENTIFIED BY MACHINE ENGRAVED LAMINATED PLASTIC DESIGNATION PLATES PERMANENTLY ATTACHED THERE TO WITH SELF-TAPPING SCREWS OR RIVETS. ALL COMPONENT PARTS OF EACH ITEM OF EQUIPMENT OR DEVICE SHALL BEAR THE MANUFACTURER'S NAME/PLATE, GIVING NAME OF MANUFACTURER, DESCRIPTION, SIZE TYPE, SERIAL AND MODEL NUMBER AND ELECTRICAL CHARACTERISTICS IN ORDER TO FACILITATE MAINTENANCE OR REPLACEMENT.
13. COORDINATION - COOPERATE AND COORDINATE EFFORTS WITH ALL CONTRACTORS ON THE PROJECT. THIS IS ESPECIALLY IMPORTANT IN DETERMINING EXACT LOCATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHTING FIXTURES. ARRANGE LIGHTING FIXTURES IN ACCORDANCE WITH THE ARCHITECTURAL REFLECTED CEILING PLANS UNLESS OTHERWISE INDICATED. COORDINATE LIGHTING FIXTURE LOCATIONS WITH GRILLES, DIFFUSERS, ACCESS PANELS, ETC. VERIFY CEILING AND WALL CONSTRUCTION MUST BE CORRECT PRIOR TO ORDERING LIGHTING FIXTURES OR OTHER DEVICES TO ENSURE PROPER FIXTURE OR DEVICE IS FURNISHED TO MATCH CONSTRUCTION. THIS VERIFICATION MUST BE EXECUTED REGARDLESS OF INFORMATION PLACED ON THE DRAWINGS. ANY COST INCURRED WHICH IN THE OPINION OF THE OWNER, COULD HAVE BEEN AVOIDED BY THIS STEP SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
14. GUARANTEE OF WORK - CONTRACTOR GUARANTEES BY HIS ACCEPTANCE OF THE CONTRACT THAT ALL WORK INSTALLED IS FREE FROM ANY AND ALL DEFECTS IN WORKMANSHIP AND/OR MATERIALS, AND THAT THE APPARATUS WILL DEVELOP CAPACITIES AND CHARACTERISTICS SPECIFIED, AND THAT IF, DURING THE PERIOD OF ONE YEAR OR AS OTHERWISE SPECIFIED, FROM DATE OF FINAL PAYMENT AND ACCEPTANCE OF THE WORK ANY SUCH DEFECTS IN WORKMANSHIP, MATERIAL OR PERFORMANCE APPEAR, HE WILL, WITHOUT COST TO THE OWNER, REMEDY SUCH DEFECTS WITHIN A REASONABLE TIME TO BE SPECIFIED IN NOTICE. IN DEFAULT THEREOF, THE OWNER MAY HAVE SUCH WORK DONE AND CHARGE COST TO CONTRACTOR. EQUIPMENT GUARANTEES FROM DATE OF "START-UP" WILL NOT BE RECOGNIZED.

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.

PART 2 - PRODUCTS

2.1 COPPER BUILDING WIRE

A. DESCRIPTION: FLEXIBLE, INSULATED AND UNINSULATED, DRAWN COPPER CURRENT-CARRYING CONDUCTOR WITH AN OVERALL INSULATION LAYER OR JACKET, OR BOTH, RATED 600 V OR LESS.

B. CONDUCTOR INSULATION:
1. TYPE THHN AND TYPE THWN-2: COMPLY WITH UL 83.
2. TYPE XHHW-2: COMPLY WITH UL 44.

2.2 METAL-CLAD CABLE, TYPE MC

A. DESCRIPTION: A FACTORY ASSEMBLY OF ONE OR MORE CURRENT-CARRYING INSULATED CONDUCTORS IN AN OVERALL METALLIC SHEATH.

B. STANDARDS:
1. LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND USE.
2. COMPLY WITH UL 1569.

C. GROUND CONDUCTOR SHALL BE INSULATED. CONDUCTOR INSULATION TYPE THHN/THWN-2 SHALL COMPLY WITH UL 83. CONDUCTOR INSULATION TYPE XHHW-2 SHALL COMPLY WITH UL 44.

D. ARMOR SHALL BE STEEL OR ALUMINUM, INTERLOCKED. JACKET SHALL BE PVC APPLIED OVER ARMOR.

2.3 CONNECTORS AND SPLICES

A. DESCRIPTION: FACTORY-FABRICATED CONNECTORS, SPLICES, AND LUGS OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS FOR APPLICATION AND SERVICE INDICATED; LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND USE.

B. JACKETED CABLE CONNECTORS FOR STEEL AND ALUMINUM JACKETED CABLES, ZINC DIE-CAST WITH SET SCREWS, DESIGNED TO CONNECT CONDUCTORS SPECIFIED IN THIS SECTION.

C. LUGS: ONE PIECE, SEAMLESS, DESIGNED TO TERMINATE CONDUCTORS SPECIFIED IN THIS SECTION. MATERIAL SHALL BE COPPER. TYPE SHALL BE ONE OR TWO HOLE WITH STANDARD OR LONG BARRELS. TERMINATIONS SHALL BE COMPRESSION.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. FEEDERS: COPPER. CONDUCTORS SHALL BE SOLID OR STRANDED FOR NO. 10 AWG AND SMALLER; STRANDED FOR NO. 8 AWG AND LARGER.

B. BRANCH CIRCUITS: COPPER. SOLID OR STRANDED FOR NO. 10 AWG AND SMALLER, STRANDED FOR NO. 8 AWG AND LARGER. WIRE SMALLER THAN NO. 12 AWG SHALL NOT BE USED FOR LIGHTING AND POWER CIRCUITS.

C. POWER-LIMITED FIRE ALARM AND CONTROL: SOLID FOR NO. 12 AWG AND SMALLER.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. SERVICE ENTRANCE: TYPE THHN-THWN OR XHHW-2, SINGLE CONDUCTORS IN RACEWAY.

B. FEEDERS AND BRANCH CIRCUITING: TYPE THHN-THWN, SINGLE CONDUCTORS IN RACEWAY.

C. METAL-CLAD CABLE, TYPE MC, SHALL BE PERMISSIBLE WHERE INSTALLED AS BRANCH CIRCUITING CONCEALED IN ACCESSIBLE CEILINGS, WALLS AND PARTITIONS, OR WHERE INSTALLED BELOW RAISED FLOORING.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. CONCEAL CABLES IN FINISHED WALLS, CEILINGS, AND FLOORS UNLESS OTHERWISE INDICATED.

B. USE MANUFACTURER-APPROVED PULLING COMPOUND OR LUBRICANT WHERE NECESSARY; COMPOUND USED MUST NOT DETERIORATE CONDUCTOR OR INSULATION. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM PULLING TENSIONS AND SIDEWALL PRESSURE VALUES.

C. INSTALL EXPOSED CABLES PARALLEL AND PERPENDICULAR TO SURFACES OF EXPOSED STRUCTURAL MEMBERS, AND FOLLOW SURFACE CONTOURS WHERE POSSIBLE.

D. METAL CLAD CABLING SHALL BE SECURED EVERY SIX FEET AND WITHIN 12 INCHES OF EVERY BOX OR TERMINATION AS REQUIRED BY CODE. INSTALLATION OF METAL CLAD CABLING SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER AND FOLLOW OR BE PERPENDICULAR TO BUILDING LINES.

E. EACH DESIGNED CIRCUIT HOMERUN SHALL HAVE ITS OWN INDIVIDUAL GROUND CONDUCTOR. CONDUIT SHALL NOT BE USED A GROUND CONDUCTOR.

3.4 CONNECTIONS

A. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A-486B.

B. MAKE SPLICES, TERMINATIONS, AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS.

C. WIRING AT OUTLETS: INSTALL CONDUCTOR AT EACH OUTLET, WITH AT LEAST 6 INCHES OF SLACK.

D. PUSH-ON WIRE CONNECTORS, OTHER THAN FOR LUMINAIRE DISCONNECTS, ARE NOT PERMITTED.

E. ALL EXTERIOR WIRING CONNECTIONS, AND THOSE MADE AT OR BELOW GRADE SHALL BE WATERPROOF WITH UL LISTED WATERPROOF CONNECTORS.

F. COPPER CONDUCTORS #10 AWG AND SMALLER SHALL BE TERMINATED AND SPLICED WITH WIRE NUT CONNECTORS. THE NYLON SELF_INSULATED TYPE SHALL BE USED TO ISOLATE THE TERMINATION FROM OTHER METAL PARTS AND EQUIPMENT.

G. COPPER CONDUCTORS #8 AWG AND LARGER SHALL BE TERMINATED, SPLICED, AND TAPPED WITH COLOR_KEYED COMPRESSION CONNECTORS. THE MANUFACTURERS RECOMMENDED TOOLS AND DIES SHALL BE USED.

H. COPPER CABLE LUG CONNECTIONS #8 AND LARGER TO COPPER BUS BAR MAINS AND BRANCHES SHALL USE COPPER SOLDERLESS CONNECTORS HAVING EITHER 2_BOLT CAST COPPER CLAMPS OR COMPRESSION CONNECTORS, WITH MANUFACTURER'S RECOMMENDED HEXAGONAL DIES AND HYDRAULIC COMPRESSION TOOLS

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.

B. COMPLY WITH UL 467 FOR GROUNDING AND BONDING MATERIALS AND EQUIPMENT.

2.2 CONDUCTORS

A. INSULATED CONDUCTORS: COPPER OR TINNED-COPPER WIRE OR CABLE INSULATED FOR 600 V UNLESS OTHERWISE REQUIRED BY APPLICABLE CODE OR AUTHORITIES HAVING JURISDICTION.

B. GROUNDING BUS: RECTANGULAR BARS OF ANNEALED COPPER, 1/4 BY 4 INCHES IN CROSS SECTION, WITH 9/32-INCH HOLES SPACED 1-1/8 INCHES APART, STAND-OFF INSULATORS FOR MOUNTING SHALL COMPLY WITH UL 891 FOR SWITCHBOARDS, 600 V AND SHALL BE LEXAN OR PVC, IMPULSE TESTED AT 5000 V.

2.3 CONNECTORS

A. LISTED AND LABELED BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION FOR APPLICATIONS IN WHICH USED AND FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED.

2.4 GROUNDING ELECTRODES

A. GROUND RODS: COPPER-CLAD STEEL, 3/4 INCH BY 10 FEET.

B. GROUND BUS PLATES: 1/4 INCH THICK, HOT-DIP GALVANIZED.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. CONDUCTORS: INSTALL SOLID CONDUCTOR FOR NO. 8 AWG AND SMALLER, AND STRANDED CONDUCTORS FOR NO. 6 AWG AND LARGER UNLESS OTHERWISE INDICATED.

B. UNDERGROUND CONDUCTORS: INSULATED CONDUCTORS: INSTALL BARE COPPER CONDUCTOR, NO. 3/0 AWG MINIMUM, BURY AT LEAST 24 INCHES BELOW GRADE.

C. ISOLATED GROUNDING CONDUCTORS: GREEN-COLORED INSULATION WITH CONTINUOUS YELLOW STRIPE. ON FEEDERS WITH ISOLATED GROUND, IDENTIFY GROUNDING CONDUCTOR WHERE VISIBLE TO NORMAL INSPECTION WITH ALTERNATING BANDS OF GREEN AND YELLOW TAPE, WITH AT LEAST THREE BANDS OF GREEN AND TWO BANDS OF YELLOW.

D. GROUNDING BUS: INSTALL IN ELECTRICAL EQUIPMENT ROOMS, IN ROOMS HOUSING SERVICE EQUIPMENT, AND ELSEWHERE AS INDICATED.
1. INSTALL BUS HORIZONTALLY, ON INSULATED SPACERS 2 INCHES MINIMUM FROM WALL, 6 INCHES ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED.
2. WHERE INDICATED ON BOTH SIDES OF DOORWAYS, ROUTE BUS UP TO TOP OF DOOR FRAME, ACROSS TOP OF DOORWAY, AND DOWN; CONNECT TO HORIZONTAL BUS.

E. CONDUCTOR TERMINATIONS AND CONNECTIONS:
1. PIPE AND EQUIPMENT GROUNDING CONDUCTOR TERMINATIONS: BOLTED CONNECTORS.
2. WIRE AND CABLE GROUNDING CONDUCTORS: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
3. CONNECTIONS TO GROUND RODS AT TEST WELLS: BOLTED CONNECTORS.
4. CONNECTIONS TO STRUCTURAL STEEL: WELDED CONNECTORS.

3.2 GROUNDING AT THE SERVICE

A. EQUIPMENT GROUNDING CONDUCTORS AND GROUNDING ELECTRODE CONDUCTORS SHALL BE CONNECTED TO THE GROUND BUS. INSTALL A MAIN BONDING JUMPER BETWEEN THE NEUTRAL AND GROUND BUS.

3.3 EQUIPMENT GROUNDING

A. INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH ALL FEEDER AND BRANCH CIRCUITS.

B. INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH THE FOLLOWING ITEMS, IN ADDITION TO THOSE REQUIRED BY NFPA 70:
1. FEEDERS AND BRANCH CIRCUITS.
2. LIGHTING CIRCUITS.
3. RECEPTACLE CIRCUITS.
4. SINGLE-PHASE MOTOR AND APPLIANCE BRANCH CIRCUITS.
5. THREE-PHASE MOTOR AND APPLIANCE BRANCH CIRCUITS.
6. FLEXIBLE CONDUIT RUNS.
7. METAL-CLAD CABLE RUNS.
8. COMPUTER AND RACK-MOUNTED ELECTRONIC EQUI

BEFORE RISING ABOVE FLOOR.
H. STUB-UPS TO ABOVE RECESSED CEILINGS: USE EMT, IMC, OR RMC FOR RACEWAYS.
USE A CONDUIT BUSHING OR INSULATED FITTING TO TERMINATE STUB-UPS NOT TERMINATED IN HUBS OR IN AN ENCLOSURE.
I. THREADED CONDUIT JOINTS, EXPOSED TO WET, DAMP, CORROSIVE, OR OUTDOOR CONDITIONS: APPLY LISTED COMPOUND TO THREADS OF RACEWAY AND FITTINGS BEFORE MAKING UP JOINTS. FOLLOW COMPOUND MANUFACTURER'S WRITTEN INSTRUCTIONS.
J. COAT FIELD-CUT THREADS ON PVC-COATED RACEWAY WITH A CORROSION-PREVENTING CONDUCTIVE COMPOUND PRIOR TO ASSEMBLY.
K. RACEWAY TERMINATIONS AT LOCATIONS SUBJECT TO MOISTURE OR VIBRATION: USE INSULATING BUSHINGS TO PROTECT CONDUCTORS INCLUDING CONDUCTORS SMALLER THAN NO. 4 AWG.
L. TERMINATE THREADED CONDUITS INTO THREADED HUBS OR WITH LOCKNUTS ON INSIDE AND OUTSIDE OF BOXES OR CABINETS. INSTALL BUSHINGS ON CONDUITS UP TO 1-1/4-INCH TRADE SIZE AND INSULATED THROAT METAL BUSHINGS ON 1-1/2-INCH TRADE SIZE AND LARGER CONDUITS TERMINATED WITH LOCKNUTS. INSTALL INSULATED THROAT METAL GROUNDING BUSHINGS ON SERVICE CONDUITS.
M. INSTALL RACEWAYS SQUARE TO THE ENCLOSURE AND TERMINATE AT ENCLOSURES WITH LOCKNUTS. INSTALL LOCKNUTS HAND TIGHT PLUS 1/4 TURN MORE.
N. DO NOT RELY ON LOCKNUTS TO PENETRATE NONCONDUCTIVE COATINGS ON ENCLOSURES. REMOVE COATINGS IN THE LOCKNUT AREA PRIOR TO ASSEMBLING CONDUIT TO ENCLOSURE TO ASSURE A CONTINUOUS GROUND PATH.
O. CUT CONDUIT PERPENDICULAR TO THE LENGTH. FOR CONDUITS 2-INCH TRADE SIZE AND LARGER, USE ROLL CUTTER OR A GUIDE TO MAKE CUT STRAIGHT AND PERPENDICULAR TO THE LENGTH.
P. INSTALL PULL WIRES IN EMPTY RACEWAYS.
Q. FLEXIBLE CONDUIT CONNECTIONS: COMPLY WITH NEMA RV 3. USE A MAXIMUM OF 72 INCHES OF FLEXIBLE CONDUIT FOR EQUIPMENT SUBJECT TO VIBRATION, NOISE TRANSMISSION, OR MOVEMENT; AND FOR TRANSFORMERS AND MOTORS.
1. USE LFMC IN DAMP OR WET LOCATIONS SUBJECT TO SEVERE PHYSICAL DAMAGE.
2. USE LFNC OR LFNC IN DAMP OR WET LOCATIONS NOT SUBJECT TO SEVERE PHYSICAL DAMAGE.
R. MOUNT BOXES AT HEIGHTS INDICATED ON DRAWINGS. IF MOUNTING HEIGHT OF BOXES ARE NOT INDIVIDUALLY INDICATED, GIVE PRIORITY TO ADA REQUIREMENTS. INSTALL BOXES WITH HEIGHT MEASURED TO CENTER OF BOX UNLESS OTHERWISE INDICATED.
S. RECESSED BOXES IN MASONRY WALLS: SAW-CUT OPENINGS FOR BOX IN CENTER OF CELL OF MASONRY BLOCK, AND INSTALL BOX FLUSH WITH SURFACE OF WALL. PREPARE BLOCK SURFACES TO PROVIDE A FLAT SURFACE FOR A RAINTIGHT CONNECTION BETWEEN BOX AND COVER PLATE OR SUPPORTED EQUIPMENT AND BOX.
T. HORIZONTALLY SEPARATE BOXES MOUNTED ON OPPOSITE SIDES OF WALLS SO THEY ARE NOT IN THE SAME VERTICAL CHANNEL.
U. LOCATE BOXES SO THAT COVER OR PLATE WILL NOT SPAN DIFFERENT BUILDING FINISHES.
V. SUPPORT BOXES OF THREE GANGS OR MORE FROM MORE THAN ONE SIDE BY SPANNING TWO FRAMING MEMBERS OR MOUNTING ON BRACKETS SPECIFICALLY DESIGNED FOR THE PURPOSE.
W. FASTEN JUNCTION AND PULL BOXES TO OR SUPPORT FROM BUILDING STRUCTURE. DO NOT SUPPORT BOXES BY CONDUITS.

SECTION 260923 - LIGHTING CONTROL DEVICES

PART 1 - GENERAL
1.1 SUBMITTALS
A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.
1.2 COORDINATION
A. COORDINATE LAYOUT AND INSTALLATION OF CEILING-MOUNTED DEVICES WITH OTHER CONSTRUCTION THAT PENETRATES CEILINGS OR IS SUPPORTED BY THEM, INCLUDING LIGHT FIXTURES, HVAC EQUIPMENT, SMOKE DETECTORS, FIRE-SUPPRESSION SYSTEM, AND PARTITION ASSEMBLIES.

PART 2 - PRODUCTS
2.1 TIME SWITCHES
A. LOW VOLTAGE DIGITAL TIME SWITCH: SPECIFIC PRODUCT AS INDICATED ON DRAWINGS.
1. THE DIGITAL TIME SWITCH SHALL BE PROGRAMMABLE TO TURN LOADS OFF AFTER A PRESET TIME.
2. TIME SWITCH SHALL BE A FIVE WIRE, COMPLETELY SELF CONTAINED CONTROL SYSTEM THAT REPLACES A STANDARD TOGGLE SWITCH. SWITCHING MECHANISM SHALL BE A 30V, 1A AIR GAP RELAY.
3. TIME SWITCH SHALL OPERATE AT EITHER 24 VAC OR 24 VDC, 60 HZ.
4. TIME SWITCH SHALL HAVE NO MINIMUM LOAD REQUIREMENT.
5. TIME SWITCH SHALL BE 6-BUTTON WITH 30 MINUTE/1HOUR/2HOUR/4 HOUR/8 HOUR/12 HOUR OPTIONS, WITH EACH OPTION ENGRAVED ON THE BUTTONS TO REFLECT THOSE TIMES.
6. TIME SWITCH SHALL GIVE VISUAL WARNING AT 5 MINUTES UNTIL LIGHTS TURN OFF, AND AUDIBLE/VISUAL WARNING AT 1 MINUTE BEFORE THE LIGHTS TURN OFF.
7. TIME SWITCH SHALL HAVE THE OPTION FOR A BEEP WARNING THAT SHALL SOUND EVERY FIVE SECONDS ONCE THE TIME SWITCH COUNTDOWN REACHES ONE MINUTE.
8. TIME SWITCH SHALL HAVE MANUAL FEATURE FOR TIMER RESET WHERE PRESSING THE ON/OFF SWITCH FOR MORE THAN 2 SECONDS RESETS THE TIMER TO THE PROGRAMMED TIME-OUT PERIOD.
9. TIME SWITCH SHALL BE CAPABLE OF OPERATING AS AN ON/OFF SWITCH.
10. TIME SWITCH CAN OPERATE WITH POWER PACKS IN ORDER TO CONTROL ADDITIONAL LOADS.
2.2 OUTDOOR PHOTOELECTRIC SWITCHES
A. DESCRIPTION: SOLID STATE, WITH DPST DRY CONTACTS RATED FOR 1800-VA TUNGSTEN OR 1000-VA INDUCTIVE, TO OPERATE CONNECTED RELAY. CONSIST OF SOLID-STATE, LIGHT-SENSITIVE INPUT; COMPLYING WITH UL 773A. SPECIFIC PRODUCT AS INDICATED ON DRAWINGS.
2.3 DAYLIGHTING SENSORS
A. DESCRIPTION: SOLID-STATE, LIGHT-LEVEL SENSOR UNIT, WITH SEPARATE RELAY UNIT, TO DETECT CHANGES IN LIGHTING LEVELS THAT ARE PERCEIVED BY THE EYE; COMPATIBLE WITH LIGHTING SYSTEM AS SPECIFIED.
2.4 INDOOR OCCUPANCY SENSORS
A. GENERAL DESCRIPTION: WALL- OR CEILING-MOUNTING, SOLID-STATE UNITS WITH A SEPARATE RELAY UNIT. SPECIFIC PRODUCT AS INDICATED ON DRAWINGS.
1. OPERATION: UNLESS OTHERWISE INDICATED, TURN LIGHTS ON WHEN COVERED AREA IS OCCUPIED AND OFF WHEN UNOCCUPIED; WITH A TIME DELAY FOR TURNING LIGHTS OFF, ADJUSTABLE OVER A MINIMUM RANGE OF 1 TO 30 MINUTES.
2. MOUNTING:
a. SENSOR: SUITABLE FOR MOUNTING IN ANY POSITION ON A STANDARD OUTLET BOX.
b. INDICATOR: LED, TO SHOW WHEN MOTION IS BEING DETECTED DURING TESTING AND NORMAL OPERATION OF THE SENSOR.
4. BY-PASS SWITCH: OVERRIDE THE ON FUNCTION IN CASE OF SENSOR FAILURE.
B. PIR TYPE: CEILING MOUNTING; DETECT OCCUPANCY BY SENSING A COMBINATION OF HEAT AND MOVEMENT IN AREA OF COVERAGE. SPECIFIC PRODUCT AS INDICATED ON DRAWINGS.
1. DETECTOR SENSITIVITY: DETECT OCCURRENCES OF 6-INCH-(150-MM-) MINIMUM MOVEMENT OF ANY PORTION OF A HUMAN BODY THAT PRESENTS A TARGET OF NOT LESS THAN 36 SQ. IN. (232 SQ. CM), AND DETECT A PERSON OF AVERAGE SIZE AND WEIGHT MOVING NOT LESS THAN 12 INCHES (305 MM) IN EITHER A HORIZONTAL OR A VERTICAL MANNER AT AN APPROXIMATE SPEED OF 12 INCHES/S (305 MM/S).
2. DETECTION COVERAGE (SMALL ROOM): DETECT OCCUPANCY ANYWHERE WITHIN A CIRCULAR AREA OF 600 SQ. FT. (56 SQ. M) WHEN MOUNTED ON A 96-INCH- (2440-MM-) HIGH CEILING.
3. DETECTION COVERAGE (STANDARD ROOM): DETECT OCCUPANCY ANYWHERE WITHIN A CIRCULAR AREA OF 1000 SQ. FT. (93 SQ. M) WHEN MOUNTED ON A 96-INCH- (2440-MM-) HIGH CEILING.
4. DETECTION COVERAGE (LARGE ROOM): DETECT OCCUPANCY ANYWHERE WITHIN A CIRCULAR AREA OF 2000 SQ. FT. (186 SQ. M) WHEN MOUNTED ON A 96-INCH- (2440-MM-) HIGH CEILING.
5. DETECTION COVERAGE (CORRIDOR): DETECT OCCUPANCY ANYWHERE WITHIN 90 FEET (27.4 M) WHEN MOUNTED ON A 10-FOOT- (3-M-) HIGH CEILING IN A CORRIDOR NOT WIDER THAN 14 FEET (4.3 M).
D. DUAL-TECHNOLOGY TYPE: CEILING MOUNTING; DETECT OCCUPANCY BY USING A COMBINATION OF PIR AND ULTRASONIC DETECTION METHODS IN AREA OF COVERAGE. PARTICULAR TECHNOLOGY OR COMBINATION OF TECHNOLOGIES THAT CONTROLS ON-OFF FUNCTIONS SHALL BE SELECTABLE IN THE FIELD BY OPERATING CONTROLS ON UNIT. SPECIFIC PRODUCT AS INDICATED ON DRAWINGS.
1. SENSITIVITY ADJUSTMENT: SEPARATE FOR EACH SENSING TECHNOLOGY.
2. DETECTOR SENSITIVITY: DETECT OCCURRENCES OF 6-INCH-(150-MM-) MINIMUM MOVEMENT OF ANY PORTION OF A HUMAN BODY THAT PRESENTS A TARGET OF NOT LESS THAN 36 SQ. IN. (232 SQ. CM), AND DETECT A PERSON OF AVERAGE SIZE AND WEIGHT MOVING NOT LESS THAN 12 INCHES (305 MM) IN EITHER A HORIZONTAL OR A VERTICAL MANNER AT AN APPROXIMATE SPEED OF 12 INCHES/S (305 MM/S).
3. DETECTION COVERAGE (STANDARD ROOM): DETECT OCCUPANCY ANYWHERE WITHIN A CIRCULAR AREA OF 1000 SQ. FT. (93 SQ. M) WHEN MOUNTED ON A 96-INCH- (2440-MM-) HIGH CEILING.
2.5 EMERGENCY TRANSFER DEVICE
A. EMERGENCY TRANSFER DEVICE -SPECIFIC PRODUCT AS INDICATED ON DRAWINGS.
THE EMERGENCY TRANSFER DEVICE SHALL PROVIDE ALL REQUIRED FUNCTIONALITY TO ALLOW ANY STANDARD LIGHTING CONTROL DEVICE TO CONTROL EMERGENCY LIGHTING IN CONJUNCTION WITH NORMAL LIGHTING IN ANY AREA WITHIN A BUILDING.
2. THE EMERGENCY LIGHTING CONTROL UNIT SHALL ALLOW CONTROL OF EMERGENCY LIGHTING FIXTURES IN TANDEM WITH NORMAL LIGHTING IN AN AREA WHILE ENSURING THAT EMERGENCY LIGHTING WILL TURN ON IMMEDIATELY TO FULL BRIGHTNESS UPON LOSS OF NORMAL POWER SUPPLY, TYING THE CONTROL DEVICE. EMERGENCY LIGHTING OPERATION SHALL BE INDEPENDENT FOR EACH CONTROLLED AREA AND SHALL NOT REQUIRE FURTHER LOSS OF NORMAL POWER SUPPLY TO PRE OPERATION.
3. THE UNIT SHALL AUTOMATICALLY SWITCH EMERGENCY LIGHTING ON AND OFF AS NORMAL LIGHTING IS SWITCHED. WHEN NORMAL POWER IS NOT AVAILABLE, THE UNIT SHALL FORCE AND HOLD EMERGENCY LIGHTING ON REGARDLESS OF THE STATE OF ANY EXTERNAL CONTROL DEVICE UNTIL NORMAL POWER IS RESTORED.
4. THE UNIT SHALL BE UL924 AND CUL LISTED AND LABELED FOR CONNECTION TO BOTH NORMAL AND NORMAL/EMERGENCY LIGHTING POWER SOURCES.
2.7 EXECUTION
2.6 SENSOR INSTALLATION
A. INSTALL AND AIM SENSORS IN LOCATIONS TO ACHIEVE NOT LESS THAN 90 PERCENT COVERAGE OF AREAS INDICATED. DO NOT EXCEED COVERAGE LIMITS SPECIFIED IN MANUFACTURER'S WRITTEN INSTRUCTIONS.
B. SENSOR LOCATIONS SHOWN ON THE DRAWINGS ARE TO DENOTE ROOMS THAT SHALL HAVE SENSOR CONTROL. PROVIDE SENSORS IN LOCATIONS AND QUANTITY AS REQUIRED BY THE MANUFACTURER FOR PROPER COVERAGE AND OPERATION OF SPACE.
C. PROVIDE ALL RELATED PARTS AND ACCESSORIES FOR A COMPLETE AND OPERATIONAL SYSTEM.
D. CEILING MOUNTED OCCUPANCY SENSORS AND DAYLIGHT SENSORS SHALL BE INSTALLED CENTERED IN CEILING TILES.
E. UNLESS NOTED OTHERWISE WALL MOUNTED SWITCHES SHALL BE INSTALLED ON THE LATCH SIDE OF THE DOORS.
F. INSTALL DAYLIGHTING SENSORS AS INDICATED TO CONTROL LAMPS AS DETAILED ON CONTRACT DOCUMENTS. LOCATE IN CEILING TO NOT INTERFERE OPERATION BY OTHER OBJECTS AND AS REQUIRED BY MANUFACTURER TO DETECT NATURAL LIGHT LEVELS. SET SENSITIVITY LEVELS FOR CONTROL AS RECOMMENDED BY MANUFACTURER.
2.7 FIELD QUALITY CONTROL
A. ALL OCCUPANCY SENSORS AND DAYLIGHT SENSORS SHALL BE COMMISSIONED BY THE MANUFACTURER. SENSORS SHALL BE SET TO "TURN ON" WHEN BOTH TECHNOLOGIES SENSE MOTION AND MAINTAIN "ON" WITH EITHER TECHNOLOGY. SET SENSOR TO MID-RANGE TIMING WITH A 15 MINUTE DELAY. TIME TO TURN OFF. SET LIGHT LEVEL FUNCTION FOR DAYLIGHT SENSORS BETWEEN 11AM AND 1PM DURING A DAY OF MODERATE CLOUD COVER WHERE ILLUMINATION AT THE DESK IS AT LEAST 40 FOOTCANDLES WITH THE LUMINAIRES OFF.
2.8 ADJUSTING
A. OCCUPANCY ADJUSTMENTS: WHEN REQUESTED WITHIN 12 MONTHS OF DATE OF SUBSTANTIAL COMPLETION, PROVIDE ON-SITE ASSISTANCE IN ADJUSTING SENSORS TO SUIT OCCUPIED CONDITIONS. PROVIDE UP TO TWO VISITS TO PROJECT DURING OTHER-THAN-NORMAL OCCUPANCY HOURS FOR THIS PURPOSE.
2.9 DEMONSTRATION
A. ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN LIGHTING CONTROL DEVICES. REFER TO DIVISION 01 SECTION 017900 "DEMONSTRATION AND TRAINING."

SECTION 262213 - LOW-VOLTAGE DISTRIBUTION TRANSFORMERS

PART 1 - GENERAL
1.1 SUBMITTALS
A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.
1. INCLUDE CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, DIMENSIONS OF INDIVIDUAL COMPONENTS AND PROFILES, AND FINISHES FOR EACH TYPE AND SIZE OF TRANSFORMER.
2. INCLUDE RATED NAMEPLATE DATA, CAPACITIES, WEIGHTS, DIMENSIONS, MINIMUM CLEARANCES, INSTALLED DEVICES AND FEATURES, AND PERFORMANCE FOR EACH TYPE AND SIZE OF TRANSFORMER.

PART 2 - PRODUCTS
2.1 GENERAL TRANSFORMER REQUIREMENTS
A. DESCRIPTION: FACTORY-ASSEMBLED AND -TESTED, AIR-COOLED UNITS FOR 60-HZ SERVICE.
B. COMPLY WITH NFPA 70.
1. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND USE.
C. TRANSFORMERS RATED 15 KVA AND LARGER:
1. COMPLY WITH 10 CFR PART 431 (DOE 2016) EFFICIENCY LEVELS.
2. MARKED AS COMPLIANT WITH DOE 2016 EFFICIENCY LEVELS BY AN NRTL.
2.2 DISTRIBUTION TRANSFORMERS
A. COMPLY WITH NFPA 70, AND LIST AND LABEL AS COMPLYING WITH UL 1561.
B. CORES: ELECTRICAL GRADE, NON-AGING SILICON STEEL WITH HIGH PERMEABILITY AND LOW HYSTERESIS LOSSES.
1. ONE LEG PER PHASE.
2. CORE VOLUME SHALL ALLOW EFFICIENT TRANSFORMER OPERATION AT 10 PERCENT ABOVE THE NOMINAL TAP VOLTAGE.
3. GROUNDED TO ENCLOSURE.
C. COILS: CONTINUOUS WINDINGS WITHOUT SPLICES EXCEPT FOR TAPS.
1. COIL MATERIAL: COPPER.
2. INTERNAL COIL CONNECTIONS: BRAZED OR PRESSURE TYPE.
D. ENCAPSULATION: TRANSFORMERS SMALLER THAN 30 KVA SHALL HAVE CORE AND COILS COMPLETELY RESIN ENCAPSULATED.
E. ENCLOSURE: VENTILATED.
1. NEMA 250, TYPE 2 TYPE 3R: CORE AND COIL SHALL BE ENCAPSULATED WITH RESIN COMPOUND USING A VACUUM-PRESSURE IMPREGNATION PROCESS TO SEAL OUT MOISTURE AND AIR.
2. KVA RATINGS: BASED ON CONVECTION COOLING ONLY AND NOT RELYING ON AUXILIARY FANS.
3. WIRING COMPARTMENT: SIZED FOR CONDUIT ENTRY AND WIRING INSTALLATION.
4. FINISH: COMPLY WITH NEMA 250.
a. FINISH COLOR: GRAY, ANSI 49 OR GRAY ANSI 61 GRAY WHERE ENAMEL IS USED.
F. TAPS FOR TRANSFORMERS 3 KVA AND SMALLER: NONE.
G. TAPS FOR TRANSFORMERS 7.5 TO 24 KVA: ONE 5 PERCENT TAP ABOVE AND ONE 5 PERCENT TAP BELOW NOMINAL FULL CAPACITY.
H. TAPS FOR TRANSFORMERS 25 KVA AND LARGER: TWO 2.5 PERCENT TAPS ABOVE AND FOUR 2.5 PERCENT TAPS BELOW NORMAL FULL CAPACITY.
I. INSULATION CLASS, SMALLER THAN 30 KVA: 180 DEG C, UL-COMPONENT-RECOGNIZED INSULATION SYSTEM WITH A MAXIMUM OF 115 DEG C RISE ABOVE 40 DEG C AMBIENT TEMPERATURE.
J. INSULATION CLASS, 30 KVA AND LARGER: 220 DEG C, UL-COMPONENT-RECOGNIZED INSULATION SYSTEM WITH A MAXIMUM OF 150 DEG C RISE ABOVE 40 DEG C AMBIENT TEMPERATURE.
K. GROUNDING: PROVIDE GROUND-BAR KIT OR A GROUND BAR INSTALLED ON THE INSIDE OF THE TRANSFORMER ENCLOSURE.
L. ELECTROSTATIC SHIELDING: EACH WINDING SHALL HAVE AN INDEPENDENT, SINGLE, FULL-WIDTH COPPER ELECTROSTATIC SHIELD ARRANGED TO MINIMIZE INTERWINDING CAPACITANCE.
1. ARRANGE COIL LEADS AND TERMINAL STRIPS TO MINIMIZE CAPACITIVE COUPLING BETWEEN INPUT AND OUTPUT TERMINALS.
2. INCLUDE SPECIAL TERMINAL FOR GROUNDING THE SHIELD.
M. WALL BRACKETS: WALL BRACKETS FABRICATED FROM DESIGN DRAWINGS SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER.

PART 3 - EXECUTION
3.1 EXAMINATION
A. EXAMINE CONDITIONS FOR COMPLIANCE WITH ENCLOSURE- AND AMBIENT-TEMPERATURE REQUIREMENTS FOR EACH TRANSFORMER.
B. VERIFY THAT FIELD MEASUREMENTS ARE AS NEEDED TO MAINTAIN WORKING CLEARANCES REQUIRED BY NFPA 70 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.
C. ENVIRONMENT: ENCLOSURES SHALL BE RATED FOR THE ENVIRONMENT IN WHICH THEY ARE LOCATED. COVERS FOR NEMA 250, TYPE 4 X ENCLOSURES SHALL NOT CAUSE ACCESSIBILITY PROBLEMS.
3.2 INSTALLATION
A. INSTALL WALL-MOUNTED TRANSFORMERS LEVEL AND PLUMB WITH WALL BRACKETS FABRICATED FROM DESIGN DRAWINGS SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER.
1. COORDINATE INSTALLATION OF WALL-MOUNTED AND STRUCTURE-HANGING SUPPORTS WITH ACTUAL TRANSFORMER PROVIDED.
2. BRACE WALL-MOUNTED TRANSFORMERS AS SPECIFIED IN SECTION 260548.16 "SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS."
B. INSTALL TRANSFORMERS LEVEL AND PLUMB ON A CONCRETE BASE WITH VIBRATION-ABSORBING MATERIAL TO ISOLATE TRANSFORMERS AWAY FROM CORNERS AND NOT PARALLEL TO ADJACENT WALL SURFACE.
C. CONSTRUCT CONCRETE BASES AND ANCHOR FLOOR-MOUNTED TRANSFORMERS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS, AND SEISMIC CODES APPLICABLE TO PROJECT.
1. COORDINATE SIZE AND LOCATION OF CONCRETE BASES WITH ACTUAL TRANSFORMER PROVIDED. CAST ANCHOR-BOLT INSERTS INTO BASES. CONCRETE, REINFORCEMENT, AND FORMWORK REQUIREMENTS ARE SPECIFIED WITH CONCRETE.
3.3 CONNECTIONS
A. GROUND EQUIPMENT ACCORDING TO SECTION 260526 "GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS."
B. CONNECT WIRING ACCORDING TO SECTION 260519 "LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES."
C. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A-486B.
D. PROVIDE FLEXIBLE CONNECTIONS AT ALL CONDUIT AND CONDUCTOR TERMINATIONS AND SUPPORTS TO ELIMINATE SOUND AND VIBRATION TRANSMISSION TO THE BUILDING STRUCTURE.
3.4 CLEANING
A. VACUUM DIRT AND DEBRIS; DO NOT USE COMPRESSED AIR TO ASSIST IN CLEANING.

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL
1.1 SUBMITTALS
A. PRODUCT DATA: FOR EACH TYPE OF PANELBOARD.
1. INCLUDE MATERIAL DESCRIPTIONS AND OVERCURRENT PROTECTIVE DEVICES, SPDS, ACCESSORIES, AND COMPONENTS INDICATED.
2. INCLUDE DIMENSIONS AND MANUFACTURERS' TECHNICAL DATA ON FEATURES, PERFORMANCE, ELECTRICAL CHARACTERISTICS, RATINGS, AND FINISHES.
3. PANELBOARD SCHEDULES: FOR INSTALLATION IN PANELBOARDS. SUBMIT FINAL VERSIONS AFTER LOAD BALANCING.
1.2 MAINTENANCE MATERIAL SUBMITTALS
A. FURNISH EXTRA MATERIALS THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.
1. KEYS: TWO SPARES FOR EACH TYPE OF PANELBOARD CABINET LOCK.
2. CIRCUIT BREAKERS INCLUDING GFCI AND GFEP TYPES: TWO SPARES FOR EACH PANELBOARD.
3. FUSES FOR FUSED SWITCHES: EQUAL TO 10 PERCENT OF QUANTITY INSTALLED FOR EACH SIZE AND TYPE, BUT NO FEWER THAN THREE OF EACH SIZE AND TYPE.
4. FUSES FOR FUSED POWER-CIRCUIT DEVICES: EQUAL TO 10 PERCENT OF QUANTITY INSTALLED FOR EACH SIZE AND TYPE, BUT NO FEWER THAN THREE OF EACH SIZE AND TYPE.

PART 2 - PRODUCTS
2.1 PANELBOARDS COMMON REQUIREMENTS
A. ENCLOSURES: FLUSH AND SURFACE-MOUNTED, DEAD-FRONT CABINETS.
1. RATED FOR ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION.
a. INDOOR DRY AND CLEAN LOCATIONS: NEMA 250, TYPE 1.
b. OUTDOOR LOCATIONS: NEMA 250, TYPE 3R.
c. KITCHEN WASH-DOWN AREAS: NEMA 250, TYPE 4X, STAINLESS STEEL.
d. OTHER WET OR DAMP INDOOR LOCATIONS: NEMA 250, TYPE 4.
e. INDOOR LOCATIONS SUBJECT TO DUST, FALLING DIRT, AND DRIPPING NONCORROSIVE LIQUIDS: NEMA 250, TYPE 5 OR TYPE 12.
2. HEIGHT: 84 INCHES MAXIMUM.
3. FRONT: SECURED TO BOX WITH CONCEALED TRIM CLAMPS. FOR SURFACE-MOUNTED FRONTS, MATCH BOX DIMENSIONS. FOR FLUSH-MOUNTED FRONTS, OVERLAP BOX. TRIMS SHALL COVER ALL LIVE PARTS AND SHALL HAVE NO EXPOSED HARDWARE.
4. HINGED FRONT COVER: ENTIRE FRONT TRIM HINGED TO BOX AND WITH STANDARD DOOR WITHIN HINGED TRIM COVER. TRIMS SHALL COVER ALL LIVE PARTS AND SHALL HAVE NO EXPOSED HARDWARE.
5. SKIRT FOR SURFACE-MOUNTED PANELBOARDS: SAME GAGE AND FINISH AS PANELBOARD FRONT WITH FLANGES FOR ATTACHMENT TO PANELBOARD, WALL, AND CEILING OR FLOOR.
B. INCOMING MAINS: SHALL BE CONVERTIBLE BETWEEN TOP AND BOTTOM. MAIN LUG INTERIORS UP TO 400 AMPERES SHALL BE FIELD CONVERTIBLE TO MAIN BREAKER.
C. PHASE, NEUTRAL, AND GROUND BUSES:
1. MATERIAL: HARD-DRAWN COPPER, 98 PERCENT CONDUCTIVITY. PLATING SHALL RUN ENTIRE LENGTH OF BUS. BUS SHALL BE FULLY RATED THE ENTIRE LENGTH.
2. INTERIORS SHALL BE FACTORY ASSEMBLED INTO A UNIT, REPLACING SWITCHING AND PROTECTIVE DEVICES SHALL NOT DISTURB ADJACENT UNITS OR REQUIRE REMOVING THE MAIN BUS CONNECTORS.
3. EQUIPMENT GROUND BUS: ADEQUATE FOR FEEDER AND BRANCH-CIRCUIT EQUIPMENT GROUNDING CONDUCTORS; BONDED TO BOX.
D. CONDUCTOR CONNECTORS: SUITABLE FOR USE WITH CONDUCTOR MATERIAL AND SIZES.
1. MATERIAL: HARD-DRAWN COPPER, 98 PERCENT CONDUCTIVITY.
2. TERMINATIONS SHALL ALLOW USE OF 75 DEG C RATED CONDUCTORS WITHOUT DERATING.
3. SIZE: LUGS SUITABLE FOR INDICATED CONDUCTOR SIZES, WITH ADDITIONAL GUTTER SPACE, IF REQUIRED, FOR LARGER CONDUCTORS.
4. MAIN AND NEUTRAL LUGS: MECHANICAL TYPE, WITH A LUG ON THE NEUTRAL BAR FOR EACH POLE IN THE PANELBOARD.
5. GROUND LUGS AND BUS-CONFIGURED TERMINATORS: MECHANICAL TYPE, WITH A LUG ON THE BAR FOR EACH POLE IN THE PANELBOARD.
6. FEED-THROUGH LUGS: MECHANICAL TYPE, SUITABLE FOR USE WITH CONDUCTOR MATERIAL. LOCATE AT OPPOSITE END OF BUS FROM INCOMING LUGS OR MAIN DEVICE.
7. SUBFEED (DOUBLE) LUGS: MECHANICAL TYPE SUITABLE FOR USE WITH CONDUCTOR MATERIAL. LOCATE AT SAME END OF BUS AS INCOMING LUGS OR MAIN DEVICE.
8. GUTTER-TAP LUGS: MECHANICAL TYPE SUITABLE FOR USE WITH CONDUCTOR MATERIAL AND WITH MATCHING INSULATING COVERS. LOCATE AT SAME END OF BUS AS INCOMING LUGS OR MAIN DEVICE.
E. FUTURE DEVICES: PANELBOARDS SHALL HAVE MOUNTING BRACKETS, BUS CONNECTIONS, FILLER PLATES, AND NECESSARY APPURTENANCES REQUIRED FOR FUTURE INSTALLATION OF DEVICES.
F. PANELBOARD SHORT-CIRCUIT CURRENT RATING: FULLY RATED TO INTERRUPT SYMMETRICAL SHORT-CIRCUIT CURRENT AVAILABLE AT TERMINALS. ASSEMBLY LISTED BY AN NRTL FOR 100 PERCENT INTERRUPTING CAPACITY.
G. SURGE SUPPRESSION: FACTORY INSTALLED AS AN INTEGRAL PART OF INDICATED PANELBOARDS, COMPLYING WITH UL 1449 SPD TYPE 1.
2.2 DISTRIBUTION PANELBOARDS: PANELBOARDS, AS SPECIFIED IN THIS ARTICLE, FALL UNDER REQUIREMENTS OF "DISTRIBUTION PANELBOARDS" IN NEMA PB 1.
A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: EATON, SIEMENS, SQUARE D, OR GE.
B. PANELBOARDS: NEMA PB 1, DISTRIBUTION TYPE.
C. DOORS: SECURED WITH VAULT-TYPE LATCH WITH TUMBLER LOCK; KEYED ALIKE.
D. MAINS: CIRCUIT BREAKER OR LUGS ONLY. REFER TO SINGLE LINE DRAWING.
E. BRANCH OVERCURRENT PROTECTIVE DEVICES: BOLT-ON CIRCUIT BREAKERS.
2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS
PANELBOARDS, AS SPECIFIED IN THIS ARTICLE, COMPLY WITH REQUIREMENTS OF "LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS" IN NEMA PB 1.
A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: EATON, SIEMENS, SQUARE D, OR GE.
B. PANELBOARDS: NEMA PB 1, LIGHTING AND APPLIANCE BRANCH-CIRCUIT TYPE.
C. MAINS: CIRCUIT BREAKER OR LUGS ONLY. REFER TO SINGLE LINE DRAWING.
D. BRANCH OVERCURRENT PROTECTIVE DEVICES: BOLT-ON CIRCUIT BREAKERS, REPLACEABLE WITHOUT DISTURBING ADJACENT UNITS.
E. DOORS: DOOR-IN-DOOR CONSTRUCTION WITH CONCEALED HINGES; SECURED WITH MULTIPOINT LATCH WITH TUMBLER LOCK; KEYED ALIKE. OUTER DOOR SHALL PERMIT FULL ACCESS TO THE PANEL INTERIOR WHEN INNER DOOR IS CLOSED. PROVIDE LATCH BEARING OPERATING HANDLES AND LABELING, BUT CURRENT CARRYING TERMINALS AND BUS SHALL REMAIN CONCEALED.
F. PANELS WITH MAINS AS LOADCENTERS ARE NOT ACCEPTABLE.
2.4 IDENTIFICATION
A. PANELBOARD LABEL: MANUFACTURER'S NAME AND TRADEMARK, VOLTAGE, AMPERAGE, NUMBER OF PHASES, AND NUMBER OF POLES SHALL BE LOCATED ON THE INTERIOR OF THE PANELBOARD DOOR.
B. BREAKER LABELS: FACEPLATE SHALL LIST CURRENT RATING, UL AND IEC-CERTIFICATION STANDARDS, AND TYPE DESIGNATION.
C. CIRCUIT DIRECTORY: DIRECTORY CARD INSIDE PANELBOARD DOOR, MOUNTED IN METAL FRAME WITH TRANSPARENT PROTECTIVE COVER.
1. CIRCUIT DIRECTORY SHALL IDENTIFY SPECIFIC PURPOSE WITH DETAIL SUFFICIENT TO DISTINGUISH IT FROM ALL OTHER CIRCUITS.

PART 3 - EXECUTION
3.1 INSTALLATION
A. COORDINATE LAYOUT AND INSTALLATION OF PANELBOARDS AND COMPONENTS WITH OTHER CONSTRUCTION THAT PENETRATES WALLS OR IS SUPPORTED BY THEM, INCLUDING ELECTRICAL AND OTHER TYPES OF EQUIPMENT, RACEWAYS, PIPING, ENCUMBRANCES TO WORKSPACE CLEARANCE REQUIREMENTS, AND ADJACENT SURFACES. MAINTAIN REQUIRED WORKSPACE CLEARANCES AND REQUIRED CLEARANCES FOR EQUIPMENT ACCESS DOORS AND PANELS.
B. COMPLY WITH NECA 1. INSTALL PANELBOARDS AND ACCESSORIES ACCORDING TO NECA 407 AND NEMA PB 1.1.
C. MO

BEING GROUNDED, AND BONDED; AND LABELED FOR COPPER AND ALUMINUM NEUTRAL CONDUCTORS.
3. AUXILIARY CONTACT KIT: AUXILIARY SET OF CONTACTS ARRANGED TO OPEN BEFORE SWITCH BLADES OPEN. PROVIDE WHEN USED AS REMOTE DISCONNECT FOR VARIABLE FREQUENCY MOTOR CONTROLLER CIRCUITS.
4. SERVICE-RATED SWITCHES: LABELED FOR USE AS SERVICE EQUIPMENT.

2.4 MOLDED-CASE CIRCUIT BREAKERS
A. MOLDED-CASE CIRCUIT BREAKER: NEMA AB 1, WITH INTERRUPTING CAPACITY TO MEET AVAILABLE FAULT CURRENTS.
1. THERMAL-MAGNETIC CIRCUIT BREAKERS: INVERSE TIME-CURRENT ELEMENT FOR LOW-LEVEL OVERLOADS AND INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS. ADJUSTABLE MAGNETIC TRIP SETTING FOR CIRCUIT-BREAKER FRAME SIZES 250 A AND LARGER.
2. ADJUSTABLE INSTANTANEOUS-TRIP CIRCUIT BREAKERS: MAGNETIC TRIP ELEMENT WITH FRONT-MOUNTED, FIELD-ADJUSTABLE TRIP SETTING.
3. ELECTRONIC TRIP-UNIT CIRCUIT BREAKERS: RMS SENSING; FIELD-REPLACEABLE RATING PLUG; WITH THE FOLLOWING FIELD-ADJUSTABLE SETTINGS:
a. INSTANTANEOUS TRIP.
b. LONG- AND SHORT-TIME PICKUP LEVELS.
c. LONG- AND SHORT-TIME TIME ADJUSTMENTS.
d. GROUND-FAULT PICKUP LEVEL, TIME DELAY, AND I2T RESPONSE.

B. MOLDED-CASE CIRCUIT-BREAKER FEATURES AND ACCESSORIES:
1. STANDARD FRAME SIZES, TRIP RATINGS, AND NUMBER OF POLES.
2. LUGS: MECHANICAL STYLE SUITABLE FOR NUMBER, SIZE, TRIP RATINGS, AND CONDUCTOR MATERIAL.
3. APPLICATION LISTING: HACR FOR HEATING, AIR-CONDITIONING, AND REFRIGERATING EQUIPMENT.
4. GROUND-FAULT PROTECTION: INTEGRALLY MOUNTED RELAY AND TRIP UNIT WITH ADJUSTABLE PICKUP AND TIME-DELAY SETTINGS, PUSH-TO-TEST FEATURE, AND GROUND-FAULT INDICATOR.
5. SHUNT TRIP: 120-V TRIP COIL ENERGIZED FROM SEPARATE CIRCUIT, SET TO TRIP AT 55 PERCENT OF RATED VOLTAGE.
6. UNDERVOLTAGE TRIP: SET TO OPERATE AT 35 TO 75 PERCENT OF RATED VOLTAGE WITHOUT INTENTIONAL OR WITH FIELD-ADJUSTABLE 0.1- TO 0.6-SECOND TIME DELAY.
7. AUXILIARY SWITCH: ONE SPDT SWITCH OR TWO SPDT SWITCHES WITH "A" AND "B" CONTACTS; "A" CONTACTS MIMIC CIRCUIT-BREAKER CONTACTS. "B" CONTACTS OPERATE IN REVERSE OF CIRCUIT-BREAKER CONTACTS.

2.5 ENCLOSURES
A. NEMA AB 1 AND NEMA KS 1 TO MEET ENVIRONMENTAL CONDITIONS OF INSTALLED LOCATION.
1. INDOOR LOCATIONS: NEMA 250, TYPE 1.
2. OUTDOOR LOCATIONS: NEMA 250, TYPE 3R.
3. OTHER WET OR DAMP INDOOR LOCATIONS: NEMA 250, TYPE 4.

B. CONDUIT ENTRY: NEMA 250 TYPES 4, 4X, AND 12 ENCLOSURES SHALL CONTAIN NO KNOCKOUTS. NEMA 250 TYPES 7 AND 9 ENCLOSURES SHALL BE PROVIDED WITH THREADED CONDUIT OPENINGS IN BOTH END WALLS.
C. ENCLOSURES DESIGNATED AS NEMA 250 TYPE 4, 4X STAINLESS STEEL, 12, OR 12K SHALL HAVE A DUAL COVER INTERLOCK MECHANISM TO PREVENT UNINTENTIONAL OPENING OF THE ENCLOSURE COVER WHEN THE CIRCUIT BREAKER IS ON AND TO PREVENT TURNING THE CIRCUIT BREAKER ON WHEN THE ENCLOSURE COVER IS OPEN.
D. ALL ENCLOSURES SHALL INCLUDE A BONDED EQUIPMENT BUS.

PART 3 - EXECUTION
3.1 INSTALLATION
A. COORDINATE LAYOUT AND INSTALLATION OF SWITCHES, CIRCUIT BREAKERS, AND COMPONENTS WITH EQUIPMENT SERVED AND ADJACENT SURFACES. MAINTAIN REQUIRED WORKSPACE CLEARANCES AND REQUIRED CLEARANCES FOR EQUIPMENT ACCESS DOORS AND PANELS.
B. INSTALL INDIVIDUAL WALL-MOUNTED SWITCHES AND CIRCUIT BREAKERS WITH TOPS AT UNIFORM HEIGHT UNLESS OTHERWISE INDICATED.
C. INSTALL FUSES IN FUSIBLE DEVICES.
D. COMPLY WITH NFPA 70 AND NECA 1.

SECTION 265119 - LED LIGHTING
PART 1 - PART 1 - GENERAL
1.1 SUBMITTALS
A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.
B. PRODUCT SCHEDULE: FOR LUMINAIRES AND LAMPS. USE SAME DESIGNATIONS INDICATED ON DRAWINGS.

1.2 QUALITY ASSURANCE
A. LUMINAIRE PHOTOMETRIC DATA TESTING LABORATORY QUALIFICATIONS: PROVIDED BY AN INDEPENDENT AGENCY, WITH THE EXPERIENCE AND CAPABILITY TO CONDUCT THE TESTING INDICATED, THAT IS AN NRTL AS DEFINED BY OSHA 29 CFR 1910.7, ACCREDITED UNDER THE NVLAP FOR ENERGY EFFICIENT LIGHTING PRODUCTS, AND COMPLYING WITH THE APPLICABLE IES TESTING STANDARDS.
B. PROVIDE LUMINAIRES FROM A SINGLE MANUFACTURER FOR EACH LUMINAIRE TYPE.
C. EACH LUMINAIRE TYPE SHALL BE BINNED WITHIN A THREE-STEP MACADAM ELLIPSE TO ENSURE COLOR CONSISTENCY AMONG LUMINAIRES.
D. MOCKUPS: FOR INTERIOR LUMINAIRES IN ROOM OR MODULE MOCKUPS, COMPLETE WITH POWER AND CONTROL CONNECTIONS.
1. OBTAIN ARCHITECT'S APPROVAL OF LUMINAIRES IN MOCKUPS BEFORE STARTING INSTALLATIONS.
2. MAINTAIN MOCKUPS DURING CONSTRUCTION IN AN UNDISTURBED CONDITION AS A STANDARD FOR JUDGING THE COMPLETED WORK.
3. APPROVAL OF MOCKUPS DOES NOT CONSTITUTE APPROVAL OF DEVIATIONS FROM THE CONTRACT DOCUMENTS CONTAINED IN MOCKUPS UNLESS ARCHITECT SPECIFICALLY APPROVES SUCH DEVIATIONS IN WRITING.
4. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, APPROVED MOCKUPS MAY BECOME PART OF THE COMPLETED WORK IF UNDISTURBED AT TIME OF SUBSTANTIAL COMPLETION.

1.3 DELIVERY, STORAGE, AND HANDLING
A. PROTECT FINISHES OF EXPOSED SURFACES BY APPLYING A STRIPPABLE, TEMPORARY PROTECTIVE COVERING BEFORE SHIPPING.

1.4 WARRANTY
A. WARRANTY: MANUFACTURER AND INSTALLER AGREE TO REPAIR OR REPLACE COMPONENTS OF LUMINAIRES THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD. WARRANTY PERIOD: FIVE YEAR(S) FROM DATE OF SUBSTANTIAL COMPLETION.

PART 2 - PRODUCTS
2.1 LUMINAIRE REQUIREMENTS
A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
B. CRI AS INDICATED IN LIGHTING FIXTURE SCHEDULE. CCT AS INDICATED IN LIGHTING FIXTURE SCHEDULE.
C. RATED LAMP LIFE OF 50,000 HOURS TO L70.
D. LAMPS DIMMABLE FROM 100 PERCENT TO 0 PERCENT OF MAXIMUM LIGHT OUTPUT.
E. INTERNAL DRIVER.
F. NOMINAL OPERATING VOLTAGE: AS INDICATED IN LIGHTING FIXTURE SCHEDULE.

2.2 LUMINAIRE SUPPORT
A. SINGLE-STEM HANGERS: 1/2-INCH (13-MM) STEEL TUBING WITH SWIVEL BALL FITTINGS AND CEILING CANOPY. FINISH SAME AS LUMINAIRE.
B. WIRES: ASTM A 641/A 641 M, CLASS 3, SOFT TEMPER, ZINC-COATED STEEL, 12 GAGE (2.68 MM).
C. ROD HANGERS: 3/16-INCH (5-MM) MINIMUM DIAMETER, CADMIUM-PLATED, THREADED STEEL ROD.
D. HOOK HANGERS: INTEGRATED ASSEMBLY MATCHED TO LUMINAIRE, LINE VOLTAGE, AND EQUIPMENT WITH THREADED ATTACHMENT, CORD, AND LOCKING-TYPE PLUG.

PART 3 - EXECUTION
3.1 INTERIOR LIGHTING INSTALLATION
A. COMPLY WITH NECA 1.
B. INSTALL LUMINAIRES LEVEL, PLUMB, AND SQUARE WITH CEILINGS AND WALLS UNLESS OTHERWISE INDICATED.
C. INSTALL LAMPS IN EACH LUMINAIRE.
D. SUPPORTS:
1. SIZED AND RATED FOR LUMINAIRE WEIGHT.
2. ABLE TO MAINTAIN LUMINAIRE POSITION AFTER CLEANING AND RELAMPING.
3. PROVIDE SUPPORT FOR LUMINAIRE WITHOUT CAUSING DEFLECTION OF CEILING OR WALL.
4. LUMINAIRE MOUNTING DEVICES SHALL BE CAPABLE OF SUPPORTING A HORIZONTAL FORCE OF 100 PERCENT OF LUMINAIRE WEIGHT AND VERTICAL FORCE OF 400 PERCENT OF LUMINAIRE WEIGHT.

E. FLUSH-MOUNTED LUMINAIRE SUPPORT:
1. SECURED TO OUTLET BOX.
2. ATTACHED TO CEILING STRUCTURAL MEMBERS AT FOUR POINTS EQUALLY SPACED AROUND CIRCUMFERENCE OF LUMINAIRE.
3. TRIM RING FLUSH WITH FINISHED SURFACE.

F. WALL-MOUNTED LUMINAIRE SUPPORT:
1. ATTACHED TO STRUCTURAL MEMBERS IN WALLS.
2. DO NOT ATTACH LUMINAIRES DIRECTLY TO GYPSUM BOARD.

G. CEILING-MOUNTED LUMINAIRE SUPPORT:
1. CEILING MOUNT WITH FOUR-POINT PENDANT MOUNT WITH 3/32-INCH- (4-MM-) DIAMETER AIRCRAFT CABLE SUPPORTS ADJUSTABLE TO 120 INCHES (6 M) IN LENGTH.
2. CEILING MOUNT WITH HOOK MOUNT.

H. SUSPENDED LUMINAIRE SUPPORT:
1. PENDANTS AND RODS: WHERE LONGER THAN 48 INCHES (1200 MM), BRACE TO LIMIT SWINGING.
2. STEM-MOUNTED, SINGLE-UNIT LUMINAIRES: SUSPEND WITH TWIN-STEM HANGERS. SUPPORT WITH APPROVED OUTLET BOX AND ACCESSORIES THAT HOLD STEM AND PROVIDE DAMPING OF LUMINAIRE OSCILLATIONS. SUPPORT OUTLET BOX VERTICALLY TO BUILDING STRUCTURE USING APPROVED DEVICES.
3. CONTINUOUS ROWS OF LUMINAIRES: USE TUBING OR STEM FOR WIRING AT ONE POINT AND WIRE SUPPORT FOR SUSPENSION FOR EACH UNIT LENGTH OF LUMINAIRE CHASSIS, INCLUDING ONE AT EACH END.
4. DO NOT USE CEILING GRID AS SUPPORT FOR PENDANT LUMINAIRES. CONNECT SUPPORT WIRES OR RODS TO BUILDING STRUCTURE.

I. CEILING-GRID-MOUNTED LUMINAIRES:
1. SECURE TO ANY REQUIRED OUTLET BOX.
2. SECURE LUMINAIRE TO THE LUMINAIRE OPENING USING APPROVED FASTENERS IN A MINIMUM OF FOUR LOCATIONS, SPACED NEAR CORNERS OF LUMINAIRE.
3. USE APPROVED DEVICES AND SUPPORT COMPONENTS TO CONNECT LUMINAIRE TO CEILING GRID AND BUILDING STRUCTURE IN A MINIMUM OF FOUR LOCATIONS, SPACED NEAR CORNERS OF LUMINAIRE.

3.2 ADJUSTING
A. OCCUPANCY ADJUSTMENTS: WHEN REQUESTED WITHIN 12 MONTHS OF DATE OF SUBSTANTIAL COMPLETION, PROVIDE ON-SITE ASSISTANCE IN ADJUSTING THE DIRECTION OF AIMING OF LUMINAIRES TO SUIT OCCUPIED CONDITIONS. MAKE UP TO TWO VISITS TO PROJECT DURING OTHER-THAN-NORMAL HOURS FOR THIS PURPOSE. SOME OF THIS WORK MAY BE REQUIRED DURING HOURS OF DARKNESS. ADJUST THE AIM OF LUMINAIRES IN THE PRESENCE OF THE ARCHITECT.

3.3 GENERAL EXTERIOR LIGHTING INSTALLATION REQUIREMENTS
A. COMPLY WITH NECA 1.
B. USE FASTENING METHODS AND MATERIALS SELECTED TO RESIST SEISMIC FORCES DEFINED FOR THE APPLICATION AND APPROVED BY MANUFACTURER.
C. INSTALL LAMPS IN EACH LUMINAIRE.
D. FASTEN LUMINAIRE TO STRUCTURAL SUPPORT.
E. SUPPORTS:
1. SIZED AND RATED FOR LUMINAIRE WEIGHT.
2. ABLE TO MAINTAIN LUMINAIRE POSITION AFTER CLEANING AND RELAMPING.
3. SUPPORT LUMINAIRES WITHOUT CAUSING DEFLECTION OF FINISHED SURFACE.
4. LUMINAIRE-MOUNTING DEVICES SHALL BE CAPABLE OF SUPPORTING A HORIZONTAL FORCE OF 100 PERCENT OF LUMINAIRE WEIGHT AND A VERTICAL FORCE OF 400 PERCENT OF LUMINAIRE WEIGHT.

F. INSTALL LUMINAIRES LEVEL, PLUMB, AND SQUARE WITH FINISHED GRADE UNLESS OTHERWISE INDICATED. INSTALL LUMINAIRES AT HEIGHT AND AIMING ANGLE AS INDICATED ON DRAWINGS.
G. COORDINATE LAYOUT AND INSTALLATION OF LUMINAIRES WITH OTHER CONSTRUCTION.
H. ADJUST LUMINAIRES THAT REQUIRE FIELD ADJUSTMENT OR AIMING.

SECTION 283111 - ADDRESSABLE FIRE ALARM SYSTEM
PART 1 - GENERAL
1.1 GENERAL DESCRIPTION - PROVIDE ADDITIONS TO EXISTING ADDRESSABLE DIGITAL FIRE ALARM SYSTEM INSTALLED AS SHOWN ON DRAWINGS AND DESCRIBED HEREIN. THE OPERATION SHALL BE SUCH THAT ACTUATION OF ANY MANUAL FIRE ALARM STATION OR ANY OTHER INITIATION DEVICE SHALL CAUSE AUDIBLE/VISIBLE SIGNAL DEVICES THROUGHOUT THE BUILDING TO OPERATE, SHALL CAUSE AN ALARM SIGNAL TO BE TRANSMITTED TO A CENTRAL STATION. ALL INITIATING DEVICES SHALL BE FULLY COMPATIBLE WITH EXISTING SYSTEMS AND SHALL BE PER BASE BUILDING MANUFACTURER'S RECOMMENDATIONS. ALL COMPONENTS SHALL BE ADDRESSABLE OR BE PROVIDED WITH ADDRESSABLE ZONE INTERFACE MODULES.

1.2 SUBMITTALS
A. GENERAL SUBMITTAL REQUIREMENTS:
1. SUBMITTALS SHALL BE APPROVED BY AUTHORITIES HAVING JURISDICTION PRIOR TO SUBMITTING THEM TO ARCHITECT.
2. SHOP DRAWINGS SHALL BE PREPARED BY PERSONS WITH THE FOLLOWING QUALIFICATIONS:
a. TRAINED AND CERTIFIED BY MANUFACTURER IN FIRE-ALARM SYSTEM DESIGN AND
b. NICET-CERTIFIED FIRE-ALARM TECHNICIAN, LEVEL III MINIMUM.
c. LICENSED OR CERTIFIED BY AUTHORITIES HAVING JURISDICTION.

B. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.
C. SHOP DRAWINGS: FOR FIRE-ALARM SYSTEM. INCLUDE PLANS, ELEVATIONS, SECTIONS, DETAILS, AND ATTACHMENTS TO OTHER WORK.
1. COMPLY WITH RECOMMENDATIONS IN THE "DOCUMENTATION" SECTION OF THE "FUNDAMENTALS OF FIRE ALARM SYSTEMS" CHAPTER IN NFPA 72.
2. INCLUDE VOLTAGE DROP CALCULATIONS FOR NOTIFICATION APPLIANCE CIRCUITS.
3. INCLUDE BATTERY-SIZE CALCULATIONS.
4. INCLUDE PERFORMANCE PARAMETERS AND INSTALLATION DETAILS FOR EACH DETECTOR, VERIFYING THAT EACH DETECTOR IS LISTED FOR COMPLETE RANGE OF AIR VELOCITY, TEMPERATURE, AND HUMIDITY POSSIBLE WHEN AIR-HANDLING SYSTEM IS OPERATING.
5. RISER DIAGRAM, SIGNALING-SERVICE EQUIPMENT RACK OR CONSOLE LAYOUT, GROUNDING SCHEMATIC, AMPLIFIER POWER CALCULATION, AND SINGLE-LINE CONNECTION DIAGRAM.
6. INCLUDE FLOOR PLANS TO INDICATE FINAL OUTLET LOCATIONS SHOWING ADDRESS OF EACH ADDRESSABLE DEVICE. SHOW SIZE AND ROUTE OF CABLE AND CONDUITS.

1.3 QUALITY ASSURANCE
A. INSTALLER QUALIFICATIONS: PERSONNEL SHALL BE TRAINED AND CERTIFIED BY MANUFACTURER FOR INSTALLATION OF UNITS REQUIRED FOR THIS PROJECT.
B. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
C. NFPA CERTIFICATION: OBTAIN CERTIFICATION ACCORDING TO NFPA 72 BY A UL-LISTED ALARM COMPANY.

1.4 EXTRA MATERIALS
A. FURNISH EXTRA MATERIALS THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.
1. LAMPS FOR REMOTE INDICATING LAMP UNITS: QUANTITY EQUAL TO 10 PERCENT OF AMOUNT INSTALLED.
2. LAMPS FOR STROBE UNITS: QUANTITY EQUAL TO 10 PERCENT OF AMOUNT INSTALLED.
3. SMOKE DETECTORS, FIRE DETECTORS: QUANTITY EQUAL TO 10 PERCENT OF AMOUNT OF EACH TYPE INSTALLED, BUT NO FEWER THAN 1 UNIT OF EACH TYPE.
4. DETECTOR BASES: QUANTITY EQUAL TO 2 PERCENT OF AMOUNT OF EACH TYPE INSTALLED, BUT NO FEWER THAN 1 UNIT OF EACH TYPE.
5. KEYS AND TOOLS: ONE EXTRA SET FOR ACCESS TO LOCKED AND TAMPERPROOFED COMPONENTS.
6. AUDIBLE AND VISUAL NOTIFICATION APPLIANCES: ONE OF EACH TYPE INSTALLED.
7. FUSES: TWO OF EACH TYPE INSTALLED IN THE SYSTEM.

1.5 SEQUENCING AND SCHEDULING
A. EXISTING FIRE-ALARM EQUIPMENT: MAINTAIN EXISTING EQUIPMENT FULLY OPERATIONAL UNTIL NEW EQUIPMENT HAS BEEN TESTED AND ACCEPTED. AS NEW EQUIPMENT IS INSTALLED, LABEL IT "NOT IN SERVICE" UNTIL IT IS ACCEPTED. REMOVE LABELS FROM NEW EQUIPMENT WHEN PUT INTO SERVICE, AND LABEL EXISTING FIRE-ALARM EQUIPMENT "NOT IN SERVICE" UNTIL REMOVED FROM THE BUILDING.
B. EQUIPMENT REMOVAL: AFTER ACCEPTANCE OF NEW FIRE-ALARM SYSTEM, REMOVE EXISTING DISCONNECTED FIRE-ALARM EQUIPMENT AND WIRING.

1.6 WARRANTY
A. SPECIAL WARRANTY: MANUFACTURER AGREES TO REPAIR OR REPLACE FIRE-ALARM SYSTEM EQUIPMENT AND COMPONENTS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD.
1. WARRANTY EXTENT: ALL EQUIPMENT AND COMPONENTS NOT COVERED IN THE MAINTENANCE SERVICE AGREEMENT.
2. WARRANTY PERIOD: FIVE YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

PART 2 - PRODUCTS
2.1 MANUFACTURERS
MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
1. **MATCH EXISTING BASE BUILDING FIRE ALARM SYSTEM.**

2.2 SYSTEM DESCRIPTION
A. NONCODED, UL-CERTIFIED ADDRESSABLE SYSTEM, WITH MULTIPLEXED SIGNAL TRANSMISSION AND VOICE NOTIFICATION/STROBE EVACUATION.
B. AUTOMATIC SENSITIVITY CONTROL OF CERTAIN SMOKE DETECTORS.
C. ALL COMPONENTS PROVIDED SHALL BE LISTED FOR USE WITH THE SELECTED SYSTEM.
D. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.

2.3 FIRE-ALARM CONTROL UNIT
A. GENERAL REQUIREMENTS FOR FIRE-ALARM CONTROL UNIT:
1. FIELD-PROGRAMMABLE, MICROPROCESSOR-BASED, MODULAR, POWER-LIMITED DESIGN WITH ELECTRONIC MODULES COMPLYING WITH UL 864 AND LISTED AND LABELED BY AN NRTL.
a. SYSTEM SOFTWARE AND PROGRAMS SHALL BE HELD IN NONVOLATILE FLASH. ELECTRICALLY ERASABLE, PROGRAMMABLE, READ-ONLY MEMORY, RETAINING THE INFORMATION THROUGH FAILURE OF PRIMARY AND SECONDARY POWER SUPPLIES.
b. INCLUDE A REAL-TIME CLOCK FOR TIME ANNOTATION OF EVENTS ON THE EVENT RECORDER AND PRINTER.
c. PROVIDE COMMUNICATION INTERFACE FOR PC AND REMOTE CIRCUIT INTERFACE PANELS, ANNUNCIATORS, AND DISPLAYS.
d. THE FACP SHALL BE LISTED FOR CONNECTION TO A CENTRAL-STATION SIGNALING SYSTEM SERVICE.
e. PROVIDE NONVOLATILE MEMORY FOR SYSTEM DATABASE, LOGIC, AND OPERATING SYSTEM AND EVENT HISTORY. THE SYSTEM SHALL REQUIRE NO MANUAL INPUT TO INITIALIZE IN THE EVENT OF A COMPLETE POWER DOWN CONDITION. THE FACP SHALL PROVIDE A MINIMUM 500-EVENT HISTORY LOG.

2. ADDRESSABLE INITIATION DEVICES THAT COMMUNICATE DEVICE IDENTITY AND STATUS.
a. SMOKE SENSORS SHALL ADDITIONALLY COMMUNICATE SENSITIVITY SETTING AND ALLOW ADJUSTMENT OF SENSITIVITY AT FIRE-ALARM CONTROL UNIT.
b. TEMPERATURE SENSORS SHALL ADDITIONALLY TEST FOR AMBIENT TEMPERATURE WITHIN RANGE OF THE DEVICE.

3. ADDRESSABLE CONTROL CIRCUITS FOR OPERATION OF MECHANICAL EQUIPMENT.

B. ALPHANUMERIC DISPLAY AND SYSTEM CONTROLS: ARRANGED FOR INTERFACE BETWEEN HUMAN OPERATOR AT FIRE-ALARM CONTROL UNIT AND ADDRESSABLE SYSTEM COMPONENTS INCLUDING ANNUNCIATION AND SUPERVISION. DISPLAY ALARM, SUPERVISORY, AND COMPONENT STATUS MESSAGES AND THE PROGRAMMING AND CONTROL MENU.
C. INITIATING-DEVICE, NOTIFICATION-APPLIANCE, AND SIGNALING-LINE CIRCUITS:
1. PATHWAY CLASS DESIGNATIONS: NFPA 72, CLASS B.

D. PRIMARY POWER: 24-V DC OBTAINED FROM 120-V AC SERVICE AND A POWER-SUPPLY MODULE. INITIATING DEVICES, NOTIFICATION APPLIANCES, SIGNALING LINES, TROUBLE SIGNALS, SUPERVISORY AND DIGITAL ALARM COMMUNICATOR TRANSMITTERS SHALL BE POWERED BY 24-V DC SOURCE.
1. ALARM CURRENT DRAW OF ENTIRE FIRE-ALARM SYSTEM SHALL NOT EXCEED 80 PERCENT OF THE POWER-SUPPLY MODULE RATING.

E. SECONDARY POWER: 24-V DC SUPPLY SYSTEM WITH BATTERIES, AUTOMATIC BATTERY CHARGER, AND AUTOMATIC TRANSFER SWITCH.
1. BATTERIES: SEALED LEAD CALCIUM.
2. GENERAL DESCRIPTION - PROVIDE ADDRESSABLE DIGITAL FIRE ALARM SYSTEM INSTALLED AS SHOWN ON DRAWINGS AND DESCRIBED HEREIN. THE OPERATION SHALL BE SUCH THAT ACTUATION OF ANY MANUAL FIRE ALARM STATION OR ANY OTHER INITIATION DEVICE SHALL CAUSE AUDIBLE/VISIBLE SIGNAL DEVICES THROUGHOUT THE BUILDING TO OPERATE, SHALL CAUSE THE MAIN ANNUNCIATOR TO DISPLAY THE "ADDRESS"/"ZONE" OF THE INITIATING DEVICE UNTIL THE DEVICE IS RESTORED TO ITS NORMAL POSITION AND THE CONTROL PANEL IS RESET AND SHALL CAUSE AN ALARM SIGNAL TO BE TRANSMITTED TO A CENTRAL STATION. ALL INITIATING DEVICES SHALL BE FULLY COMPATIBLE WITH EXISTING SYSTEMS AND SHALL BE PER BASE BUILDING MANUFACTURER'S RECOMMENDATIONS. ALL COMPONENTS SHALL BE ADDRESSABLE OR BE PROVIDED WITH ADDRESSABLE ZONE INTERFACE MODULES.

2.4 MANUAL FIRE-ALARM BOXES
A. PROVIDE NON-CODED DOUBLE ACTION MANUAL STATIONS WHERE SHOWN ON THE DRAWINGS, TO BE FLUSH OR SURFACE MOUNTED AS REQUIRED. PULL STATION ACTIVATION SHALL PROVIDE ALARM INPUT TO THE SYSTEM AND ALARM OUTPUT FROM THE SYSTEM WITHIN FOUR (4) SECONDS. THE MANUAL STATIONS SHALL BE EQUIPPED WITH TERMINAL STRIP AND PRESSURE STYLE SCREW TERMINALS FOR THE CONNECTION OF FIELD WIRING. HOUSINGS SHALL BE CAST OR THERMOPLASTIC MATERIAL WITH RAISED FIRE ALARM LETTERING AND BE COLORED RED. STATIONS THAT REQUIRE THE BREAKING OF GLASS WILL NOT BE ACCEPTABLE. SURFACE MOUNTED STATIONS WHERE INDICATED ON THE DRAWINGS SHALL BE MOUNTED USING A MANUFACTURER'S PRESCRIBED MATCHING RED ENAMEL OUTLET BOX.

2.5 SYSTEM SMOKE DETECTORS
A. PROVIDE PHOTOELECTRIC TYPE. DETECTORS SHALL BE LISTED FOR USE AS OPEN AREA PROTECTIVE COVERAGE AND SHALL BE INSENSITIVE TO AIR VELOCITY CHANGES. THE SMOKE DETECTOR SHALL CONTAIN A MULTI-COLORED LED INDICATOR THAT WILL FLASH GREEN TO INDICATE THAT THE DETECTOR IS OPERATIONAL AND FLASH RED WHEN THE DETECTOR IS IN ALARM. THE DETECTOR SHALL BE CONTINUALLY SELF-TESTING AND SHALL BE DESIGNED TO ELIMINATE CALIBRATION ERRORS ASSOCIATED WITH FIELD CLEANING OF THE CHAMBER. DETECTOR SHALL TWIST LOCK INTO A BASE ASSEMBLY WITH SCREW CLAMP TERMINALS. DETECTOR ACTIVATION SHALL PROVIDE ALARM INPUT TO THE SYSTEM AND ALARM OUTPUT FROM THE SYSTEM WITHIN FOUR (4) SECONDS. THE DETECTOR SHALL SUPPORT THE USE OF A RELAY OR LED REMOTE INDICATOR. DETECTOR SPACING AND LOCATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, THE REQUIREMENTS OF NFPA 72, AND AS INDICATED. NO DETECTOR SHALL BE LOCATED CLOSER THAN 12 INCHES TO ANY PART OF ANY LIGHTING FIXTURE NOR SHALL ANY DETECTOR BE MOUNTED CLOSER THAT 36 INCHES TO ANY AHU AIR DIFFUSER.

2.6 HEAT DETECTORS
A. HEAT DETECTOR (SYSTEM) - THERMAL DETECTORS SHALL BE RATED AT 135 DEGREES FIXED TEMPERATURE AND 15 DEGREES PER MINUTE RATE OF RISE. DETECTORS SHALL BE CONSTRUCTED TO COMPENSATE FOR THE THERMAL LAG INHERENT IN CONVENTIONAL TYPE DETECTORS DUE TO THE THERMAL MASS, AND ALARM AT THE SET POINT OF 135 DEGREES FAHRENHEIT. THE DETECTORS FURNISHED SHALL HAVE A LISTED SPACING FOR COVERAGE UP TO 2,500 SQUARE FEET AND SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS OF NFPA 72 FOR OPEN AREA COVERAGE.

2.7 NOTIFICATION APPLIANCES
A. NOTIFICATION APPLIANCES - THE VOICE NOTIFICATION, STROBE OR VOICE NOTIFICATION/STROBE APPLIANCE AS INDICATED ON THE DRAWINGS SHALL BE A SYNCHRONIZED SPEAKER WITH A SYNCHRONIZED STROBE LIGHT WITH MULTIPLE CANDELA TAPS TO MEET THE INTENDED APPLICATION. THE STROBE LIGHT TAPS SHALL BE ADJUSTABLE FOR 15, 30, 75, AND 110 CANDELA. THE STROBE SHALL FLASH AT A RATE BETWEEN 1/3 AND 3 FLASHES/SECOND. THE APPLIANCE SHALL BE RED FOR WALL MOUNTED AND WHITE FOR CEILING MOUNTED. CEILING MOUNTED APPLIANCES SHALL BE RATED FOR THAT APPLICATION.

2.9 ADDRESSABLE INTERFACE DEVICE
A. PROVIDE ADDRESSABLE INTERFACE DEVICES WITH THE FOLLOWING FUNCTIONS:
1. INCLUDE ADDRESS-SETTING MEANS ON THE MODULE.
2. STORE IN ITS INTERNAL NONVOLATILE CODE FOR CONTROL PANEL USE TO IDENTIFY THE MODULE TYPE.
3. LISTED FOR CONTROLLING HVAC FAN MOTOR CONTROLLERS.

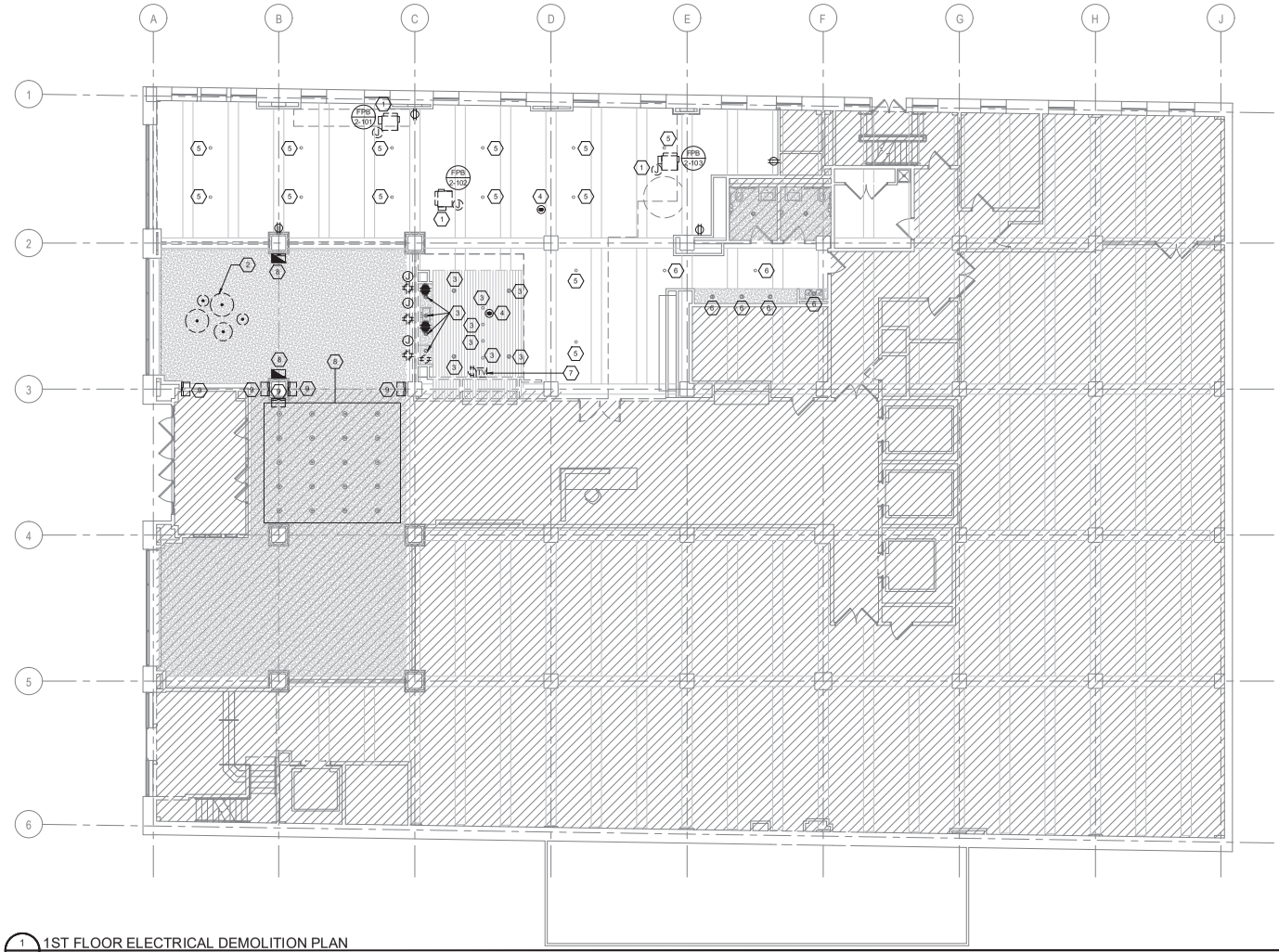
B. MONITOR MODULE: MICROELECTRONIC MODULE PROVIDING A SYSTEM ADDRESS FOR ALARM-INITIATING DEVICES FOR WIRED APPLICATIONS WITH NORMALLY OPEN CONTACTS.
C. INTEGRAL RELAY: CAPABLE OF PROVIDING A DIRECT SIGNAL TO ELEVATOR CONTROLLER TO INITIATE ELEVATOR RECALL OR TO CIRCUIT-BREAKER SHUNT TRIP FOR POWER SHUTDOWN.
1. ALLOW THE CONTROL PANEL TO SWITCH THE RELAY CONTACTS ON COMMAND.
2. HAVE A MINIMUM OF TWO NORMALLY OPEN AND TWO NORMALLY CLOSED CONTACTS AVAILABLE FOR FIELD WIRING.

D. CONTROL MODULE:
1. OPERATE NOTIFICATION DEVICES.
2. OPERATE SOLENOIDS FOR USE IN SPRINKLER SERVICE.

2.10 DIGITAL ALARM COMMUNICATOR TRANSMITTER
A. PROVIDE DIGITAL ALARM COMMUNICATOR TRANSMITTER ACCEPTABLE TO THE REMOTE CENTRAL STATION AND COMPLYING WITH UL 632.
B. FUNCTIONAL PERFORMANCE: UNIT SHALL RECEIVE AN ALARM, SUPERVISORY, OR TROUBLE SIGNAL FROM FIRE-ALARM CONTROL UNIT AND AUTOMATICALLY CAPTURE TWO TELEPHONE LINE(S) AND DIAL A PRESET NUMBER FOR A REMOTE CENTRAL STATION. WHEN CONTACT IS MADE WITH CENTRAL STATION(S), SIGNALS SHALL BE TRANSMITTED. IF SERVICE ON EITHER LINE IS INTERRUPTED FOR LONGER THAN 45 SECONDS, TRANSMITTER SHALL INITIATE A LOCAL TROUBLE SIGNAL AND TRANSMIT THE SIGNAL INDICATING LOSS OF TELEPHONE LINE TO THE REMOTE ALARM RECEIVING STATION OVER THE REMAINING LINE. TRANSMITTER SHALL AUTOMATICALLY REPORT TELEPHONE LINE RESTORATION TO THE CENTRAL STATION. IF SERVICE IS LOST ON BOTH TELEPHONE LINES, TRANSMITTER SHALL INITIATE THE LOCAL TROUBLE SIGNAL.
C. LOCAL FUNCTIONS AND DISPLAY AT THE DIGITAL ALARM COMMUNICATOR TRANSMITTER SHALL INCLUDE THE FOLLOWING:
1. VERIFICATION THAT BOTH TELEPHONE LINES ARE AVAILABLE.
2. PROGRAMMING DEVICE.
3. LED DISPLAY.
4. MANUAL TEST REPORT FUNCTION AND MANUAL TRANSMISSION CLEAR INDICATION.
5. COMMUNICATIONS FAILURE WITH THE CENTRAL STATION OR FIRE-ALARM CONTROL UNIT.

D. SECONDARY POWER: INTEGRAL RECHARGEABLE BATTERY AND AUTOMATIC CHARGER.
E. SELF-TEST: CONDUCTED AUTOMATICALLY EVERY 24 HOURS WITH REPORT TRANSMITTED TO CENTRAL STATION.

PART 3 - EXECUTION
3.1 EQUIPMENT INSTALLATION
A. COMPLY WITH NFPA 72, NFPA 101, AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION FOR INSTALLATION AND TESTING OF FIRE-ALARM EQUIPMENT. INSTALL ALL ELECTRICAL WIRING TO COMPLY WITH REQUIREMENTS IN NFPA 70 INCLUDING, BUT NOT LIMITED TO, ARTICLE 760, "FIRE ALARM SYSTEMS."
B. CONNECTING TO EXISTING EQUIPMENT: VERIFY THAT EXISTING FIRE-ALARM SYSTEM IS OPERATIONAL BEFORE MAKING CHANGES



1 E-101 1ST FLOOR ELECTRICAL DEMOLITION PLAN
1/8" = 1'-0"

ELECTRICAL DEMOLITION KEY NOTES: (#)

1. EXISTING MECHANICAL UNITS SHALL BE DISCONNECTED AND ALL BRANCH CIRCUITING SHALL BE REMOVED BACK TO PANEL.
2. ELECTRICAL CONTRACTOR SHALL SHALL DISCONNECT AND REMOVE EXISTING DECORATIVE GLOBE STYLE PENDANT LIGHTING FIXTURES AND TURN OVER TO OWNER FOR FIRST RIGHT OF REFUSAL.
3. EXISTING LIGHTING FIXTURES TO BE DISCONNECTED AND REMOVED. LIGHTING FIXTURES SHALL BE TURNED OVER TO OWNER FOR FIRST RIGHT OF REFUSAL.
4. EXISTING FLOOR POKE-THRU TO BE DISCONNECTED AND RELOCATED PER POWER PLANS. REMOVE EXISTING BRANCH CIRCUIT BACK TO PANEL.
5. EXISTING LIGHTING FIXTURE TO BE DISCONNECTED AND REMOVED AND SAVED FOR REUSE UNDER LIGHTING PLAN. THIS FIXTURE SHALL BE 'TYPE 'Z' ON THE FLOOR PLANS. REMAINING LIGHTING FIXTURES SHALL BE TURNED OVER TO OWNER FOR FIRST RIGHT OF REFUSAL.
6. EXISTING LIGHTING FIXTURES SHALL BE DISCONNECTED AND REMOVED. (10) LIGHTING FIXTURES SHALL SHALL BE UTILIZED FOR THE APPLICATION AREA 101. PROVIDE NEW SUSPENSION CABLES PER LIGHTING FIXTURE SCHEDULE. THE REMAINING (10) SHALL BE TURNED OVER TO FUTURE 'COP' TENANT WHICH SHARES 1ST FLOOR. COORDINATE WITH ARCHITECT CONTACTS FOR THE 'COP' TENANT.
7. DISCONNECT AND REMOVE EXISTING TV OUTLETS AND BRANCH CIRCUITING.
8. EXISTING LIGHTING FIXTURES SHALL REMAIN.
9. DISCONNECT AND REMOVE EXISTING WALL SCONCE UPLIGHT FIXTURES AND TURN OVER TO BUILDING OWNER. MAINTAIN CONTINUITY OF EXISTING CIRCUITING AND CONTROLS THAT CONTINUE TO SERVE EXISTING LIGHTING FIXTURES TO REMAIN.

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19042F.00	M.WM	DEB

SHEET NAME
1ST FLOOR ELECTRICAL DEMOLITION PLAN

SHEET NO.
E-101

TRUE NORTH
PLAN NORTH

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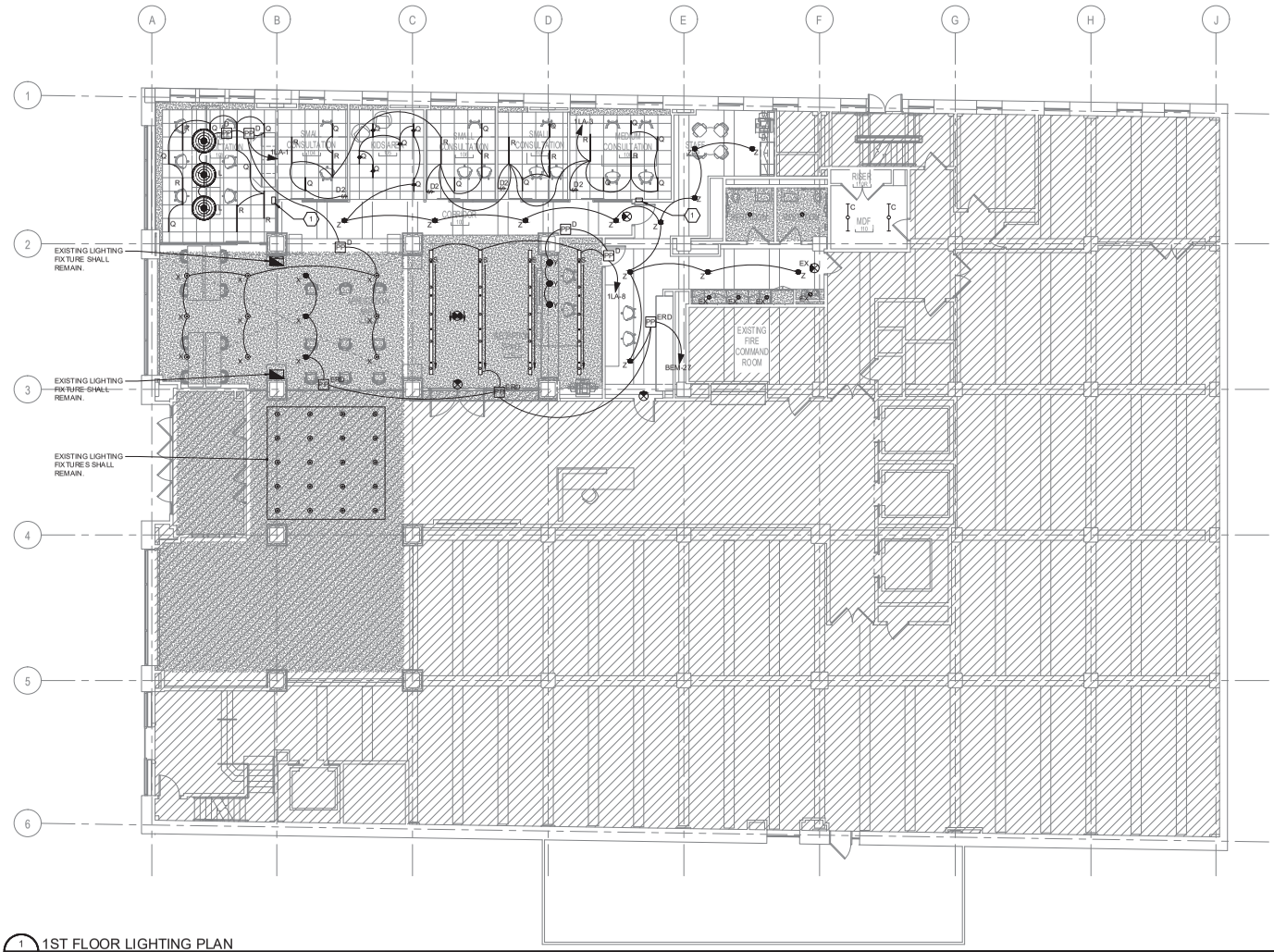

1 E-201 1ST FLOOR LIGHTING PLAN
1/8" = 1'-0"

LIGHTING GENERAL NOTES:

1. PROVIDE (2) #18 PURPLE/GRAY WIRES FOR 0-10V FOR ALL LIGHTING FIXTURES BEING DIMMED IN TENANT SPACE.
2. PROVIDE A 20A, 1P., 120 V. NORMAL/EMERGENCY UNSWITCHED BRANCH LIGHTING CIRCUIT TO SERVE ALL EXIT SIGNS IN TENANT SPACE.

LIGHTING KEY NOTES: (#)

1. PROVIDE AN ACUITY NPOD-GFX ROOM CONTROLLER. VERIFY LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

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3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/08/2020
2	100% CONSTRUCTION DOCUMENTS	05/27/2020
1	100% DESIGN DEVELOPMENT	01/28/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	MWM	DEB

SHEET NAME:
1ST FLOOR LIGHTING PLAN

SHEET NO.
E-201

TRUE NORTH
PLAN NORTH

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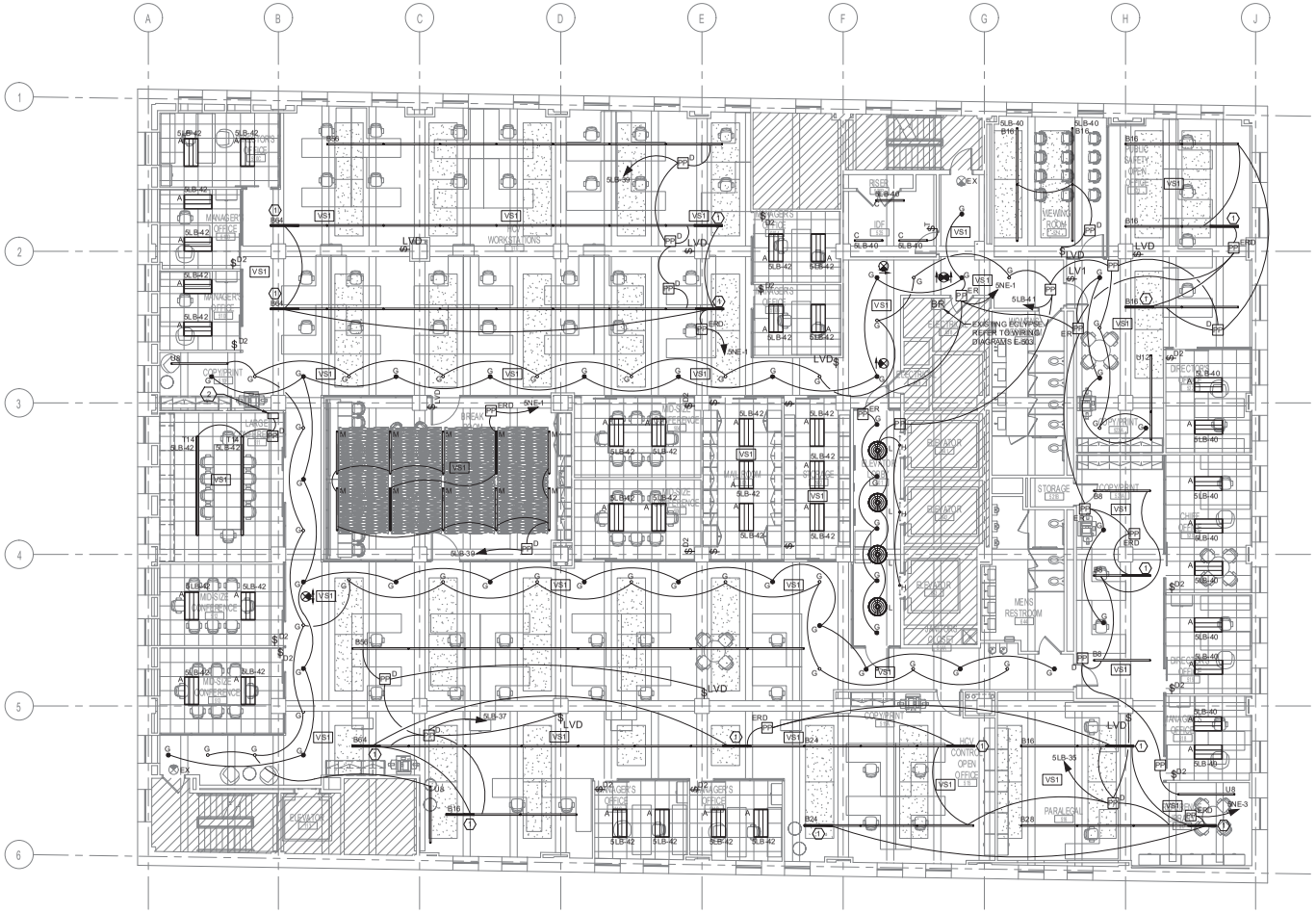

1 E-202 5TH FLOOR LIGHTING PLAN
1/8" = 1'-0"

ALL BRANCH CIRCUITING RACEWAY, MC CABLE AND BRANCH CIRCUITING SHALL BE ROUTED IN A NEAT, ORGANIZED AND ORDERLY FASHION, TIGHT TO BUILDING STRUCTURE AND AT 90 DEGREE BENDS.

LIGHTING GENERAL NOTES:

1. PROVIDE (2) #18 PURPLE/GRAY WIRES FOR 0-10V FOR ALL LIGHTING FIXTURES BEING DIMMED IN TENANT SPACE.
2. PROVIDE A 20A, 1P., 120 V. NORMAL/EMERGENCY UNSWITCHED BRANCH LIGHTING CIRCUIT TO SERVE ALL EXIT SIGNS IN TENANT SPACE.

LIGHTING KEY NOTES: (#)

1. LIGHTING MANUFACTURER SHALL PROVIDE SEPARATE 4' SECTION AT END OF LINEAR RUN THAT IS SEPARATELY WIRED FOR NORMAL EMERGENCY CIRCUITING. TYPICAL FOR LINEAR LIGHTING FIXTURES WITH HALF SHADING.
2. PROVIDE AN ACUITY NPOD-GFX ROOM CONTROLLER. VERIFY LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

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3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/08/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/28/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY
19047.00	MWM	DEB

SHEET NAME:
5TH FLOOR LIGHTING PLAN

SHEET NO.
E-202

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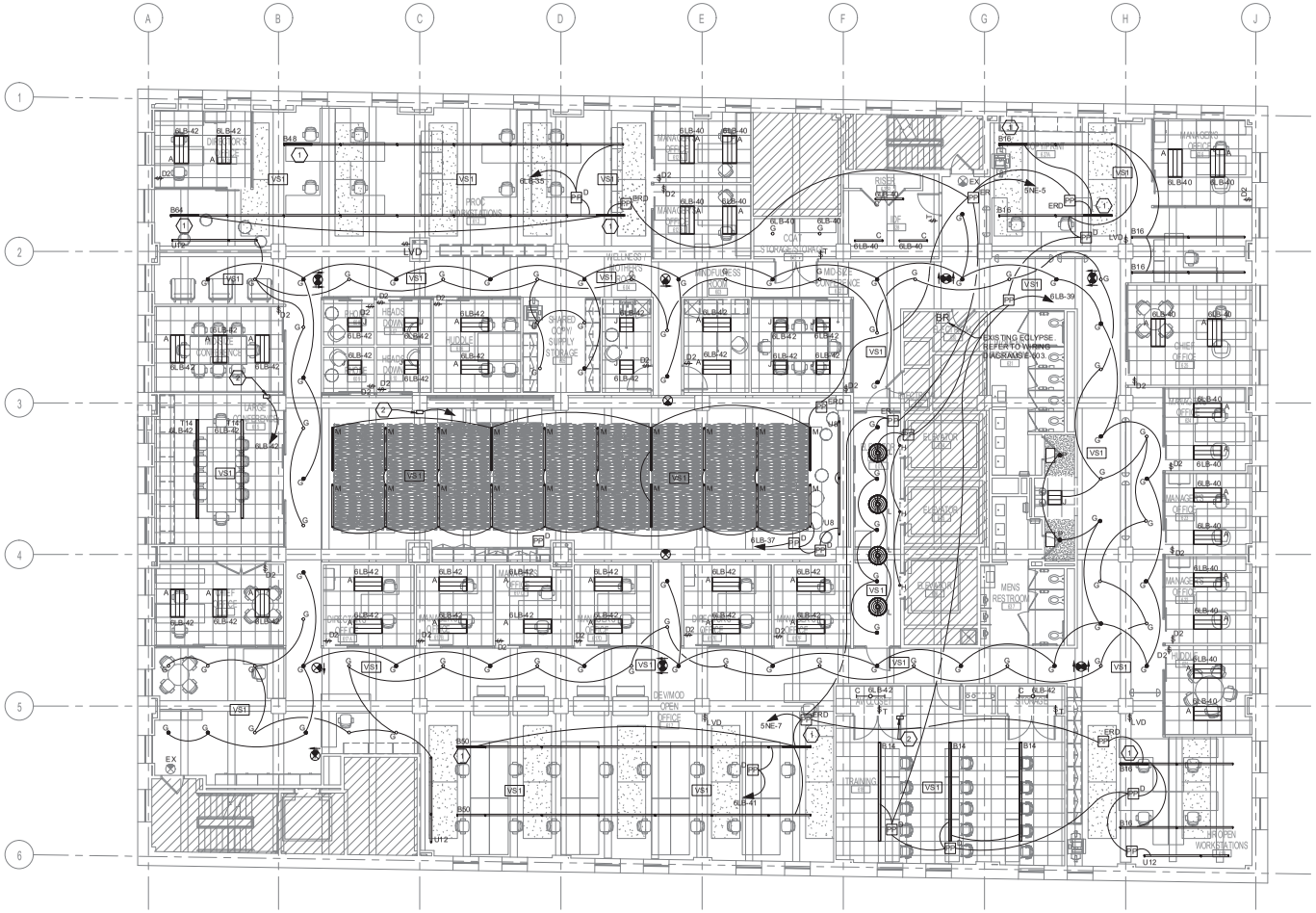

1 6TH FLOOR LIGHTING PLAN
E-203 1/8" = 1'-0"

ALL BRANCH CIRCUITING RACEWAY, MC CABLE AND BRANCH CIRCUITING SHALL BE ROUTED IN A NEAT, ORGANIZED AND ORDERLY FASHION, TIGHT TO BUILDING STRUCTURE AND AT 90 DEGREE BENDS.

LIGHTING GENERAL NOTES:

1. PROVIDE (2) #18 PURPLE/GRAY WIRES FOR 0-10V FOR ALL LIGHTING FIXTURES BEING DIMMED IN TENANT SPACE.
2. PROVIDE A 20A, 1P., 120 V, NORMAL/EMERGENCY UNSWITCHED BRANCH LIGHTING CIRCUIT TO SERVE ALL EXIT SIGNS IN TENANT SPACE.

LIGHTING KEY NOTES: (#)

1. LIGHTING MANUFACTURER SHALL PROVIDE SEPARATE 4' SECTION AT END OF LINEAR RUN THAT IS SEPARATELY WIRED FOR NORMAL EMERGENCY CIRCUITING. TYPICAL FOR LINEAR LIGHTING FIXTURES WITH HALF SHADING.
2. PROVIDE AN AQUITY NPOD-GFX ROOM CONTROLLER. VERIFY LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. PROVIDE 120 VOLT POWER.

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PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
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SHEET NAME
6TH FLOOR LIGHTING PLAN

SHEET NO.
E-203

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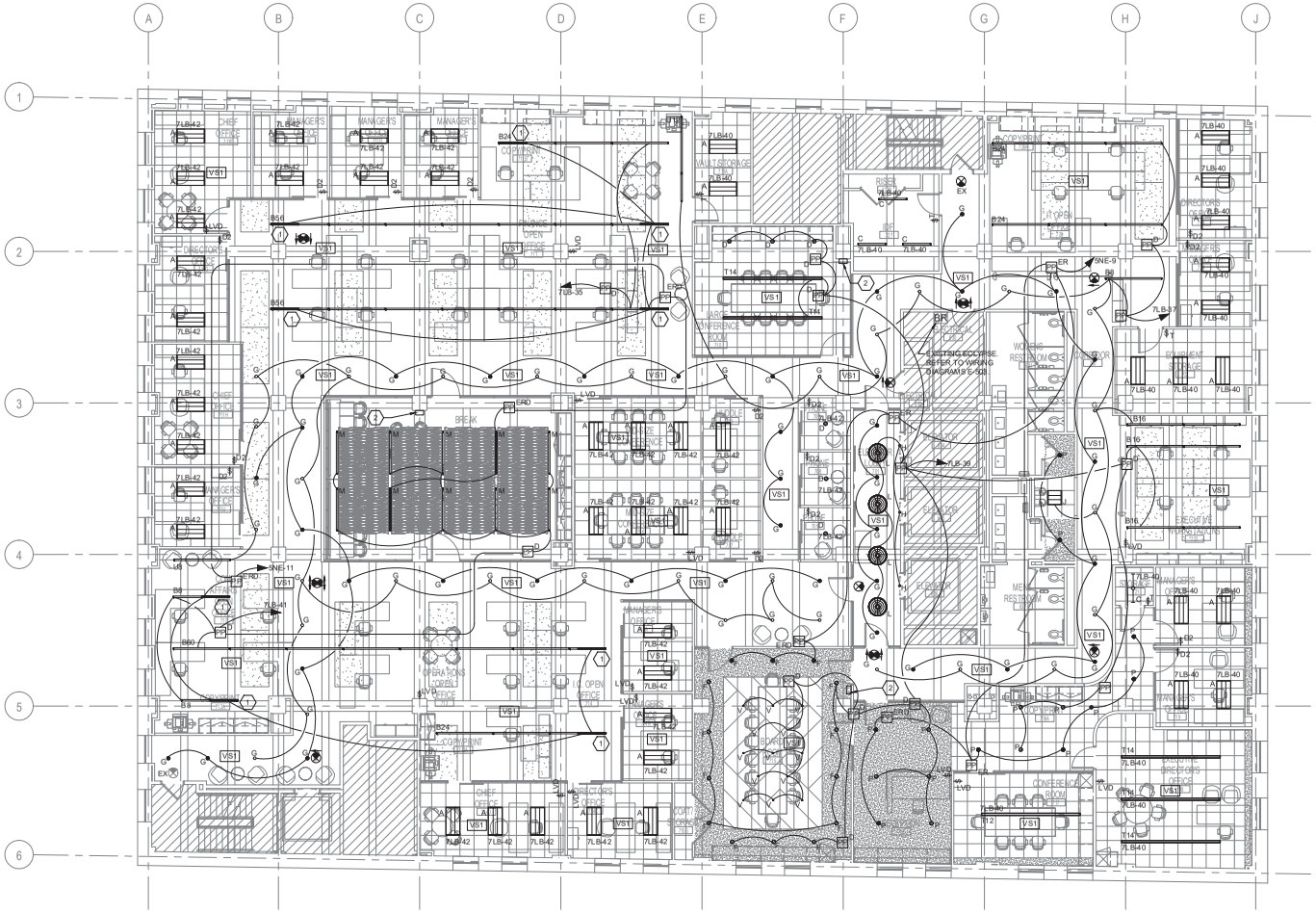

1 E-204 7TH FLOOR LIGHTING PLAN
1/8" = 1'-0"

ALL BRANCH CIRCUITING RACEWAY, MC CABLE AND BRANCH CIRCUITING SHALL BE ROUTED IN A NEAT, ORGANIZED AND ORDERLY FASHION, TIGHT TO BUILDING STRUCTURE AND AT 90 DEGREE BENDS.

LIGHTING GENERAL NOTES:

1. PROVIDE (2) #18 PURPLE/GRAY WIRES FOR 0-10V FOR ALL LIGHTING FIXTURES BEING DIMMED IN TENANT SPACE.
2. PROVIDE A 20A, 1P., 120 V. NORMAL/EMERGENCY UNSWITCHED BRANCH LIGHTING CIRCUIT TO SERVE ALL EXIT SIGNS IN TENANT SPACE.

LIGHTING KEY NOTES: (#)

1. LIGHTING MANUFACTURER SHALL PROVIDE SEPARATE 4' SECTION AT END OF LINEAR RUN THAT IS SEPARATELY WIRED FOR NORMAL EMERGENCY CIRCUITING. TYPICAL FOR LINEAR LIGHTING FIXTURES WITH HALF SHADING.
2. PROVIDE AN ACUITY NPOD-GFX ROOM CONTROLLER. VERIFY LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. PROVIDE 120 VOLT POWER.

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SHEET NAME:
7TH FLOOR LIGHTING PLAN

SHEET NO.
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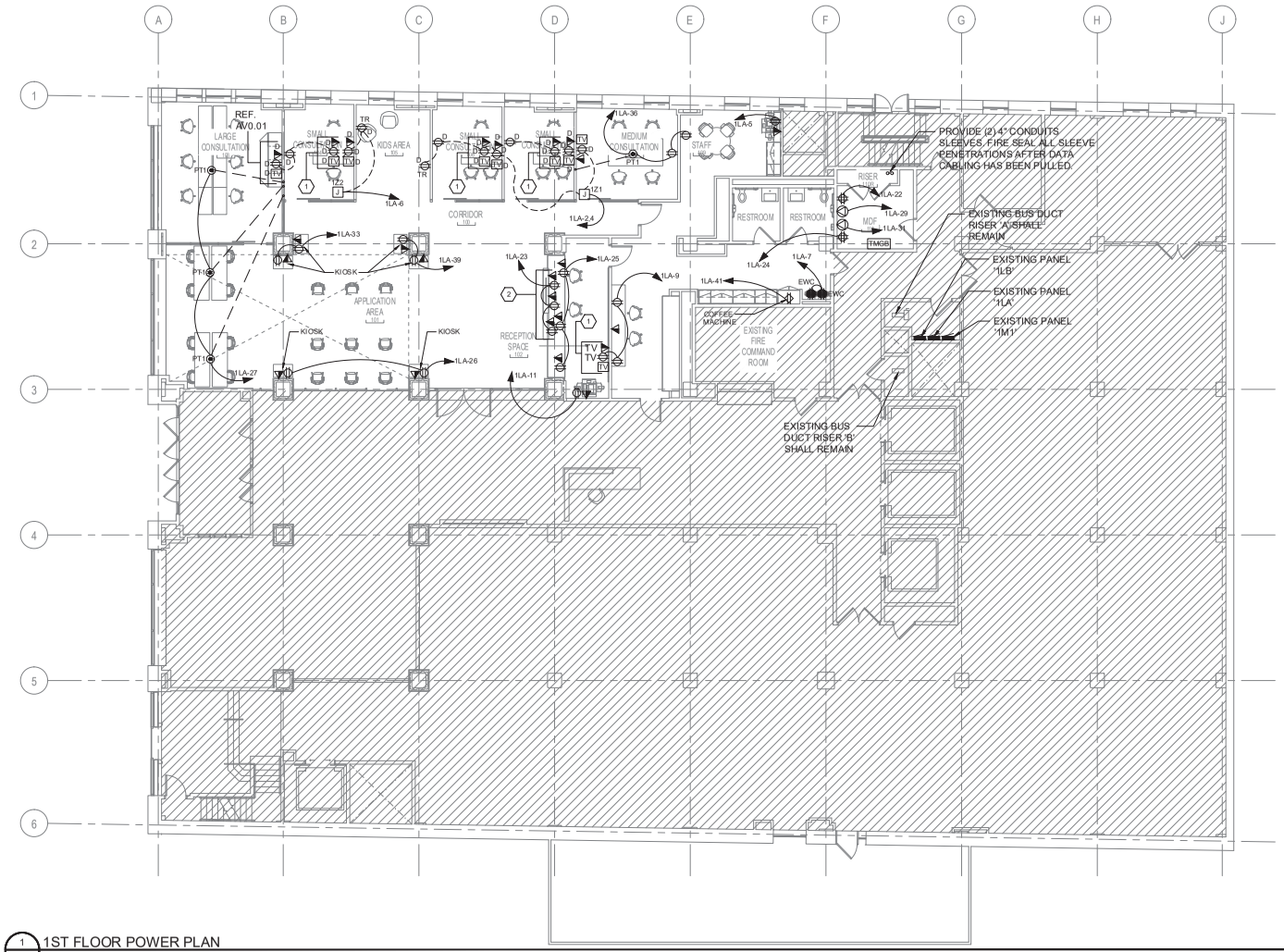

1 E-301 1ST FLOOR POWER PLAN
1/8" = 1'-0"

ALL BRANCH CIRCUITING RACEWAY, MC CABLE AND BRANCH CIRCUITING SHALL BE ROUTED IN A NEAT, ORGANIZED AND ORDERLY FASHION, TIGHT TO BUILDING STRUCTURE AND AT 90 DEGREE BENDS.

POWER KEY NOTES: (#)

1. THESE (3) DEVICES ARE IN THE DEMOUNTABLE PARTITION AND MOUNTED PER DWG. AV0.01. COORDINATE FINAL LOCATION WITH ARCHITECT.
2. MOUNT DEVICES HORIZONTALLY AT 37" AFF TO CENTER OF JUNCTION BOX. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECT PRIOR TO ROUGH-IN.

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SHEET NAME: 1ST FLOOR POWER PLAN

SHEET NO: E-301

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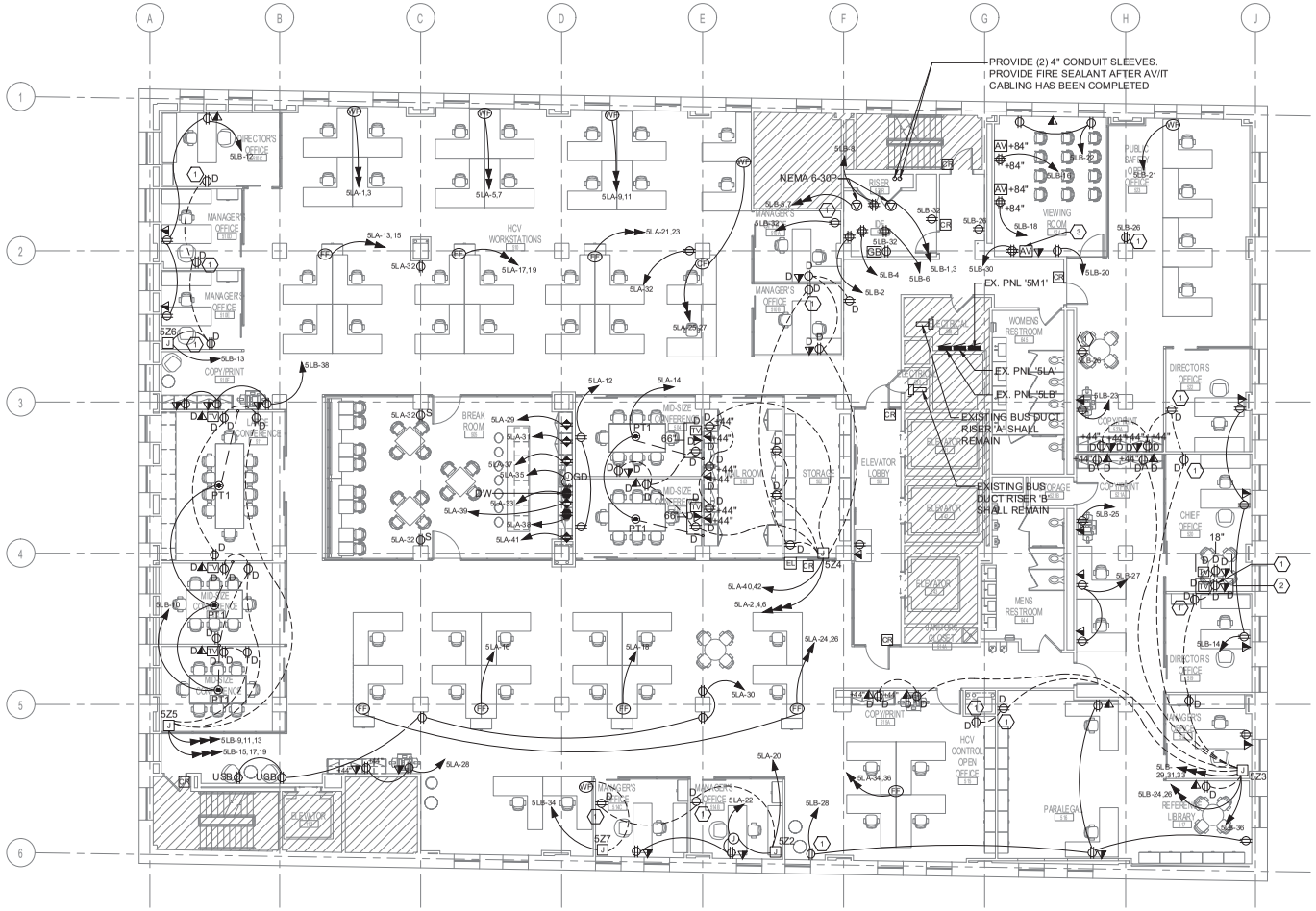

1 5TH FLOOR POWER PLAN
E-302 1/8" = 1'-0"

POWER KEY NOTES: (#)

1. ELECTRICAL CONTRACTOR SHALL PROVIDE NLIGHT MPP20 P L PLUG LOAD CONTROL PACK FOR THIS RECEPTACLE.
2. THESE (3) DEVICES ARE IN THE DEMOUNTABLE PARTITION AND MOUNTED PER DWG AV0.01. COORDINATE FINAL LOCATION WITH ARCHITECT.
3. PROVIDE A (3) GANG LOW VOLTAGE OPEN ROUGH-IN WITH (2) 2" CONDUITS UP TIGHT TO ABOVE CLOUD CEILING. PROVIDE PULL STRING.

ALL BRANCH CIRCUITING RACEWAY, MC CABLE AND BRANCH CIRCUITING SHALL BE ROUTED IN A NEAT, ORGANIZED AND ORDERLY FASHION, TIGHT TO BUILDING STRUCTURE AND AT 90 DEGREE BENDS.

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SHEET NAME: 5TH FLOOR POWER PLAN

SHEET NO: E-302

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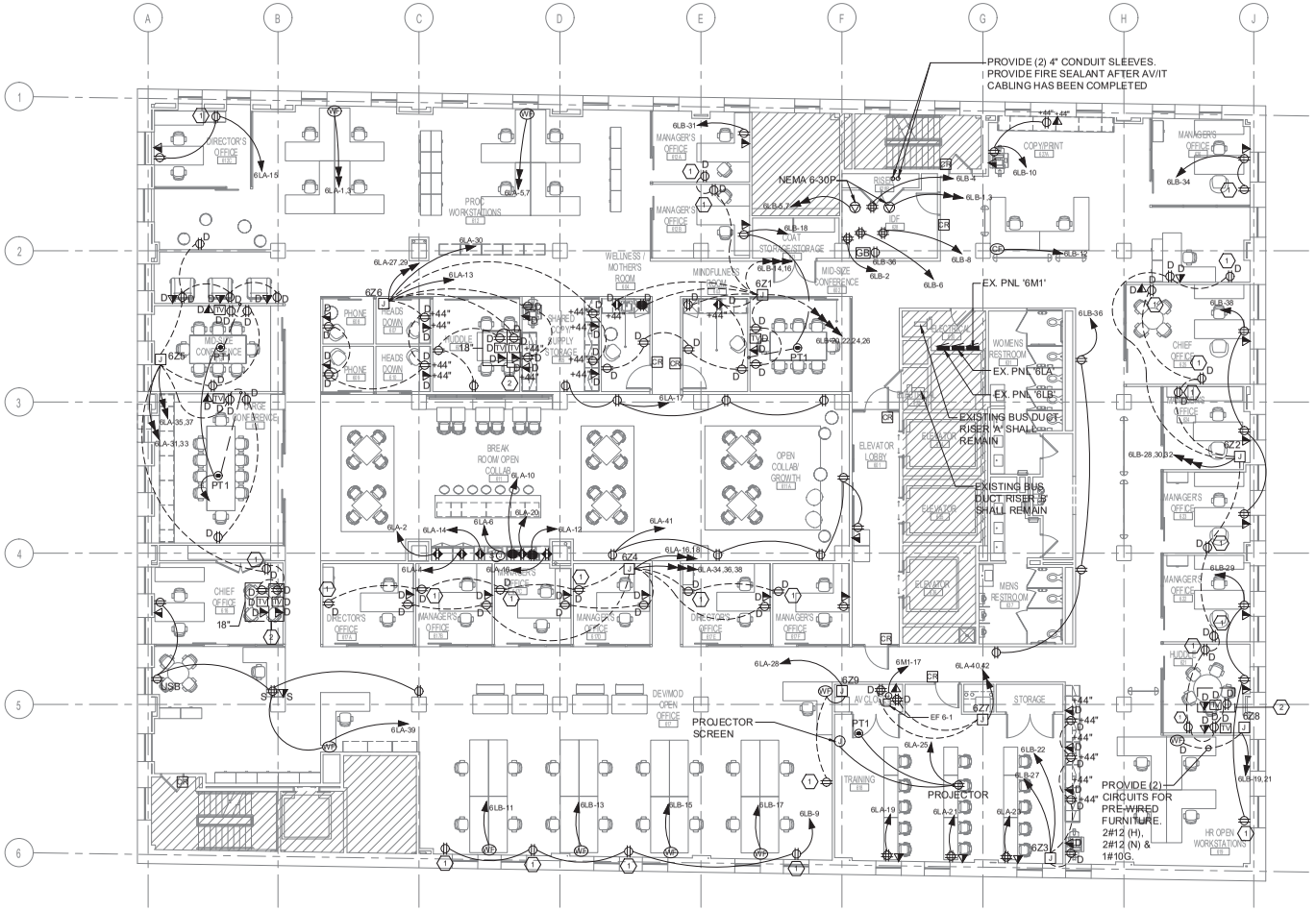

1 6TH FLOOR POWER PLAN
E-303 1/8" = 1'-0"

ALL BRANCH CIRCUITING RACEWAY, MC CABLE AND BRANCH CIRCUITING SHALL BE ROUTED IN A NEAT, ORGANIZED AND ORDERLY FASHION, TIGHT TO BUILDING STRUCTURE AND AT 90 DEGREE BENDS.

POWER KEY NOTES: (#)

1. ELECTRICAL CONTRACTOR SHALL PROVIDE NLIGHT MPP20 PL PLUG LOAD CONTROL PACK FOR THIS RECEPTACLE.
2. THESE (3) DEVICES ARE IN THE DEMOUNTABLE PARTITION AND MOUNTED PER DWG. AV0.01. COORDINATE FINAL LOCATION WITH ARCHITECT.

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SHEET NAME: 6TH FLOOR POWER PLAN

SHEET NO: E-303

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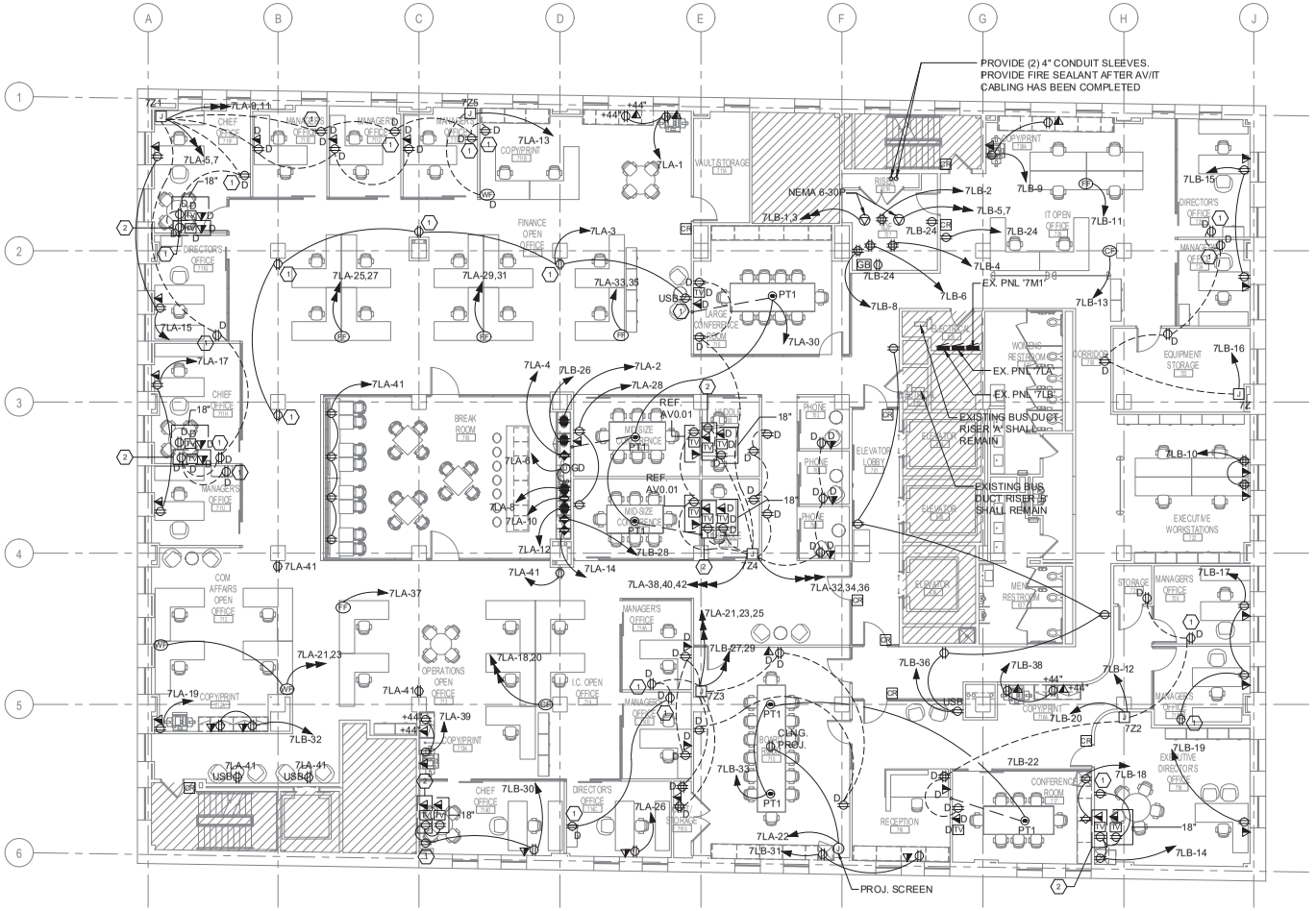

1 7TH FLOOR POWER PLAN
E-304 1/8" = 1'-0"

POWER KEY NOTES: (#)

1. ELECTRICAL CONTRACTOR SHALL PROVIDE NLIGHT MPP20 PL PLUG LOAD CONTROL PACK FOR THIS RECEPTACLE.
2. THESE (3) DEVICES ARE IN THE DEMOUNTABLE PARTITION AND MOUNTED PER DWG. AV0.01. COORDINATE FINAL LOCATION WITH ARCHITECT.

ALL BRANCH CIRCUITING RACEWAY, MC CABLE AND BRANCH CIRCUITING SHALL BE ROUTED IN A NEAT, ORGANIZED AND ORDERLY FASHION, TIGHT TO BUILDING STRUCTURE AND AT 90 DEGREE BENDS.

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SHEET NAME: 7TH FLOOR POWER PLAN

SHEET NO: E-304

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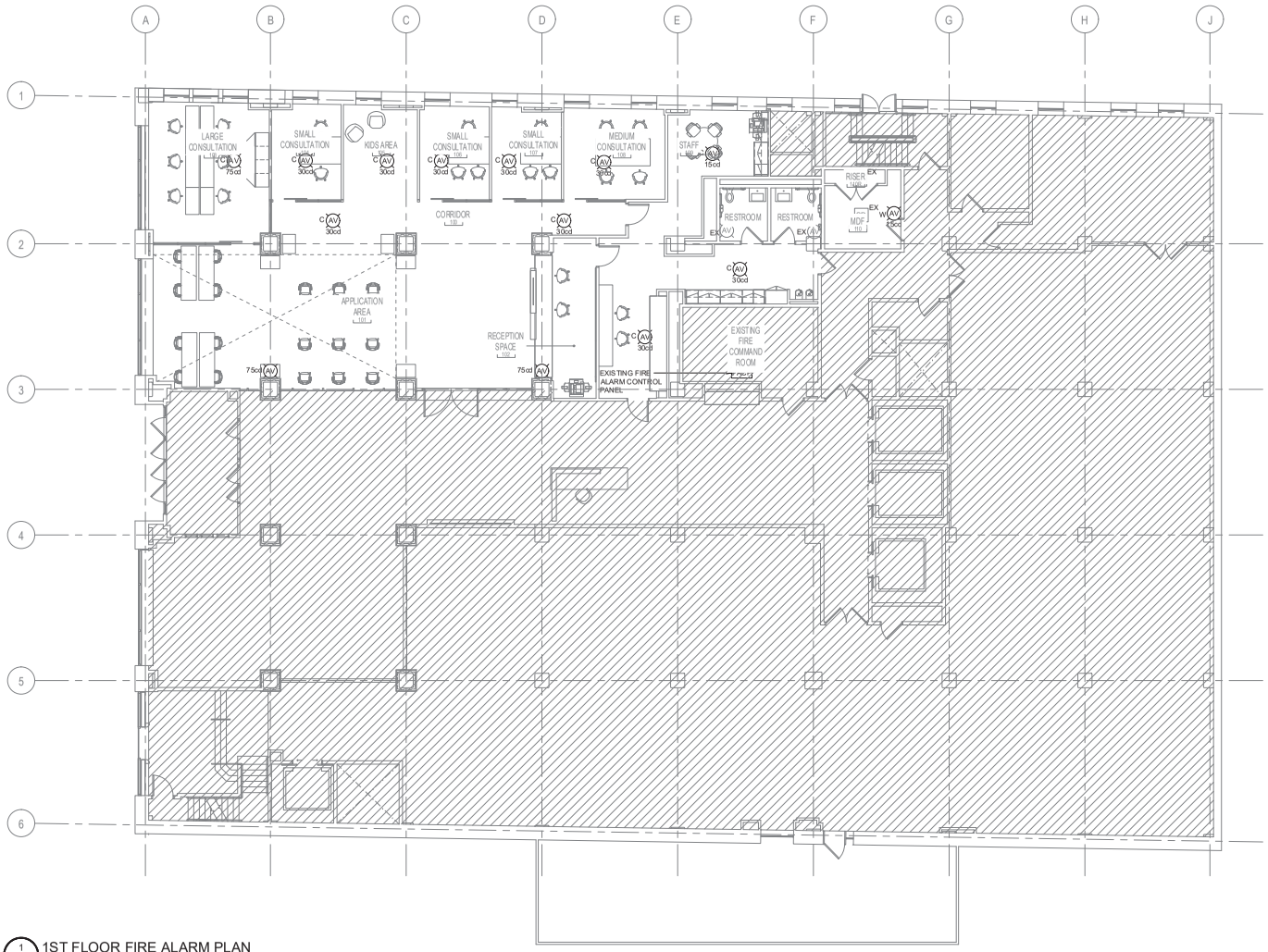

1 E-401 1ST FLOOR FIRE ALARM PLAN
1/8" = 1'-0"

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1	100% DESIGN DEVELOPMENT	01/28/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
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SHEET NAME:
1ST FLOOR
FIRE ALARM PLAN

SHEET NO.
E-401

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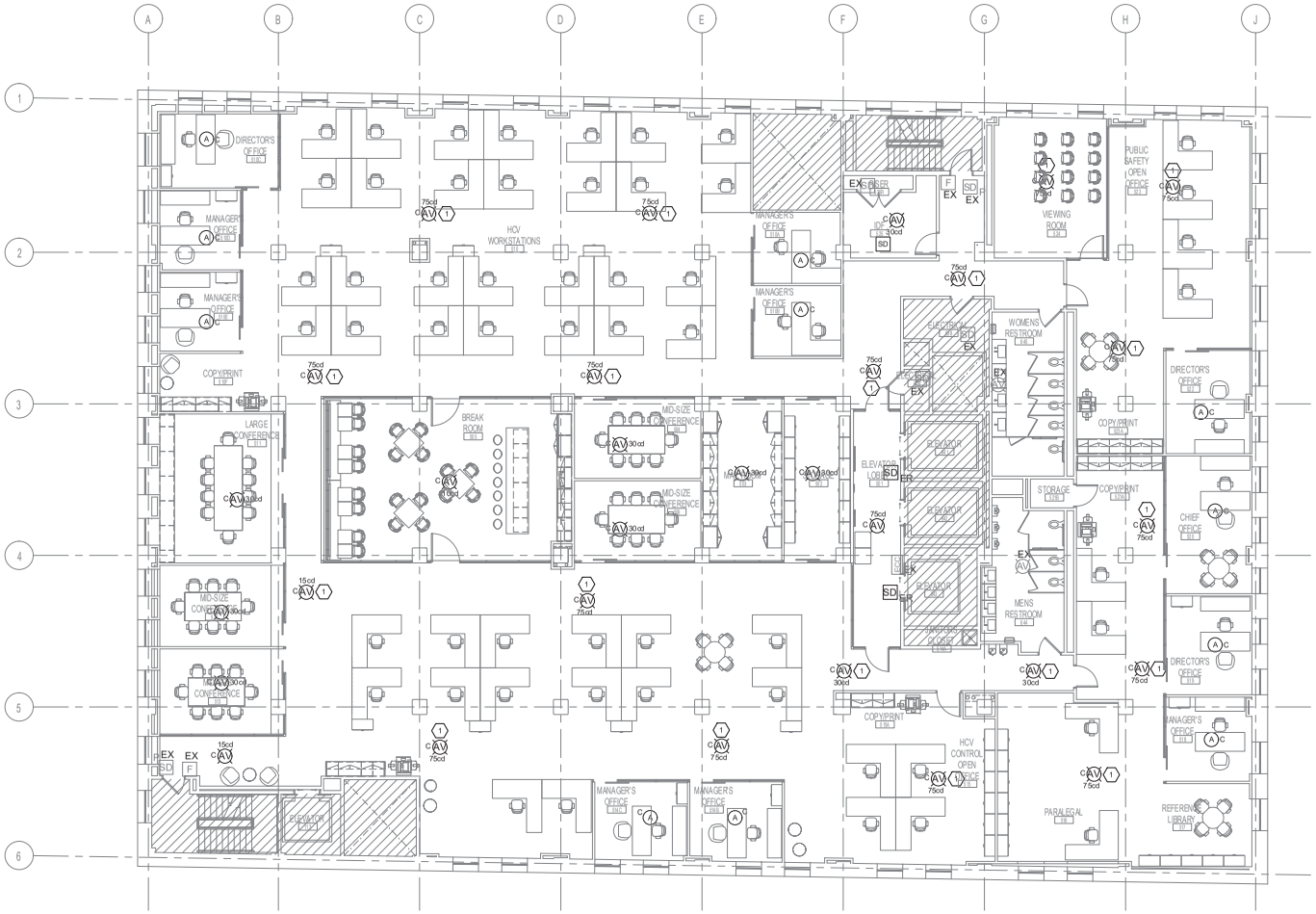

1 E-402 5TH FLOOR FIRE ALARM PLAN
1/8" = 1'-0"

FIRE ALARM KEY NOTES: #

1. PROVIDE CONDUIT STEM TO MOUNT CEILING FIRE ALARM DEVICE TO BE AT THE SAME HEIGHT AS ADJACENT CEILING SYSTEMS. COORDINATE HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.

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SHEET NAME:
5TH FLOOR
FIRE ALARM PLAN

SHEET NO.
E-402

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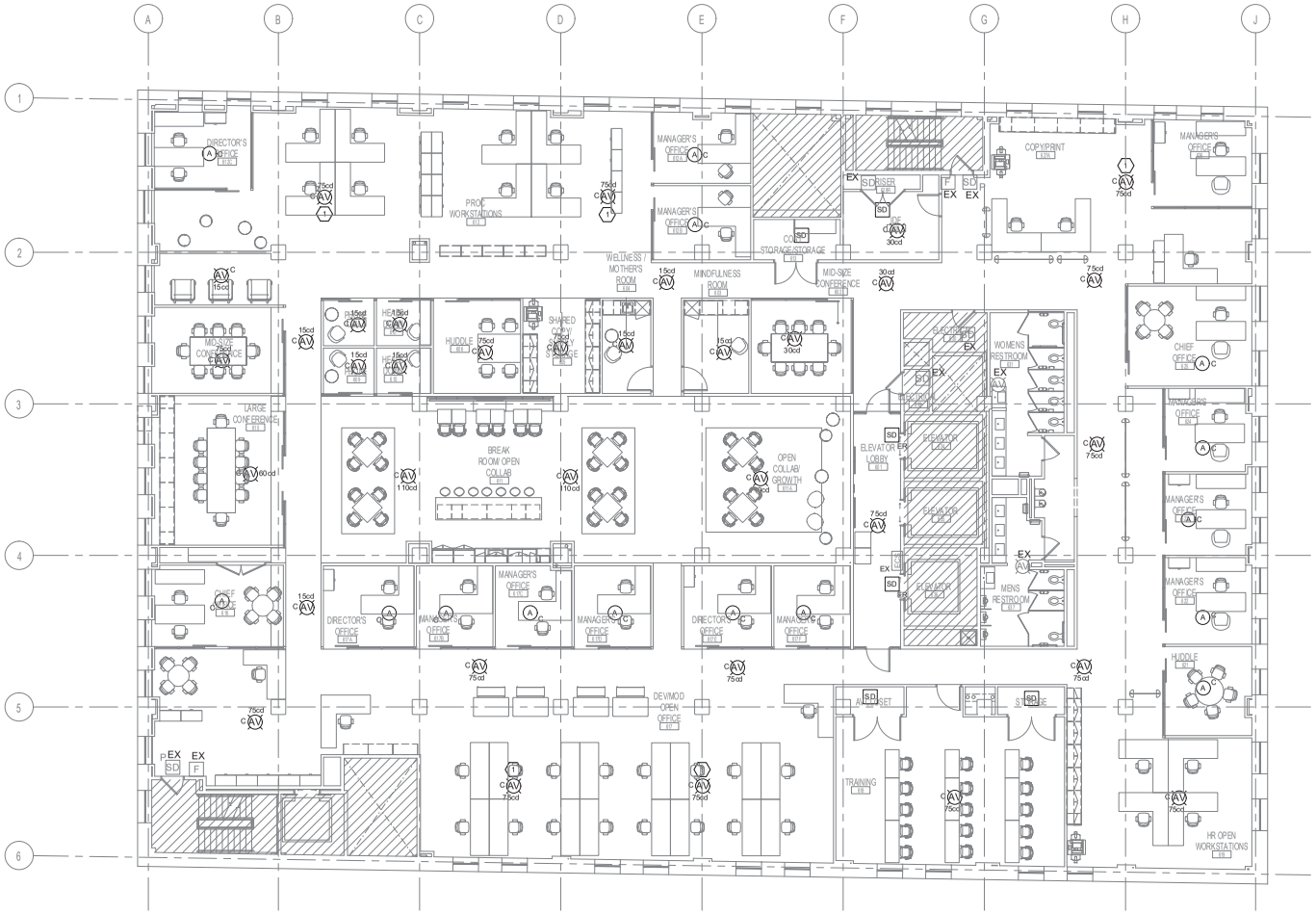

1 6TH FLOOR FIRE ALARM PLAN
E-403 1/8" = 1'-0"

FIRE ALARM KEY NOTES: (#)

1. PROVIDE CONDUIT STEM TO MOUNT CEILING FIRE ALARM DEVICE TO BE AT THE SAME HEIGHT AS ADJACENT CEILING SYSTEMS. COORDINATE HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.

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SHEET NAME:
6TH FLOOR
FIRE ALARM PLAN

SHEET NO.
E-403

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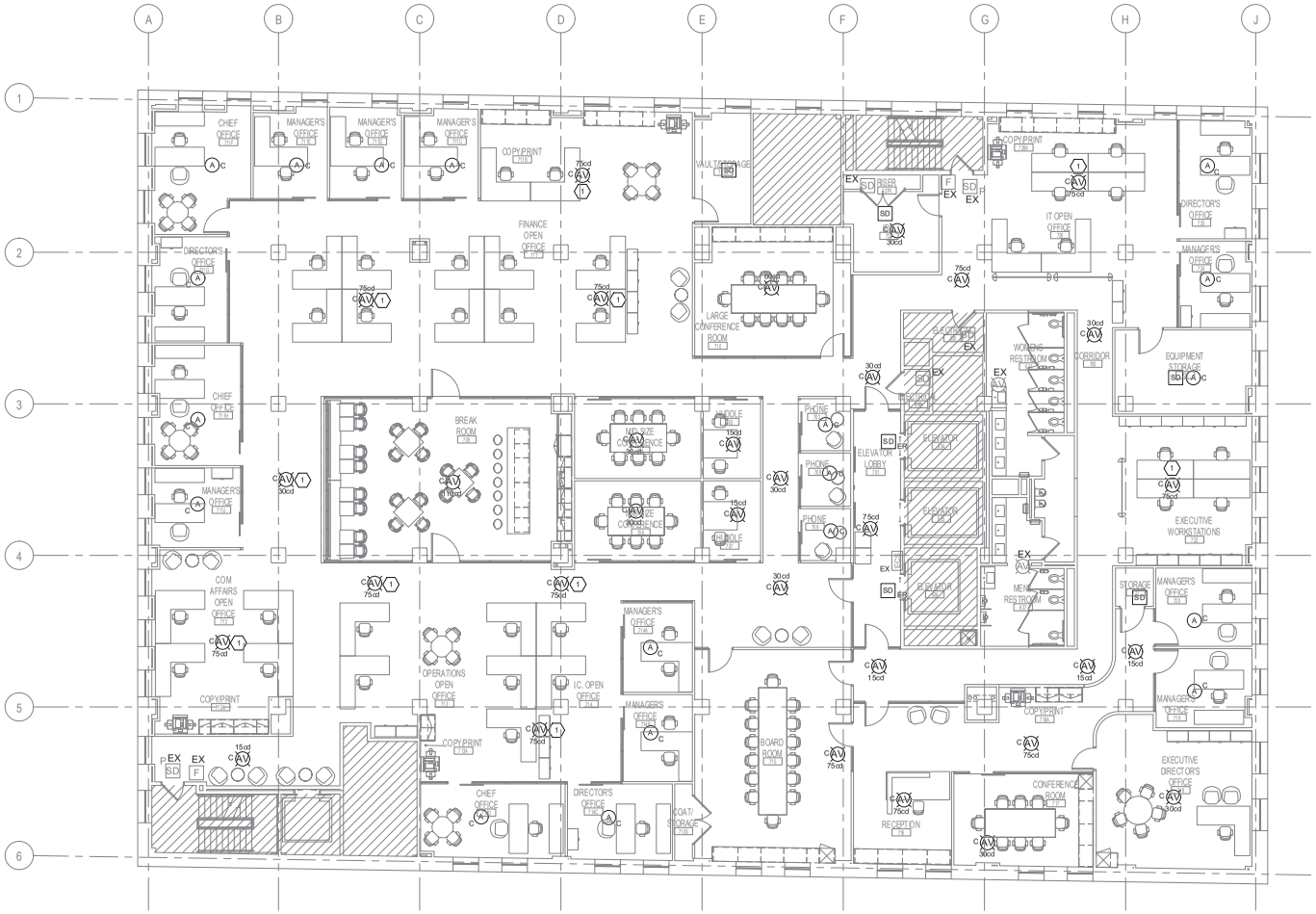

1 E-404 7TH FLOOR FIRE ALARM PLAN
1/8" = 1'-0"

FIRE ALARM KEY NOTES: (#)

1. PROVIDE CONDUIT STEM TO MOUNT CEILING FIRE ALARM DEVICE TO BE AT THE SAME HEIGHT AS ADJACENT CEILING SYSTEMS. COORDINATE HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.

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1	100% DESIGN DEVELOPMENT	01/23/2020

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PROJECT NO.	DRAWN BY:	REVIEWED BY:
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SHEET NAME:
7TH FLOOR
FIRE ALARM PLAN

SHEET NO.
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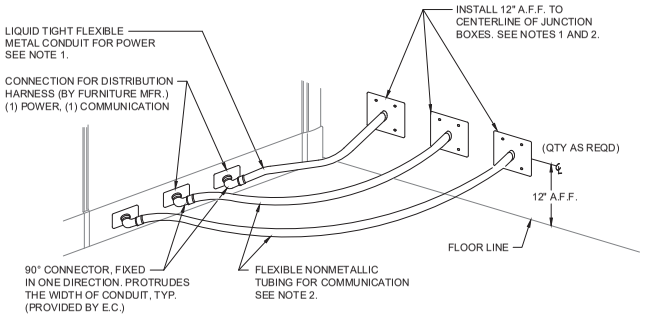

GENERAL NOTES:

1. PROVIDE A 2-GANG DEEP JUNCTION BOX WITH SINGLE GANG TRIM RING, BLANK COVER AND KNOCKOUT FOR POWER TO FURNITURE SYSTEM. BRANCH TO PARTITION VIA LIQUID-TIGHT FLEXIBLE METALLIC RACEWAY FOR POWER. VERIFY CONNECTION REQUIREMENTS AND ROUGH-IN LOCATION WITH FURNITURE SYSTEM CONTRACTOR.

2. PROVIDE A 2-GANG DEEP JUNCTION BOX WITH SINGLE GANG TRIM RING, BLANK COVER AND KNOCKOUT FOR COMMUNICATION WIRING TO FURNITURE SYSTEM. PROVIDE LENGTH(S) OF YELLOW FLEXIBLE NONMETALLIC TUBING (AS MANUFACTURED BY CARLON) FOR COMMUNICATION CABLING. COORDINATE SIZE AND QUANTITY OF TUBING WITH COMMUNICATION SYSTEM WIRING REQUIREMENTS. VERIFY CONNECTION REQUIREMENTS AND ROUGH-IN LOCATION WITH FURNITURE SYSTEM CONTRACTOR. REFER TO ELECTRICAL DATA PLAN E001 FOR QUANTITY AND SIZE OF CONDUITS WITH PULL WIRES INTO ACCESSIBLE CEILING SPACE.

1 / E5.01 FURNITURE SYSTEM CONNECTION DETAIL - WALL/COLUMN FEED (WF)
NOT TO SCALE

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SHEET NAME:
ELECTRICAL DETAILS

SHEET NO:
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FIRE ALARM KEYED NOTES; (#)

1. PROVIDE NEW CIRCUIT TO SERVE NEW FIRE ALARM DEVICES ON THIS FLOOR. WHERE EC DESIRES TO EXTEND EXISTING CIRCUIT SERVING FLOOR, ALL CALCULATIONS FOR VOLTAGE DROP, BATTERY, ETC. SHALL BE REQUIRED TO SUBSTANTIATE THE ADDITION TO THE EXISTING CIRCUIT.

2. CONFIRM EXACT LOCATION OF ALL EXISTING FIRE ALARM TRANSPONDER AND NAC PANELS IN THE FIELD. SHOWN HERE FOR SCHEMATIC REFERENCE. EC SHALL BE RESPONSIBLE FOR TYING NEW FIRE ALARM CIRCUITS INTO EXISTING SYSTEM.

FIRE ALARM GENERAL NOTES;

1. REFER TO FLOOR PLAN FOR QUANTITY AND LOCATION OF SYSTEM COMPONENTS. EXACT ARRANGEMENT AND QUANTITY OF DEVICES SHALL BE INDICATED ON THE SHOP DRAWINGS. PROVIDE COMPLETE RISER DIAGRAM AS PART OF SHOP DRAWINGS.

2. PROVIDE WIRING PER SIEMEN'S RECOMMENDATION.

3. CANDELA RATING SHALL BE PER NFPA 72 REQUIREMENTS.

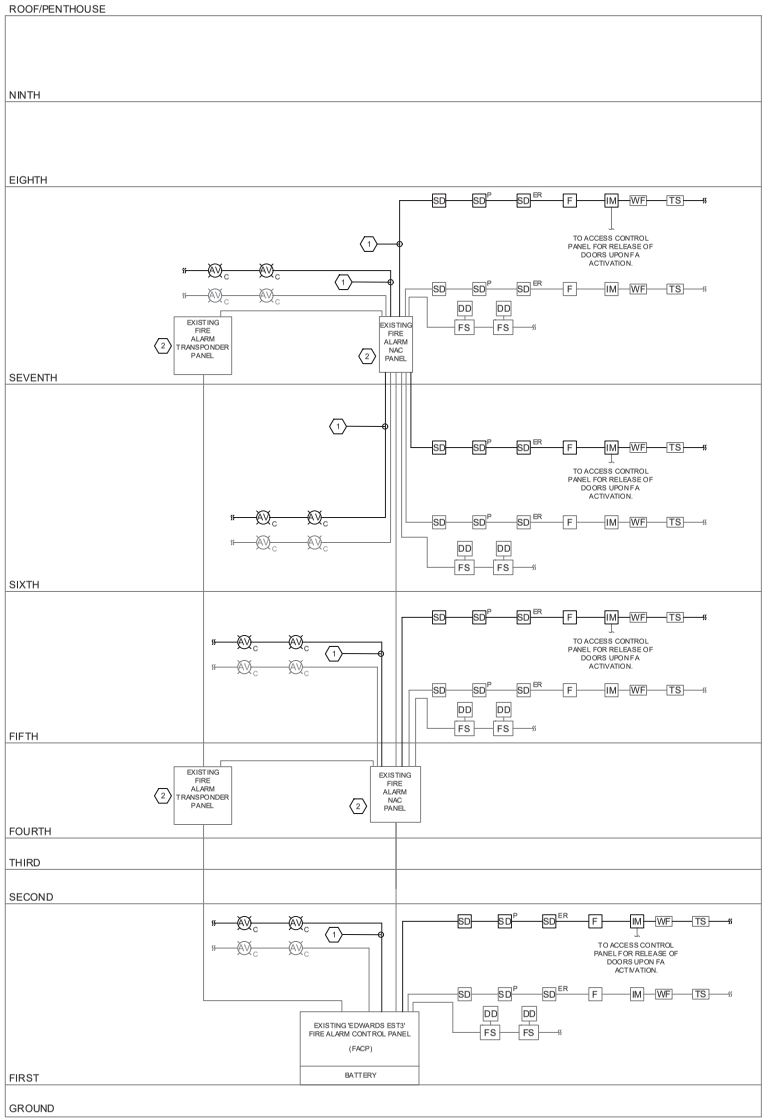
4. ALL FIRE ALARM WIRING SHALL BE IN 3/4"C (MINIMUM). RED FIRE ALARM MC CABLE IS ACCEPTABLE.

5. DO NOT LOAD ANY CIRCUIT BEYOND 80% OF RATED CAPACITY. SUBMIT CALCULATIONS TO SUBSTANTIATE. ADD ADDITIONAL CIRCUITS AS NECESSARY.

6. PROVIDE CONDUIT SLEEVES WITH ESCUTCHEON PLATES WHERE WIRING PASSES THROUGH WALLS, FLOORS, OR CEILINGS.

7. PROVIDE UL APPROVED FIRESTOPPING AT LOCATIONS WHERE RACEWAY(S) PASSES THROUGH RATED WALLS OR SHAFTS.

8. CONTROL MODULE AND DUCT DETECTORS FOR ALL FIRE SMOKE DAMPERS PER DETAIL.



1 FIRE ALARM RISER DIAGRAM
E5.03 NOT TO SCALE

FIRE ALARM GENERAL NOTE FOR PERMIT - CITY OF PITTSBURGH:

THE E.C. SHALL INCLUDE IN HIS BID, THE COST FOR AN INDEPENDENT THIRD PARTY PROFESSIONAL ENGINEER TO SIGN, DATE, AND SEAL ALL FIRE ALARM DOCUMENTS REQUIRED FOR A BUILDING PERMIT. THE FIRE ALARM DOCUMENTS INCLUDED WITH THE E-SERIES DRAWINGS ARE PROVIDED FOR FIRE ALARM DESIGN INTENT. CITY OF PITTSBURGH MAY REQUIRE SIGNED/SEALED MANUFACTURER SHOP DRAWINGS (BY THE INDEPENDENT THIRD PARTY) FOR PERMIT APPROVAL BEYOND THE DOCUMENTS CONTAINED IN THE E-SERIES DRAWINGS.

THE FIRE ALARM SHOP DRAWINGS SHALL INCLUDE AT A MINIMUM BOTH FIRE ALARM FLOOR PLANS AND RISER DIAGRAM. EACH PLAN OR RISER SHALL INDICATE THE NUMBER AND TYPES OF FIRE ALARM DEVICES INSTALLED ON EACH CIRCUIT, DEVICE ADDRESSES, CONDUCTOR TYPES AND SIZES, FIRE ALARM ZONES, PRIMARY AND SECONDARY POWER SUPPLIES (AS NECESSARY), AND ALL NEW FIRE ALARM DEVICES AS ADDED TO EXISTING CIRCUITS. DOCUMENTS SHALL ALSO CONTAIN BATTERY AND VOLTAGE DROP CALCULATIONS.

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY
19047.00	M-VM	DEB

SHEET NAME:
ELECTRICAL FIRE ALARM RISER DIAGRAM

SHEET NO.
E-502

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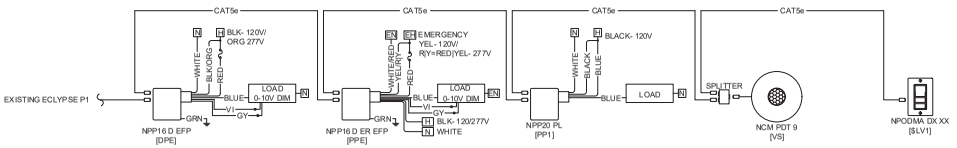
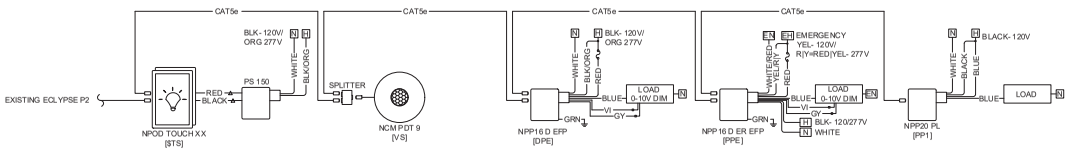
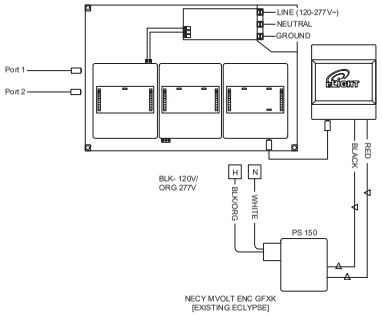


1 E-503 HOUSING AUTHORITY
NOT TO SCALE



2 E-503 CONFERENCE ROOM
NOT TO SCALE



3 E-503 EXISTING ECLYPSE
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2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	MVM	DEB

SHEET NAME:

ELECTRICAL DETAILS

SHEET NO.

TRUE NORTH

E-503

PLAN NORTH

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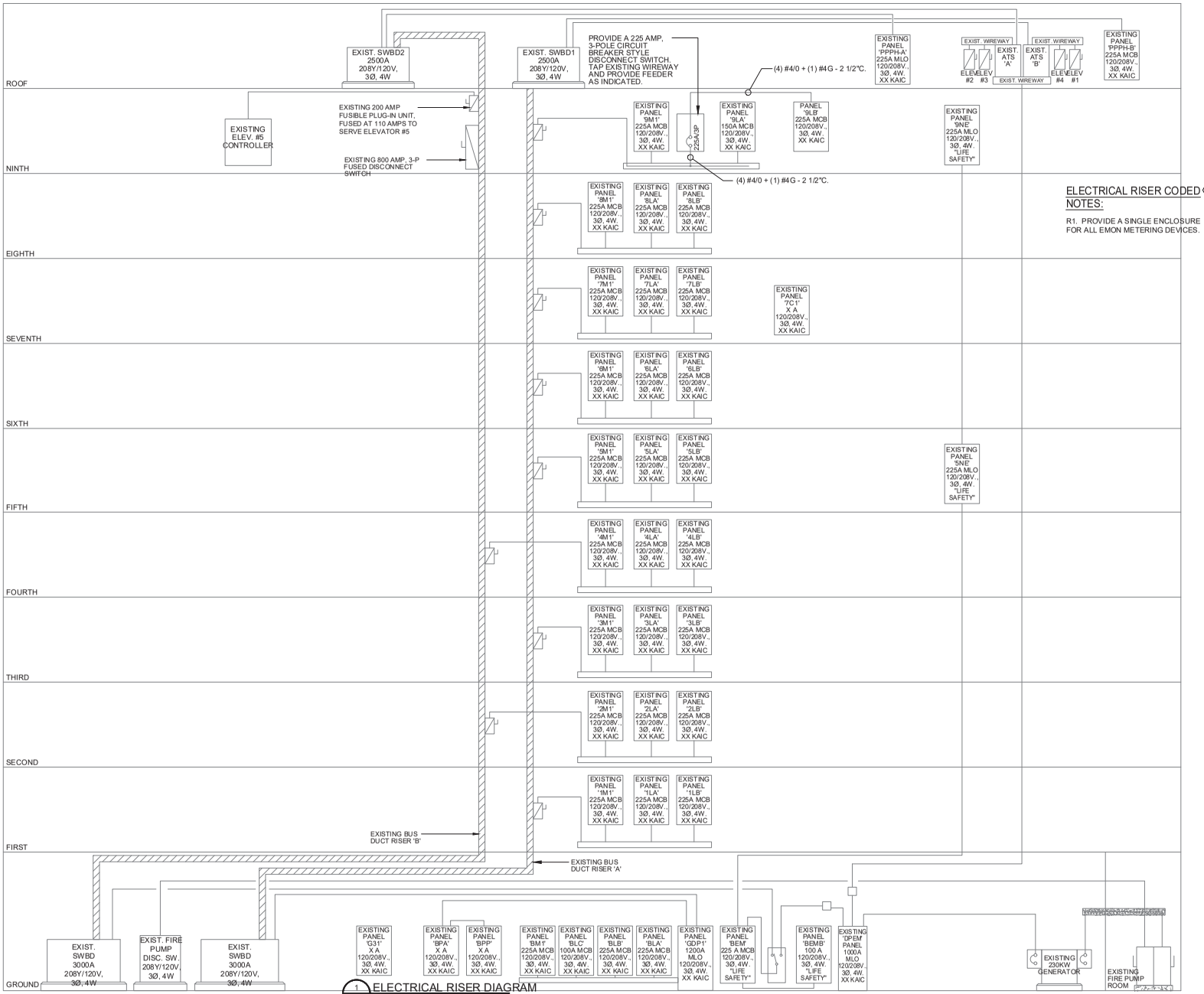

ELECTRICAL RISER CODED NOTES:

R1. PROVIDE A SINGLE ENCLOSURE FOR ALL EMON METERING DEVICES.

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2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	MWM	DEB

SHEET NAME:
ELECTRICAL RISER DIAGRAMS

SHEET NO:
E-601

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PLAN NORTH

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LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	MODEL	LAMP(S)		BALLAST	INPUT WATTS	VOLTS	MOUNTING	REMARKS
				LAMP #	LAMP TYPE					
A	2' X 4' LED RECESSED LIGHTING FIXTURE.	LITHONIA	2BLT4 48L ADSM 120 EZ1 LP835	1	LED		31	120	RECESSED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
B14	14'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SUMDI 14' 500 350 SD BW 35K XX ACW05 U	1	LED		88	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
B8	8'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SUMDI 8' 500 350 SD BW 35K XX ACW05 U	1	LED		50	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
B54	54'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SUMDI 54' 500 350 SD BW 35K XX ACW05 U	1	LED		338	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
B16	16'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SUMDI 16' 500 350 SD BW 35K XX ACW05 U	1	LED		100	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
B60	60'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SUMDI 60' 500 350 SD BW 35K XX ACW05 U	1	LED		375	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
B24	24'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SUMDI 24' 500 350 SD BW 35K XX ACW05 U	1	LED		150	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
B48	48'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SUMDI 48' 500 350 SD BW 35K XX ACW05 U	1	LED		300	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
B56	56'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SUMDI 56' 500 350 SD BW 35K XX ACW05 U	1	LED		350	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
B64	64'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SUMDI 64' 500 350 SD BW 35K XX ACW05 U	1	LED		400	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
C	4'-0" LED STRIP LIGHTING FIXTURE	LITHONIA	ZL1D L48 SMR 5000LM FST 120 35K 80CRI	1	LED		41	120	CABLE SUSPENDED	
D	4.5" RECESSED LED DOWNLIGHT.	FOCAL POINT	FLC4D RO 2000L 120 L11 T B LC4 RD 2000L 35K DN CD WP	1	LED		26	120	RECESSED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE
F	LED CYLINDER LIGHTING FIXTURE. COLOR TO BE SELECTED BY ARCHITECT.	LUMENPULSE	LADM A 120 L20 35K CR80 W RD WH DA1 NC	1	LED		23	120		
G	4" AIRCRAFT CABLE SUSPENDED CYLINDER IN BLACK FINISH	GOTHAM LIGHTING	ICO CYL 35/ 15 4AR LD 35D 120 EZ1 ACC DBL	1	LED		17	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE
H	SHORT ARM LED SIGN LIGHTER MOUNTED VERTICALLY	JUNO	SLT SA FLOOD 40K MVOLT WH	1	LED		10	120	RECESSED	PROVIDE STEM MOUNT TO JUNCTION BOX TO SUPPORT FIXTURE ABOVE ELEVATOR DOOR
J	RECESSED LED 2X2.	LITHONIA	2BLT2 33L ADSM 120 EZ1 LP835	1	LED		26	120	RECESSED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE
K	DECORATIVE PENDANT			1	LED		43	120		PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE
L	36" DECORATIVE PENDANT	PABLO	BOLA FELT 36	1			35	120		PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE
M	12'-0" DECORATIVE LINEAR LED PENDANT MOUNTED HORIZONTALLY.	SPI LIGHTING	PAVO 2' 12FT-L97W 120 DF PSC 3500K OF MA01	1	LED		97	120		PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE
N	RECESSED 2' LED DOWNLIGHT			1	LED		23	120		
P	4.5" RECESSED LED DOWNLIGHT WITH 1500 LUMENS	LITHONIA	FLC4D RO 1500L 120 L11 T B LC4 RD 1500L 35K DN CD WP	1	LED 3500K		19	120		PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE
Q	2 FOOT T8AR LED CLEAR DIFFUSING LENS FIXTURE	JLC-TECH LLC	TBSL MW 2 XX B X X	1	LED 3500K		13	120		PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE
R	4 FOOT T8AR LED CLEAR DIFFUSING LENS FIXTURE	JLC-TECH LLC	TBSL MW 4 XX B X X	1	LED 3500K		17	120		PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE
S	18'-4" RECESSED MODULAR LIGHTING SYSTEM	LF ILLUMINATION LLC	EF4BNS XXX 18'-4" WW EF408B 19C 8035 W DMU WW		LED 3500K		114	120		PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACK TO LIGHTING FIXTURE AND TERMINATE. PROVIDE (6) DIE CAST CYLINDRICAL LIGHTING UNIT S PER SECTION.
T14	14'-0" RECESSED LINEAR LED SLOT FIXTURE	FINELITE	HPA R D 14' H 835 F 96LG 120 SC FC-1% XX	1	LED 3500K		100	120		PROVIDE 2#18 PURPLE/GRAY WIRES FOR 0-10V CONTROL.
U8	8'-0" LINEAR LED WALL WASHER	VODE LIGHTING	107-WG 01 8'-0" CC96 4R AE 1 SO 359 XX 0 XX	1	LED 3500K		60	120		
U12	12'-0" LINEAR LED WALL WASHER	VODE LIGHTING	107-WG 01 12'-0" CC96 4R AE 1 SO 359 XX 0 KX	1	LED 3500K		74	120		
V	3" RECESSED LED DOWNLIGHT	LUMENPULSE	LADN 120 L20 35K CR80 W RD WH DA1 NC	1	LED 3500K		25	120		PROVIDE 2#18 PURPLE/GRAY WIRES FOR 0-10V CONTROL.
X	36" LONG DECORATIVE STICK LED PENDANT FIXTURE WITH CABLE SUSPENSION FOR A TOTAL LENGTH OF 144"	OCL	GS1 P1CA 36 CR XXX LED1 35K UNV OAH 144 DMO	1	LED 3500K		11	120		PROVIDE 2#18 PURPLE/GRAY WIRES FOR 0-10V CONTROL.
Z	EXISTING ACRYLIC LENS PENDANT FIXTURE.				LED		50	120		EXISTING FIXTURE SHALL BE DISCONNECTED AND RECONNECTED AS SHOWN.
Y	DECORATIVE 8" GLOBE STYLE PENDANT WITH CHROME SUSPENSION STEM	PABLO DESIGNS	BOLA SPH 8 CRM	1	LED 3500K		20	120		
⊗	UNIVERSAL MOUNTED EDGE LIT LED EXIT SIGN WITH RED LETTERS	LITHONIA	EDG-2-R-EL	--	LED		4	120	UNIVERSAL	PROVIDE NUMBER OF FACES AND ARROW INDICATORS PER FLOOR PLAN. PROVIDE CONDUIT STEM SUSPENSION TO LOWER EXIT SIGNS MOUNTING HEIGHTS

LIGHTING FIXTURE SCHEDULE NOTES:
1. ALL LAMPS SHALL HAVE A CRI MINIMUM OF 82 AND A COLOR TEMPERATURE OF 3500K.

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2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19042F.00	MWM	DEB

SHEET NAME:
ELECTRICAL SCHEDULES

SHEET NO:
E-701

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Existing Branch Panel: 5M1

Location: | **Volts:** 208/120V | **A.I.C. Rating:** KAIC
Supply From: | **Phases:** 3 | **Mains Type:** MCB
Mounting: SURFACE | **Wires:** 4 | **Mains Rating:** 225
Enclosure: TYPE 1 | **MCB Rating:** 225

CKT	Circuit Description	Wire Size	Trip	Pole	LOAD (VA) A	LOAD (VA) B	LOAD (VA) C	Pole	Trip	Wire Size	Circuit Description	CKT
1	CU5-1 (NOTE 1)	2#12, 1#12G - 3/4"C	**30**	**2**	775			**2**	**20**	3#12, 1#12G-3/4"C	FPB-5-1, 5-2, 5-3 (NOTE 1)	2
3						775						4
5	FPB-5-15 (NOTE 1)	3#12, 1#12G-3/4"C	**20**	**2**			650	**2**	**20**	3#12, 1#12G-3/4"C	FPB-5-13 (NOTE 1)	6
7					650							8
9	FPB-5-7, 5-8, 5-9 (NOTE 1)	3#12, 1#12G-3/4"C	**20**	**2**				**2**	**20**	3#12, 1#12G-3/4"C	FPB-5-14 (NOTE 1)	10
11							775					12
13	FPB-5-10, 5-11, 5-12 (NOTE 1)	3#12, 1#12G-3/4"C	**20**	**2**	775	800		1	20	2#12, 1#12G - 3/4"C	VAV BOXES	14
15							600	1	20	2#12, 1#12G - 3/4"C	VAV BOXES	16
17	SPARE		20	1			500	400	1	20	2#12, 1#12G - 3/4"C	VAV BOXES	18
19	SPARE		50	2		500			1	20	2#12, 1#12G - 3/4"C	CONTROL BOXES	20
21									1	20			22
23	AC5-1 (NOTE 1)	2#12, 1#12G - 3/4"C	**20**	**2**					1	20			24
25									1	20			26
27	WH-1 (NOTE 1)	2#8, 1#10G - 3/4"C	**35**	**2**					1	20			28
29									1	20			30
31	CP-1	2#12, 1#12G - 3/4"C	20	1		1000			1	20		EXIST BRIDGE LTG CNTLS	32
33	SPARE		20	1			500		1	20		EXIST HVAC CONTROLS	34
35	SPARE		20	1				580	1	20		EXIST MENS/WMNS BATH LTG	36
37	SPARE		20	1		600			1	20		EXIST EWC	38
39	EXIST UH-1		20	1			500	600	1	20		EXIST EWC	40
41	EXIST UH-1 (2)		20	1				1000	1500	1	20		EXIST MENS/WOMENS RECPTS	42
				Total Load:	5100	2975		5415						
				Panel Amps:	42.5	24.8		45.1						

NOTES:
1. PROVIDE BREAKER AS INDICATED. TURN OVER EXISTING BREAKER TO OWNER FOR FUTURE USE.
2. BREAKERS INDICATED IN BOLD SHALL BE "HACR" RATED.

Existing Branch Panel: 5LA

Location: | **Volts:** 208/120V | **A.I.C. Rating:** KAIC
Supply From: | **Phases:** 3 | **Mains Type:** MCB
Mounting: SURFACE | **Wires:** 4 | **Mains Rating:** 225
Enclosure: TYPE 1 | **MCB Rating:** 225

CKT	Circuit Description	Wire Size	Trip	Pole	LOAD (VA) A	LOAD (VA) B	LOAD (VA) C	Pole	Trip	Wire Size	Circuit Description	CKT
1	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1	800	800		1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTACLES	2
3	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1			800	800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTACLES	4
5	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1					800	800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTACLES	6
7	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1	800	800					1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTACLES	8
9	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1			800	800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTACLES	10
11	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1					800	1000	1	20	2#12, 1#12G - 3/4"C	CONF. RM. RECEPTACLES	12
13	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1	800	800					1	20	2#12, 1#12G - 3/4"C	CONF. RM. FLR. BOXES	14
15	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1			800	600			1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURNITURE	16
17	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1					800	800	1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURNITURE	18
19	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1	800	800					1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURNITURE	20
21	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1			800	1000			1	20	2#12, 1#12G - 3/4"C	OFFICE RECEPTACLES	22
23	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1					800	800	1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURNITURE	24
25	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1	800	800					1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURNITURE	26
27	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1			800	1200			1	20	2#10, 1#10G - 3/4"C	COPIER	28
29	REFRIGERATOR	2#12, 1#12G - 3/4"C	20	1					1500	1000	1	20	2#12, 1#12G - 3/4"C	GENERAL RECEPTACLES	30
31	REFRIGERATOR	2#12, 1#12G - 3/4"C	20	1	1500	800					1	20	2#12, 1#12G - 3/4"C	RECEPTS	32
33	DISHWASHER	2#12, 1#12G - 3/4"C	20	1			1500	800			1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURNITURE	34
35	GARBAGE DISPOSAL	2#12, 1#12G - 3/4"C	20	1					1500	800	1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURNITURE	36
37	DEDICATED RECEPTACLE	2#12, 1#12G - 3/4"C	20	1	1500	1000					1	20	2#12, 1#12G - 3/4"C	DISHWASHER	38
39	DEDICATED RECEPTACLE	2#12, 1#12G - 3/4"C	20	1			1500	800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTACLES	40
41	DEDICATED RECEPTACLE	2#12, 1#12G - 3/4"C	20	1					1500		1	20	2#12, 1#12G - 3/4"C	furn via demountable system	42
				Total Load:	12800	13000		12900						
				Panel Amps:	106.6	108.3		107.4						

NOTES:

Existing Branch Panel: 5LB

Location: | **Volts:** 208/120V | **A.I.C. Rating:** KAIC
Supply From: | **Phases:** 3 | **Mains Type:** MCB
Mounting: SURFACE | **Wires:** 4 | **Mains Rating:** 225
Enclosure: TYPE 1 | **MCB Rating:** 225

CKT	Circuit Description	Wire Size	Trip	Pole	LOAD (VA) A	LOAD (VA) B	LOAD (VA) C	Pole	Trip	Wire Size	Circuit Description	CKT
1	SPECIAL PURP. RECEPTACLE	2#10, 1#10G - 3/4"C	30	2	1000	800		1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	2
3							1000	800	1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	4
5	SPECIAL PURP. RECEPTACLE	2#10, 1#10G - 3/4"C	30	2					1000	800	1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	6
7					1000	800					1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	8
9	DEMOUNTABLE RECEPTACLES	2#12, 1#12G - 3/4"C	20	1			800	800			1	20	2#12, 1#12G - 3/4"C	POKE-THRUS	10
11	DEMOUNTABLE RECEPTACLES	2#12, 1#12G - 3/4"C	20	1					800	1000	1	20	2#12, 1#12G - 3/4"C	OFFICE RECEPTACLES	12
13	DEMOUNTABLE RECEPTACLES	2#12, 1#12G - 3/4"C	20	1	800	1000					1	20	2#12, 1#12G - 3/4"C	OFFICE RECEPTACLES	14
15	DEMOUNTABLE RECEPTACLES	2#12, 1#12G - 3/4"C	20	1			800	600			1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD OUTLET	16
17	DEMOUNTABLE RECEPTACLES	2#12, 1#12G - 3/4"C	20	1					800	600	1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD OUTLET	18
19	DEMOUNTABLE RECEPTACLES	2#12, 1#12G - 3/4"C	20	1	800	400					1	20	2#12, 1#12G - 3/4"C	RECEPTS VIEWING RM	20
21	PRE-WIRED FURN.	2#12, 1#12G - 3/4"C	20	1			1600	800			1	20	2#12, 1#12G - 3/4"C	RECEPTS VIEWING RM	22
23	COPIER	2#12, 1#12G - 3/4"C	20	1					1200	800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTACLES	24
25	COPIER	2#12, 1#12G - 3/4"C	20	1	1200	1500					1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	26
27	OFFICE FURNITURE	2#12, 1#12G - 3/4"C	20	1			1000	1000			1	20	2#12, 1#12G - 3/4"C	GENERAL RECEPTACLES	28
29	DEMOUNTABLE RECEPTACLES	2#12, 1#12G - 3/4"C	20	1					800	1500	1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	30
31	DEMOUNTABLE RECEPTACLES	2#12, 1#12G - 3/4"C	20	1	800	1000					1	20	2#12, 1#12G - 3/4"C	RECEPTACLES	32
33	DEMOUNTABLE RECEPTACLES	2#12, 1#12G - 3/4"C	20	1			800				1	20	2#12, 1#12G - 3/4"C	furn via demountable system	34
35	LIGHTING	2#10, 1#10G - 3/4"C	20	1					750		1	20	2#12, 1#12G - 3/4"C	COPIER RECEPTS	36
37	LIGHTING	2#10, 1#10G - 3/4"C	20	1	1100						1	20	2#12, 1#12G - 3/4"C	COPIER RECEPTS	38
39	LIGHTING	2#10, 1#10G - 3/4"C	20	1			1000				1	20		SPARE	40
41	LIGHTING	2#10, 1#10G - 3/4"C	20	1					1000		1	20	2#10, 1#10G - 3/4"C	OFFICE LIGHTING	42
				Total Load:	12200	11000		11050						
				Panel Amps:	101.6	91.6		92.0						

NOTES:

Existing Branch Panel: 5NE

Location: | **Volts:** 208/120V | **A.I.C. Rating:** KAIC
Supply From: | **Phases:** 3 | **Mains Type:** MLO
Mounting: SURFACE | **Wires:** 4 | **Mains Rating:** 225
Enclosure: TYPE 1 | **MCB Rating:** -

CKT	Circuit Description	Wire Size	Trip	Pole	LOAD (VA) A	LOAD (VA) B	LOAD (VA) C	Pole	Trip	Wire Size	Circuit Description	CKT
1	5TH FLR. N/E LIGHTING	2#10, 1#10G - 3/4"C	20	2		750					1	20		EXIST 4TH FLOOR LIGHTING	2
3									750		1	20		4TH FLOOR LIGHTING (SPARE)	4
5	6TH FLR. N/E LIGHTING	2#10, 1#10G - 3/4"C	20	2							1	20		EXIST 5TH FLOOR LIGHTING	6
7											1	20		5TH FLOOR LIGHTING (SPARE)	8
9	7TH FLR. N/E LIGHTING	2#10, 1#10G - 3/4"C	20	2				750			1	20		EXIST 6TH FLOOR LIGHTING	10
11											1	20		6TH FLOOR LIGHTING (SPARE)	12
13	SPARE		20	1							1	20		EXIST 7TH FLOOR LIGHTING	14
15	SPARE		20	1							1	20		7TH FLOOR LIGHTING (SPARE)	16
17	SPARE		20	1						1000	1	20		EXIST 7TH FLR SMOKE DMPRS	18
19	SPARE		20	1		1000					1	20		EXIST 6TH FLR SMOKE DMPRS	20
21	SPARE		20	1				1000			1	20		EXIST 5TH FLR SMOKE DMPRS	22
23	SPARE		20	1						1000	1	20		EXIST 4TH FLR SMOKE DMPRS	24
25	SPARE		20	1							1	20		SPARE	26
27	SPARE		20	1							1	20		SPARE	28
29	SPARE		20	1							1	20		SPARE	30
31	SPARE		20	1							1	20		SPARE	32
33	SPARE		20	1							1	20		SPARE	34
35	SPARE		20	1							1	20		SPARE	36
37	SPARE		20	1							1	20		SPARE	38
39	SPARE		20	1							1	20		SPARE	40
41	SPARE		20	1							1	20		SPARE	42
				Total Load:	1750	1750		2750						
				Panel Amps:	14.6	14.6		22.9						

NOTES:

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	M.WM	DEB

SHEET NAME:
ELECTRICAL PANEL SCHEDULES

SHEET NO:
E-702

TRUE NORTH
PLAN NORTH

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Existing Branch Panel: 6M1

Location:
Supply From:
Mounting: SURFACE
Enclosure: TYPE 1

Volts: 208/120V
Phases: 3
Wires: 4

A.I.C. Rating: KAIC
Mains Type: MCB
Mains Rating: 225
MCB Rating: 225

CKT	Circuit Description	Wire Size	Trip	Pole	LOAD (VA) A	LOAD (VA) B	LOAD (VA) C	Pole	Trip	Wire Size	Circuit Description	CKT
1	CU6 - 1 (NOTE 1)	3#10, 1#10G - 3/4"C	30	2	975			2	20	2#12, 1#12G - 3/4"C	FPB-6-7,8-8	2
3						975						4
5	AC6-1 (NOTE 1)	3#12, 1#12G - 3/4"C	20	2			500	2	20	2#12, 1#12G - 3/4"C	FPB-6-9,6-10 (NOTE 1)	6
7					500							8
9	FPB-6-14 (NOTE 1)	3#12, 1#12G - 3/4"C	20	2		750		2	20	2#12, 1#12G - 3/4"C	FPB-6-12,6-13 (NOTE 1)	10
11							750					12
13	FPB-6-1,6-2,6-3 (NOTE 1)	3#12, 1#12G - 3/4"C	20	2	650 500			1	20	2#12, 1#12G - 3/4"C	CONTROL BOXES	14
15						650 400		1	20	2#12, 1#12G - 3/4"C	VAV BOXES	16
17	EF 6-1	2#12, 1#12G - 3/4"C	20	1			600	1	20	2#12, 1#12G - 3/4"C	VAV BOXES	18
19	SPARE		30	3	600			1	20	2#12, 1#12G - 3/4"C	VAV BOXES	20
21								1	20		SPARE	22
23								1	20		SPARE	24
25	FPB-6-4,6-5 (NOTE 1)	2#12, 1#12G - 3/4"C	20	2	650			1	20		SPARE	26
27						650		1	20		SPARE	28
29	FPB-6-6 (NOTE 1)	2#12, 1#12G - 3/4"C	20	2			650	1	20		SPARE	30
31					650			1	20		SPARE	32
33	WH-2 (NOTE 1)	2#8, 1#10G - 3/4"C	35	2				1	20		SPARE	34
35								1	20		SPARE	36
37	CP-1	2#12, 1#12G - 3/4"C	20	1				1	20		SPARE	38
39	EXIST UH-1		20	1		500 1000		1	20		EXIST BRIDGE LTG CNTLS	40
41	EXIST UH-1 (2)		20	1			1000 500	1	20		EXIST HVAC CONTROLS	42
			Total Load:		4525	4925	4000					
			Panel Amps:		37.7	41.0	33.3					

NOTES:
1. PROVIDE BREAKER AS INDICATED. TURN OVER EXISTING BREAKER TO OWNER FOR FUTURE USE.
2. BREAKERS INDICATED IN BOLD SHALL BE "HACR" RATED.

Existing Branch Panel: 6LA

Location:
Supply From:
Mounting: SURFACE
Enclosure: TYPE 1

Volts: 208/120V
Phases: 3
Wires: 4

A.I.C. Rating: KAIC
Mains Type: MCB
Mains Rating: 225
MCB Rating: 225

CKT	Circuit Description	Wire Size	Trip	Pole	LOAD (VA) A	LOAD (VA) B	LOAD (VA) C	Pole	Trip	Wire Size	Circuit Description	CKT
1	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1	800 1500			1	20	2#12, 1#12G - 3/4"C	REFRIGERATOR	2
3	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1		800 1500		1	20	2#12, 1#12G - 3/4"C	REFRIGERATOR	4
5	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1			800 1500	1	20	2#12, 1#12G - 3/4"C	GARBAGE DISPOSAL	6
7	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1	800 1500			1	20	2#12, 1#12G - 3/4"C	DEDICATED RECEPTACLE	8
9	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1		800 1500		1	20	2#12, 1#12G - 3/4"C	DEDICATED RECEPTACLE	10
11	PRE-WIRED FURNITURE	2#12, 1#12G - 3/4"C	20	1			800 1500	1	20	2#12, 1#12G - 3/4"C	DEDICATED RECEPTACLE	12
13	COPIER	2#12, 1#12G - 3/4"C	20	1	800 1500			1	20	2#12, 1#12G - 3/4"C	DEDICATED RECEPTACLE	14
15	OFFICE RECEPTS.	2#12, 1#12G - 3/4"C	20	1		800 600		1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	16
17	GENERAL RECEPTS.	2#12, 1#12G - 3/4"C	20	1			800 800	1	20	2#12, 1#12G - 3/4"C	OFFICE/FLR RECEPTS	18
19	DEDICATED QUAD (NOTE 1)	2#12, 1#12G - 3/4"C	**20**	**1**	1500 1000						DEDICATED RECEPT (NOTE 1)	20
21	DEDICATED QUAD (NOTE 1)	2#12, 1#12G - 3/4"C	**20**	**1**		1500					PRINTER RECEPTS (NOTE 1)	22
23	DEDICATED QUAD (NOTE 1)	2#12, 1#12G - 3/4"C	**20**	**1**			1500	2			SPARE	24
25	PROJCTR & SCREEN (NOTE 1)	2#12, 1#12G - 3/4"C	**20**	**1**	1000							26
27	DEMOUNTABLE RECEPTS.	2#12, 1#12G - 3/4"C	20	1		800		1	20	2#12, 1#12G - 3/4"C	PREWIRED FURN.	28
29	DEMOUNTABLE RECEPTS.	2#12, 1#12G - 3/4"C	20	1			800	1	20	2#12, 1#12G - 3/4"C	PRINTERS(NOTE 1)	30
31	DEMOUNTABLE RECEPTS.	2#12, 1#12G - 3/4"C	20	1	800			1	202		(NOTE 1)	32
33	DEMOUNTABLE RECEPTS.	2#12, 1#12G - 3/4"C	20	1		800 800		1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	34
35	DEMOUNTABLE RECEPTS.	2#12, 1#12G - 3/4"C	20	1			800 800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	36
37	DEMOUNTABLE RECEPTS.	2#12, 1#12G - 3/4"C	20	1	800 800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	38
39	FURNITURE POWER	2#12, 1#12G - 3/4"C	20	1		1000 1500		1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	40
41	GENERAL RECEPTS.	2#12, 1#12G - 3/4"C	20	1			800 1500	1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	42
			Total Load:		12800	12400	12400					
			Panel Amps:		106.6	103.3	103.3					

NOTES:
1. PROVIDE BREAKER IN SPACE AS INDICATED. TURN OVER EXISTING BREAKER TO BUILDING LANDLORD.

Existing Branch Panel: 6LB

Location:
Supply From:
Mounting: SURFACE
Enclosure: TYPE 1

Volts: 208/120V
Phases: 3
Wires: 4

A.I.C. Rating: KAIC
Mains Type: MCB
Mains Rating: 225
MCB Rating: 225

CKT	Circuit Description	Wire Size	Trip	Pole	LOAD (VA) A	LOAD (VA) B	LOAD (VA) C	Pole	Trip	Wire Size	Circuit Description	CKT
1	SPECIAL PURP. RECEPTACLE	3#10, 1#10G - 3/4"C	30	2	900 1500			1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	2
3						900 1500		1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	4
5	SPECIAL PURP. RECEPTACLE	3#10, 1#10G - 3/4"C	30	2			900 1500	1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	6
7					900 1500			1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	8
9	GENERAL RECEPTACLES	2#12, 1#12G - 3/4"C	20	1		800 1200		1	20	2#12, 1#12G - 3/4"C	COPIER	10
11	PREWIRED FURN.	2#12, 1#12G - 3/4"C	20	1			800 800	1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURNITURE	12
13	PREWIRED FURN.	2#12, 1#12G - 3/4"C	20	1	800 800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	14
15	PREWIRED FURN.	2#12, 1#12G - 3/4"C	20	1		800 800		1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	16
17	PREWIRED FURN.	2#12, 1#12G - 3/4"C	20	1			800 800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	18
19	DEMOUNTABLE RECEPTS.	2#12, 1#12G - 3/4"C	20	1	800 800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	20
21	DEMOUNTABLE RECEPTS.	2#12, 1#12G - 3/4"C	20	1		800 800		1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	22
23	SPARE		20	1			800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	24
25	SPARE		20	1	800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	26
27	DEMOUNTABLE RECEPTS.	2#12, 1#12G - 3/4"C	20	1		800 800		1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	28
29	OFFICE RECEPTS.	2#12, 1#12G - 3/4"C	20	1			1000 800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	30
31	OFFICE RECEPTACLE	2#12, 1#12G - 3/4"C	20	1	1000 800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	32
33	SPARE		20	1		1000		1	20	2#12, 1#12G - 3/4"C	RECEPTACLES	34
35	LIGHTING	2#10, 1#10G - 3/4"C	20	1			1000 1000	1	20	2#12, 1#12G - 3/4"C	RECEPTACLES	36
37	LIGHTING	2#10, 1#10G - 3/4"C	20	1	1400 1000			1	20	2#12, 1#12G - 3/4"C	OFFICE RECEPTS.	38
39	LIGHTING	2#10, 1#10G - 3/4"C	20	1		1000 1000		1	20	2#10, 1#10G - 3/4"C	OFFICE LIGHTING	40
41	LIGHTING	2#10, 1#10G - 3/4"C	20	1			1000 1200	1	20	2#10, 1#10G - 3/4"C	OFFICE LIGHTING	42
			Total Load:		13000	12200	12400					
			Panel Amps:		108.3	101.6	103.3					

NOTES:

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	M.WM	DEB

SHEET NAME:
ELECTRICAL PANEL SCHEDULES

SHEET NO:
E-703

TRUE NORTH
PLAN NORTH

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Existing Branch Panel: 7M1

Location: | **Volts:** 208/120V | **A.I.C. Rating:** KAIC
Supply From: | **Phases:** 3 | **Mains Type:** MCB
Mounting: SURFACE | **Wires:** 4 | **Mains Rating:** 225
Enclosure: TYPE 1 | **MCB Rating:** 225

CKT	Circuit Description	Wire Size	Trip	Pole	LOAD (VA) A	LOAD (VA) B	LOAD (VA) C	Pole	Trip	Wire Size	Circuit Description	CKT
1	CU7-1 (NOTE 1)	3#10, 1#10G - 3/4"C	20	2				2	20	2#12, 1#12G - 3/4"C	FPB-7-11, 7-12 (NOTE 1)	2
3												4
5	AC-7-1 (NOTE 1)	3#10, 1#10G - 3/4"C	20	2			900	2	20	2#12, 1#12G - 3/4"C	FPB-7-10, 7-13 (NOTE 1)	6
7					900							8
9	FPB-7-5 (NOTE 1)	2#12, 1#12G - 3/4"C	20	2		900		2	20	2#12, 1#12G - 3/4"C	FPB-7-2, 7-8, 7-9 (NOTE 1)	10
11							900					12
13	FPB-7-3, 7-4 (NOTE 1)	2#12, 1#12G - 3/4"C	20	2				2	20	2#12, 1#12G - 3/4"C	FPB-7-6, 7-7 (NOTE 1)	14
15												16
17	FPB-7-1 (NOTE 1)	2#12, 1#12G - 3/4"C	20	2				1	20	2#12, 1#12G - 3/4"C	CONTROL BOXES	18
19								1	20		SPARE	20
21	VAV BOXES	2#12, 1#12G - 3/4"C	20	1				1	20		SPARE	22
23	VAV BOXES	2#12, 1#12G - 3/4"C	20	1				1	20		SPARE	24
25	VAV BOXES	2#12, 1#12G - 3/4"C	20	1				1	20		SPARE	26
27	WH-3 (NOTE 1)	2#8, 1#10G - 3/4"C	35	2				1	20		SPARE	28
29								1	20		SPARE	30
31	CP-1	2#12, 1#12G - 3/4"C	20	1				1	20		SPARE	32
33	SPARE		20	1				1	20		SPARE	34
35	SPARE		20	1				1	20		SPARE	36
37	SPARE		20	1				1	20		SPARE	38
39	EXIST. UH-1		20	1		500	1000	1	20		EXIST BRIDGE LTG CNTLS	40
41	EXIST. UH-1 (2)		20	1			1000	500	1	20		EXIST HVAC CONTROLS	42
		Total Load:			900	2400	3300					
		Panel Amps:			7.5	20.0	27.5					

NOTES:
1. PROVIDE BREAKER AS INDICATED. TURN OVER EXISTING BREAKER TO OWNER FOR FUTURE USE.
2. BREAKERS INDICATED IN BOLD SHALL BE "HACR" RATED.

Existing Branch Panel: 7LA

Location: | **Volts:** 208/120V | **A.I.C. Rating:** KAIC
Supply From: | **Phases:** 3 | **Mains Type:** MCB
Mounting: SURFACE | **Wires:** 4 | **Mains Rating:** 225
Enclosure: TYPE 1 | **MCB Rating:** 225

CKT	Circuit Description	Wire Size	Trip	Pole	LOAD (VA) A	LOAD (VA) B	LOAD (VA) C	Pole	Trip	Wire Size	Circuit Description	CKT
1	COPIER	2#12, 1#12G - 3/4"C	20	1	1200	1000		1	20	2#12, 1#12G - 3/4"C	REFRIGERATOR	2
3	GENERAL RECEPTS.	2#12, 1#12G - 3/4"C	20	1			800	1000	1	20	2#12, 1#12G - 3/4"C	REFRIGERATOR	4
5	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1				800	900	1	20	2#12, 1#12G - 3/4"C	GARBAGE DISPOSAL	6
7	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1	600	1500				1	20	2#12, 1#12G - 3/4"C	DEDICATED RECEPTACLE	8
9	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1			600	1500			1	20	2#12, 1#12G - 3/4"C	DEDICATED RECEPTACLE	10
11	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1					600	1500	1	20	2#12, 1#12G - 3/4"C	DEDICATED RECEPTACLE	12
13	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1	600	1500				1	20	2#12, 1#12G - 3/4"C	DEDICATED RECEPTACLE	14
15	OFFICE RECEPTS	2#12, 1#12G - 3/4"C	20	1			400	600			1	20	2#12, 1#12G - 3/4"C	EXISTING EWC	16
17	OFFICE RECEPTS	2#12, 1#12G - 3/4"C	20	1					400	1500	1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURN.	18
19	COPIER	2#12, 1#12G - 3/4"C	20	1	1200	1000					1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURN.	20
21	PRE-WIRED FURN.	2#12, 1#12G - 3/4"C	20	1			1600	1000			1	20	2#12, 1#12G - 3/4"C	CLNG PROJ & PROJ. SCREEN	22
23	PRE-WIRED FURN.	2#12, 1#12G - 3/4"C	20	1					1600	800	1	20	2#12, 1#12G - 3/4"C	OFFICE RECEPTS.	24
25	PRE-WIRED FURN.	2#12, 1#12G - 3/4"C	20	1	1600	800					1	20	2#12, 1#12G - 3/4"C	OFFICE RECEPTS.	26
27	PRE-WIRED FURN.	2#12, 1#12G - 3/4"C	20	1			1600	800			1	20	2#12, 1#12G - 3/4"C	CONF. RM. TV RECEPTS	28
29	PRE-WIRED FURN.	2#12, 1#12G - 3/4"C	20	1					1600	800	1	20	2#12, 1#12G - 3/4"C	CONF. RM POKE-THRU'S	30
31	PRE-WIRED FURN.	2#12, 1#12G - 3/4"C	20	1	1600	800					1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	32
33	PRE-WIRED FURN.	2#12, 1#12G - 3/4"C	20	1			1600	800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	34
35	PRE-WIRED FURN.	2#12, 1#12G - 3/4"C	20	1					1600	800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	36
37	PRE-WIRED FURN.	2#12, 1#12G - 3/4"C	20	1	1600	800					1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	38
39	COPIER	2#12, 1#12G - 3/4"C	20	1			1200	800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	40
41	RECEPTACLES	2#12, 1#12G - 3/4"C	20	1					800	800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	42
		Total Load:			15800		14300		14500						
		Panel Amps:			131.6		119.1		120.7						

NOTES:

Existing Branch Panel: 7LB

Location: | **Volts:** 208/120V | **A.I.C. Rating:** KAIC
Supply From: | **Phases:** 3 | **Mains Type:** MCB
Mounting: SURFACE | **Wires:** 4 | **Mains Rating:** 225
Enclosure: TYPE 1 | **MCB Rating:** 225

CKT	Circuit Description	Wire Size	Trip	Pole	LOAD (VA) A	LOAD (VA) B	LOAD (VA) C	Pole	Trip	Wire Size	Circuit Description	CKT
1	SPECIAL PURP. RECEPTACLE	2#10, 1#10G - 3/4"C	30	2	1000	1000		1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	2
3							1000	1000	1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	4
5	SPECIAL PURP. RECEPTACLE	2#10, 1#10G - 3/4"C	30	2				1000	1000	1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	6
7					1000	1000				1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	8
9	COPIER	2#12, 1#12G - 3/4"C	20	1			1200	1000			1	20	2#12, 1#12G - 3/4"C	QUAD RECEPTS	10
11	PRE-WIRED FURN.	2#12, 1#12G - 3/4"C	20	1					1600	800	1	20	2#12, 1#12G - 3/4"C	RECEPTS	12
13	PRE-WIRED FURN.	2#12, 1#12G - 3/4"C	20	1	1600	800					1	20	2#12, 1#12G - 3/4"C	RECEPTS	14
15	OFFICE RECEPTS.	2#12, 1#12G - 3/4"C	20	1			400	800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	16
17	OFFICE RECEPTS.	2#12, 1#12G - 3/4"C	20	1					400	800	1	20	2#12, 1#12G - 3/4"C	RECEPTS	18
19	OFFICE RECEPTS.	2#12, 1#12G - 3/4"C	20	1	400	800					1	20	2#12, 1#12G - 3/4"C	RECEPTS	20
21	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1			600	800			1	20	2#12, 1#12G - 3/4"C	RECEPTS	22
23	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1					400	800	1	20	2#12, 1#12G - 3/4"C	GENERAL RECEPTS	24
25	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1	1500	1200					1	20	2#12, 1#12G - 3/4"C	REFRIGERATOR	26
27	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1			1500	1500			1	20	2#12, 1#12G - 3/4"C	DEDICATED RECEPT. BRK.RM	28
29	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1					600	1000	1	20	2#12, 1#12G - 3/4"C	OFFICE RECEPTS.	30
31	REFRIG.	2#12, 1#12G - 3/4"C	20	1	600						1	20	2#12, 1#12G - 3/4"C	PRINTER RECEPTS	32
33	POKE-THRU'S	2#12, 1#12G - 3/4"C	20	1			800				1	20		SPARE	34
35	LIGHTING	2#10, 1#10G - 3/4"C	20	1					1000		1	20		SPARE	36
37	LIGHTING	2#10, 1#10G - 3/4"C	20	1	1000						1	20		SPARE	38
39	LIGHTING	2#10, 1#10G - 3/4"C	20	1			1000				1	20	2#10, 1#10G - 3/4"C	SPARE	40
41	LIGHTING	2#10, 1#10G - 3/4"C	20	1				1100			1	20	2#10, 1#10G - 3/4"C	SPARE	42
		Total Load:			11900		11600		10500						
		Panel Amps:			99.1		96.6		87.4						

NOTES:

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	M.WM	DEB

SHEET NAME:
ELECTRICAL PANEL SCHEDULES

SHEET NO:
E-704

TRUE NORTH
PLAN NORTH

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Existing Branch Panel: 1M1

Location:
Supply From:
Mounting: SURFACE
Enclosure: TYPE 1

Volts: 208/120V
Phases: 3
Wires: 4

A.I.C. Rating: KAIC
Mains Type: MCB
Mains Rating: 225
MCB Rating: 225

CKT	Circuit Description	Wire Size	Trip	Pole	LOAD (VA) A	LOAD (VA) B	LOAD (VA) C	Pole	Trip	Wire Size	Circuit Description	CKT
1	SPARE		20	1	450			1	20		EXIST. LTG RETAIL SPACE	2
3	**VAV-BOXES**	**2#12 + 1#12G - 3/4"C**	20	1				1	20		EXIST.1ST FLOOR LIGHTING	4
5	**VAV-BOXES**	**2#12 + 1#12G - 3/4"C**	20	1				1	20		EXIST. 1ST FLOOR LIGHTING	6
7	**CU1-1**	**3#10, 1#10G - 3/4"C**	**30**	**2**				**2**	**20**	**3#12, 1#12G - 3/4"C**	**AC1-1**	8
9	**(NOTE 1)**										**(NOTE 1)**	10
11	**FPB-1-1**	**3#10, 1#10G - 3/4"C**	**25**	**2**			450	450	2	20	EXIST.FPB-4-101	12
13					450	450						14
15	**SPARE**		**20**	**2**		450	450	2	20		EXIST.FPB-4-102	16
17							450	450				18
19	EXIST GARAGE DOOR #1		3	20	1000	1000		3	20		EXIST GARAGE DOOR #2	20
21						1000	1000					22
23							1000	1000				24
25	UNIT HEATER UH-1	2#12 + 1#12G - 3/4"C	20	1	500	1000		3	30		EXIST TRASH COMPACTOR	26
27	UNIT HEATER UH-2	2#12 + 1#12G - 3/4"C	20	1		500	1000					28
29	UNIT HEATER UH-3	2#12 + 1#12G - 3/4"C	20	1			500	1000				30
31	**SPARE**		20	2	450			1	20		SPARE	32
33						2000		2	25		EXIST. EWH-1	34
35	SPARE		20	1			2000					36
37	EXISTING EXHAUST FAN EF-2		3	20	2000			2	25		EXIST. EWH-1	38
39						2000						40
41							500	1	20		EXIST.HVAC CONTROLS	42
			Total Load:		7300	8400	7800					
			Panel Amps:		60.8	69.9	65.0					

NOTES:
1. PROVIDE BREAKER AS INDICATED
2. BREAKERS INDICATED IN BOLD SHALL BE "HACR" RATED.

Existing Branch Panel: 1LA

Location:
Supply From:
Mounting: SURFACE
Enclosure: TYPE 1

Volts: 208/120V
Phases: 3
Wires: 4

A.I.C. Rating: KAIC
Mains Type: MCB
Mains Rating: 225
MCB Rating: 225

CKT	Circuit Description	Wire Size	Trip	Pole	LOAD (VA) A	LOAD (VA) B	LOAD (VA) C	Pole	Trip	Wire Size	Circuit Description	CKT
1	**LIGHTING**	**2#12 + 1#12G-3/4"C**	20	1	900	1200		1	20	**2#12 + 1#12G-3/4"C**	**DEMOUNTABLE RECEPTS.**	2
3	**LIGHTING**	**2#12 + 1#12G-3/4"C**	20	1		700		1	20	**2#12 + 1#12G-3/4"C**	**DEMOUNTABLE RECEPTS.**	4
5	**COPIER**	**2#12 + 1#12G-3/4"C**	20	1			1000	1	20	**2#12 + 1#12G-3/4"C**	**DEMOUNTABLE RECEPTS.**	6
7	**EWC**	**2#12 + 1#12G-3/4"C**	20	1	400	1500		1	20	**2#12 + 1#12G-3/4"C**	**LIGHTING**	8
9	**GENERAL RECEPTACLES**	**2#12 + 1#12G-3/4"C**	20	1		1200	1000	1	20		EXIST. RECEPT. DSK FLR BOX	10
11	**COPIER**	**2#12 + 1#12G-3/4"C**	20	1			1000	1000	1	20		EXIST. RECEPT. DSK FLR BOX	12
13	EXISTING		20	1	900	800			1	20		EXISTING GENERAL RECEPTS	14
15		2#12 + 1#12G-3/4"C	20	1		600	1000		1	20	2#12 + 1#12G-3/4"C		16
17	EXISTING		20	1			600	600	1	20		EXISTING POKE-THRU'S	18
19	EXISTING	2#12 + 1#12G-3/4"C	20	1	1000	500			1	20		EXISTING BOTTLE FILLER	20
21	EXISTING AV/IT EQUIPMENT		20	1			1000	1500	1	20	**2#12 + 1#12G-3/4"C**	**DEDICATED QUAD RECEPT.**	22
23	**GENERAL RECEPTACLES**	**2#12 + 1#12G-3/4"C**	20	1				400	1500	1	20	**2#12 + 1#12G-3/4"C**	**DEDICATED QUAD RECEPT.**	24
25	**GENERAL RECEPTACLES**	**2#12 + 1#12G-3/4"C**	20	1	900	1200			1	20	**2#12 + 1#12G-3/4"C**	**KIOSK RECEPTS.**	26
27	**FLOOR POKE-THRU'S**	**2#12 + 1#12G-3/4"C**	20	1			1200	1100	1	20		EXISTING LOBBY LTG	28
29	**SPECIAL PURP. REC. (NOTE 1)**	**2#10 + 1#10G-3/4"C**	**30**	**1**				1800	1	20		EXISTING LOBBY LTG	30
31	**SPECIAL PURP. REC. (NOTE 1)**	**2#10 + 1#10G-3/4"C**	**30**	**1**	1800				1	20		EXISTING LOBBY LTG	32
33	**KIOSK RECEPTS.**	**2#12 + 1#12G-3/4"C**	20	1			1200		1	20		EXISTING LOBBY LTG	34
35	SPARE		20	2				800	1	20	**2#12 + 1#12G-3/4"C**	**POKE-THRU & RECEPTS**	36
37									1	20		SPARE	38
39	**KIOSK RECEPTS.**	**2#12 + 1#12G-3/4"C**	20	1			1200		1	20		SPARE	40
41	**COFFEE MACHINE**	**2#12 + 1#12G-3/4"C**	30	1				1500	1	20		SPARE	42
			Total Load:		11100		11700	10200					
			Panel Amps:		92.4		97.4	84.9					

NOTES:
1. PROVIDE BREAKER AS INDICATED.

Existing Branch Panel: BEM

Location:
Supply From:
Mounting: SURFACE
Enclosure: TYPE 1

Volts: 208/120V
Phases: 0
Wires: 0

A.I.C. Rating: KAIC
Mains Type: 0
Mains Rating: 0
MCB Rating: -

CKT	Circuit Description	Wire Size	Trip	Pole	LOAD (VA) A	LOAD (VA) B	LOAD (VA) C	Pole	Trip	Wire Size	Circuit Description	CKT
1	EX.FIRE ALARM CNTRL PNL.		20	1	1500			1	20		SPARE	2
3	EX. FIRE COMM. CTR RECEPTS		20	1		1500	500	1	20		EX. ECM 2-WAY COMM	4
5	EX. FIRE COMM. CTR RECEPTS		20	1			1500	1000	1	20	**2#12 + 1#12G - 3/4"C**	**1ST FLR LIGHTING**	6
7	EX. FIRE COMM. CTR RECEPTS		20	1	1500	1000			1	20		EX. FIRE SMOKE DMPRS LWR	8
9	EX. FIRE COMM. CTR RECEPTS		20	1		1500	275		1	20		EX. 2ND FLR LIGHTING	10
11	EX. FIRE COMM. CTR RECEPTS		20	1			1500	800	1	20		EX. 2ND FLR LIGHTING	12
13	EX. FIRE COMM. CTR RECEPTS		20	1	1500	800			1	20		EX. 3RD FLR LIGHTING	14
15	EX. FIRE COMM. CTR RECEPTS		20	1		1500			1	20		SPARE	16
17	EX. LOWER LEVEL EM LIGHTING		20	1				600	1	20		EX. EXTERIOR LIGHTS	18
19	EX. LWR LVL CORR & BATH LTG		20	1	1000	1000			1	20		EX. FIRE SMOKE DAMPERS 1ST	20
21	EX. LOWER LEVEL EM LIGHTING		20	1		700	1000		1	20		EX. FIRE SMOKE DAMPERS 2ND	22
23	**1ST FLR LIGHTING**	**2#12 + 1#12G - 3/4"C**	20	1			900	1000	1	20		EX. FIRE SMOKE DAMPERS 3RD	24
25	EX. LWR LVL FIRE SMOKE DMPR	**2#12 + 1#12G - 3/4"C**	20	1	600	1000			1	20	**2#12 + 1#12G - 3/4"C**	**LOBBY LIGHTING**	26
27	SPARE		20	1			750		1	20	**2#12 + 1#12G - 3/4"C**	**LOBBY LIGHTING**	28
29	EX. FIRE SMOKE DAMPERS 1ST		20	1			900	500	1	20		EX. 2-WAY COMMUNICATION	30
31	SPARE		20	1					3			EXISTING JOCKEY PUMP	32
33	SPARE		20	1									34
35	SPARE		20	1									36
37	EXISTING SURGE ARRESTOR		20	3					1	20		SPARE	38
39									1	20		SPARE	40
41									1	20		EXTERIOR LIGHTS	42
			Total Load:		9900	7725	8700						
			Panel Amps:		#DIV/0!	#DIV/0!	#DIV/0!						

NOTES:

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19D67.00	M.WM	DEB

SHEET NAME:
ELECTRICAL PANEL SCHEDULES

SHEET NO.
E-704

TRUE NORTH
PLAN NORTH

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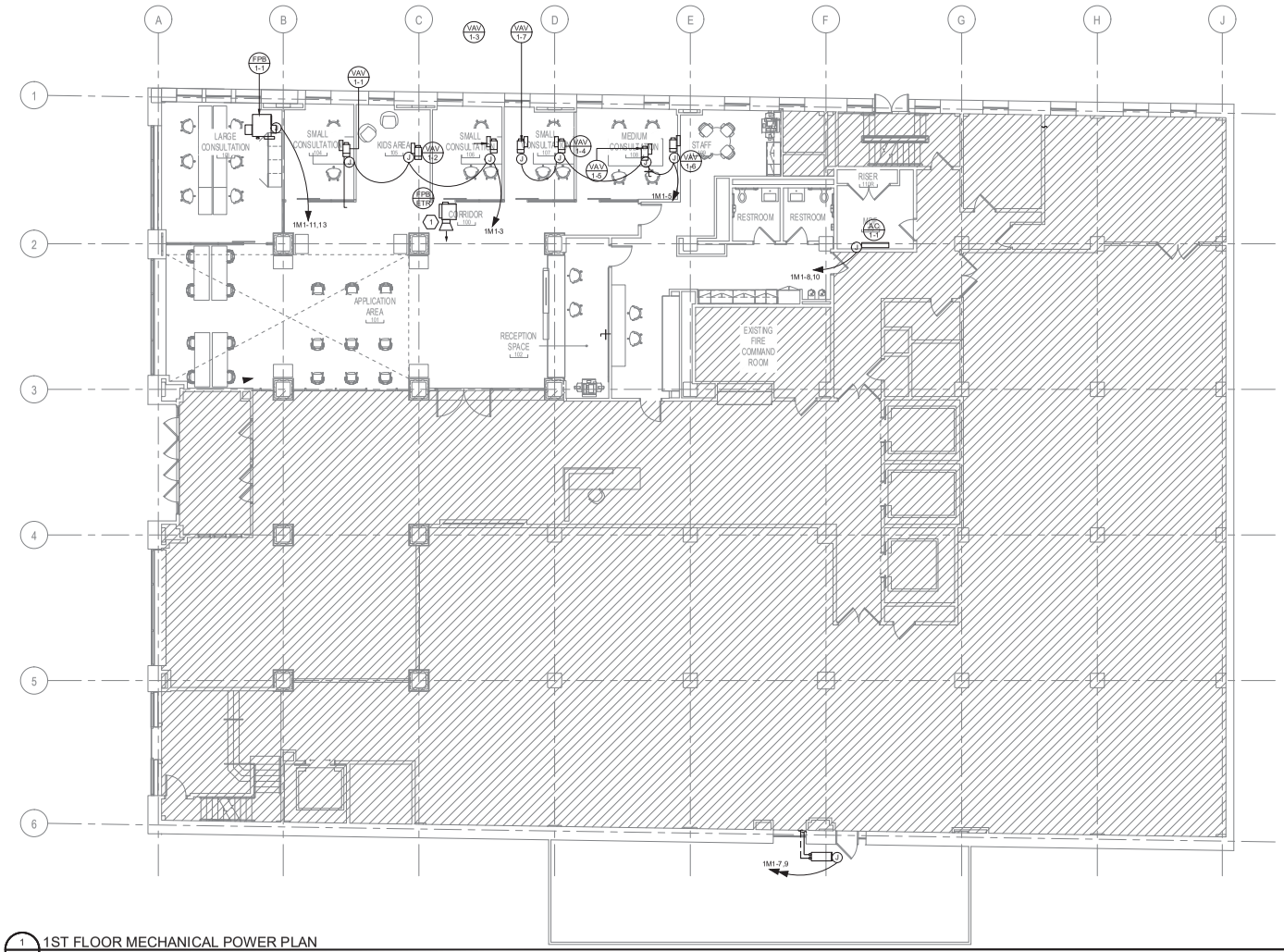

1 EM-301 1ST FLOOR MECHANICAL POWER PLAN
1/8" = 1'-0"

MECHANICAL POWER KEY NOTES: #

1. EXISTING FAN POWERED BOX TO REMAIN.

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#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION #3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION #2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	MVM	DEB

SHEET NAME:
1ST FLOOR MECHANICAL POWER PLAN

SHEET NO.
EM-301

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PLAN NORTH

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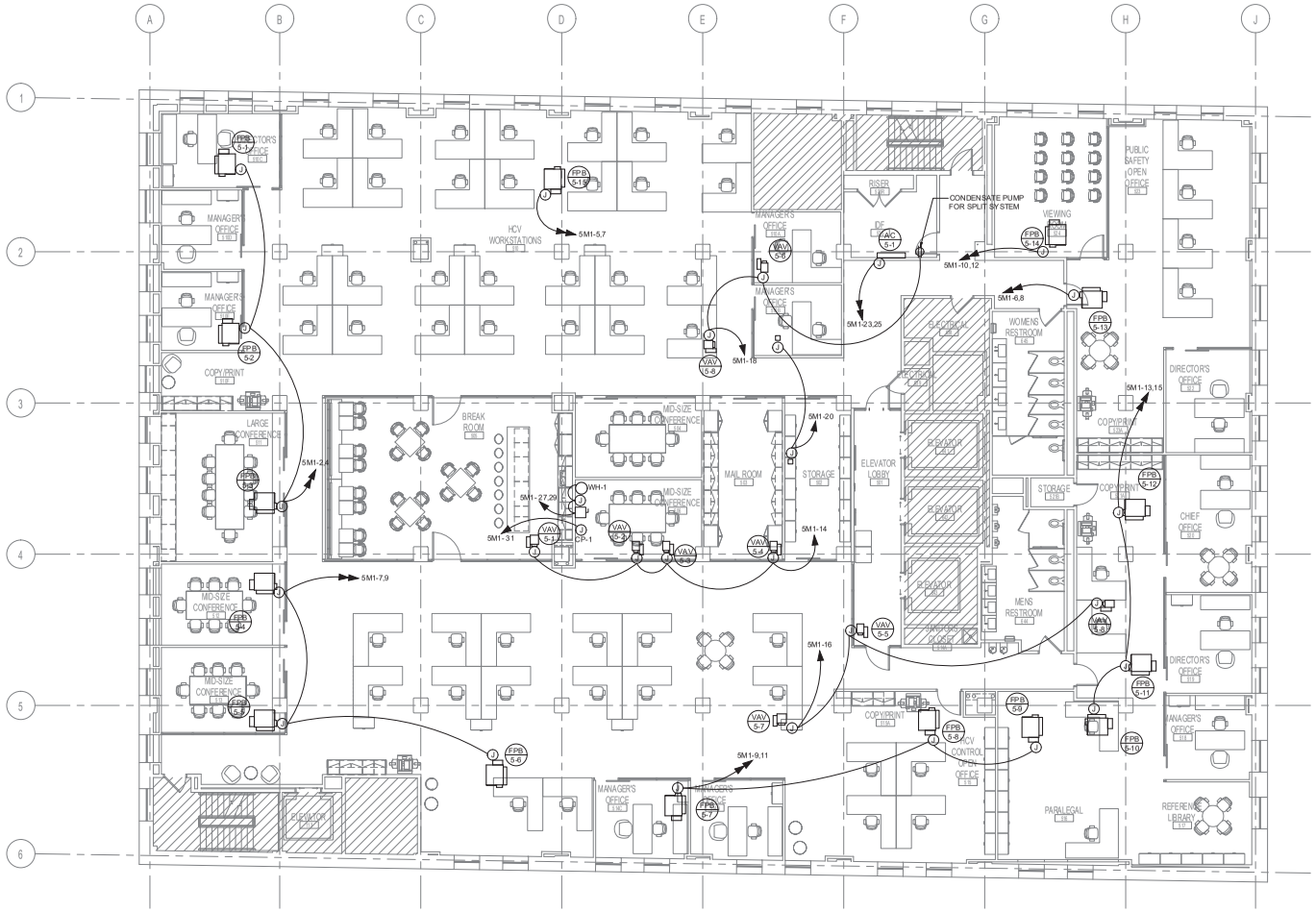

1 5TH FLOOR MECHANICAL POWER PLAN
EM-302 1/8" = 1'-0"

2840 LIBERTY AVENUE SUITE 403
PITTSBURGH, PA 15222

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PROFESSIONAL SEAL

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL DAVID C. PRICE No. PE081112 ENGINEER

CONSULTANT

Allen & Shariff DESIGN | BUILD | MANAGE

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HACP - Housing Authority of the City of Pittsburgh
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#	DESCRIPTION	DATE
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2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	M.WM	DEB

SHEET NAME:
5TH FLOOR MECHANICAL POWER PLAN

SHEET NO.
EM-302

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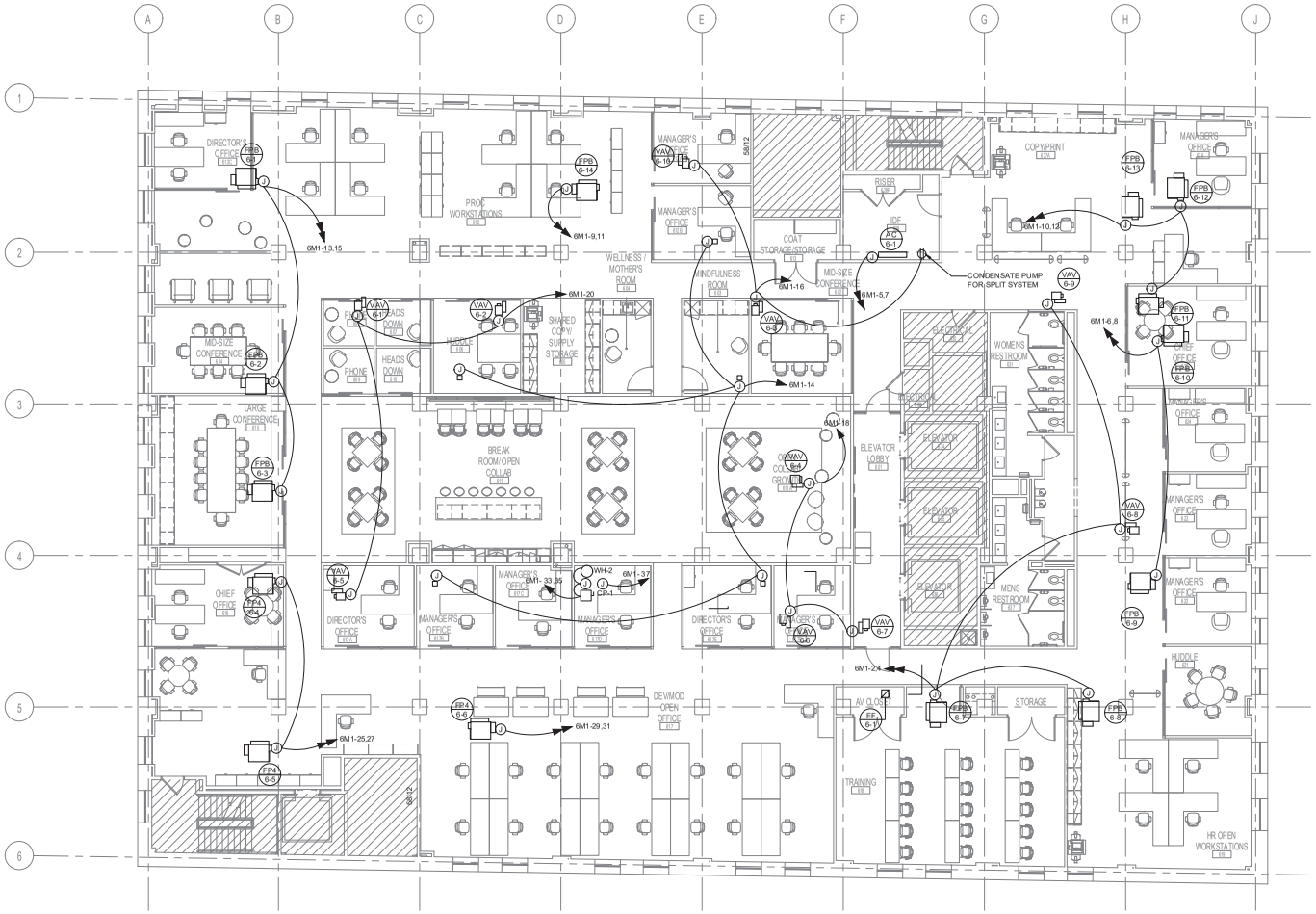

1 EM-303 6TH FLOOR MECHANICAL POWER PLAN

1/8" = 1'-0"

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2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19042F.00	M.WM	DEB

SHEET NAME:

6TH FLOOR MECHANICAL POWER PLAN

SHEET NO.

EM-303

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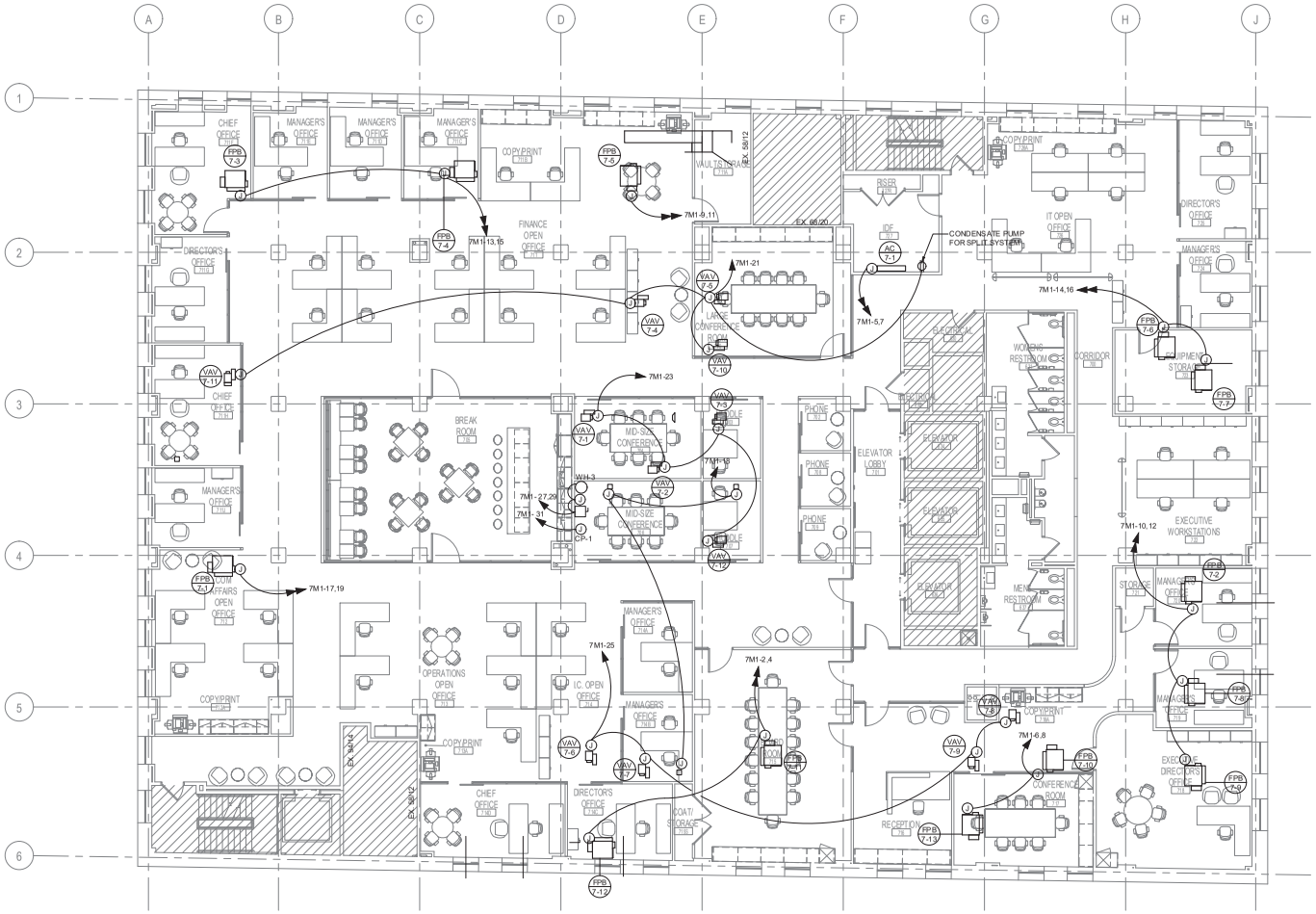

1 EM-304 7TH FLOOR MECHANICAL POWER PLAN

1/8" = 1'-0"

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3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19042F.00	M.WM	DEB

SHEET NAME:

7TH FLOOR MECHANICAL POWER PLAN

SHEET NO.

EM-304

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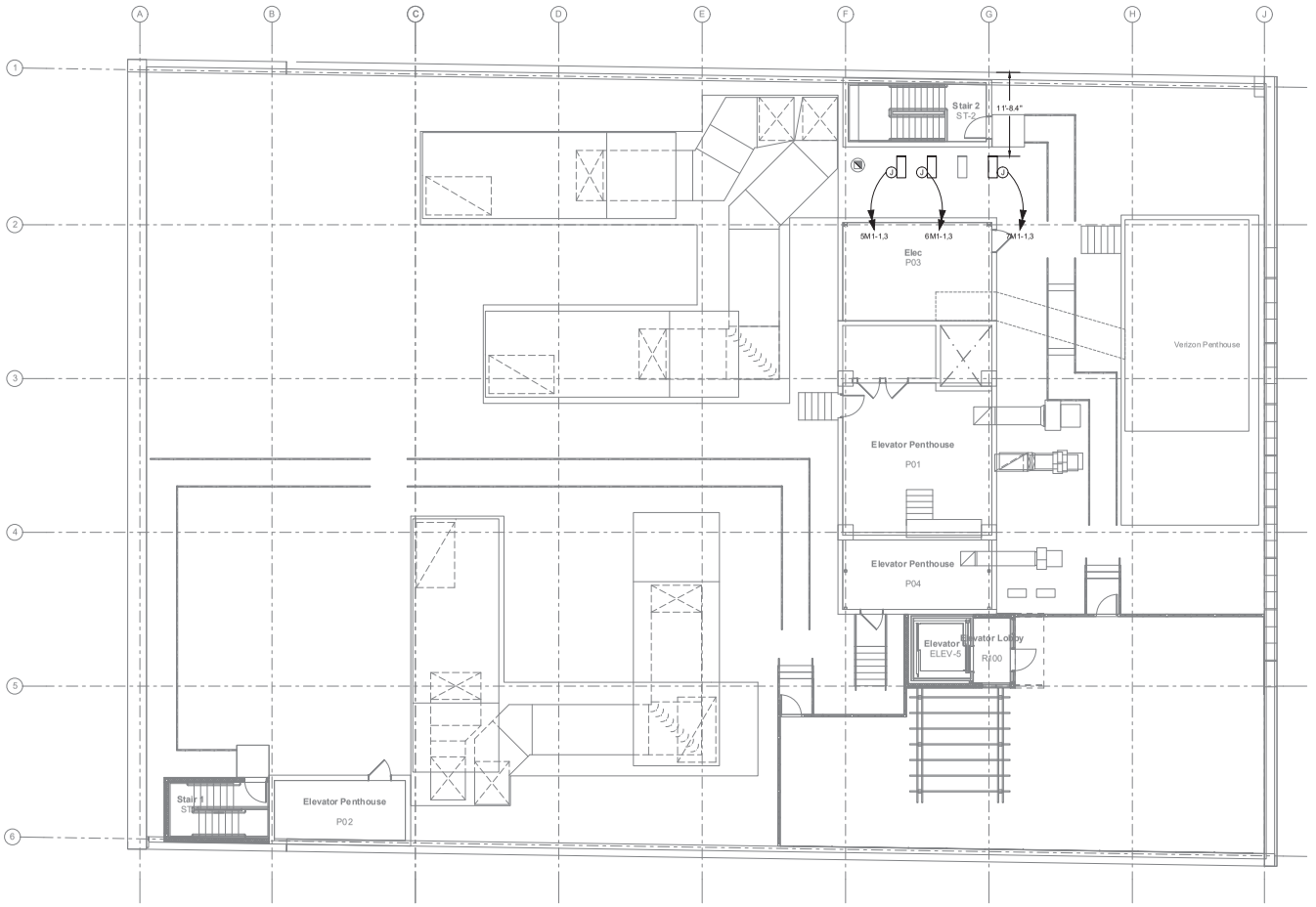

1 EM-305 ROOF MECHANICAL POWER PLAN
1/8" = 1'-0"

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3	100% CONSTRUCTION DOCUMENTS REVISION #1	07/08/2020
2	100% CONSTRUCTION DOCUMENTS	05/27/2020
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PROJECT ISSUANCE

PROJECT NO.	DRAWN BY:	REVIEWED BY:
19047.00	MWM	DEB

SHEET NAME:
ROOF MECHANICAL POWER PLAN

SHEET NO.
EM-305

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TELECOMMUNICATIONS LEGEND

SYMBOL	DESCRIPTION	MOUNT	REMARKS
◁ #	SEE POWER PLANS FOR ROUGH-IN AND CONDUIT REQUIREMENTS. PROVIDE CABLING AND CONNECTIVITY. PROVIDE CABLE QUANTITY AS IDENTIFIED ON PLAN DRAWING. TELECOMMUNICATION INSTALLATION AND MATERIALS SHALL CONFORM TO INFORMATION PROVIDED IN TELECOMMUNICATIONS DRAWING AND SPECIFICATIONS.		MODULAR FURNITURE WALL OR FURNITURE MOUNTED DATA OUTLET. # - NUMBER IDENTIFIES QUANTITY OF DATA CABLES.
◀ #	SEE POWER PLANS FOR ROUGH-IN AND CONDUIT REQUIREMENTS. PROVIDE CABLING AND CONNECTIVITY. PROVIDE CABLE QUANTITY AS IDENTIFIED ON PLAN DRAWING. TELECOMMUNICATION INSTALLATION AND MATERIALS SHALL CONFORM TO INFORMATION PROVIDED IN TELECOMMUNICATIONS DRAWING AND SPECIFICATIONS.		WALL MOUNTED DATA OUTLET. # - NUMBER IDENTIFIES QUANTITY OF DATA CABLES.
◀ #	SEE POWER PLANS FOR ROUGH-IN AND CONDUIT REQUIREMENTS. PROVIDE CABLING AND CONNECTIVITY. PROVIDE CABLING AND CONNECTIVITY. PROVIDE CABLE QUANTITY AS IDENTIFIED ON PLAN DRAWING. TELECOMMUNICATION INSTALLATION AND MATERIALS SHALL CONFORM TO INFORMATION PROVIDED IN TELECOMMUNICATIONS DRAWING AND SPECIFICATIONS.		WALL MOUNTED PHONE OUTLET. # - NUMBER IDENTIFIES QUANTITY OF DATA CABLES.
▽ #	25' CABLE WITH RJ45 8 POSITION MODULAR JACK TERMINATED ON END COILED ABOVE CEILING OR IN OPEN SPACE AND PROTECTED FOR FUTURE WIRELESS ACCESS POINT. . PROVIDE CABLE QUANTITY AS IDENTIFIED ON PLAN DRAWING. COILED SECTION OF CABLING SHALL BE SUPPORTED VIA APPROPRIATELY SIZED J-HOOK. TELECOMMUNICATION INSTALLATION AND MATERIALS SHALL CONFORM TO INFORMATION PROVIDED IN TELECOMMUNICATIONS DRAWING AND SPECIFICATIONS.		CEILING MOUNTED WIRELESS TELECOMMUNICATIONS OUTLET. # - NUMBER IDENTIFIES QUANTITY OF DATA CABLES.
◁ TV #	SEE POWER PLANS FOR TELEVISION COMBINATION BOX AND CONDUIT REQUIREMENTS. PROVIDE CABLING AND CONNECTIVITY. PROVIDE CABLE QUANTITY AS IDENTIFIED ON PLAN DRAWING. TELECOMMUNICATION INSTALLATION AND MATERIALS SHALL CONFORM TO INFORMATION PROVIDED IN TELECOMMUNICATIONS DRAWING AND SPECIFICATIONS.		DIGITAL SIGNAGE/TELEVISION OUTLET. # - NUMBER IDENTIFIES QUANTITY OF DATA CABLES.
(FP)	SEE POWER PLANS FOR POKE THRU AND CONDUIT REQUIREMENTS.ROUTE CABLING FROM POKE-THRU THROUGH CONDUIT. PROVIDE CABLING AND CONNECTIVITY. PROVIDE CABLE QUANTITY AS IDENTIFIED ON PLAN DRAWING. TELECOMMUNICATION INSTALLATION AND MATERIALS SHALL CONFORM TO INFORMATION PROVIDED IN TELECOMMUNICATIONS DRAWING AND SPECIFICATIONS.		FLOOR MOUNTED POKE THRU OUTLET. # - NUMBER IDENTIFIES QUANTITY OF DATA CABLES.
(WF)	SEE POWER PLANS FOR ROUGH-IN AND CONDUIT REQUIREMENTS. ROUTE CABLING FOR WORKSTATIONS THROUGH CONDUIT AND ROUGH-IN TO FURNITURE SYSTEM. PROVIDE CABLING AND CONNECTIVITY. PROVIDE CABLE QUANTITY AS IDENTIFIED ON PLAN DRAWING. TELECOMMUNICATION INSTALLATION AND MATERIALS SHALL CONFORM TO INFORMATION PROVIDED IN TELECOMMUNICATIONS DRAWING AND SPECIFICATIONS.		WALL MOUNTED FURNITURE FEED
(CF)	SEE POWER PLANS FOR ROUGH-IN AND CONDUIT REQUIREMENTS. ROUTE CABLING FOR WORKSTATIONS THROUGH CONDUIT AND ROUGH-IN TO FURNITURE SYSTEM. PROVIDE CABLING AND CONNECTIVITY. PROVIDE CABLE QUANTITY AS IDENTIFIED ON PLAN DRAWING. TELECOMMUNICATION INSTALLATION AND MATERIALS SHALL CONFORM TO INFORMATION PROVIDED IN TELECOMMUNICATIONS DRAWING AND SPECIFICATIONS.		COLUMN MOUNTED FURNITURE FEED
(FF)	SEE POWER PLANS FOR ROUGH-IN AND CONDUIT REQUIREMENTS. ROUTE CABLING FOR WORKSTATIONS THROUGH CONDUIT AND ROUGH-IN TO FURNITURE SYSTEM. PROVIDE CABLING AND CONNECTIVITY. PROVIDE CABLE QUANTITY AS IDENTIFIED ON PLAN DRAWING. TELECOMMUNICATION INSTALLATION AND MATERIALS SHALL CONFORM TO INFORMATION PROVIDED IN TELECOMMUNICATIONS DRAWING AND SPECIFICATIONS.		FLOOR MOUNTED FURNITURE FEED
— CT —	PROVIDE WIRE MESH BASKET TRAY AS PER SPECIFICATIONS. PROVIDE ALL HARDWARE PER MANUFACTURERS REQUIREMENTS. COORDINATE FINAL ROUTING WITH ALL OTHER TRADES TO AVOID INTERFERENCES. SEE PLAN DRAWINGS FOR CABLE TRAY SIZE.		BASKET TRAY
X / YY	SECTION/ELEVATION DETAIL. TOP NUMBER INDICATES DETAIL/BOTTOM NUMBER INDICATES DRAWING SHEET		

TELECOM SYSTEM (CABLING AND CONNECTIVITY) INSTALLATION MATRIX

DESCRIPTION	ELECTRICAL CONTRACTOR	TELECOM CONTRACTOR	GENERAL CONTRACTOR	OWNER
ROUGH-INS, CONDUITS, PULLSTRING AND POWER FOR SECURITY EQUIPMENT	FURNISH & INSTALL			
SWITCHES, SERVERS, COMPUTERS, PHONE SYSTEM AND WIRELESS EQUIPMENT				FURNISH & INSTALL
TELECOM CABLING AND CONNECTIVITY		FURNISH & INSTALL		
INCOMING PHONE, CABLE AND INTERNET SERVICE				FURNISH & INSTALL

TELELECOMMUNICATIONS GENERAL NOTES

1. ALL HORIZONTAL CABLING AND CONNECTIVITY SOLUTIONS SHALL BE CATEGORY 6 FOR DATA AND CATEGORY 6A FOR WIRELESS. FOR CERTIFICATION AND WARRANTY THE CABLING AND CONNECTIVITY SOLUTION SHALL BE AND END TO END SOLUTION. PROVIDE MATERIALS LISTED BELOW OR APPROVED EQUALS:

CONNECTIVITY
UNIPRISE
SYSTIMAX
PANDUIT-MINICOM

CABLE:
UNIPRISE
SYSTIMAX
PANDUIT

2. ALL NATIONAL (NEBC, NFPA), STATE AND LOCAL CODES SHALL BE STRICTLY ADHERED TO. WHERE MORE THAN ONE CODE APPLIES, THE MOST STRINGENT SHALL BE ADHERED TO. ALL CONDUIT SLEEVES AND PENETRATIONS THROUGH FIRE RATED PARTITIONS SHALL BE FIRESTOPPED.

3. ALL PENETRATIONS SHALL BE FIRE STOPPED WITH NFPA APPROVED INTUMESCENT MATERIAL. LARGE OPENINGS SHALL BE FIRE STOPPED WITH NFPA APPROVED CEMENTITIOUS MATERIAL.

4. ALL EIA/TIA STANDARDS FOR CABLES, PATHWAYS, SPACES, GROUNDING, AND BONDING WILL BE STRICTLY ADHERED TO:

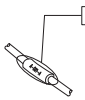
- TIA/EIA-568A COMMERCIAL BUILDING TELECOMMUNICATIONS CABLE STANDARDS.
- TIA/EIA-569 COMMERCIAL BUILDING STANDARDS FOR TELECOMMUNICATIONS PATHWAYS AND SPACES.
- TIA/EIA 607 COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS.

5. CATEGORY 6 DROP LENGTHS SHALL NOT EXCEED 90 METERS (295 FT.) FROM PATCH PANEL TO FACEPLATE AND SHALL BE RUN IN A CONTINUOUS MANNER WITH NO SPLICES.

6. A MINIMUM 1" BEND RADIUS IS TO BE MAINTAINED IN ALL CATEGORY 5E CABLES AND PATHWAYS.

7. ALL CABLE PATHWAYS SHALL MAINTAIN THE FOLLOWING CLEARANCES FROM SOURCES OF EMI:

- FORTY SIX (46 IN.) FROM MOTORS AND TRANSFORMERS.
- ONE FOOT (1 FT.) FROM CONDUITS AND CABLES USED FOR ELECTRICAL POWER.
- THREE INCHES (3 IN.) FROM FLUORESCENT LIGHTING.



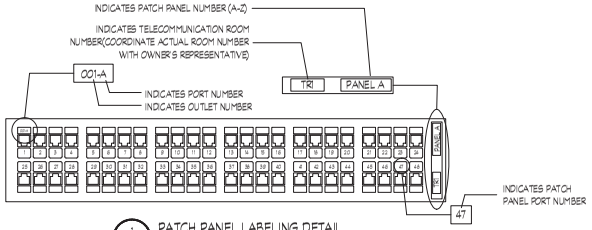
2 / T0.01 TELECOMMUNICATION CABLE LABELING DETAIL
SCALE: NTS

GENERAL NOTES

1. THIS CONTRACTOR SHALL PROVIDE ALL TYPE WRITTEN LABELS TO MEET EIA/TIA-606 LABELING ADMINISTRATIVE STANDARDS.

2. LABEL CABLING AT BOTH ENDS.

3. ACTUAL LABELING SHALL BE OWNER'S IT REPRESENTATIVE STANDARD LABELING REQUIREMENTS. COORDINATE LABELING STANDARDS WITH OWNER'S IT REPRESENTATIVE.



1 / T0.01 PATCH PANEL LABELING DETAIL
SCALE: NTS

GENERAL NOTES

1. THIS CONTRACTOR SHALL PROVIDE ALL TYPE WRITTEN LABELS TO MEET EIA/TIA-606 LABELING ADMINISTRATIVE STANDARDS

2. REFER TO RACK ELEVATIONS AND SPECIFICATIONS FOR PATCH PANEL SIZE, TYPE, MANUFACTURER AND ADDITIONAL REQUIREMENTS.

3. ACTUAL LABELING SHALL BE OWNER'S IT REPRESENTATIVE STANDARD LABELING REQUIREMENTS. COORDINATE LABELING STANDARDS WITH OWNER'S IT REPRESENTATIVE.

TELELECOMMUNICATIONS GENERAL NOTES (CONTINUED)

8. ALL PATCH PANELS, TERMINATIONS SHELVES AND LIU ENCLOSURES WILL BE LABELED WITH THEIR IDENTIFIER.

9. ALL FACEPLATES WILL BE LABELED WITH THEIR IDENTIFIER WITH PREPRINTED LABELS.

10. CABLES WILL BE LABELED WITH THEIR IDENTIFIER WITH PREPRINTED LABELS.

11. STANDARD TRADE MEANS AND METHODS SHALL BE USED AND THE INSTALLATION WILL BE ACCOMPLISHED IN A NEAT AND PROFESSIONAL MANNER.

12. THE INSTALLATION OF COMPONENTS, ETC. WILL CONFORM TO THE MANUFACTURERS RECOMMENDED METHOD OF INSTALLATION.

13. CATEGORY 6 CABLE SHALL NOT BE PULLED IN EXCESS OF 25LBS. OF FORCE.

14. MAKE ALL BONDING CONNECTIONS WITH LISTED BOLTS; CRIMP PRESSURE CONNECTORS, CLAMPS OR LUGS. EXOTHERMIC WELDING MAY BE USED. CONDUCTORS SHOULD BE WITHOUT SPLICES. BONDING CONDUCTORS SHALL BE ROUTED WITH A MINIMUM NUMBER OF BENDS. THE BENDS PLACED IN THE CONDUCTOR SHOULD BE SWEEPING.

15. MAINTAIN A MINIMUM OF UNTWIST AND SHEATH REMOVAL ON ALL CATEGORY 5E CABLES. A MAXIMUM OF 1/2" OF UNTWIST IS ALLOWED BY THE STANDARDS.

16. SUPPORT CAT 6CABLES W/ APPROPRIATELY SIZED J-HOOKS. LOCATE THEM ON 48" CENTERS, MIN. SUPPORT NO MORE THAN 50 CABLES EACH.

17. VERIFY FACEPLATE AND JACK COLORS WITH OWNER PRIOR TO PURCHASE.

18. ALL CABLING SHALL BE PLENUM RATED.

19. DO NOT ATTACH CABLING TO SUSPENDED CEILING SYSTEM IN ANY MANNER.

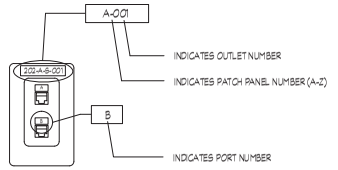
20. VERIFY PIN/PAIR CONFIGURATION FOR VOICE OUTLET W/ EQUIPMENT MANUFACTURER AND ENGINEER.

21. COORDINATE FINAL LABELING SCHEME FOR ALL TELECOMMUNICATION DEVICES WITH OWNERS REPRESENTATIVE.

22. TELECOMMUNICATIONS CONTRACTOR SHALL BE CERTIFIED IN CABLING SYSTEM SPECIFIED AND SHALL PROVIDE OWNER'S REPRESENTATIVE WITH COMPLETE TEST RESULTS AND 20 YEAR CABLE WARRANTY.

23. CABLING SHALL BE INSTALLED IN J-HOOKS UTILIZING AVENUE AND STREET LAYOUTS AND SHALL BE PRIMARILY ROUTED OVER CORRIDOR AREAS. DIRECT (DIAGONAL RUNS) ARE NOT ACCEPTABLE.

24. CONTRACTOR SHALL LIST THE CABLING SOLUTION (MANUFACTURER OF CABLING AND CONNECTIVITY) THAT THEY ARE USING ON THE PROJECT UNDER THE BID SHEET.



3 / T0.01 TELECOMMUNICATION OUTLET LABELING DETAIL
SCALE: NTS

GENERAL NOTES

1. THIS CONTRACTOR SHALL PROVIDE ALL TYPE WRITTEN LABELS TO MEET EIA/TIA-606 LABELING ADMINISTRATIVE STANDARDS.

2. ACTUAL LABELING SHALL BE OWNER'S IT REPRESENTATIVE STANDARD LABELING REQUIREMENTS. COORDINATE LABELING STANDARDS WITH OWNER'S IT REPRESENTATIVE.

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2	100% CONSTRUCTION DOCUMENTS	01/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEETNAME:
TELECOM DATA SHEET

SHEET NO:
T0.01

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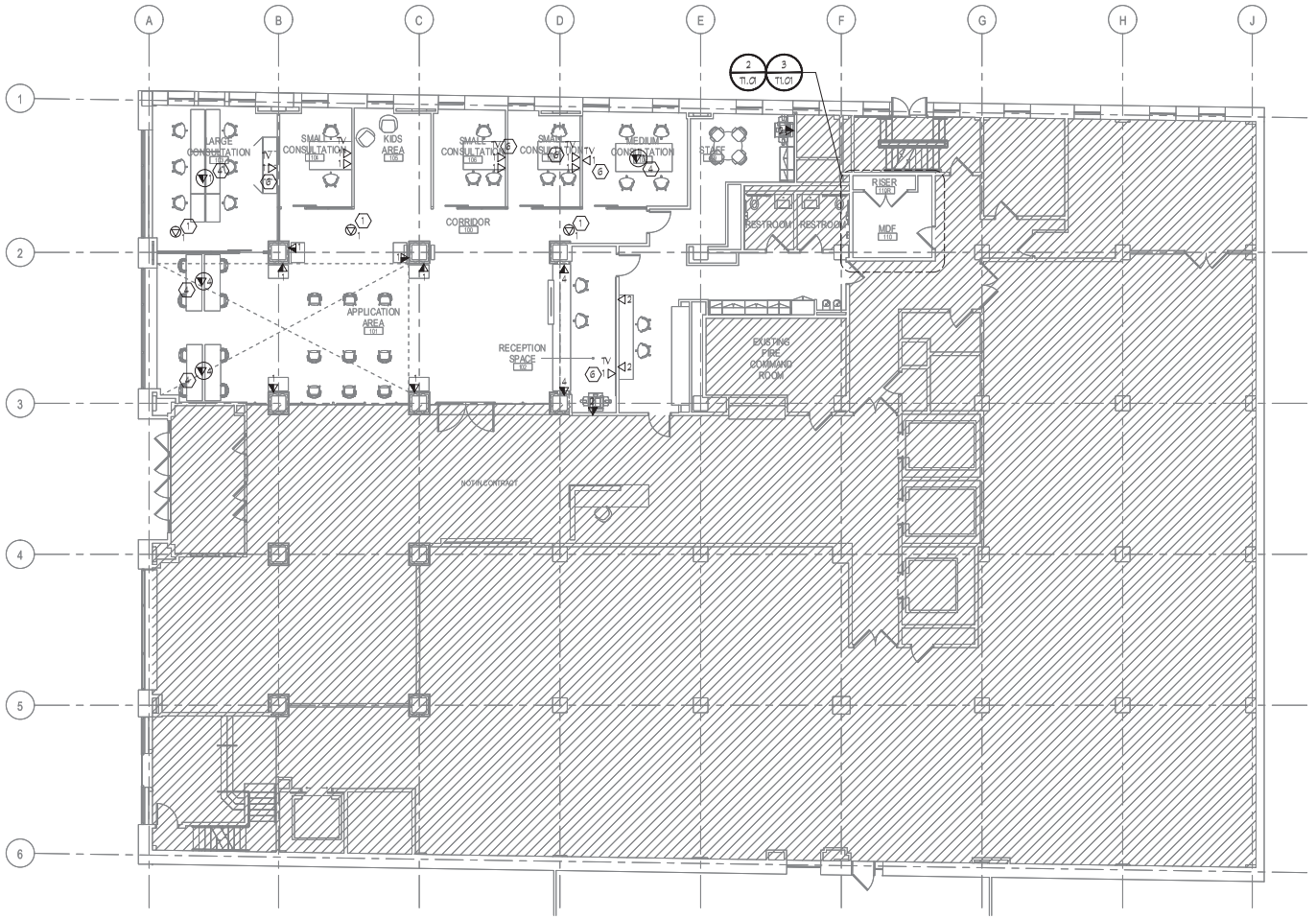
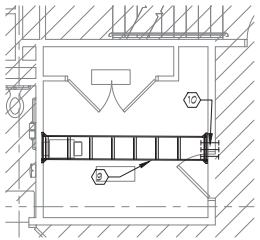
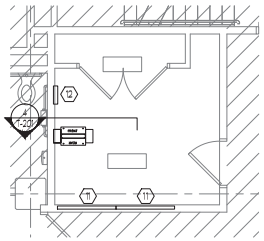


1 T1.01 TELECOM PLAN - LEVEL 1
1/8" = 1'-0"



2 T1.01 MDF ROOM 122 - RUNWAY PLAN
1/8" = 1'-0"



3 T1.01 MDF ROOM 122 - EQUIPMENT PLAN
1/8" = 1'-0"

GENERAL NOTES

1. SEE DRAWING SPECIFICATIONS FOR ADDITIONAL INFORMATION.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HACP DEPARTMENT STANDARDS AND REQUIREMENTS.

3. ALL CABLING IN OPEN CEILINGS SHALL BE COLOR PER SPECIFICATIONS AND SHALL BE INSTALLED IN EITHER CABLE TRAY OR J-HOOKS AS TIGHT TO BEAM/STRUCTURAL STEEL AS POSSIBLE TO CONCEAL CABLING UNTIL IT GETS BACK TO BASKET TRAY.

4. ALL BASKET TRAY, J-HOOKS, ALL THREAD, BEAM CLAMPS, ETC. IN OPEN CEILING AREAS SHALL BE PAINTED COLOR WHITE TO MATCH COLOR OPEN CEILING AREA IS BEING PAINTED. COORDINATE ADDITIONAL REQUIREMENTS WITH ARCHITECT.

5. INSTALL ALL WIRE BASKET TRAY AS TIGHT TO BEAM/STRUCTURAL STEEL AS POSSIBLE OR HEIGHT PER ARCHITECT UNLESS NOTED OTHERWISE. COORDINATE FINAL LOCATION OF WIRE MESH BASKET TRAY WITH LIGHT FIXTURES, DUCTWORK AND SPRINKLER LINES.

CODED NOTES: (4)

1. PROVIDE 25' CABLE COIL WITH RJ45 8 POSITION MODULAR JACK TERMINATED ON END OF EACH CABLE.

2. COMMUNICATIONS FURNITURE FEED (FLOOR FEED) PROVIDED BY ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL PULL TELECOMMUNICATIONS CABLING THROUGH FURNITURE VIA CONDUIT BELOW TO BASKET TRAY ABOVE ACCESSIBLE CEILING ON THIS FLOOR. COORDINATE FINAL CONNECTION AND PULLING THROUGH FURNITURE WITH FURNITURE VENDOR.

3. COMMUNICATIONS FURNITURE FEED (WALL FEED) PROVIDED BY ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL PULL TELECOMMUNICATIONS CABLING THROUGH FURNITURE VIA CONDUIT TO BASKET TRAY ABOVE ACCESSIBLE CEILING ON THIS FLOOR. COORDINATE FINAL CONNECTION AND PULLING THROUGH FURNITURE WITH FURNITURE VENDOR.

4. POKE THRU AND ASSOCIATED CONDUIT PROVIDED BY ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL PULL TELECOMMUNICATIONS CABLING THRU CONDUIT TO POKE THRU AND TERMINATE ON 8 PIN MODULAR JACKS. JACKS AND FACEPLATE SHALL BE PROVIDE BY THIS CONTRACTOR. COORDINATE POKE THRU TYPE WITH ELECTRICAL CONTRACTOR.

5. TELECOMMUNICATIONS OUTLET TO BE MOUNTED ON WORKSTATION FURNITURE. COORDINATE FINAL LOCATION OF OUTLET AND ROUTING OF WIRING THROUGH FURNITURE WITH FURNITURE CONTRACTOR.

6. TELEVISION CABLING SHALL BE ROUTED TO OUTLETS IN TELEVISION ROUGH-IN. SEE POWER DRAWING FOR OUTLET BOX INFORMATION. PROVIDE DATA CABLING AS INDICATED.

7. PROVIDE 12" WIDE X 2" DEEP WIRE MESH MESH BASKET TRAY AND ALL ASSOCIATED SUPPORTS AS REQUIRED BY MANUFACTURER. COLOR SHALL BE WHITE. COORDINATE FINAL COLOR WITH ARCHITECT PRIOR TO INSTALLATION. COORDINATE FINAL ROUTING WITH DUCTWORK, SPRINKLER LINES AND LIGHTING PRIOR TO INSTALLATION.

8. PROVIDE 6" WIDE X 2" DEEP WIRE MESH MESH BASKET TRAY AND ALL ASSOCIATED SUPPORTS AS REQUIRED BY MANUFACTURER. COLOR SHALL BE WHITE. COORDINATE FINAL COLOR WITH ARCHITECT PRIOR TO INSTALLATION. COORDINATE FINAL ROUTING WITH DUCTWORK, SPRINKLER LINES AND LIGHTING PRIOR TO INSTALLATION.

9. PROVIDE 18" CABLE RUNWAY AS SHOWN AND ASSOCIATED MOUNTING HARDWARE. MOUNT RUNWAY ON TOP OF 2 POST RACK. PROVIDE COMPONENTS REQUIRED FOR A COMPLETE SYSTEM AS FOLLOWS:

WALL SUPPORT
CEILING SUPPORT KIT
RADIUS DROP KITS

PROVIDE RADIUS DROP KIT OVER EACH VERTICAL WIRE MANAGER.

10. PROVIDE (3) 4" CONDUITS FOR ROUTING HORIZONTAL CABLING. INSTALL AT HEIGHT SO CONDUIT SITS DIRECTLY ON EDGE OF WIRE MESH BASKET TRAY. ROUTE HORIZONTAL AND BACKBONE CABLING THROUGH AND FIRESTOP AS REQUIRED.

11. PLYWOOD PROVIDED BY ELECTRICAL CONTRACTOR.

12. TELECOMMUNICATIONS GROUND BAR PROVIDED BY ELECTRICAL CONTRACTOR.

13. EXISTING (2) 4" SLEEVES DOWN TO FLOOR BELOW. ALL HORIZONTAL BACKBONE SHALL BE RAN THROUGH SLEEVES IN STACKED VERTICAL CLOSETS TO TELECOM PATCH PANEL ON THIS FLOOR UNLESS NOTED OTHERWISE. FIRE STOP SLEEVES AS REQUIRED.

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hacp.org

HACP - Housing Authority of the City of Pittsburgh
412 Boulevard of the Allies, Pittsburgh, PA 15219

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4	100% CONSTRUCTION DOCUMENTS REVISION 2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION 1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEET NAME:
TELECOM PLAN - LEVEL1

SHEET NO:
T1.01

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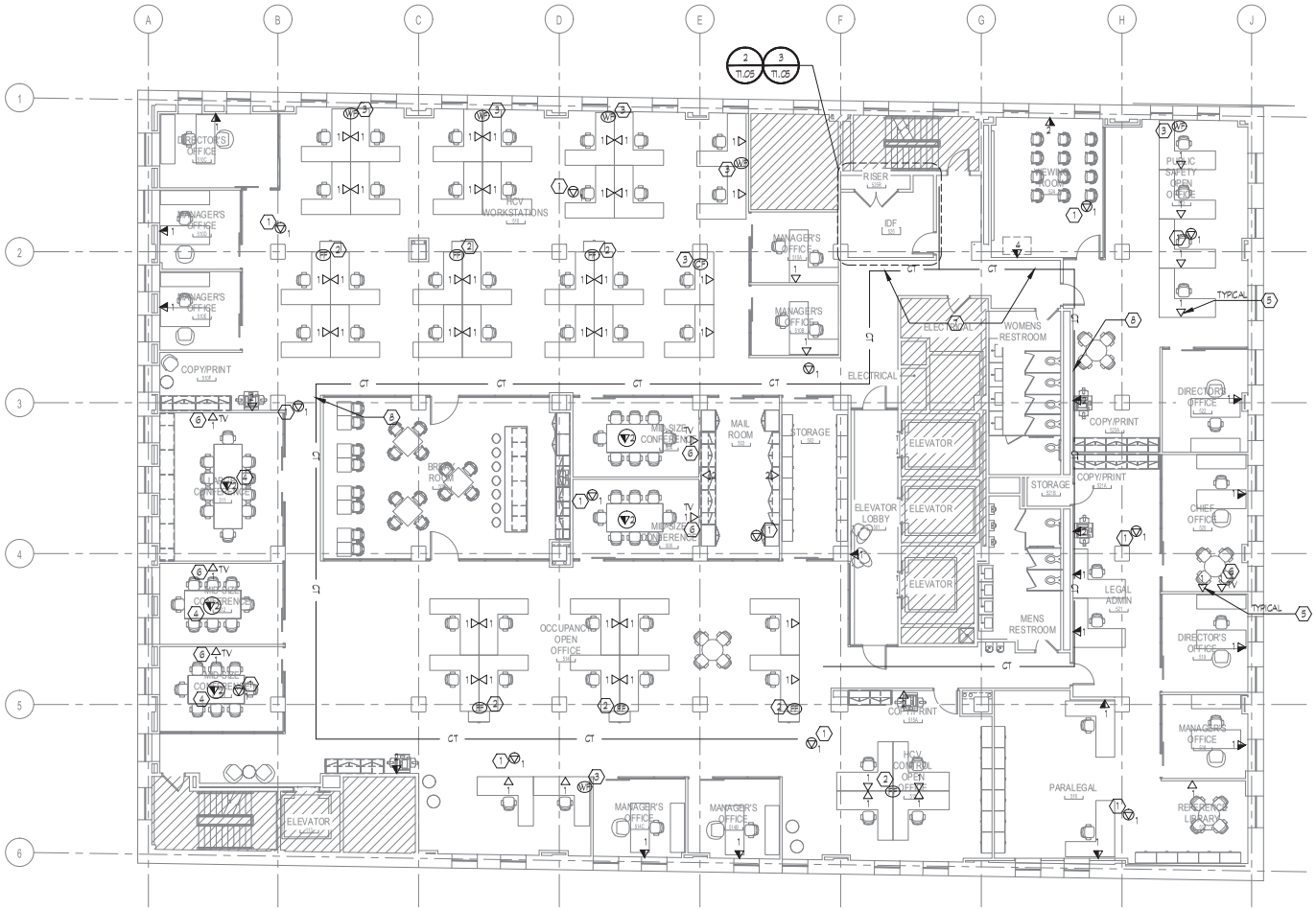
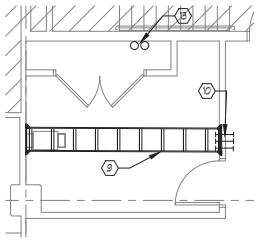
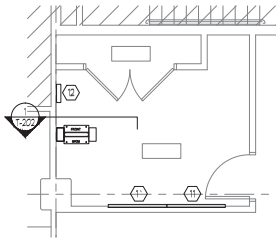


1 T1.05 — TELECOM PLAN - LEVEL 5
1/8" = 1'-0"



2 T1.05 — IDF ROOM 520 - RUNWAY PLAN
1/8" = 1'-0"



3 T1.05 — IDF ROOM 520 - EQUIPMENT PLAN
1/8" = 1'-0"

GENERAL NOTES

1. SEE DRAWING SPECIFICATIONS FOR ADDITIONAL INFORMATION.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HACP DEPARTMENT STANDARDS AND REQUIREMENTS.

3. ALL CABLING IN OPEN CEILINGS SHALL BE COLOR PER SPECIFICATIONS AND SHALL BE INSTALLED IN EITHER CABLE TRAY OR J-HOOKS AS TIGHT TO BEAM/STRUCTURAL STEEL AS POSSIBLE TO CONCEAL CABLING UNTIL IT GETS BACK TO BASKET TRAY.

4. ALL BASKET TRAY, J-HOOKS, ALL THREAD, BEAM CLAMPS, ETC. IN OPEN CEILING AREAS SHALL BE PAINTED COLOR WHITE TO MATCH COLOR OPEN CEILING AREA IS BEING PAINTED. COORDINATE ADDITIONAL REQUIREMENTS WITH ARCHITECT.

5. INSTALL ALL WIRE BASKET TRAY AS TIGHT TO BEAM/STRUCTURAL STEEL AS POSSIBLE OR HEIGHT PER ARCHITECT UNLESS NOTED OTHERWISE. COORDINATE FINAL LOCATION OF WIRE MESH BASKET TRAY WITH LIGHT FIXTURES, DUCTWORK AND SPRINKLER LINES.

CODED NOTES: (R)

1. PROVIDE 25 CABLE COIL WITH RJ45 8 POSITION MODULAR JACK TERMINATED ON END OF EACH CABLE.

2. COMMUNICATIONS FURNITURE FEED (FLOOR FEED) PROVIDED BY ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL PULL TELECOMMUNICATIONS CABLING THROUGH FURNITURE VIA CONDUIT BELOW TO BASKET TRAY ABOVE ACCESSIBLE CEILING ON THIS FLOOR. COORDINATE FINAL CONNECTION AND PULLING THROUGH FURNITURE WITH FURNITURE VENDOR.

3. COMMUNICATIONS FURNITURE FEED (WALL FEED) PROVIDED BY ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL PULL TELECOMMUNICATIONS CABLING THROUGH FURNITURE VIA CONDUIT TO BASKET TRAY ABOVE ACCESSIBLE CEILING ON THIS FLOOR. COORDINATE FINAL CONNECTION AND PULLING THROUGH FURNITURE WITH FURNITURE VENDOR.

4. POKE THRU AND ASSOCIATED CONDUIT PROVIDED BY ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL PULL TELECOMMUNICATIONS CABLING THRU CONDUIT TO POKE THRU AND TERMINATE ON 8 PIN MODULAR JACKS. JACKS AND FACEPLATE SHALL BE PROVIDE BY THIS CONTRACTOR. COORDINATE POKE THRU TYPE WITH ELECTRICAL CONTRACTOR.

5. TELECOMMUNICATIONS OUTLET TO BE MOUNTED ON WORKSTATION FURNITURE. COORDINATE FINAL LOCATION OF OUTLET AND ROUTING OF WIRING THROUGH FURNITURE WITH FURNITURE CONTRACTOR

6. TELEVISION CABLING SHALL BE ROUTED TO OUTLETS IN TELEVISION ROUGH-IN. SEE POWER DRAWING FOR OUTLET BOX INFORMATION. PROVIDE DATA CABLING AS INDICATED.

7. PROVIDE 12" WIDE X 2" DEEP WIRE MESH MESH BASKET TRAY AND ALL ASSOCIATED SUPPORTS AS REQUIRED BY MANUFACTURER. COLOR SHALL BE WHITE. COORDINATE FINAL COLOR WITH ARCHITECT PRIOR TO INSTALLATION. COORDINATE FINAL ROUTING WITH DUCTWORK, SPRINKLER LINES AND LIGHTING PRIOR TO INSTALLATION.

8. PROVIDE 6" WIDE X 2" DEEP WIRE MESH MESH BASKET TRAY AND ALL ASSOCIATED SUPPORTS AS REQUIRED BY MANUFACTURER. COLOR SHALL BE WHITE. COORDINATE FINAL COLOR WITH ARCHITECT PRIOR TO INSTALLATION. COORDINATE FINAL ROUTING WITH DUCTWORK, SPRINKLER LINES AND LIGHTING PRIOR TO INSTALLATION.

9. PROVIDE 18" CABLE RUNWAY AS SHOWN AND ASSOCIATED MOUNTING HARDWARE. MOUNT RUNWAY ON TOP OF 2 POST RACK. PROVIDE COMPONENTS REQUIRED FOR A COMPLETE SYSTEM AS FOLLOWS:

WALL SUPPORT
CEILING SUPPORT KIT
RADIUS DROP KITS

PROVIDE RADIUS DROP KIT OVER EACH VERTICAL WIRE MANAGER.

10. PROVIDE (3) 4" CONDUITS FOR ROUTING HORIZONTAL CABLING. INSTALL AT HEIGHT SO CONDUIT SITS DIRECTLY ON EDGE OF WIRE MESH BASKET TRAY. ROUTE HORIZONTAL AND BACKBONE CABLING THROUGH AND FIRESTOP AS REQUIRED.

11. PLYWOOD PROVIDED BY ELECTRICAL CONTRACTOR.

12. TELECOMMUNICATIONS GROUND BAR PROVIDED BY ELECTRICAL CONTRACTOR.

13. EXISTING (2) 4" SLEEVES DOWN TO FLOOR BELOW. ALL HORIZONTAL BACKBONE SHALL BE RAN THROUGH SLEEVES IN STACKED VERTICAL CLOSETS TO TELECOM PATCH PANEL ON THIS FLOOR UNLESS NOTED OTHERWISE. FIRE STOP SLEEVES AS REQUIRED.

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2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEET NAME:
TELECOM PLAN - LEVEL 5

SHEET NO:
T1.05

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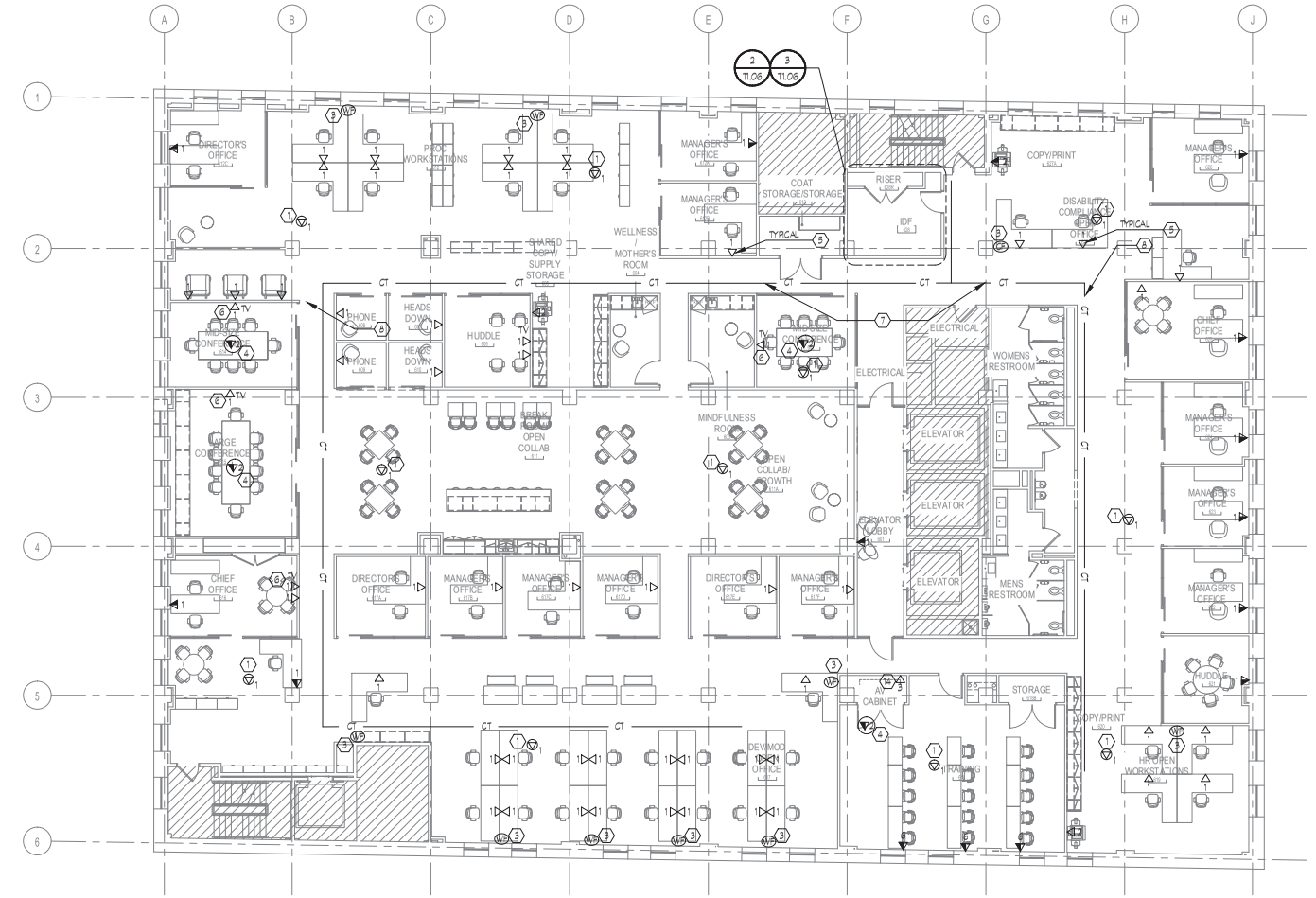
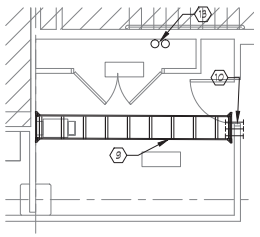
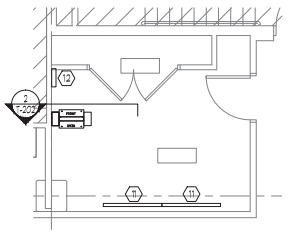


1 T1.06 TELECOM PLAN - LEVEL 6
1/8" = 1'-0"



2 T1.06 IDF ROOM 628 - RUNWAY PLAN
1/8" = 1'-0"



3 T1.06 IDF ROOM 628 - EQUIPMENT PLAN
1/8" = 1'-0"

GENERAL NOTES

1. SEE DRAWING SPECIFICATIONS FOR ADDITIONAL INFORMATION.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HACP DEPARTMENT STANDARDS AND REQUIREMENTS.

3. ALL CABLING IN OPEN CEILINGS SHALL BE COLOR PER SPECIFICATIONS AND SHALL BE INSTALLED IN EITHER CABLE TRAY OR J-HOOKS AS TIGHT TO BEAM/STRUCTURAL STEEL AS POSSIBLE TO CONCEAL CABLING UNTIL IT GETS BACK TO BASKET TRAY.

4. ALL BASKET TRAY, J-HOOKS, ALL THREAD, BEAM CLAMPS, ETC. IN OPEN CEILING AREAS SHALL BE PAINTED COLOR WHITE TO MATCH COLOR OPEN CEILING AREA IS BEING PAINTED. COORDINATE ADDITIONAL REQUIREMENTS WITH ARCHITECT.

5. INSTALL ALL WIRE BASKET TRAY AS TIGHT TO BEAM/STRUCTURAL STEEL AS POSSIBLE OR HEIGHT PER ARCHITECT UNLESS NOTED OTHERWISE. COORDINATE FINAL LOCATION OF WIRE MESH BASKET TRAY WITH LIGHT FIXTURES, DUCTWORK AND SPRINKLER LINES.

CODED NOTES: (8)

1. PROVIDE 25' CABLE COIL WITH RJ45 8 POSITION MODULAR JACK TERMINATED ON END OF EACH CABLE.

2. COMMUNICATIONS FURNITURE FEED (FLOOR FEED) PROVIDED BY ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL PULL TELECOMMUNICATIONS CABLING THROUGH FURNITURE VIA CONDUIT BELOW TO BASKET TRAY ABOVE ACCESSIBLE CEILING ON THIS FLOOR. COORDINATE FINAL CONNECTION AND PULLING THROUGH FURNITURE WITH FURNITURE VENDOR.

3. COMMUNICATIONS FURNITURE FEED (WALL FEED) PROVIDED BY ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL PULL TELECOMMUNICATIONS CABLING THROUGH FURNITURE VIA CONDUIT TO BASKET TRAY ABOVE ACCESSIBLE CEILING ON THIS FLOOR. COORDINATE FINAL CONNECTION AND PULLING THROUGH FURNITURE WITH FURNITURE VENDOR.

4. POKE THRU AND ASSOCIATED CONDUIT PROVIDED BY ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL PULL TELECOMMUNICATIONS CABLING THRU CONDUIT TO POKE THRU AND TERMINATE ON 8 PIN MODULAR JACKS. JACKS AND FACEPLATE SHALL BE PROVIDE BY THIS CONTRACTOR. COORDINATE POKE THRU TYPE WITH ELECTRICAL CONTRACTOR.

5. TELECOMMUNICATIONS OUTLET TO BE MOUNTED ON WORKSTATION FURNITURE. COORDINATE FINAL LOCATION OF OUTLET AND ROUTING OF WIRING THROUGH FURNITURE WITH FURNITURE CONTRACTOR.

6. TELEVISION CABLING SHALL BE ROUTED TO OUTLETS IN TELEVISION ROUGH-IN. SEE POWER DRAWING FOR OUTLET BOX INFORMATION. PROVIDE DATA CABLING AS INDICATED.

7. PROVIDE 12' WIDE X 2' DEEP WIRE MESH MESH BASKET TRAY AND ALL ASSOCIATED SUPPORTS AS REQUIRED BY MANUFACTURER. COLOR SHALL BE WHITE. COORDINATE FINAL COLOR WITH ARCHITECT PRIOR TO INSTALLATION. COORDINATE FINAL ROUTING WITH DUCTWORK, SPRINKLER LINES AND LIGHTING PRIOR TO INSTALLATION.

8. PROVIDE 6' WIDE X 2' DEEP WIRE MESH MESH BASKET TRAY AND ALL ASSOCIATED SUPPORTS AS REQUIRED BY MANUFACTURER. COLOR SHALL BE WHITE. COORDINATE FINAL COLOR WITH ARCHITECT PRIOR TO INSTALLATION. COORDINATE FINAL ROUTING WITH DUCTWORK, SPRINKLER LINES AND LIGHTING PRIOR TO INSTALLATION.

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CEILING SUPPORT KIT
RADIUS DROP KITS

PROVIDE RADIUS DROP KIT OVER EACH VERTICAL WIRE MANAGER.

10. PROVIDE (3) 4" CONDUITS FOR ROUTING HORIZONTAL CABLING. INSTALL AT HEIGHT SO CONDUIT SITS DIRECTLY ON EDGE OF WIRE MESH BASKET TRAY. ROUTE HORIZONTAL AND BACKBONE CABLING THROUGH AND FIRESTOP AS REQUIRED.

11. PLYWOOD PROVIDED BY ELECTRICAL CONTRACTOR.

12. TELECOMMUNICATIONS GROUND BAR PROVIDED BY ELECTRICAL CONTRACTOR.

13. EXISTING (2) 4" SLEEVES DOWN TO FLOOR BELOW. ALL HORIZONTAL BACKBONE SHALL BE RAN THROUGH SLEEVES IN STACKED VERTICAL CLOSETS TO TELECOM PATCH PANEL ON THIS FLOOR UNLESS NOTED OTHERWISE. FIRE STOP SLEEVES AS REQUIRED.

14. DATA CABLING FOR A/V EQUIPMENT FOR TRAINING ROOM. COORDINATE WITH A/V CONTRACTOR.

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2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEET NAME:
TELECOM PLAN - LEVEL 6

SHEET NO:
T1.06

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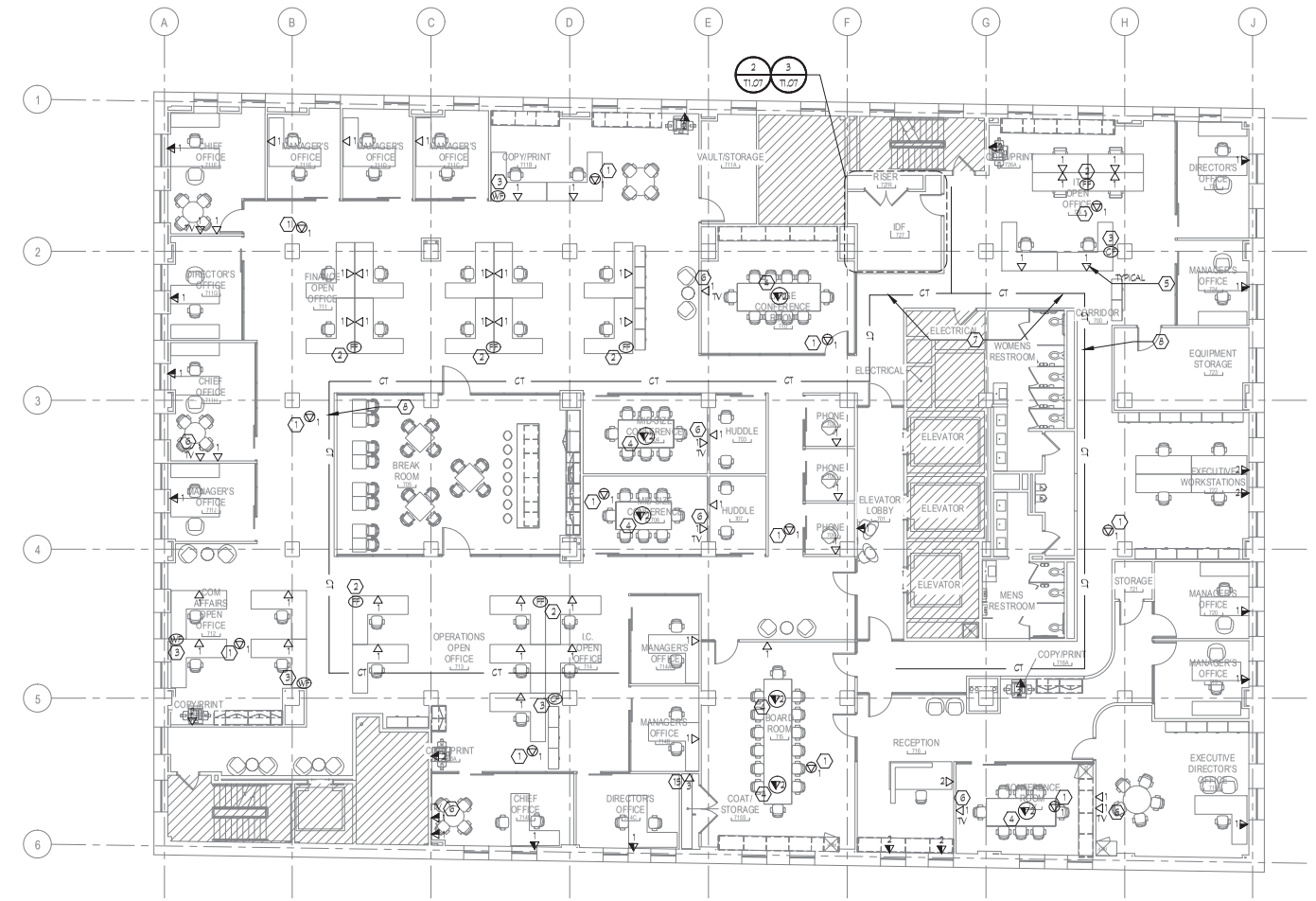
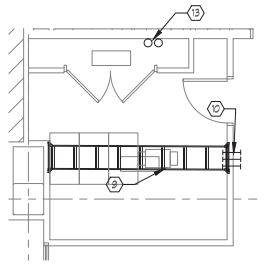
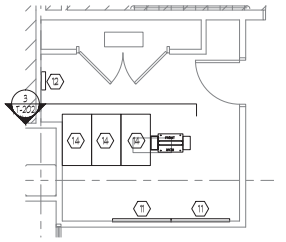


1 T1.07 TELECOM PLAN - LEVEL 7
1/8" = 1'-0"



2 T1.07 IDF ROOM 727 - RUNWAY PLAN
1/8" = 1'-0"



3 T1.07 IDF ROOM 727 - EQUIPMENT PLAN
1/8" = 1'-0"

GENERAL NOTES

1. SEE DRAWING SPECIFICATIONS FOR ADDITIONAL INFORMATION.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HACP DEPARTMENT STANDARDS AND REQUIREMENTS.

3. ALL CABLING IN OPEN CEILINGS SHALL BE COLOR PER SPECIFICATIONS AND SHALL BE INSTALLED IN EITHER CABLE TRAY OR J-HOOKS AS TIGHT TO BEAM/STRUCTURAL STEEL AS POSSIBLE TO CONCEAL CABLING UNTIL IT GETS BACK TO BASKET TRAY.

4. ALL BASKET TRAY, J-HOOKS, ALL THREAD, BEAM CLAMPS, ETC. IN OPEN CEILING AREAS SHALL BE PAINTED COLOR WHITE TO MATCH COLOR OPEN CEILING AREA IS BEING PAINTED. COORDINATE ADDITIONAL REQUIREMENTS WITH ARCHITECT.

5. INSTALL ALL WIRE BASKET TRAY AS TIGHT TO BEAM/STRUCTURAL STEEL AS POSSIBLE OR HEIGHT PER ARCHITECT UNLESS NOTED OTHERWISE. COORDINATE FINAL LOCATION OF WIRE MESH BASKET TRAY WITH LIGHT FIXTURES, DUCTWORK AND SPRINKLER LINES.

CODED NOTES: (4)

1. PROVIDE 25' CABLE COIL WITH RJ45 8 POSITION MODULAR JACK TERMINATED ON END OF EACH CABLE.

2. COMMUNICATIONS FURNITURE FEED (FLOOR FEED) PROVIDED BY ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL PULL TELECOMMUNICATIONS CABLING THROUGH FURNITURE VIA CONDUIT BELOW TO BASKET TRAY ABOVE ACCESSIBLE CEILING ON THIS FLOOR. COORDINATE FINAL CONNECTION AND PULLING THROUGH FURNITURE WITH FURNITURE VENDOR.

3. COMMUNICATIONS FURNITURE FEED (WALL FEED) PROVIDED BY ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL PULL TELECOMMUNICATIONS CABLING THROUGH FURNITURE VIA CONDUIT TO BASKET TRAY ABOVE ACCESSIBLE CEILING ON THIS FLOOR. COORDINATE FINAL CONNECTION AND PULLING THROUGH FURNITURE WITH FURNITURE VENDOR.

4. POKE THRU AND ASSOCIATED CONDUIT PROVIDED BY ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL PULL TELECOMMUNICATIONS CABLING THRU CONDUIT TO POKE THRU AND TERMINATE ON 8 PIN MODULAR JACKS. JACKS AND FACEPLATE SHALL BE PROVIDE BY THIS CONTRACTOR. COORDINATE POKE THRU TYPE WITH ELECTRICAL CONTRACTOR.

5. TELECOMMUNICATIONS OUTLET TO BE MOUNTED ON WORKSTATION FURNITURE. COORDINATE FINAL LOCATION OF OUTLET AND ROUTING OF WIRING THROUGH FURNITURE WITH FURNITURE CONTRACTOR.

6. TELEVISION CABLING SHALL BE ROUTED TO OUTLETS IN TELEVISION ROUGH-IN. SEE POWER DRAWING FOR OUTLET BOX INFORMATION. PROVIDE DATA CABLING AS INDICATED.

7. PROVIDE 12" WIDE X 2" DEEP WIRE MESH MESH BASKET TRAY AND ALL ASSOCIATED SUPPORTS AS REQUIRED BY MANUFACTURER. COLOR SHALL BE WHITE. COORDINATE FINAL COLOR WITH ARCHITECT PRIOR TO INSTALLATION. COORDINATE FINAL ROUTING WITH DUCTWORK, SPRINKLER LINES AND LIGHTING PRIOR TO INSTALLATION.

8. PROVIDE 6" WIDE X 2" DEEP WIRE MESH MESH BASKET TRAY AND ALL ASSOCIATED SUPPORTS AS REQUIRED BY MANUFACTURER. COLOR SHALL BE WHITE. COORDINATE FINAL COLOR WITH ARCHITECT PRIOR TO INSTALLATION. COORDINATE FINAL ROUTING WITH DUCTWORK, SPRINKLER LINES AND LIGHTING PRIOR TO INSTALLATION.

9. PROVIDE 18" CABLE RUNWAY AS SHOWN AND ASSOCIATED MOUNTING HARDWARE. MOUNT RUNWAY ON TOP OF 2 POST RACK. PROVIDE COMPONENTS REQUIRED FOR A COMPLETE SYSTEM AS FOLLOWS:

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CEILING SUPPORT KIT
RADIUS DROP KITS

PROVIDE RADIUS DROP KIT OVER EACH VERTICAL WIRE MANAGER.

10. PROVIDE (3) 4" CONDUITS FOR ROUTING HORIZONTAL CABLING. INSTALL AT HEIGHT SO CONDUIT SITS DIRECTLY ON EDGE OF WIRE MESH BASKET TRAY. ROUTE HORIZONTAL AND BACKBONE CABLING THROUGH AND FIRESTOP AS REQUIRED.

11. PLYWOOD PROVIDED BY ELECTRICAL CONTRACTOR.

12. TELECOMMUNICATIONS GROUND BAR PROVIDED BY ELECTRICAL CONTRACTOR.

13. EXISTING (2) 4" SLEEVES DOWN TO FLOOR BELOW. ALL HORIZONTAL BACKBONE SHALL BE RAN THROUGH SLEEVES IN STACKED VERTICAL CLOSETS TO TELECOM PATCH PANEL ON THIS FLOOR UNLESS NOTED OTHERWISE. FIRE STOP SLEEVES AS REQUIRED.

14. CABINET FURNISHED AND INSTALLED BY HACP.

15. DATA CABLING FOR A/V EQUIPMENT FOR BOARDROOM. COORDINATE WITH A/V CONTRACTOR.

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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEET NAME:
TELECOM PLAN - LEVEL 7

SHEET NO:
T1.07

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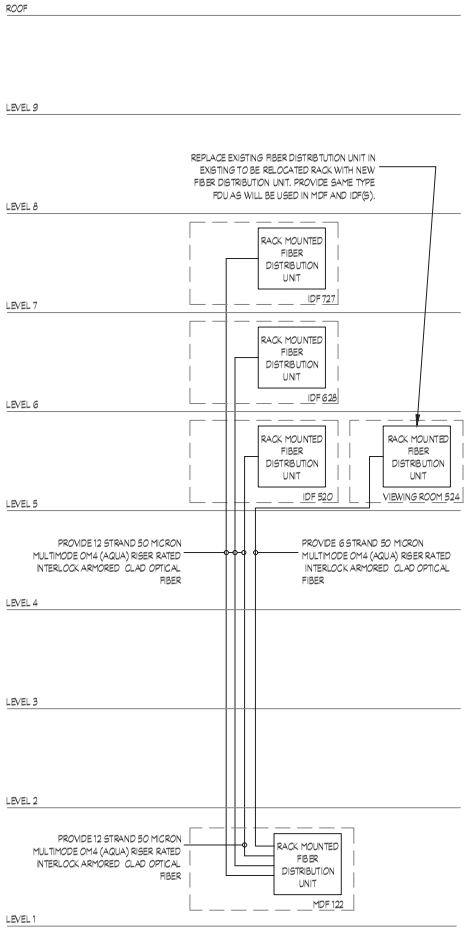
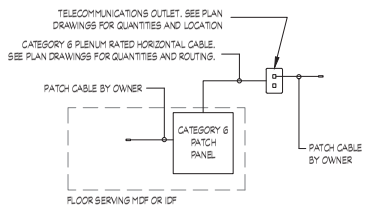


1 / T2.01 FIBER BACKBONE WIRING DIAGRAM
SCALE: NTS

1. SEE TELECOMMUNICATIONS SPECIFICATIONS FOR APPROVED MANUFACTURERS.



2 / T2.01 TYPICAL HORIZONTAL CABLING SYSTEM WIRING DIAGRAM
SCALE: NTS — DATA CABLING

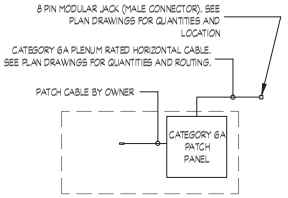
1. HORIZONTAL CABLING WIRING DIAGRAM IS FOR DIAGRAMMATIC PURPOSES 'ONLY'. SEE PLAN DRAWINGS FOR ACTUAL DEVICE LOCATIONS AND QUANTITIES.

2. DATA JACKS SHALL BE COLOR WHITE

3. DATA CABLE SHALL BE COLOR WHITE.

4. SEE TELECOM GENERAL NOTES ON DRAWING T0.01 FOR APPROVED MANUFACTURERS.

5. SEE TELECOMMUNICATIONS LEGEND ON DRAWING T0.01 FOR DESCRIPTION OF CABLE QUANTITY IDENTIFIER.



3 / T2.01 TYPICAL HORIZONTAL CABLING SYSTEM WIRING DIAGRAM
SCALE: NTS — WIRELESS CABLING

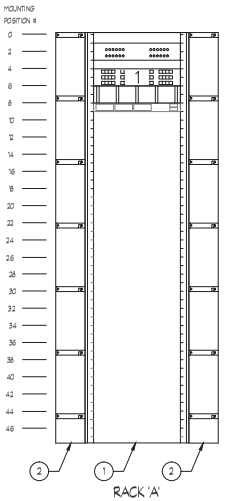
1. HORIZONTAL CABLING WIRING DIAGRAM IS FOR DIAGRAMMATIC PURPOSES 'ONLY'. SEE PLAN DRAWINGS FOR ACTUAL DEVICE LOCATIONS AND QUANTITIES.

2. WIRELESS JACKS SHALL BE COLOR WHITE.

3. WIRELESS CABLE SHALL BE COLOR WHITE.

4. SEE TELECOM GENERAL NOTES ON DRAWING T001 FOR APPROVED MANUFACTURERS.

5. SEE TELECOMMUNICATIONS LEGEND ON DRAWING T-001 FOR DESCRIPTION OF CABLE QUANTITY IDENTIFIER OF FIRST AND SECOND NUMBER.



4 / T2.01 MDF 122 - RACK ELEVATION
SCALE: 1/" = 1'-0"

RACK 'A' LINE-UP EQUIPMENT SCHEDULE - MDF 122

MTG. POSITION #	EQUIPMENT TYPE	EQUIPMENT DESCRIPTION	STATUS
1	UNIPRISE 780-210-740	FIBER DISTRIBUTION ENCLOSURE 2U HIGH) WITH LC ADAPTERS AND CONNECTORS	PROVIDE AND INSTALL PROVIDE ADAPTERS AS REQUIRED TO TERMINATE FIBER FROM LEVEL 5 LEVEL 6 AND LEVEL 7 IDF(S) SEE FIBER BACKBONE DIAGRAM THIS DRAWING T2.01 ADDITONAL REQUIREMENTS
4	REFER TO SPECIFICATIONS	48 PORT CATEGORY 6A PATCH PANEL (2U HIGH). PROVIDE BLUE JACKS FOR (DATA) AND GREEN JACKS FOR (WIRELESS DATA)	PROVIDE AND INSTALL WIRELESS IS CAT6A JACK AND DATA IS CAT6 JACKS
6	CHATSWORTH 30130-719	HORIZONTAL CABLE MANAGEMENT PANEL (2U HIGH)	PROVIDE AND INSTALL
8	-	48 PORT POE SWITCH BY OWNER	-
10 THRU 46	-	SPACE FOR FUTURE CABLING AND OWNER'S NETWORK EQUIPMENT	-

GENERAL NOTE:
MANUFACTURER AND MODEL NUMBERS ARE FOR DESCRIPTION PURPOSE ONLY. SEE TELECOMMUNICATIONS GENERAL NOTES ON DRAWING T002 FOR APPROVED MANUFACTURERS.

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH OWNER'S IT REPRESENTATIVES PROCEDURES.

GENERAL MATERIALS NOTES:

1. THE SYMBOL - (1) , ETC. ON THIS DRAWING ARE IN REFERENCE TO THE 'LIST OF MATERIALS' SCHEDULE ON THIS DRAWING. REFER TO SCHEDULE FOR MANUFACTURER, MODEL NUMBER AND ADDITIONAL REQUIREMENTS.

2. PROVIDE A #6 AWG INSULATED GROUND FROM TMGB TO EACH OF THE FOLLOWING: EQUIPMENT RACKS, CABINETS, CABLE RUNWAY. PROVIDE PANDUIT EQUIPMENT JUMPER KIT #RGEJ624PHY, PANDUIT ESD PORT KIT #RGESD2-1 AND PANDUIT COMMON BONDING NETWORK KIT #SRSBNJ66COPY OR APPROVED EQUAL. GROUND AND BOND AS PER EIA/TIA 606 'GROUNDING AND BONDING REQUIREMENTS.

LIST OF MATERIALS MDF 122

ITEM NO.	PART NO.	MANUF.	DESCRIPTION	REMARKS
1	55053-703	CHATSWORTH	7' HIGH X 19" WIDE FLOOR MOUNTED 2 POST RACK	
2	13912-703	CHATSWORTH	7' HIGH X 6" WIDE DOUBLE SIDED VERTICAL WIRE MANAGER	

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412 Boulevard of the Allies, Pittsburgh, PA 15219

#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION 3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION 2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION 1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEETNAME:
TELECOM RISERS, DETAILS AND ELEVATIONS

SHEET NO:
T2.01

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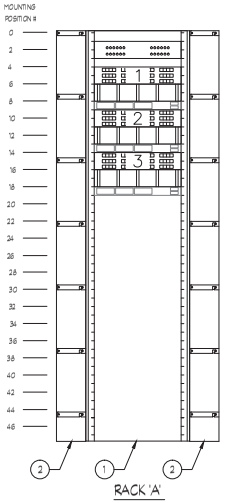
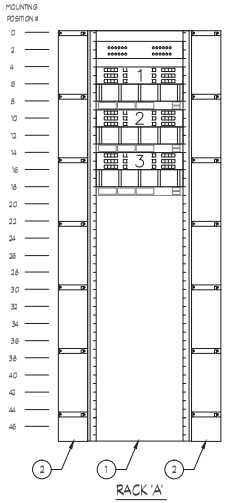
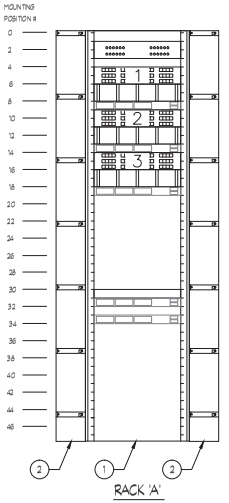


1 T2.02 IDF 520 - RACK ELEVATION
SCALE: 1" = 1'-0"



2 T2.02 IDF 628 - RACK ELEVATION
SCALE: 1" = 1'-0"



3 T2.02 IDF 727 - RACK ELEVATION
SCALE: 1" = 1'-0"

RACK 'A' LINE-UP EQUIPMENT SCHEDULE - IDF 520

MTG. POSITION #	EQUIPMENT TYPE	EQUIPMENT DESCRIPTION	STATUS
1	UNIPRISE 760-210-740	FIBER DISTRIBUTION ENCLOSURE 2U HIGH) WITH LC ADAPTERS AND CONNECTORS	PROVIDE AND INSTALL PROVIDE ADAPTERS AS REQUIRED TO TERMINATE FIBER FROM LEVEL 5 LEVEL 6 AND LEVEL 7 IDF(S) SEE FIBER BACKBON DIAGRAM ON DRAWING T2.01 FOR ADDITIONAL REQUIREMENTS
4, 9 & 14	REFER TO SPECIFICATIONS	48 PORT CATEGORY 6A PATCH PANEL (2U HIGH). PROVIDE BLUE JACKS FOR (DATA) AND GREEN JACKS FOR (WIRELESS DATA)	PROVIDE AND INSTALL WIRELESS IS CAT6A JACK AND DATA IS CAT6 JACKS
6, 11 & 16	CHATSWORTH 30130-719	HORIZONTAL CABLE MANAGEMENT PANEL (2U HIGH)	PROVIDE AND INSTALL
8, 13 & 18	-	48 PORT POE SWITCH BY OWNER	-
19 THRU 46	-	SPACE FOR FUTURE CABLING AND OWNER'S NETWORK EQUIPMENT	-

GENERAL NOTE:
MANUFACTURER AND MODEL NUMBERS ARE FOR DESCRIPTION PURPOSE ONLY. SEE TELECOMMUNICATIONS GENERAL NOTES ON DRAWING T0.02 FOR APPROVED MANUFACTURERS.

RACK 'A' LINE-UP EQUIPMENT SCHEDULE - IDF 628

MTG. POSITION #	EQUIPMENT TYPE	EQUIPMENT DESCRIPTION	STATUS
1	UNIPRISE 760-210-740	FIBER DISTRIBUTION ENCLOSURE 2U HIGH) WITH LC ADAPTERS AND CONNECTORS	PROVIDE AND INSTALL PROVIDE ADAPTERS AS REQUIRED TO TERMINATE FIBER FROM LEVEL 5 LEVEL 6 AND LEVEL 7 IDF(S) SEE FIBER BACKBON DIAGRAM ON DRAWING T2.01 FOR ADDITIONAL REQUIREMENTS
4, 9 & 14	REFER TO SPECIFICATIONS	48 PORT CATEGORY 6A PATCH PANEL (2U HIGH). PROVIDE BLUE JACKS FOR (DATA) AND GREEN JACKS FOR (WIRELESS DATA)	PROVIDE AND INSTALL WIRELESS IS CAT6A JACK AND DATA IS CAT6 JACKS
6, 11 & 16	CHATSWORTH 30130-719	HORIZONTAL CABLE MANAGEMENT PANEL (2U HIGH)	PROVIDE AND INSTALL
8, 13 & 18	-	48 PORT POE SWITCH BY OWNER	-
19 THRU 46	-	SPACE FOR FUTURE CABLING AND OWNER'S NETWORK EQUIPMENT	-

GENERAL NOTE:
MANUFACTURER AND MODEL NUMBERS ARE FOR DESCRIPTION PURPOSE ONLY. SEE TELECOMMUNICATIONS GENERAL NOTES ON DRAWING T0.02 FOR APPROVED MANUFACTURERS.

RACK 'A' LINE-UP EQUIPMENT SCHEDULE - IDF 727

MTG. POSITION #	EQUIPMENT TYPE	EQUIPMENT DESCRIPTION	STATUS
1	UNIPRISE 760-210-740	FIBER DISTRIBUTION ENCLOSURE 2U HIGH) WITH LC ADAPTERS AND CONNECTORS	PROVIDE AND INSTALL PROVIDE ADAPTERS AS REQUIRED TO TERMINATE FIBER FROM LEVEL 5 LEVEL 6 AND LEVEL 7 IDF(S) SEE FIBER BACKBON DIAGRAM ON DRAWING T2.01 FOR ADDITIONAL REQUIREMENTS
4, 9 & 14	REFER TO SPECIFICATIONS	48 PORT CATEGORY 6A PATCH PANEL (2U HIGH). PROVIDE BLUE JACKS FOR (DATA) AND GREEN JACKS FOR (WIRELESS DATA)	PROVIDE AND INSTALL WIRELESS IS CAT6A JACK AND DATA IS CAT6 JACKS
6, 11 & 16	CHATSWORTH 30130-719	HORIZONTAL CABLE MANAGEMENT PANEL (2U HIGH)	PROVIDE AND INSTALL
8, 13 & 18	-	48 PORT POE SWITCH BY OWNER	-
30	-	24 PORT CATEGORY6 PATCH FOR SECURITY CAMERAS	PROVIDED AND INSTALLED BY SECURITY CONTRACTOR
31	-	POE SWITCH FOR SECURITY CAMERAS	PROVIDED AND INSTALLED BY SECURITY CONTRACTOR
33	-	NETWORK VIDEO RECORDER FOR CAMERAS	PROVIDED AND INSTALLED BY SECURITY CONTRACTOR
35 THRU 46	-	SPACE FOR FUTURE CABLING AND OWNER'S NETWORK EQUIPMENT	-

GENERAL NOTE:
MANUFACTURER AND MODEL NUMBERS ARE FOR DESCRIPTION PURPOSE ONLY. SEE TELECOMMUNICATIONS GENERAL NOTES ON DRAWING T0.02 FOR APPROVED MANUFACTURERS.

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH OWNER'S IT REPRESENTATIVES PROCEDURES.

GENERAL MATERIALS NOTES:

1. THE SYMBOL -(1), ETC. ON THIS DRAWING ARE IN REFERENCE TO THE 'LIST OF MATERIALS' SCHEDULE ON THIS DRAWING. REFER TO SCHEDULE FOR MANUFACTURER, MODEL NUMBER AND ADDITIONAL REQUIREMENTS.

2. PROVIDE A #6 AWG INSULATED GROUND FROM TMGB TO EACH OF THE FOLLOWING: EQUIPMENT RACKS, CABINETS, CABLE RUNWAY. PROVIDE PANDUIT EQUIPMENT JUMPER KIT #RGEJ6J24PHY, PANDUIT ESD PORT KIT #RGESD2-1 AND PANDUIT COMMON BONDING NETWORK KIT #SRCBNJ66COPY OR APPROVED EQUAL. GROUND AND BOND AS PER EIA/TIA 608 'GROUNDING AND BONDING REQUIREMENTS.

LIST OF MATERIALS IDF 520, 628 & 727

ITEM NO.	PART NO.	MANUF.	DESCRIPTION	REMARKS
1	55053-703	CHATSWORTH	7' HIGH X 19" WIDE FLOOR MOUNTED 2 POST RACK	
2	13912-703	CHATSWORTH	7' HIGH X 6" WIDE DOUBLE SIDED VERTICAL WIRE MANAGER	

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hacp.org

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4	100% CONSTRUCTION DOCUMENTS REVISION 2	07/30/2020
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2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEET NAME:
TELECOM ELEVATIONS

SHEET NO:
T2.02

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AUDIO/VISUAL LEGEND

SYMBOL	DESCRIPTION	MOUNT	REMARKS
A1	A/V OUTLET IN WALL BOX. WALL BOX, CONDUIT AND PULLSTRING PROVIDED BY ELECTRICAL CONTRACTOR. AUDIO/VISUAL CONTRACTOR SHALL PROVIDE JACKS, FACEPLATE, CABLING, ETC. COORDINATE COLOR OF FACEPLATES WITH ARCHITECT.	18" AFF	
A2	A/V CONNECTION BEHIND TELEVISION. OUTLET BOX, CONDUIT AND PULLSTRING PROVIDED BY ELECTRICAL CONTRACTOR. AUDIO/VISUAL CONTRACTOR SHALL PROVIDE JACKS, FACEPLATE, CABLING, ETC.		
A3	THREE GANG A/V WALL OUTLET FOR A/V EQUIPMENT RACK OR CREDENZA. LOW VOLTAGE ROUGH-IN, CONDUIT AND PULLSTRING PROVIDED BY ELECTRICAL CONTRACTOR. AUDIO/VISUAL CONTRACTOR SHALL PROVIDE JACKS, FACEPLATE, CABLING, ETC.	18" AFF	
AV	A/V OUTLET IN TABLETOP BOX. FLOOR BOX, CONDUIT AND PULLSTRING PROVIDED BY ELECTRICAL CONTRACTOR. TABLETOP BOX PROVIDED BY FURNITURE CONTRACTOR. AUDIO/VISUAL CONTRACTOR SHALL PROVIDE JACKS, FACEPLATE, CABLING, ETC.		
TC	TABLE TOP MOUNTED VIDEO CONFERENCE EQUIPMENT. AUDIO/VISUAL CONTRACTOR SHALL PROVIDE EQUIPMENT, CABLING, ETC. COORDINATE ALL CORING AND HIDING OF CABLES IN TABLE WITH FURNITURE CONTRACTOR.		
VC	VIDEO CONFERENCE CAMERA MOUNTED ON FLAT SCREEN TV. AUDIO/VISUAL CONTRACTOR SHALL PROVIDE EQUIPMENT, CABLING, ETC		
DS	DIGITAL SIGNAGE COMPUTER. AUDIO/VISUAL CONTRACTOR SHALL PROVIDE EQUIPMENT, CABLING, ETC		
——	FLAT SCREEN LOCATION. OUTLET BOX, CONDUIT, POWER RECEPTACLE AND PULLSTRING PROVIDED BY ELECTRICAL CONTRACTOR. TELEVISIONS FURNISHED BY OWNER. AUDIO/VISUAL CONTRACTOR SHALL INSTALL AND PROVIDE MOUNTS. CABLES TO CONNECT TO A/V JACKS.		
	CEILING MOUNTED PROJECTOR LOCATION. POWER RECEPTACLE PROVIDED BY ELECTRICAL CONTRACTOR. AUDIO/VISUAL CONTRACTOR SHALL PROVIDE MOUNTING BRACKET, EQUIPMENT, CABLING, ETC.		
——	MOTORIZED PROJECTION SCREEN LOCATION. POWER RECEPTACLE PROVIDED BY ELECTRICAL CONTRACTOR. AUDIO/VISUAL CONTRACTOR SHALL PROVIDE MOTORIZED SCREEN, CABLES AND CONTROL WIRING TO CONNECT TO A/V JACKS AND CONTROL PANEL.		
HC	WALL MOUNTED VIDEO CONFERENCING CAMERA . OUTLET BOX, CONDUIT AND PULLSTRING PROVIDED BY ELECTRICAL CONTRACTOR. AUDIO/VISUAL CONTRACTOR SHALL PROVIDE EQUIPMENT, CABLING, ETC.	84" AFF	
MC	CEILING MOUNTED MICROPHONE LOCATION. AUDIO/VISUAL CONTRACTOR SHALL PROVIDE MOUNTING BRACKET, EQUIPMENT, CABLING, ETC.		
TP	WALL MOUNTED TOUCH PANEL CONTROL LOCATION. OUTLET BOX, CONDUIT AND PULLSTRING PROVIDED BY ELECTRICAL CONTRACTOR. AUDIO/VISUAL CONTRACTOR SHALL PROVIDE EQUIPMENT, CABLING, ETC.	48" AFF	
SC	WALL MOUNTED PROJECTOR SCREEN CONTROL. OUTLET BOX, CONDUIT AND PULLSTRING PROVIDED BY ELECTRICAL CONTRACTOR. AUDIO/VISUAL CONTRACTOR SHALL PROVIDE EQUIPMENT, CABLING, ETC.	48" AFF	

GENERAL NOTES

1. ALL ROUGH-INS, LOW VOLTAGE MOUNTING BOXES AND CONDUIT PROVIDED BY ELECTRICAL CONTRACTORS AND/OR FURNITURE CONTRACTOR. TELECOM CONTRACTOR AND AUDIO/VISUAL CONTRACTOR SHALL COORDINATE FINAL LOCATIONS AND MOUNTING HEIGHTS WITH ELECTRICAL CONTRACTOR.

2. SEE AUDIO/VISUAL EQUIPMENT LIST ON PLAN DRAWINGS FOR ADDITIONAL REQUIREMENTS

AUDIO/VISUAL GENERAL NOTES

1. SEE DRAWING AV1.01, AV1.05, AV1.06 AND AV1.07 FOR EQUIPMENT LIST AND LOCATIONS ON FLOOR PLANS.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HACP'S REQUIREMENTS.

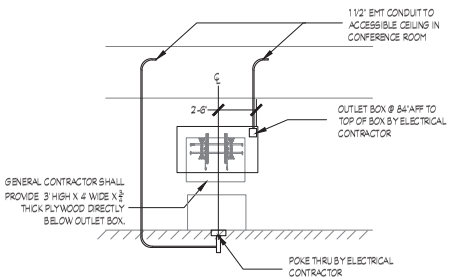
3. A/V CONTRACTOR WILL ASSIST WITH THE COORDINATION OF ALL POWER REQUIREMENTS UPON FINAL EQUIPMENT SELECTION. ELECTRICAL CONTRACTOR WILL PROVIDE ALL POWER AT ALL OF THE NECESSARY LOCATIONS.

4. A/V CONTRACTOR WILL ASSIST WITH THE COORDINATION OF ALL LOW VOLTAGE BOXES, CONDUITS AND PULL STRINGS UPON FINAL EQUIPMENT SELECTION. ELECTRICAL CONTRACTOR WILL PROVIDE ALL POWER AT ALL OF THE NECESSARY LOCATIONS.

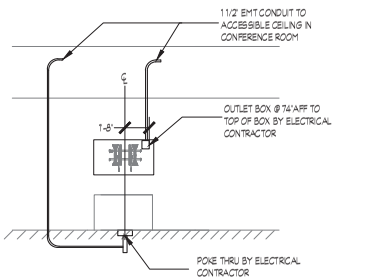
5. A/V CONTRACTOR WILL ASSIST WITH THE COORDINATION OF ALL DATA REQUIREMENTS UPON FINAL EQUIPMENT SELECTION.

AUDIO/VISUAL SYSTEM INSTALLATION MATRIX

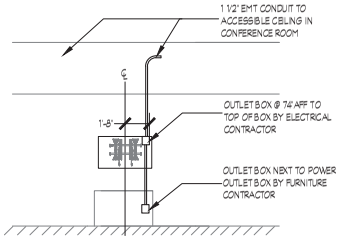
DESCRIPTION	ELECTRICAL CONTRACTOR	AUDIO/VISUAL CONTRACTOR	GENERAL CONTRACTOR	OWNER
ROUGH-INS, CONDUITS, PULLSTRING AND POWER FOR AUDIO/VISUAL EQUIPMENT	FURNISH & INSTALL			
PLYWOOD BACKBOARD FOR FLATSCREENS			FURNISH & INSTALL	
AUDIO/VISUAL CABLING TO A/V EQUIPMENT		FURNISH & INSTALL		
AUDIO/VISUAL EQUIPMENT (PROJECTORS, PROJECTION SCREENS FLATSCREENS, MOUNTS, SPEAKERS, RACKS, HEAD END EQUIPMENT, ETC.)		FURNISH & INSTALL		



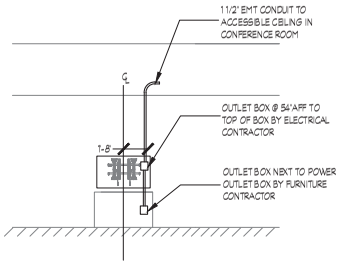
1 AV0.01 LARGE CONFERENCE ROOM - A/V ELEVATION
1/4" = 1'-0"



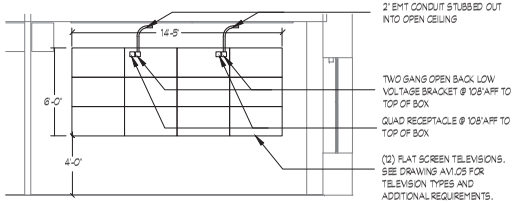
2 AV0.01 MID SIZE CONFERENCE ROOM - A/V ELEVATION
1/4" = 1'-0"



3 AV0.01 TYPICAL OFFICE - A/V ELEVATION
1/4" = 1'-0"



4 AV0.01 HUDDLE ROOM - A/V ELEVATION
1/4" = 1'-0"



5 AV0.01 VIEWING ROOM 524 - SECURITY VIDEO WALL ELEVATION
1/4" = 1'-0"

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4	100% CONSTRUCTION DOCUMENTS REVISION 2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION 1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEET NAME:
AUDIO/VISUAL DATA SHEET

SHEET NO:
AV0.01

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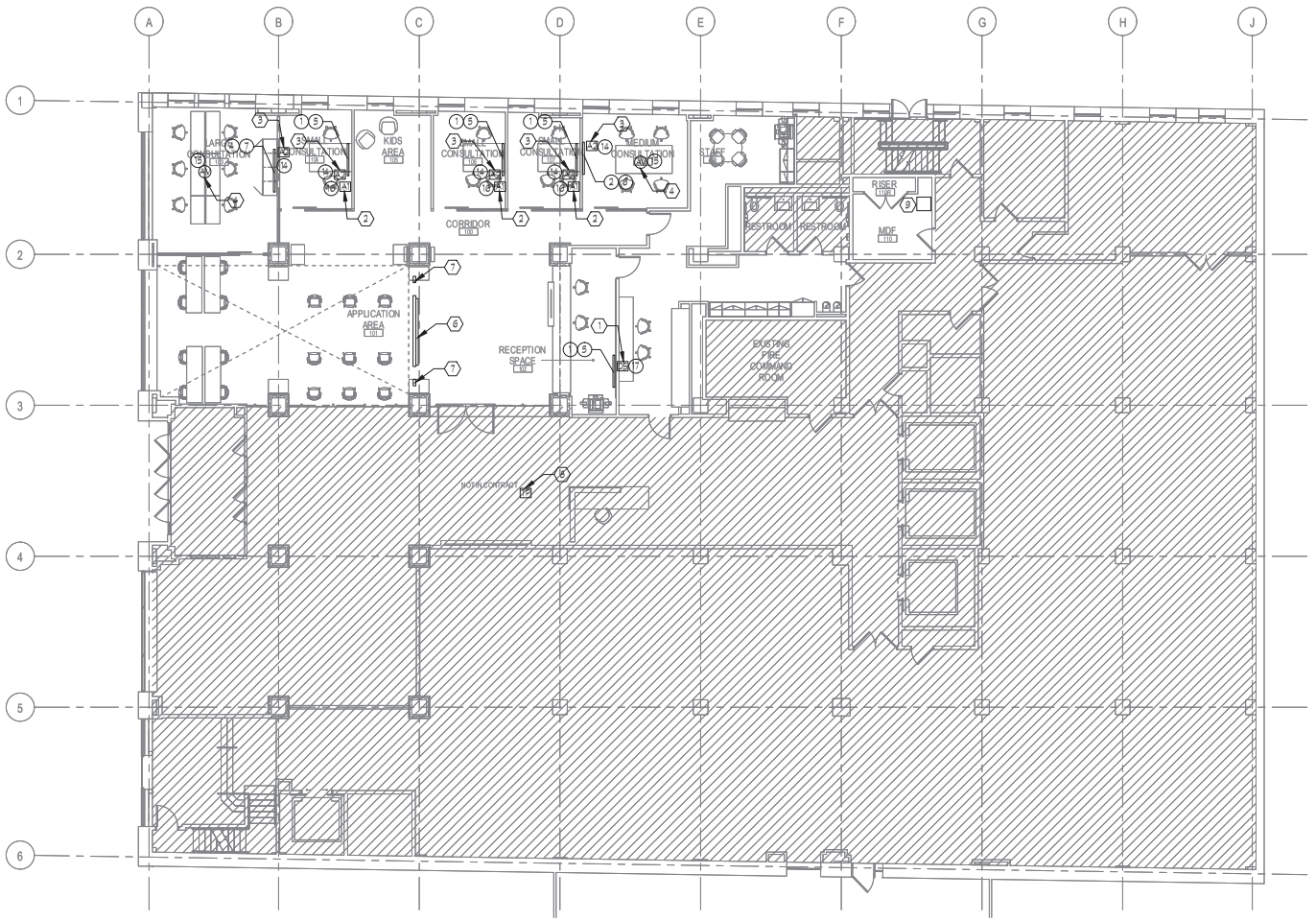

1 AV1.01 AUDIO/VISUAL PLAN - LEVEL 1
1/8" = 1'-0"

EQUIPMENT LIST: (8)

1. PROVIDE 55" LG 55UT640S 4K ULTRA LED FLAT SCREEN.
2. PROVIDE 65" LG 65UT640S 4K ULTRA LED FLAT SCREEN.
3. PROVIDE 75" LG 75UT640S 4K ULTRA LED FLAT SCREEN.
4. PROVIDE 86" LG 86UT640S 4K ULTRA LED FLAT SCREEN.
5. CHIEF MTMU MEDIUM HEIGHT ADJUSTABLE TILTING WALL MOUNT.
6. CHIEF LTMU LARGE HEIGHT ADJUSTABLE TILTING WALL MOUNT.
7. CHIEF XTMU X-LARGE HEIGHT ADJUSTABLE TILTING WALL MOUNT.
8. PROVIDE HDMI AND DATA (FOR USB VIDEO CONFERENCING CAMERA) CONNECTION IN COMBINATION TELEVISION BOX BEHIND TV. ROUTE HDMI AND DATA CABLING FROM COMBINATION TELEVISION BOX THRU CONDUIT BACK TO POKE THRU UNDER TABLE. PROVIDE 6' HDMI CABLE FOR CONNECTION FROM TELEVISION BOX JACK TO TELEVISION.
9. PROVIDE HDMI AND DATA (FOR USB VIDEO CONFERENCING CAMERA) CONNECTION IN POKE THRU. COORDINATE FINAL CONNECTION IN POKE THRU WITH ELECTRICAL CONTRACTOR. ROUTE HDMI AND DATA CABLING FOR USB FROM POKE THRU TO TELEVISION BOX AS REQUIRED. PROVIDE HDMI CABLE LENGTH AS NEEDED. PROVIDE 12' HDMI CABLE FOR CONNECTION FROM POKE THRU JACK TO OWNER'S LAPTOP.
10. PROVIDE LOGITECH C930E FIXED LENS WEB CAM MOUNTED ON FLAT SCREEN.
11. CRESTRON USB-EXT-DM-REMOTE. MOUNT BEHIND TV. (CONNECT FROM USB CAMERA IN ROOM TO HOST UNDER TABLE IN ROOM).
12. CRESTRON USB-EXT-DM-LOCAL MOUNT UNDER TABLE (FOR USB CAMERA IN ROOM).
13. CRESTRON MERCURY TABELTOP CONFERENCE SYSTEM VIDEO PACKAGE. COORDINATE LOCATION ON TABLE WITH FURNITURE CONTRACTOR PRIOR TO INSTALLATION.
14. PROVIDE HDMI AND DATA (FOR FUTURE USB VIDEO CONFERENCING CAMERA) CONNECTION IN COMBINATION TELEVISION BOX BEHIND TV. ROUTE HDMI AND DATA CABLING FROM COMBINATION TELEVISION BOX THRU CONDUIT TO AUDIO/VISUAL OUTLET ON WALL. PROVIDE 6' HDMI CABLE FOR CONNECTION FROM TELEVISION BOX JACK TO TELEVISION.
15. PROVIDE HDMI AND DATA (FOR FUTURE USB VIDEO CONFERENCING CAMERA) CONNECTION IN POKE THRU. COORDINATE FINAL CONNECTION IN POKE THRU WITH ELECTRICAL CONTRACTOR. ROUTE HDMI AND DATA CABLING FROM POKE THRU TO TELEVISION BOX AS REQUIRED. PROVIDE HDMI CABLE LENGTH AS NEEDED. PROVIDE 12' HDMI CABLE FOR CONNECTION FROM POKE THRU JACK TO OWNERS LAPTOP. USB FOR FUTURE VIDEO CONFERENCE CAMERA.
16. PROVIDE HDMI AND AND DATA (FOR FUTURE USB VIDEO CONFERENCING CAMERA) CONNECTION IN AUDIO/VISUAL OUTLET BOX. ROUTE HDMI AND DATA CABLING FROM COMBINATION TELEVISION BOX THRU CONDUIT TO AUDIO/VISUAL OUTLET ON WALL.
17. BRIGHTSIGN XT1143 NETWORKED MULTI-CONTROL INTERACTIVE AND LIVE HDTV.

GENERAL NOTES

1. SEE AUDIO/VISUAL MATERIAL LIST ON THIS DRAWING FOR PRODUCT INFORMATION.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HACP DEPARTMENT STANDARDS AND REQUIREMENTS.
3. MOUNTING HEIGHTS OF OUTLET BOXES ARE SHOWN FOR REFERENCE PURPOSES ONLY. FIELD COORDINATE FINAL MOUNTING HEIGHTS OF OUTLET BOXES FOR A/V DEVICES WITH ELECTRICAL CONTRACTOR. COORDINATE FINAL CONDUIT SIZES AND ROUTING WITH ELECTRICAL CONTRACTOR.
4. ALL ROUGH-INS, CONDUIT AND POWER PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE.
5. ALL DATA/NETWORK DROPS AND COAXIAL CABLE TELEVISION DROPS PROVIDED BY TELECOM CONTRACTOR. COORDINATE JACK SPACE IN COMBINATION TELEVISION BOX WITH TELECOM CONTRACTOR.
6. A/V CONTRACTOR SHALL PROVIDE ALL CABLES AND INTERCONNECTS AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
7. COORDINATE MOUNTING AND LOCATION OF MICROPHONES ON TABLES WITH OWNERS FURNITURE CONTRACTOR.
8. COORDINATE MOUNTING AND LOCATION OF SPEAKERS IN CEILING WITH LIGHTS' DIFFUSERS, SPRINKLERS, ETC.

CODED NOTES: (8)

1. WALL MOUNTED ROUGH-IN PROVIDED BY ELECTRICAL CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI, VGA/AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS.
2. MODULAR WALL MOUNTED ROUGH-IN AT 18" AFF PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI, VGA/AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS.
3. MODULAR WALL MOUNTED ROUGH-IN BEHIND TELEVISION PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI, VGA/AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS. SEE AV ELEVATIONS ON AV0.01 FOR ADDITIONAL INFORMATION.
4. POKE THRU PROVIDED BY ELECTRICAL CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI AND AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS.
5. TABLETOP BOX PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI AND AUDIO JACKS AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS. ROUTE CABLING DOWN THROUGH FURNITURE FEED AND ASSOCIATED CONDUIT. TELECOM CONDUIT AND JUNCTION BOXES PROVIDED BY ELECTRICAL CONTRACTOR. REFER TO 3 ELECTRICAL DRAWINGS FOR CONDUIT ROUTING. COORDINATE FINAL CONDUIT SIZES AND ROUTING WITH ELECTRICAL CONTRACTOR.
6. EXISTING 3X3 VIDEO WALL - (9) 46" TVS AND ASSOCIATED ACCORDIAN MOUNTS SHALL BE DISCONNECTED REMOVED AND TURNED OVER TO OWNER FOR STORAGE FOR FUTURE INSTALLATION. PULL CABLING BACK TO HEAD END MDF 110 AND COIL FOR FUTURE USE.
7. EXISTING RECESSED SPEAKER SHALL BE DISCONNECTED REMOVED AND TURNED OVER TO OWNER FOR STORAGE FOR FUTURE INSTALLATION. PULL CABLING BACK TO HEAD END MDF 110 AND COIL FOR FUTURE USE.
8. EXISTING TOUCH PANEL AND CRESTRON WALL PLATES SHALL BE DISCONNECTED REMOVED FROM DESK LOCATION AND TURNED OVER TO OWNER FOR STORAGE FOR FUTURE INSTALLATION. PULL CABLING BACK TO HEAD END MDF 110 AND COIL FOR FUTURE USE.
9. EXISTING VIDEO WALL HEAD END RACK AND VIDEO WALL EQUIPMENT SHALL BE REMAIN FOR FUTURE CONNECTION TO VIDEO WALL. ALL CABLING SHALL BE COILED IN THIS ROOM ABOVE THIS RACK.

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4	100% CONSTRUCTION DOCUMENTS REVISION 2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION 1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEET NAME:
AUDIO/VISUAL PLAN - LEVEL1

SHEET NO:
AV1.01

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PLAN NORTH

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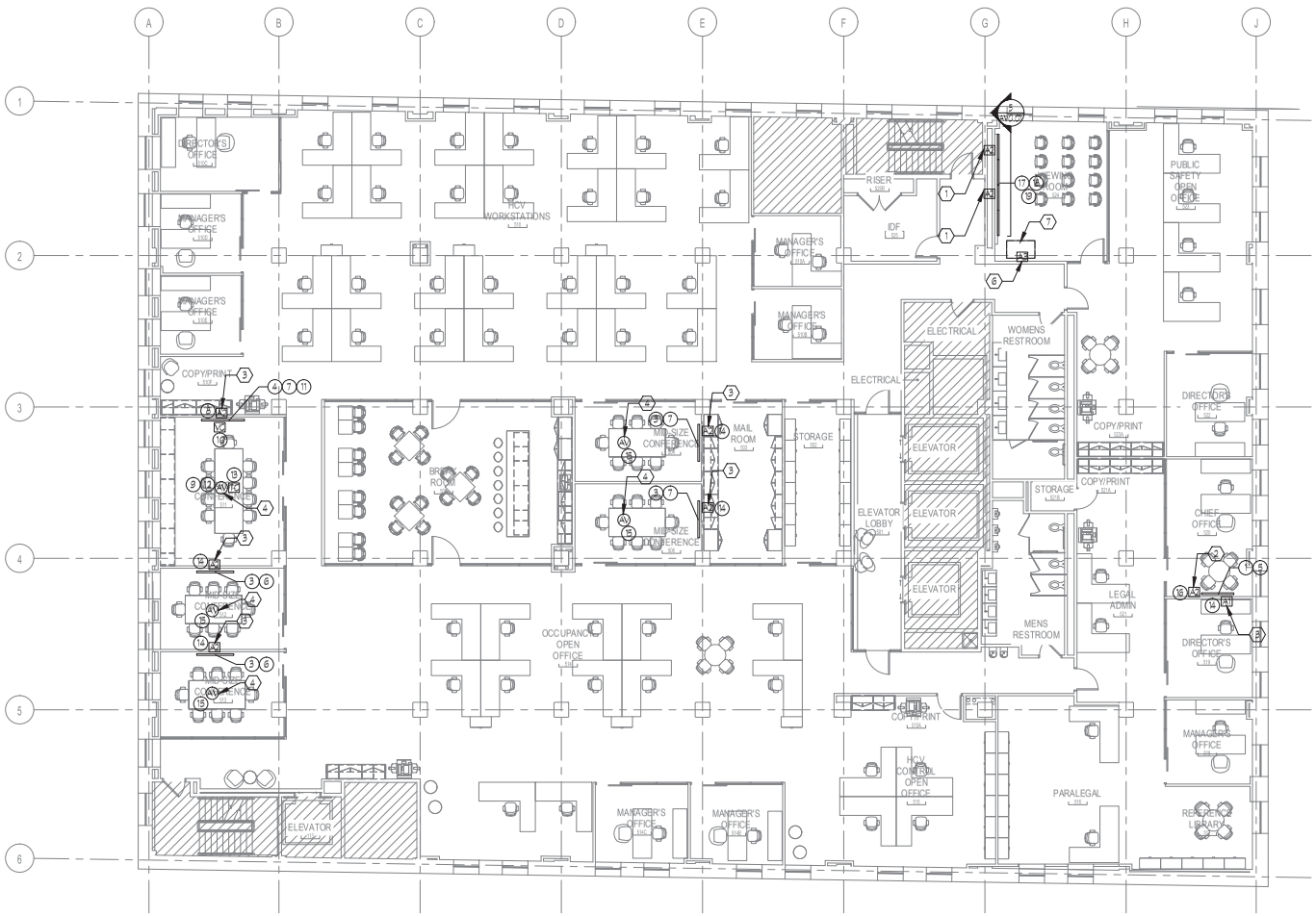

1 AV1.05 AUDIO/VISUAL PLAN - LEVEL 5
1/8" = 1'-0"

EQUIPMENT LIST: (#)

1. PROVIDE 55" LG 55UT640S 4K ULTRA LED FLAT SCREEN.
2. PROVIDE 65" LG 65UT640S 4K ULTRA LED FLAT SCREEN.
3. PROVIDE 75" LG 75UT640S 4K ULTRA LED FLAT SCREEN.
4. PROVIDE 86" LG 86UT640S 4K ULTRA LED FLAT SCREEN.
5. CHIEF MTM1U MEDIUM HEIGHT ADJUSTABLE TILTING WALL MOUNT.
6. CHIEF LTM1U LARGE HEIGHT ADJUSTABLE TILTING WALL MOUNT.
7. CHIEF XTM1U X-LARGE HEIGHT ADJUSTABLE TILTING WALL MOUNT.
8. PROVIDE HDMI AND DATA (FOR USB VIDEO CONFERENCING CAMERA) CONNECTION IN COMBINATION TELEVISION BOX BEHIND TV. ROUTE HDMI AND DATA CABLING FROM COMBINATION TELEVISION BOX THRU CONDUIT BACK TO POKE THRU UNDER TABLE. PROVIDE 6' HDMI CABLE FOR CONNECTION FROM TELEVISION BOX JACK TO TELEVISION.
9. PROVIDE HDMI AND DATA (FOR USB VIDEO CONFERENCING CAMERA) CONNECTION IN POKE THRU. COORDINATE FINAL CONNECTION IN POKE THRU WITH ELECTRICAL CONTRACTOR. ROUTE HDMI AND DATA CABLING FOR USB FROM POKE THRU TO TELEVISION BOX AS REQUIRED. PROVIDE HDMI CABLE LENGTH AS NEEDED. PROVIDE 12' HDMI CABLE FOR CONNECTION FROM POKE THRU JACK TO OWNER'S LAPTOP.
10. PROVIDE LOGITECH C930E FIXED LENS WEB CAM MOUNTED ON FLAT SCREEN.
11. CRESTRON USB-EXT-DM-REMOTE. MOUNT BEHIND TV. (CONNECT FROM USB CAMERA IN ROOM TO HOST UNDER TABLE IN ROOM).
12. CRESTRON USB-EXT-DM-LOCAL MOUNT UNDER TABLE (FOR USB CAMERA IN ROOM).
13. CRESTRON MERCURY TABLETOP CONFERENCE SYSTEM VIDEO PACKAGE. COORDINATE LOCATION ON TABLE WITH FURNITURE CONTRACTOR PRIOR TO INSTALLATION.
14. PROVIDE HDMI AND DATA (FOR FUTURE USB VIDEO CONFERENCING CAMERA) CONNECTION IN COMBINATION TELEVISION BOX BEHIND TV. ROUTE HDMI AND DATA CABLING FROM COMBINATION TELEVISION BOX THRU CONDUIT TO AUDIO/VISUAL OUTLET ON WALL. PROVIDE 6' HDMI CABLE FOR CONNECTION FROM TELEVISION BOX JACK TO TELEVISION.
15. PROVIDE HDMI AND DATA (FOR FUTURE USB VIDEO CONFERENCING CAMERA) CONNECTION IN POKE THRU. COORDINATE FINAL CONNECTION IN POKE THRU WITH ELECTRICAL CONTRACTOR. ROUTE HDMI AND DATA CABLING FROM POKE THRU TO TELEVISION BOX AS REQUIRED. PROVIDE HDMI CABLE LENGTH AS NEEDED. PROVIDE 12' HDMI CABLE FOR CONNECTION FROM POKE THRU JACK TO OWNERS LAPTOP. USB FOR FUTURE VIDEO CONFERENCE CAMERA.
16. PROVIDE HDMI AND AND DATA (FOR FUTURE USB VIDEO CONFERENCING CAMERA) CONNECTION IN AUDIO/VISUAL OUTLET BOX. ROUTE HDMI AND DATA CABLING FROM COMBINATION TELEVISION BOX THRU CONDUIT TO AUDIO/VISUAL OUTLET ON WALL.
17. PROVIDE (12) NEC UN462VS 46" ULTRA NARROW 1080P LED VIDEO WALL DISPLAY PANELS. SEE VIDEO WALL ELEVATION ON DRAWING AV0.01 FOR ADDITIONAL INFORMATION. PROVIDE 50' HDMI CABLE TO EACH FLATSCREEN. TERMINATE ON BACK OF FLAT SCREEN AND RUN CABLE BACK TO SECURITY CABINET. FINAL CONNECTION TO OWNERS SECURITY EQUIPMENT BY OWNER.
18. (12) CHIEF LVS1U CONNEXSYS VIDEO WALL SYSTEM PORT WITH RAILS.
19. PROVIDE (12) LG UT640S SERIES 49" 1080P UHD COMMERCIAL SIGNAGE TV AS AN DEDUCT ALTERNATE TO ITEM 17. TV BEZELS SHALL BE INSTALLED AS CLOSE TO EACH OTHER AS POSSIBLE. SEE VIDEO WALL ELEVATION ON DRAWING AV0.01 FOR ADDITIONAL INFORMATION. PROVIDE 50' HDMI CABLE TO EACH FLATSCREEN. TERMINATE ON BACK OF FLAT SCREEN AND RUN CABLE BACK TO SECURITY CABINET. FINAL CONNECTION TO OWNER'S SECURITY EQUIPMENT BY OWNER.

GENERAL NOTES

1. SEE AUDIO/VISUAL MATERIAL LIST ON THIS DRAWING FOR PRODUCT INFORMATION.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HACP DEPARTMENT STANDARDS AND REQUIREMENTS.
3. MOUNTING HEIGHTS OF OUTLET BOXES ARE SHOWN FOR REFERENCE PURPOSES ONLY. FIELD COORDINATE FINAL MOUNTING HEIGHTS OF OUTLET BOXES FOR A/V DEVICES WITH ELECTRICAL CONTRACTOR. COORDINATE FINAL CONDUIT SIZES AND ROUTING WITH ELECTRICAL CONTRACTOR.
4. ALL ROUGH-INS, CONDUIT AND POWER PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE.
5. ALL DATA/NETWORK DROPS AND COAXIAL CABLE TELEVISION DROPS PROVIDED BY TELECOM CONTRACTOR. COORDINATE JACK SPACE IN COMBINATION TELEVISION BOX WITH TELECOM CONTRACTOR.
6. A/V CONTRACTOR SHALL PROVIDE ALL CABLES AND INTERCONNECTS AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
7. COORDINATE MOUNTING AND LOCATION OF MICROPHONES ON TABLES WITH OWNERS FURNITURE CONTRACTOR.
8. COORDINATE MOUNTING AND LOCATION OF SPEAKERS IN CEILING WITH LIGHTS' DIFFUSERS, SPRINKLERS, ETC.

CODED NOTES: (#)

1. WALL MOUNTED ROUGH-IN PROVIDED BY ELECTRICAL CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI, VGA/AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS.
2. MODULAR WALL MOUNTED ROUGH-IN AT 18" AFF PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI, VGA/AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS.
3. MODULAR WALL MOUNTED ROUGH-IN BEHIND TELEVISION PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI, VGA/AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS. SEE AV ELEVATIONS ON AV0.01 FOR ADDITIONAL INFORMATION.
4. POKE THRU PROVIDED BY ELECTRICAL CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI AND AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS.
5. TABLETOP BOX PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI AND AUDIO JACKS AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS. ROUTE CABLING DOWN THROUGH FURNITURE FEED AND ASSOCIATED CONDUIT. TELECOM CONDUIT AND JUNCTION BOXES PROVIDED BY ELECTRICAL CONTRACTOR. REFER TO 3 ELECTRICAL DRAWINGS FOR CONDUIT ROUTING. COORDINATE FINAL CONDUIT SIZES AND ROUTING WITH ELECTRICAL CONTRACTOR.
6. WALL MOUNTED 3 GANG ROUGH-IN AT 18" AFF FOR WIRING TO SECURITY WALL PROVIDED BY ELECTRICAL CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE ALL CABLING THROUGH ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING AS PER MANUFACTURER'S REQUIREMENTS.
7. PUBLIC SAFETY EXISTING RACK AND SERVER EQUIPMENT HOUSING EQUIPMENT FOR VIDEO STORAGE AND INPUTS/OUTPUTS TO DISPLAY WALL. HDMI CABLE FROM EACH OF(12) TVS SHALL BE ROUTED FROM TV BACK TO THIS CABINET AND TERMINATED ON OWNER PROVIDED COMPUTERS. SEE SECURITY DRAWING E51.05 FOR ADDITIONAL INFORMATION.

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1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEET NAME:
AUDIO/VISUAL PLAN - LEVEL 5

SHEET NO:
AV1.05

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PLAN NORTH

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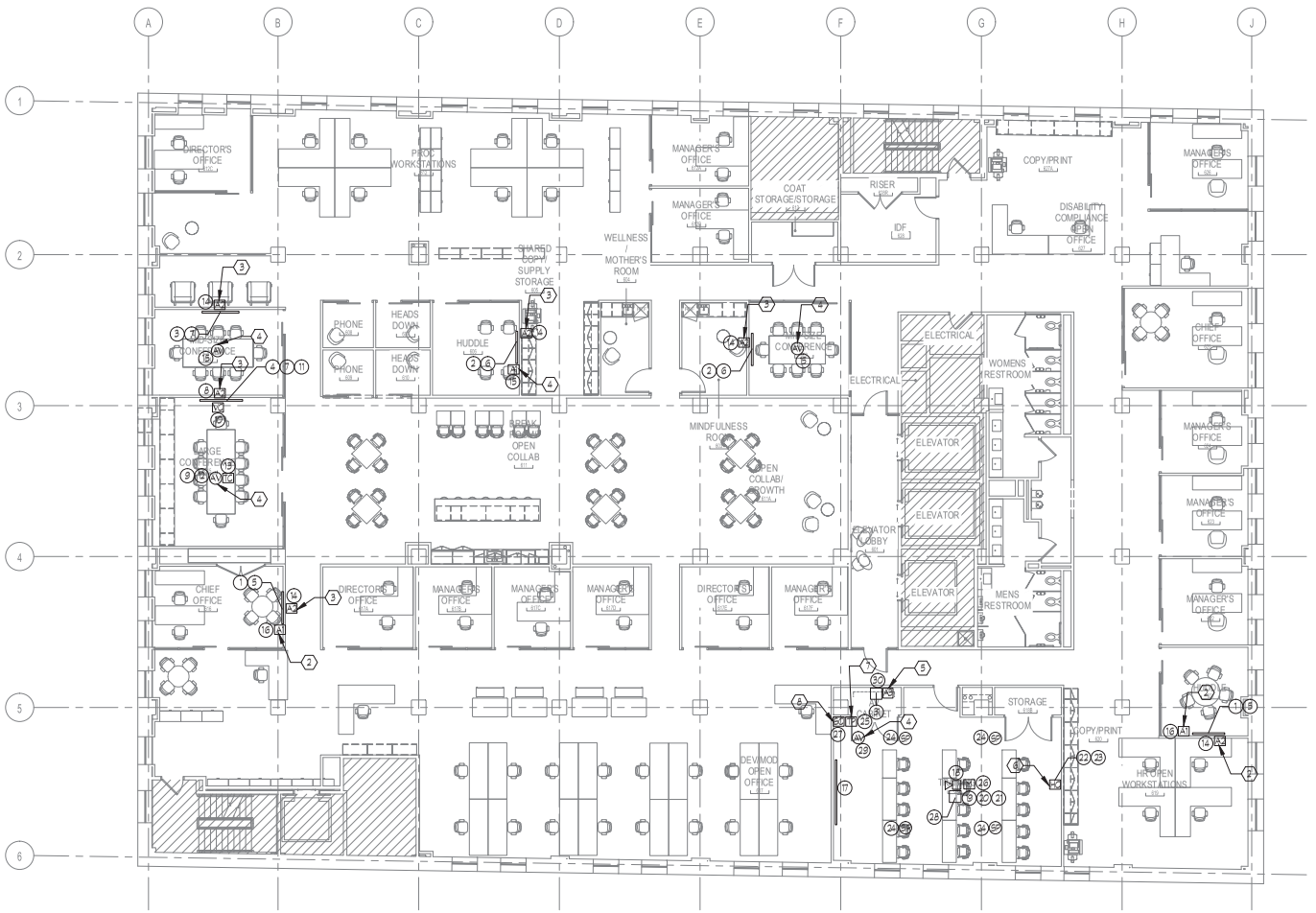

1 AV1.06 AUDIO/VISUAL PLAN - LEVEL 6
1/8" = 1'-0

GENERAL NOTES

1. SEE AUDIO/VISUAL MATERIAL LIST ON THIS DRAWING FOR PRODUCT INFORMATION.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HACP DEPARTMENT STANDARDS AND REQUIREMENTS.

3. MOUNTING HEIGHTS OF OUTLET BOXES ARE SHOWN FOR REFERENCE PURPOSES ONLY. FIELD COORDINATE FINAL MOUNTING HEIGHTS OF OUTLET BOXES FOR A/V DEVICES WITH ELECTRICAL CONTRACTOR. COORDINATE FINAL CONDUIT SIZES AND ROUTING WITH ELECTRICAL CONTRACTOR.

4. ALL ROUGH-INS, CONDUIT AND POWER PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE.

5. ALL DATA/NETWORK DROPS AND COAXIAL CABLE TELEVISION DROPS PROVIDED BY TELECOM CONTRACTOR. COORDINATE JACK SPACE IN COMBINATION TELEVISION BOX WITH TELECOM CONTRACTOR.

6. A/V CONTRACTOR SHALL PROVIDE ALL CABLES AND INTERCONNECTS AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.

7. COORDINATE MOUNTING AND LOCATION OF MICROPHONES ON TABLES WITH OWNERS FURNITURE CONTRACTOR.

8. COORDINATE MOUNTING AND LOCATION OF SPEAKERS IN CEILING WITH LIGHTS' DIFFUSERS, SPRINKLERS, ETC.

CODED NOTES: (8)

1. WALL MOUNTED ROUGH-IN PROVIDED BY ELECTRICAL CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI, VGA/AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS.

2. MODULAR WALL MOUNTED ROUGH-IN PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI, VGA/AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS.

3. POKE THRU PROVIDED BY ELECTRICAL CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI AND AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS.

4. TABLETOP BOX PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI AND AUDIO JACKS AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS. ROUTE CABLING DOWN THROUGH FURNITURE FEED AND ASSOCIATED CONDUIT. TELECOM CONDUIT AND JUNCTION BOXES PROVIDED BY ELECTRICAL CONTRACTOR. REFER TO 3 ELECTRICAL DRAWINGS FOR CONDUIT ROUTING. COORDINATE FINAL CONDUIT SIZES AND ROUTING WITH ELECTRICAL CONTRACTOR.

5. MODULAR WALL MOUNTED 3 GANG ROUGH-IN AT 18" AFF FOR WIRING TO A/V CREDENZA PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE ALL CABLING THROUGH ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING AS PER MANUFACTURER'S REQUIREMENTS.

6. MODULAR WALL SINGLE GANG WALL ROUGH-IN AT 84" FOR WIRING TO VIDEO CONFERENCE CAMERA PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE VIDEO CONFERENCING CAMERA, WALL PLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING AS PER MANUFACTURER'S REQUIREMENTS.

7. MODULAR WALL 2 GANG WALL ROUGH-IN AT 48" AFF FOR TOUCH PANEL PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE ALL CABLING THROUGH ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING AS PER MANUFACTURER'S REQUIREMENTS.

8. MODULAR WALL SINGLE GANG ROUGH-IN AT 48" AFF FOR MOTORIZED PROJECTION SCREEN CONTROL PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE ALL CABLING THROUGH ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING AS PER MANUFACTURER'S REQUIREMENTS.

EQUIPMENT LIST: (8)

1. PROVIDE 55" LG 55UT640S 4K ULTRA LED FLAT SCREEN.

2. PROVIDE 65" LG 65UT640S 4K ULTRA LED FLAT SCREEN.

3. PROVIDE 75" LG 75UT640S 4K ULTRA LED FLAT SCREEN.

4. PROVIDE 86" LG 86UT640S 4K ULTRA LED FLAT SCREEN.

5. CHIEF MTM1U MEDIUM HEIGHT ADJUSTABLE TILTING WALL MOUNT.

6. CHIEF LTM1U LARGE HEIGHT ADJUSTABLE TILTING WALL MOUNT.

7. CHIEF XTM1U X-LARGE HEIGHT ADJUSTABLE TILTING WALL MOUNT.

8. PROVIDE HDMI AND DATA (FOR USB VIDEO CONFERENCING CAMERA) CONNECTION IN COMBINATION TELEVISION BOX BEHIND TV. ROUTE HDMI AND DATA CABLING FROM COMBINATION TELEVISION BOX THRU CONDUIT BACK TO POKE THRU UNDER TABLE. PROVIDE 6' HDMI CABLE FOR CONNECTION FROM TELEVISION BOX JACK TO TELEVISION.

9. PROVIDE HDMI AND DATA (FOR USB VIDEO CONFERENCING CAMERA) CONNECTION IN POKE THRU. COORDINATE FINAL CONNECTION IN POKE THRU WITH ELECTRICAL CONTRACTOR. ROUTE HDMI AND DATA CABLING FOR USB FROM POKE THRU TO TELEVISION BOX AS REQUIRED. PROVIDE HDMI CABLE LENGTH AS NEEDED, PROVIDE 12' HDMI CABLE FOR CONNECTION FROM POKE THRU JACK TO OWNER'S LAPTOP.

10. PROVIDE LOGITECH C930E FIXED LENS WEB CAM MOUNTED ON FLAT SCREEN.

11. CRESTRON USB-EXT-DM-REMOTE. MOUNT BEHIND TV. (CONNECT FROM USB CAMERA IN ROOM TO HOST UNDER TABLE IN ROOM).

12. CRESTRON USB-EXT-DM-LOCAL MOUNT UNDER TABLE (FOR USB CAMERA IN ROOM).

13. CRESTRON MERCURY TABLETOP CONFERENCE SYSTEM VIDEO PACKAGE. COORDINATE LOCATION ON TABLE WITH FURNITURE CONTRACTOR PRIOR TO INSTALLATION.

14. PROVIDE HDMI AND DATA (FOR FUTURE USB VIDEO CONFERENCING CAMERA) CONNECTION IN COMBINATION TELEVISION BOX BEHIND TV. ROUTE HDMI AND DATA CABLING FROM COMBINATION TELEVISION BOX THRU CONDUIT TO AUDIO/VISUAL OUTLET ON WALL. PROVIDE 6' HDMI CABLE FOR CONNECTION FROM TELEVISION BOX JACK TO TELEVISION.

15. PROVIDE HDMI AND DATA (FOR FUTURE USB VIDEO CONFERENCING CAMERA) CONNECTION IN POKE THRU. COORDINATE FINAL CONNECTION IN POKE THRU WITH ELECTRICAL CONTRACTOR. ROUTE HDMI AND DATA CABLING FROM POKE THRU TO TELEVISION BOX AS REQUIRED. PROVIDE HDMI CABLE LENGTH AS NEEDED, PROVIDE 12' HDMI CABLE FOR CONNECTION FROM POKE THRU JACK TO OWNERS LAPTOP. USB FOR FUTURE VIDEO CONFERENCE CAMERA.

16. PROVIDE HDMI AND AND DATA (FOR FUTURE USB VIDEO CONFERENCING CAMERA) CONNECTION IN AUDIO/VISUAL OUTLET BOX. ROUTE HDMI AND DATA CABLING FROM COMBINATION TELEVISION BOX THRU CONDUIT TO AUDIO/VISUAL OUTLET ON WALL.

17. PROVIDE DA-LITE 34544LS 130" DIAGONAL, 16:10 RECESSED, TENSIONED ELECTRIC SCREEN MOUNTED IN LAY-IN CEILING.

18. PROVIDE NEC NP-P605UL 6000 LUMEN WUXGA PROJECTOR WITH STANDARD LENS.

19. PROVIDE CHIEF CMS492C 2X2 PLENUM RATED STORAGE BOX WITH COLUMN DROP.

20. PROVIDE CHIEF CMS200B009W 6-9' ADJUSTABLE POLE (WHITE).

21. PROVIDE CHIEF RPMAUW UNIVERSAL RPMA MOUNTING BRACKET (WHITE).

22. PROVIDE POLYCOM EAGLE EYE IV 12X CAMERA - CONNECT TO POLYCOM REAL PRESENCE GROUP 500.

23. PROVIDE POLYCOM 2215-65675-001 UNIVERSAL CAMERA MOUNTING FOR EAGLE EYE IV.

24. PROVIDE CRESTRON SAROS IC16T-AV-T SAROS INTEGRATOR 6.5" IN CEILING SPEAKER, WHITE. MOUNT IN DRYWALL CEILING. COORDINATE INSTALLATION IN CEILING WITH OTHER TRADES (DUCTWORK, LIGHTING AND SPRINKLER HEADS) FOR CONFLICTS PRIOR TO FINAL INSTALLATION.

25. PROVIDE CRESTRON TSW-1060-B-S 10.1" SURFACE MOUNT TOUCH SCREEN WITH CORE 3U - BLACK.

26. PROVIDE SHURE MXA910W 2'X2' BEAMFORMING IN CEILING MICROPHONE ARRAY (WHITE). COORDINATE INSTALLATION IN CEILING WITH OTHER TRADES (DUCTWORK, LIGHTING AND SPRINKLER HEADS) FOR CONFLICTS PRIOR TO FINAL INSTALLATION.

27. MOTORIZED PROJECTION SCREEN CONTROL BUTTON. WIRE TO PROJECTOR SCREEN PER MANUFACTURER'S REQUIREMENTS.

28. PROVIDE CRESTRON DM-RMC-4K-SCALER-C 4K DIGITAL MEDIA 8S+ RECEIVER AND ROOM CONTROLLER WITH SCALER. MOUNT INSIDE CEILING STORAGE BOX.

29. PROVIDE CRESTRON DM-TX-200-C-2S-W-T DIGITAL 8S+ TRANSMITTER INSIDE FLOOR BOX. ROUTE DATA CABLE(S) FROM DEVICE TO RECEIVER IN RACK AS REQUIRED BY MANUFACTURER. COORDINATE CABLING ROUTING AND TERMINATION IN POKE FLOOR BOX WITH ELECTRICAL CONTRACTOR.

30. PROVIDE MIDDLE ATLANTIC RCSI 824 18U 31.5" PRECONFIGURED RACK ON CASTER + ACCESSORIES.

31. PROVIDE TRAINING ROOM 109 EQUIPMENT CORE. THE FOLLOWING IS EQUIPMENT LOCATED IN RACK:

- (1) CRESTRON DMPS3-4K-350-C 3 SERIES 4K DIGITAL MEDIA PRESENTATION SYSTEM 350
- (1) CRESTRON AMP-1200-70 SINGLE CHANNEL MODULAR POWER AMPLIFIER -200W,70V
- (1) BI-AMP TESIRAFORTE DANTE 8 CHANNEL DANTE DSP WITH AEC, USB, VOIP & ANALOG
- (1) SHURE GLXD1+ 685950 WIRELESS LAVALIER MIC SYSTEM
- (1) PAKEDGE SX-8P8 PORT MANAGED SWITCH
- (1) APC SMX1500RM2U SMART UPS 1500VA 2U RACK MOUNT 120V
- (1) MIDDLE ATLANTIC PD-915RC-20 RACK MOUNT 9 OUTLET, SINGLE 15 AMP CIRCUIT

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3	100% CONSTRUCTION DOCUMENTS REVISION 1	01/09/2020
2	100% CONSTRUCTION DOCUMENTS	01/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEET NAME:
AUDIO/VISUAL PLAN - LEVEL 6

SHEET NO:
AV1.06

TRUE NORTH / PLAN NORTH

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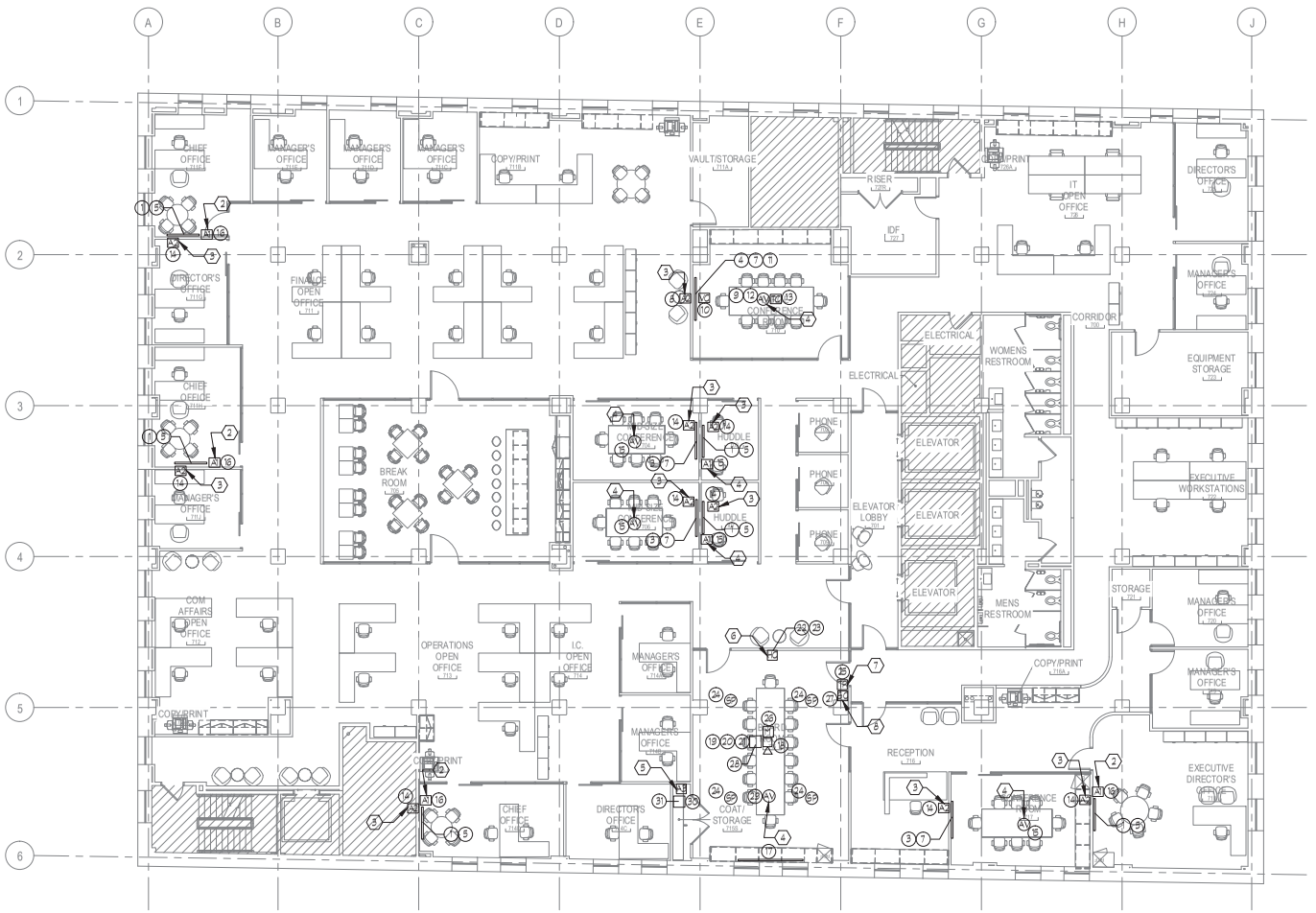

1 AV1.07 AUDIO/VISUAL PLAN - LEVEL 7
1/8" =1'-0"

GENERAL NOTES

1. SEE AUDIO/VISUAL MATERIAL LIST ON THIS DRAWING FOR PRODUCT INFORMATION.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HACP DEPARTMENT STANDARDS AND REQUIREMENTS.

3. MOUNTING HEIGHTS OF OUTLET BOXES ARE SHOWN FOR REFERENCE PURPOSES ONLY. FIELD COORDINATE FINAL MOUNTING HEIGHTS OF OUTLET BOXES FOR A/V DEVICES WITH ELECTRICAL CONTRACTOR. COORDINATE FINAL CONDUIT SIZES AND ROUTING WITH ELECTRICAL CONTRACTOR.

4. ALL ROUGH-INS, CONDUIT AND POWER PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE.

5. ALL DATA/NETWORK DROPS AND COAXIAL CABLE TELEVISION DROPS PROVIDED BY TELECOM CONTRACTOR. COORDINATE JACK SPACE IN COMBINATION TELEVISION BOX WITH TELECOM CONTRACTOR.

6. A/V CONTRACTOR SHALL PROVIDE ALL CABLES AND INTERCONNECTS AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.

7. COORDINATE MOUNTING AND LOCATION OF MICROPHONES ON TABLES WITH OWNER'S FURNITURE CONTRACTOR.

8. COORDINATE MOUNTING AND LOCATION OF SPEAKERS IN CEILING WITH LIGHTS' DIFFUSERS, SPRINKLERS, ETC.

CODED NOTES: (8)

1. WALL MOUNTED ROUGH-IN PROVIDED BY ELECTRICAL CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI, VGA/AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS.

2. MODULAR WALL MOUNTED ROUGH-IN PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI, VGA/AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS.

3. POKE THRU PROVIDED BY ELECTRICAL CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI AND AUDIO JACKS, FACEPLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS.

4. TABLETOP BOX PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI AND AUDIO JACKS AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS. ROUTE CABLING DOWN THROUGH FURNITURE FEED AND ASSOCIATED CONDUIT. TELECOM CONDUIT AND JUNCTION BOXES PROVIDED BY ELECTRICAL CONTRACTOR. REFER TO 3 ELECTRICAL DRAWINGS FOR CONDUIT ROUTING. COORDINATE FINAL CONDUIT SIZES AND ROUTING WITH ELECTRICAL CONTRACTOR.

5. MODULAR WALL MOUNTED 3 GANG ROUGH-IN AT 18" AFF FOR WIRING TO A/V CREDENZA PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE ALL CABLING THROUGH ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING AS PER MANUFACTURER'S REQUIREMENTS.

6. MODULAR WALL SINGLE GANG WALL ROUGH-IN AT 84" FOR WIRING TO VIDEO CONFERENCE CAMERA PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE VIDEO CONFERENCING CAMERA, WALL PLATE AND ASSOCIATED CABLING IN ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING AS PER MANUFACTURER'S REQUIREMENTS.

7. MODULAR WALL 2 GANG WALL ROUGH-IN AT 48" AFF FOR TOUCH PANEL PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE ALL CABLING THROUGH ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING AS PER MANUFACTURER'S REQUIREMENTS.

8. MODULAR WALL SINGLE GANG ROUGH-IN AT 48" AFF FOR MOTORIZED PROJECTION SCREEN CONTROL PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE ALL CABLING THROUGH ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING AS PER MANUFACTURER'S REQUIREMENTS.

EQUIPMENT LIST: (8)

1. PROVIDE 55" LG 55UT640S 4K ULTRA LED FLAT SCREEN.

2. PROVIDE 65" LG 65UT640S 4K ULTRA LED FLAT SCREEN.

3. PROVIDE 75" LG 75UT640S 4K ULTRA LED FLAT SCREEN.

4. PROVIDE 86" LG 86UT640S 4K ULTRA LED FLAT SCREEN.

5. CHIEF MTM1U MEDIUM HEIGHT ADJUSTABLE TILTING WALL MOUNT.

6. CHIEF LTM1U LARGE HEIGHT ADJUSTABLE TILTING WALL MOUNT.

7. CHIEF XTM1U X-LARGE HEIGHT ADJUSTABLE TILTING WALL MOUNT.

8. PROVIDE HDMI AND DATA (FOR USB VIDEO CONFERENCING CAMERA) CONNECTION IN COMBINATION TELEVISION BOX BEHIND TV. ROUTE HDMI AND DATA CABLING FROM COMBINATION TELEVISION BOX THRU CONDUIT BACK TO POKE THRU UNDER TABLE. PROVIDE 6' HDMI CABLE FOR CONNECTION FROM TELEVISION BOX JACK TO TELEVISION.

9. PROVIDE HDMI AND DATA (FOR USB VIDEO CONFERENCING CAMERA) CONNECTION IN POKE THRU. COORDINATE FINAL CONNECTION IN POKE THRU WITH ELECTRICAL CONTRACTOR. ROUTE HDMI AND DATA CABLING FOR USB FROM POKE THRU TO TELEVISION BOX AS REQUIRED. PROVIDE HDMI CABLE LENGTH AS NEEDED. PROVIDE 12' HDMI CABLE FOR CONNECTION FROM POKE THRU JACK TO OWNER'S LAPTOP.

10. PROVIDE LOGITECH C930E FIXED LENS WEB CAM MOUNTED ON FLAT SCREEN.

11. CRESTRON USB-EXT-DM-REMOTE. MOUNT BEHIND TV. (CONNECT FROM USB CAMERA IN ROOM TO HOST UNDER TABLE IN ROOM).

12. CRESTRON USB-EXT-DM-LOCAL MOUNT UNDER TABLE (FOR USB CAMERA IN ROOM).

13. CRESTRON MERCURY TABLETOP CONFERENCE SYSTEM VIDEO PACKAGE. COORDINATE LOCATION ON TABLE WITH FURNITURE CONTRACTOR PRIOR TO INSTALLATION.

14. PROVIDE HDMI AND DATA (FOR FUTURE USB VIDEO CONFERENCING CAMERA) CONNECTION IN COMBINATION TELEVISION BOX BEHIND TV. ROUTE HDMI AND DATA CABLING FROM COMBINATION TELEVISION BOX THRU CONDUIT TO AUDIO/VISUAL OUTLET ON WALL. PROVIDE 6' HDMI CABLE FOR CONNECTION FROM TELEVISION BOX JACK TO TELEVISION.

15. PROVIDE HDMI AND DATA (FOR FUTURE USB VIDEO CONFERENCING CAMERA) CONNECTION IN POKE THRU. COORDINATE FINAL CONNECTION IN POKE THRU WITH ELECTRICAL CONTRACTOR. ROUTE HDMI AND DATA CABLING FROM POKE THRU TO TELEVISION BOX AS REQUIRED. PROVIDE HDMI CABLE LENGTH AS NEEDED. PROVIDE 12' HDMI CABLE FOR CONNECTION FROM POKE THRU JACK TO OWNERS LAPTOP. USB FOR FUTURE VIDEO CONFERENCE CAMERA.

16. PROVIDE HDMI AND AND DATA (FOR FUTURE USB VIDEO CONFERENCING CAMERA) CONNECTION IN AUDIO/VISUAL OUTLET BOX. ROUTE HDMI AND DATA CABLING FROM COMBINATION TELEVISION BOX THRU CONDUIT TO AUDIO/VISUAL OUTLET ON WALL.

17. PROVIDE DA-LITE 34548LS 130" DIAGONAL, 16:10 RECESSED, TENSIONED ELECTRIC SCREEN MOUNTED IN LAY-IN CEILING.

18. PROVIDE NEC NP-P605UL 6000 LUMEN WUXGA PROJECTOR WITH STANDARD LENS.

19. PROVIDE CHIEF CMS492C 2X2 PLENUM RATED STORAGE BOX WITH COLUMN DROP.

20. PROVIDE CHIEF CMSOOB039W 6-8' ADJUSTABLE POLE (WHITE).

21. PROVIDE CHIEF RPMAUW UNIVERSAL RPM-A MOUNTING BRACKET (WHITE).

22. PROVIDE POLYCOM EAGLE EYE IV 12X CAMERA - CONNECT TO POLYCOM REAL PRESENCE GROUP 500.

23. PROVIDE POLYCOM 2215-68675-001 UNIVERSAL CAMERA MOUNTING FOR EAGLE EYE IV.

24. PROVIDE CRESTRON SAROS IGIST-AV-T SAROS INTEGRATOR 6.5" IN CEILING SPEAKER, WHITE. MOUNT IN DRYWALL CEILING. COORDINATE INSTALLATION IN CEILING WITH OTHER TRADES (DUCTWORK, LIGHTING AND SPRINKLER HEADS) FOR CONFLICTS PRIOR TO FINAL INSTALLATION.

25. PROVIDE CRESTRON TSW-1060-B-S 10.1" SURFACE MOUNT TOUCH SCREEN WITH CORE 3U - BLACK.

26. PROVIDE SHURE MXA910W 2X2 BEAMFORMING IN CEILING MICROPHONE ARRAY (WHITE). COORDINATE INSTALLATION IN CEILING WITH OTHER TRADES (DUCTWORK, LIGHTING AND SPRINKLER HEADS) FOR CONFLICTS PRIOR TO FINAL INSTALLATION.

27. MOTORIZED PROJECTION SCREEN CONTROL BUTTON. WIRE TO PROJECTOR SCREEN PER MANUFACTURER'S REQUIREMENTS.

28. PROVIDE CRESTRON DM-RMC-4K-SCALER-C 4K DIGITAL MEDIA 8S+ RECEIVER AND ROOM CONTROLLER WITH SCALER. MOUNT INSIDE CEILING STORAGE BOX.

29. PROVIDE CRESTRON DM-TX-200-C-2S-W-T DIGITAL 8S+ TRANSMITTER INSIDE FLOOR BOX. ROUTE DATA CABLE(S) FROM DEVICE TO RECEIVER IN RACK AS REQUIRED BY MANUFACTURER. COORDINATE CABLING ROUTING AND TERMINATION IN POKE FLOOR BOX WITH ELECTRICAL CONTRACTOR.

30. PROVIDE MIDDLE ATLANTIC RCSI 824 18U 31.5" PRECONFIGURED RACK ON CASTER + ACCESSORIES.

31. PROVIDE TRAINING ROOM 109 EQUIPMENT CORE. THE FOLLOWING IS EQUIPMENT LOCATED IN RACK:

- (1) CRESTRON DMPS3-4K-350-C 3 SERIES 4K DIGITAL MEDIA PRESENTATION SYSTEM 350
- (1) CRESTRON AMP-1200-70 SINGLE CHANNEL MODULAR POWER AMPLIFIER -200W, 70V
- (1) BI-AMP TESIRAFORTE DANTE 8 CHANNEL DANTE DSP WITH AEC, USB, VOIP & ANALOG
- (1) PAKEDGE SX-24P 24 PORT MANAGED SWITCH WITH 24 POE OR 12 POE+ PORTS
- (1) APC SMX1500RM2U SMART UPS 1500VA 2U RACK MOUNT 120V
- (1) MIDDLE ATLANTIC PD-8I15RC-20 RACK MOUNT 9 OUTLET, SINGLE 15 AMP CIRCUIT

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2	100% CONSTRUCTION DOCUMENTS	01/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEET NAME:
AUDIO/VISUAL PLAN - LEVEL 7

SHEET NO:
AV1.07

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SECURITY LEGEND

SYMBOL	ABRV.	DESCRIPTION	MOUNT	REMARKS
C		PROVIDE CEILING/PENDANT MOUNTED FIXED CAMERA IN DOME .		SEE CAMERA SCHEDULE ON DRAWING ES2.02 AND DETAILS ON THIS DRAWING FOR ADDITIONAL REQUIREMENTS
W		PROVIDE WALL MOUNTED FIXED CAMERA IN DOME.		SEE CAMERA SCHEDULE ON DRAWING ES2.02 AND DETAILS ON THIS DRAWING FOR ADDITIONAL REQUIREMENTS
T / B		CAMERA TYPE DETAIL - TOP LETTER INDICATES CAMERA TYPE , BOTTOM NUMBER INDICATES CAMERA NUMBER		SEE CAMERA SCHEDULE ON DRAWING ES2.02 AND DETAILS ON THIS DRAWING FOR ADDITIONAL REQUIREMENTS
CCTV		PROVIDE CCTV HEAD END EQUIPMENT INCLUDING BUT NOT LIMITED TO POWER OVER ETHERNET SWITCHES PATCH PANELS AND ASSOCIATED POWER SUPPLIES		SEE DETAIL 1 ON DRAWING ES2.03 FOR ADDITIONAL REQUIREMENTS
CAE		PROVIDE CARD ACCESS PANELS/CONTROLLERS AND INTRUSION/BURGLAR ALARM PANEL INCLUDING ALL POWER SUPPLIES FOR A COMPLETE AND OPERATIONAL SYSTEM		SEE DETAIL 1 ON DRAWING ES2.01 FOR ADDITIONAL REQUIREMENTS
CAS		PROVIDE COMPUTER STATION FOR INSTALLING OF CARD ACCESS SYSTEM AND SECURITY CAMERA SYSTEM INCLUDING MONITOR, SOFTWARE, LICENSES AND ALL OTHER EQUIPMENT FOR A COMPLETE AND OPERATIONAL SYSTEM		SEE DETAIL 1 ON DRAWING ES2.01 FOR ADDITIONAL REQUIREMENTS
CR		PROVIDE PROXIMITY TYPE CARD READER (COLOR BY ARCHITECT)	48" AFF	SEE DETAIL 1 AND 2 ON DRAWING ES2.01 FOR WIRING REQUIREMENTS.
CR M		PROVIDE MULLION MOUNTED PROXIMITY TYPE CARD READER (COLOR BY ARCHITECT)	48" AFF	SEE DETAIL 1 AND 2 ON DRAWING ES2.01 FOR WIRING REQUIREMENTS.
EL		DOOR HARDWARE CONTRACTOR SHALL PROVIDE ELECTRIC LOCK		
ML		DOOR HARDWARE CONTRACTOR SHALL PROVIDE MAGNETIC LOCK		
DC		PROVIDE DOOR CONTACTS.		SEE DETAIL 1 AND 2 ON DRAWING ES2.01 FOR WIRING REQUIREMENTS.
RE		REQUEST TO EXIT DEVICE IS TYPICALLY PART OF DOOR, WHERE IDENTIFIED ON PLAN DRAWINGS PROVIDE ABOVE DOOR REQUEST TO EXIT DEVICE	12" ABOVE DOOR	SEE DETAIL 1 AND 2 ON DRAWING ES2.01 FOR WIRING REQUIREMENTS.
PB		PROVIDE PUSH TO EXIT DEVICE (COLOR BY ARCHITECT)	48" AFF	SEE DETAIL 1 AND 2 ON DRAWING ES2.01 FOR WIRING REQUIREMENTS.
PS		PROVIDE BLUE EMERGENCY PULL STATION	48" AFF	SEE DETAIL 1 AND 2 ON DRAWING ES2.01 FOR WIRING REQUIREMENTS.
DO		ADA DOOR OPERATOR. PROVIDED BY DOOR HARDWARE CONTRACTOR		
XXXX		DOOR NUMBER IDENTIFIER. THIS CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONNECTIONS TO EQUIPMENT PROVIDED BY DOOR HARDWARE CONTRACTOR PRIOR TO INSTALLING		
X / XX		SECTION/ELEVATION DETAIL. TOP NUMBER INDICATES DETAIL/BOTTOM NUMBER INDICATES DRAWING SHEET		

SECURITY GENERAL NOTES

1. SEE SECURITY FLOOR PLANS AND DETAIL SHEETS FOR PROPOSED SECURITY EQUIPMENT LAYOUTS AND MATERIALS LIST.

4. CAMERA LOCATIONS ON DRAWINGS ARE FOR DIAGRAMMATIC PURPOSES ONLY. SECURITY CONTRACTOR SHALL PROVIDED EXACT LOCATIONS AND MOUNTING HEIGHTS BASED ON THE FIELD VIEWING OF ACTUAL INSTALLATION.

5. SECURITY CONTRACTOR SHALL PROVIDE COORDINATION WITH OTHER TRADES TO AVOID CONFLICTS WITH LIGHT FIXTURES, DIFFUSERS, SPRINKLER HEADS, ETC.

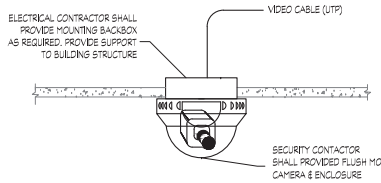
6. SECURITY CONTRACTOR SHALL PROVIDE COORDINATION WITH ELECTRICAL CONTRACTOR TO ASSURE THAT PROPER POWER AND ROUGH-IN REQUIREMENTS ARE PROVIDED FOR SECURITY EQUIPMENT AND CABLING.

7. SECURITY CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF EACH PROPOSED PIECE OF SECURITY EQUIPMENT WITH MANUFACTURER AND MODEL NUMBER HIGHLIGHTED FOR FOR OWNER REVIEW.

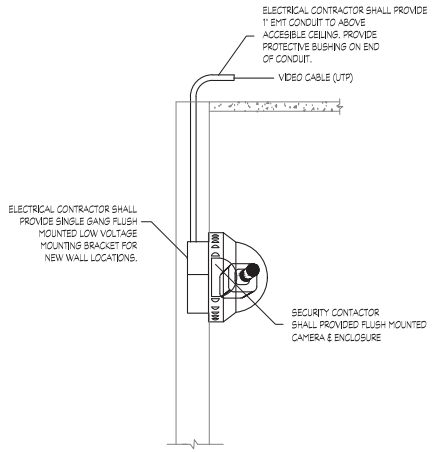
8. SECURITY CONTRACTOR SHALL PROVIDE COMPLETE AS BUILT DOCUMENTS WITH WIRING DIAGRAMS AND RACK ELEVATIONS IN ELECTRONIC FORMAT.

SECURITY SYSTEM (CARD ACCESS AND CAMERA) INSTALLATION MATRIX

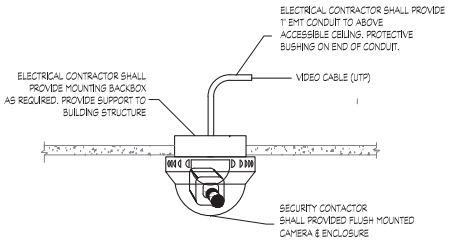
DESCRIPTION	ELECTRICAL CONTRACTOR	SECURITY CONTRACTOR	GENERAL CONTRACTOR
ROUGH-INS, CONDUITS, PULLSTRING AND POWER FOR SECURITY EQUIPMENT	FURNISH & INSTALL		
ELECTRIFIED DOOR HARDWARE			FURNISH & INSTALL
SECURITY CABLING TO SECURITY EQUIPMENT		FURNISH & INSTALL	
SECURITY EQUIPMENT (CARD READERS, DOOR CONTACTS, REX SENSORS, CAMERAS, HEAD END EQUIPMENT, SOFTWARE, POWER SUPPLIES, ETC.)		FURNISH & INSTALL	



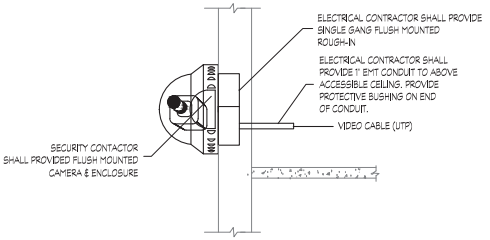
1 ES0.01 CCTV INTERIOR IP CAMERA - CEILING MOUNTED DETAIL (ACOUSTICAL TILE)
SCALE: NTS



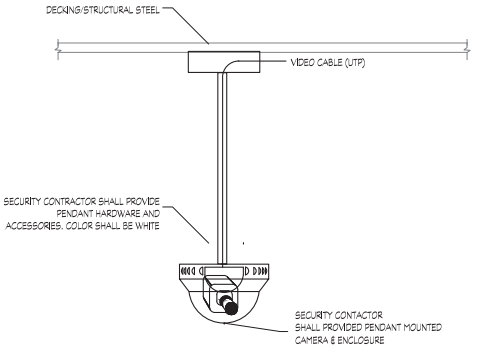
2 ES0.01 CCTV INTERIOR IP CAMERA - WALL MOUNTED DETAIL
SCALE: NTS



3 ES0.01 CCTV INTERIOR IP CAMERA - CEILING MOUNTED DETAIL (DRYWALL CEILING)
SCALE: NTS



4 ES0.01 EXTERIOR IP CAMERA - WALL MOUNTED DETAIL
SCALE: NTS



5 ES0.01 CCTV INTERIOR IP CAMERA - PENDANT MOUNTED DETAIL
SCALE: NTS

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2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEET NAME:
SECURITY DATA SHEET

SHEET NO:
ES0.01

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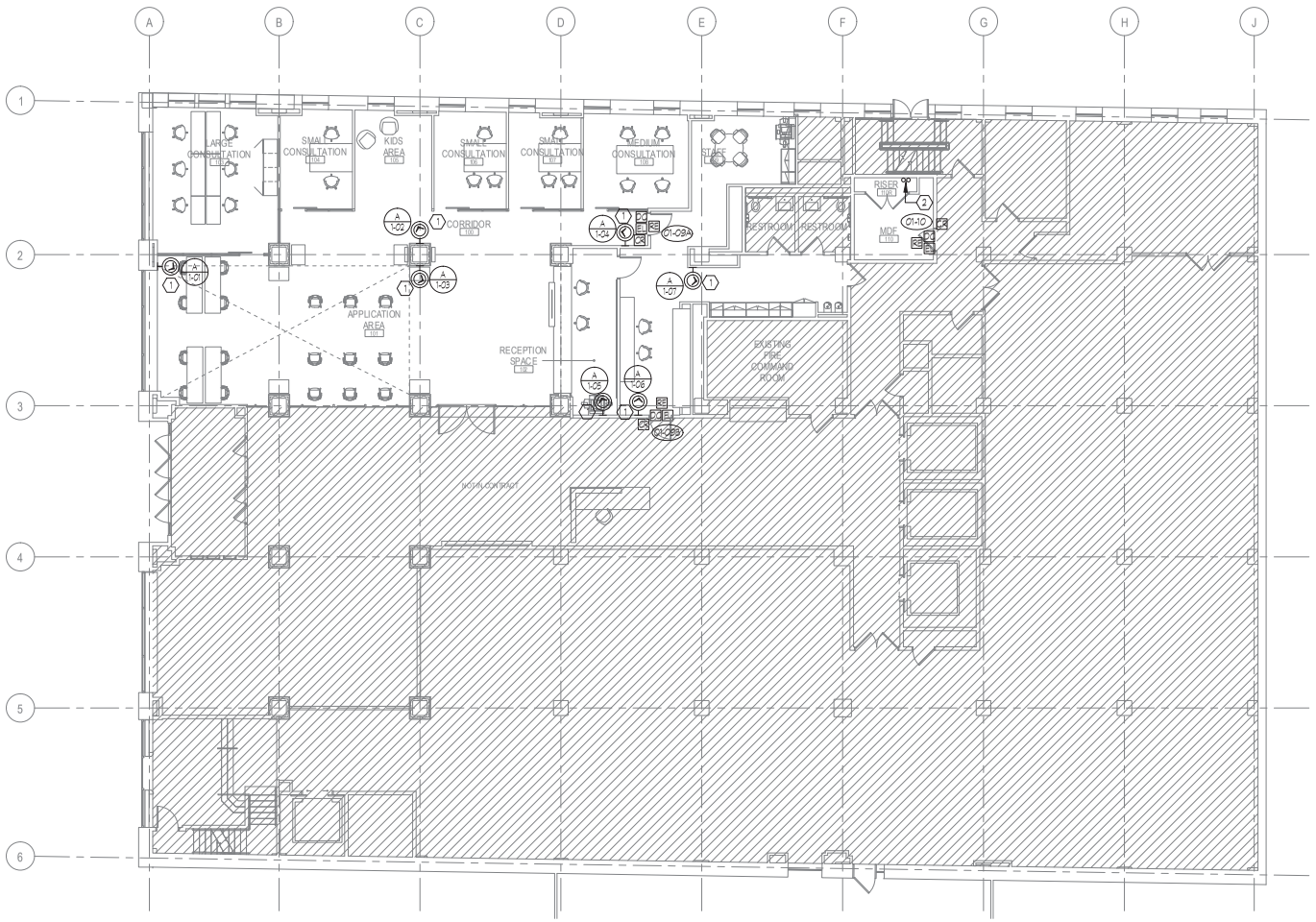

1 ES1.01 SECURITY PLAN - LEVEL 1
1/8" = 1'-0"

GENERAL NOTES

1. SEE DRAWING ES0.01, ES2.01 AND ES2.02 FOR SPECIFICATIONS, MANUFACTURER AND MODEL NUMBER, INSTALLATION REQUIREMENTS, ETC.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH HACP'S SECURITY DEPARTMENT REQUIREMENTS.

3. ALL SECURITY CAMERAS, PANIC BUTTONS, DOOR CONTACTS AND DOOR ACCESS EQUIPMENT SHALL BE WIRED BACK TO HEAD END EQUIPMENT IN IDF 525 ON LEVEL 5. SEE LEVEL 5 SECURITY PLAN FOR ADDITIONAL REQUIREMENTS.

4. ALL CABLE RAN THRU OPEN CBLING MUST BE WHITE CABLING.

5. SEE TELECOM DRAWINGS FOR BASKET TRAY LOCATIONS THAT SECURITY CABLING CAN BE RAN THRU.

CODED NOTES: (#)

1. MOUNTED ON WALL OR COLUMN AT 10'-0" AFF.

2. EXISTING (2) 4" SLEEVES UP TO FLOOR ABOVE. ALL HORIZONTAL SECURITY CABLE SHALL BE RAN THROUGH SLEEVES IN STACKED VERTICAL CLOSETS TO HEAD END EQUIPMENT IN IDF 525 UNLESS NOTED OTHERWISE. FIRE STOP SLEEVES AS REQUIRED. SEE CARD ACCESS DETAILS ON DRAWING ES2.01 AND CAMERA DETAILS ON DRAWING ES2.01 FOR ADDITIONAL REQUIREMENTS.

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PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEETNAME:
SECURITY PLAN - LEVEL 1

SHEET NO:
ES1.01

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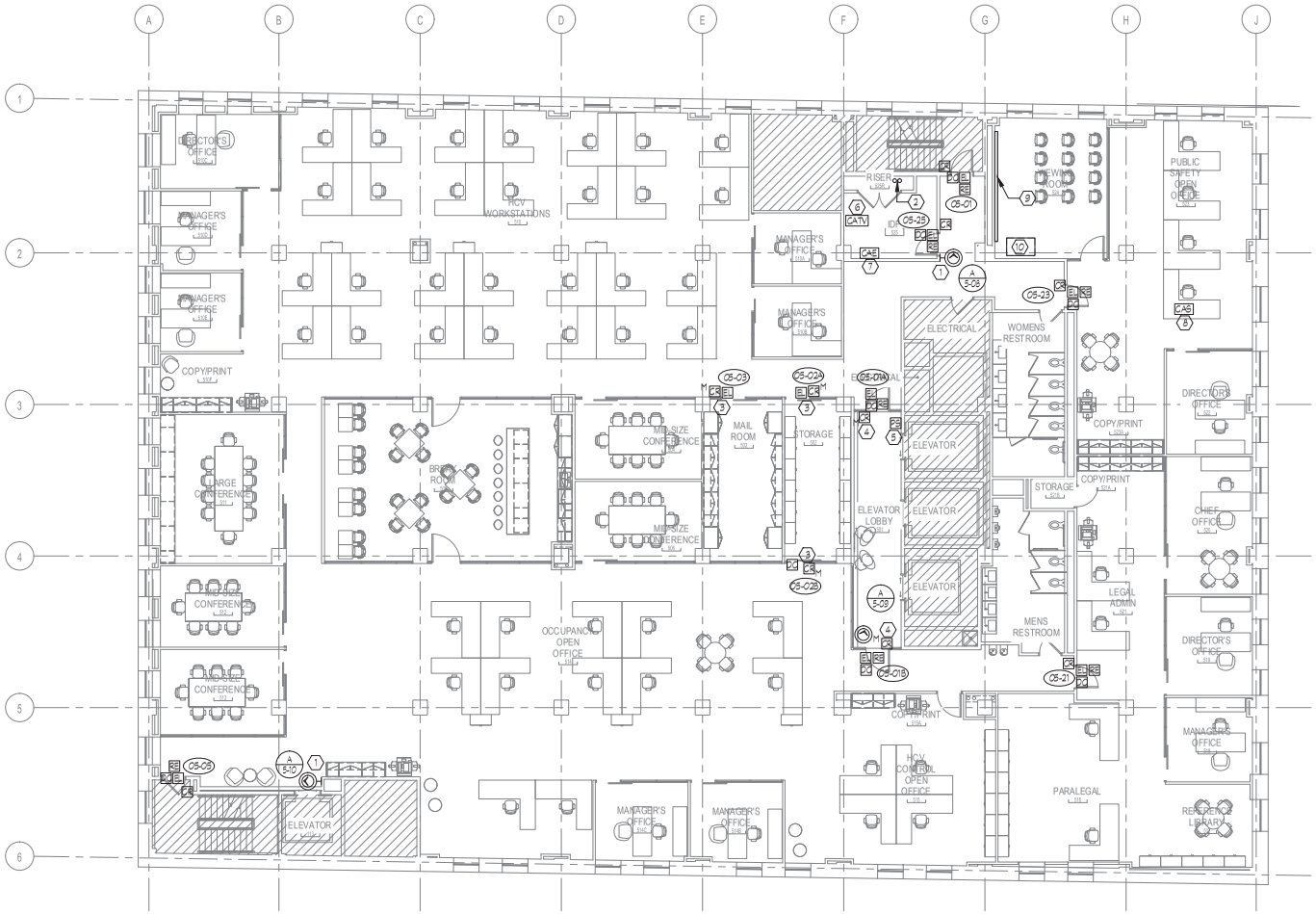

1 SECURITY PLAN - LEVEL 5
ES1.05 1/8" = 1'-0"

GENERAL NOTES

1. SEE DRAWING ES0.01, ES2.01 AND ES2.02 FOR SPECIFICATIONS, MANUFACTURER AND MODEL NUMBER, INSTALLATION REQUIREMENTS, ETC.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH HACP'S SECURITY DEPARTMENT REQUIREMENTS.

3. ALL SECURITY CAMERAS, PANIC BUTTONS, DOOR CONTACTS AND DOOR ACCESS EQUIPMENT SHALL BE WIRED BACK TO HEAD END EQUIPMENT IN IDF 525 ON LEVEL 5. SEE LEVEL 5 SECURITY PLAN FOR ADDITIONAL REQUIREMENTS.

4. ALL CABLE RAN THRU OPEN CEILING MUST BE WHITE CABLING.

5. SEE TELECOM DRAWINGS FOR BASKET TRAY LOCATIONS THAT SECURITY CABLING CAN BE RAN THRU.

CODED NOTES: (#)

1. MOUNTED ON WALL OR COLUMN AT 10'-0" AFF.

2. EXISTING (2) 4" SLEEVES UP TO FLOOR ABOVE. ALL HORIZONTAL SECURITY CABLE SHALL BE RAN THROUGH SLEEVES IN STACKED VERTICAL CLOSETS TO HEAD END EQUIPMENT IN IDF 525 UNLESS NOTED OTHERWISE. FIRE STOP SLEEVES AS REQUIRED. SEE CARD ACCESS DETAILS ON DRAWING ES2.01 AND CAMERA DETAILS ON DRAWING ES2.01 FOR ADDITIONAL REQUIREMENTS.

3. CARD READER MOUNTED TO MULLION OF DIRTT FURNITURE PARTITION. ELECTRIFIED HARDWARE IS PART OF DIRTT FURNITURE PARTITION. COORDINATE FINAL CONNECTION TO ELECTRIFIED HARDWARE AND ROUTING SECURITY WIRING THRU FURNITURE WALLS WITH FURNITURE CONTRACTOR PRIOR TO INSTALLATION.

4. CARD READER MOUNTED TO MULLION OF DIRTT FURNITURE PARTITION, DOOR CONTACT MOUNTED TO DOOR AND DOOR FRAME OF DIRTT FURNITURE PARTITION AND REQUEST TO EXIT MOTION SENSOR MOUNTED TO WALL ABOVE DOOR OF DIRTT FURNITURE PARTITION. ELECTRIFIED HARDWARE IS PART OF DIRTT FURNITURE PARTITION. COORDINATE FINAL CONNECTION TO ELECTRIFIED HARDWARE AND ROUTING SECURITY WIRING THRU FURNITURE WALLS AND CUTTING/MOUNTING TO DIRTT WALLS WITH FURNITURE CONTRACTOR PRIOR TO INSTALLATION.

5. PROVIDE SDC 482 BLUE EMERGENCY PULL STATION WITH INTEGRAL SOUNDER AS PER AHJ'S REQUIREMENTS. WHEN ACTIVATED THIS DEVICE SHALL SOUND AN ALARM AND SHALL RELEASE POWER SUPPLY TO THE TWO EGRESS DOORS TO STAIRWELL EGRESS PATH. PROVIDE SURFACE MOUNTED BOX AND SURFACE RACEWAY UP TO NEAREST OPEN CEILING. SURFACE RACEWAY AND BOX SHALL BE COLOR WHITE.

6. CCTV/SURVEILLANCE IP SYSTEM HEAD END EQUIPMENT TO BE MOUNTED IN TELECOM RACK IN THIS ROOM FOR ALL CAMERAS. SEE DETAIL 1 ON DRAWING ES2.02 FOR EQUIPMENT REQUIREMENTS. COORDINATE WITH TELECOM CONTRACTOR PRIOR TO INSTALLATION. SEE DETAIL 3 ON T2.02 FOR LOCATION OF EQUIPMENT TO BE MOUNTED IN RACK. COORDINATE FINAL LOCATION IN RACK WITH TELECOM CONTRACTOR PRIOR TO INSTALLATION.

7. CARD ACCESS CONTROLLER ON WALL IN THIS ROOM IS FOR ALL DOOR ACCESS. SEE DETAIL 1 ON DRAWING ES2.01 FOR EQUIPMENT REQUIREMENTS. COORDINATE WITH TELECOM CONTRACTOR PRIOR TO INSTALLATION.

8. PROVIDE CARD ACCESS AND CCTV SOFTWARE ON HACP PROVIDED WORKSTATION FOR A COMPLETE AND OPERATIONAL SYSTEM TO ALLOW BADGING AND VIEWING OF CAMERAS FROM THIS LOCATION. SEE DETAIL 1 ON DRAWING ES2.01 FOR ADDITIONAL INFORMATION. COORDINATE FINAL LOCATION WITH HACP'S SECURITY DEPARTMENT PRIOR TO INSTALLATION.

9. PUBLIC SAFETY VIEWING ROOM VIDEO WALL. SEE AUDIO/VISUAL PLANS FOR ADDITIONAL REQUIREMENTS.

10. PUBLIC SAFETY EXISTING RACK AND SERVER EQUIPMENT HOUSING EQUIPMENT FOR VIDEO STORAGE AND INPUTS/OUTPUTS TO DISPLAY WALL. THIS RACK AND ALL ASSOCIATED EQUIPMENT SHALL BE DISCONNECTED AND RELOCATED OVER A WEEKEND SHIFT. PROVIDE ALL LABOR ASSOCIATED WITH SHUTTING DOWN AND MOVING FROM EXISTING SITE A BLOCK AWAY TO NEW LOCATION. EQUIPMENT SHALL BE PROTECTED TO ENSURE NO DAMAGE OCCURS.

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PROJECT ISSUANCE

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190427.00	JDW	JDW

SHEET NAME:
SECURITY PLAN - LEVEL 5

SHEET NO:
ES1.05

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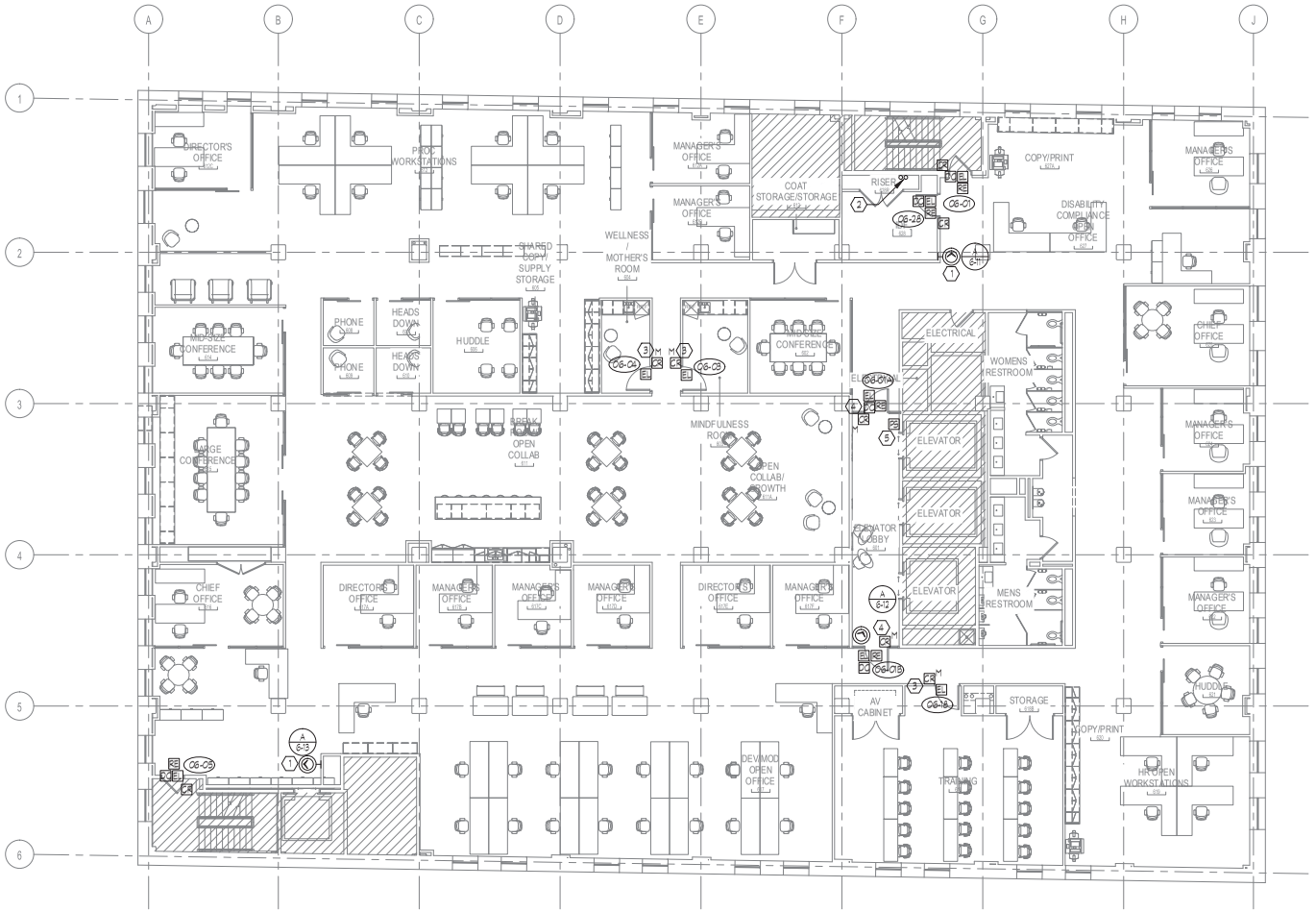

1 SECURITY PLAN - LEVEL 6
ES1.06 1/8" = 1'-0"

GENERAL NOTES

1. SEE DRAWING ES0.01, ES2.01 AND ES2.02 FOR SPECIFICATIONS, MANUFACTURER AND MODEL NUMBER INSTALLATION REQUIREMENTS, ETC.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH HACP'S SECURITY DEPARTMENT REQUIREMENTS.

3. ALL SECURITY CAMERAS, PANIC BUTTONS, DOOR CONTACTS AND DOOR ACCESS EQUIPMENT SHALL BE WIRED BACK TO HEAD END EQUIPMENT IN IDF 525 ON LEVEL 5. SEE LEVEL 5 SECURITY PLAN FOR ADDITIONAL REQUIREMENTS.

4. ALL CABLE RAN THRU OPEN CEILING MUST BE WHITE CABLING.

5. SEE TELECOM DRAWINGS FOR BASKET TRAY LOCATIONS THAT SECURITY CABLING CAN BE RAN THRU.

CODED NOTES: (#)

1. MOUNTED ON WALL OR COLUMN AT 10'-0" AFF.

2. EXISTING (2) 4" SLEEVES DOWN TO FLOOR BELOW. ALL HORIZONTAL SECURITY CABLE SHALL BE RAN THROUGH SLEEVES IN STACKED VERTICAL CLOSETS TO HEAD END EQUIPMENT IN IDF 525 UNLESS NOTED OTHERWISE. FIRE STOP SLEEVES AS REQUIRED. SEE CARD ACCESS DETAILS ON DRAWING ES2.01 AND CAMERA DETAILS ON DRAWING ES2.01 FOR ADDITIONAL REQUIREMENTS.

3. CARD READER MOUNTED TO MULLION OF DIRTT FURNITURE PARTITION. ELECTRIFIED HARDWARE IS PART OF DIRTT FURNITURE PARTITION. COORDINATE FINAL CONNECTION TO ELECTRIFIED HARDWARE AND ROUTING SECURITY WIRING THRU FURNITURE WALLS WITH FURNITURE CONTRACTOR PRIOR TO INSTALLATION.

4. CARD READER MOUNTED TO MULLION OF DIRTT FURNITURE PARTITION, DOOR CONTACT MOUNTED TO DOOR AND DOOR FRAME OF DIRTT FURNITURE PARTITION AND REQUEST TO EXIT MOTION SENSOR MOUNTED TO WALL ABOVE DOOR OF DIRTT FURNITURE PARTITION. ELECTRIFIED HARDWARE IS PART OF DIRTT FURNITURE PARTITION. COORDINATE FINAL CONNECTION TO ELECTRIFIED HARDWARE AND ROUTING SECURITY WIRING THRU FURNITURE WALLS AND CUTTING/MOUNTING TO DIRTT WALLS WITH FURNITURE CONTRACTOR PRIOR TO INSTALLATION.

5. PROVIDE SDC 482 BLUE EMERGENCY PULL STATION WITH INTEGRAL SOUNDER AS PER AHJ'S REQUIREMENTS. WHEN ACTIVATED THIS DEVICE SHALL SOUND AN ALARM AND SHALL RELEASE POWER SUPPLY TO THE TWO EGRESS DOORS TO STAIRWELL EGRESS PATH. PROVIDE SURFACE MOUNTED BOX AND SURFACE RACEWAY UP TO NEAREST OPEN CEILING. SURFACE RACEWAY AND BOX SHALL BE COLOR WHITE.

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SECURITY PLAN - LEVEL 6

SHEET NO:
ES1.06

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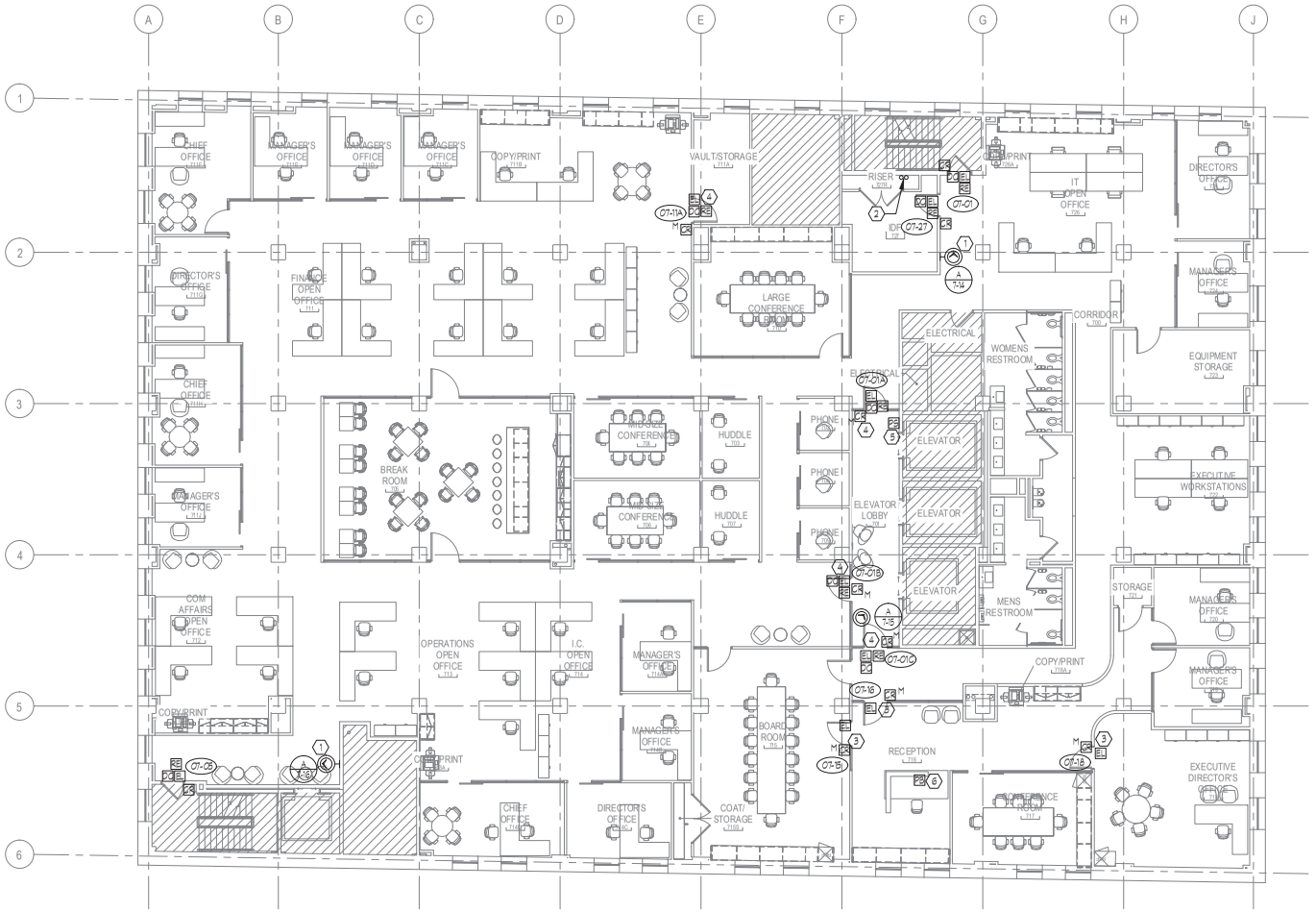

1 SECURITY PLAN - LEVEL 7
ES1.07 1/8" = 1'-0"

GENERAL NOTES

1. SEE DRAWING ES0.01, ES2.01 AND ES2.02 FOR SPECIFICATIONS, MANUFACTURER AND MODEL NUMBER INSTALLATION REQUIREMENTS, ETC.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH HACP'S SECURITY DEPARTMENT REQUIREMENTS.

3. ALL SECURITY CAMERAS, PANIC BUTTONS, DOOR CONTACTS AND DOOR ACCESS EQUIPMENT SHALL BE WIRED BACK TO HEAD END EQUIPMENT IN IDF 525 ON LEVEL 5. SEE LEVEL 5 SECURITY PLAN FOR ADDITIONAL REQUIREMENTS.

4. ALL CABLE RAN THRU OPEN CEILING MUST BE WHITE CABLING.

5. SEE TELECOM DRAWINGS FOR BASKET TRAY LOCATIONS THAT SECURITY CABLING CAN BE RAN THRU.

CODED NOTES: (#)

1. MOUNTED ON WALL OR COLUMN AT 10'-0" AFF.

2. EXISTING (2) 4" SLEEVES DOWN TO FLOOR BELOW. ALL HORIZONTAL SECURITY CABLE SHALL BE RAN THROUGH SLEEVES IN STACKED VERTICAL CLOSETS TO HEAD END EQUIPMENT IN IDF 525 UNLESS NOTED OTHERWISE. FIRE STOP SLEEVES AS REQUIRED. SEE CARD ACCESS DETAILS ON DRAWING ES2.01 AND CAMERA DETAILS ON DRAWING ES2.01 FOR ADDITIONAL REQUIREMENTS.

3. CARD READER MOUNTED TO MULLION OF DIRTT FURNITURE PARTITION. ELECTRIFIED HARDWARE IS PART OF DIRTT FURNITURE PARTITION. COORDINATE FINAL CONNECTION TO ELECTRIFIED HARDWARE AND ROUTING SECURITY WIRING THRU FURNITURE WALLS WITH FURNITURE CONTRACTOR PRIOR TO INSTALLATION.

4. CARD READER MOUNTED TO MULLION OF DIRTT FURNITURE PARTITION, DOOR CONTACT MOUNTED TO DOOR AND DOOR FRAME OF DIRTT FURNITURE PARTITION AND REQUEST TO EXIT MOTION SENSOR MOUNTED TO WALL ABOVE DOOR OF DIRTT FURNITURE PARTITION. ELECTRIFIED HARDWARE IS PART OF DIRTT FURNITURE PARTITION. COORDINATE FINAL CONNECTION TO ELECTRIFIED HARDWARE AND ROUTING SECURITY WIRING THRU FURNITURE WALLS AND CUTTING/MOUNTING TO DIRTT WALLS WITH FURNITURE CONTRACTOR PRIOR TO INSTALLATION.

5. PROVIDE SDC 482 BLUE EMERGENCY PULL STATION WITH INTEGRAL SOUNDER AS PER AHJ'S REQUIREMENTS. WHEN ACTIVATED THIS DEVICE SHALL SOUND AN ALARM AND SHALL RELEASE POWER SUPPLY TO THE TWO EGRESS DOORS TO STAIRWELL EGRESS PATH. PROVIDE SURFACE MOUNTED BOX AND SURFACE RACEWAY UP TO NEAREST OPEN CEILING. SURFACE RACEWAY AND BOX SHALL BE COLOR WHITE.

6. PROVIDE PANIC BUTTON UNDER DESK AND CONNECT BACK TO CARD ACCESS SYSTEM CONTROLLER INPUT BOARD IN IDF 525 ON 5TH FLOOR. THIS PANIC ALARM SHALL SIGNAL HACP SECURITY GROUP ON 5TH FLOOR VIA CARD ACCESS SYSTEM ALARM ON SOFTWARE.

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SECURITY PLAN - LEVEL 7

SHEET NO:
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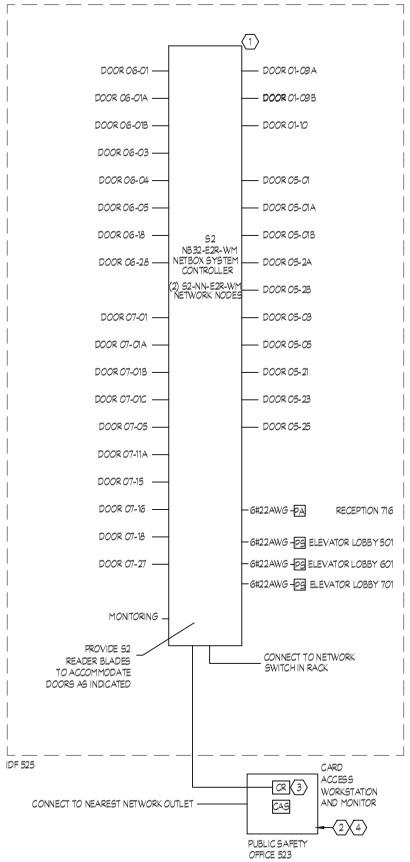


1 ES2.01 SECURITY SYSTEM WIRING DIAGRAM
NOT TO SCALE

GENERAL NOTES:

1. THIS DETAIL IS FOR DIAGRAMMATIC PURPOSES ' ONLY'. SEE PLAN DRAWINGS FOR ACTUAL DEVICE LOCATIONS AND QUANTITIES.

2. COORDINATE FINAL ROUGH-IN LOCATIONS AND CONNECTION TO ELECTRIFIED DOOR HARDWARE WITH DOOR HARDWARE CONTRACTOR PRIOR TO INSTALLATION.

3. COORDINATE FINAL ROUGH-IN SIZES WITH EQUIPMENT MANUFACTURER.

4. COORDINATE FINAL CONDUIT SIZES AND ROUTINGS WITH EQUIPMENT MANUFACTURER.

5. WIRING TYPE/SIZE IS SHOWN FOR IDENTIFICATION PURPOSES ONLY. THIS CONTRACTOR SHALL PROVIDE WIRING TYPES AND SIZES ACCORDING TO MANUFACTURERS REQUIREMENTS.

6. SEE FLOOR PLANS FOR ACTUAL QUANTITIES AND TYPES OF DEVICES AT EACH DOOR.

7. SEE ARCHITECTURAL DRAWINGS AND DOOR HARDWARE SCHEDULE FOR ACTUAL DOOR NUMBERS AND EQUIPMENT INSTALLED ON DOORS.

8. CARD READERS SHALL BE MOUNTED AT HEIGHTS PER ADA REQUIREMENTS.

9. PROVIDE CARD READER NEXT TO CARD ACCESS WORK STATION FOR BADGING PURPOSES.

10. COORDINATE WITH FIRE ALARM CONTRACTOR TO PROVIDE FIRE ALARM CONTROL MODULE LOCAL TO DOOR POWER SUPPLIES AT EGRESS DOORS THAT HAVE CARD ACCESS TO RELEASE UPON FIRE ALARM ACTIVATION.

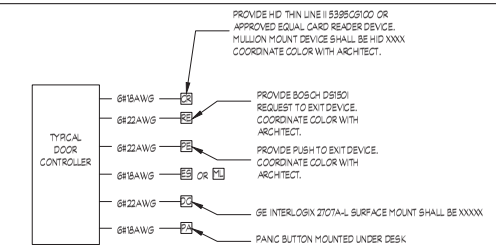
CODED NOTES (DETAIL 1):

1. SECURITY SYSTEM, SOFTWARE AND COMPATIBLE DEVICES SHALL BE S2, NO SUBSTITUTES ARE ALLOWED AS THE EXISTING BUILDING SYSTEM IS S2. PROVIDE CONTROLLER, NODES, ACH BLADES, POWER SUPPLIES AND SOFTWARE FOR A COMPLETE AND OPERTIONAL SYSTEM.

2. INSTALL SOFTWARE ON OWNER PROVIDED COMPATIBLE SERVER/WORKSTATION COMPUTER.

3. PROVIDE MULLION STYLE CARD READER NEXT TO CARD ACCESS WORK STATION FOR BADGING PURPOSES.

4. PROVIDE QUANTITY OF 300 HID 1346 PROXKEY III KEY FOBS.



2 ES2.01 TYPICAL SECURITY DEVICE WIRING DIAGRAM
SCALE: NONE

GENERAL NOTES:

1. WIRING TYPE/SIZE IS SHOWN FOR IDENTIFICATION PURPOSES ONLY. THIS CONTRACTOR SHALL PROVIDE WIRING TYPES AND SIZES ACCORDING TO MANUFACTURERS REQUIRMENTS.

2. SEE FLOOR PLANS FOR ACTUAL QUANTITIES AND TYPES OF DEVICES AT EACH DOOR.

3. MANUFACTURER AND MODEL NUMBERS ARE FOR DESCRIPTION PURPOSE ONLY. PROVIDE APPROVED EQUALS.

4. COORDINATE WITH DOOR HARDWARE SCHEDULE FOR REQUEST TO EXIT DEVICES BUILT INTO DOOR HARDWARE. ALL OTHER LOCATIONS SHALL BE MOUNTED OVER THE DOOR.

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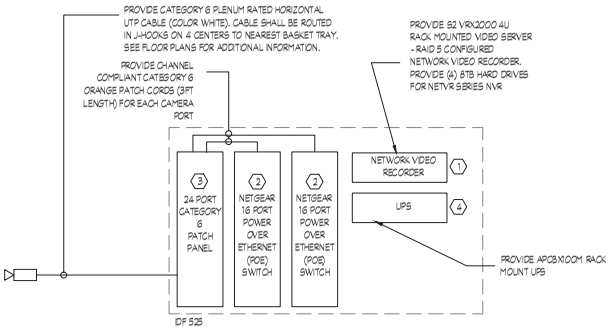

1 / ES2.02 TYPICAL CCTV/SURVEILLANCE IP SYSTEM WIRING DIAGRAM

SCALE: NTS

GENERAL CCTV/SURVEILLANCE IP SYSTEM WIRING DIAGRAM NOTES:

1. ALL WIRING SHALL BE UNSHIELDED TWISTED PAIR, UNLESS NOTED OTHERWISE AND SHALL BE PER MANUFACTURER'S REQUIREMENTS. CATEGORY 6 CABLE SHALL MATCH TELECOM CABLING. COORDINATE WITH TELECOM CONTRACTOR.

2. ALL CCTV/SURVEILLANCE IP SYSTEM CABLING SHALL BE RAN TO PATCH PANEL IN IDF AS INDICATED.

3. CCTV/SURVEILLANCE IP SYSTEM WIRING DIAGRAM IS FOR DIAGRAMMATIC PURPOSES 'ONLY'. SEE PLAN DRAWINGS FOR ACTUAL DEVICE LOCATIONS AND QUANTITIES.

4. SEE CAMERA SCHEDULE THIS DRAWING FOR EQUIPMENT REQUIREMENTS.

5. COORDINATE FINAL CONNECTION TO NETWORK WITH OWNER'S IT REPRESENTATIVE.

6. PROVIDE MINIMUM 2 YEAR PRODUCT WARRANTY ON CAMERAS.

CCTV/SURVEILLANCE IP SYSTEM WIRING DIAGRAM CODED NOTES: (2)

1. DIGITAL VIDEO SERVER SHALL BE INSTALLED IN RACK IDF 525. COORDINATE FINAL LOCATION WITH TELECOMMUNICATIONS EQUIPMENT PRIOR TO INSTALLATION. SEE DETAIL 3 ON T2.02 FOR LOCATION OF EQUIPMENT TO BE MOUNTED IN RACK. COORDINATE FINAL LOCATION IN RACK WITH TELECOM CONTRACTOR PRIOR TO INSTALLATION. COORDINATE FINAL CONNECTION VIA NETWORK WITH OWNER'S IT REPRESENTATIVE. PROVIDE QUANTITY AND STORAGE CAPACITY AS INDICATED. NO SUBSTITUTES ACCEPTED.

2. POE NETWORK SWITCH SHALL BE INSTALLED IN RACK IN IDF 525. SEE DETAIL 3 ON T2.02 FOR LOCATION OF EQUIPMENT TO BE MOUNTED IN RACK. COORDINATE FINAL LOCATION IN RACK WITH TELECOM CONTRACTOR PRIOR TO INSTALLATION. NO SUBSTITUTES ACCEPTED. COORDINATE ASSIGNING IP ADDRESSES FOR EACH CAMERA WITH OWNER'S IT DEPARTMENT.

3. PATCH PANEL SHALL BE INSTALLED IN RACK IN IDF 525. SEE DETAIL 3 ON T2.02 FOR LOCATION OF EQUIPMENT TO BE MOUNTED IN RACK. COORDINATE FINAL LOCATION IN RACK WITH TELECOM CONTRACTOR PRIOR TO INSTALLATION. COORDINATE FINAL LOCATION WITH OWNER'S IT DEPARTMENT PRIOR TO INSTALLATION. CATEGORY 6 PATCH PANELS SHALL MATCH TELECOM.

4. UPS SHALL BE INSTALLED IN TELECOM RACK IN IDF 525. SEE DETAIL 3 ON T2.02 FOR LOCATION OF EQUIPMENT TO BE MOUNTED IN RACK. COORDINATE FINAL LOCATION IN RACK WITH TELECOM CONTRACTOR PRIOR TO INSTALLATION. COORDINATE FINAL LOCATION WITH OWNER'S IT DEPARTMENT PRIOR TO INSTALLATION.

CAMERA SCHEDULE

CAMERA DESIGNATION	DETAIL#	CAMERA LOCATION	CAMERA MEGAPIXEL	CAMERA LENS	CAMERA HOUSING		FIXED/ PTZ		MOUNT	MANUFACTURER	MODEL NUMBER	DEFAULT VIEW	COMMENTS
					HEATER	TINTED DOME	FIXED	PTZ					
A/1-01		LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP
A/1-02		LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP
A/1-03		LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP
A/1-04		LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP
A/1-05		LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP
A/1-06		LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP
A/1-07		LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP
A/5-08		LEVEL 5 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP
A/5-09		LEVEL 5 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		CEILING	HANWHA	QND-7080R		
A/5-10		LEVEL 5 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP
A/6-11		LEVEL 6 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP
A/6-12		LEVEL 6 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		CEILING	HANWHA	QND-7080R		
A/6-13		LEVEL 6 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP
A/7-14		LEVEL 7 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP
A/7-15		LEVEL 7 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		CEILING	HANWHA	QND-7080R		
A/7-16		LEVEL 7 - INTERIOR	4 MP	2.8-12MM VARIFOCAL			X		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP

GENERAL CAMERA NOTES:

1. CAMERA MOUNTING HEIGHTS ARE BASED ON HEIGHT FROM INTERIOR FLOOR SLAB.

2. CAMERA MANUFACTURER AND MODEL NUMBERS MAY BE SUBSTITUTED FOR AN EXACT EQUAL. EQUAL MUST BE SUBMITTED BEFORE BIDS ARE TURNED IN OTHERWISE THEY ARE SUBJECT TO REJECTION.

3. PROVIDE CAMERA LICENSE PER EACH CAMERA FOR THE CCTV OPERATING SYSTEM .

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SECURITY CAMERA DETAILS

SHEET NO:

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SOUND MASKING GENERAL NOTES

GENERAL

A. THE LOUDSPEAKERS SHALL BE DIRECT FIELD, RADIATING DIRECTLY INTO THE SPACE.

B. THE SOUND MASKING AND PAGING/MUSIC SYSTEM SHALL HAVE CONTROLLERS THAT POWER ONE OR MORE INDIVIDUALLY CONTROLLABLE ZONES. THE SYSTEM SHALL PROVIDE:
   1. ONE OR MORE RACK OR WALL-MOUNTED CONTROLLERS, EACH WITH ONE OR MORE ZONES AND ONE OR MORE LINE LEVEL AUDIO INPUTS.
   2. FOUR UNCORRELATED NOISE SOURCES PER ZONE. THE SIGNALS TO ADJACENT LOUDSPEAKERS SHALL BE UNCORRELATED.
   3. DIRECT FIELD LOUDSPEAKERS THAT AUTOMATICALLY SEQUENCE THE FOUR NOISE CHANNELS AND THAT ARE MOUNTED EITHER IN OFFICE CEILING TILES OR OTHER ENCLOSURES.
   4. CAT 3/5/6 PRETERMINATED CABLE ASSEMBLIES.

LABELS

A. EXCEPT WHERE OTHERWISE SPECIFIED, LABEL EACH ITEM OF CONTROL EQUIPMENT AS SHOWN ON DRAWINGS.
   1. CONTROLLERS: CONSTRUCTED OF ENGRAVED AND FILLED ANODIZED ALUMINUM PLATES. MINIMUM 1/8" PLATE THICKNESS. DRY TRANSFER OR OTHER TYPES OF ADHESIVE LABELS NOT ACCEPTABLE.
   2. IDENTIFICATION PANEL: INSTALL PANEL WITH 1/8"-HIGH ENGRAVED CHARACTERS. CLEARLY IDENTIFY THE PROJECT, SYSTEM INSTALLATION CONTRACTOR, AND PROJECT ARCHITECT.

B. IDENTIFY ALL WIRES AND CABLES AT EVERY CONNECTION POINT TO CONTROLLERS WITH REFERENCE NUMBER KEYED TO THE AS-BUILT WIRING DIAGRAMS.

C. ROOM NUMBERS APPEAR ON THE CONTRACT DOCUMENTS FOR REFERENCE ONLY. ALL LABELS SHALL REFLECT THE OWNER'S FINAL ROOM DESIGNATIONS.

D. CABLE MARKERS:
   1. HIGH-GRADE PVC CLIP-ON OR PERMANENT-TYPE CABLE MARKERS WITH PERMANENT MARKINGS, OR PRINTED VINYL TAPE PROTECTED BY CLEAR SHRINK TUBING OR ADHESIVE WRAP.

MANUFACTURERS

ACCEPTABLE MANUFACTURER: CAMBRIDGE SOUND MANAGEMENT OR APPROVED EQUAL

CONTROLLERS

A. ALL SOUND MASKING LOUDSPEAKERS SHALL BE DIRECTLY POWERED AND MANAGED BY A CONTROLLER.

" NOTE TO SPECIFIER " THIS SPECIFICATION INCLUDES THREE MODELS OF MASKING AND PAGING CONTROLLERS WITHIN THE QT QUIET TECHNOLOGY™ PRODUCT SUITE. THE SECTIONS BELOW PROVIDE SPECIFICATIONS FROM THE MOST GENERAL TO THOSE THAT ARE SPECIFIC FOR EACH CONTROLLER. THE SYSTEM DESIGNER MAY CHOOSE TO SPECIFY ONE OR MORE TYPE OF CONTROLLER BASED UPON END USER'S ZONING REQUIREMENTS AND/OR PAGING AND MUSIC CONFIGURATION. DELETE CONTROLLERS AND ASSOCIATED SPECIFICATIONS THAT ARE NOT REQUIRED.

B. EACH CONTROLLER AND ZONE SHALL:
   1. HAVE FOUR BUTTON CONTROL AND LCD READOUT OF SYSTEM SETTINGS ON FRONT PANEL.
   2. PROVIDE DSP-BASED SOUND GENERATION WITH FOUR (4) UNCORRELATED MASKING SIGNAL OUTPUTS PER ZONE.
   3. HAVE BUILT IN SIGNAL LOGIC FOR SEQUENTIAL CHANNEL OPERATION BY ADJACENT LOUDSPEAKERS.
   4. PROVIDE PRE-SET INDUSTRY STANDARD FREQUENCY EQUALIZATION, SPECIFICALLY TAILORED TO THE OPERATING CHARACTERISTICS OF THE LOUDSPEAKER OR SPEAKERS PROVIDED AND REQUIRING NO FREQUENCY EQUALIZATION DURING THE COMMISSIONING PROCESS.
   5. PROVIDE SEPARATE LEVEL CONTROLS FOR MASKING AND PAGING/MUSIC ADJUSTABLE IN 1 DB STEPS OVER A MINIMUM RANGE OF 30 DECIBELS, AND OFF.
   6. HAVE DEDICATED COMPRESSOR AND PEAK LIMITER FOR PAGING INPUTS.
   7. BE WALL AND/OR RACK MOUNTABLE (EXCEPT SINGLE ZONE CONTROLLERS WALL MOUNTABLE ONLY).
   8. HAVE UL/CUL/CE LISTED POWER SUPPLY.
   9. BE GREEN SPEC-LISTED FOR ENERGY EFFICIENCY.

C. SINGLE-ZONE CONTROLLERS:
   1. CAPABLE OF CONTROLLING BACKGROUND SOUND AND PAGING FOR A SINGLE ZONE OF SOUND MASKING WITH PAGING, AND FROM 1 TO 120 SPEAKERS AND 100 TO 12,000 SQUARE FEET.
   2. ONE AUDIO INPUT ON REAR PANEL OPERABLE IN BALANCED OR SINGLE ENDED CONFIGURATION FOR DISTRIBUTION OF EXTERNALLY GENERATED SIGNALS VIA 4 TERMINAL COMPRESSION TYPE CONNECTOR.
   3. OPTIONAL BLUETOOTH WIRELESS CONTROL CONNECTIVITY FOR AUTOMATED CONTROL OF MASKING LEVEL SETTING DURING SYSTEM COMMISSIONING.
   4. WALL MOUNTABLE.
   5. MINIMUM PERFORMANCE REQUIREMENTS:
      a. SUPPLY POWER: 110 - 240 VAC 0.9 AMPERES.
      b. RATED AMBIENT TEMPERATURE RANGE: 40 TO 90 DEGREES F (4 TO 32 DEGREES C).
      c. OUTPUT VOLTAGE: 20 VOLTS RMS MINIMUM SINE WAVE AT FULL LOAD, EACH CHANNEL TO MEET NEC CLASS 2 REQUIREMENTS FOR LOW VOLTAGE DISTRIBUTION.
      d. AUDIO (PAGING) INPUT: 600 OHM LINE BRIDGING, DIFFERENTIAL OR SINGLE ENDED, 1 VOLT NOMINAL, ADJUSTABLE BETWEEN -10 DBV AND +4 DBV RMS.
   6. ACCEPTABLE PRODUCTS:
      a. CAMBRIDGE SOUND MANAGEMENT MODEL QT. NO SUBSTITUTES ACCEPTED.

D. THREE-ZONE CONTROLLERS
   1. NETWORK CAPABLE MANAGEMENT OF SYSTEM ACOUSTIC OUTPUT OF ALL ZONES.
   2. CONTROL SOFTWARE THAT IS PRE-INSTALLED AND RESIDENT ON CONTROLLER AND ACCESSIBLE VIA ANY STANDARD BROWSER FROM A COMPUTER RESIDENT ON THE NETWORK.
   3. CAPABILITY OF CONTROLLING BACKGROUND SOUND AND PAGING FOR UP TO THREE SEPARATE ZONES OF SOUND MASKING WITH PAGING SELECTABLE BY ZONE, AND FROM ONE TO 120 SPEAKERS PER ZONE COVERING FROM 100 TO 12,000 SQUARE FEET OR FROM 100 TO 36,000 SQUARE FEET TOTAL.
   4. CAPABLE OF AUTOMATIC BACKGROUND SOUND LEVEL ADJUSTMENT (RAMPING) BASED ON TIME OF DAY AND DAY OF WEEK.
   5. TIME SOURCE PROVIDED BY INTEGRATED REAL TIME CLOCK WITH BATTERY BACKUP OR USER SELECTABLE SNTP SERVER. FIELD ADJUSTABLE USING PROVIDED ETHERNETTM CONNECTION AND FACTORY INSTALLED SOFTWARE.
   6. DEDICATED 1/3 OCTAVE EQUALIZER COVERING ISO BANDS FROM 200 HZ TO 5,000 HZ FOR BACKGROUND SOUND SPECTRUM, PRESET AT FACTORY FOR RECOMMENDED OPERATION. FIELD ADJUSTABLE USING PROVIDED ETHERNETTM CONNECTION AND FACTORY INSTALLED SOFTWARE.
   7. DEDICATED 1/1 OCTAVE EQUALIZER COVERING ISO BANDS FROM 250 HZ TO 8000 HZ FOR PAGING INPUT. FIELD ADJUSTABLE USING PROVIDED ETHERNETTM CONNECTION AND FACTORY INSTALLED SOFTWARE.
   8. LOUDSPEAKER NETWORK FAULT DETECTION CAPABILITY.
   9. TWO AUDIO INPUTS (A AND B) ON REAR PANEL OPERABLE IN BALANCED OR SINGLE ENDED CONFIGURATION FOR DISTRIBUTION OF EXTERNALLY GENERATED SIGNALS VIA 4 TERMINAL COMPRESSION TYPE CONNECTORS.
   10. TWO CONTACT CLOSURE INTERFACES ON REAR PANEL: ONE TURNS OFF MASKING ON CLOSURE; ONE TURNS OFF AUDIO B ON CLOSURE. MAY BE USED TO DUCK MASKING AND/OR AUDIO B DURING EMERGENCY SITUATIONS.
   11. MINIMUM PERFORMANCE REQUIREMENTS:
      a. SUPPLY POWER: 110 - 240 VAC 0.9 AMPERES.
      b. RATED AMBIENT TEMPERATURE RANGE: 40 TO 90 DEGREES F (4 TO 32 DEGREES C).
      c. OUTPUT VOLTAGE: 7 VOLTS RMS MINIMUM SINE WAVE AT FULL LOAD, EACH CHANNEL TO MEET NEC CLASS 2 REQUIREMENTS FOR LOW VOLTAGE DISTRIBUTION.
      d. AUDIO (PAGING) INPUT: 600 OHM LINE BRIDGING, DIFFERENTIAL OR SINGLE ENDED, 1 VOLT NOMINAL, ADJUSTABLE BETWEEN -10 DBV AND +4 DBV RMS.
   12. ACCEPTABLE PRODUCT:
      a. CAMBRIDGE SOUND MANAGEMENT MODEL QT 300

E. SIX-ZONE CONTROLLERS
   1. NETWORK CAPABLE MANAGEMENT OF SYSTEM ACOUSTIC OUTPUT OF ALL ZONES.
   2. CONTROL SOFTWARE THAT IS PRE-INSTALLED AND RESIDENT ON CONTROLLER AND ACCESSIBLE VIA ANY STANDARD BROWSER FROM A COMPUTER RESIDENT ON THE NETWORK.
   3. CAPABILITY OF CONTROLLING BACKGROUND SOUND AND PAGING FOR UP TO SIX SEPARATE ZONES OF SOUND MASKING WITH PAGING SELECTABLE BY ZONE, AND FROM ONE TO 120 SPEAKERS PER ZONE COVERING FROM 100 TO 12,000 SQUARE FEET PER ZONE OR FROM 100 TO 72,000 SQUARE FEET PER CONTROLLER IN 6 ZONES.
   4. CAPABLE OF AUTOMATIC BACKGROUND SOUND LEVEL ADJUSTMENT (RAMPING) BASED ON TIME OF DAY AND DAY OF WEEK.
   5. TIME SOURCE PROVIDED BY INTEGRATED REAL TIME CLOCK WITH BATTERY BACKUP OR USER SELECTABLE SNTP SERVER. FIELD ADJUSTABLE USING PROVIDED ETHERNETTM CONNECTION AND FACTORY INSTALLED SOFTWARE.
   6. DEDICATED 1/3 OCTAVE EQUALIZER COVERING ISO BANDS FROM 200 HZ TO 5,000 HZ FOR BACKGROUND SOUND SPECTRUM, PRESET AT FACTORY FOR RECOMMENDED OPERATION. FIELD ADJUSTABLE USING PROVIDED ETHERNETTM CONNECTION AND FACTORY INSTALLED SOFTWARE.
   7. DEDICATED 1/1 OCTAVE EQUALIZER COVERING ISO BANDS FROM 250 HZ TO 8000 HZ FOR PAGING INPUT. FIELD ADJUSTABLE USING PROVIDED ETHERNETTM CONNECTION AND FACTORY INSTALLED SOFTWARE.
   8. LOUDSPEAKER NETWORK FAULT DETECTION CAPABILITY.
   9. TWO AUDIO INPUTS (A AND B) ON REAR PANEL OPERABLE IN BALANCED OR SINGLE ENDED CONFIGURATION FOR DISTRIBUTION OF EXTERNALLY GENERATED SIGNALS VIA 4 TERMINAL COMPRESSION TYPE CONNECTORS.
   10. TWO CONTACT CLOSURE INTERFACES ON REAR PANEL: ONE TURNS OFF MASKING ON CLOSURE; ONE TURNS OFF AUDIO B ON CLOSURE. MAY BE USED TO DUCK MASKING AND/OR AUDIO B DURING EMERGENCY SITUATIONS.
   11. MINIMUM PERFORMANCE REQUIREMENTS:
      a. SUPPLY POWER: 110 - 240 VAC 0.9 AMPERES.
      b. RATED AMBIENT TEMPERATURE RANGE: 40 TO 90 DEGREES F (4 TO 32 DEGREES C).
      c. OUTPUT VOLTAGE: 7 VOLTS RMS MINIMUM SINE WAVE AT FULL LOAD, EACH CHANNEL TO MEET NEC CLASS 2 REQUIREMENTS FOR LOW VOLTAGE DISTRIBUTION.
      d. AUDIO (PAGING) INPUT: 600 OHM LINE BRIDGING, DIFFERENTIAL OR SINGLE ENDED, 1 VOLT NOMINAL, ADJUSTABLE BETWEEN -10 DBV AND +4 DBV RMS.
   12. ACCEPTABLE PRODUCT:
      a. CAMBRIDGE SOUND MANAGEMENT MODEL QT 600 OR APPROVED EQUAL.

LOUDSPEAKERS

A. MINIATURE SELF-CONTAINED CEILING MOUNTED LOUDSPEAKER/ENCLOSURE/BAFFLE SYSTEM.
   1. DESIGNED SPECIFICALLY FOR DISTRIBUTING BACKGROUND MASKING, MUSIC, AND PAGING. ULTRA WIDE DISPERSION TO MAXIMIZE SPATIAL UNIFORMITY.
   2. TWIST AND LOCK RETAINING RING CONSTRUCTION TO MINIMIZE INSTALLATION TIME IN CEILING TILES AND ENCLOSURES.
   3. ALL CONNECTIONS VIA MODULAR RJ45 CONNECTORS FOR PLUG-AND-PLAY INSTALLATION.
   4. EYE LOOP FOR SECURING UNIT WITH SAFETY WIRE.
   5. UL 2043 CERTIFIED FOR PLENUM INSTALLATION.
   6. UL APPROVED. APPROVALS AND CERTIFICATIONS LABELING MUST BE ON SPEAKERS.
   7. ACCEPTABLE PRODUCTS: CAMBRIDGE SOUND MANAGEMENT QT LOUDSPEAKER OR APPROVED EQUAL WITH OPTIONAL MOUNTING ENCLOSURES AS FOLLOWS:
      a. UB-W(WHITE) OR B(BLACK). UNIVERSAL MOUNTING FOR WOODEN BEAM OR WALL MOUNTING.
      b. BB-W(WHITE) OR B(BLACK): 1" BEAM CLAMP MOUNTING FOR SUSPENDED APPLICATIONS.
      c. CM: CONDUIT MOUNTING FOR SHEETROCK CEILINGS.
      d. DM: MOUNTING FOR SHEETROCK/DRYWALL CEILINGS.
      e. PBC: METAL PLENUM BACK CAN FOR USE IN LOCATIONS WHERE REQUIRED BY FIRE CODE OR CONDUIT CONNECTIVITY.

LOUDSPEAKER CABLING

A. CABLES TERMINATED WITH RJ45 MODULAR CONNECTORS.
   1. TYPE: CAT 3 PROVIDED WITH SYSTEM: CAT5/5A, CAT6 ARE COMPATIBLE.
   2. UNSHIELDED SOLID TWISTED PAIR CONSTRUCTION; STRANDED OPTIONAL.
   3. MEET EIA/TIA STANDARD 568B.
   4. OPTIONAL AWG #24 STRANDED CONDUCTORS WITH OVERALL PLENUM-RATED JACKET (CMP (UL)/C(UL) 4PR 24 AWG PLENUM).

B. ACCEPTABLE PRODUCTS:
   1. CAMBRIDGE SOUND MANAGEMENT PRE-ASSEMBLED 16 FOOT (4.9 M) OR 30 FOOT (9.1M) LOUDSPEAKER CABLE ASSEMBLY OR APPROVED EQUAL.
   2. SITE FABRICATED AND TESTED WITH OVERALL PLENUM-RATED JACKET (CMP (UL)/C(UL) 4PR 24 AWG PLENUM).

INSTALLATION PRACTICES

GENERAL

A. ALL TYPES OF EQUIPMENT INSTALLED BY COMPETENT WORKERS AT LOCATIONS SHOWN ON THE DRAWINGS IN STRICT ACCORDANCE WITH APPROVED SHOP DRAWINGS AND MANUFACTURER'S INSTRUCTIONS.

B. ALL EQUIPMENT EXCEPT PORTABLE EQUIPMENT FIRMLY HELD IN PLACE. THIS SHALL INCLUDE LOUDSPEAKERS, ENCLOSURES, AMPLIFIERS, CABLES, ETC. FASTENINGS AND SUPPORTS ADEQUATE TO SUPPORT THEIR LOADS WITH A SAFETY FACTOR OF AT LEAST THREE UNLESS OTHERWISE STATED.

C. TAKE SUCH PRECAUTIONS AS NECESSARY TO PREVENT AND GUARD AGAINST ELECTRO-MAGNETIC AND ELECTRO-STATIC HUM AND TO INSTALL THE EQUIPMENT SO AS TO PROVIDE SAFETY FOR THE OPERATOR.

GENERATOR/CONTROLLER

A. LOCATE GENERATOR/CONTROLLERS AS SHOWN ON DRAWINGS, AND NEAR AN AVAILABLE DEDICATED 110VAC RECEPTACLE.

B. LOCATE AT A CONVENIENT LOCATION FOR OPERATION FROM FLOOR LEVEL.

C. MOUNT GENERATOR/CONTROLLER AND PROCESSOR SECURELY TO WALL OR OTHER VERTICAL SURFACE WITH SCREWS OR MOUNTING BRACKETS PROVIDED.

D. ATTACH LINE LEVEL AND LOUDSPEAKER CABLES CONNECTING TO CONTROLLERS SECURELY WITH SUITABLE STRAIN-RELIEF CLAMPS.

E. IDENTIFY ALL LOUDSPEAKER HOME RUN WIRES AND CABLES AT TERMINATION AND CONNECTION POINTS WITH APPROVED CABLE MARKERS. LABEL EACH CABLE WITH CABLE MARKER KEYED TO A WIRING SCHEDULE INDICATING THE CORRESPONDING AREA OF BUILDING SERVED, DESIGNATE BUILDING FLOOR LEVEL AND ZONE, AND WHETHER AREA SERVED IS OPEN PLAN, ENCLOSED OFFICES, CIRCULATION OR OTHER.

LOUDSPEAKERS (IN CEILING TILES)

A. CUT HOLE IN CENTER OF EACH CEILING TILE USING THE HOLE SAW PROVIDED OR SIMILAR.

B. TAKING CARE NOT TO VISIBLY DISTORT TILE, SLIP PROVIDED LOCKING COLLAR ON BACK OF LOUDSPEAKER AND FIRMLY TIGHTEN AGAINST CEILING.

C. IF REQUIRED BY LOCAL AUTHORITY IN CHARGE, SECURE LOUDSPEAKER TO BUILDING OR CEILING SUSPENSION STRUCTURE USING SAFETY WIRE AND EYE LOOP ON LOUDSPEAKER.

D. CONNECT CABLING TO LOUDSPEAKERS WITH SYSTEM LIVE, STARTING AT CONTROLLER END OF DISTRIBUTION LINES. CONNECT LINE FROM OUTPUT OF OPERATING CONTROLLER SET TO MAXIMUM OUTPUT TO SOCKET DESIGNATED AS INPUT ON LOUDSPEAKER. VERIFY OPERATION OF EACH LOUDSPEAKER BY LISTENING BEFORE TILE IS FINALLY INSTALLED IN CEILING. IF LOUDSPEAKER DOES NOT OPERATE, FAULT MAY BE IN LINES OR DEFECTIVE LOUDSPEAKERS UPSTREAM OF INOPERATIVE UNIT: CORRECT BEFORE CONTINUING. NOTE THAT INADVERTENT CONNECTION OF LINE TO OUTPUT OF LOUDSPEAKER RATHER THAN TO INPUT WILL CAUSE SOME DOWNSTREAM LOUDSPEAKERS (UP TO 4 LOUDSPEAKERS AFTER MISCONNECTED UNIT) TO BE RENDERED INOPERATIVE.

LOUDSPEAKER CABLING

A. CABLING ROUTED WITHIN RETURN AIR PLENUMS SHALL BE PLENUM-RATED UNLESS INSTALLED IN CONDUIT.

B. USING A CAT CABLE TESTER, TEST ALL FIELD FABRICATED CABLES, BEFORE INSTALLATION, FOR OPEN CIRCUITS, SHORTS, CROSSED PAIRS, REVERSED PAIRS, SPLIT PAIRS AND PROPER PIN-OUT.

C. INSTALL SIGNAL CABLES SECURED TO CEILING HANGER SUPPORT OR BUILDING STRUCTURE PER LOCAL CODE AND ELECTRICAL INSPECTOR REQUIREMENTS. CABLING SHALL NOT CONTACT CEILING TILES OR INHIBIT THEIR REMOVAL FOR ACCESS TO THE PLENUM. PROVIDE ADEQUATE SERVICE LOOP FOR CONVENIENT ACCESS TO LOUDSPEAKER.

D. CONNECT NO MORE THAN 60 LOUDSPEAKERS/HOME RUN.

E. INSTALL NO MORE THAN 1000' OF CABLE BETWEEN GENERATOR/CONTROLLER UNIT AND LAST LOUDSPEAKER ON EACH HOME RUN.

SYSTEM TESTS AND ADJUSTMENTS

A. INITIAL TEST AND ADJUSTMENTS: PERFORM AND RECORD RESULTS OF THE FOLLOWING TESTS:
   1. LOUDSPEAKER OPERATION: NEAR FIELD OUTPUT OF EACH LOUDSPEAKER SHALL MATCH THE ZONE AVERAGE WITHIN +/- 1.5 DECIBELS. LISTEN DIRECTLY BELOW EACH INSTALLED LOUDSPEAKER TO CONFIRM IT IS OPERATING. FOR ANY LOUDSPEAKERS FOUND TO BE INOPERATIVE, OR POSSIBLY OPERATING AT AN INCORRECT LEVEL, USE A SOUND LEVEL METER SET TO A-WEIGHTING AND SLOW RESPONSE TO CHECK THE OUTPUT. PLACE THE MICROPHONE 50 AS TO CONTACT EACH GRILLE.
   2. REPLACE ANY DEFECTIVE LOUDSPEAKERS OR CABLING, OR OTHERWISE CORRECT CAUSE FOR ANY LOUDSPEAKERS FOUND TO BE OPERATING OUTSIDE THIS RANGE.
   3. BUZZES, RATTLES, AND DISTORTION: WITH SYSTEM OPERATING AT MAXIMUM LEVEL, LISTEN FOR ANY BUZZES, RATTLES, AND OBJECTIONABLE DISTORTION IN ALL AREAS COVERED. CORRECT ALL CAUSES OF THESE DEFECTS.
   4. CONTROL SETTINGS: ADJUST ALL SPECTRUM AND LEVEL CONTROLS FOR NORMAL OPERATION. MEASURE THE A-WEIGHTED SOUND PRESSURE LEVEL USING A SOUND LEVEL METER SET TO A-WEIGHTING AND SLOW RESPONSE AT REPRESENTATIVE LOCATIONS WITHIN EACH ZONE. ADJUST AVERAGE INITIAL LEVELS IN OPEN PLAN AREAS TO 45 DBA AT NORMAL OCCUPANTS' LOCATIONS AND IN CLOSED OFFICES OR ROOMS TO 42 DBA.

B. IF REQUESTED, DEMONSTRATE TO THE OWNER'S REPRESENTATIVE THAT THE SYSTEM IS FULLY OPERABLE AND INSTALLED IN COMPLIANCE WITH THE TERMS OF THE PERFORMANCE SPECIFICATIONS HEREUNDER.

C. TEST THE SYSTEM TO DEMONSTRATE THAT THE DESIGN GOAL OF PRIVACY INDEX (PI) = 80% (NORMAL PRIVACY) OR BETTER IS MET BETWEEN REPRESENTATIVE WORKSTATIONS SEPARATED BY PARTITIONS OF 66" OR GREATER HEIGHT. FOR THIS TEST, SELECT ADJACENT WORKSTATION PAIRS WITHOUT DIRECT LINE OF SIGHT OR SIGNIFICANT SOUND REFLECTING CEILING OR WALL ELEMENTS BETWEEN, AND WITH A CEILING MATERIAL RATED AT NRC OF 0.65 OR HIGHER. TESTS SHALL BE IN ACCORDANCE WITH ASTM STANDARD E1130 EXCEPT THAT THE OCTAVE BAND CALCULATION METHOD OF ANSI STANDARD S3.5 MAY BE USED. LOWER LEVELS OF PI ARE ACCEPTABLE ONLY IF THE CEILING OR PARTITION REQUIREMENTS DESCRIBED HEREINBEFORE ARE NOT MET.

D. TEST THE SYSTEM IN EACH OPEN PLAN AREA ZONE SERVED TO DEMONSTRATE THAT THE DESIGN GOAL FOR SPATIAL UNIFORMITY IS MET. TESTS SHALL BE CARRIED OUT PER ASTM STANDARD E1573 AS MEASURED IN THE 2,000 HZ OCTAVE BAND. AT EACH LOCATION, THE AVERAGE SOUND PRESSURE LEVELS SHALL BE MEASURED OVER AN INTERVAL OF AT LEAST 4 SECONDS AT FOUR POSITIONS AT 90° INTERVALS AROUND A CIRCLE OF 0.3 M (1 FT) RADIUS CENTERED ON THE LOCATION. THE ARITHMETIC MEAN SOUND PRESSURE LEVEL SHALL BE CALCULATED FROM THE FOUR MEASURED VALUES. FOR AT LEAST 75% OF THE TEST LOCATIONS, THE ARITHMETIC MEAN SOUND PRESSURE LEVEL IN THE 2,000 HZ OCTAVE BAND SHALL NOT VARY BY MORE THAN 1 DB FROM THE AVERAGE OF THE ARITHMETIC MEAN SOUND PRESSURE LEVELS MEASURED AT ALL LOCATIONS.

E. TEST THE SYSTEM TO DEMONSTRATE THAT THE PI IS AT LEAST 95% (CONFIDENTIAL PRIVACY) BETWEEN REPRESENTATIVE PRIVATE (ENCLOSED) OFFICES SERVED BY THE SYSTEM. FOR THIS TEST, SELECT ADJACENT OFFICES WITH CLOSED DOORS. TESTS SHALL BE IN ACCORDANCE WITH ASTM STANDARD E1130 EXCEPT THAT THE OCTAVE BAND CALCULATION METHOD OF ANSI STANDARD S3.5 MAY BE USED. LOWER LEVELS OF PI ARE ACCEPTABLE IF THE COMMON WALLS BETWEEN THE OFFICES DO NOT EXTEND TO THE DECK ABOVE THE ACOUSTICAL CEILING AND THE CEILING MATERIAL IS NOT RATED AT STC 35 OR GREATER. IF THE PI ACHIEVED IS LOWER THAN 95% AND CAUSED BY THESE OR OTHER ARCHITECTURAL FACTORS, BRING THIS TO THE ATTENTION OF THE OWNER OR GENERAL CONTRACTOR.

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412 Boulevard of the Allies, Pittsburgh, PA 15219

#	DESCRIPTION	DATE
5	100% CONSTRUCTION DOCUMENTS REVISION 3	09/03/2020
4	100% CONSTRUCTION DOCUMENTS REVISION 2	07/30/2020
3	100% CONSTRUCTION DOCUMENTS REVISION 1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEET NAME:
SOUND MASKING DATA SHEET

SHEET NO:
SM0.01

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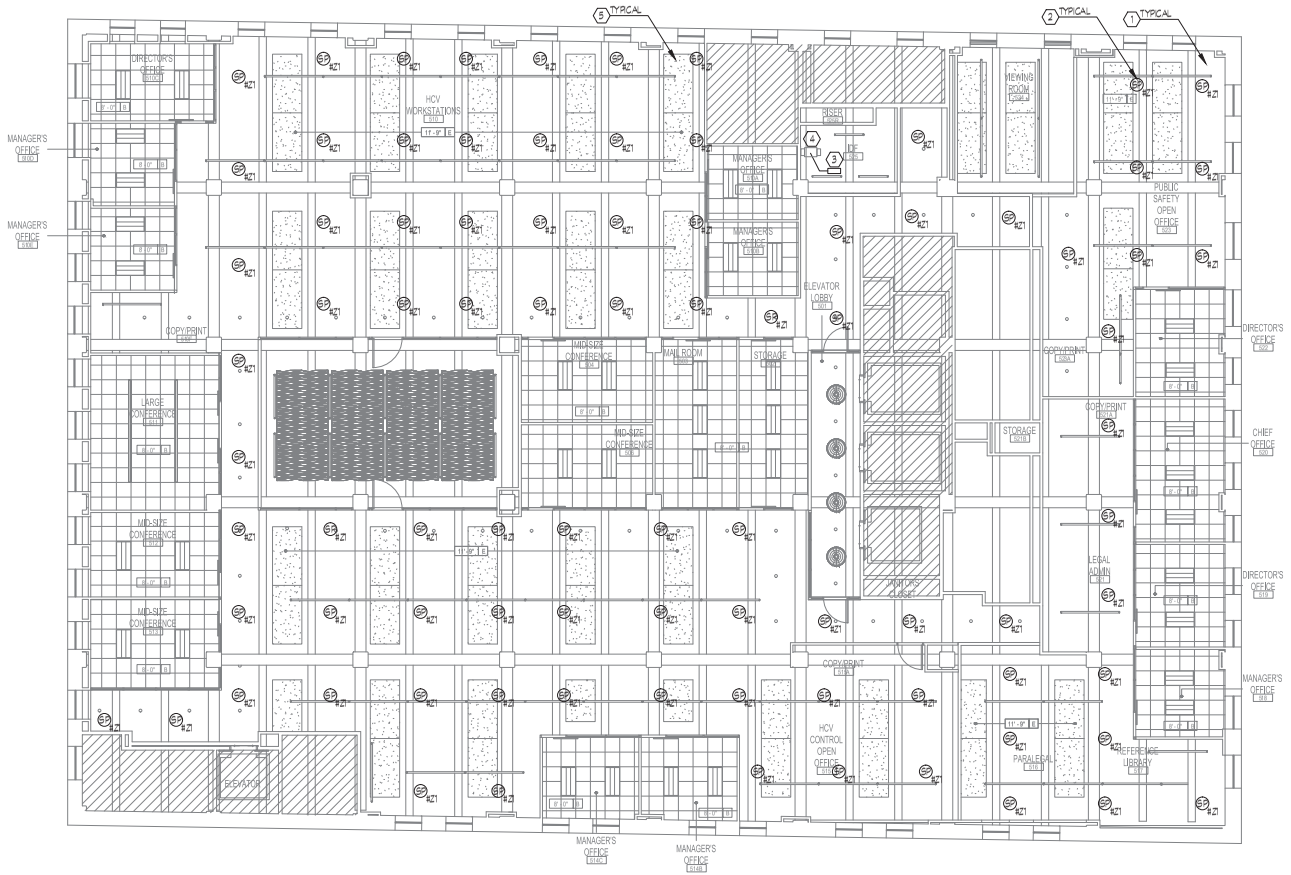

1 SOUND MASKING PLAN - LEVEL 5
SM1.05 1/8" = 1'-0"

GENERAL NOTES

1. SEE DRAWING SM0.01 FOR SPECIFICATIONS, MANUFACTURER AND MODEL NUMBER, INSTALLATION REQUIREMENTS, ETC.

2. SEE ARCHITECTURAL CEILING PLANS FOR CEILING HEIGHTS AND TYPES. COORDINATE FINAL SOUNDMASKING LOUDSPEAKER LOCATIONS WITH LIGHT FIXTURE, DUCTWORK, SPRINKLER HEADS, ETC.

3. ALL SOUND MASKING CABLING MUST BE WHITE UNLESS NOTED OTHERWISE.

CODED NOTES: (#)

1. CEILING OPEN TO DECK. SEE ARCHITECTURAL PLANS FOR DECK HEIGHTS.

2. EMITTERS IN OPEN CEILING SPACE AND MOUNTING HARDWARE SHALL BE COLOR WHITE. ALL CABLING BETWEEN EMITTERS SHALL BE COLOR WHITE AND SHALL BE CONCEALED ALONG CONCRETE BEAMS.

3. PROVIDE (1) 3 ZONE CONTROLLER ON RACK INSIDE IDF ROOM. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL CONTRACTOR. COORDINATE FINAL LOCATION OF CONTROLLERS WITH OWNERS IT REPRESENTATIVE, SECURITY CONTRACTOR AND TELECOM CONTRACTOR PRIOR TO INSTALLATION.

4. 2 POST RACK PROVIDED BY TELECOM CONTRACTOR. SEE TELECOM DRAWINGS FOR ADDITIONAL INFORMATION.

5. ACOUSTICAL CEILING PANEL TIGHT TO DECK. CALL CABLING NEEDS TO BE ROUTED AROUND THIS PANEL. PANEL SHALL NOT BE CUT FOR CABLING.

SOUNDMASKING LEGEND

SYMBOL	DESCRIPTION
SP ZH	PROVIDE SOUNDMASKING LOUDSPEAKER. PROVIDE HARDWARE AND MOUNTING BRACKETS AS REQUIRED FOR LAY-IN CEILING, OPEN CEILING OR HARD CEILING WHERE INDICATED. ZH = NEXT TO SPEAKER INDICATES ZONE.

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2	100% CONSTRUCTION DOCUMENTS	06/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEETNAME:
SOUND MASKING PLAN - LEVEL 5

SHEET NO:
SM1.05

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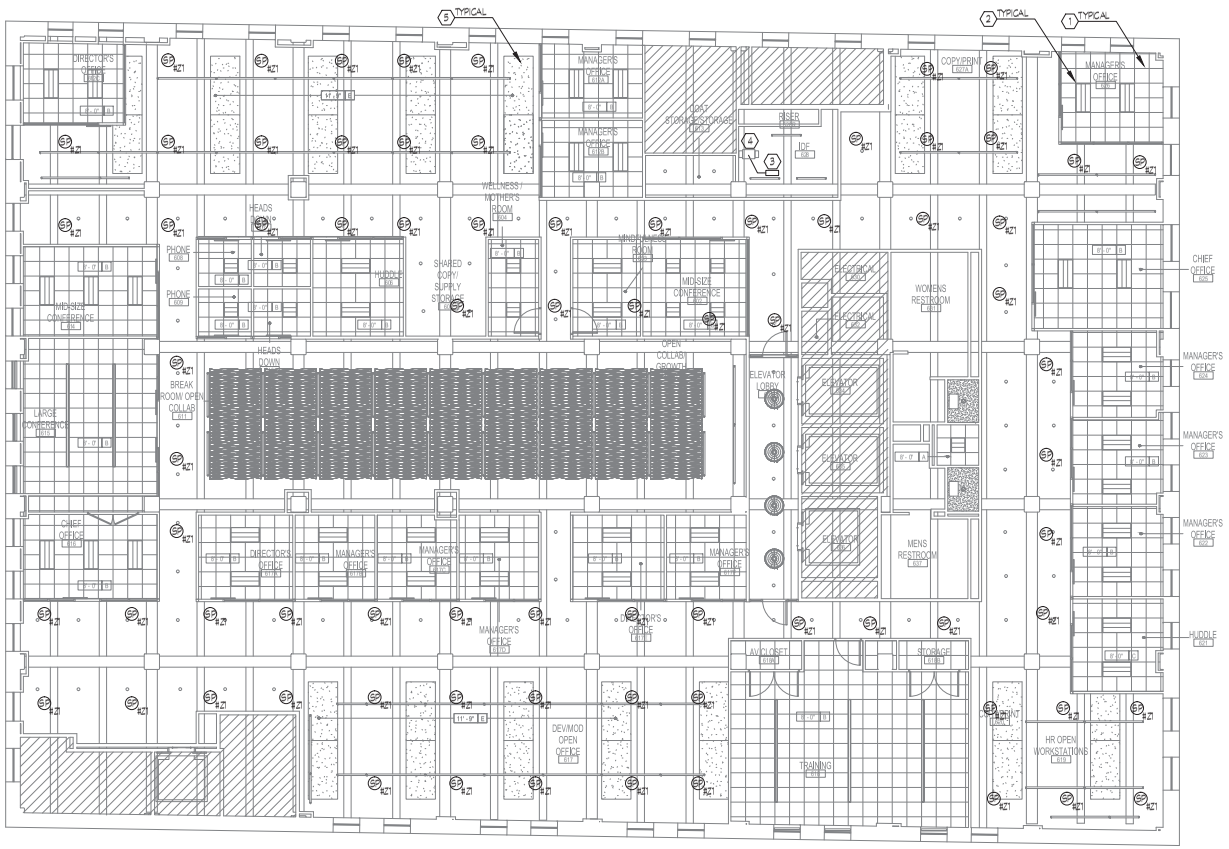

1 SOUND MASKING PLAN - LEVEL 6
SM1.06 1/8" = 1'-0"

GENERAL NOTES

1. SEE DRAWING SM0.01 FOR SPECIFICATIONS, MANUFACTURER AND MODEL NUMBER, INSTALLATION REQUIREMENTS, ETC.

2. SEE ARCHITECTURAL CEILING PLANS FOR CEILING HEIGHTS AND TYPES. COORDINATE FINAL SOUNDMASKING LOUDSPEAKER LOCATIONS WITH LIGHT FIXTURE, DUCTWORK, SPRINKLER HEADS, ETC.

3. ALL SOUND MASKING CABLING MUST BE WHITE UNLESS NOTED OTHERWISE.

CODED NOTES: (#)

1. CEILING OPEN TO DECK. SEE ARCHITECTURAL PLANS FOR DECK HEIGHTS.

2. EMITTERS IN OPEN CEILING SPACE AND MOUNTING HARDWARE SHALL BE COLOR WHITE. ALL CABLING BETWEEN EMITTERS SHALL BE COLOR WHITE AND SHALL BE CONCEALED ALONG CONCRETE BEAMS.

3. PROVIDE (1) 3 ZONE CONTROLLER ON RACK INSIDE IDF ROOM. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL CONTRACTOR. COORDINATE FINAL LOCATION OF CONTROLLERS WITH OWNERS IT REPRESENTATIVE, SECURITY CONTRACTOR AND TELECOM CONTRACTOR PRIOR TO INSTALLATION.

4. 2 POST RACK PROVIDED BY TELECOM CONTRACTOR. SEE TELECOM DRAWINGS FOR ADDITIONAL INFORMATION.

5. ACOUSTICAL CEILING PANEL TIGHT TO DECK. CALL CABLING NEEDS TO BE ROUTED AROUND THIS PANEL. PANEL SHALL NOT BE CUT FOR CABLING.

SOUNDMASKING LEGEND

SYMBOL	DESCRIPTION
SP ZN	PROVIDE SOUNDMASKING LOUDSPEAKER. PROVIDE HARDWARE AND MOUNTING BRACKETS AS REQUIRED FOR LAY-IN CEILING, OPEN CEILING OR HARD CEILING WHERE INDICATED. ZN - NEXT TO SPEAKER INDICATES ZONE.

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3	100% CONSTRUCTION DOCUMENTS REVISION 1	07/09/2020
2	100% CONSTRUCTION DOCUMENTS	05/22/2020
1	100% DESIGN DEVELOPMENT	01/23/2020

PROJECT ISSUANCE

PROJECT NO:	DRAWN BY:	REVIEWED BY:
190427.00	JDW	JDW

SHEET NAME:
SOUND MASKING PLAN - LEVEL 6

SHEET NO:
SM1.06

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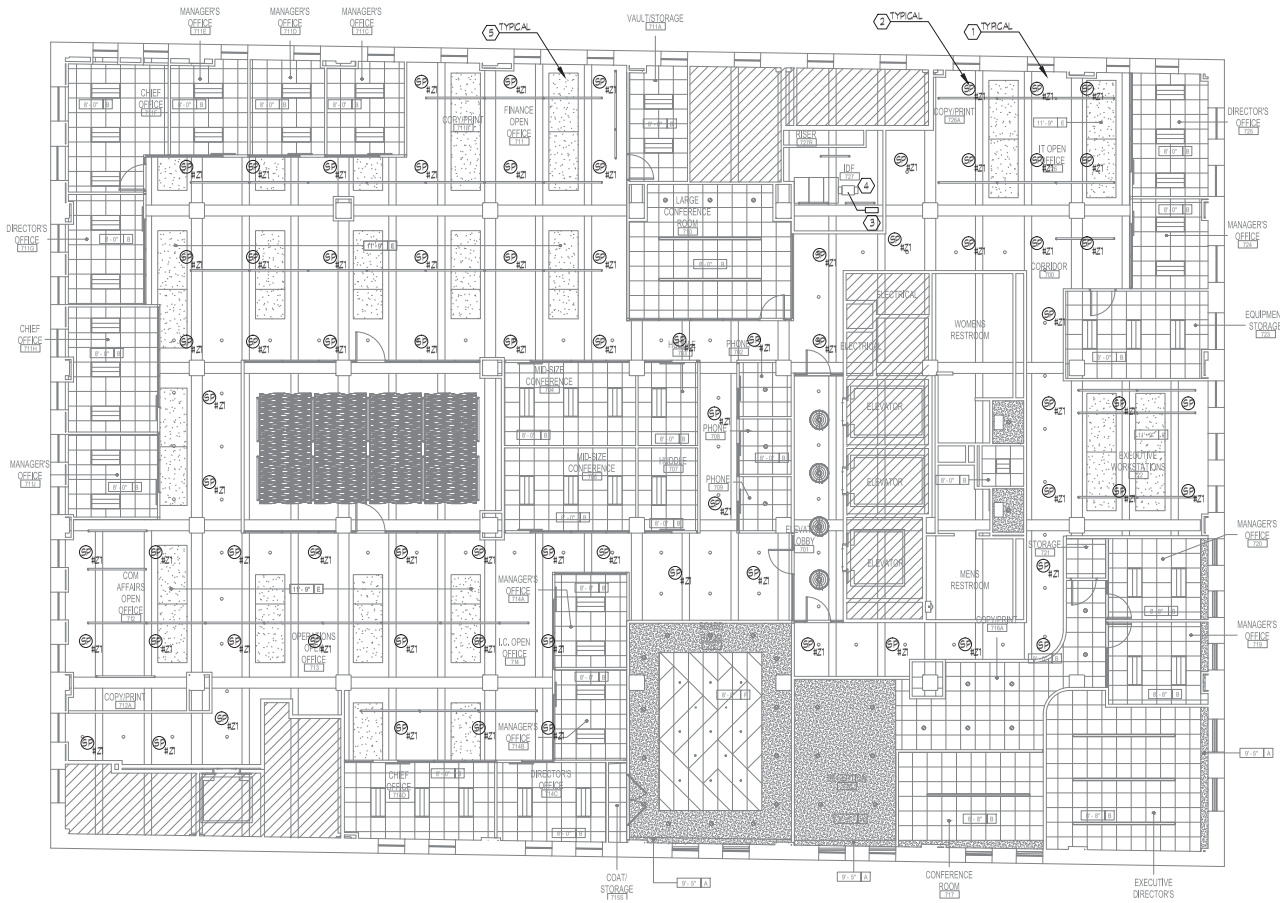
MANAGER'S OFFICE 1116
MANAGER'S OFFICE 1115
MANAGER'S OFFICE 1114
VAULT/STORAGE 111A
5 TYPICAL
2 TYPICAL
1 TYPICAL
CHIEF OFFICE 1113
COPY/PRINT 1112A
FINANCE OPEN OFFICE 1111
RISER 109A
IDF 109
LARGE CONFERENCE ROOM 110
COPY/PRINT 108A
IT OPEN OFFICE 107
DIRECTOR'S OFFICE 1103
DIRECTOR'S OFFICE 105
CORRIDOR 100
MANAGER'S OFFICE 104
CHIEF OFFICE 1101
ELECTRICAL
WOMENS RESTROOM
EQUIPMENT STORAGE 103
MID-SIZE CONFERENCE 1102
PHONE 108
ELECTRONICS
ELEVATOR
MANAGER'S OFFICE 1117
MID-SIZE CONFERENCE 1104
HUDDLE 1105
PHONE 106
EXECUTIVE WORKSTATIONS 102
ELEVATOR
ELEVATOR
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