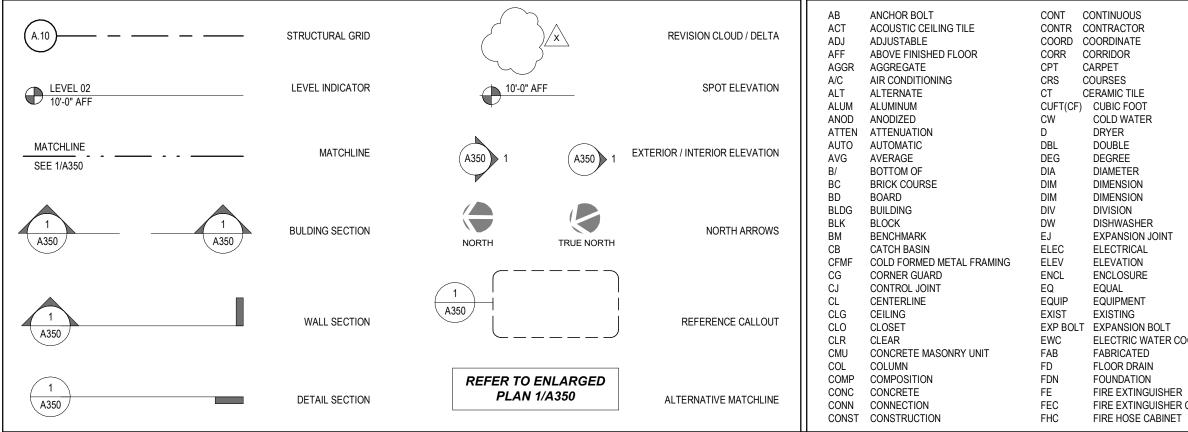


NUMBEF	R SHEET NAME	NUMBER	SHEET NAME	NUMBER	SHEET NAME
GENERAL DRA	WINGS	A141	OVERALL FURNITURE PLAN - LEVEL 01 (FOR REFERENCE ONLY)	FP203	6TH FLOOR FIRE PROTECTION PLAN
G000	COVER SHEET	A145	OVERALL FURNITURE PLAN - LEVEL 05 (FOR REFERENCE ONLY)	FP204	7TH FLOOR FIRE PROTECTION PLAN
G010	ARCHITECTURAL STANDARDS	A146	OVERALL FURNITURE PLAN - LEVEL 06 (FOR REFERENCE ONLY)		
G020	SCOPE RESPONSIBILITY MATRIX	A147	OVERALL FURNITURE PLAN - LEVEL 07 (FOR REFERENCE ONLY)	PLUMBING DRAV	WINGS
G101	OVERALL LIFE SAFETY PLAN - LEVEL 01	A151	OVERALL DEMOUNTABLE WALL PARTITION PLAN - LEVEL 01	P001	PLUMBING DATA SHEET
G105	OVERALL LIFE SAFETY PLAN - LEVEL 05	A155	OVERALL DEMOUNTABLE WALL PARTITION PLAN - LEVEL 05	P002	PLUMBING SPECIFICATIONS
G106	OVERALL LIFE SAFETY PLAN - LEVEL 06	A156	OVERALL DEMOUNTABLE WALL PARTITION PLAN - LEVEL 06	P003	PLUMBING SPECIFICATIONS
G107	OVERALL LIFE SAFETY PLAN - LEVEL 07	A157	OVERALL DEMOUNTABLE WALL PARTITION PLAN - LEVEL 07	P101	1ST FLOOR PLUMBING DEMO PLAN
L		A401	ENLARGED FLOOR PLANS	P201	1ST FLOOR PLUMBING PLAN
STRUCTURAL I	DRAWINGS	A402	ENLARGED FLOOR PLANS	P202	5TH FLOOR PLUMBING PLAN
S101	PARTIAL STRUCTURAL FRAMING PLANS	A451	ELEVATIONS	P203	6TH FLOOR PLUMBING PLAN
S201	GENERAL NOTES STRUCTURAL SECTION AND DETAILS	A452	ELEVATIONS	P204	7TH FLOOR PLUMBING PLAN
		A453	ELEVATIONS	P401	PLUMBING DETAILS
ARCHITECTUR	AL DEMOLITION DRAWINGS	A454	ELEVATIONS		
AD101	DEMOLITION FLOOR PLAN - LEVEL 01	A560	CEILING DETAILS	MECHANICAL DF	RAWINGS
AD105	DEMOLITION FLOOR PLAN - LEVEL 05	A565	DETAILS	M001	MECHANICAL DATA SHEET
AD106	DEMOLITION FLOOR PLAN - LEVEL 06	A570	MILLWORK DETAILS	M002	MECHANICAL SPECIFICATIONS
AD107	DEMOLITION FLOOR PLAN - LEVEL 07	A572	MILLWORK DETAILS	M003	MECHANICAL SPECIFICATIONS
AD151	DEMOLITION REFLECTED CEILING PLAN - LEVEL 01	A573	MILLWORK DETAILS	M004	MECHANICAL SPECIFICATIONS
		A574	MILLWORK DETAILS	M101	1ST FLOOR MECHANICAL DEMO PLAN
ARCHITECTUR	AL DRAWINGS	A600	DOOR TYPES, DETAILS & SCHEDULE	M102	5TH FLOOR MECHANICAL DEMO PLAN
A101	OVERALL FLOOR PLAN - LEVEL 01	A601	DOOR SCHEDULE - DEMOUNTABLE PARTITIONS	M103	6TH FLOOR MECHANICAL DEMO PLAN
A105	OVERALL FLOOR PLAN - LEVEL 05	A620	CURTAIN WALL TYPES AND DETAILS	M104	7TH FLOOR MECHANICAL DEMO PLAN
A106	OVERALL FLOOR PLAN - LEVEL 06	A630	INTERIOR PARTITION TYPES	M201	1ST FLOOR MECHANICAL PLAN
A107	OVERALL FLOOR PLAN - LEVEL 07	A640	INTERIOR ROOM FINISH SCHEDULE	M202	5TH FLOOR MECHANICAL PLAN
A111	OVERALL REFLECTED CEILING PLAN - LEVEL 01	A641	INTERIOR FINISH SCHEDULES	M203	6TH FLOOR MECHANICAL PLAN
A115	OVERALL REFLECTED CEILING PLAN - LEVEL 05			M204	7TH FLOOR MECHANICAL PLAN
A116	OVERALL REFLECTED CEILING PLAN - LEVEL 06	FIRE PROTECTIO	DN DRAWINGS	M205	ROOF MECHANICAL PLAN
A117	OVERALL REFLECTED CEILING PLAN - LEVEL 07	FP001	FIRE PROTECTION DATA SHEET	M301	MECHANICAL DETAILS
A121	OVERALL FINISH PLAN - LEVEL 01	FP002	FIRE PROTECTION SPECIFICATIONS	M302	MECHANICAL DETAILS
A125	OVERALL FINISH PLAN - LEVEL 05	FP003	FIRE PROTECTION SPECIFICATIONS	M401	MECHANICAL SCHEDULES
A126	OVERALL FINISH PLAN - LEVEL 06	FP201	1ST FLOOR FIRE PROTECTION PLAN	M402	MECHANICAL SCHEDULES
A127	OVERALL FINISH PLAN - LEVEL 07	FP202	5TH FLOOR FIRE PROTECTION PLAN	M403	MECHANICAL SCHEDULES
	REFERENCE S	SYMBOLS			
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DRAWING INDEX

M404 MECHANICAL SCHEDULES M405 MECHANICAL SCHEDULES ELECTRICAL DRAWINGS E E001 ELECTRICAL DATA SHEET E002 ELECTRICAL SPECIFICATIONS E003 ELECTRICAL SPECIFICATIONS E004 ELECTRICAL SPECIFICATIONS E004 ELECTRICAL SPECIFICATIONS E004 ELECTRICAL SPECIFICATIONS E101 FIRST FLOOR ELECTRICAL DEMOLITION PLAN E202 STH FLOOR LIGHTING PLAN E203 GTH FLOOR LIGHTING PLAN E204 TH FLOOR LIGHTING PLAN E203 GTH FLOOR POWER PLAN E301 1ST FLOOR POWER PLAN E302 STH FLOOR POWER PLAN E303 GTH FLOOR POWER PLAN E304 TTH FLOOR POWER PLAN E303 GTH FLOOR MECHANICAL POWER PLAN E304 TTH FLOOR MECHANICAL POWER PLAN E4302 STH FLOOR MECHANICAL POWER PLAN E4303 GTH FLOOR MECHANICAL POWER PLAN E4304 TTH FLOOR MECHANICAL POWER PLAN E4305 ROOF MECHANICAL POWER PLAN E4305 ROOF MECHANICAL POWER PLAN E401	NUMBER	SHEET NAME
M405MECHANICAL SCHEDULESELECTRICAL DRAWINGSE001ELECTRICAL DATA SHEETE001AELECTRICAL SPECIFICATIONSE002ELECTRICAL SPECIFICATIONSE003ELECTRICAL SPECIFICATIONSE004ELECTRICAL SPECIFICATIONSE101FIRST FLOOR ELECTRICAL DEMOLITION PLANE2011ST FLOOR LIGHTING PLANE2025TH FLOOR LIGHTING PLANE2036TH FLOOR LIGHTING PLANE3011ST FLOOR CLIGHTING PLANE3025TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR MECHANICAL POWER PLANE3036TH FLOOR MECHANICAL POWER PLANEM3011ST FLOOR MECHANICAL POWER PLANEM3025TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM3047TH FLOOR FIRE ALARM PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL DETAILSE601ELECTRICAL DETAILSE601ELECTRICAL SCHEDULES	M404	
ELECTRICAL DRAWINGSE001ELECTRICAL DATA SHEETE001AELECTRICAL DATA SHEETE002ELECTRICAL SPECIFICATIONSE003ELECTRICAL SPECIFICATIONSE004ELECTRICAL SPECIFICATIONSE101FIRST FLOOR ELECTRICAL DEMOLITION PLANE2011ST FLOOR LIGHTING PLANE2025TH FLOOR LIGHTING PLANE2036TH FLOOR LIGHTING PLANE3011ST FLOOR POWER PLANE3025TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANEM3011ST FLOOR MECHANICAL POWER PLANEM3025TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM3047TH FLOOR FIRE ALARM PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL DETAILSE503ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES		
E001ELECTRICAL DATA SHEETE001AELECTRICAL DATA SHEETE002ELECTRICAL SPECIFICATIONSE003ELECTRICAL SPECIFICATIONSE004ELECTRICAL SPECIFICATIONSE101FIRST FLOOR ELECTRICAL DEMOLITION PLANE2011ST FLOOR LIGHTING PLANE2025TH FLOOR LIGHTING PLANE2036TH FLOOR LIGHTING PLANE2047TH FLOOR LIGHTING PLANE3011ST FLOOR POWER PLANE3025TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANE305STH FLOOR MECHANICAL POWER PLANEM3011ST FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM3047TH FLOOR FIRE ALARM PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE405ELECTRICAL FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL FIRE ALARM RISER DIAGRAME503ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	101405	
E001AELECTRICAL DATA SHEETE002ELECTRICAL SPECIFICATIONSE003ELECTRICAL SPECIFICATIONSE004ELECTRICAL SPECIFICATIONSE101FIRST FLOOR ELECTRICAL DEMOLITION PLANE2025TH FLOOR LIGHTING PLANE2036TH FLOOR LIGHTING PLANE2047TH FLOOR LIGHTING PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANE3057TH FLOOR MECHANICAL POWER PLANEM3011ST FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM3047TH FLOOR FIRE ALARM PLANE4011ST FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL DETAILSE503ELECTRICAL RISER DIAGRAMSE701ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	ELECTRICAL DRA	WINGS
E002ELECTRICAL SPECIFICATIONSE003ELECTRICAL SPECIFICATIONSE004ELECTRICAL SPECIFICATIONSE101FIRST FLOOR ELECTRICAL DEMOLITION PLANE2011ST FLOOR LIGHTING PLANE2025TH FLOOR LIGHTING PLANE2036TH FLOOR LIGHTING PLANE2047TH FLOOR LIGHTING PLANE3011ST FLOOR POWER PLANE3025TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANEM305STH FLOOR MECHANICAL POWER PLANEM3025TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM3047TH FLOOR FIRE ALARM PLANE4011ST FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL DETAILSE503ELECTRICAL RISER DIAGRAMSE701ELECTRICAL RISER DIAGRAMS	E001	ELECTRICAL DATA SHEET
E003ELECTRICAL SPECIFICATIONSE004ELECTRICAL SPECIFICATIONSE101FIRST FLOOR ELECTRICAL DEMOLITION PLANE2011ST FLOOR LIGHTING PLANE2025TH FLOOR LIGHTING PLANE2036TH FLOOR LIGHTING PLANE2047TH FLOOR LIGHTING PLANE3011ST FLOOR POWER PLANE3025TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANE3056TH FLOOR MECHANICAL POWER PLANEM3011ST FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE405ELECTRICAL DETAILSE501ELECTRICAL FIRE ALARM RISER DIAGRAME503ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E001A	ELECTRICAL DATA SHEET
E004ELECTRICAL SPECIFICATIONSE101FIRST FLOOR ELECTRICAL DEMOLITION PLANE2011ST FLOOR LIGHTING PLANE2025TH FLOOR LIGHTING PLANE2036TH FLOOR LIGHTING PLANE2047TH FLOOR LIGHTING PLANE3011ST FLOOR POWER PLANE3025TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANE3056TH FLOOR POWER PLANE3065TH FLOOR MECHANICAL POWER PLANEM3075TH FLOOR MECHANICAL POWER PLANEM3086TH FLOOR MECHANICAL POWER PLANEM3095TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM3047TH FLOOR FIRE ALARM PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL FIRE ALARM RISER DIAGRAME503ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E002	ELECTRICAL SPECIFICATIONS
E101FIRST FLOOR ELECTRICAL DEMOLITION PLANE2011ST FLOOR LIGHTING PLANE2025TH FLOOR LIGHTING PLANE2036TH FLOOR LIGHTING PLANE2047TH FLOOR LIGHTING PLANE3011ST FLOOR POWER PLANE3025TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANEM3055TH FLOOR MECHANICAL POWER PLANEM3065TH FLOOR MECHANICAL POWER PLANEM3075TH FLOOR MECHANICAL POWER PLANEM3086TH FLOOR MECHANICAL POWER PLANEM3095TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM3047TH FLOOR FIRE ALARM PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL DETAILSE503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E003	ELECTRICAL SPECIFICATIONS
E2011ST FLOOR LIGHTING PLANE2025TH FLOOR LIGHTING PLANE2036TH FLOOR LIGHTING PLANE2047TH FLOOR LIGHTING PLANE3011ST FLOOR POWER PLANE3025TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANEM3011ST FLOOR MECHANICAL POWER PLANEM3025TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM3047TH FLOOR FIRE ALARM PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL FIRE ALARM RISER DIAGRAME503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E004	ELECTRICAL SPECIFICATIONS
E2025TH FLOOR LIGHTING PLANE2036TH FLOOR LIGHTING PLANE2047TH FLOOR LIGHTING PLANE3011ST FLOOR POWER PLANE3025TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANEM3011ST FLOOR MECHANICAL POWER PLANEM3025TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL DETAILSE503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E101	FIRST FLOOR ELECTRICAL DEMOLITION PLAN
E2036TH FLOOR LIGHTING PLANE2047TH FLOOR LIGHTING PLANE3011ST FLOOR POWER PLANE3025TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANEM3011ST FLOOR MECHANICAL POWER PLANEM3025TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL DETAILSE503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E201	1ST FLOOR LIGHTING PLAN
E2047TH FLOOR LIGHTING PLANE3011ST FLOOR POWER PLANE3025TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANE3047TH FLOOR MECHANICAL POWER PLANEM3025TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E202	5TH FLOOR LIGHTING PLAN
E3011ST FLOOR POWER PLANE3025TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANEM3011ST FLOOR MECHANICAL POWER PLANEM3025TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E203	6TH FLOOR LIGHTING PLAN
E3025TH FLOOR POWER PLANE3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANEM3011ST FLOOR MECHANICAL POWER PLANEM3025TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E204	7TH FLOOR LIGHTING PLAN
E3036TH FLOOR POWER PLANE3047TH FLOOR POWER PLANEM3011ST FLOOR MECHANICAL POWER PLANEM3025TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE405ELECTRICAL DETAILSE502ELECTRICAL DETAILSE503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E301	1ST FLOOR POWER PLAN
E3047TH FLOOR POWER PLANEM3011ST FLOOR MECHANICAL POWER PLANEM3025TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E302	5TH FLOOR POWER PLAN
EM3011ST FLOOR MECHANICAL POWER PLANEM3025TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL FIRE ALARM RISER DIAGRAME503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E303	6TH FLOOR POWER PLAN
EM3025TH FLOOR MECHANICAL POWER PLANEM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E304	7TH FLOOR POWER PLAN
EM3036TH FLOOR MECHANICAL POWER PLANEM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	EM301	1ST FLOOR MECHANICAL POWER PLAN
EM3047TH FLOOR MECHANICAL POWER PLANEM305ROOF MECHANICAL POWER PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL FIRE ALARM RISER DIAGRAME503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	EM302	5TH FLOOR MECHANICAL POWER PLAN
EM305ROOF MECHANICAL POWER PLANE4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL FIRE ALARM RISER DIAGRAME503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	EM303	6TH FLOOR MECHANICAL POWER PLAN
E4011ST FLOOR FIRE ALARM PLANE4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL FIRE ALARM RISER DIAGRAME503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	EM304	7TH FLOOR MECHANICAL POWER PLAN
E4025TH FLOOR FIRE ALARM PLANE4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL FIRE ALARM RISER DIAGRAME503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	EM305	ROOF MECHANICAL POWER PLAN
E4036TH FLOOR FIRE ALARM PLANE4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL FIRE ALARM RISER DIAGRAME503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E401	1ST FLOOR FIRE ALARM PLAN
E4047TH FLOOR FIRE ALARM PLANE501ELECTRICAL DETAILSE502ELECTRICAL FIRE ALARM RISER DIAGRAME503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E402	5TH FLOOR FIRE ALARM PLAN
E501ELECTRICAL DETAILSE502ELECTRICAL FIRE ALARM RISER DIAGRAME503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E403	6TH FLOOR FIRE ALARM PLAN
E502ELECTRICAL FIRE ALARM RISER DIAGRAME503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E404	7TH FLOOR FIRE ALARM PLAN
E503ELECTRICAL DETAILSE601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E501	ELECTRICAL DETAILS
E601ELECTRICAL RISER DIAGRAMSE701ELECTRICAL SCHEDULES	E502	ELECTRICAL FIRE ALARM RISER DIAGRAM
E701 ELECTRICAL SCHEDULES	E503	ELECTRICAL DETAILS
	E601	ELECTRICAL RISER DIAGRAMS
E702 ELECTRICAL PANEL SCHEDULES	E701	ELECTRICAL SCHEDULES
	E702	ELECTRICAL PANEL SCHEDULES

NUMBER	SHEET NAME			
E703	ELECTRICAL PANEL SCHEDULES			
E704	ELECTRICAL PANEL SCHEDULES			
E705	ELECTRICAL PANEL SCHEDULES			
TELECOMMUNIC	ATIONS 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			
AV0.01	AV DATA SHEET			
AV1.01	AV FIRST FLOOR PLAN			
AV1.05	AV FIFTH FLOOR PLAN			
AV1.06	AV SIXTH FLOOR PLAN			
AV1.07	AV SEVENTH FLOOR PLAN			
ES0.01	SECURITY DATA SHEET			
ES1.01	SECURITY FIRST FLOOR PLAN			
ES1.05	SECURITY FIFTH FLOOR PLAN			
ES1.06	SECURITY SIXTH FLOOR PLAN			
ES1.07	SECURITY SEVENTH FLOOR PLAN			
ES2.01	SECURITY CARD ACCESS DETAILS			
ES2.02	SECURITY CAMERA DETAILS			
SM0.01	SOUND MASKING DATA SHEET			
SM1.05	SOUND MASKING PLAN - LEVEL 5			
SM1.06	SOUND MASKING PLAN - LEVEL 6			
SM1.07	SOUND MASKING PLAN - LEVEL 7			

ABBREVIATIONS

	FIN FLR FRGP FTG FURN GA GALV GB GC GC GL GYP HAGB	FINISHED FLOOR FIBER REINFORCED GYPSUM PANEL FOOTING FURNISHED GAUGE GALVANIZED GRAB BAR GENERAL CONTRACTOR GLASS FIBER REINFORCED CONCRETE GLASS GYPSUM HIGH ABUSE GYPSUM BOARD	MATL MAX MECH MED MEMB MFR MH MIN MIN MIN MISC MO NIC NO	MATERIAL MAXIMUM MECHANICAL MEDIUM MEMBRANE MECHANICAL, ELECTRICAL, AND PLUMBING MANUFACTURER MANHOLE MINIMUM MISCELLANEOUS MASONRY OPENING NOT IN CONTRACT NUMBER	PTD QT R RD REC RECPT REQD REV RFT RM RUB RV
	HB HDWD HDWR	HOSE BIBB HARDWOOD HARDWARE	NOM NON-COM OA	NOMINAL NON-COMBUSTABLE OVERALL	RX SEL SGT
TNIC	HM Horiz HT HW HWT	HOLLOW METAL HORIZONTAL HEIGHT HOT WATER HOT WATER TANK	OC OD OFF OPP OVHD	ON CENTER OUTSIDE DIAMETER OFFICE OPPOSITE OVERHEAD	SIM SPEC SQFT(SF) SS STD
	id Igu Incl	INSIDE DIAMETER INSULATED GLAZING UNIT INCLUDED INSULATION	PART PL PLAM PLMB	PARTITION PLATE PLASTIC LAMINATE PLUMBING	STOR STRUCT SUSP CLG T/
TER COOLER	INSUL JAN JB JT LAM	JANITOR JUNCTION BOX JOINT LAMINATE	POL PREFAB PREFIN PREP	PLUMBING POLISHED PREFABRICATED PREFINISHED PREPERATION	TEL TEMP TERR TG
IISHER IISHER CABINET	LAV LF MAS	LAVATORY LINEAR FEET MASONRY	PROC PROP PT	PROCEDURE PROPERTY PAINT	THK TLT TYP

SPEC SQFT(SF) SS STD STOR STRUCT	PAINTED QUARRY TILE RADIUS ROOF DRAIN RECESSED RECEPTACLE REINFORCING REQUIRED REVISION RESILIENT FLOOR TILE ROOM RUBBER ROOF VENT REMOVE EXISTING SELECT STRUCTURAL GLAZED TILE SIMILAR SPECIFICATION SQUARE FOOT STAINLESS STEEL STANDARD STORAGE STRUCTURAL SUSPENDED CEILING TOP OF TELEPHONE TEMPERED TERRAZZO TONGUE AND GROOVE THICK OR THICKNESS TOILET
TYP	TYPICAL

UNIT HEATER UNFINISHED UNDERSIDE OF DECK UNLESS OTHERWISE NOTED UNIT VENTILATOR VINYL COMPOSITION TILE VERTICAL WITH WATER CLOSET WOOD WIDE FLANGE

WORK POINT

WEIGHT

UH UNFIN UOD

UON

UV VCT VERT

W/

WC

WD

WF

WP

WT



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	Website	www.TSEpgh.com		
		MEP ENGINEERS	the	
	Company	ALLEN & SHARIFF		
	Address	700 RIVER AVENUE, SUITE 600 PITTSBURGH, PA 15212		
	Phone Number	412.322.9280	of	
	Email	-		
	Website	www.allenshariff.com		
		TECHNOLOGY CONSULTANT		
	Company	ITS CORPORATION		3
	Address	631 IDLEWOOD AVENUE CARNEGIE, PA 15106	Authority	NO
	Phone Number	412.429.1701		
	Email	-		31/
	Website	www.itscorp.net	Ā	ζΕ/
		WAYFINDING CONSULTANT		
	Company	GUIDE STUDIO		ST 1
	Address	13110 SHAKER SQUARE, SUITE 101 CLEVELAND, OHIO 44120	Sin	N E
	Phone Number	216.921.0750	PA 18	N
	Email	-		\sum
	Website	www.guidestudio.com		OC
PROJECT LOCATION		GENERAL NOTES	Hou Pittsburgh,	N DOCUMENTS REVISION 3
Park	peetro of Ave of Ave of Ave burgh Centre Ave Colwell St Sibbon St ist St eene	 DO NOT SCALE DRAWINGS. THE DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELAVANT DOCUMENTS AND PROJECT SPECIFICATIONS. FIELD VERIFY JOB CONDITIONS AND DIMENSIONS AND NOTIFY THE ARCHITECT OF DEVIATIONS FROM THE DRAWINGS. INSTALL MATERIALS AND PRODUCTS IN ACCORDANCE WITH THE MANUFACTURERS LATEST WRITTEN RECOMMENDATIONS. SUPPORT EQUIPMENT FROM STRUCTURAL MEMBERS. DO NOT SUPPORT FROM DECK UON. GENERAL CONTRACTOR SHALL PROVIDE LINTELS, LOUVERS AND SUPPORTS AT MECHANICAL OPENINGS UON. PAINT LINTELS PRIOR TO INSTALLING DOORS AND WINDOWS. FIRE-RETARDANT WOOD BLOCKING SHALL BE INSTALLED FOR WALL MOUNTED ITEMS WHERE REQUIRED. USE SOLID CORE BRICK ABOVE RECESSED AREAS TO ACCOMODATE THE EXTERIOR ARCHITECTURE. REFER TO EXTERIOR ELEVATIONS. 	HACP - H 412 Boulevard of the Allies,	CONSTRUCTION 09/03/2020
Ardie Roadway ahore St m * * * * * * * * * * * * * * * * * * *	Monongahel		of the City of	Authority F Pittsburgh SS STREET H, PA 15219
oulevard of the Allies, Pittsburgh, PA	≗ Ž Ž Ž		(41)	2) 456-5000
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STRUCTURAL ENGINEERS

BUILDING 100 PITTSBURGH, PA 15220

CompanyTSE TAYLOR STRUCTURAL
ENGINEERS, INC.Address2275 SWALLOW HILL ROAD,

Phone Number 412.722.0880

Website www.TSEpgh.com

Email | -



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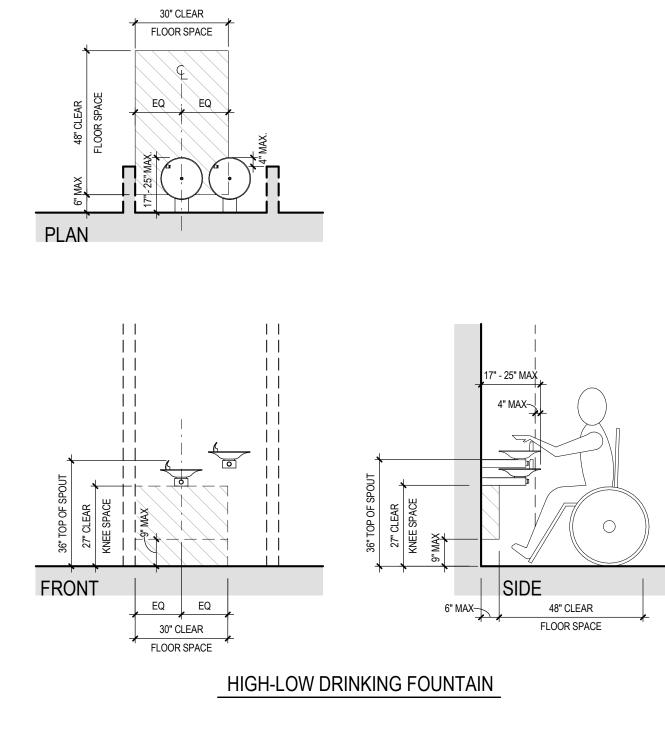
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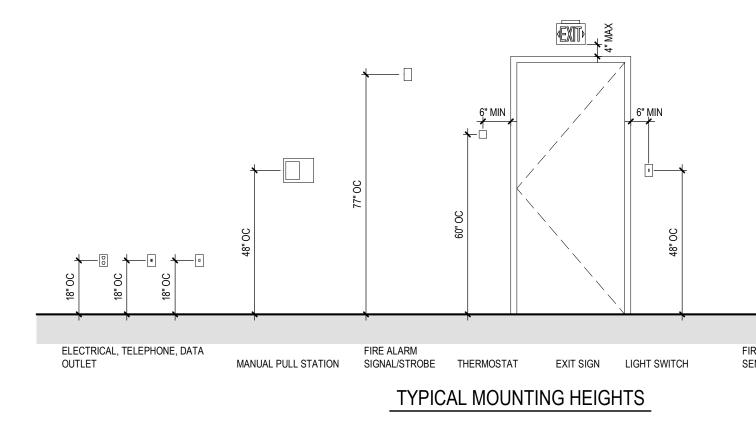
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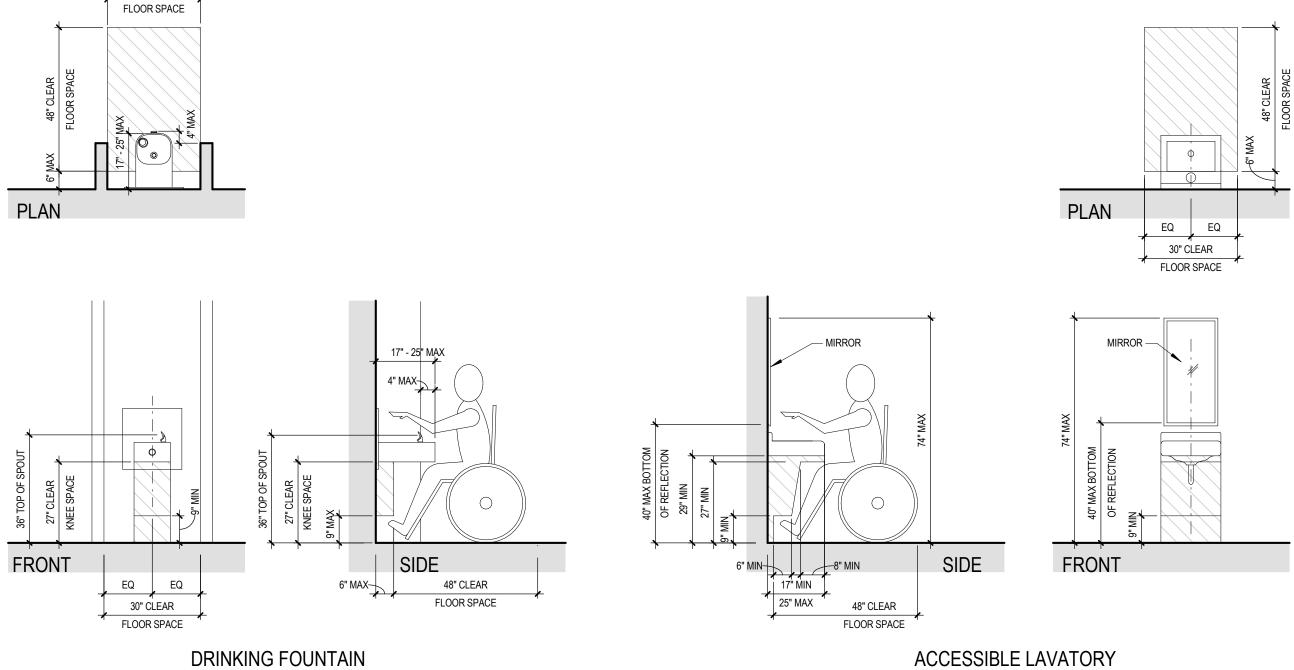
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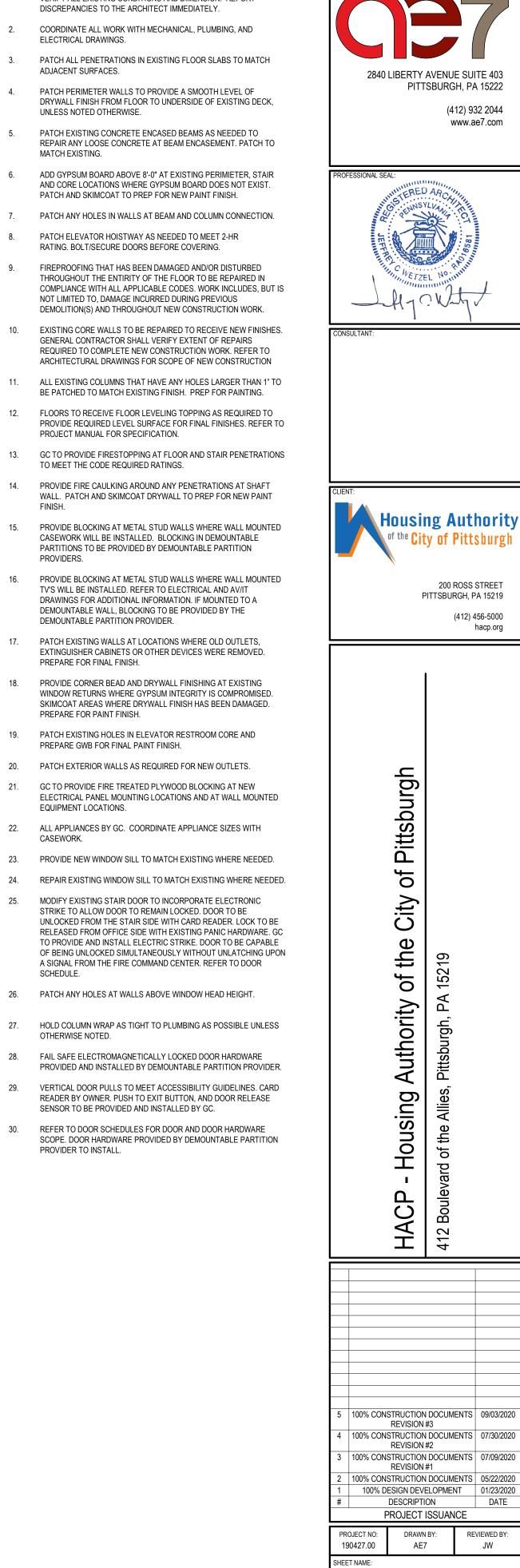




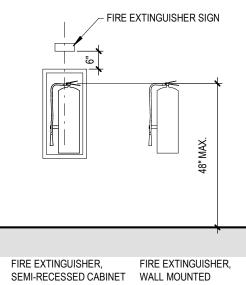


30" CLEAR

- IT IS THE RESPONSIBILITY OF ALL PRIME CONTRACTORS TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSION. REPORT DISCREPANCIES TO THE ARCHITECT IMMEDIATELY.
- COORDINATE ALL WORK WITH MECHANICAL, PLUMBING, AND 2. ELECTRICAL DRAWINGS.
- PATCH ALL PENETRATIONS IN EXISTING FLOOR SLABS TO MATCH 3 ADJACENT SURFACES.
- PATCH PERIMETER WALLS TO PROVIDE A SMOOTH LEVEL OF 4. DRYWALL FINISH FROM FLOOR TO UNDERSIDE OF EXISTING DECK, UNLESS NOTED OTHERWISE.
- PATCH EXISTING CONCRETE ENCASED BEAMS AS NEEDED TO 5. REPAIR ANY LOOSE CONCRETE AT BEAM ENCASEMENT. PATCH TO MATCH EXISTING.
- ADD GYPSUM BOARD ABOVE 8'-0" AT EXISTING PERIMIETER. STAIR 6. AND CORE LOCATIONS WHERE GYPSUM BOARD DOES NOT EXIST. PATCH AND SKIMCOAT TO PREP FOR NEW PAINT FINISH.
- PATCH ELEVATOR HOISTWAY AS NEEDED TO MEET 2-HR 8
- 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
- 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.
- PROVIDE BLOCKING AT METAL STUD WALLS WHERE WALL MOUNTED 15. 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 TV'S WILL BE INSTALLED. REFER TO ELECTRICAL AND AV/IT 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.
- PATCH EXTERIOR WALLS AS REQUIRED FOR NEW OUTLETS.
- GC TO PROVIDE FIRE TREATED PLYWOOD BLOCKING AT NEW ELECTRICAL PANEL MOUNTING LOCATIONS AND AT WALL MOUNTED EQUIPMENT LOCATIONS.
- ALL APPLIANCES BY GC. COORDINATE APPLIANCE SIZES WITH 22. 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.
- FAIL SAFE ELECTROMAGNETICALLY LOCKED DOOR HARDWARE 28.
- VERTICAL DOOR PULLS TO MEET ACCESSIBILITY GUIDELINES. CARD 29. 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.



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ARCHITECTURAL

STANDARDS

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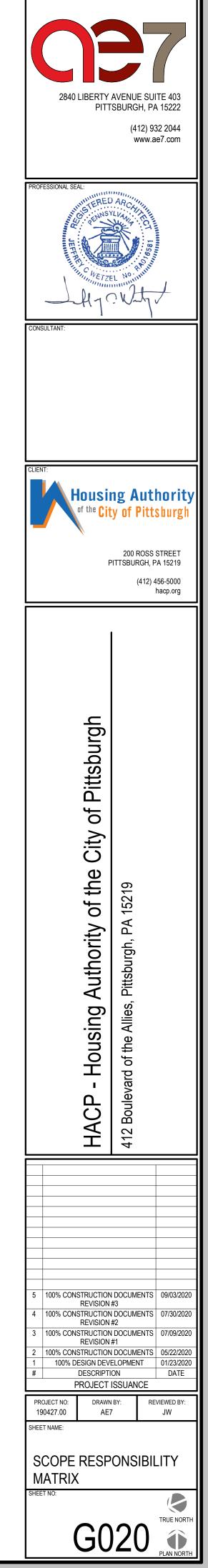
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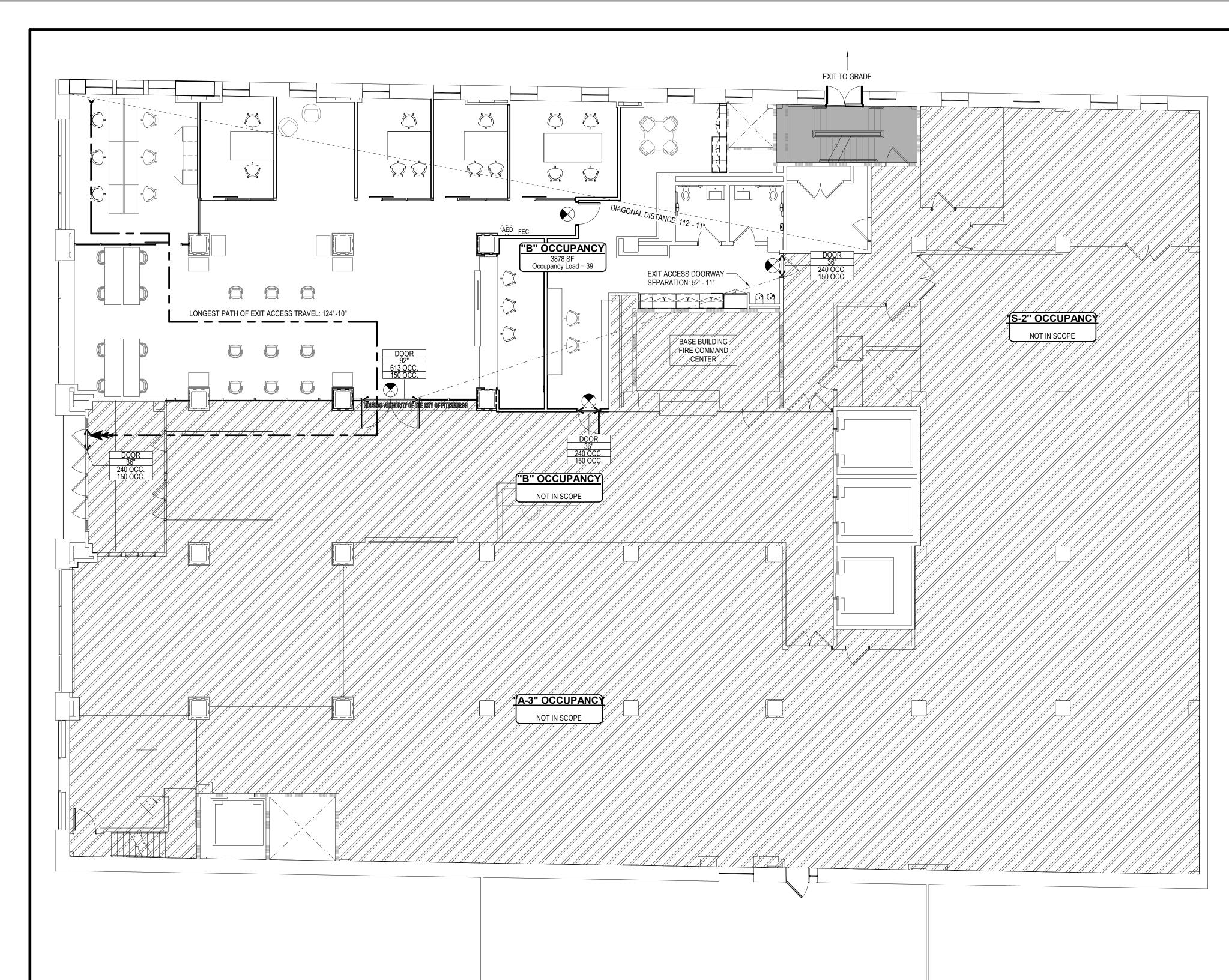


RESPC	ONSIBILITY MATRIX	AV CONTRACTOR	ECTRICAL	PLUMBING CONTRACTOR	DIRTT	PORC	CONT CONT	ELECTOR	PLUMRING CONTRACTOR	DIRTT CONTRACTOR	CORPO
AREA	ITEM DESCRIPTION	A/	ы МА	์ TERI	AL	ပ္ပ	AL	<u> </u>	ן שׂ INSTAI		ပ္ပ
STRUCTURAL											
	All non-DIRTT framing, soffit headers, lighting support, MEP, etc. 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											
ELECTRICAL (DIRTT POWER)	Rough-in and connection of all mechanical & HVAC					•					•
	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	See DIXTI SOW document										
	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				•	•				•	•
MILLWORK	Keypad single gang back box with conduit and 'tile cut out'				•					•	
	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 &	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				•					•	
WALL-MOUNTED TECHNOLOG	Accessory or Medical equipment					•					٠
	Wall-mounted equipment - support brackets only				•						•
	Wall-mounted equipment - backing (Madonna) Wall-mounted equipment				•	•				•	
HEALTHCARE SPECIFIC											

*THIS SCOPE RESPONSBILITY MATRIX IS A BASIC GUIDELINE PROVIDED BY THE DIRTT PRODUCT MANUFACTURER. THE HACP PROJECT SHALL USE 4 PRIME CONTRACTORS.

	NSIBILITY MATRIX		AV CONTRACTOR ELECTRICAL CONTRACTOR PLUMBING CONTRACTOR DIRTT GC OR GC SUB
AREA	ITEM DESCRIPTION	MATERIAL	INSTALL
	Medgas Devices (Oxygen, Air, Vacuum, Sliders) 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	Image:	
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)		
OTHER	Offsite storage, if needed	•	
OTHER	In-drywall electrical In-drywall data Drywall-mounted doors and windows (non-DIRTT supplied) Major appliances		





2 OVERALL LIFE SAFETY PLAN - LEVEL 01

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), 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 - 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 / 116' - 10"

ALLOWABLE BUILDING AREA - UL SF/FLOOR ACTUAL (LEVEL 01) - 16,434 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 FLMAE 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/OCCUPANT = 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 MULTIPLIED BY 0.2 INCH PER OCCUPANT FOR STAIRWAYS AND BY 0.15 INCH PER OCCUPANT FOR OTHER EGRESS COMPONENTS.

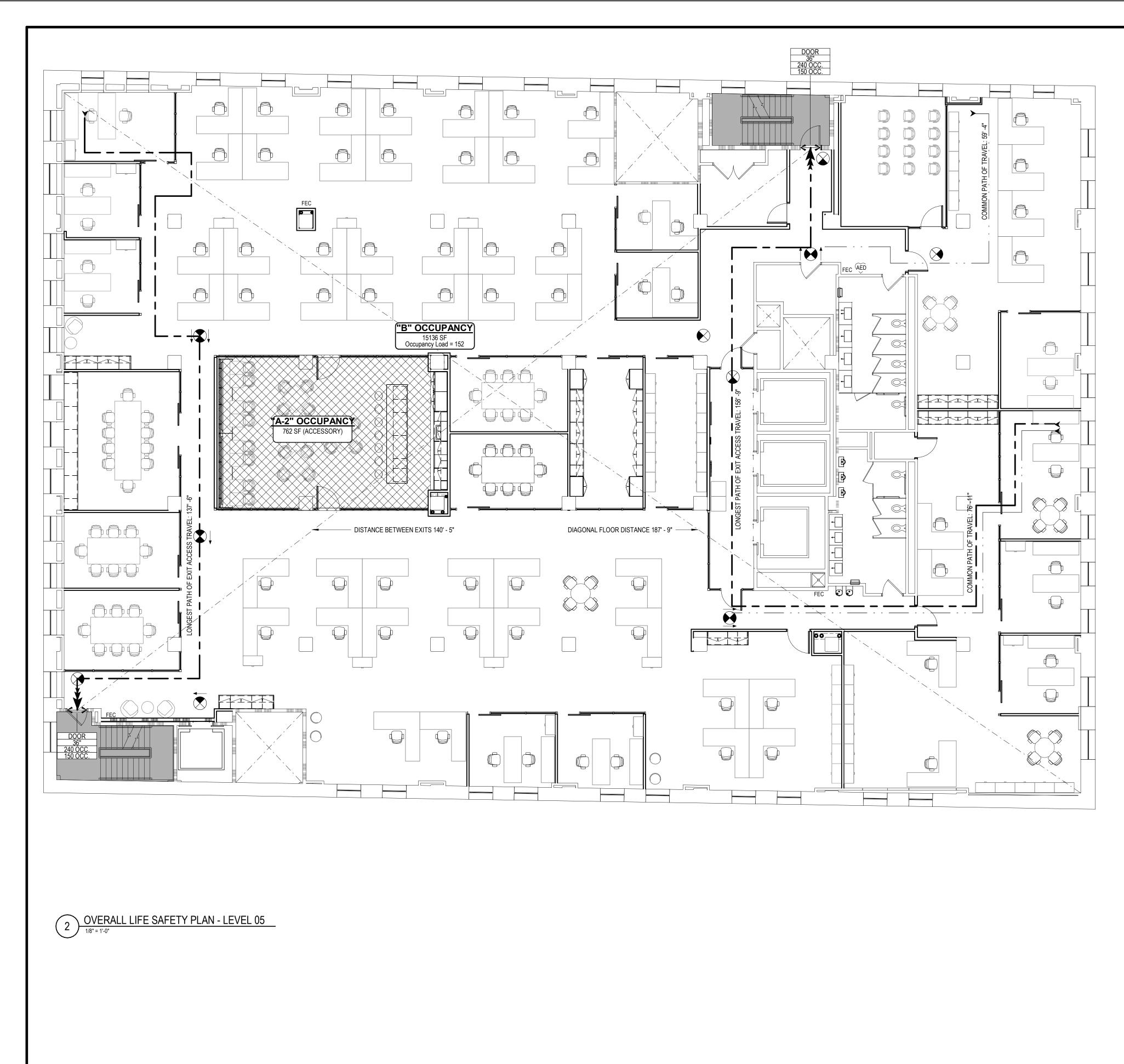
(STAIRWAYS) 64 OCCUPANTS x 0.2" = 12.8" REQUIRED / 46" (EXISTING) (OTHERS) 64 OCCUPANTS x 0.15" = 9.6" REQUIRED / 108" PROVIDED

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	LIFE SAFETY NOTES	
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 SERVICE BESISTENT THE SEPARATION DISTANCE	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.	$\bigcirc 7$
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 ECRESS EROM ANY ACCESSIBLE		2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044
THAN ONE ACCESSIBLE MEANS OF EGRESS FROM ANY ACCESSIBLE SPACE. 1017.2 EXIT ACCESS TRAVEL DISTANCE SHALL NOT EXCEED THE		(412) 952 2044 www.ae7.com
DISTANCES GIVEN IN <i>TABLE 1017.2.</i> <i>TABLE 1017.2</i> OCCUPANCY GROUP B (SPRINKLERED): 300'-0"		PROFESSIONAL SEAL:
<i>1020.1</i> CORRIDORS SHALL BE FIRE-RESISTANCE RATED IN ACCORDANCE WITH TABLE <i>1020.1</i> .		STERED ARCA
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.		JEFFRENCE C
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".		Alg Charge
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".		CONSULTANT:
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		CLIENT: Housing Authority of the City of Pittsburgh
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		200 ROSS STREET PITTSBURGH, PA 15219
ACCORDANCE WITH SECTION 909.21.		(412) 456-5000 hacp.org
AND FIXTURE FITTINGS (ACHD RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE, ARTICLE XV)		
403.3.3 (IPC 2015) 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'.	"B" BUSINESS OCCUPANCY "A-2" ASSEMBLY OCCUPANCY OUT OF SCOPE. VARIOUS OCCUPANCIES EGRESS COMPONENT	
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'.		nrgh
403 OCCUPANCY GROUP B LEVEL 01: 36 OCCUPANTS TOTAL (OCCUPANCY GROUP B): 39 OCCUPANTS IN SCOPE		Pittsburgh
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		ity of
LAVATORIES LAVATORIES (MALE/FEMALE): 39 OCCUPANTS @ 2 PER 26-50 OCCUPANTS = 2 LAVATORIES REQUIRED		the C
DRINKING FOUNTAINS DRINKING FOUNTAINS (MALE/FEMALE): 39 OCCUPANTS @ 1 PER 100 OCCUPANTS = 1 DRINKING FOUNTAIN REQUIRED	LIFE SAFETY LEGEND	of of 152
SERVICE SINKS SERVICE SINKS: 1 REQUIRED PER FLOOR 403 OCCUPANCY GROUP A-3	WALL RATINGS	urgh, F
LOWER LEVEL (OUT OF SCOPE): 230 OCCUPANTS TOTAL (OCCUPANCY GROUP A-3): 230 OCCUPANTS		Authority Pittsburgh, PA
WATER CLOSETS TOILETS (MALE): 129 OCCUPANTS @ 1 PER 125 OCCUPANTS = 2 TOILETS REQUIRED TOILETS (FEMALE): 129 OCCUPANTS @ 1 PER 65 OCCUPANTS = 2 TOILETS REQUIRED	Image: Information Informatio Informatio Informatio Information Information Information Informa	CP - Housing / Boulevard of the Allies,
LAVATORIES LAVATORIES (MALE/FEMALE): 258 OCCUPANTS @ 1 PER 200 OCCUPANTS = 2 LAVATORIES REQUIRED	SYMBOLS	- Hol
DRINKING FOUNTAINS DRINKING FOUNTAINS (MALE/FEMALE): 258 OCCUPANTS @ 1 PER 500 OCCUPANTS = 1 DRINKING FOUNTAIN REQUIRED	EXIT ARROW	HACP - 412 Boulev
SERVICE SINKS SERVICE SINKS: 1 REQUIRED PER FLOOR	FEC ————————————————————————————————————	HA 4121
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	- EXIT CAPACITY TAG	
LAVATORIES LAVATORIES (MALE/FEMALE): 37 OCCUPANTS @ 1 PER 100 OCCUPANTS = 1 LAVATORIES REQUIRED	DOOR TYPE 36" 36" 240 OCC. MAX ALLOWABLE OCC. 150 OCC. ACTUAL OCC.	
DRINKING FOUNTAINS DRINKING FOUNTAINS (MALE/FEMALE): 37 OCCUPANTS @ 1 PER 1,000 OCCUPANTS = 1 DRINKING FOUNTAIN REQUIRED	ACTUAL OCC.	
SERVICE SINKS SERVICE SINKS: 1 REQUIRED	- EGRESS LINE -LONGEST PATH	5 100% CONSTRUCTION DOCUMENTS REVISION #3 09/03/2020 4 100% CONSTRUCTION DOCUMENTS REVISION #2 07/30/2020
COMBINED TOTAL MINIMUM NUMBER OF REQUIRED FIXTURES FOR LEVEL 01 AND LOWER LEVEL(OUT OF SCOPE)	- EGRESS LINE -COMMON	REVISION #2 3 100% CONSTRUCTION DOCUMENTS REVISION #1 07/09/2020 2 100% CONSTRUCTION DOCUMENTS 05/22/2020
WATER CLOSETS MALE: 4 REQUIRED / 4 PROVIDED FEMALE: 4 REQUIRED / 4 PROVIDED MALE OR FEMALE: 1 REQUIRED / 1 PROVIDED	- EGRESS LINE - "DEAD END" CORRIDOR	1 100% DESIGN DEVELOPMENT 01/23/2020 # DESCRIPTION DATE PROJECT ISSUANCE PROJECT ISSUANCE
MALE OR FEMALE: 1 REQUIRED / 1 PROVIDED	← - — - — - → DIAGONAL DISTANCE PATH	PROJECT NO: DRAWN BY: REVIEWED BY: 190427.00 AE7 JW
DRINKING FOUNTAINS: 3 REQUIRED / 6 PROVIDED SERVICE SINKS: 1 REQUIRED PER FLOOR / 1 PROVIDED PER	AREA IN SF	SHEET NAME:
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	Area Name 150/SF Occupancy Load = 10,000	OVERALL LIFE SAFETY PLAN - LEVEL 01
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.	OCCUPANCY LOAD PER IBC TABLE 1004.1.1 IBC ALLOWABLE AREA	
	PER OCCUPANT	G101

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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

403.2.1.1.2 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 / 116' - 10" ALLOWABLE BUILDING AREA - UL SF/FLOOR

ACTUAL (LEVEL 05) - 16,434 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 FLMAE 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 / 92" (EXISTING)

(OTHERS) 152 OCCUPANTS 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"

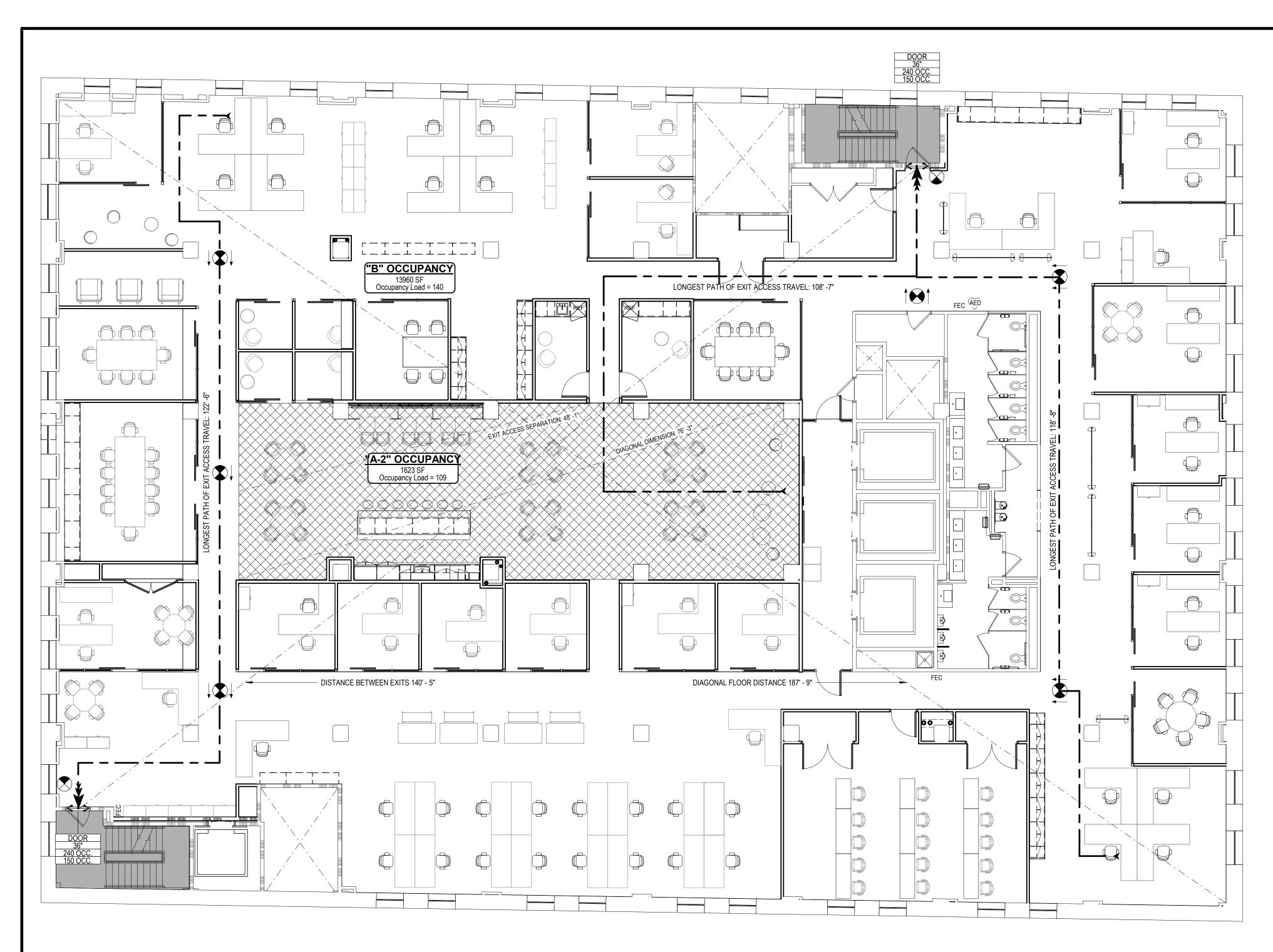
1007.1.1 THE SEPARATION DISTANCE BETWEEN TWO EXIT ACCESS DOORWAYS SHALL NOT BE LESS THAN ONE-HALF OF THE LEGNTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED.

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	LIFE SAFETY NOTES	
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".	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.	2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
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 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)		CLIENT:
403.3.3 (IPC 2015) 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'.		of the City of Pittsburgh 200 ROSS STREET PITTSBURGH, PA 15219 (412) 456-5000 hacp.org
REFER TO G106 "APPLICABLE CODES - LEVEL 06" FOR COMBINED TOTAL MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES FOR LEVEL 05 AND LEVEL 06	OCCUPANCY LEGEND "B" BUSINESS OCCUPANCY "A-2" ASSEMBLY OCCUPANCY OUT OF SCOPE. VARIOUS OCCUPANCIES EGRESS COMPONENT	of the City of Pittsburgh 15219
	LIFE SAFETY LEGEND WALL RATINGS - 1 HR FIRE RESISTANT - 2 HR FIRE RESISTANT - 3 HR FIRE RESISTANT SYMBOLS FECEXIT ARROW FECFIRE EXTINGUISHER CABINET FieFIRE EXTINGUISHER CABINET FieFIRE EXTINGUISHER	HACP - Housing Authority of the 412 Boulevard of the Allies, Pittsburgh, PA 15219
	-EXIT CAPACITY TAG -EXIT CAPACITY TAG -EXIT CAPACITY TAG 	Image: state of the state

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2 OVERALL LIFE SAFETY PLAN - LEVEL 06

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

403.2.1.1.2 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 / 116' - 10"

ALLOWABLE BUILDING AREA - UL SF/FLOOR ACTUAL (LEVEL 06) - 16,434 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 FLMAE 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 MULTIPLIED BY 0.2 INCH PER OCCUPANT FOR STAIRWAYS AND BY 0.15 INCH PER OCCUPANT FOR OTHER EGRESS COMPONENTS.

(STAIRWAYS) 249 OCCUPANTS x 0.2" = 49.8" REQUIRED / 92" (EXISTING)

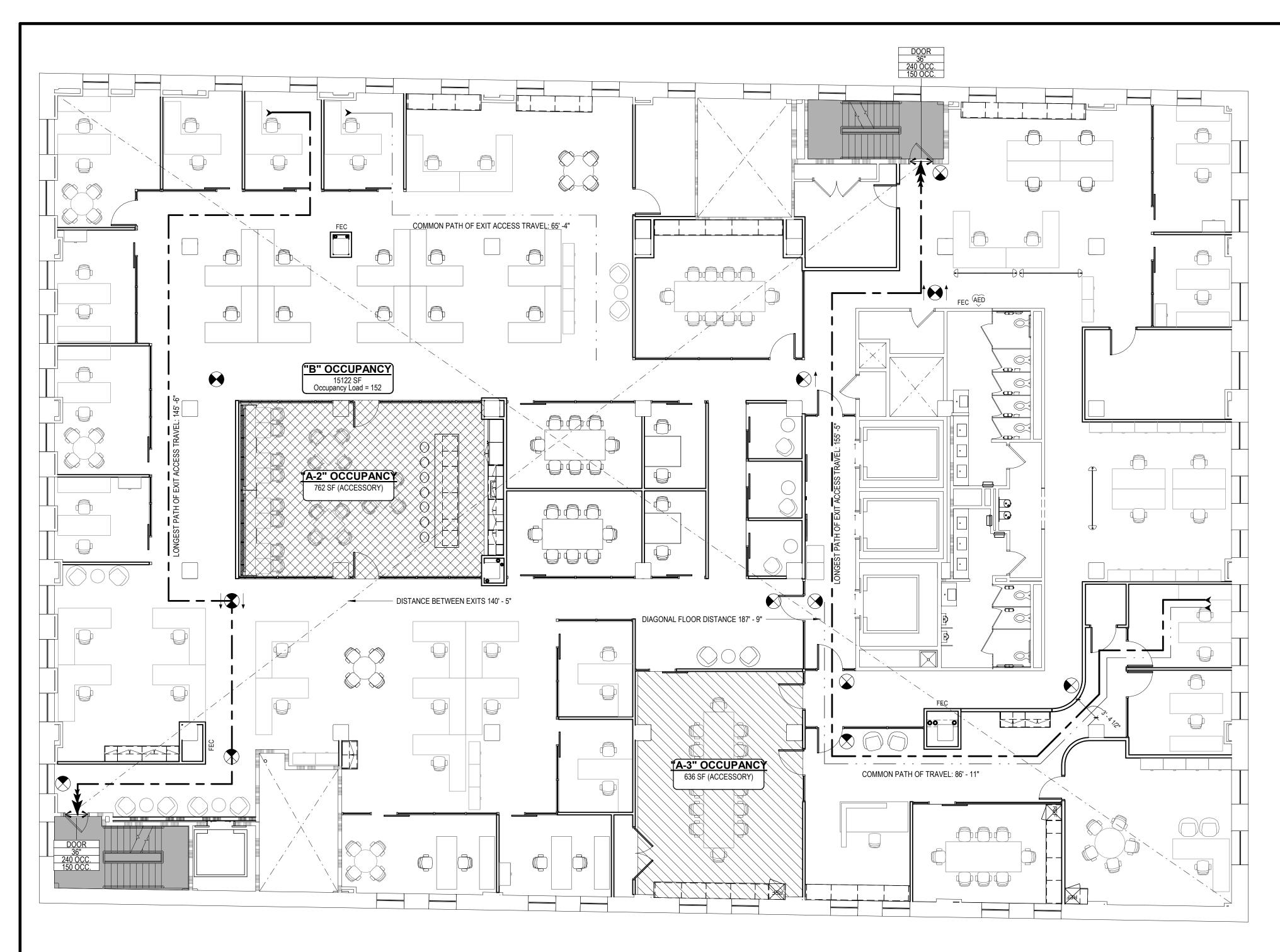
(OTHERS) 249 OCCUPANTS x 0.15" = 37.35" REQUIRED / 68" PROVIDED 1006.2.1 TWO EXITS OR EXIT ACCESS DOORWAYS FROM ANY SPACE SHALL BE PROVIDED WHERE THE DESIGN OCCUPANT LOAD OR THE COMMON PATH OF TRAVEL EXCEEDS THE VALUES LISTED IN TABLE 1006.2.1.

TABLE 1006.2.1 OCCUPANCY GROUP B (SPRINKLERED) MAXIMUM OCCUPANT LOAD OF SPACE: 49 MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE: 100'-0"

> 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	LIFE SAFETY NOTES	
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.	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.	2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
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".		PROFESSIONAL SEAL:
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 3006.3. 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)		CLIENT: Housing Authority of the City of Pittsburgh 200 ROSS STREET PITTSBURGH, PA 15219 (412) 456-5000 hacp.org
403 OCCUPANCY GROUP B LEVEL 05: 151 OCCUPANTS LEVEL 06: 140 OCCUPANTS	OCCUPANCY LEGEND	nacp.org
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 @ 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 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	"B" BUSINESS OCCUPANCY "A-2" ASSEMBLY OCCUPANCY OUT OF SCOPE. VARIOUS OCCUPANCIES EGRESS COMPONENT	of the City of Pittsburgh
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 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 / 16 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	LIFE SAFETY LEGEND WALL RATINGS 	HACP - Housing Authority o 412 Boulevard of the Allies, Pittsburgh, PA 1
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.	• EXIT CAPACITY TAG • EXIT CA	Image: state of the state

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2 OVERALL LIFE SAFETY PLAN - LEVEL 07

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 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 - 15,122 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 / 180' - 0" ACTUAL - 9 STORIES / 116' - 10"

ALLOWABLE BUILDING AREA - UL SF/FLOOR ACTUAL (LEVEL 07) - 16,434 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 FLMAE 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 SF/OCCUPANT = 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 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 / 92" (EXISTING)

(OTHERS) 152 OCCUPANTS 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.

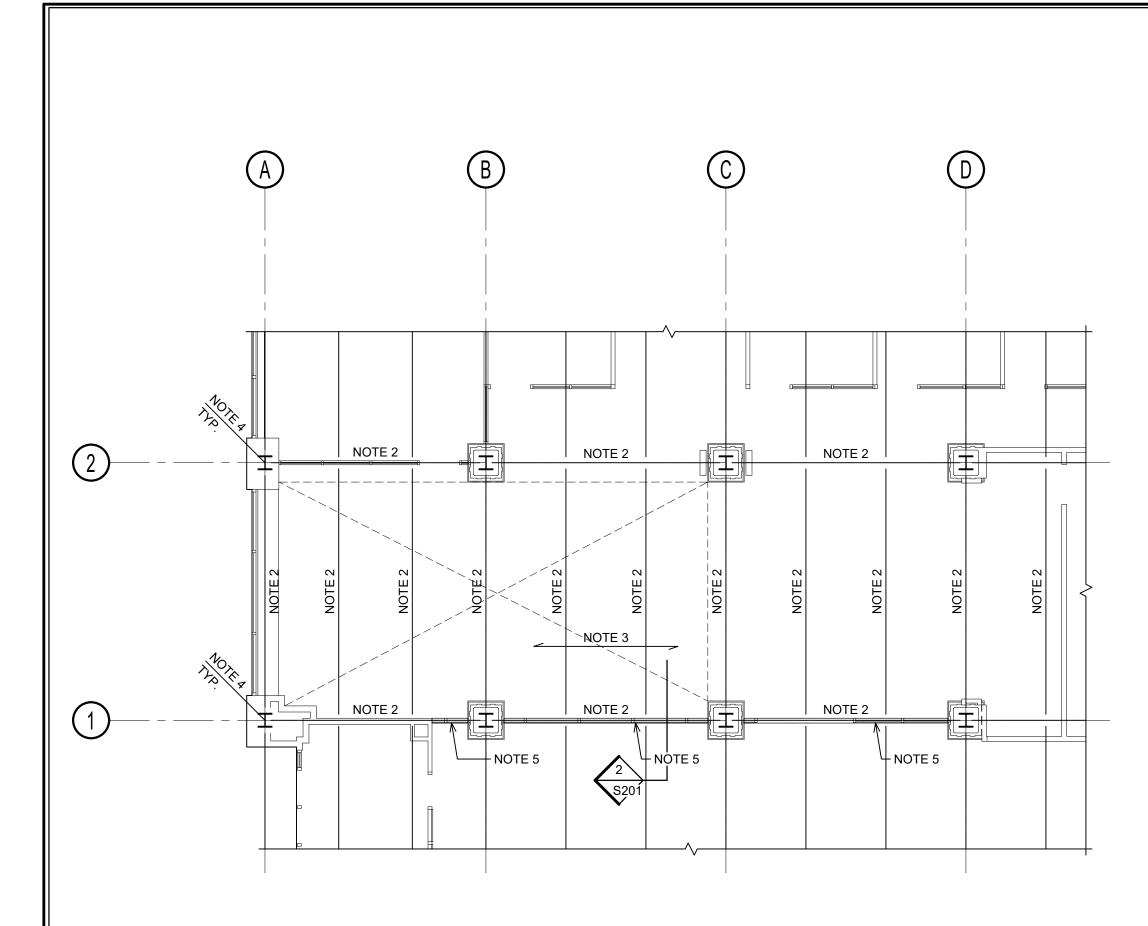
TABLE 1006.2.1 OCCUPANCY GROUP B (SPRINKLERED) MAXIMUM OCCUPANT LOAD OF SPACE: 49 MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE: 100'-0"

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.

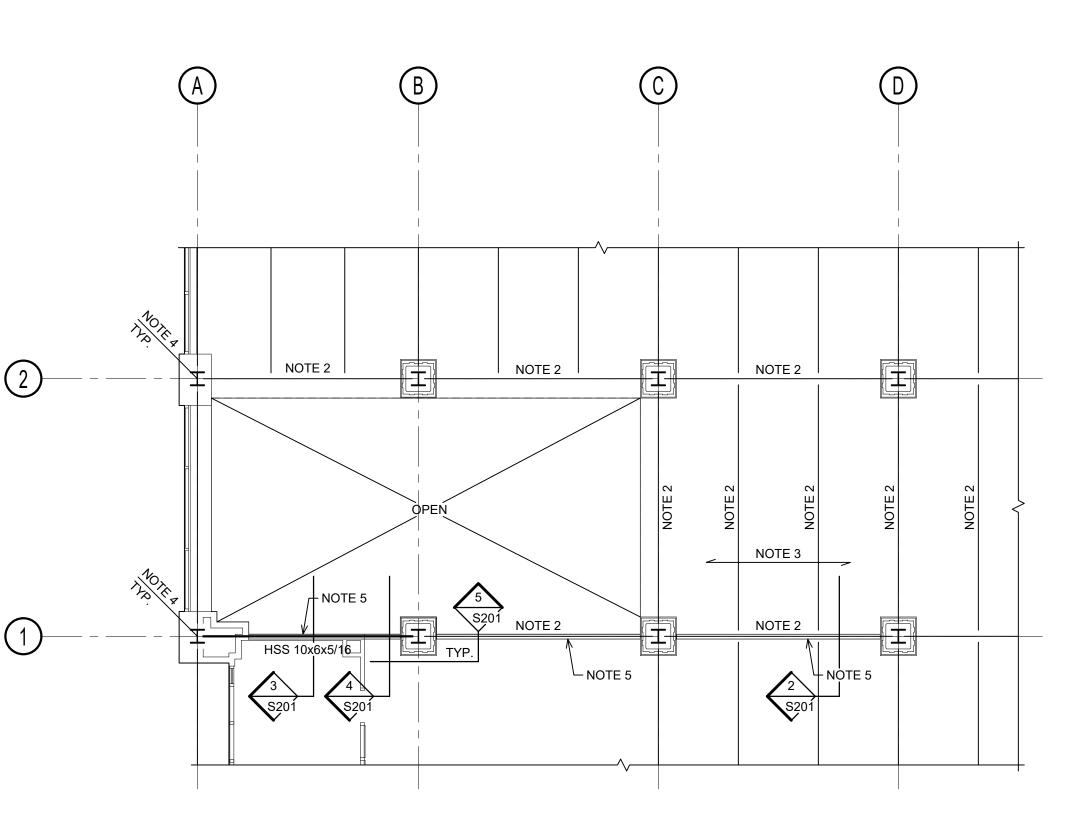
LEVEL 07	CHAPTER 10 - MEANS OF EGRESS	LIFE SAFETY NOTES	
A ACT 45 115 EDITION), 2015 EDITION 015 EDITION DITION N CODE (IECC), 2015 EDITION Y HEALTH DEPARTMENT'S G AND BUILDING DRAINAGE -	1017.2 EXIT ACCESS TRAVEL DISTANCE SHALL NOT EXCEED THE DISTANCES GIVEN IN TABLE 1017.2.TABLE 1017.2 OCCUPANCY GROUP 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.	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.	2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
USABLE BUILDINGS AND DING CODE DING CODE	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		PROFESSIONAL SEAL:
PERMITS, LICENSES, AND	EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM, THE LENGTH OF THE DEAD-END CORRIDORS SHALL NOT EXCEED 50'-0".		CS ENNSYLVAN
NCY	CHAPTER 11 - ACCESSIBILITY		
CES SHALL NOT BE S: A ROOM OR SPACE USED CUPANT LOAD OF LESS THAN E FEET IN AREA, AND	1109.2 AT LEAST ONE OF EACH TYPE OF FIXTURE, ELEMENT, CONTROL, OR DISPENSER IN EACH ACCESSIBLE TOILET ROOM SHALL BE ACCESSIBLE.		HI C Way
SHALL BE CLASSIFIED AS A F THAT OCCUPANCY.	CHAPTER 30 - ELEVATORS AND CONVEYING SYSTEMS		CONSULTANT:
DETAILED D ON USE AND	3006.2 ELEVATOR HOISTWAY DOOR OPENINGS SHALL BE PROTECTED IN HIGH-RISE BUILDINGS IN ACCORDANCE WITH SECTION 3006.3.		
FIRE-RESISTANCE RATING CONSTRUCTION SHALL BE E-RESISTANCE RATING IN	3006.3.4 THE ELEVATOR HOISTWAY SHALL BE PRESSURIZED IN ACCORDANCE WITH SECTION 909.21.		
HEIGHT &	AND FIXTURE FITTINGS (ACHD RULES AND REGULATIONS FOR PLUMBING AND BUILDING DRAINAGE, ARTICLE XV)		CLIENT: Housing Authority
0"	403 OCCUPANCY GROUP B LEVEL 07: 152 OCCUPANTS TOTAL (OCCUPANCY GROUP B): 152 OCCUPANTS IN SCOPE		of the City of Pittsburgh
DR E THAN ONE OCCUPANCY	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		200 ROSS STREET PITTSBURGH, PA 15219 (412) 456-5000 hacp.org
REOF SHALL COMPLY WITH ON 508.2, 508.3, 508.4, OR A PE ARE TO BE CONSIDERED	LAVATORIES LAVATORIES (MALE/FEMALE): 152 OCCUPANTS @ 5 PER 151- 200 OCCUPANTS = 5 REQUIRED / 8 PROVIDED	OCCUPANCY LEGEND	
RDANCE TO THE 2.	DRINKING FOUNTAINS DRINKING FOUNTAINS (MALE/FEMALE): 152 OCCUPANTS @ 1 PER 100 OCCUPANTS = 2 REQUIRED / 2 PROVIDED	B" BUSINESS OCCUPANCY	
F	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	OUT OF SCOPE. VARIOUS OCCUPANCIES	
R 1 HOUR 1 HOUR NOR: 0 HOUR	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.		Pittsburgh
UR JR			of Pit
R FINISHES			City e
ESIGNATED.			Ū
CES: C		LIFE SAFETY LEGEND	ty of th PA 15219
DTECTION		WALL RATINGS	Authority Pittsburgh, P.
HALL BE INSTALLED IN NEW		- 1 HR FIRE RESISTANT - 2 HR FIRE RESISTANT	
A RATING EXTINGUISHER = 75'-0" EM AND EMERGENCY VOICE/ DED BY BASE BUILDING.		- 3 HR FIRE RESISTANT	Housing rd of the Allies,
OF EGRESS		EXIT ARROW	ka I
S AREAS - 100 GROSS CUPANT = 152 OCCUPANTS EVEL 7 ONLY)		FEC ———— FIRE EXTINGUISHER CABINET FE	HACP 412 Boule
EGRESS SHALL NOT BE SERVED BY THE MEANS OF CUPANT FOR STAIRWAYS HER EGRESS		- EXIT CAPACITY TAG	
H AND I-2 OCCUPANCIES, EGRESS SHALL BE PER OCCUPANT FOR PANT FOR OTHER EGRESS		DOOR TYPE 36" 240 OCC. MAX ALLOWABLE OCC. 150 OCC. ACTUAL OCC.	
4" REQUIRED / 92"		- EGRESS LINE -LONGEST	5 100% CONSTRUCTION DOCUMENTS 09/03/2020
REQUIRED / 68" PROVIDED ORWAYS FROM ANY SPACE NOCCUPANT LOAD OR THE		PATH - EGRESS LINE -COMMON PATH	REVISION #3 4 100% CONSTRUCTION DOCUMENTS REVISION #2 07/30/2020 3 100% CONSTRUCTION DOCUMENTS 07/09/2020
E VALUES LISTED IN TABLE PRINKLERED) DAD OF SPACE: 49 H OF EGRESS TRAVEL		- EGRESS LINE - "DEAD END" CORRIDOR	REVISION #1 2 100% CONSTRUCTION DOCUMENTS 05/22/2020 1 100% DESIGN DEVELOPMENT 01/23/2020 # DESCRIPTION DATE PROJECT ISSUANCE
WEEN TWO EXIT ACCESS NE-HALF OF THE LEGNTH OF NSION OF THE BUILDING OR		C DIAGONAL DISTANCE PATH	PROJECT NO: DRAWN BY: REVIEWED BY: 190427.00 AE7 JW SHEET NAME:
JIPPED THROUGHOUT WITH SEPARATION DISTANCE THE OVERALL DIAGONAL		Area Name 150'SF Occupancy Load = 10,000	OVERALL LIFE SAFETY PLAN - LEVEL 07
ROVIDED WITH NOT LESS SS FROM ANY ACCESSIBLE		OCCUPANCY LOAD PER IBC TABLE 1004.1.1 IBC ALLOWABLE AREA PER OCCUPANT	G107
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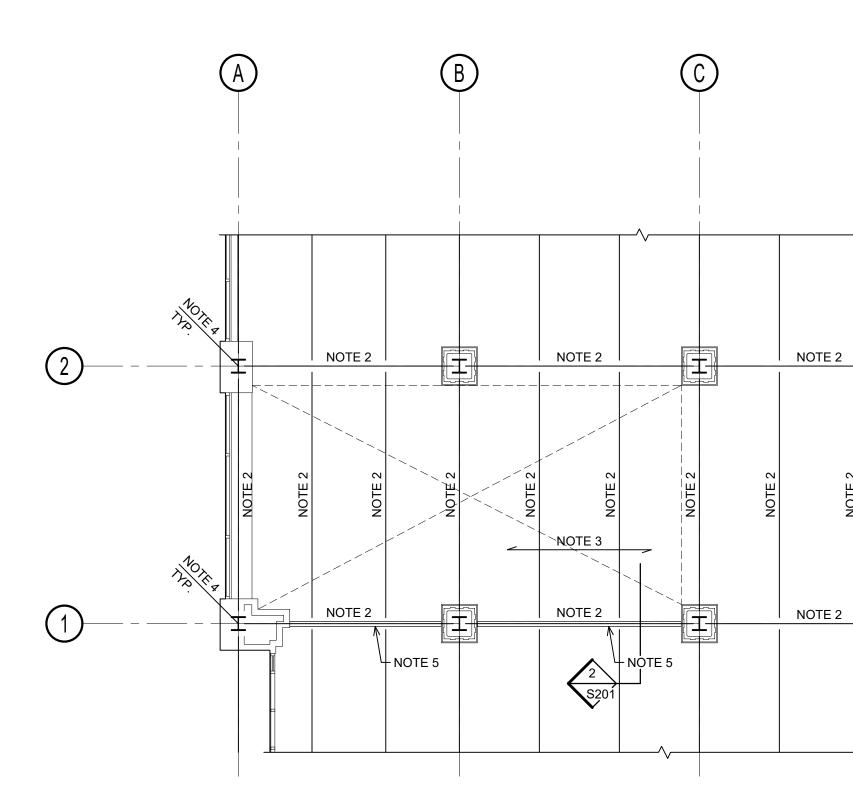


LEVEL 01 FRAMING PLAN SCALE: 1/8" = 1'-0"

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.

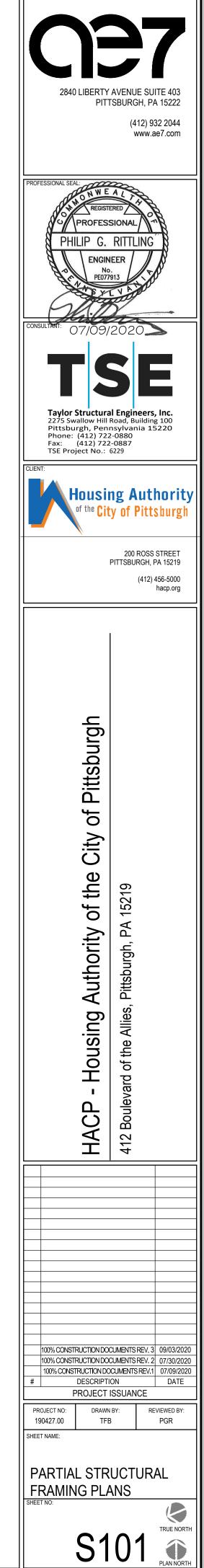


PLAN NOTES:

(D)

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- 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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GENERAL NOTES:

DESIGN LIVE LOADS

DL-1 INTERIOR WIND PRESSURE

- DL-2 CURTAIN WALL DEAD LOAD. .
- 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 M	OMENT
	CONNECTION END PLATE	ES ASTM A572, GRADE 50
	OTHER SHAPES, PLATE, AND E	ARS 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).



ÀCTUATED FASTENERS

3/16" DIA. KWIK-CON II+ CONCRETE SCREWS

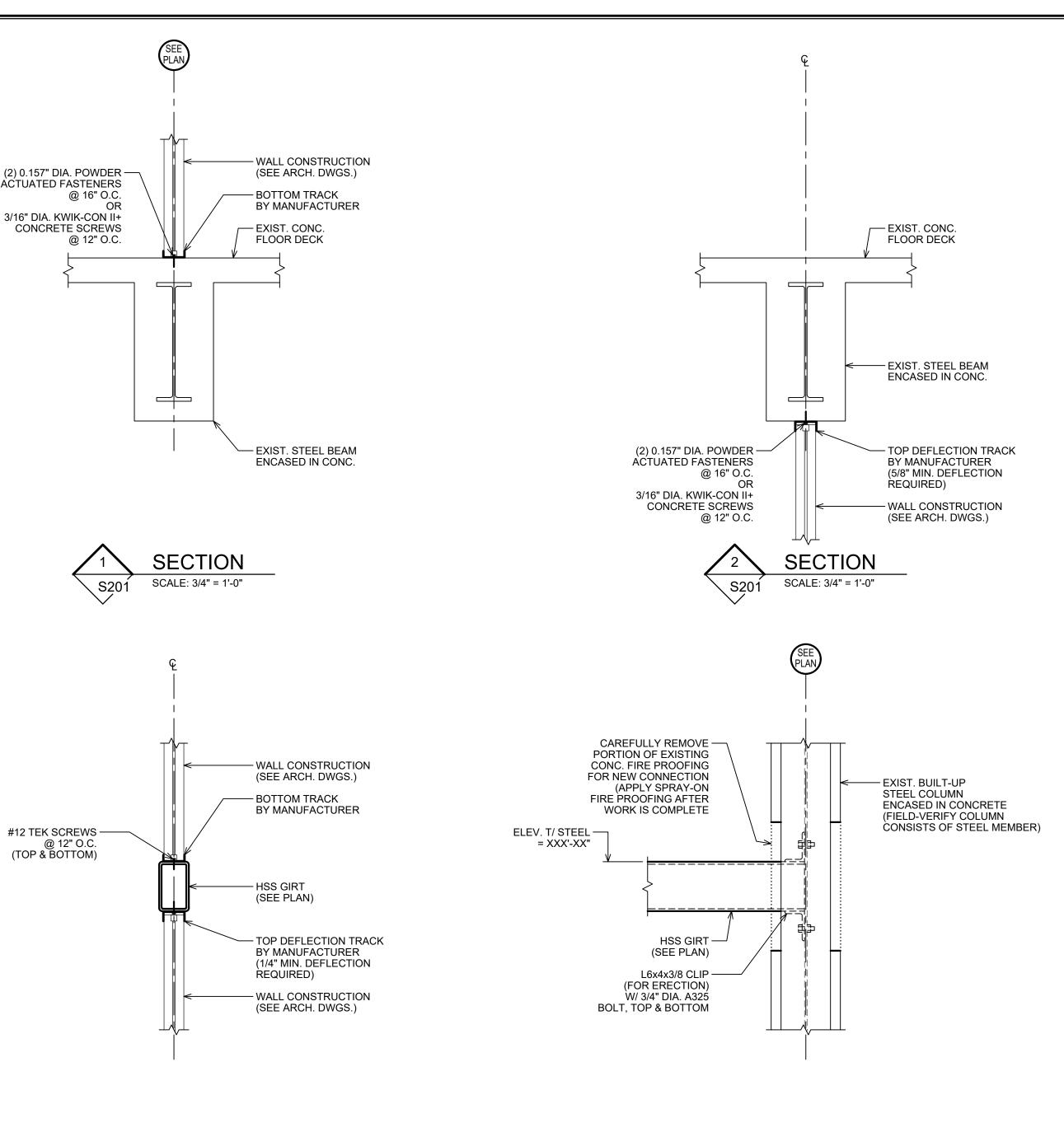
@ 16" O.C.

@ 12" O.C.

S20⁻

(TOP & BOTTOM)



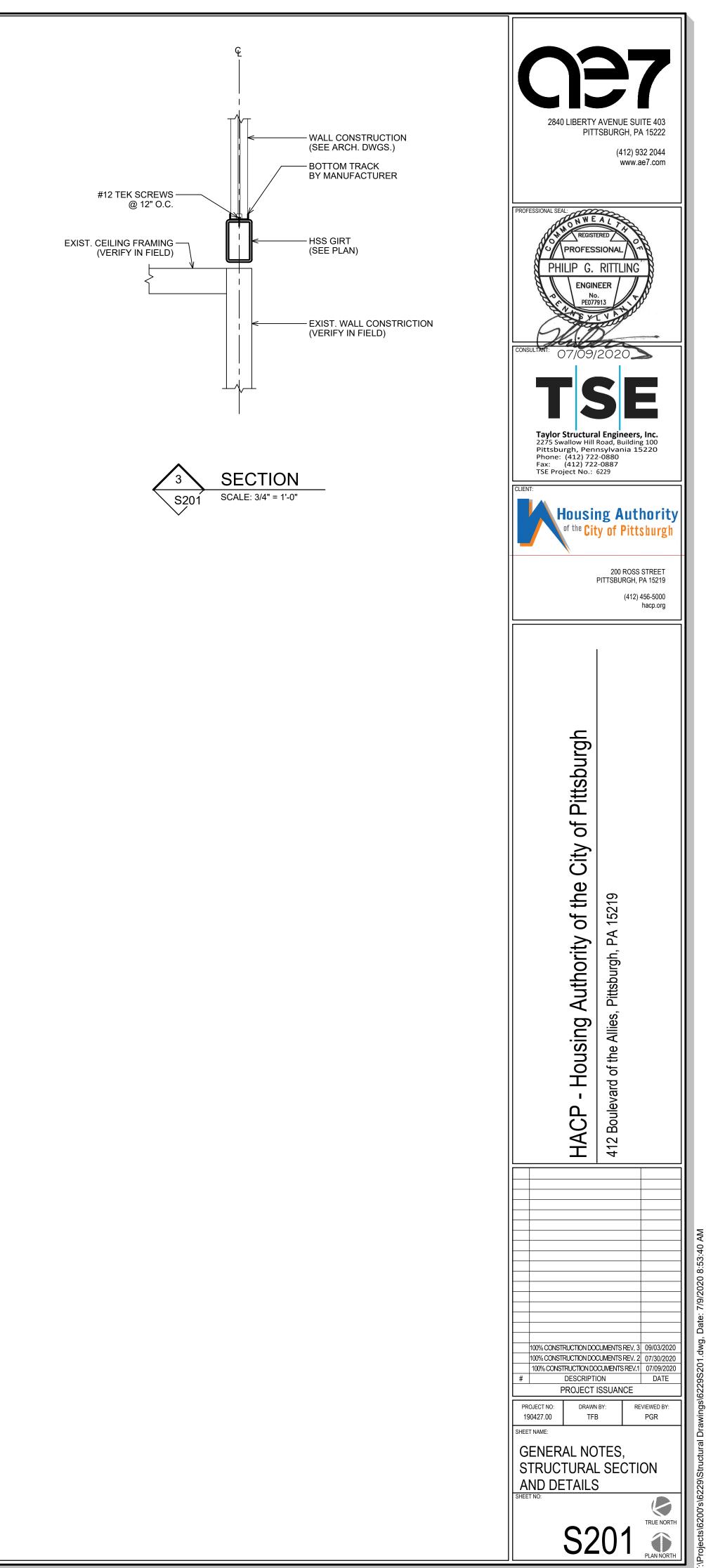


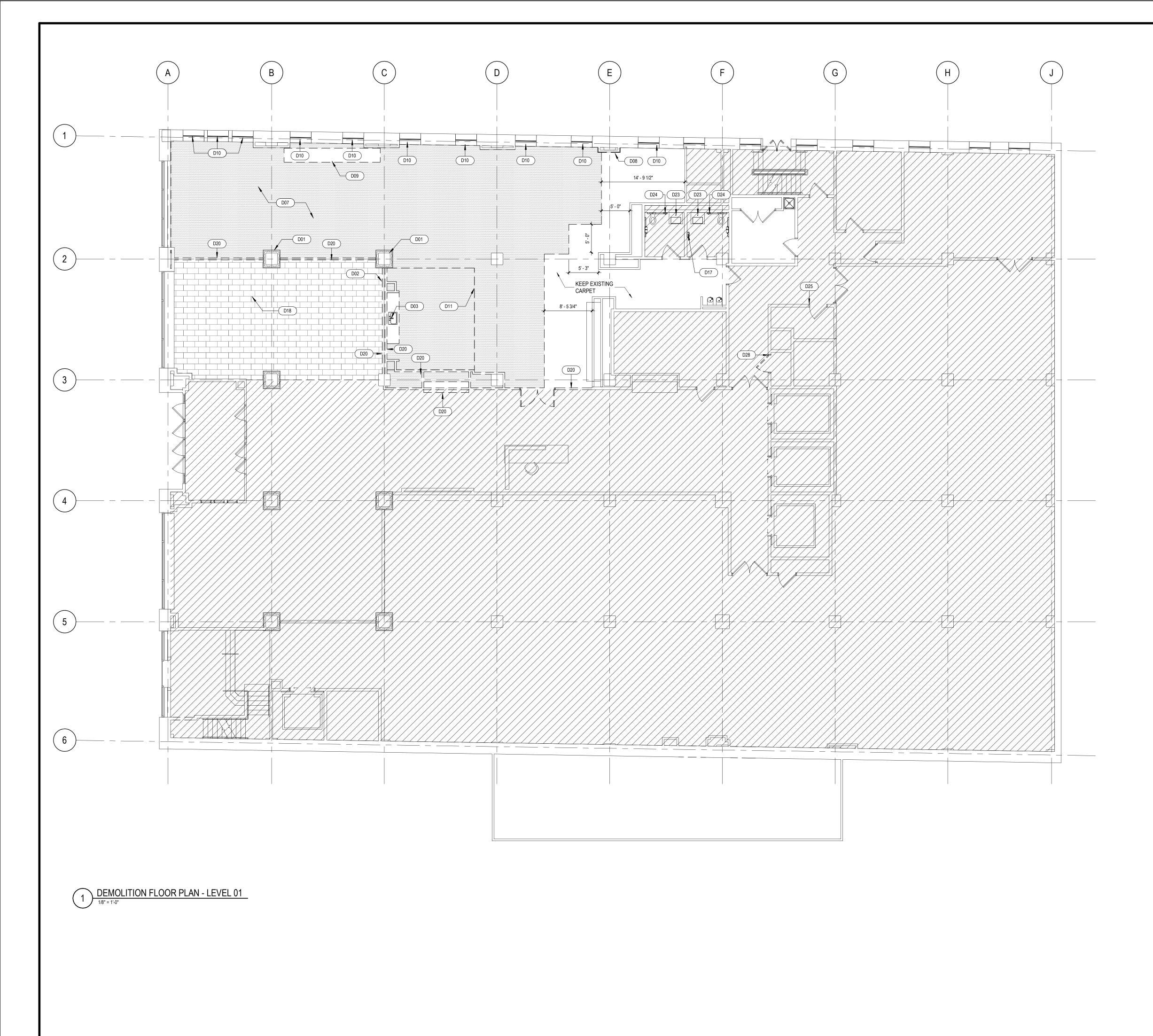
SECTION SCALE: 3/4" = 1'-0"

SCALE: 3/4" = 1'-0" NOTE: FIELD WELDED CONNECTION IS ACCEPTABLE IF EXISTING STEEL IS VERIFIED TO BE WELDABLE.

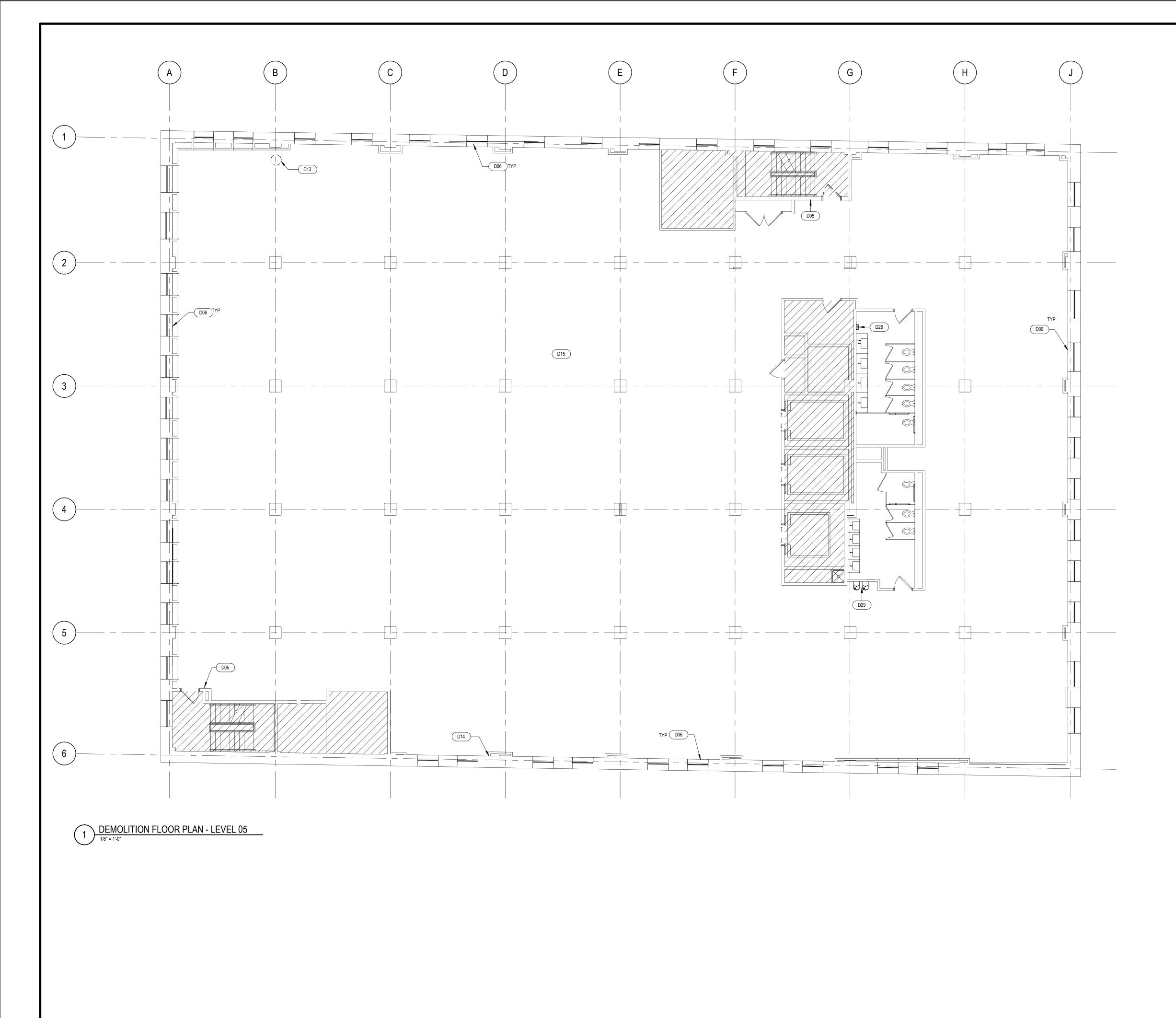
SECTION

S201



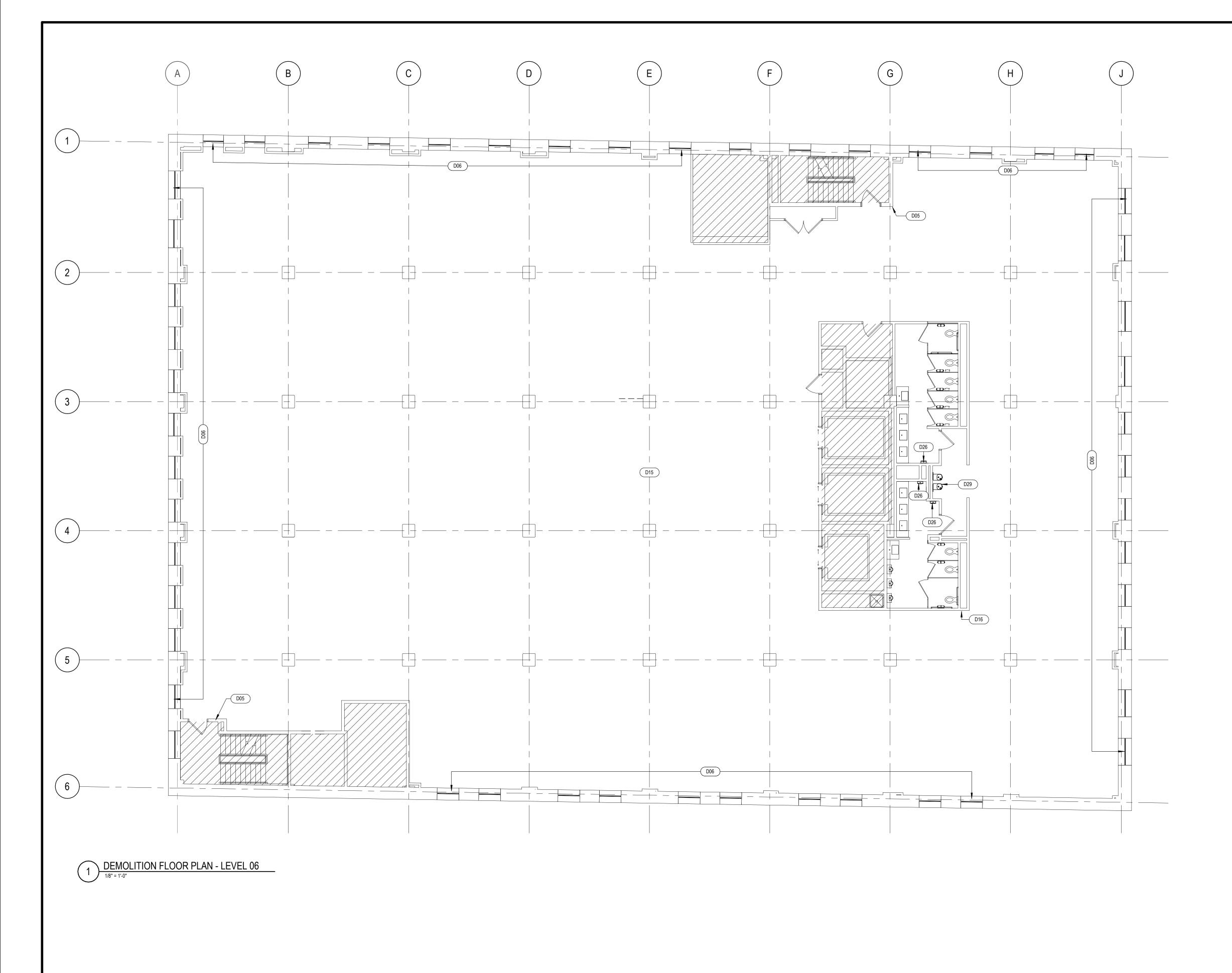


DEMOLITION NOTES	
 REFER TO SHEET G010 PROJECT GENERAL NOTES. EACH PRIME CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION OF THEIR RESPECTIVE TRADE SCOPE. ANY DISCREPENCIES OR DISPUTES IN SCOPE OF WORK SHALL BE BROUGHT TO THE GC'S OR ARCHITECTS ATTENTION IMMEDIATELY. DEMO TEMPORARY LIGHTING AROUND ELEVATOR CORE PREVIOUSLY USED FOR ELEVATOR PERMIT OPERATION. ITEMS SHOWN IN DASHED LINES ARE TO BE DEMOLISHED AND REMOVED, UNLESS OTHERWISE NOTED. REVIEW ARCHITECTURAL DRAWINGS FOR MISCELLANEOUS ITEMS. 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. REFER TO THE ARCHITECTURAL, PLUMBING, FIRE PROTECTION, MECHANICAL, FUECTORICAL AND TECHNIC OCCUMENTS DEMOLITION. 	2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
 ELECTRICAL, AND TECHNOLOGY DOCUMENTS PRIOR TO DEMOLITION ACTIVITIES AND COORDINATE EXTENT OF DEMOLITION SCOPE TO MATCH THE REQUIREMENTS OF NEW CONSTRUCTION. ONLY WORKMEN SKILLED AND KNOWLEDGEABLE IN THEIR RESPECTIVE TRADES SHALL BE EMPLOYED IN DEMOLITION WORK. 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. AREAS, SURFACES, AND FINISHES NOT AFFECTED BY THE WORK OF THIS CONTRACT SHALL BE PROTECTED PRIOR TO AND UNTIL COMPLETION OF CONTRACTED WORK. FIRE EXIT DOORS AND/OR CORRIDORS MUST REMAIN USABLE FOR EMERGENCY EGRESS. PROVIDE AND MAINTAIN SEALS. PROVIDE AND MAINTAIN SEALS AROUND DOORWAYS TO PREVENT DUST FROM ENTERING OCCUPIED SPACES. PROVIDE TEMPORARY DUST PARTITIONS TO SEPARATE DEMOLITION AREAS FROM OCCUPIED SPACES. 	PROFESSIONAL SEAL:
 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. 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). 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. CUTS AND PENETRATIONS IN EXISTING WORK REQUIRED TO ACCOMPLISH NEW WORK SHALL BE DONE NEATLY AND WITHOUT DISTURBING ADJACENT WORK TO REMAIN. 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. 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. WHERE ITEMS ARE TO BE REMOVED FROM STRUCTURAL GLAZED TILE, CERAMIC TILE, BRICK, OR OTHER SIMILAR MATERIALS THE CONTRACTOR SHALL REPLACE THE DISTURBED PIECE(S) TO MATCH THE ADJACENT CONSTRUCTION. SALVAGED MATERIAL IN GOOD CONDITION WILL BE ACCEPTED. WHEN SALVAGED MATERIAL IN GOOD CONDITION WILL BE ACC	CLIENT: Housing Authority of the City of Pittsburgh 200 ROSS STREET PITTSBURGH, PA 15219 (412) 456-5000 hacp.org
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 EXISTING WINDOW STOOL. PREPARE TO RECEIVE NEW FINISH. D00 D11 REMOVE EXISTING TILE AND PREPARE TO RECEIVE NEW FINISH. D17 REMOVE EXISTING TILE AND PREPARE TO RECEIVE NEW FINISH. D18 SALVAGE EXISTING TILE PICTES FOR BASE BUILDING BUILD-OUT. DEMO REMAINING TILE. D20 DEMO EXISTING INTERIOR WALLS. D23 DEMO EXISTING SOAP DISPENSERS AND CLEAR DISTANCE FROM TOLIET. PATCH AND REPARE RECES FOR BASE BUILDING BUILD-OUT, DEMO REMAINING TILE. D20 DEMO EXISTING SOAP DISPENSERS D23 DEMO EXISTING SOAP DISPENSERS D24 DEMO EXISTING SOAP DISPENSERS D25 DEMO EXISTING DOOR FRAME D26 <th>HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219</th>	HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219
DEMOLITION LEGEND LINESTYLES	HACP 412 Boule
EXISTING DEMOLITION NEW PATTERNS OUT OF SCOPE SYMBOLS	5 100% CONSTRUCTION DOCUMENTS 09/03/2020 6 REVISION #3 07/30/2020 4 100% CONSTRUCTION DOCUMENTS 07/30/2020 3 100% CONSTRUCTION DOCUMENTS 07/09/2020 3 100% CONSTRUCTION DOCUMENTS 07/09/2020 2 100% CONSTRUCTION DOCUMENTS 05/22/2020 1 100% DESIGN DEVELOPMENT 01/23/2020 # DESCRIPTION DATE PROJECT ISSUANCE PROJECT NO: DRAWN BY: 1 190427.00 AE7 JW SHEET NAME: SHEET NAME: SHEET NAME:
KEYED NOTE VALUE KEYNOTE	DEMOLITION FLOOR PLAN - LEVEL 01 SHEET NO: AD101

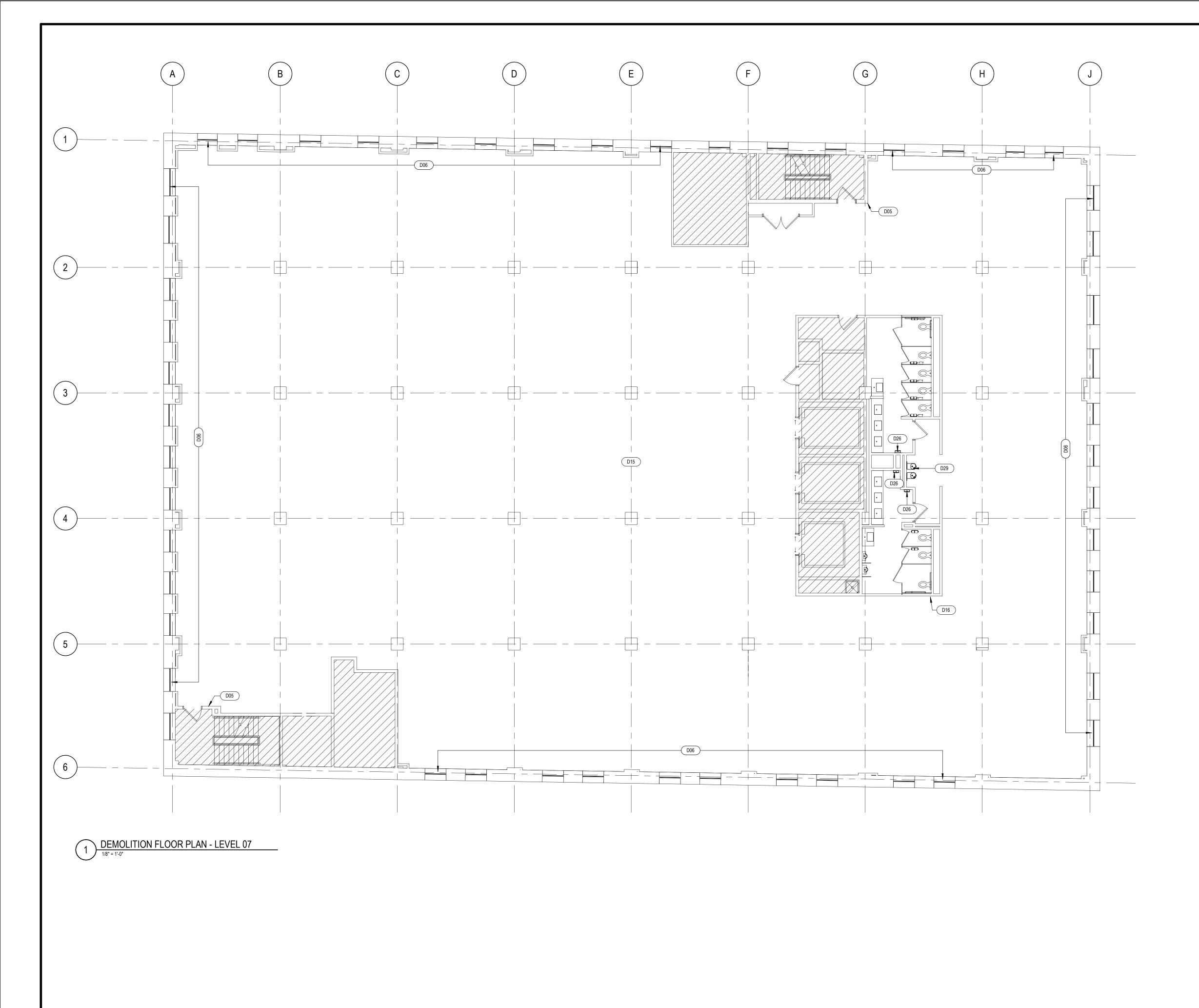


DEMOLITION NOTES	
 REFER TO SHEET G010 PROJECT GENERAL NOTES. EACH PRIME CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION OF THEIR RESPECTIVE TRADE SCOPE. ANY DISCREPENCIES OR DISPUTES IN SCOPE OF WORK SHALL BE BROUGHT TO THE GC'S OR ARCHITECTS ATTENTION IMMEDIATELY. DEMO TEMPORARY LIGHTING AROUND ELEVATOR CORE PREVIOUSLY USED FOR ELEVATOR PERMIT OPERATION. ITEMS SHOWN IN DASHED LINES ARE TO BE DEMOLISHED AND REMOVED, UNLESS OTHERWISE NOTED. REVIEW ARCHITECTURAL DRAWINGS FOR MISCELLANEOUS ITEMS. 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. 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. 	2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
 ONLY WORKMEN SKILLED AND KNOWLEDGEABLE IN THEIR RESPECTIVE TRADES SHALL BE EMPLOYED IN DEMOLITION WORK. 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. AREAS, SURFACES, AND FINISHES NOT AFFECTED BY THE WORK OF THIS CONTRACT SHALL BE PROTECTED PRIOR TO AND UNTIL COMPLETION OF CONTRACT SHALL BE PROTECTED PRIOR TO AND UNTIL COMPLETION OF CONTRACT ED WORK. FIRE EXIT DOORS AND/OR CORRIDORS MUST REMAIN USABLE FOR EMERGENCY EGRESS. PROVIDE AND MAINTAIN SEALS. PROVIDE AND MAINTAIN SEALS AROUND DOORWAYS TO PREVENT DUST FROM ENTERING OCCUPIED SPACES. PROVIDE TEMPORARY DUST PARTITIONS TO SEPARATE DEMOLITION AREAS FROM OCCUPIED SPACES. 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. THE OWNER MAY REMOVE ANY ITEMS. THE OWNER MAS FIRST RIGHT TO RETAIN ANY EXISTING FURNITURE AND EQUIPMENT. COORDINATE WITH THE CONSTRUCTION DOCUMENTS AND THE OWNER THRE REAINAGE, STORAGE, RELOCATION, OR DISPOSAL OF LOOSE FURNITURE AND EQUIPMENT THROUGHOUT THE EXISTING STRUCTURE(S). 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. CUTS AND PENETRATIONS IN EXISTING WORK REQUIRED TO ACCOMPLISH NEW WORK SHALL BE DONE NEATLY AND WITHOUT DISTURBING ADJACENT WORK SHALL BE DONE NEATLY AND WITHOUT DISTURBING ADJACENT 	CONSULTANT:
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NO DESCRIPTION D05 REMOVE EXISTING GYPSUM, REBUILD STUDS AND FURRING WALLS AS NEEDED TO UNDERSIDE OF PECK. 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 D23 REPLACE EXISTING WATER FOUNTAIN	HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219
DEMOLITION LEGEND LINESTYLES EXISTING DEMOLITION NEW PATTERNS OUT OF SCOPE SYMBOLS	Image: Second

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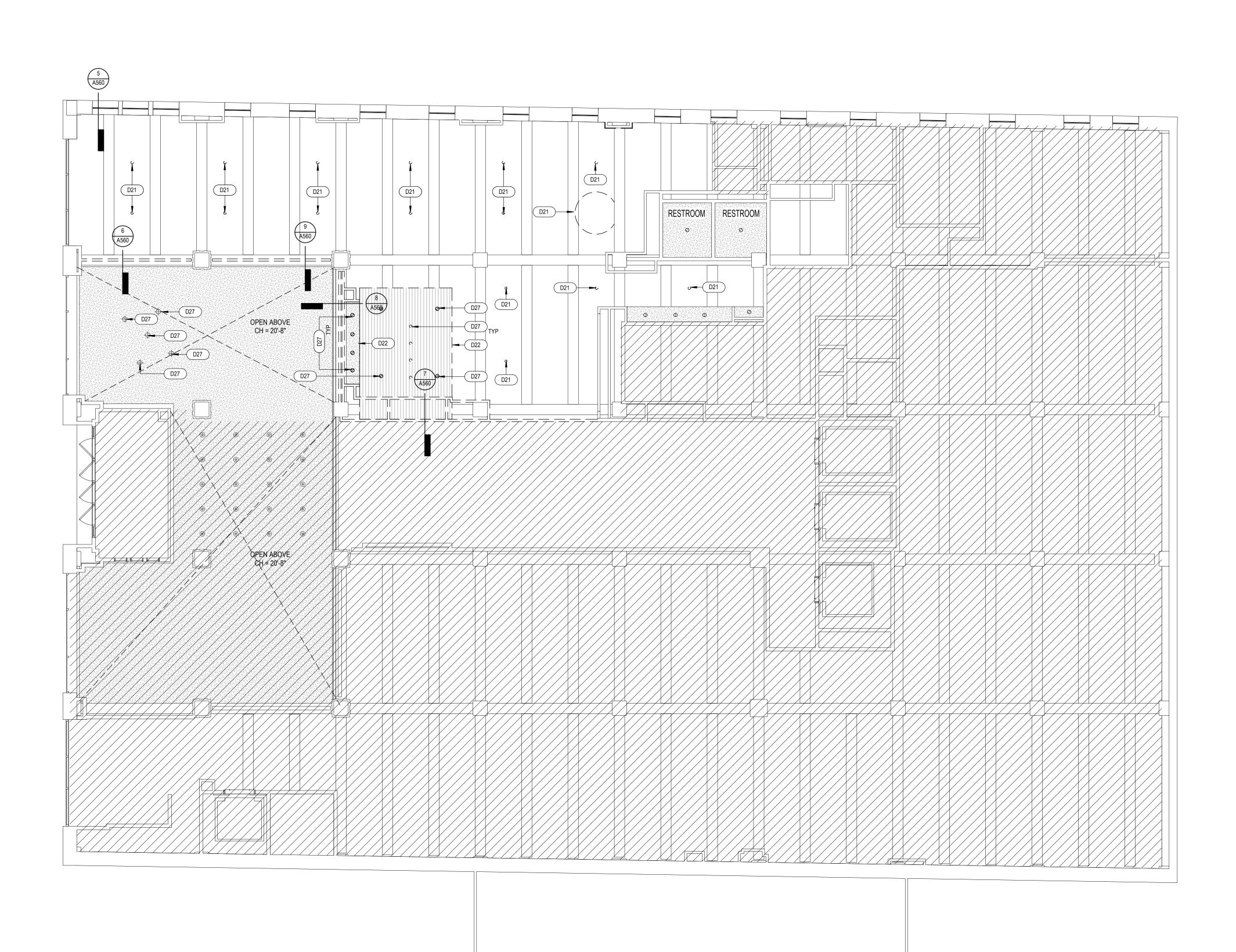


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NO D05 D15 D16 D26 D29	DEMOKEYED NOTES	HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219
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	S KEYED NOTE VALUE KEYNOTE	SHEET NAME: DEMOLITION FLOOR PLAN - LEVEL 06 SHEET NO:
		AD106



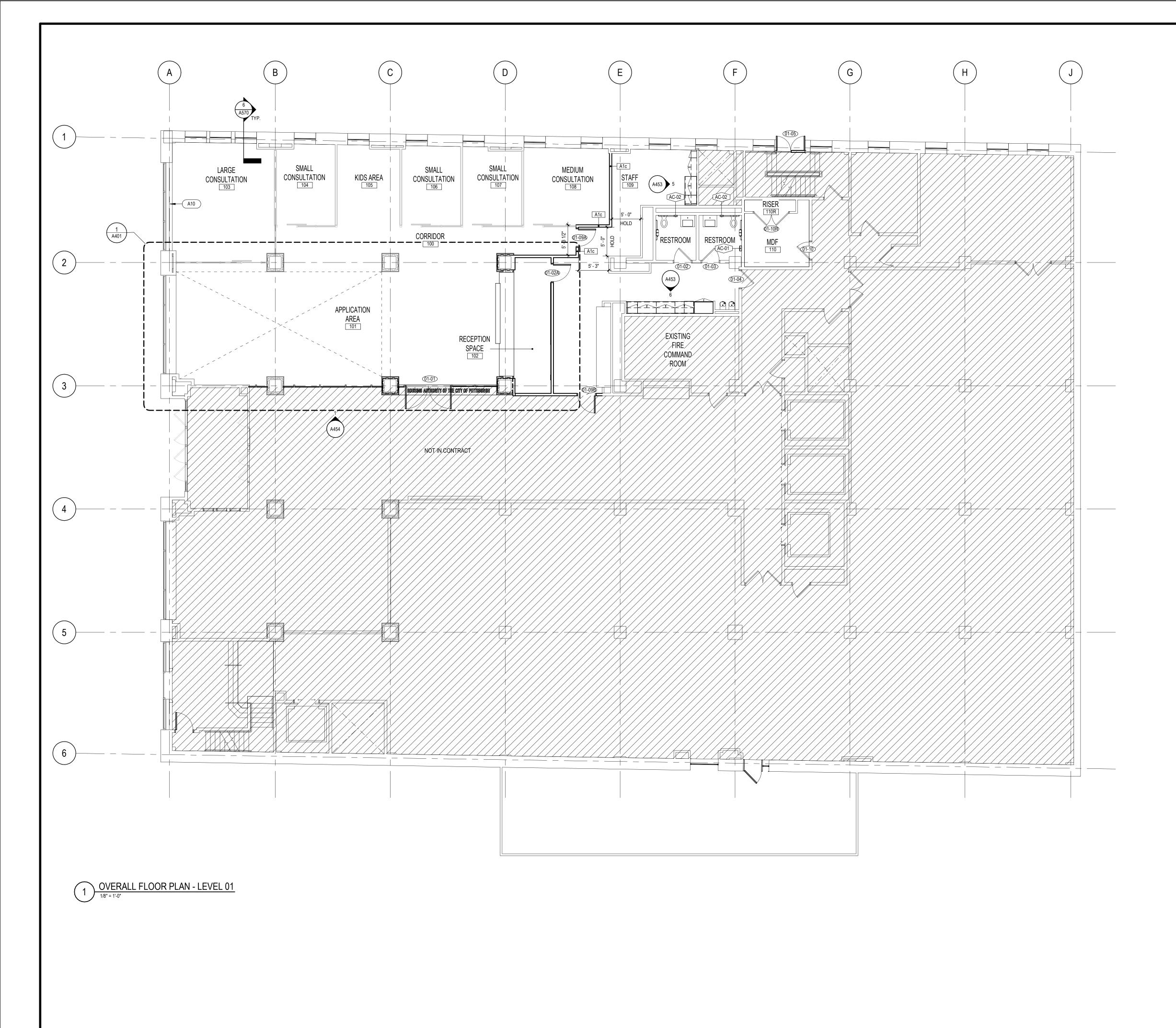
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DEMOLIT	ON LEGEND	
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SYMBOLS		190427.00 AE7 JW SHEET NAME:
	WALUE KEYNOTE	DEMOLITION FLOOR PLAN - LEVEL 07
		AD107

0VERALL REFLECTED CEILING PLAN - LEVEL 01

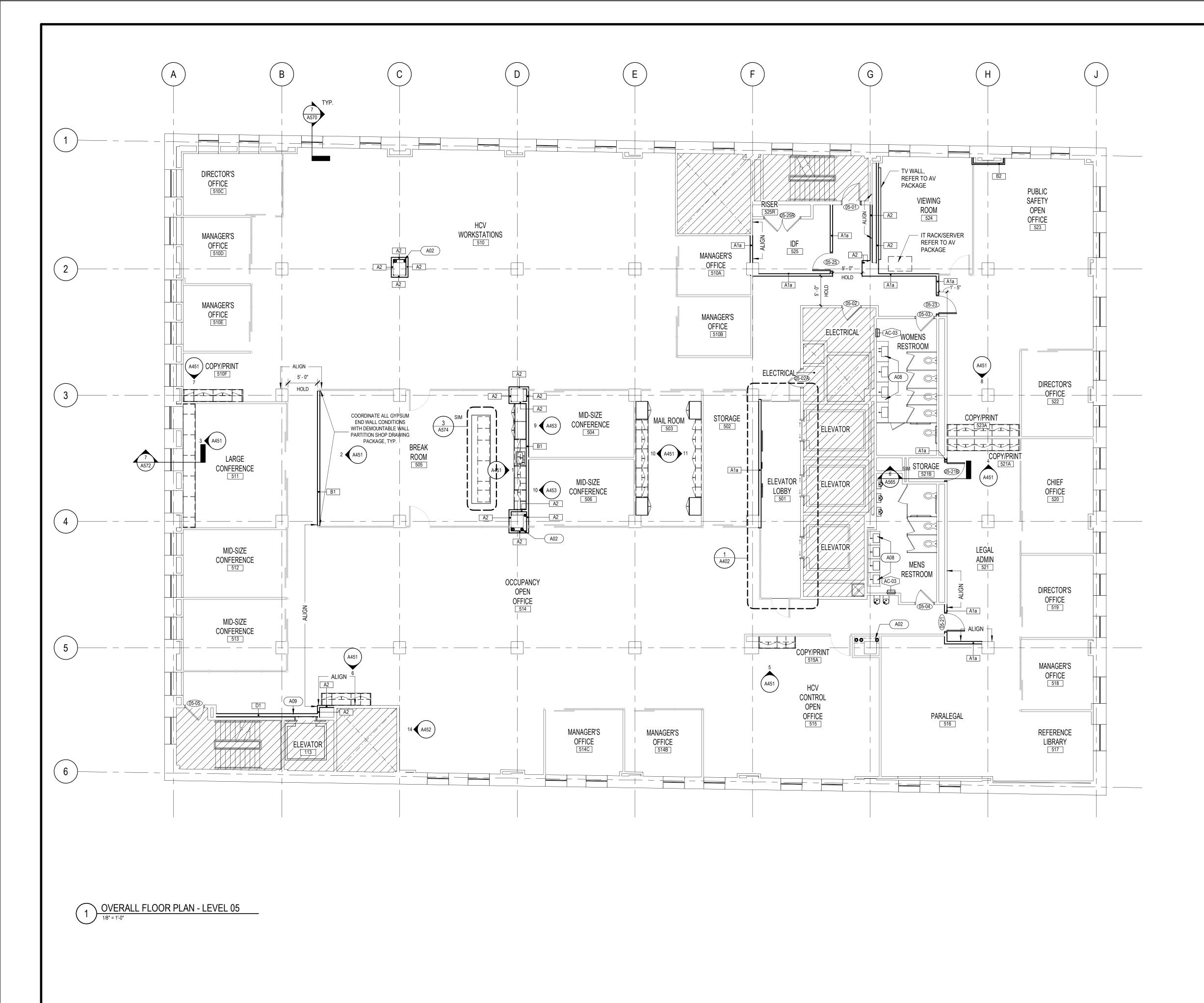


DEMOLITION NOTES	
 REFER TO SHEET G010 PROJECT GENERAL NOTES. EACH PRIME CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION OF THEIR RESPECTIVE TRADE SCOPE. ANY DISCREPENCIES OR DISPUTES IN SCOPE OF WORK SHALL BE BROUGHT TO THE GC'S OR ARCHITECTS ATTENTION IMMEDIATELY. DEMO TEMPORARY LIGHTING AROUND ELEVATOR CORE PREVIOUSLY USED FOR ELEVATOR PERMIT OPERATION. ITEMS SHOWN IN DASHED LINES ARE TO BE DEMOLISHED AND REMOVED, UNLESS OTHERWISE NOTED. REVIEW ARCHITECTURAL DRAWINGS FOR MISCELLANEOUS ITEMS. THE SCOPE OF DEMOLITION WORK HAS BEEN INDICATED ON THESE 	2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222
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DEMO KEYED NOTES	HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219
LINESTYLES	Image: Structure in the
KEYED NOTE VALUE KEYNOTE	DEMOLITION REFLECTED CEILING PLAN - LEVEL 01 SHEET NO: AD151

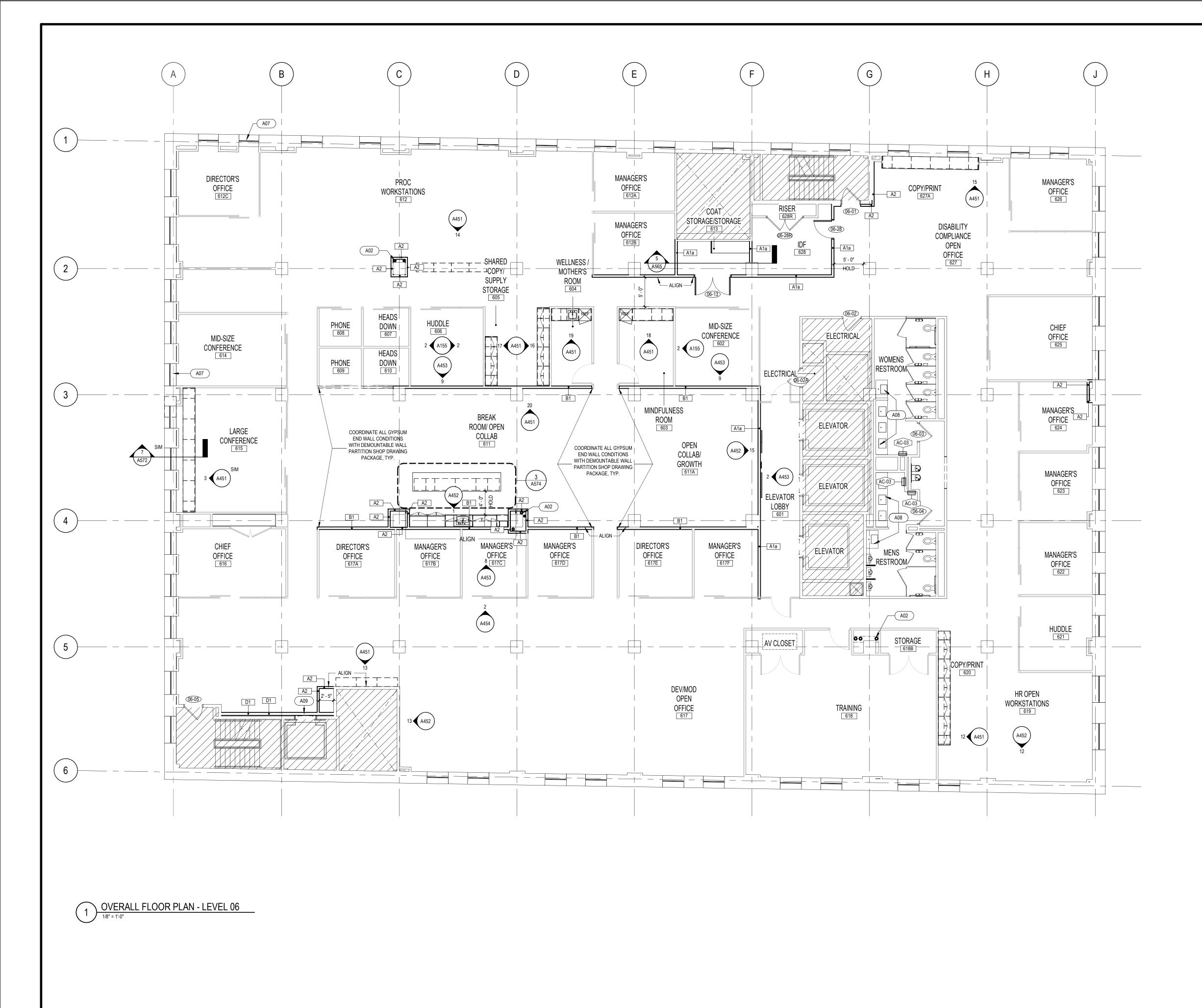
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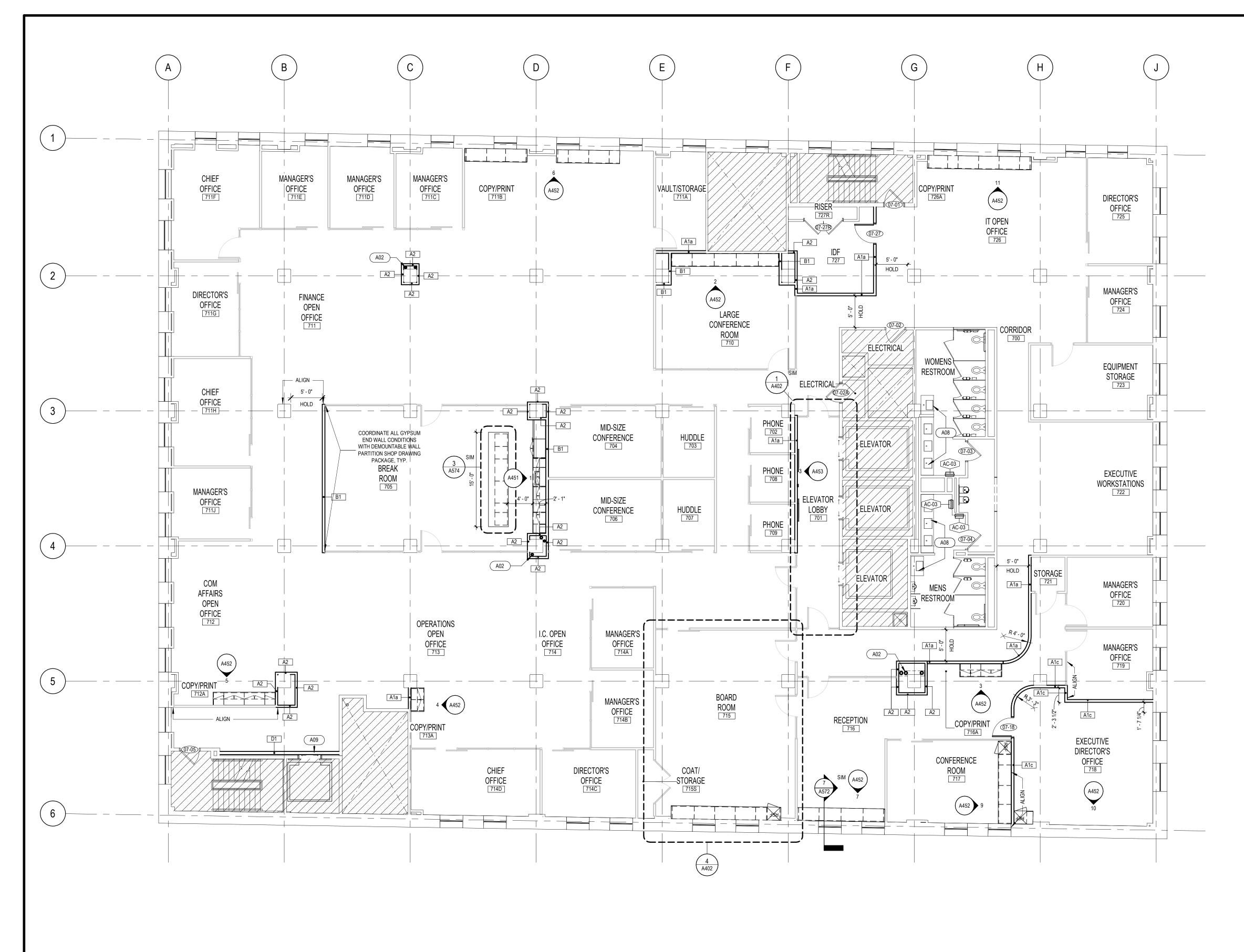
PLAN NOTES	
 REFER TO SHEET G010 FOR PROJECT GENERAL NOTES. INTERIOR DIMENSIONS ARE TO CENTER OF WALL U.O.N. DOORS WITHIN STUD WALLS TO BE A TYPICAL 4" DISTANCE ON HINGE SIDE FROM ADJACENT WALL. DOORS WITHIN MASONRY WALLS TO BE A TYPICAL SINGLE UNIT DISTANCE ON HINGE SIDE FROM ADJACENT WALL. RETURN FURRED/LAMINATED GYP. BD. TO DOOR AND/OR WINDOW FRAMES AS REQUIRED - TYP. CONSTRUCT PARTITIONS FROM FLOOR SLAB TO UNDERSIDE OF DECK U.O.N. STUD PARTITIONS SHALL HAVE DOUBLE STUDS AT DOOR JAMBS, OPENINGS, AND CORNERS. PROVIDE FIRE-RETARDANT WOOD BLOCKING FOR WALL MOUNTED ITEMS, INCLUDING ITEMS FURNISHED BY THE OWNER. AT STUD PARTITIONS PROVIDE DIAGONAL BRACING AT OPENINGS GREATER THAN 4'-0" WIDE 	2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
 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: SET TOP AND BOTTOM PARTITION RUNNER TRACKS IN BEDS OF SEALANT. PACK VOIDS BETWEEN TOP OF PARTITION AND UNDERSIDE OF STRUCTURE WITH FIRE SAFING. CLOSE PENETRATIONS WITH FIRE-STOPPING MATERIALS PER U.L. DESIGN. GYPSUM BOARD PARTITIONS DESIGNATED IN WET AREAS SHALL HAVE PROVIDED GALVANIZED STUDS, FASTENERS AND MISC. METAL ACCESSORIES. PARTITION TYPES OVER OPENINGS SHALL MATCH ADJACENT PARTITIONS 	PROFESSIONAL SEAL:
U.O.N.	Alg Waty
	CONSULTANT:
PLAN KEYED NOTES	
NO DESCRIPTION A10 REPAINT EXISTING RADIATORS TO MATCH BASE BUILDING	
	CLIENT:
	Housing Authority of the City of Pittsburgh
	200 ROSS STREET
	PITTSBURGH, PA 15219 (412) 456-5000 hacp.org
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	HACP - Housing Authority of the Cit 412 Boulevard of the Allies, Pittsburgh, PA 15219
PLAN LEGEND EXISTING CONSTRUCTION	HA 412
DEMOUNTABLE WALL PARTITION (NOT INCLUDED IN	
GC SCOPE)	
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ROOM NAME 101 150 SF ROOM NUMBER ROOM TAG	5 100% CONSTRUCTION DOCUMENTS 09/03/2020
AREA XXXX DOOR TAG DEEED TO SHEET A600 D1	REVISION #3 4 100% CONSTRUCTION DOCUMENTS REVISION #2 07/30/2020 3 100% CONSTRUCTION DOCUMENTS 07/09/2020
A00 PARTITION TAG REFER TO SHEET A600-P1	REVISION #1 2 100% CONSTRUCTION DOCUMENTS 05/22/2020 1 100% DESIGN DEVELOPMENT 01/23/2020 # DESCRIPTION DATE
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KEYED NOTE VALUE KEYNOTE	190427.00 AE7 JW SHEET NAME:
NOT IN SCOPE	OVERALL FLOOR PLAN - LEVEL 01
	A101



PLAN NOTES	
 REFER TO SHEET G010 FOR PROJECT GENERAL NOTES. INTERIOR DIMENSIONS ARE TO CENTER OF WALL U.O.N. 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. RETURN FURRED/LAMINATED GYP. BD. TO DOOR AND/OR WINDOW FRAMES AS REQUIRED - TYP. CONSTRUCT PARTITIONS FROM FLOOR SLAB TO UNDERSIDE OF DECK U.O.N. STUD PARTITIONS SHALL HAVE DOUBLE STUDS AT DOOR JAMBS, OPENINGS, AND CORNERS. PROVIDE FIRE-RETARDANT WOOD BLOCKING FOR WALL MOUNTED ITEMS, INCLUDING ITEMS FURNISHED BY THE OWNER. AT STUD PARTITIONS PROVIDE DIAGONAL BRACING AT OPENINGS GREATER THAN 4'-0" WIDE PARTITIONS DESIGNATED AS SOUND RATED SHALL BE: SEALED WITH ACOUSTICAL SEALANT AT EACH FACE OF PARTITION WHERE PENETRATED BY DUCT, PIPE, CONDUIT, OR OTHER APPERTENANCES. SEALED WITH ACOUSTICAL SEALANT CONTINUOUSLY AT PERIMETER, SILLS, JAMBS, AND HEADS - EACH SIDE. PARTITIONS DESIGNATED TO BE FIRE RATED SHALL BE: SET TOP AND BOTTOM PARTITION RUNNER TRACKS IN BEDS OF SEALANT. 	2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
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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 FRAME OVER EXISTING ELEVATOR DOOR AND OPERATIONAL DEVICES WITH SHAFTWALL PER WALL TYPE D1. CONFIRM ACCESS TO THE 5TH THRU 7TH FLOOR IS LOCKED OFF THE ELEVATOR OPERATION.	CLIENT: Housing Authority of the City of Pittsburgh
	200 ROSS STREET PITTSBURGH, PA 15219 (412) 456-5000 hacp.org
PLAN LEGEND	HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219
EXISTING CONSTRUCTION	T ⁴
DEMOUNTABLE WALL PARTITION (NOT INCLUDED IN	
GC SCOPE)	
NEW CONSTRUCTION	
101 ROOM NUMBER ROOM TAG	5 100% CONSTRUCTION DOCUMENTS REVISION #3 09/03/2020
DOOR TAG	4 100% CONSTRUCTION DOCUMENTS 07/30/2020 REVISION #2 07/09/2020 3 100% CONSTRUCTION DOCUMENTS 07/09/2020
A00 PARTITION TAG	REVISION #1 2 100% CONSTRUCTION DOCUMENTS 05/22/2020 1 100% DESIGN DEVELOPMENT 01/23/2020
REFER TO SHEET A630	# DESCRIPTION DATE PROJECT ISSUANCE
WINDOW TAG	PROJECT NO: DRAWN BY: REVIEWED BY: 190427.00 AE7 JW SHEET NAME:
VALUE KEYNOTE	OVERALL FLOOR PLAN - LEVEL 05
NOT IN SCOPE	SHEET NO: A105



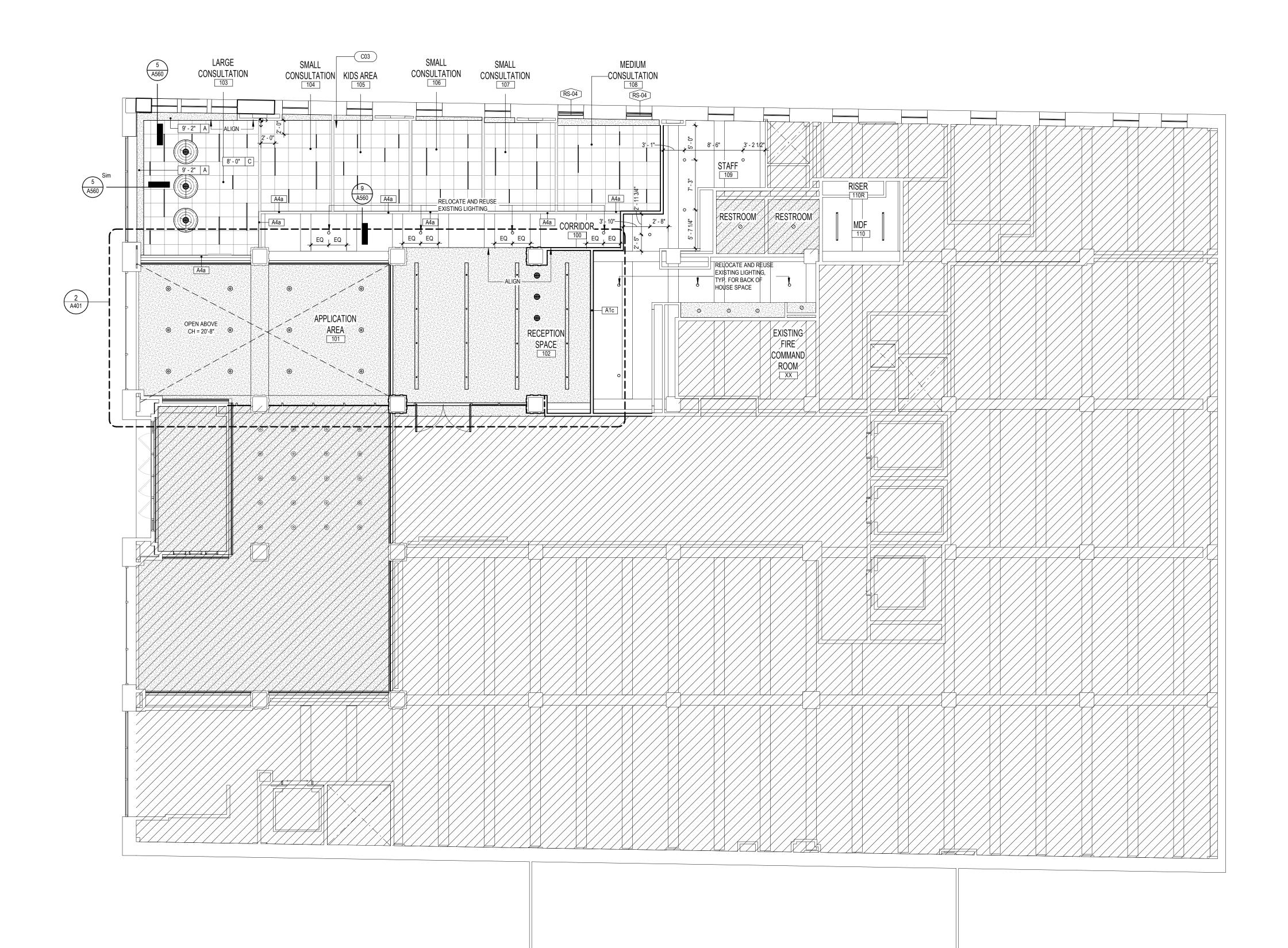
FROM ADJACENT W SINGLE UNIT DISTAI 4. RETURN FURRED/L/ AS REQUIRED - TYP 5. CONSTRUCT PARTIT 6. STUD PARTITIONS S AND CORNERS. 7. PROVIDE FIRE-RET/ INCLUDING ITEMS F 8. AT STUD PARTITION THAN 4'-0" WIDE 9. PARTITIONS DESIGN 1. SEALED WITH AC PENETRATED BY 2. SEALED WITH AC SILLS, JAMBS, AN 10. PARTITIONS DESIG 1. SET TOP AND BO 2. PACK VOIDS BETT WITH FIRE SAFIN 3. CLOSE PENETRA 11. GYPSUM BOARD P. PROVIDED GALVANI ACCESSORIES.	010 FOR PROJECT G NS ARE TO CENTER D WALLS TO BE A TY ALL. DOORS WITHIN NCE ON HINGE SIDE WINATED GYP. BD. TIONS FROM FLOOR HALL HAVE DOUBLE ARDANT WOOD BLOC URNISHED BY THE C IS PROVIDE DIAGON. NATED AS SOUND RA OUSTICAL SEALANT D HEADS - EACH SID INATED TO BE FIRE I TTOM PARTITION RU WEEN TOP OF PARTI 3. TIONS WITH FIRE-ST ARTITIONS DESIGNA ZED STUDS, FASTER	OF WALL U.O.N. (PICAL 4" DISTANCE ON HINGE SIE MASONRY WALLS TO BE A TYPIC/ FROM ADJACENT WALL. TO DOOR AND/OR WINDOW FRAME SLAB TO UNDERSIDE OF DECK U.G STUDS AT DOOR JAMBS, OPENIN CKING FOR WALL MOUNTED ITEMS WNER. AL BRACING AT OPENINGS GREAT AL BRACING AT OPENINGS GREAT ATED SHALL BE: AT EACH FACE OF PARTITION WH IT, OR OTHER APPERTENANCES. CONTINUOUSLY AT PERIMETER, DE.	AL ES D.N. IGS, ;; ERE ERE IURE IGN.				
NO A02 EXIS A07 REP A08 REF EXIS - PR A09 FRA DEV ACC	AIR NON-OPERATION ER TO DETAIL 7/A570 STING PLUMBING AND ICE SEPERATELY FR ME OVER EXISTING E ICES WITH SHAFTWA ESS TO THE 5TH THF	DESCRIPTION ES, REFER TO PLUMBING DRAWING	COST"			ng Aut	hority
	VATOR OPERATION.					200 ROSS PITTSBURGH, F	STREET
PLAN LEGEN	D	EXISTING CONSTRUCTION		HACP - Housing Authority of the City of Dittehund	ر ح	412 Boulevard of the Allies, Pittsburgh, PA 15219	
	- ROOM NAME	DEMOUNTABLE WALL PARTITION (NOT INCLUDED IN GC SCOPE) NEW CONSTRUCTION					
ROOM NAME 101 150 SF (XXX) A00 00 00 00	- ROOM NUMBER - AREA - KEYED NOTE VALUE	ROOM TAG DOOR TAG REFER TO SHEET A600-P1 PARTITION TAG REFER TO SHEET A630 WINDOW TAG KEYNOTE		4 100% CONSTRUC REVI 3 100% CONSTRUC REVI 2 100% CONSTRUC 1 100% DESIGN # DESIC PROJ PROJECT NO: 190427.00 SHEET NAME: CVERALL I LEVEL 06	SION : CTION SION ; CTION SION ; CTION I DEVE RIPTI ECT I RIPTI ECT I	#3 I DOCUMENTS #2 I DOCUMENTS #1 I DOCUMENTS ELOPMENT ON ISSUANCE	07/30/2020 07/09/2020 05/22/2020 01/23/2020 DATE EVIEWED BY: JW
		NOT IN SCOPE		SHEET NO:	1	06	TRUE NORTH



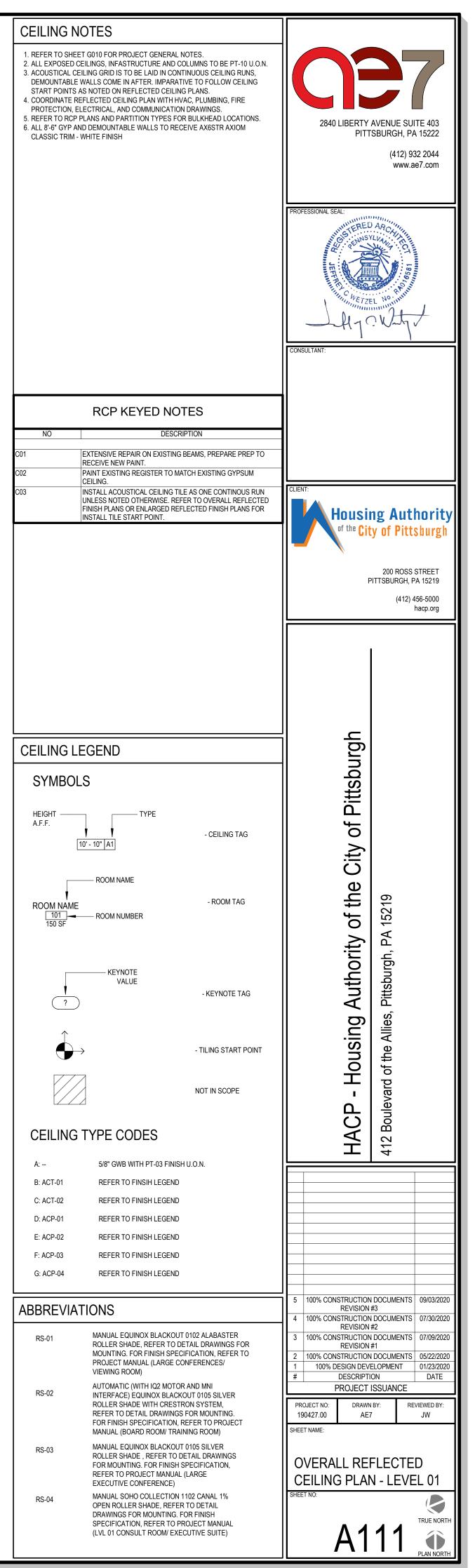
1 OVERALL FLOOR PLAN - LEVEL 07

PLAN NOTES	
 REFER TO SHEET G010 FOR PROJECT GENERAL NOTES. INTERIOR DIMENSIONS ARE TO CENTER OF WALL U.O.N. 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. RETURN FURRED/LAMINATED GYP. BD. TO DOOR AND/OR WINDOW FRAMES AS REQUIRED - TYP. CONSTRUCT PARTITIONS FROM FLOOR SLAB TO UNDERSIDE OF DECK U.O. STUD PARTITIONS SHALL HAVE DOUBLE STUDS AT DOOR JAMBS, OPENING AND CORNERS. PROVIDE FIRE-RETARDANT WOOD BLOCKING FOR WALL MOUNTED ITEMS, INCLUDING ITEMS FURNISHED BY THE OWNER. AT STUD PARTITIONS PROVIDE DIAGONAL BRACING AT OPENINGS GREATE THAN 4'-0" WIDE PARTITIONS DESIGNATED AS SOUND RATED SHALL BE: SEALED WITH ACOUSTICAL SEALANT AT EACH FACE OF PARTITION WHE PENETRATED BY DUCT, PIPE, CONDUIT, OR OTHER APPERTENANCES. SEALED WITH ACOUSTICAL SEALANT CONTINUOUSLY AT PERIMETER, SILLS, JAMBS, AND HEADS - EACH SIDE. PARTITIONS DESIGNATED TO BE FIRE RATED SHALL BE: SEALED WITH ACOUSTICAL SEALANT CONTINUOUSLY AT PERIMETER, SILLS, JAMBS, AND HEADS - EACH SIDE. PARTITIONS DESIGNATED TO BE FIRE RATED SHALL BE: ASET TOP AND BOTTOM PARTITION RUNNER TRACKS IN BEDS OF SEALAN ON DURY ON DED OF TOW PARTITION RUNNER TRACKS IN BEDS OF SEALAN 	N. S. R R T. PROFESSIONAL SEAL:
 2. PACK VOIDS BETWEEN TOP OF PARTITION AND UNDERSIDE OF STRUCTU WITH FIRE SAFING. 3. CLOSE PENETRATIONS WITH FIRE-STOPPING MATERIALS PER U.L. DESIC 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. 	SN.
PLAN KEYED NOTES	
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 C - PRICE SEPERATELY FROM TENANT FIT-OUT PACKAGE. A09 FRAME OVER EXISTING ELEVATOR DOOR AND OPERATIONAL DEVICES WITH SHAFTWALL PER WALL TYPE D1. CONFIRM ACCESS TO THE 5TH THRU 7TH FLOOR IS LOCKED OFF THE ELEVATOR OPERATION. ELEVATOR OPERATION.	OST"
	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
DEMOUNTABLE WALL PARTITION (NOT INCLUDED IN GC SCOPE)	
NEW CONSTRUCTION	
ROOM NAME	
ROOM NAME 101 ROOM NUMBER ROOM TAG 150 SF	5 100% CONSTRUCTION DOCUMENTS 09/03/2020
AREA	4 100% CONSTRUCTION DOCUMENTS 09/03/2020 REVISION #3 07/30/2020 REVISION #2 07/30/2020
XXXX DOOR TAG REFER TO SHEET A600-P1	3 100% CONSTRUCTION DOCUMENTS REVISION #1 07/09/2020 2 100% CONSTRUCTION DOCUMENTS 05/22/2020
A00 PARTITION TAG REFER TO SHEET A630	1 100% DESIGN DEVELOPMENT 01/23/2020 # DESCRIPTION DATE PROJECT ISSUANCE
00 WINDOW TAG	PROJECT ISSUANCE PROJECT NO: DRAWN BY: REVIEWED BY: 190427.00 AE7 JW
KEYED NOTE VALUE KEYNOTE	SHEET NAME: OVERALL FLOOR PLAN - LEVEL 07
NOT IN SCOPE	SHEET NO:

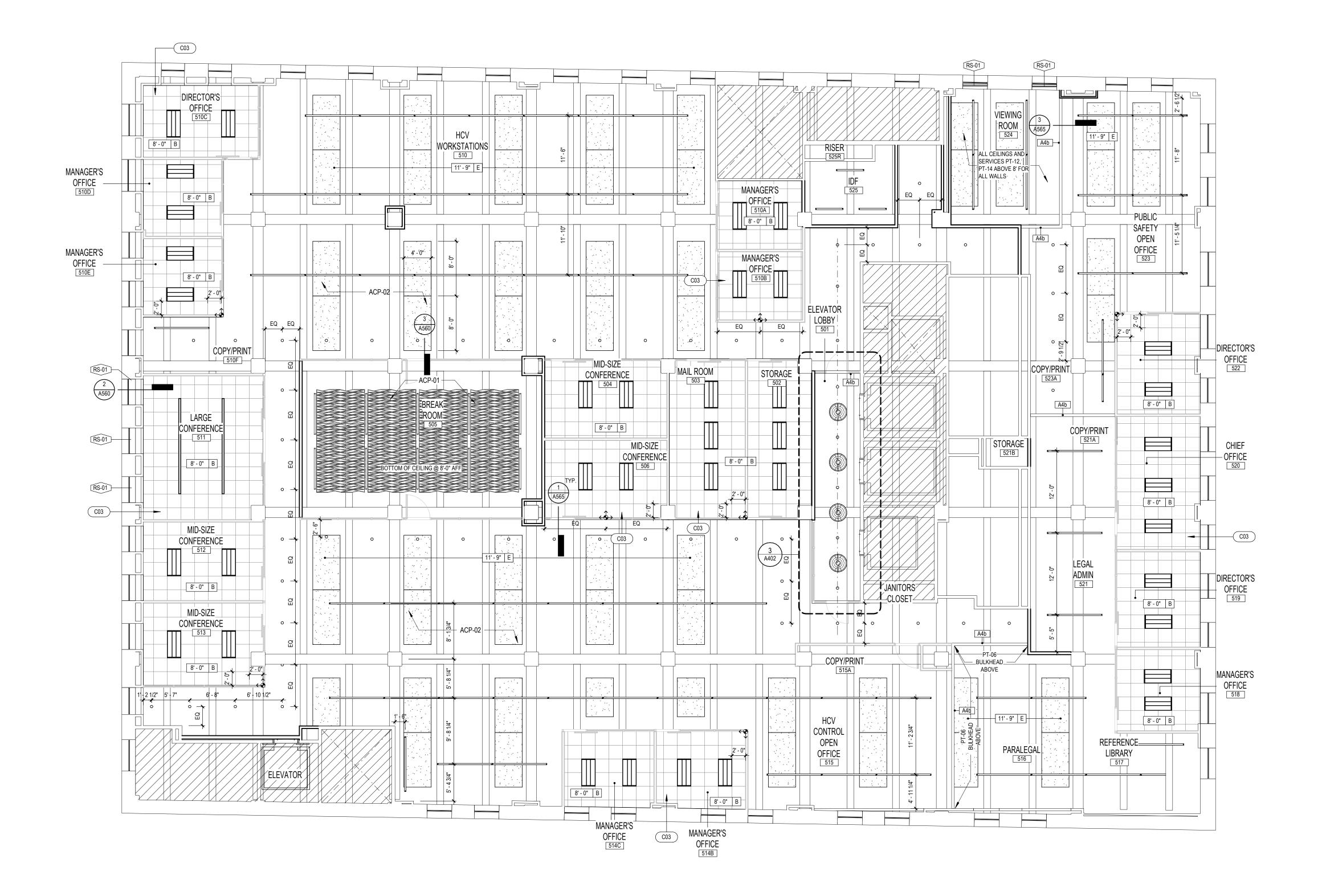
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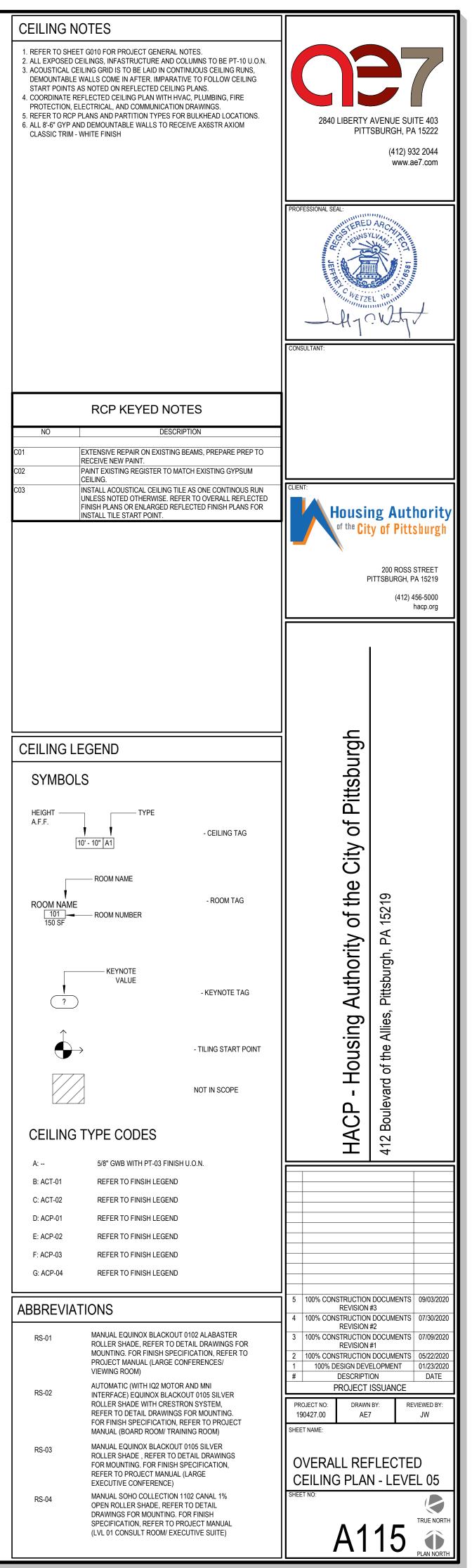
1) OVERALL REFLECTED CEILING PLAN - LEVEL 01



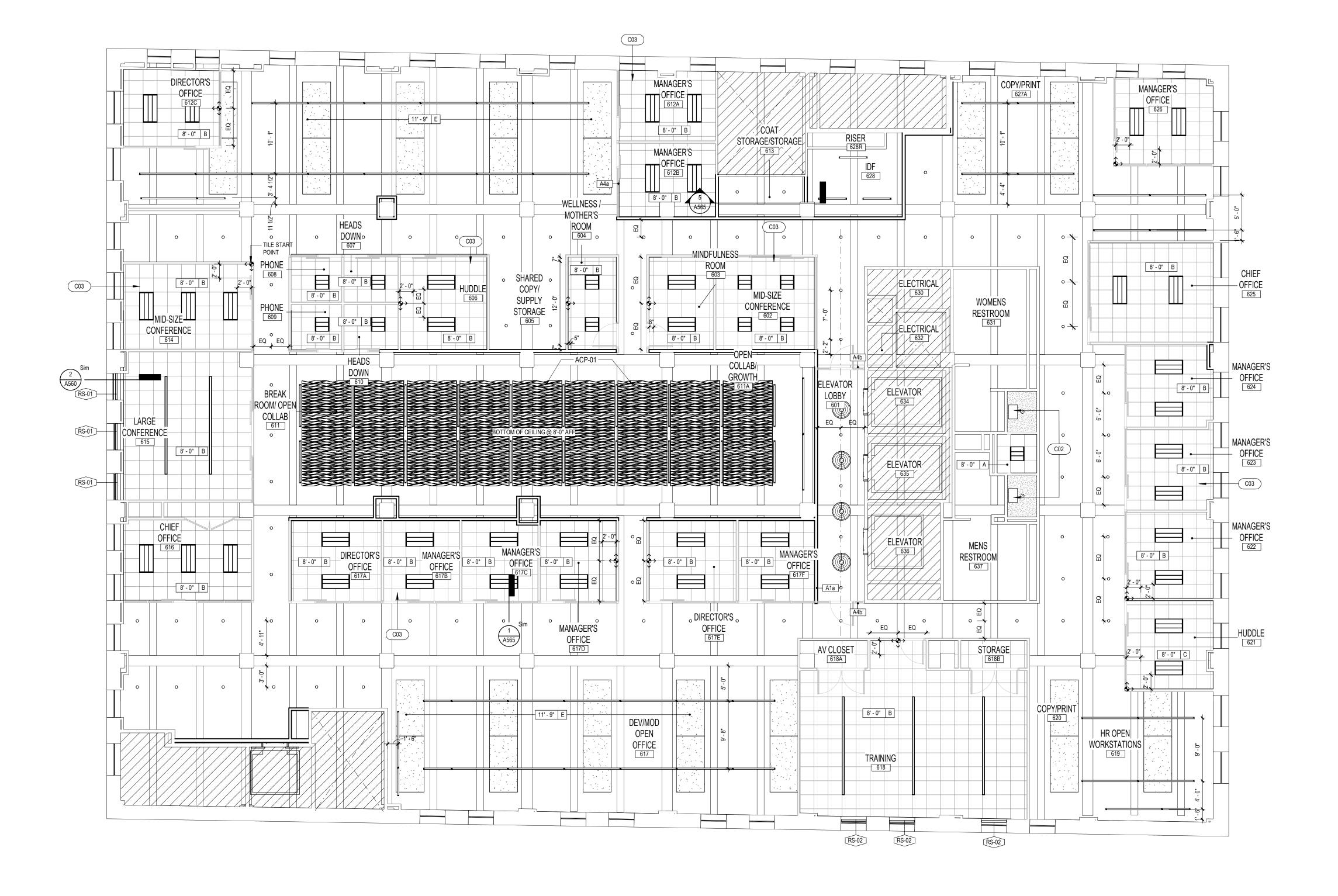
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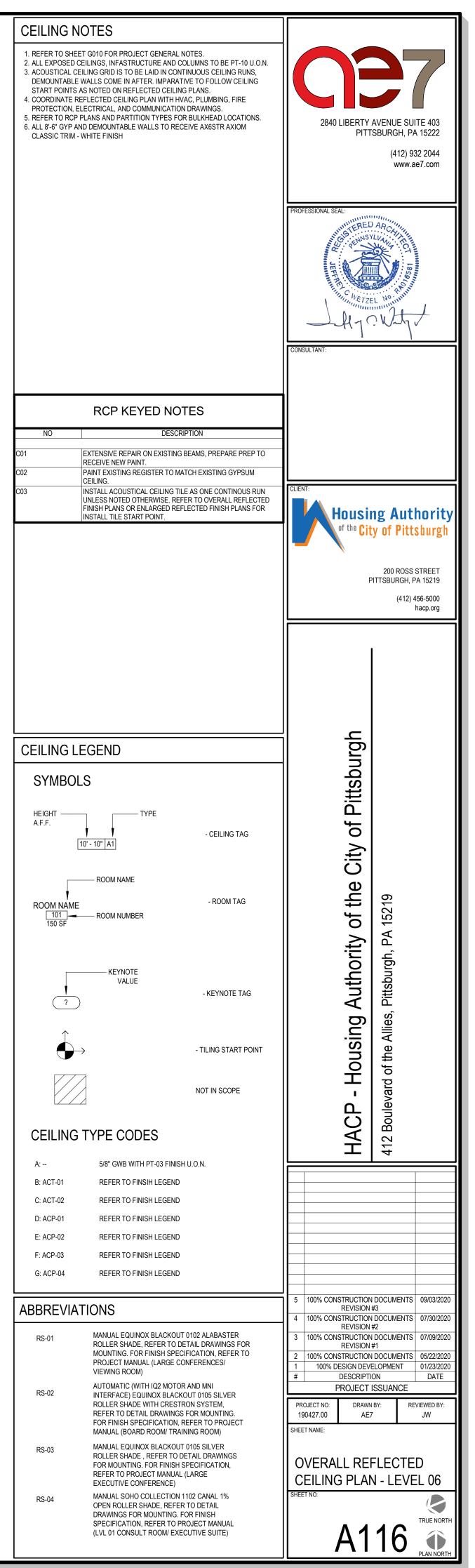
1 OVERALL REFLECTED CEILING PLAN - LEVEL 05



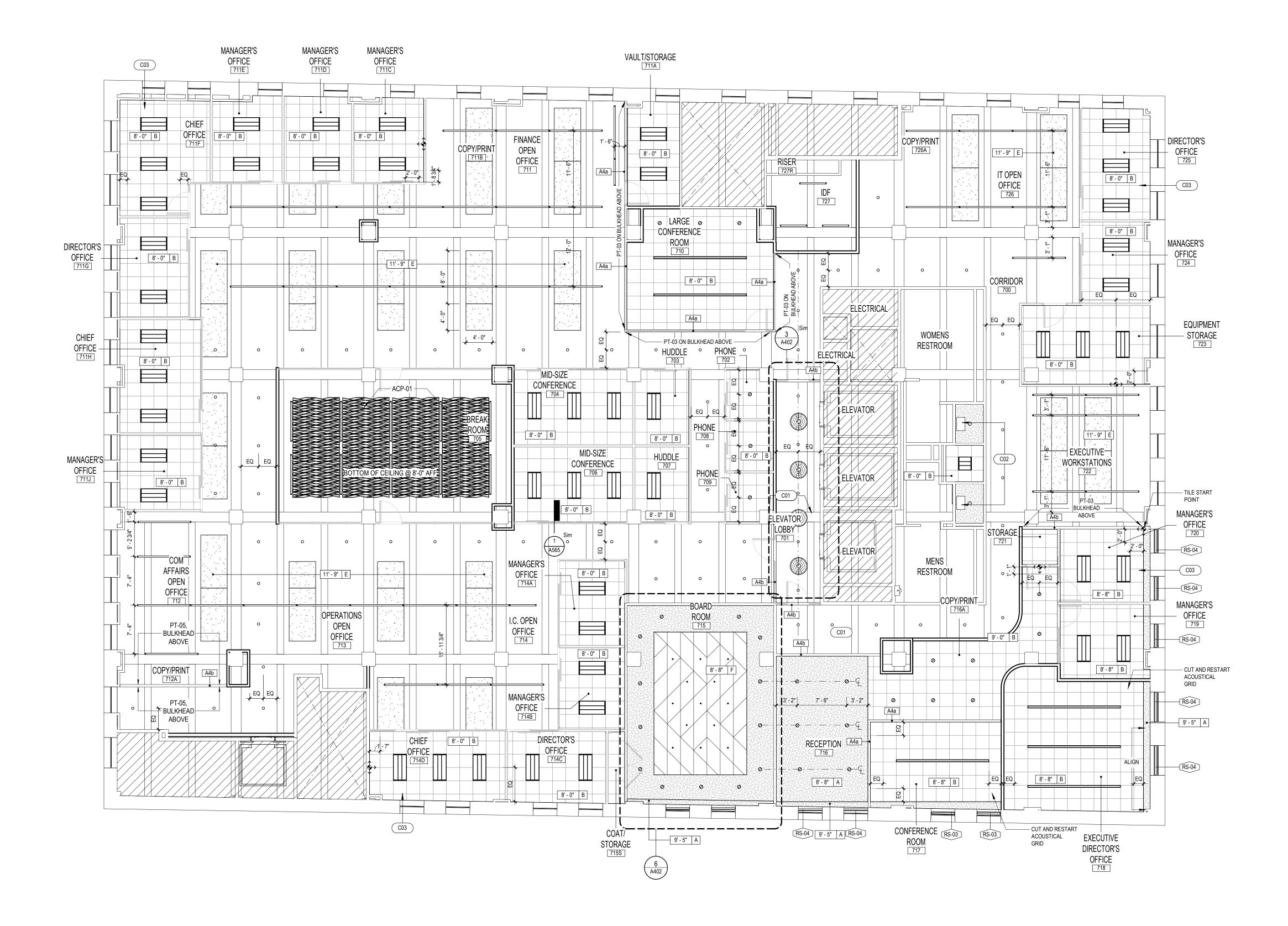
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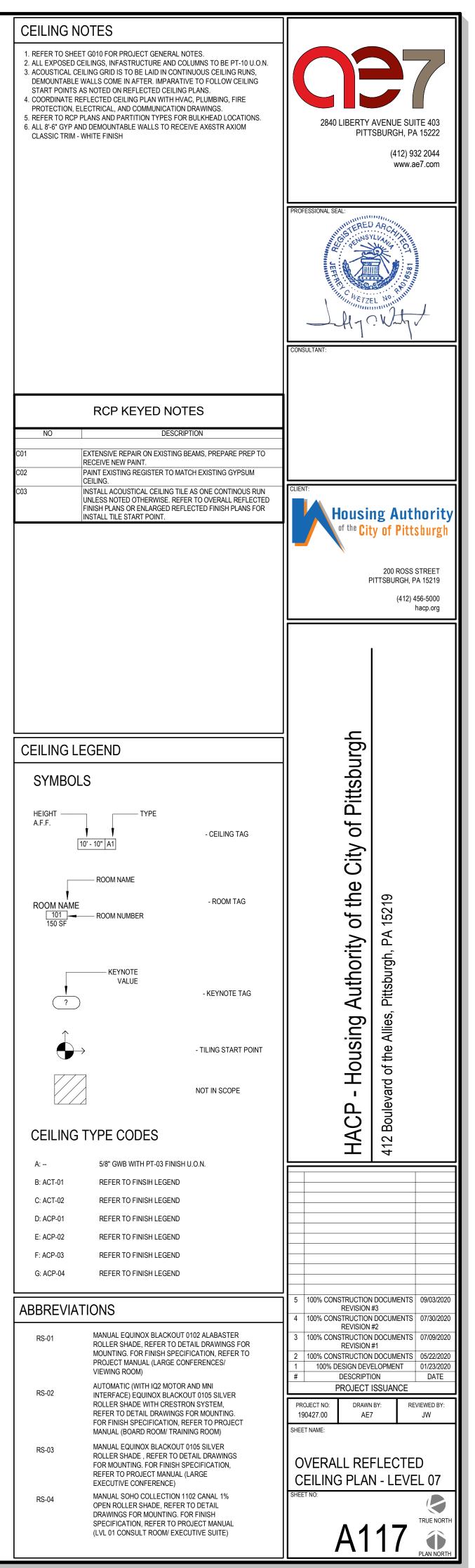
OVERALL REFLECTED CEILING PLAN - LEVEL 06



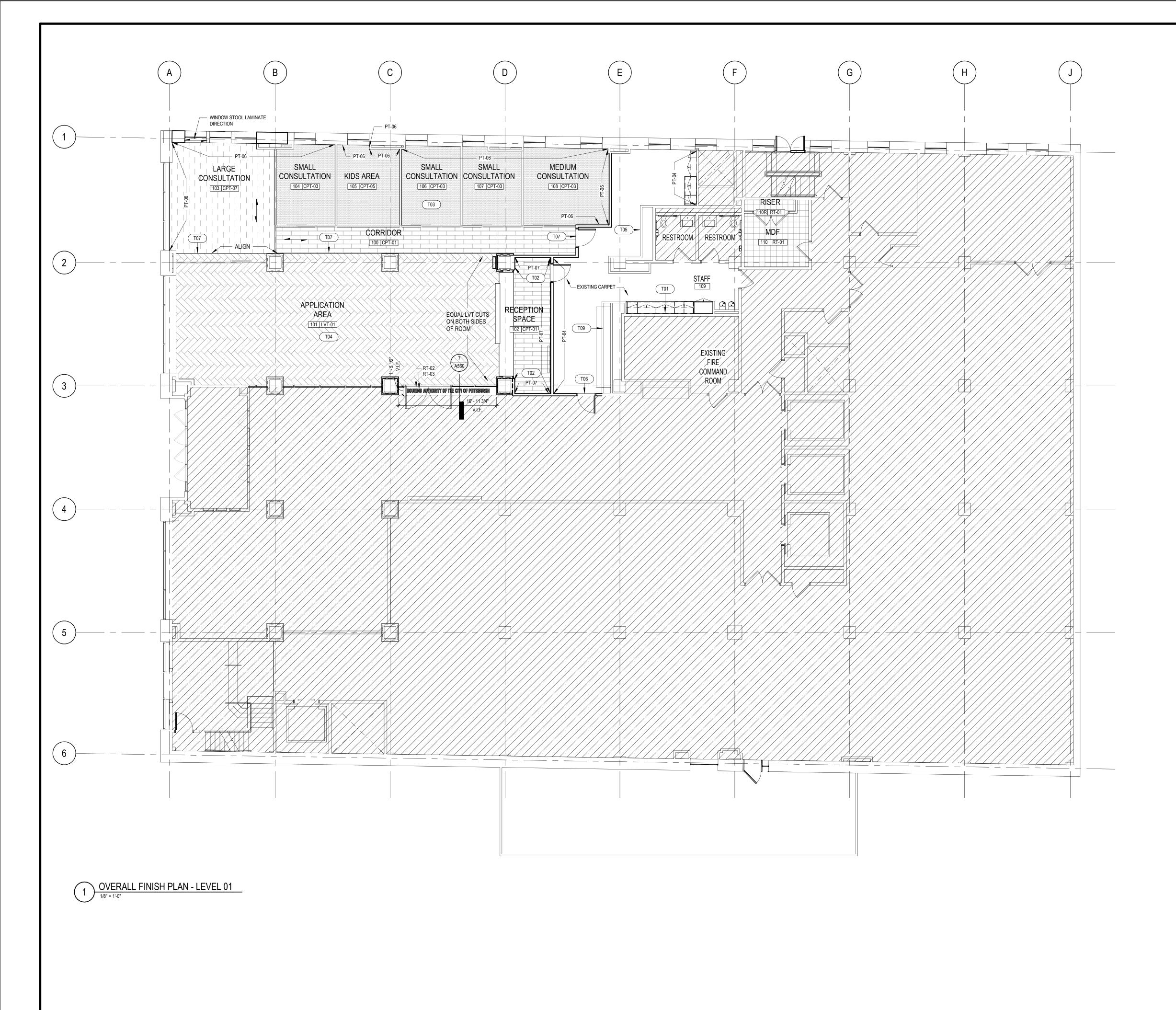
[©] AE7 Pittsburgh, LLC 2020



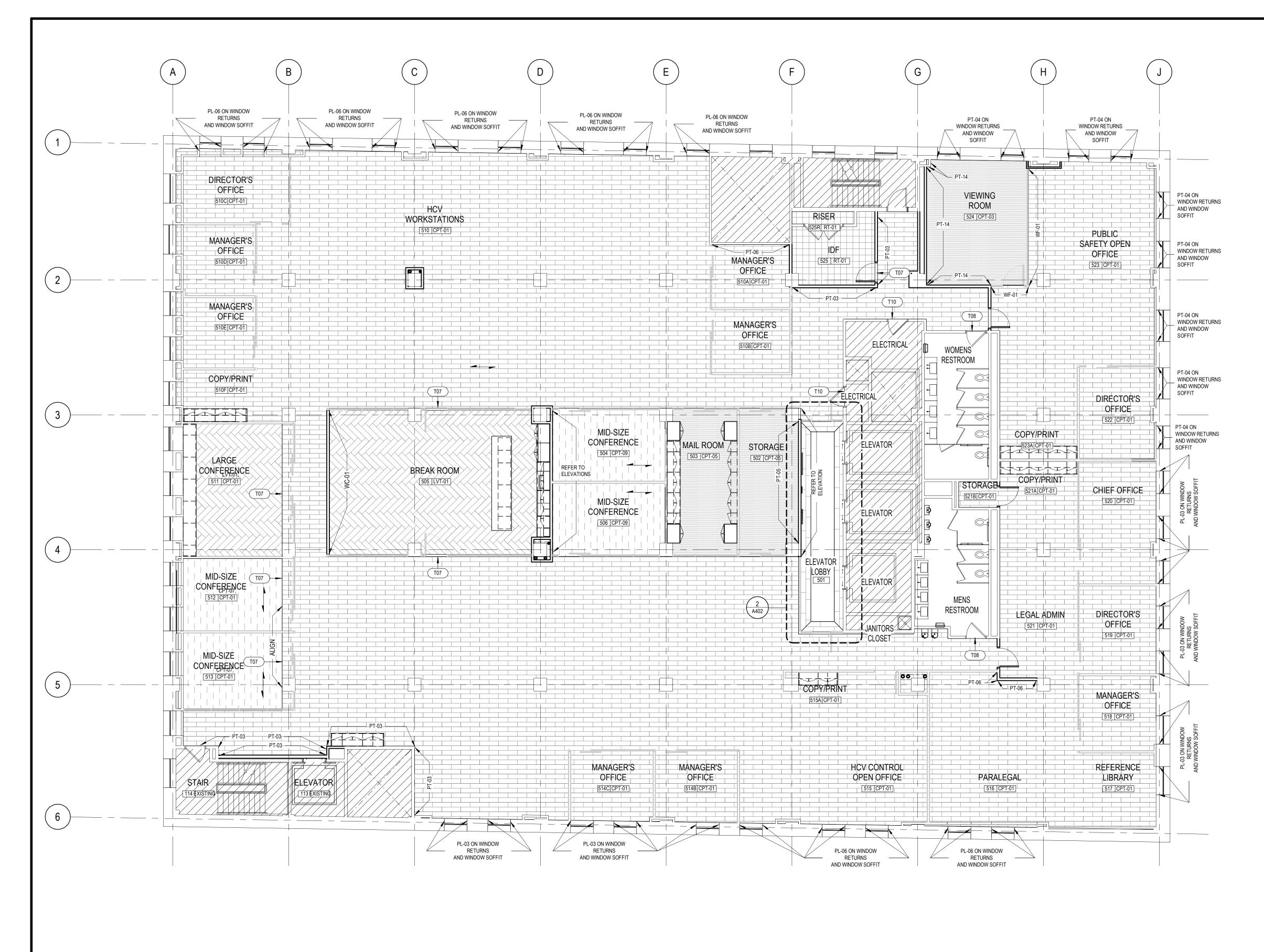
OVERALL REFLECTED CEILING PLAN - LEVEL 07



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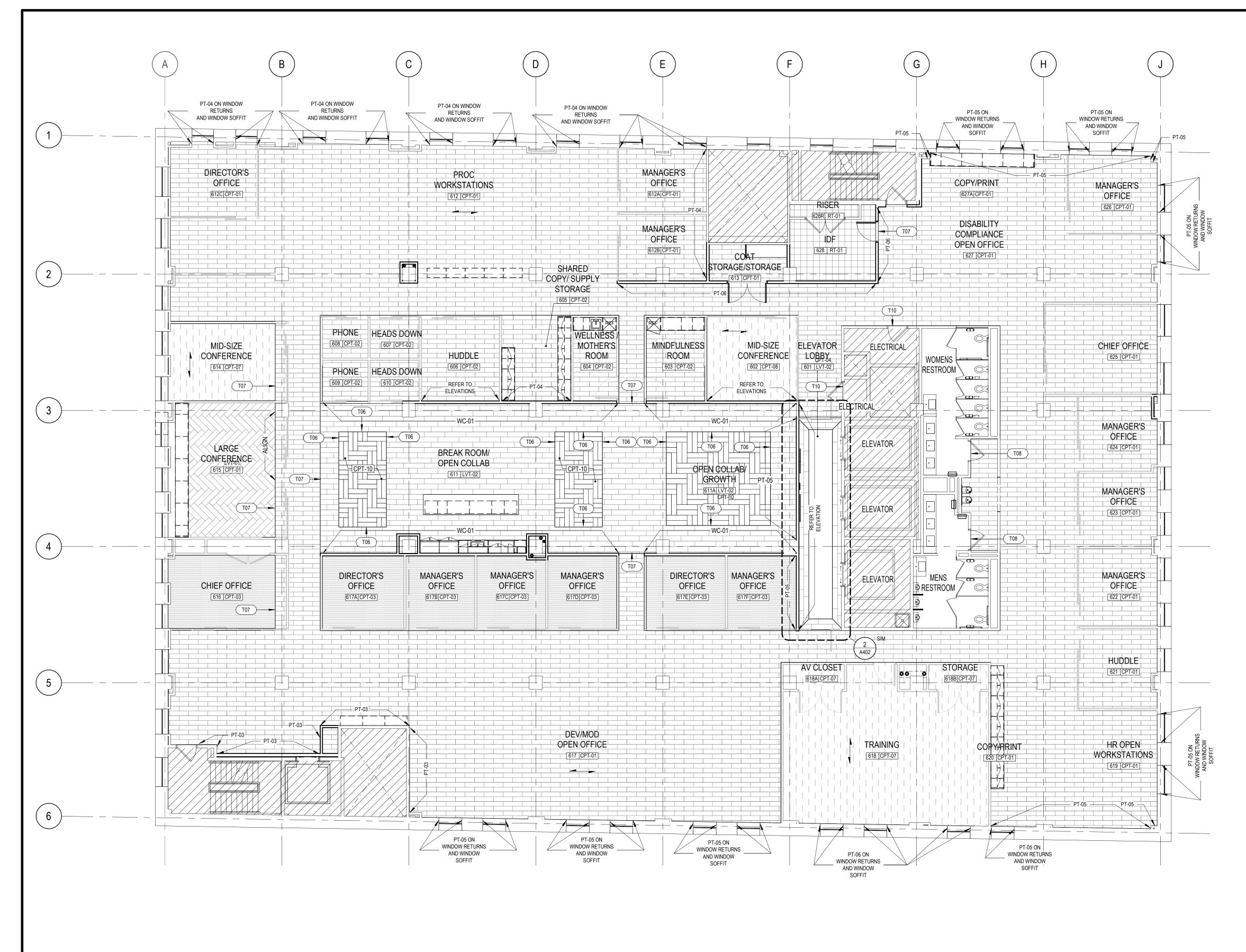
 REFER TO SHEF IT IS THE RESPORENTING CONDUNFORSEEN CO GC TO DETERMING MAN ALL FINISHES T ALL DIMENSION NOTED OTHERVING COORDINATE FINISTING CONDUNTABLE ALL WALL FINISTING SCHEDULE FOR ALL EXPOSED CO PROVIDE ADAIN FLOOR MATERINA ALL EXPOSED CO PRODUCT INFOUNTO BE BUTTED ALL FLOOR FINISTING ALL FINISTING ALL FINISTING ALL FLOOR FINISTING ALL FINISTING ALL FINISTING ALL FINISTING ALL FINISTING ALL FINISTING ALL FLOOR FINISTING ALL FLOOR FINISTING ALL FINISTING<!--</th--><th>O BE INSTALLED PER MANUFACTURERS INSTRUCTIONS. S ARE MEASURED TO THE FINISHED WALL SURFACE UNLESS VISE. NISH LOCATIONS WITH CEILING LOCATIONS AND WALL LOCATIONS. HES ARE TO RECIEVE PT-01 U.O.N. SEE ROOM FINISH MORE DETAILED INFORMATION. IISHES ARE TO RECIEVE PT-10 U.O.N. COLUMNS ARE TO RECIEVE PT-11 U.O.N. COMPLIANT TRANSITION STRIPS BETWEEN ALL DISSIMILIAR ALS OF DIFFERING THICKNESSES. SEE FINISH LEGEND FOR RMOATION. FLOORING MATERIALS OF THE SAME THICKNESS TOGETHER WITH NO TRANSITIONS. IISHES TO EXTEND UNDERNEATH CASEWORK AND BEING APPLIED TO DEMOUNTABLE PARTITIONS ARE TO BE HE DEMOUNTABLE PARTITION VENDER AND ARE NOT IE GC SCOPE OF WORK. TERN LAYOUT IS TO BE CENTERED WITHIN THE EXTENTS OF</th><th>PROFESSIONAL SEAL:</th><th>AVENUE SUITE 403 SBURGH, PA 15222 (412) 932 2044 www.ae7.com</th>	O BE INSTALLED PER MANUFACTURERS INSTRUCTIONS. S ARE MEASURED TO THE FINISHED WALL SURFACE UNLESS VISE. NISH LOCATIONS WITH CEILING LOCATIONS AND WALL LOCATIONS. HES ARE TO RECIEVE PT-01 U.O.N. SEE ROOM FINISH MORE DETAILED INFORMATION. IISHES ARE TO RECIEVE PT-10 U.O.N. COLUMNS ARE TO RECIEVE PT-11 U.O.N. COMPLIANT TRANSITION STRIPS BETWEEN ALL DISSIMILIAR ALS OF DIFFERING THICKNESSES. SEE FINISH LEGEND FOR RMOATION. FLOORING MATERIALS OF THE SAME THICKNESS TOGETHER WITH NO TRANSITIONS. IISHES TO EXTEND UNDERNEATH CASEWORK AND BEING APPLIED TO DEMOUNTABLE PARTITIONS ARE TO BE HE DEMOUNTABLE PARTITION VENDER AND ARE NOT IE GC SCOPE OF WORK. TERN LAYOUT IS TO BE CENTERED WITHIN THE EXTENTS OF	PROFESSIONAL SEAL:	AVENUE SUITE 403 SBURGH, PA 15222 (412) 932 2044 www.ae7.com
FINISH PL	AN LEGEND	CONSULTANT:	i
SYMBOLS	FLOOR TRANSITION		
Room N	ROOM TAG WITH FLOOR FINISH	of the Cit	1 g Authority y of Pittsburgh 200 ROSS STREET ITTSBURGH, PA 15219
_	FLOOR PATTERN DIRECTION		(412) 456-5000 hacp.org
	NOT IN SCOPE		
FII	NISH PLAN KEYED NOTES	h	
NO T01 T02 T03 T04 T05 T06 T07 T09 T09	DESCRIPTION KEEP EXISTING WALLCOVERING AND TOUCH UP EXISTING WALL PAINT AS NEEDED. WING WALLS WILL MATCH THE ADJACENT REBUILT COLUMN COLOR. FINISH ALT/DEDUCT 1 - KEEP EXISTING CARPET FINISH ALT/DEDUCT 2 - KEEP EXISTING PORCELAIN TILE KEEP EXISTING FIREPLACE WALL TREDSAFE METAL TRANSITION DT040 - BETWEEN SIMILAR HEIGHT FLOORING MATERIALS TARKETT SLIM LINE TRANSITION GRAY HAZE RUBBER TRANSITION - CARPET TO LVT KEEP EXISTING WOOD WALL, SEATING, AND PAINT COLOR. TOUCH UP PAINT AS NEEDED.	HACP - Housing Authority of the City of Pittsburgh	412 Boulevard of the Allies, Pittsburgh, PA 15219
		5 100% CONSTRUCTION REVISION 3 4 100% CONSTRUCTION REVISION 3 3 100% CONSTRUCTION REVISION 3 3 100% CONSTRUCTION 1 100% DESIGN DEVE # DESCRIPTION PROJECT NO: 190427.00 DRAWN 190427.00 AE7 SHEET NAME: OVERALL FIN LEVEL 01 SHEET NO: AC1	#3 07/30/2020 #2 07/30/2020 #2 07/09/2020 #1 05/22/2020 DOCUMENTS 05/22/2020 ELOPMENT 01/23/2020 ON DATE SSUANCE JW ISH PLAN - ISH PLAN -



1 OVERALL FINISH PLAN - LEVEL 05

FINISH PL	AN NOTES			
 REFER TO SHEET G010 FOR PROJECT GENERAL NOTES. IT IS THE RESPONSIBILITY OF THE CONTRATOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. REPORT DISCREPANCIES AND UNFORSEEN CONDITIONS TO THE ARCHITECT IMMEDIATELY. GC TO DETERMINE EXISTING FLOOR PREPARATION REQUIREMENTS WITH ALL FLOORING MANUFACTURERS. ALL FINISHES TO BE INSTALLED PER MANUFACTURERS INSTRUCTIONS. ALL FINISHES TO BE INSTALLED PER MANUFACTURERS INSTRUCTIONS. ALL DIMENSIONS ARE MEASURED TO THE FINISHED WALL SURFACE UNLESS NOTED OTHERWISE. COORDINATE FINISH LOCATIONS WITH CEILING LOCATIONS AND DEMOUNTABLE WALL LOCATIONS. ALL WALL FINISHES ARE TO RECIEVE PT-01 U.O.N. SEE ROOM FINISH SCHEDULE FOR MORE DETAILED INFORMATION. ALL CEILING FINISHES ARE TO RECIEVE PT-11 U.O.N. ALL EXPOSED COLUMNS ARE TO RECIEVE PT-11 U.O.N. PROVIDE ADA COMPLIANT TRANSITION STRIPS BETWEEN ALL DISSIMILIAR FLOOR MATERIALS OF DIFFERING THICKNESSES. SEE FINISH LEGEND FOR PRODUCT INFORMOATION. FLOORING MATERIALS OF THE SAME THICKNESS 			PIT	AVENUE SUITE 403 TSBURGH, PA 15222 (412) 932 2044 www.ae7.com
TO BE BUTTED 11. ALL FLOOR FIN EQUIPMENT. 12. ALL FINISHES I PROVIDED BY T INCLUDED IN TH	TOGETHER WITH NO TRANS IISHES TO EXTEND UNDERN BEING APPLIED TO DEMOUN HE DEMOUNTABLE PARTITI IE GC SCOPE OF WORK. TERN LAYOUT IS TO BE CE	SITIONS. IEATH CASEWORK AND ITABLE PARTITIONS ARE TO BE	PROFESSIONAL SEAL:	ARCHIER OT 1850
	AN LEGEND		CONSULTANT:	
FLOORING TYPE	E B FLQORING TYPE A	FLOOR TRANSITION	CLIENT:	
Room N		ROOM TAG WITH FLOOR FINISH	Housi of the Cir	ng Authority ty of Pittsburgh 200 ROSS STREET PITTSBURGH, PA 15219
_	-	FLOOR PATTERN DIRECTION		(412) 456-5000 hacp.org
		NOT IN SCOPE		
FII	NISH PLAN KE'	YED NOTES	gh d	
NO T07		DESCRIPTION	ity of Pittsburgh	
T08 T10	SCHLUTER RENO TK - BETV DIFFERING HEIGHTS	VEEN FLOORING MATERIAL OF		
			HACP - Housing Authority of the City	412 Boulevard of the Allies, Pittsburgh, PA 15219
			5 100% CONSTRUCTION REVISION 4 100% CONSTRUCTION REVISION 3 100% CONSTRUCTION REVISION 2 100% CONSTRUCTION	#3 N DOCUMENTS 07/30/2020 #2 07/09/2020 N DOCUMENTS 07/09/2020 #1 07/09/2020
			1 100% DESIGN DEV # DESCRIPT	VELOPMENT 01/23/2020 ION DATE ISSUANCE
			OVERALL FIN LEVEL 05	
			<u> </u>	

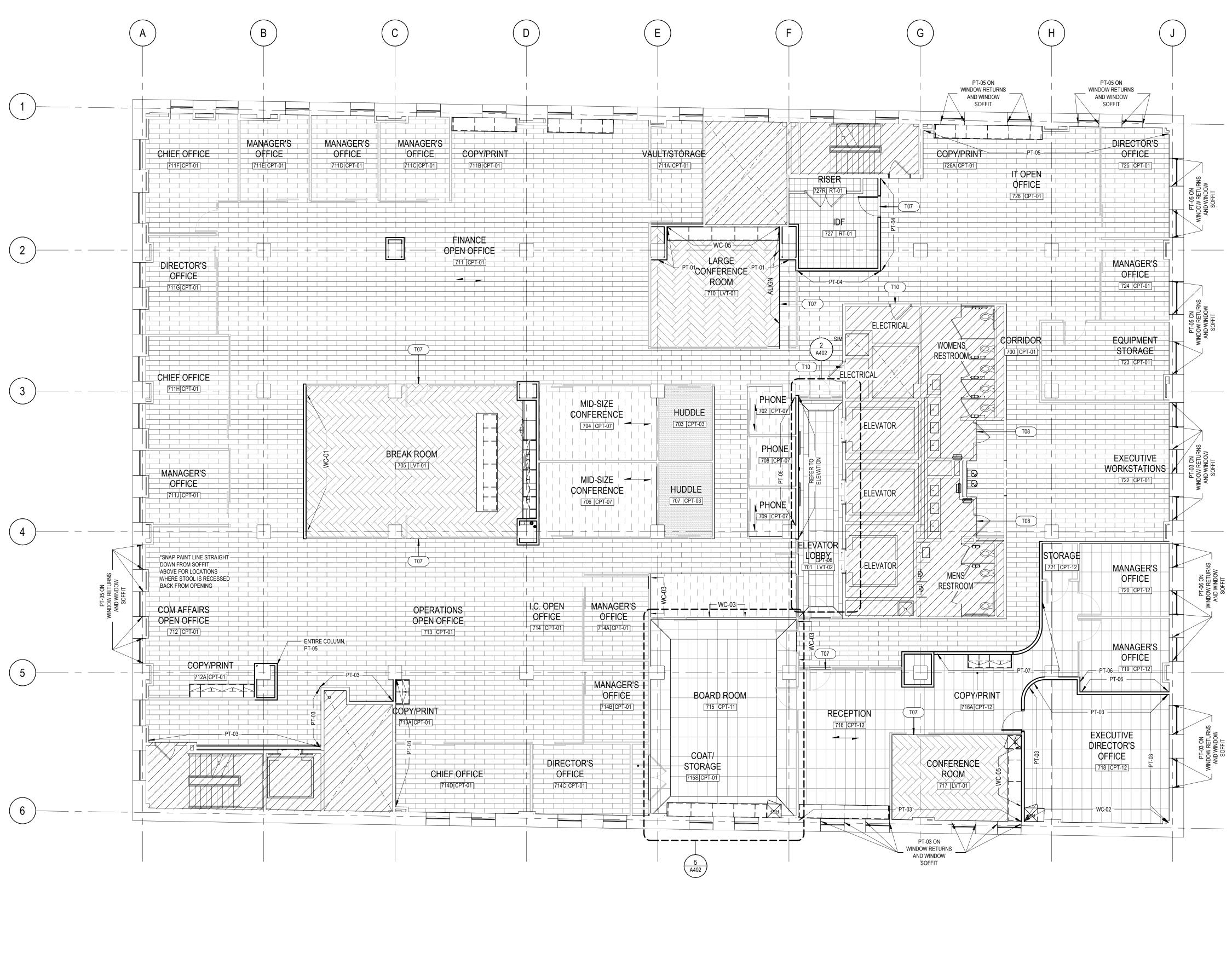
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OVERALL FINISH PLAN - LEVEL 06

FINISH PLAN NOTES	
 REFER TO SHEET G010 FOR PROJECT GENERAL NOTES. IT IS THE RESPONSIBILITY OF THE CONTRATOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. REPORT DISCREPANCIES AND UNFORSEEN CONDITIONS TO THE ARCHITECT IMMEDIATELY. GC TO DETERMINE EXISTING FLOOR PREPARATION REQUIREMENTS WITH ALL FLOORING MANUFACTURERS. ALL FINISHES TO BE INSTALLED PER MANUFACTURERS INSTRUCTIONS. ALL DIMENSIONS ARE MEASURED TO THE FINISHED WALL SURFACE UNLESS NOTED OTHERWISE. COORDINATE FINISH LOCATIONS WITH CEILING LOCATIONS AND DEMOUNTABLE WALL LOCATIONS. ALL WALL FINISHES ARE TO RECIEVE PT-01 U.O.N. SEE ROOM FINISH SCHEDULE FOR MORE DETAILED INFORMATION. ALL CEILING FINISHES ARE TO RECIEVE PT-10 U.O.N. ALL EXPOSED COLUMNS ARE TO RECIEVE PT-11 U.O.N. PROVIDE ADA COMPLIANT TRANSITION STRIPS BETWEEN ALL DISSIMILIAR FLOOR MATERIALS OF DIFFERING THICKNESSES. SEE FINISH LEGEND FOR PRODUCT INFORMOATION. FLOORING MATERIALS OF THE SAME THICKNESS 	2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
 TO BE BUTTED TOGETHER WITH NO 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. 	LEFT IN CONTRACT OF THE PARCY O
	CONSULTANT:
FLOORING TYPE B	
Room Name TOT CPT-01 FLOOR FINISH ROOM NUMBER	CLIENT: Housing Authority of the City of Pittsburgh 200 ROSS STREET PITTSBURGH, PA 15219
FLOOR PATTERN DIRECTION	(412) 456-5000 hacp.org
NOT IN SCOPE	
FINISH PLAN KEYED NOTES	ourgh
T06 TREDSAFE METAL TRANSITION DT040 - BETWEEN SIMILAR HEIGHT FLOORING MATERIALS TOT 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.	HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219
	Image: state of the state

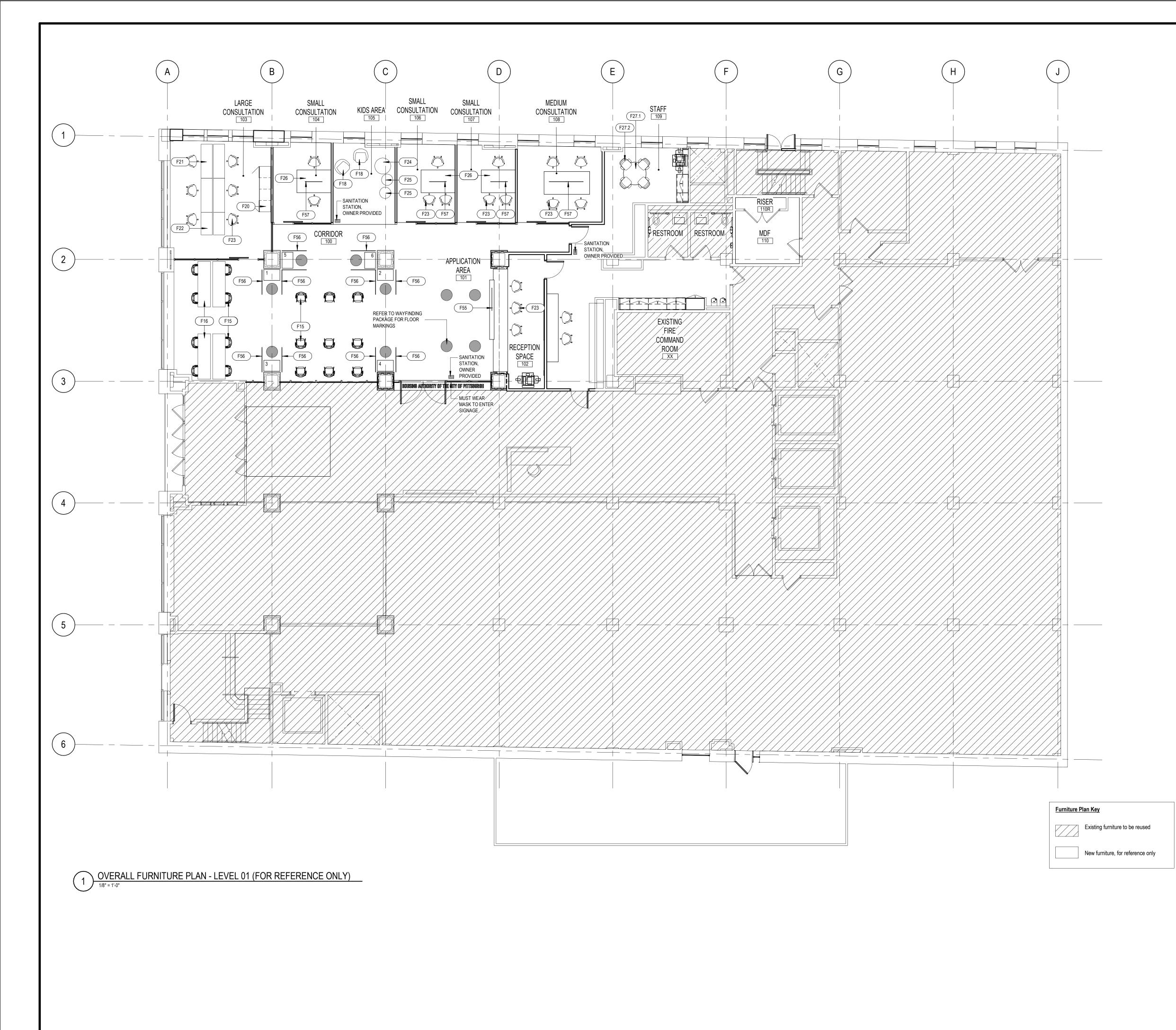
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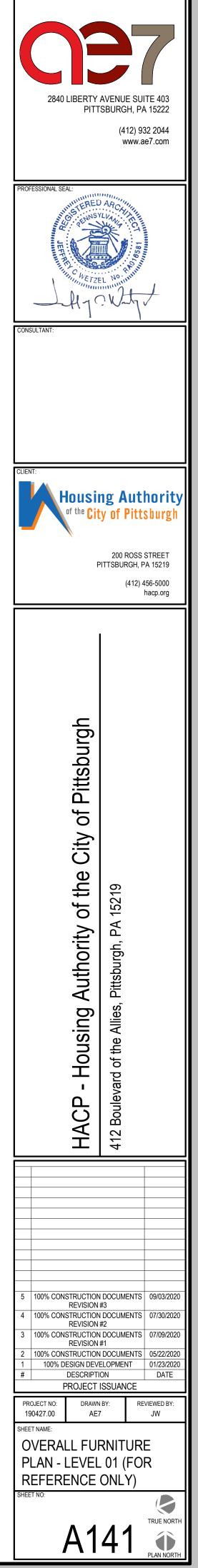
1) OVERALL FINISH PLAN - LEVEL 07 1/8" = 1'-0"

FINISH PLAN NOTES	
 REFER TO SHEET G010 FOR PROJECT GENERAL NOTES. IT IS THE RESPONSIBILITY OF THE CONTRATOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. REPORT DISCREPANCIES AND UNFORSEEN CONDITIONS TO THE ARCHITECT IMMEDIATELY. GC TO DETERMINE EXISTING FLOOR PREPARATION REQUIREMENTS WITH ALL FLOORING MANUFACTURERS. ALL FINISHES TO BE INSTALLED PER MANUFACTURERS INSTRUCTIONS. ALL DIMENSIONS ARE MEASURED TO THE FINISHED WALL SURFACE UNLESS NOTED OTHERWISE. COORDINATE FINISH LOCATIONS WITH CEILING LOCATIONS AND DEMOUNTABLE WALL LOCATIONS. ALL WALL FINISHES ARE TO RECIEVE PT-01 U.O.N. SEE ROOM FINISH SCHEDULE FOR MORE DETAILED INFORMATION. ALL CEILING FINISHES ARE TO RECIEVE PT-10 U.O.N. ALL EXPOSED COLUMNS ARE TO RECIEVE PT-11 U.O.N. PROVIDE ADA COMPLIANT TRANSITION STRIPS BETWEEN ALL DISSIMILIAR FLOOR MATERIALS OF DIFFERING THICKNESSES. SEE FINISH LEGEND FOR PRODUCT INFORMOATION. FLOORING MATERIALS OF THE SAME THICKNESS 	2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
 TO BE BUTTED TOGETHER WITH NO 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. 	HTTERED ARCHING
FINISH PLAN LEGEND	CONSULTANT:
SYMBOLS	
Room Name TOT CPT-01 FLOOR FINISH ROOM NUMBER	CLIENT: Housing Authority of the City of Pittsburgh 200 ROSS STREET PITTSBURGH, PA 15219
FLOOR PATTERN DIRECTION	(412) 456-5000 hacp.org
NOT IN SCOPE	
FINISH PLAN KEYED NOTES	Irgh
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.	HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219
	5 100% CONSTRUCTION DOCUMENTS 09/03/2020 7 100% CONSTRUCTION DOCUMENTS 07/30/2020 8 100% CONSTRUCTION DOCUMENTS 07/30/2020 8 100% CONSTRUCTION DOCUMENTS 07/09/2020 1 100% CONSTRUCTION DOCUMENTS 05/22/2020 # DESCRIPTION DATE PROJECT NO: DRAWN BY: REVIEWED BY: 190427.00 AE7 JW SHEET NAME: OVERALL FINISH PLAN - LEVEL 07 SHEET NO: Image: True NORTH Image: True NORTH A DA Image: True NORTH Image: True NORTH

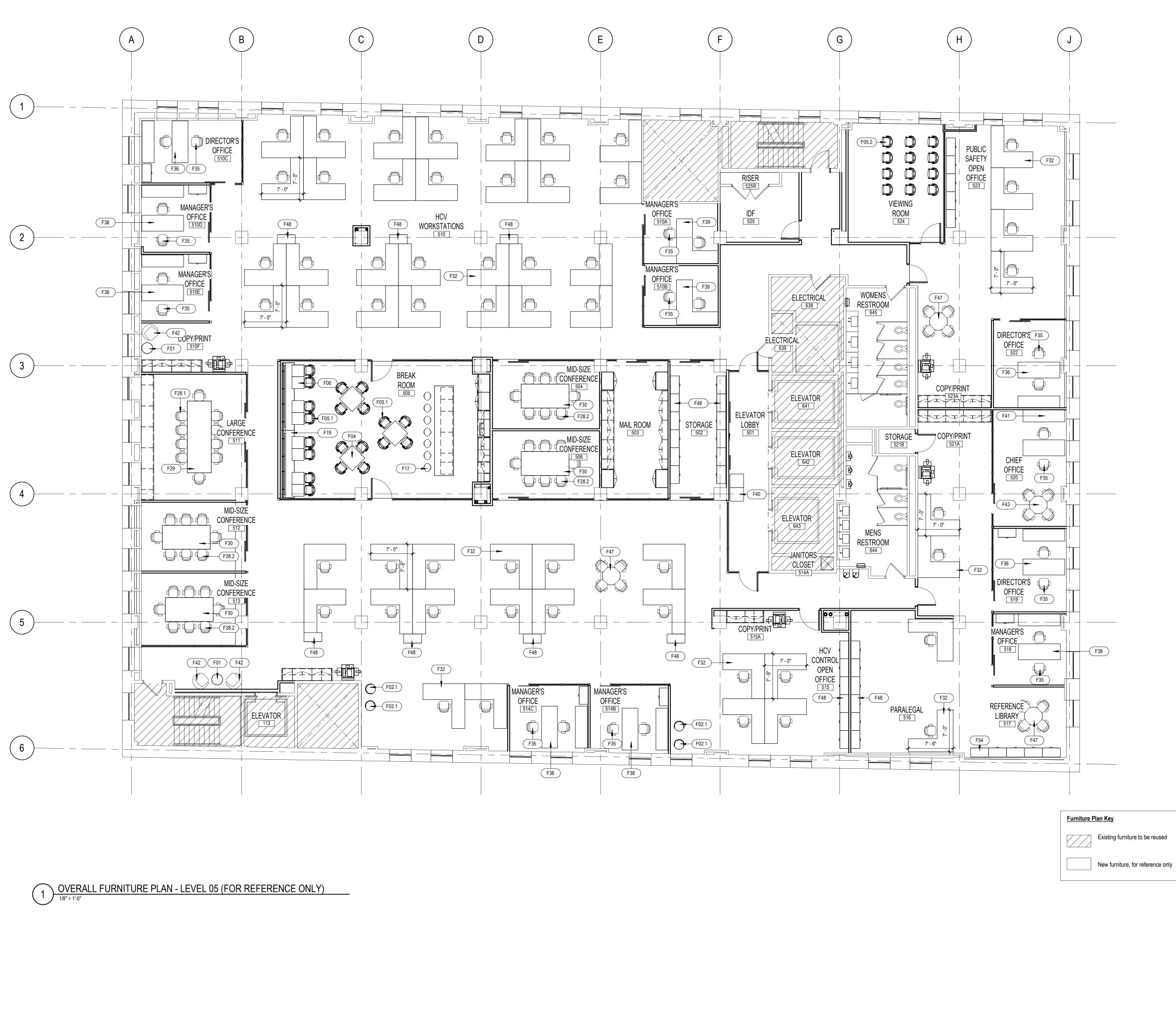
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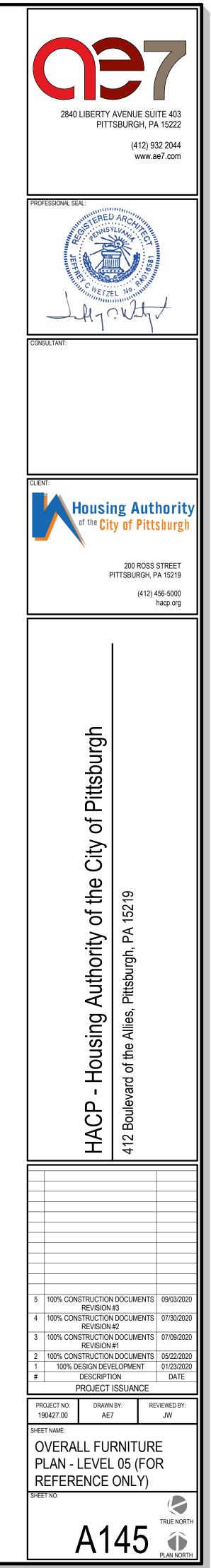
FURNITURE KEYED NOTES Keynote Text Key Value ALLEMUIR AXYL SAGE OFS APPLAUSE WITH SYMMETRY PANELS TENJAM MIBSTER OFS ROWAN CREDENZA OFS LARGE APPLAUSE TABLE OFS SMALL APPLAUSE TABLE MARTINI SWIVEL SESSION CIRCLE, LARGE SESSION CIRCLE, SMALL VERSTEEL ELIGA TABLE HON PRESIDE BREAK TABLE HON MOTIVATE SLED STACKER LOFTWALL CLASSIC 63"X28" SCREEN LOFTWALL FRAME WALL 52"X78" LOFTWALL CLASSIC 36"X28" SCREEN



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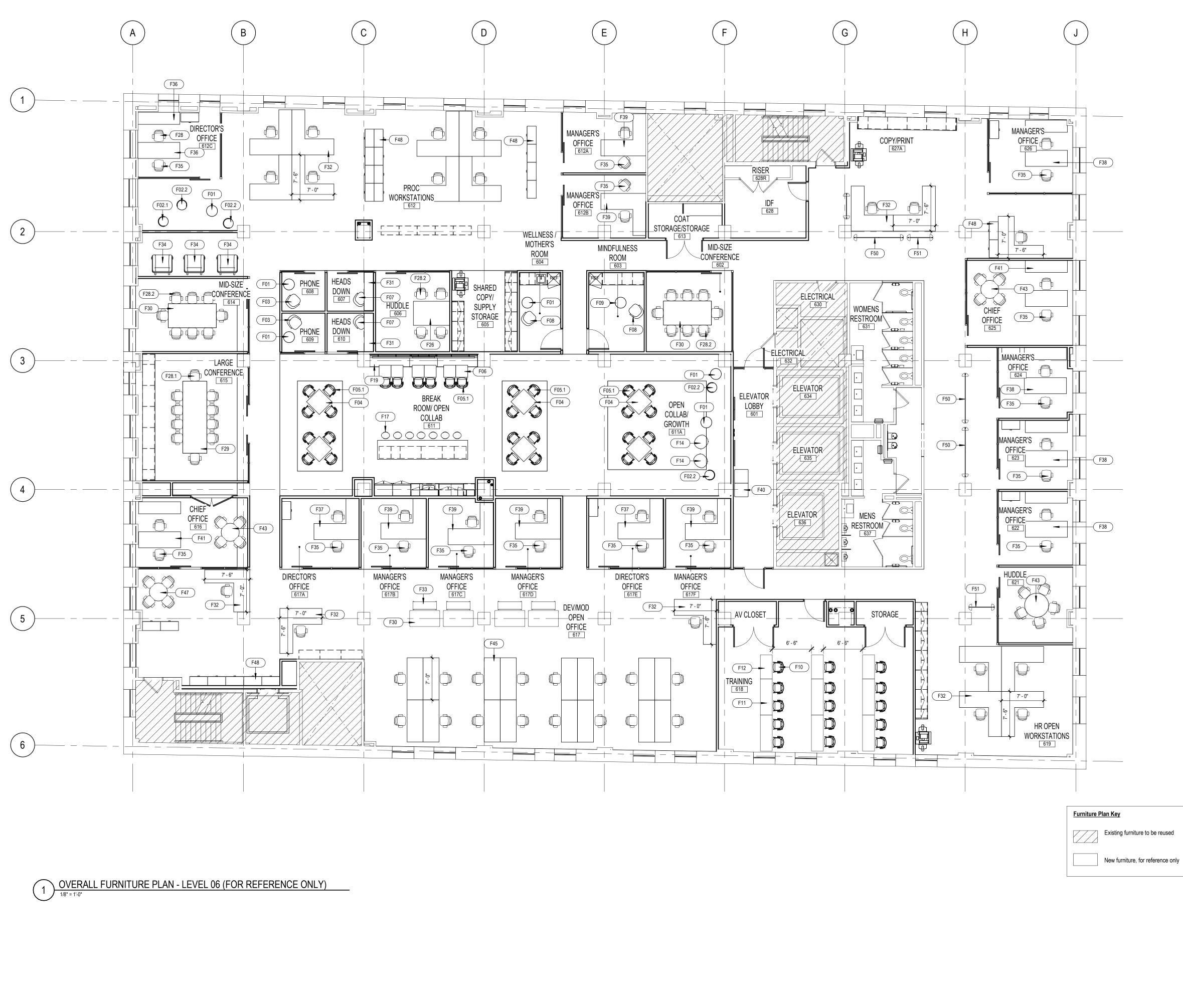


Existing furniture to be reused

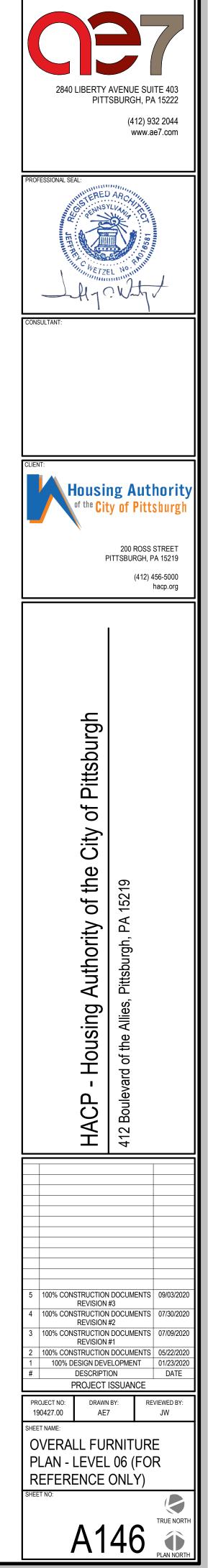


Key Value	Keynote Text
	Toyloto Tox
F01	OFS MAIVE END TABLE
F02.1	OFS ROUND OTTOMAN WITH BACKREST, BLUE
F04	VERSTEEL PLATFORM SQUARE TABLE
F05.1	JSI WINK ARMLESS CHAIR, NAVY
F05.2	SIT ON IT RIO CHAIR, TANGERINE
F06	VERSTEEL PLATFORM RECTANGULAR TABLE
F17	JSI WINK STOOL
F19	OFS COACT BANQUETTE
F28.1	HON IGNITION CHAIR, ORANGE
F28.2	HON IGNITION CHAIR, TAUPE
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 KASURA GUEST CHAIR
F43	HON PRESIDE ROUND CONF TABLE, IGNITION TASK CHAIR
F47	HON PRESIDE BREAK TABLE, IGNITION GUEST CHAIR
F48	3 DRAWER LATERAL FILE, QTY DEFINED BY CLIENT
F54	HON 5 SHELF BOOKCASE

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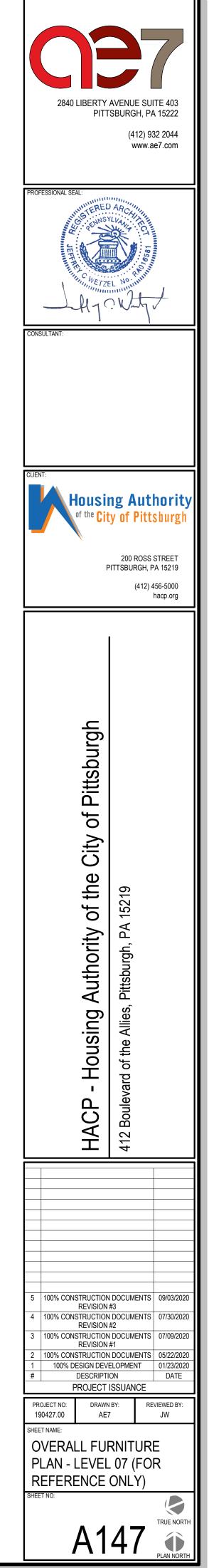


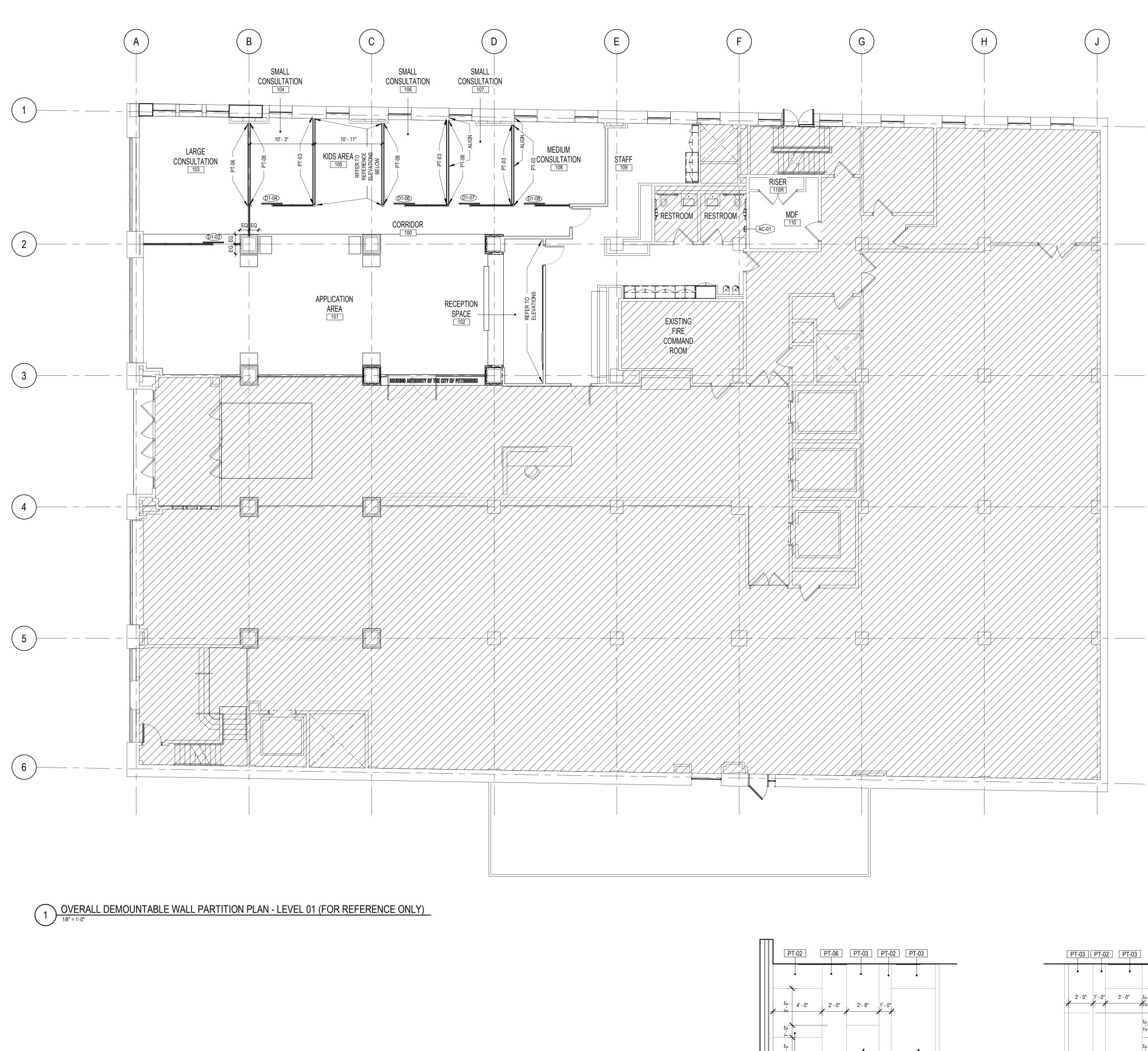
FURNITURE KEYED NOTES		
Key Value	Keynote Text	
F01	OFS MAIVE END TABLE	
F02.1	OFS ROUND OTTOMAN WITH BACKREST, BLUE	
F02.2	OFS ROUND OTTOMAN WITH BACKREST, ORANGE	
F03	HON FLOCK CHAIR	
F04	VERSTEEL PLATFORM SQUARE TABLE	
F05.1	JSI WINK ARMLESS CHAIR, NAVY	
F06	VERSTEEL PLATFORM RECTANGULAR TABLE	
F07	OFS HAIRPIN	
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	VERSTEEL ELIGA TABLE	
F28		
F28.1	HON IGNITION CHAIR, ORANGE	
F28.2	HON IGNITION CHAIR, OR TAUPE	
F29	HON PRESIDE CONF TABLE	
F30	HON PRESIDE CONF TABLE	
F31	OFS KINTRA TABLE	
F32	HON WORKSTATION AND HON SOLVE CHAIR	
F32	HON PRESIDE SEATED HEIGHT TABLE AND BENCH	
F34	JSI CAAV CHAIR	
F35	HON IGNITION GUEST CHAIR	
F36	HON DIR OFFICE EXTERIOR	
F30 F37	HON DIR OFFICE INTERIOR	
F38	HON MGR OFFICE EXTERIOR	
F30	HON MGR OFFICE EXTERIOR	
F39 F40		
F40 F41	HON CHIEF OFFICE	
F41 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	LOFTWALL 76†W, 78†H	
F51	LOFTWALL 52†W, 78†H	

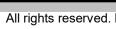


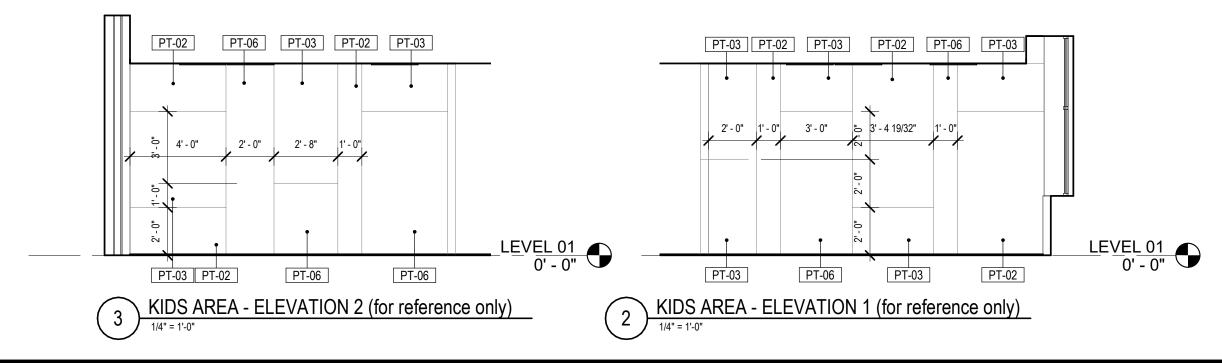


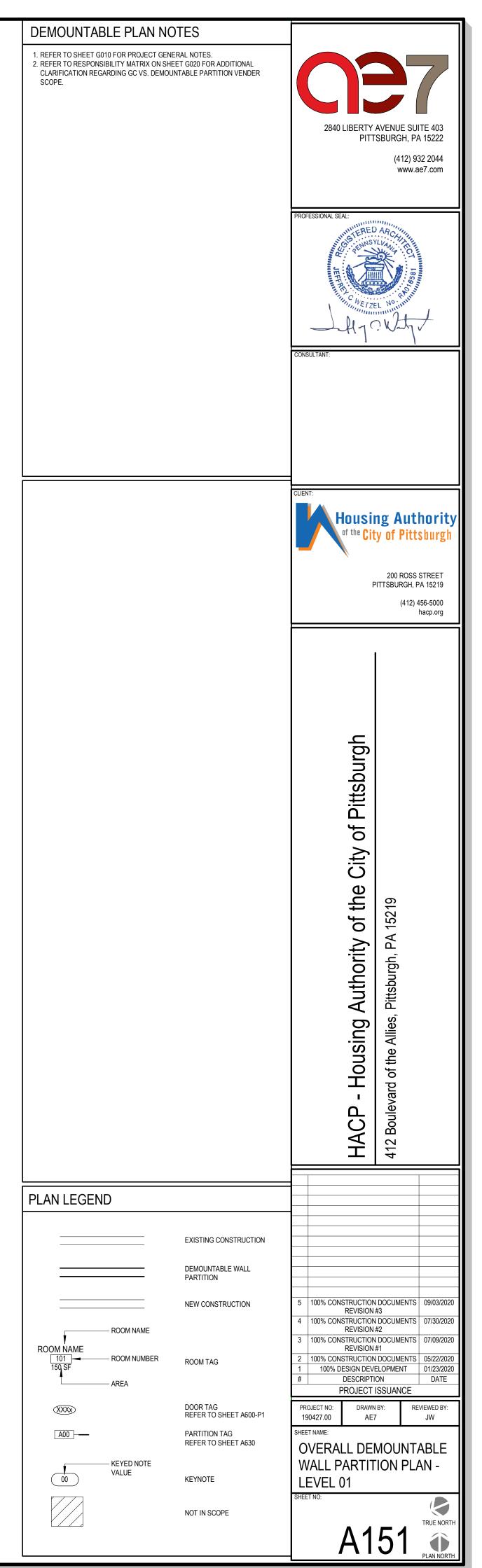
FURNITURE KEYED NOTES		
Key Value	Keynote Text	
F01		
F01 F03		
F03	HON FLOCK CHAIR VERSTEEL PLATFORM SQUARE TABLE	
F04 F05		
F05		
F13	VERSTEEL PLATFORM RECTANGULAR TABLE OFS CONF TABLE WITH PEDESTAL BASE	
F13		
F13.1 F17	OFS SLEEK HIGH BACK CHAIRS JSI WINK STOOL	
F17 F19	OFS COACT BANQUETTE	
F 19 F23	MARTINI SWIVEL	
F23 F26	VERSTEEL ELIGA TABLE	
F20 F28		
F28 F28.1		
F28.3 F29	HON IGNITION CHAIR, NAVY	
F29 F30	HON PRESIDE CONF TABLE	
F30 F32		
F32 F35	HON WORKSTATION AND HON SOLVE CHAIR	
F35 F36	HON IGNITION GUEST CHAIR HON DIR OFFICE EXTERIOR	
F30 F38	HON MGR OFFICE EXTERIOR	
F39	HON MGR OFFICE INTERIOR	
F40	OFS HEYA BENCH	
F41	HON CHIEF OFFICE	
F42 F43	OFS KASURA GUEST CHAIR	
F43	HON PRESIDE ROUND CONF TABLE, IGNITION TASK CHAIR	
F44	JSI CONFERENCE TABLE	
F45	HON BENCHING WORKSTATION AND HON SOLVE CHAIL	
F46	HON CERES MULTIPURPOSE 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 76†W, 78†H	
F52	OFS RECEPTION DESK	
F53	JSI GALLERY GUEST CHAIR	

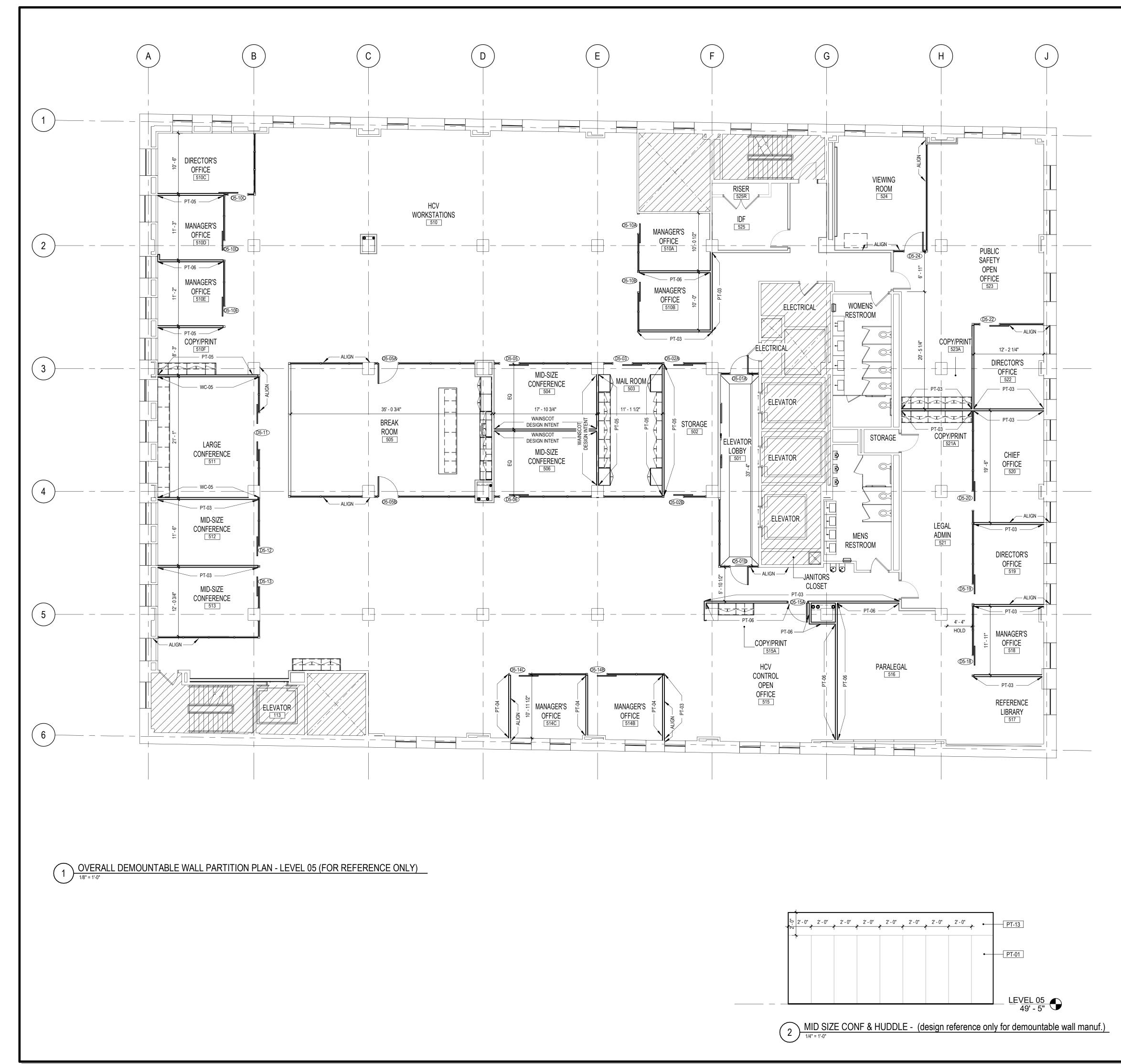






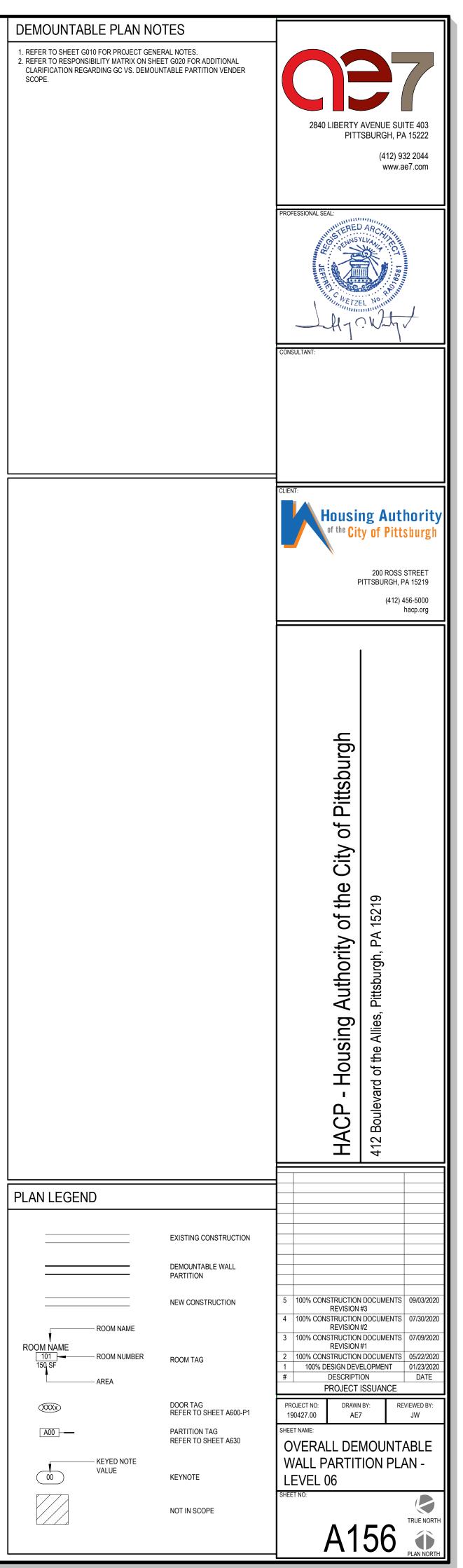


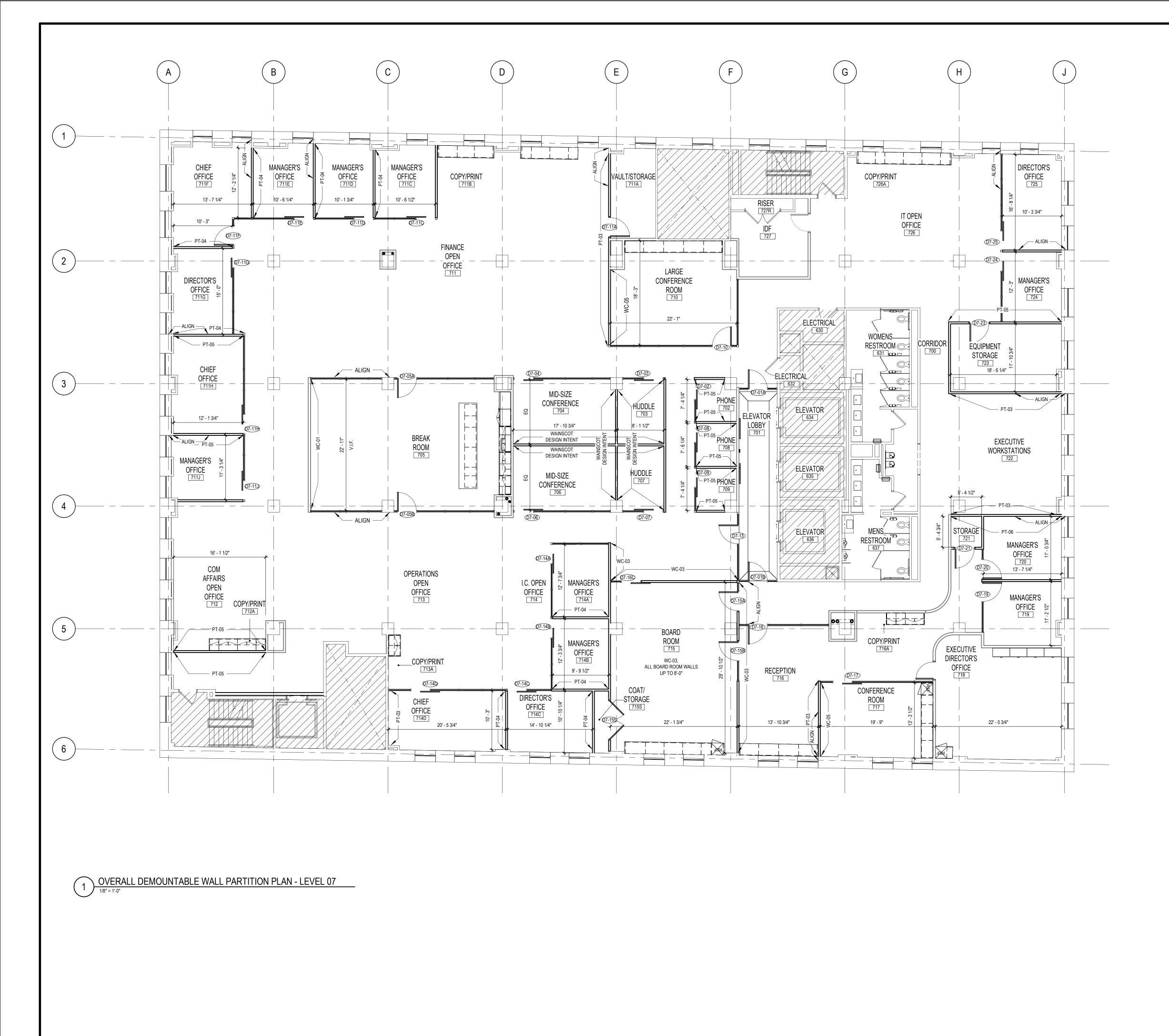




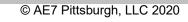
DEMOUNTABLE PLAN NOTES	
 REFER TO SHEET G010 FOR PROJECT GENERAL NOTES. REFER TO RESPONSIBILITY MATRIX ON SHEET G020 FOR ADDITIONAL CLARIFICATION REGARDING GC VS. DEMOUNTABLE PARTITION VENDER SCOPE. 	2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
	PROFESSIONAL SEAL:
	CLIENT: 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
PLAN LEGEND EXISTING CONSTRUCTION DEMOUNTABLE WALL PARTITION DEMOUNTABLE WALL PARTITION NEW CONSTRUCTION ROOM NAME ROOM TAG REFER TO SHEET A600-P1 PARTITION TAG REFER TO SHEET A630 REFER TO SHEET A630 ROM TAG NOT IN SCOPE	Image: state of the state



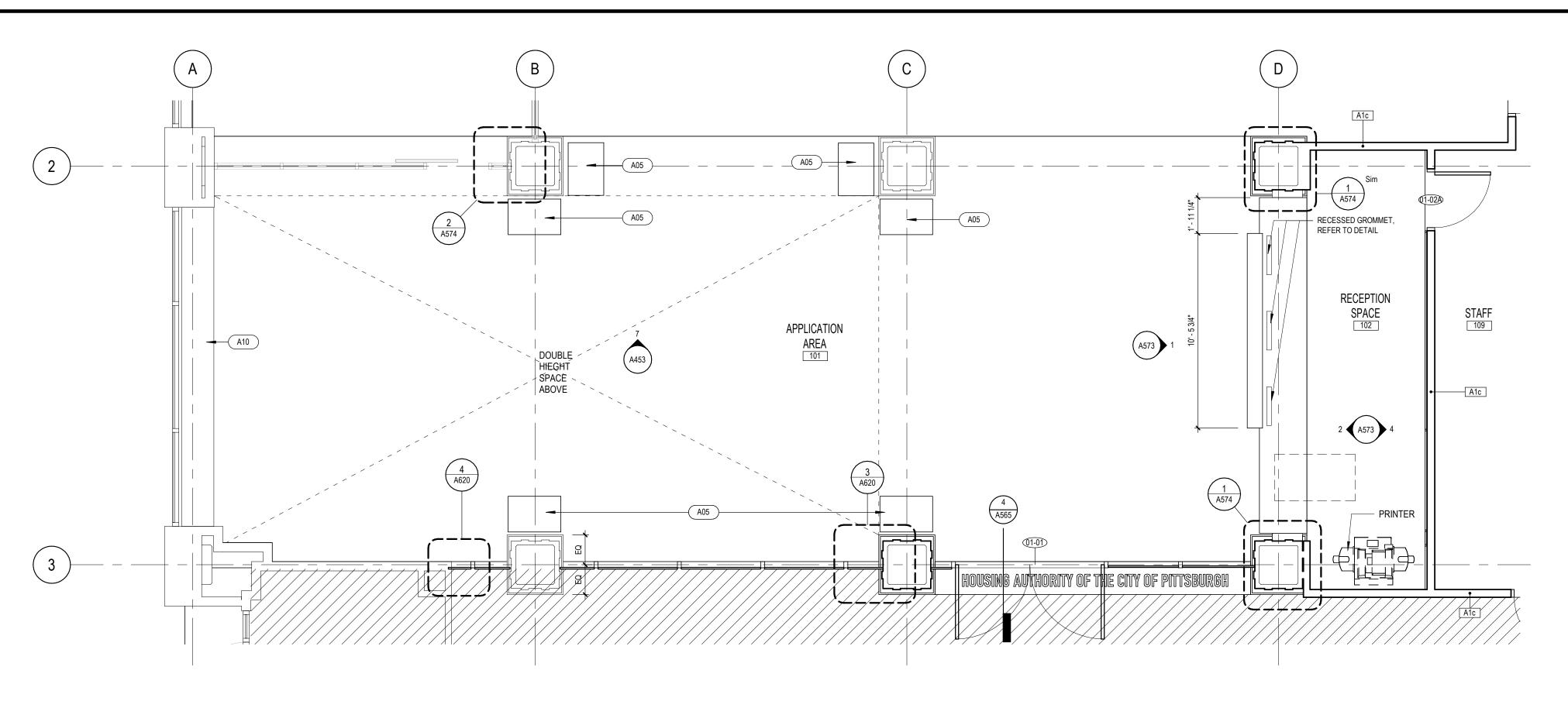




DEMOUNTABLE PLAN NO	TES		
 REFER TO SHEET G010 FOR PROJECT GENEL REFER TO RESPONSIBILITY MATRIX ON SHEI CLARIFICATION REGARDING GC VS. DEMOUN SCOPE. 	ET G020 FOR ADDITIONAL	2840 LIBERTY AVE PITTSBU	ENUE SUITE 403 JRGH, PA 15222 (412) 932 2044 www.ae7.com
		PROFESSIONAL SEAL:	
		of the City of	5 Authority of Pittsburgh 200 ROSS STREET 3BURGH, PA 15219 (412) 456-5000 hacp.org
		HACP - Housing Authority of the City of Pittsburgh	412 boulevard of the Aliles, Pittsburgh, PA 15219
PLAN LEGEND			
ROOM NAME	EXISTING CONSTRUCTION DEMOUNTABLE WALL PARTITION NEW CONSTRUCTION	5 100% CONSTRUCTION DOO REVISION #3 4 100% CONSTRUCTION DOO REVISION #2 3 100% CONSTRUCTION DOO	CUMENTS 07/30/2020
ROOM NAME 101 - ROOM NUMBER 150 SF AREA	ROOM TAG	3 100% CONSTRUCTION DO REVISION #1 2 100% CONSTRUCTION DO 1 1 100% DESIGN DEVELOF # DESCRIPTION PROJECT ISSU PROJECT NO: DRAWN BY:	CUMENTS 05/22/2020 PMENT 01/23/2020 DATE
	DOOR TAG REFER TO SHEET A600-P1 PARTITION TAG REFER TO SHEET A630	190427.00 AE7 SHEET NAME: OVERALL DEMO WALL PARTITIO	JW DUNTABLE
00 VALUE	KEYNOTE NOT IN SCOPE	LEVEL 07 SHEET NO: A15	57

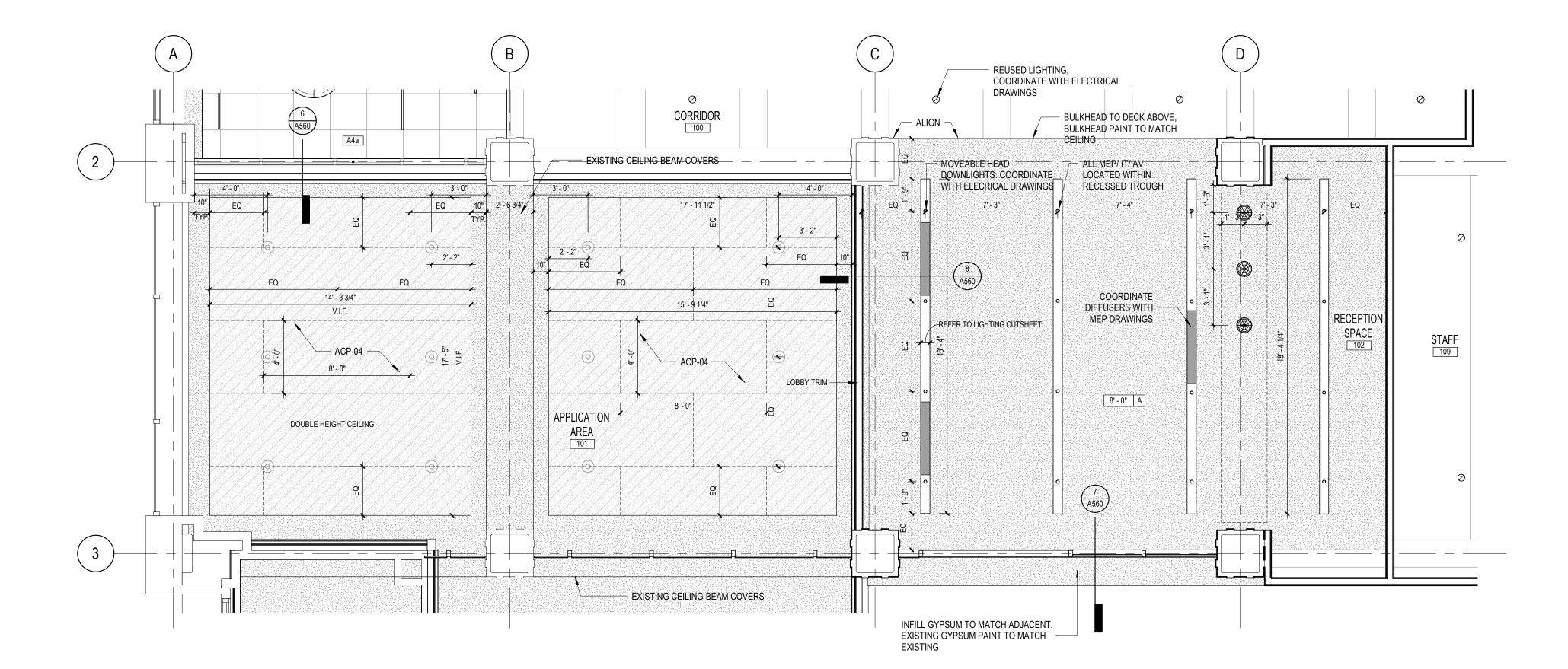


	PLAN KEYED NOTES
NO	DESCRIPTION
A05	FREE STANDING KIOSKS OWNER PROVIDED, COORDINATE WITH ELECTRICAL DRAWINGS.
A10	REPAINT EXISTING RADIATORS TO MATCH BASE BUILDING

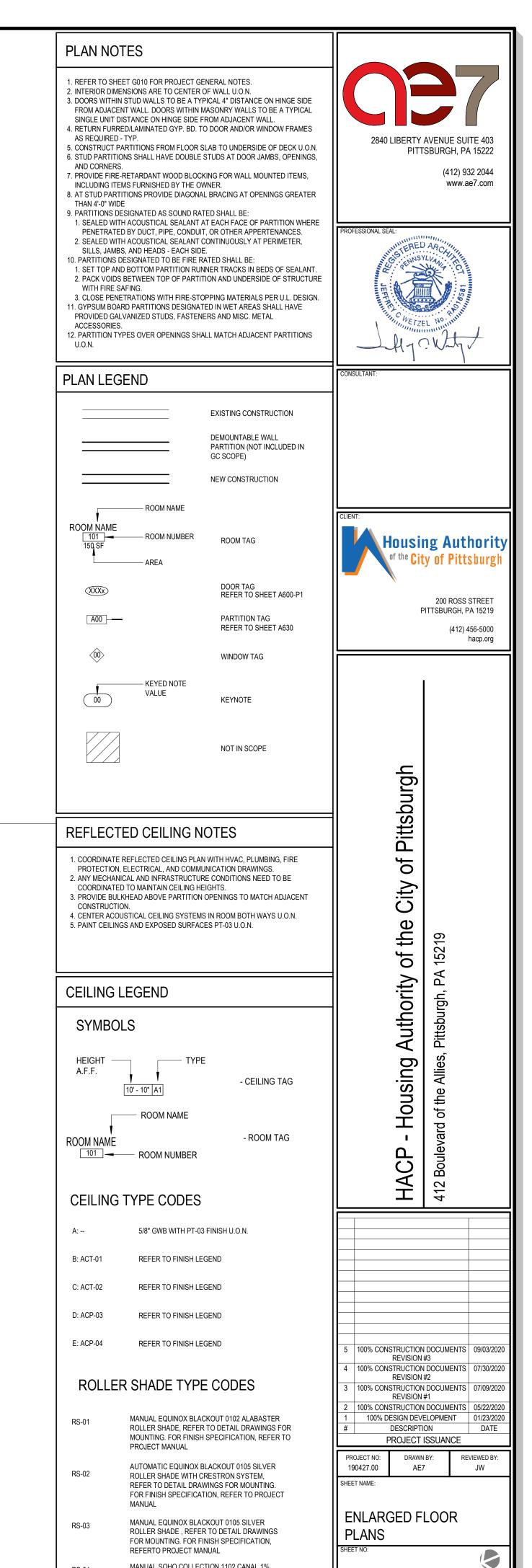


ENLARGED FLOOR PLAN - APPLICATION LEVEL 01 1/4" = 1'-0"

	RCP KEYED NOTES
NO	DESCRIPTION
C01	EXTENSIVE 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 CONTINOUS RUN UNLESS NOTED OTHERWISE. REFER TO OVERALL REFLECTED FINISH PLANS OR ENLARGED REFLECTED FINISH PLANS FOR INSTALL TILE START POINT.



<u> ENLARGED REFLECTED CEILING PLAN - APPLICATION LEVEL 01</u> 1/4" = 1'-0"



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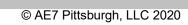
RS-04

MANUAL SOHO COLLECTION 1102 CANAL 1%

SPECIFICATION, REFERTO PROJECT MANUAL

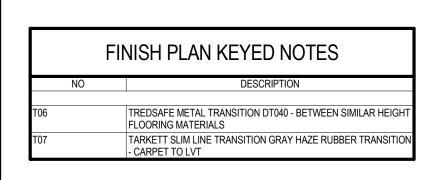
OPEN ROLLER SHADE, REFER TO DETAIL

DRAWINGS FOR MOUNTING, FOR FINISH

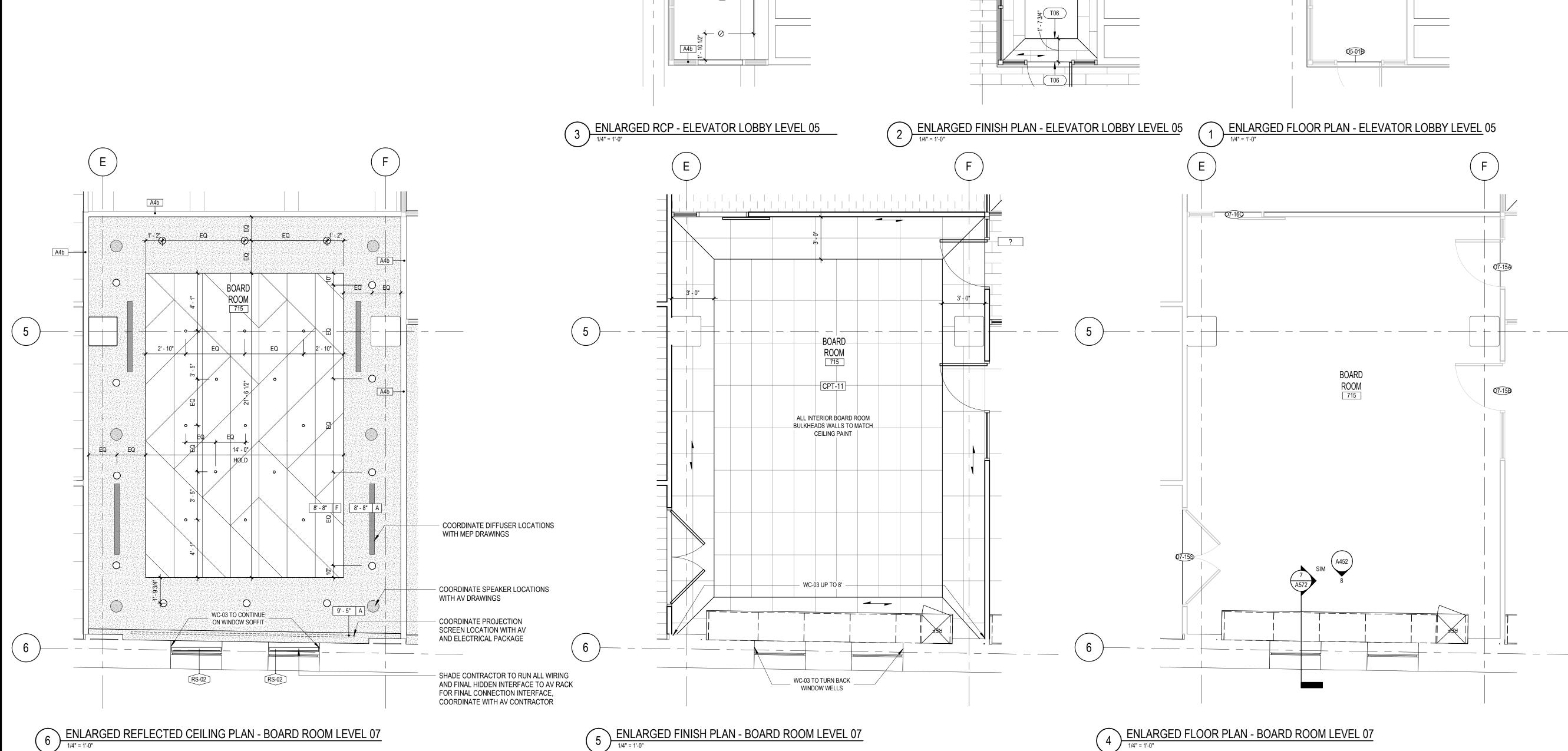


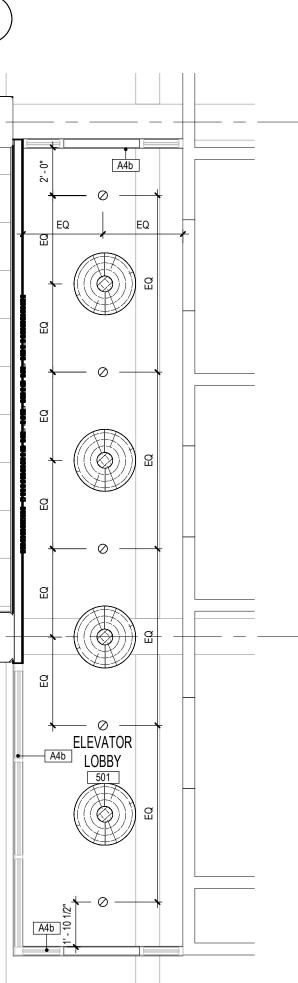
A40

TRUE NORTH

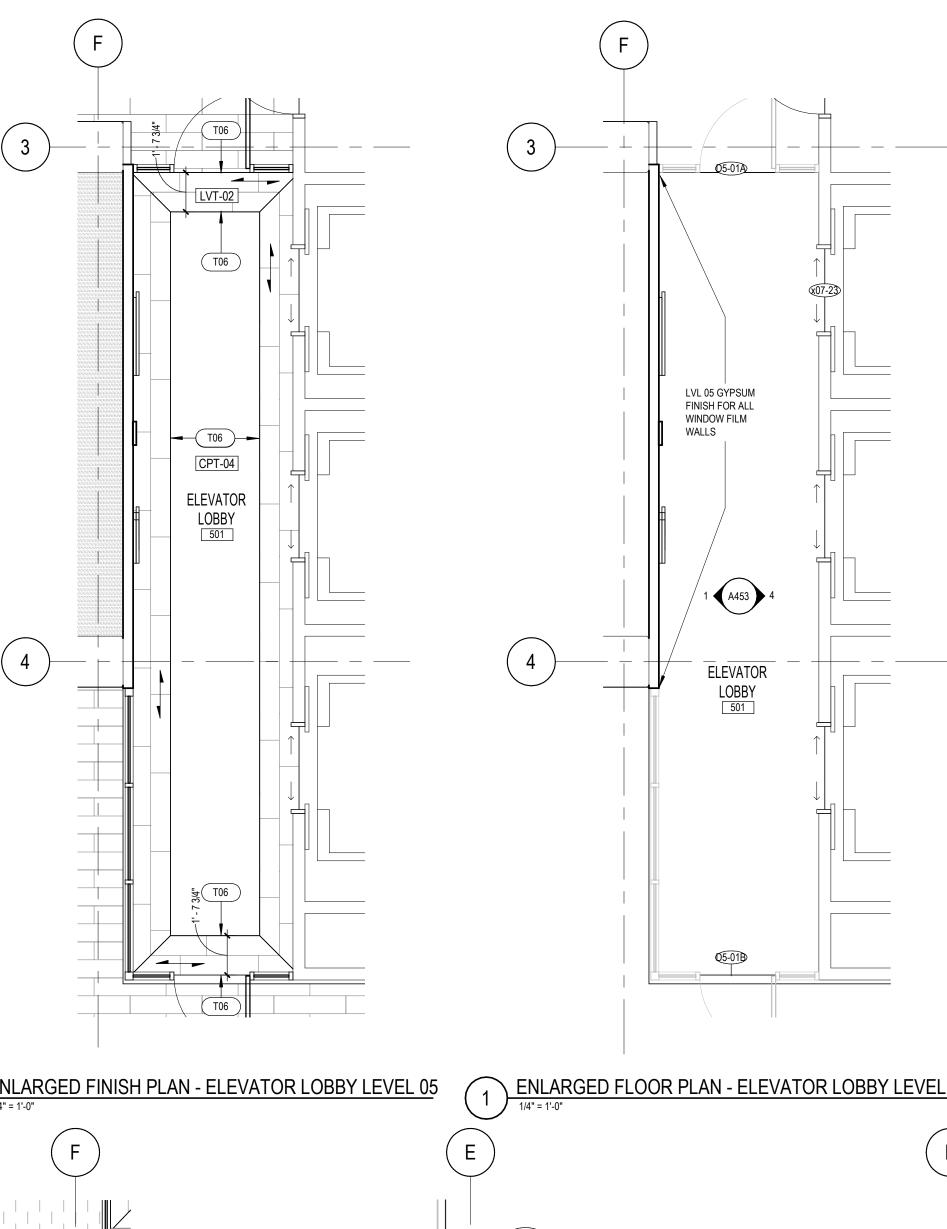


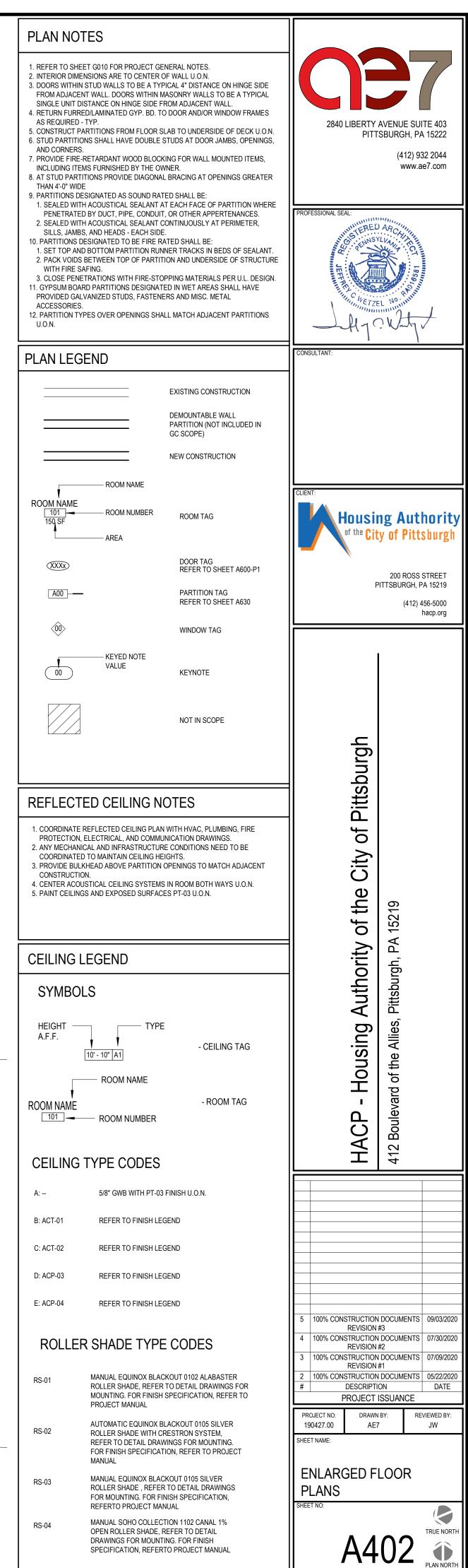
	RCP KEYED NOTES
NO	DESCRIPTION
C01	EXTENSIVE REPAIR ON EXISTING BEAMS, PREPARE PREP TO RECEIVE NEW PAINT.
C02	PAINT EXISTING REGISTER TO MATCH EXISTING GYPSUM CEILING.
C03	INSTALL ACOUSTICAL CEILING TILE AS ONE CONTINOUS RUN UNLESS NOTED OTHERWISE. REFER TO OVERALL REFLECTED FINISH PLANS OR ENLARGED REFLECTED FINISH PLANS FOR INSTALL TILE START POINT.



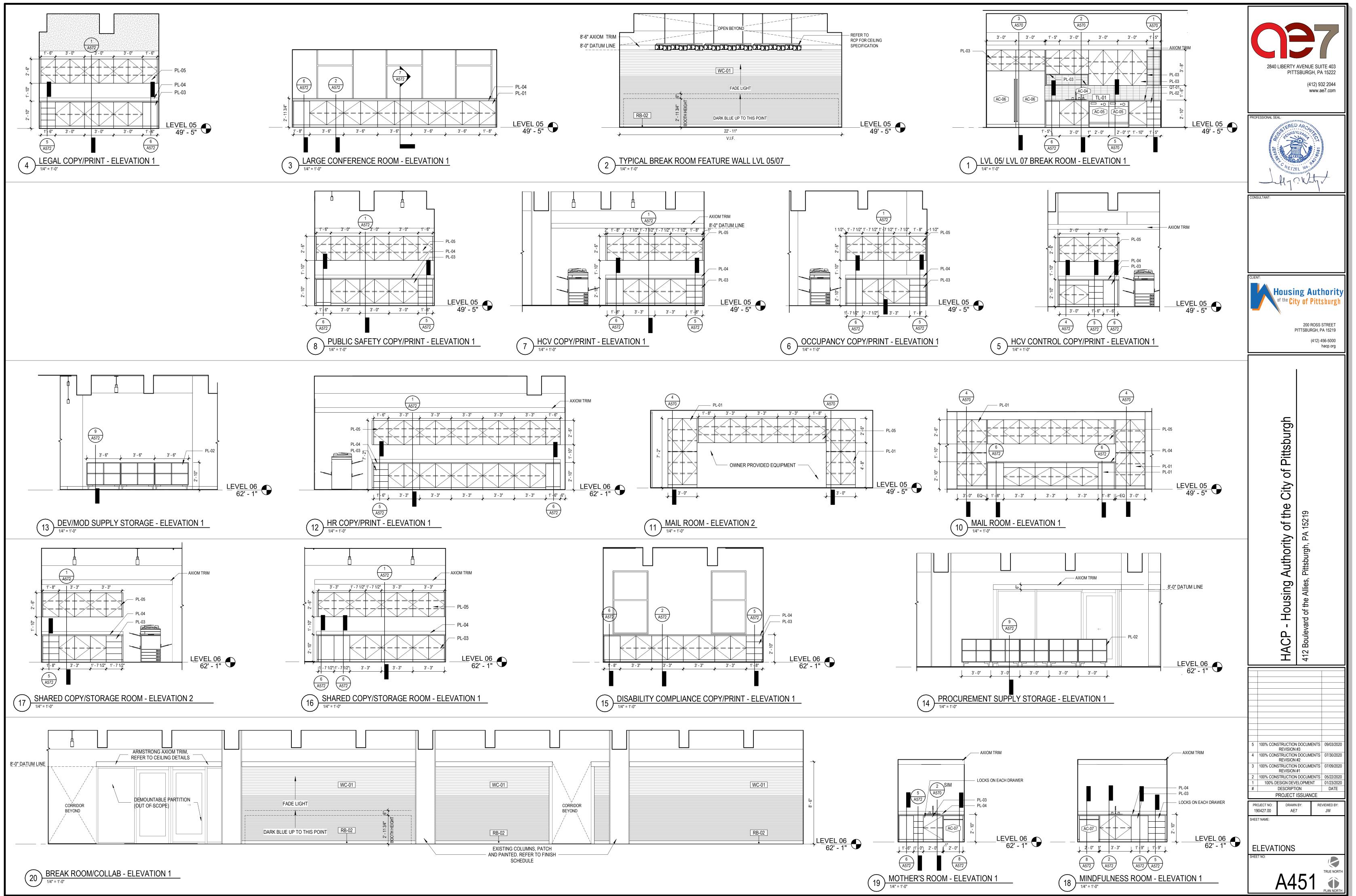


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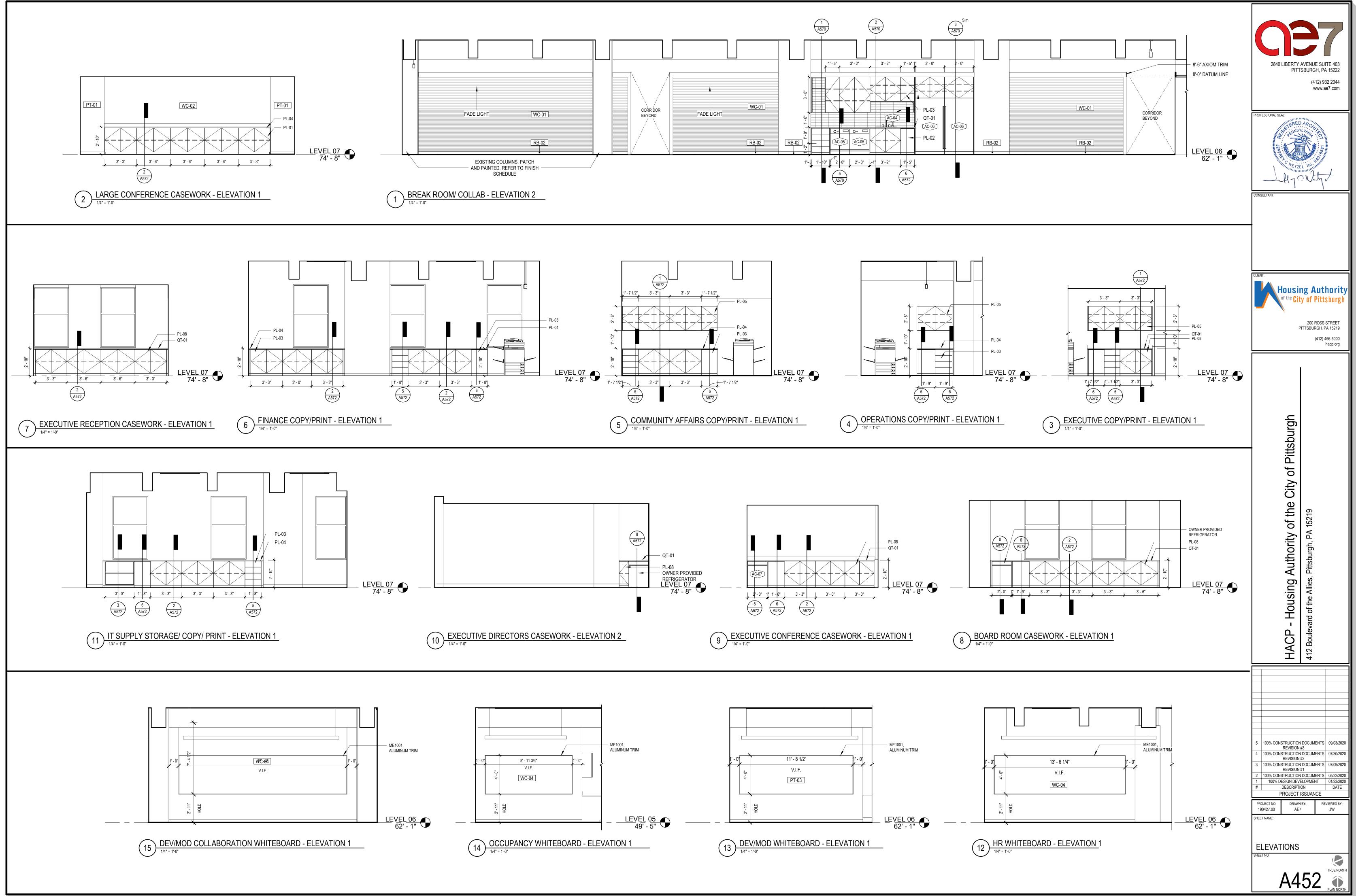


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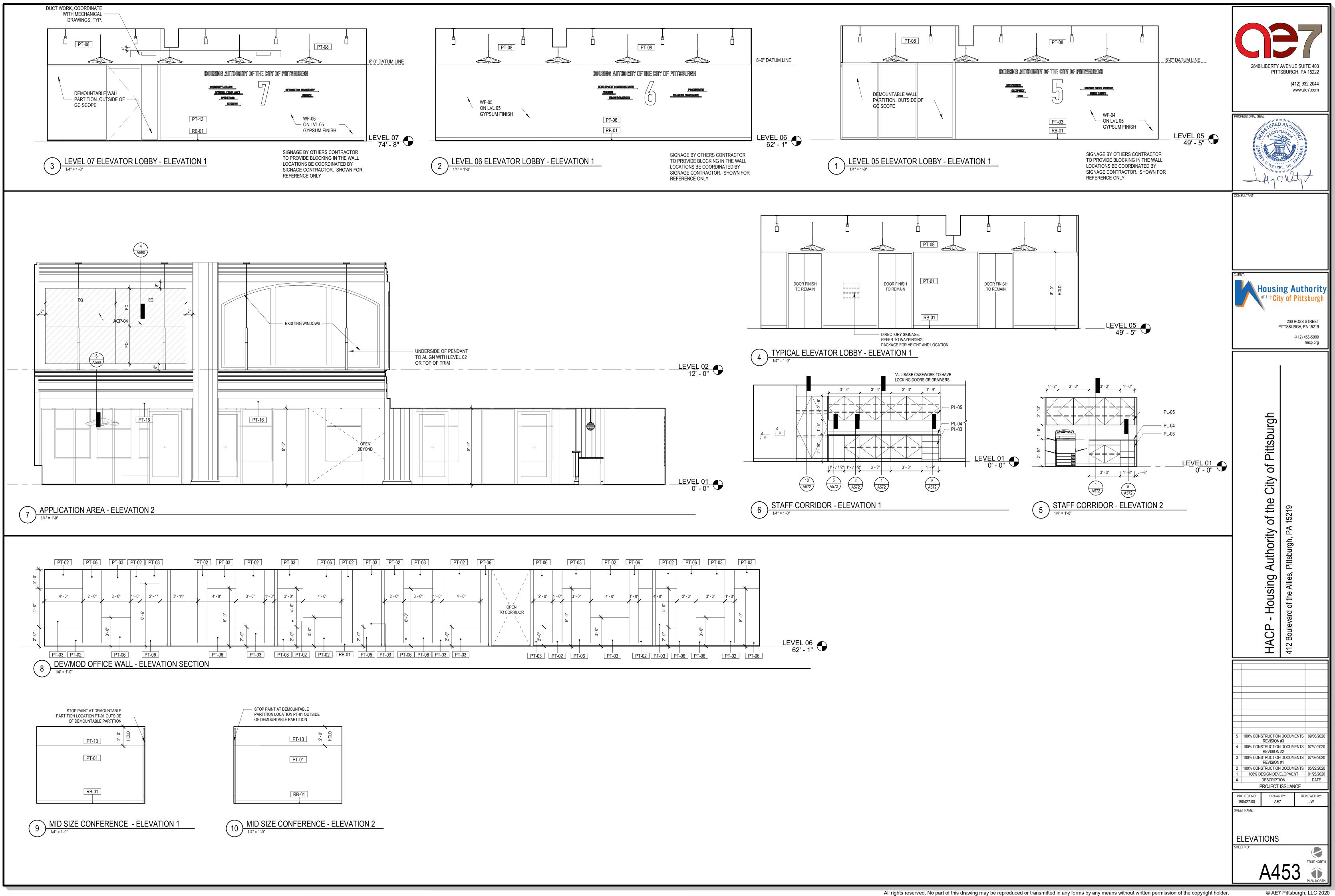


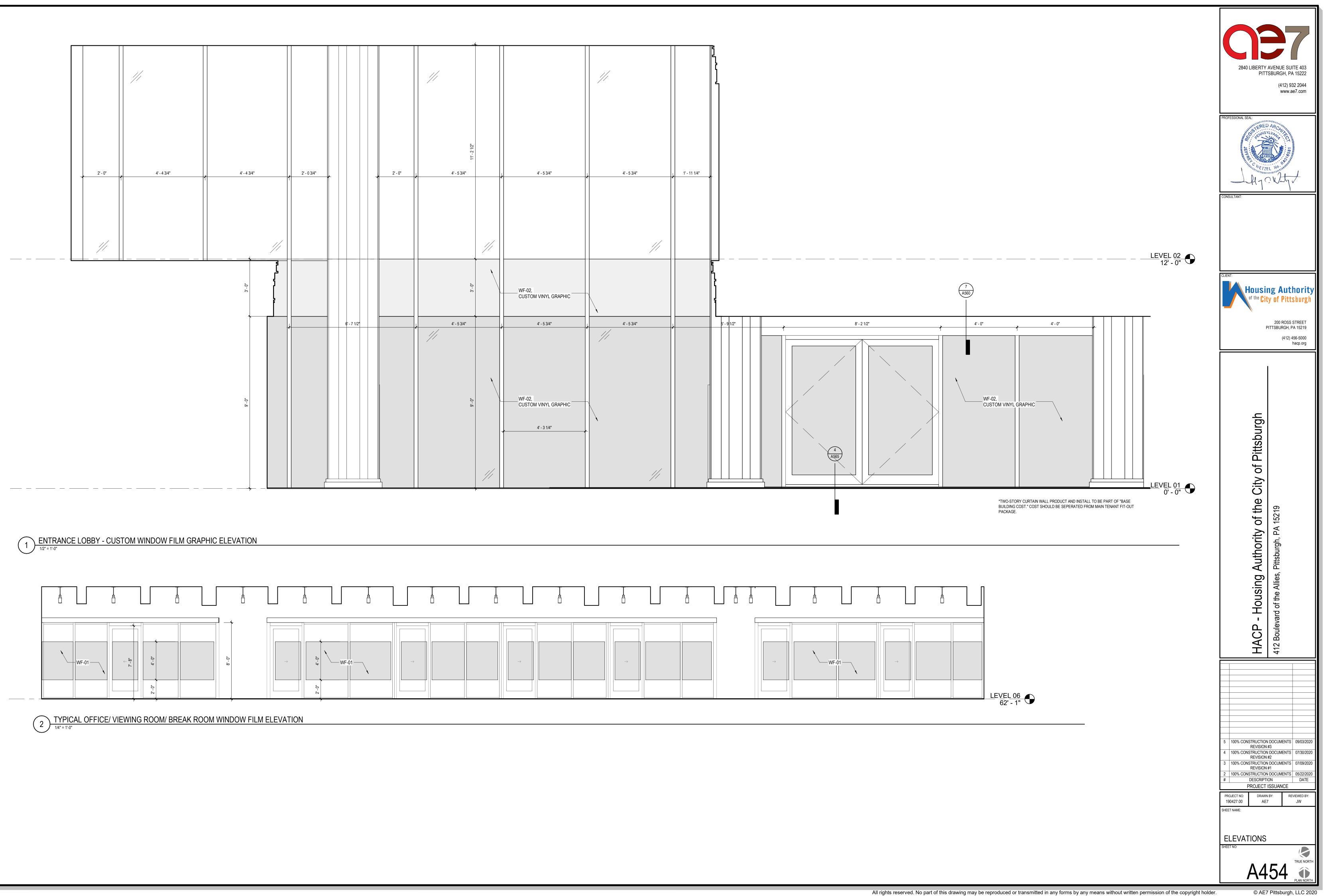
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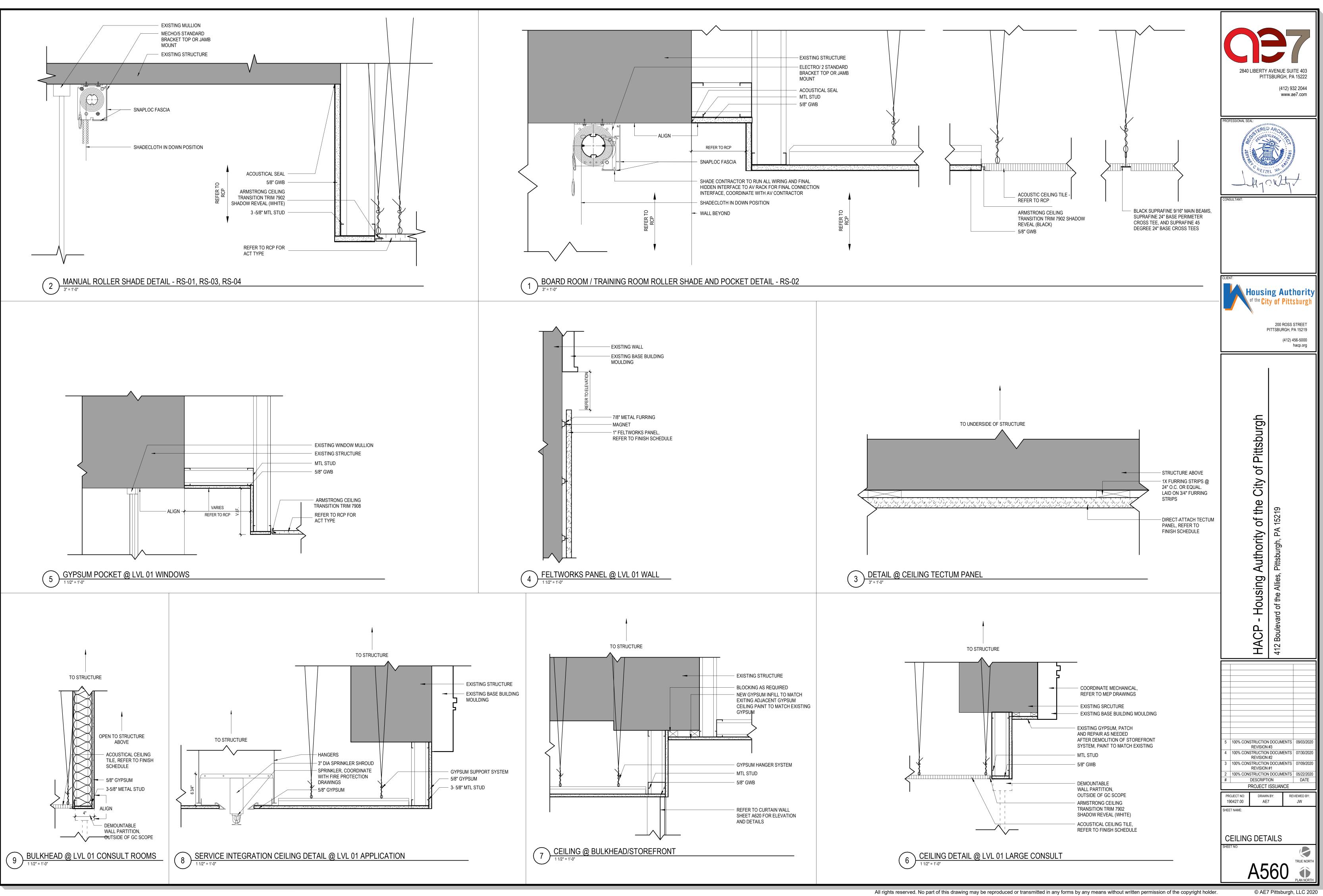
[©] AE7 Pittsburgh, LLC 2020



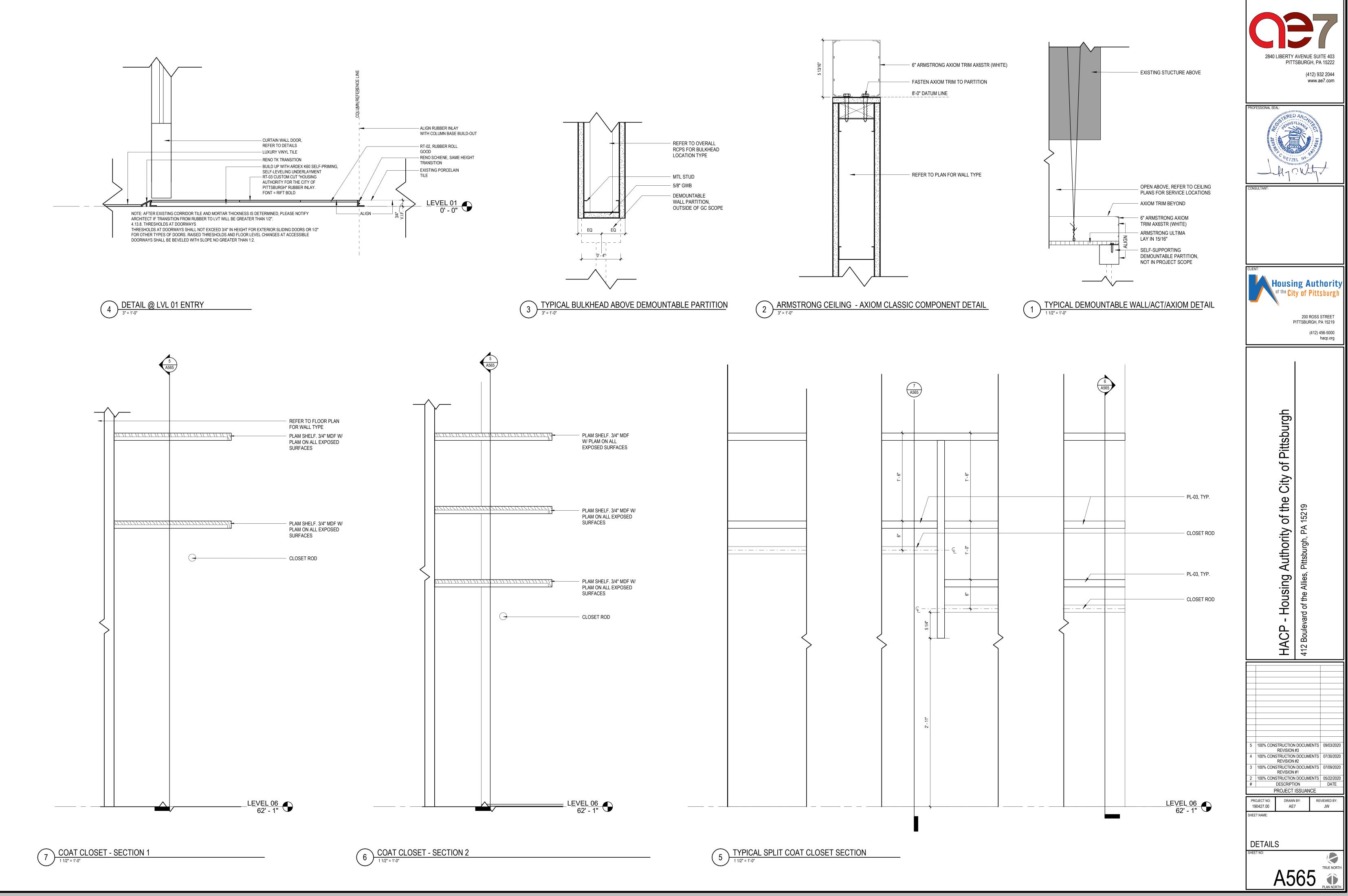
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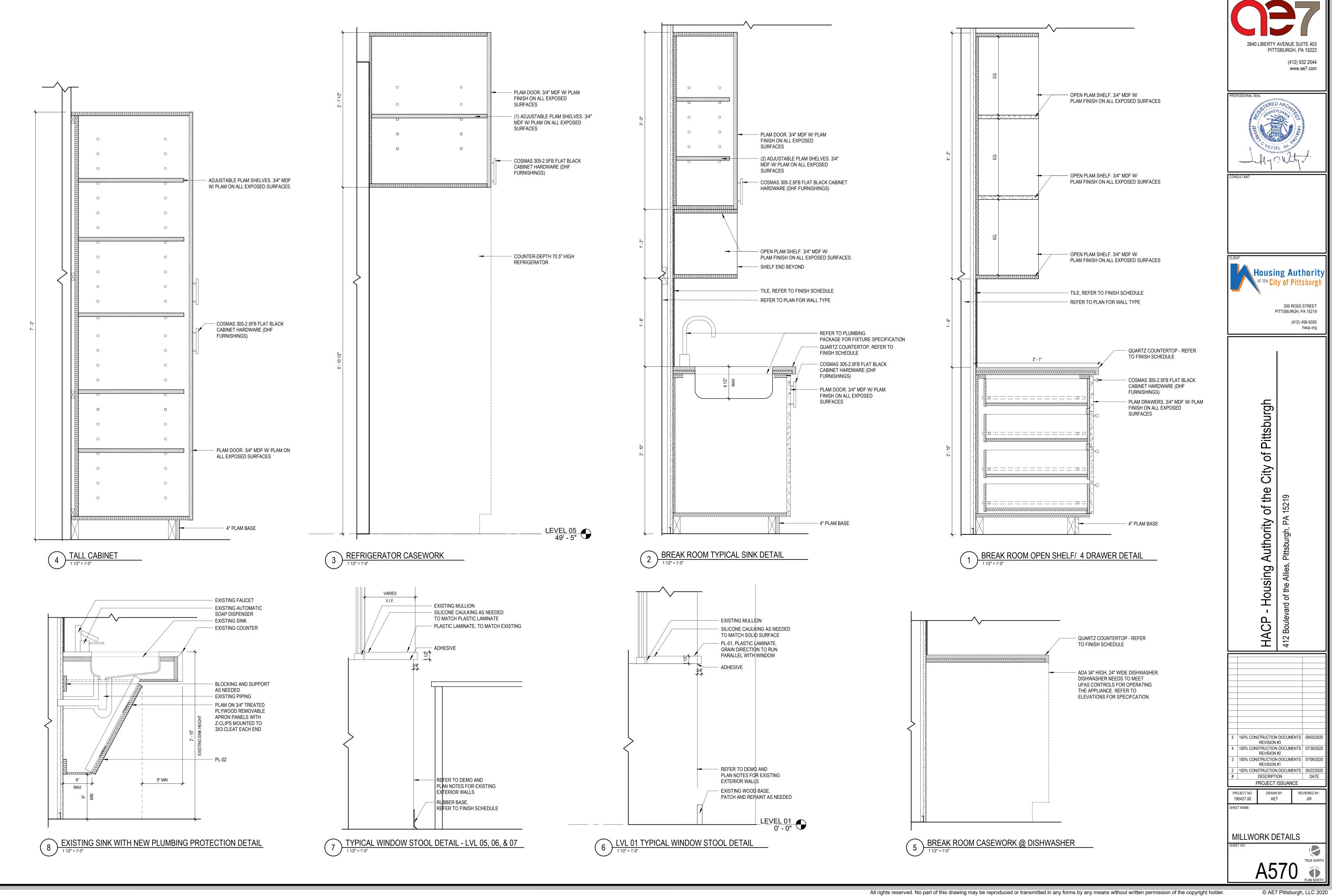


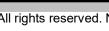


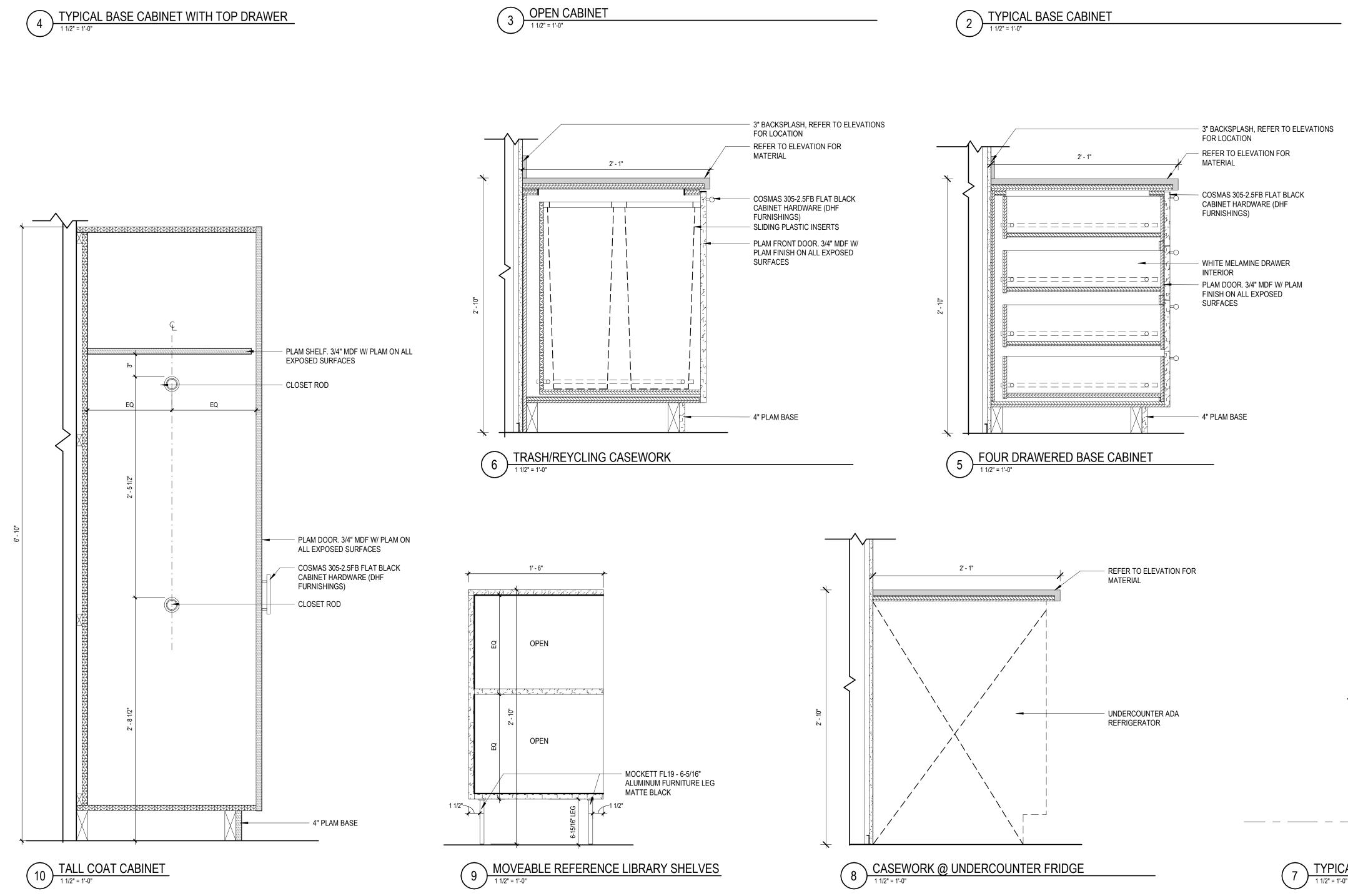
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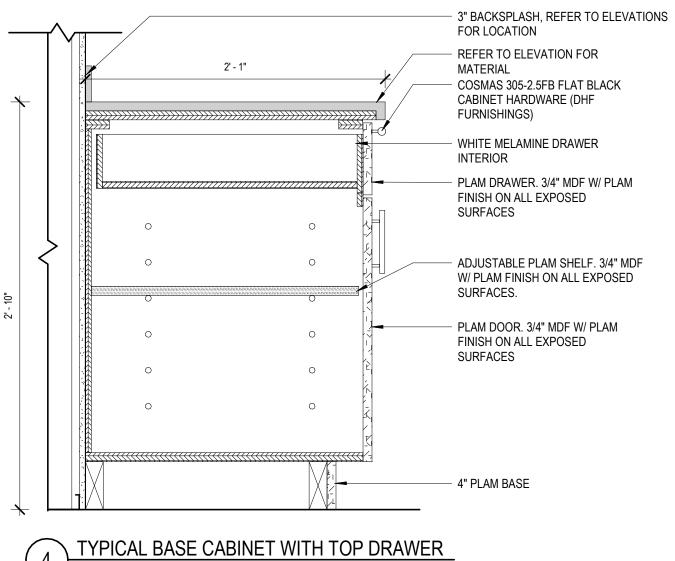


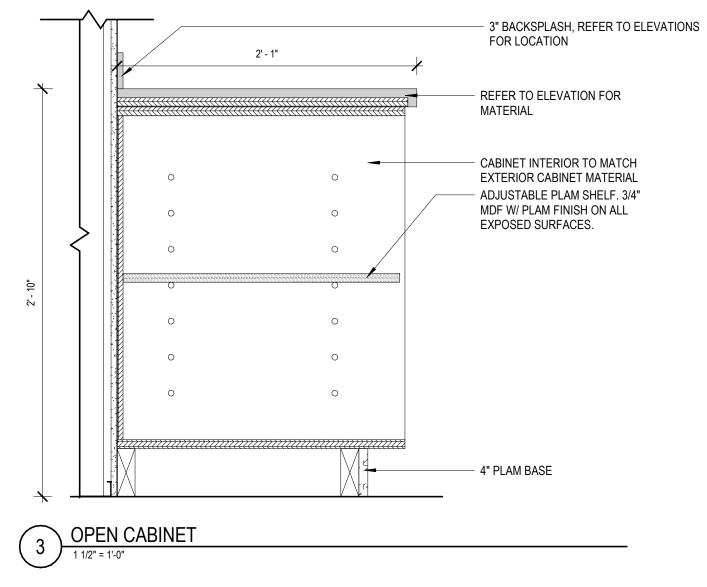
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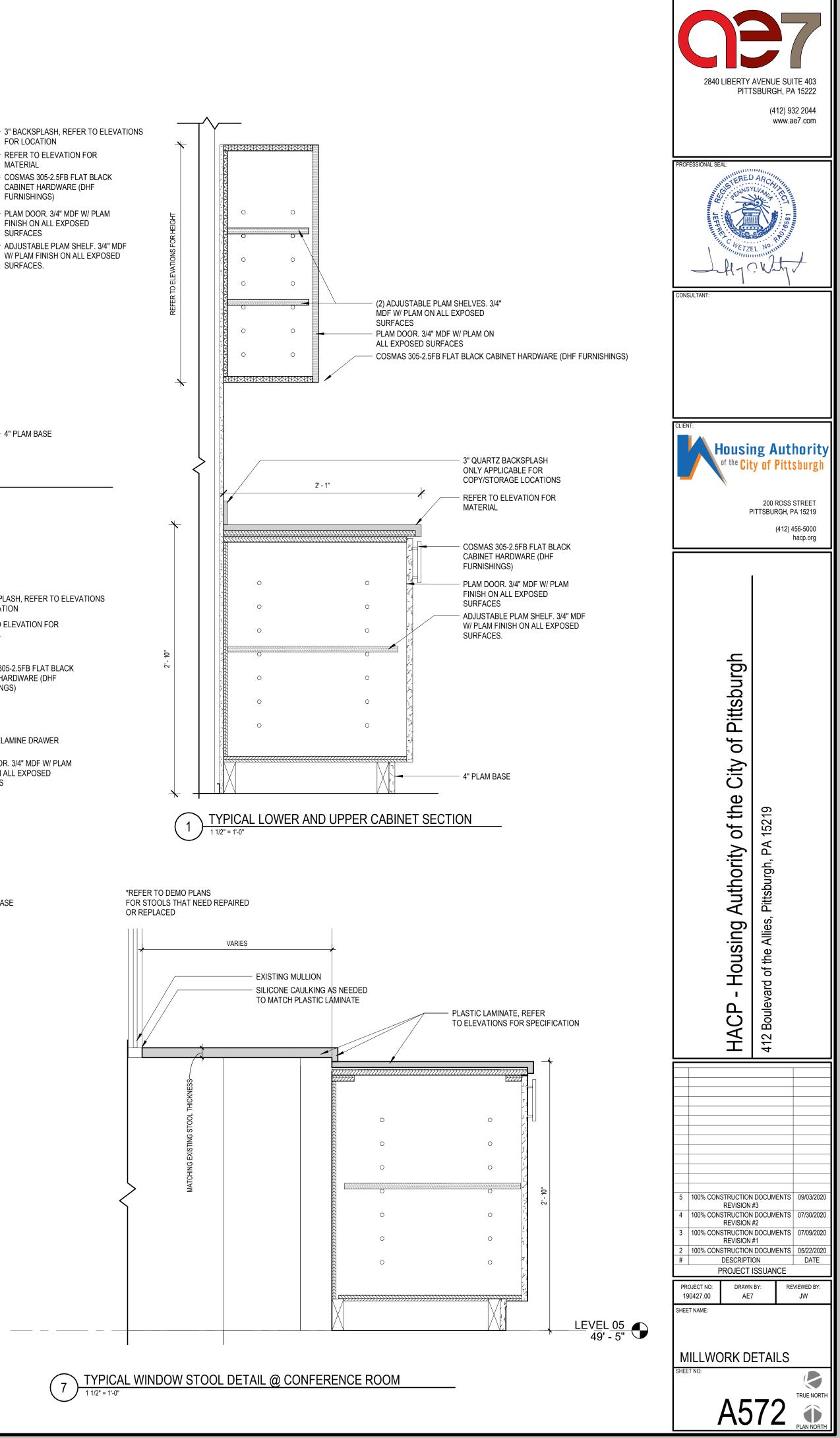


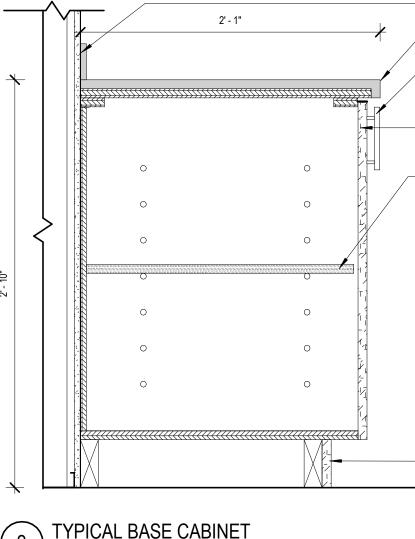


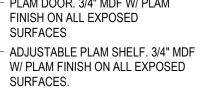












PLAM DOOR. 3/4" MDF W/ PLAM

FURNISHINGS)

CABINET HARDWARE (DHF

- COSMAS 305-2.5FB FLAT BLACK

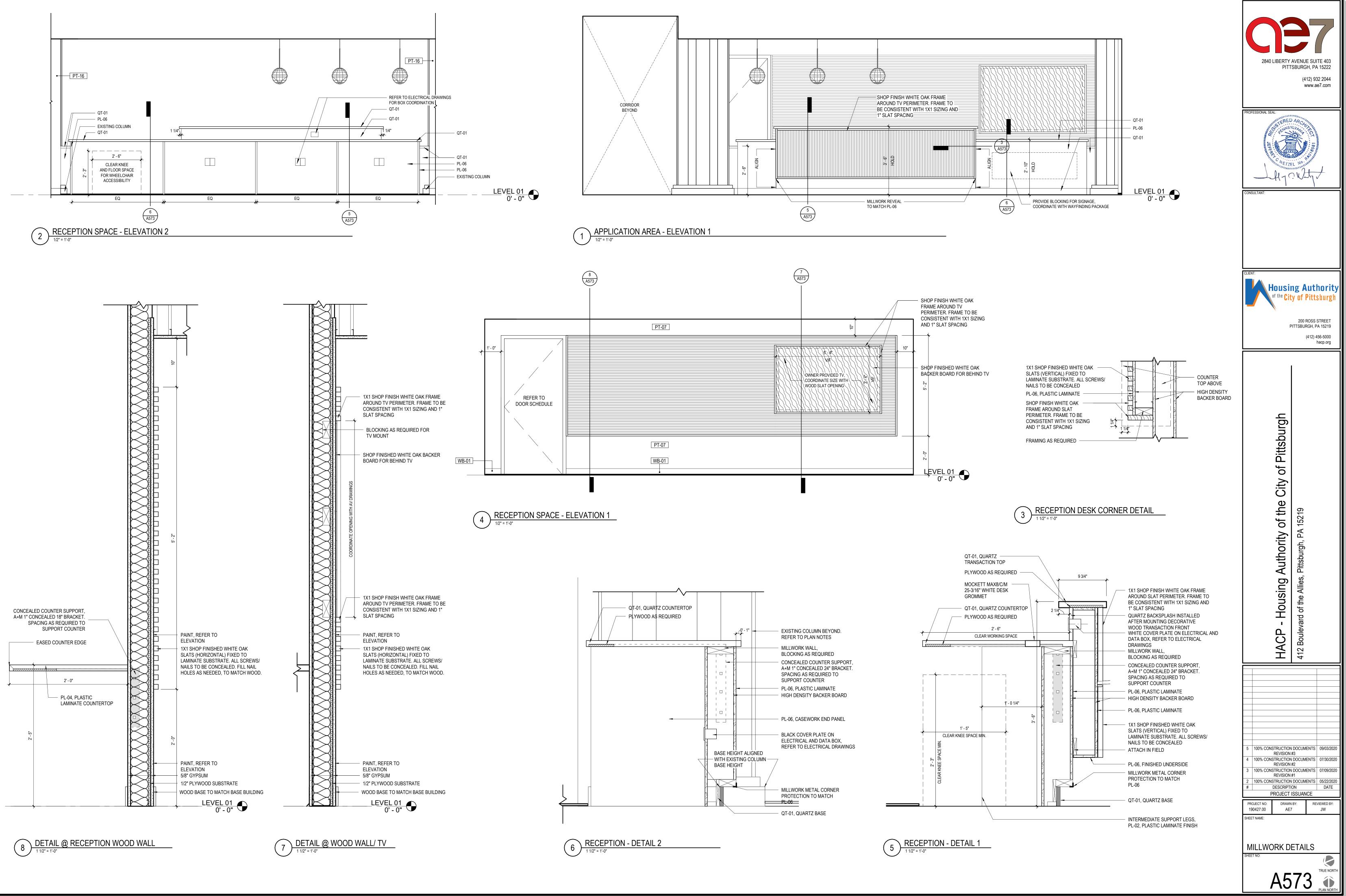
- REFER TO ELEVATION FOR

MATERIAL

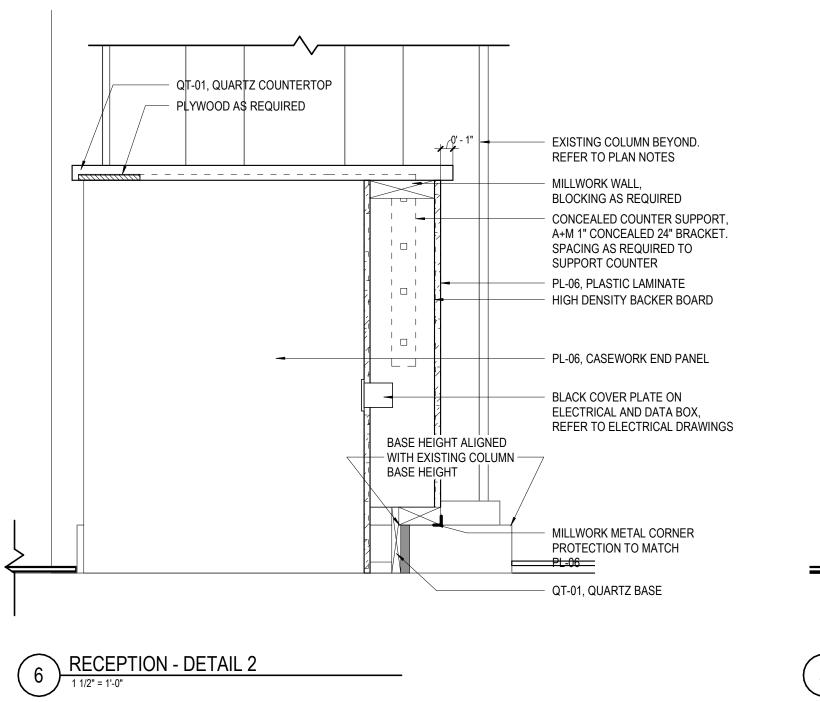
FOR LOCATION

- 4" PLAM BASE

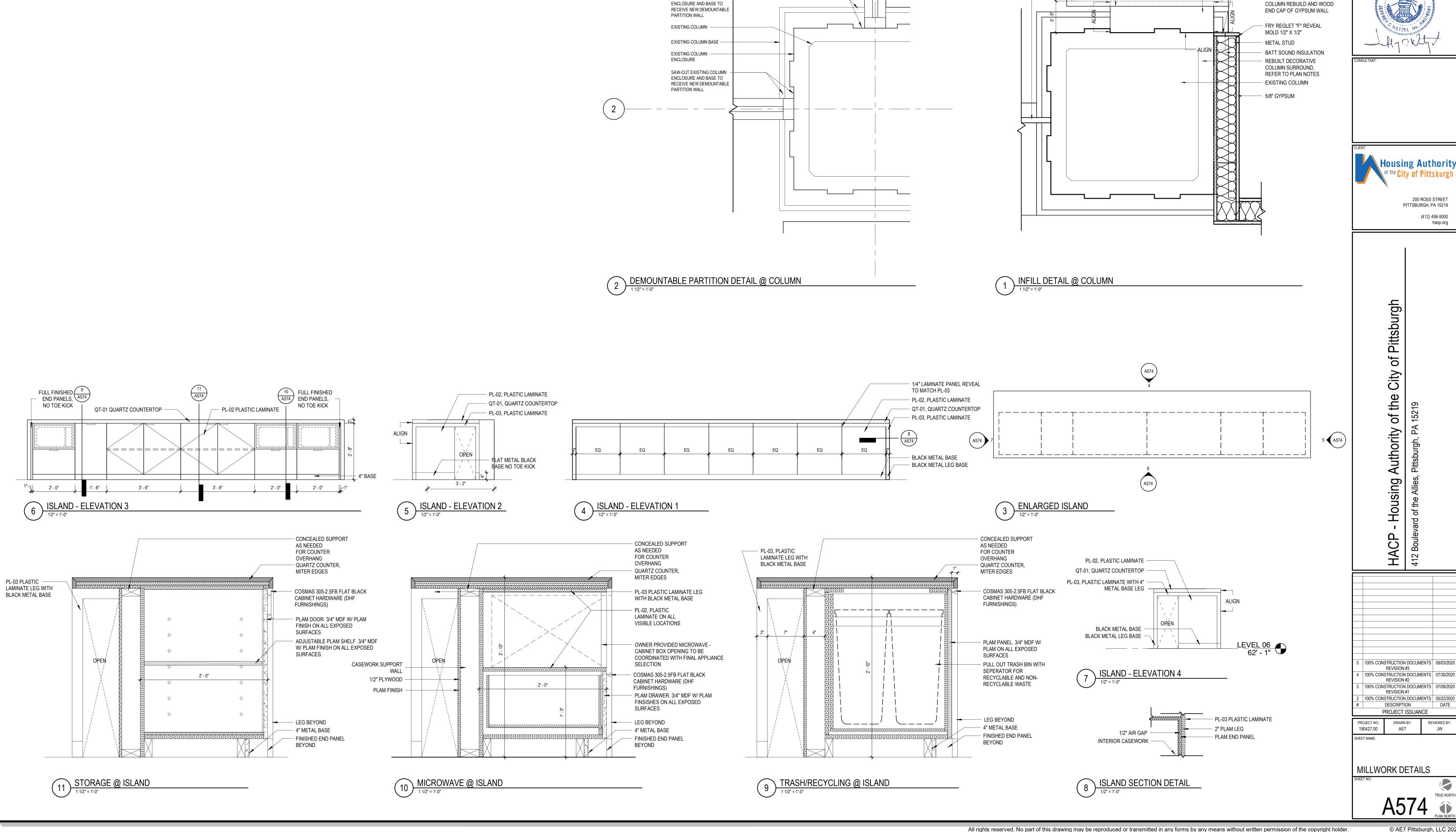
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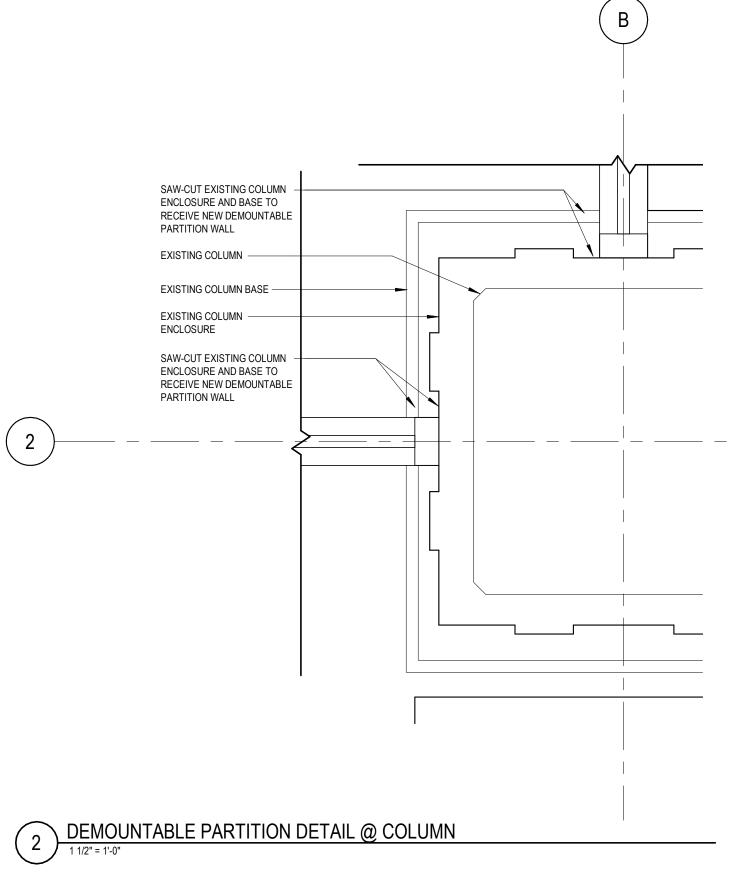






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2840 LIBERTY AVENUE SUITE 403

FREDA

PROFESSIONAL SEAL:

PITTSBURGH, PA 15222

(412) 932 2044

www.ae7.com

REFER TO CURTAIN WALL

1" QUARTZ OVERHANG

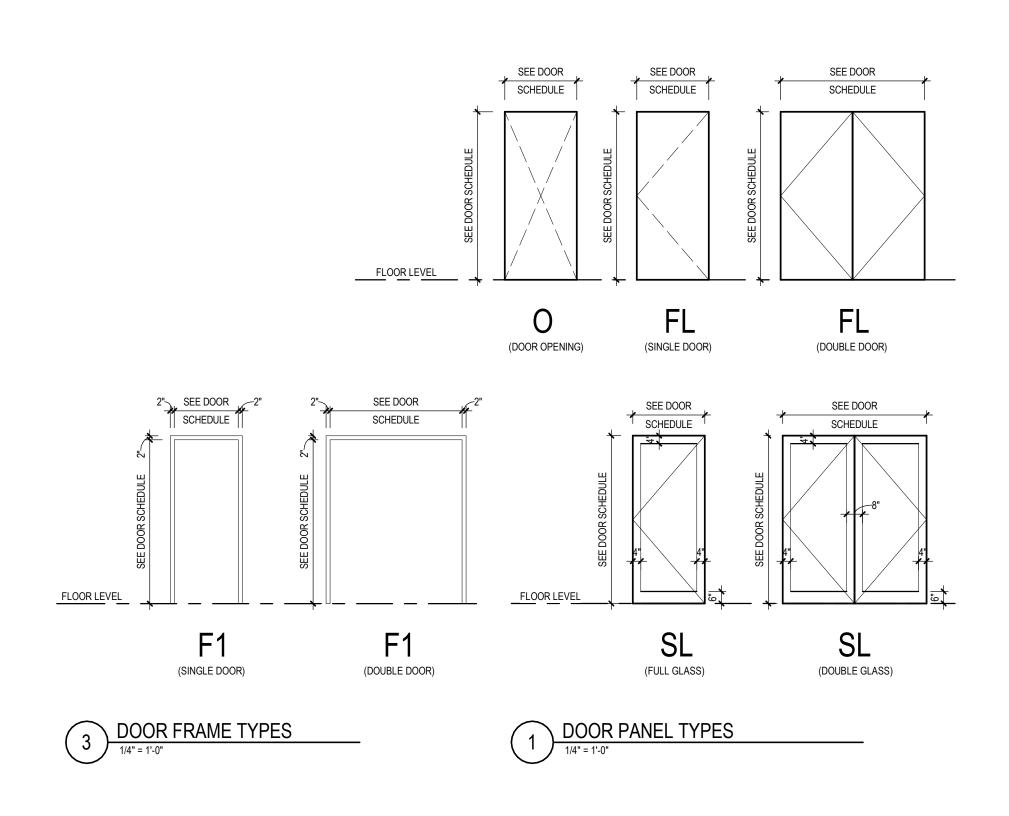
AT QUARTZ INFILL DETAIL

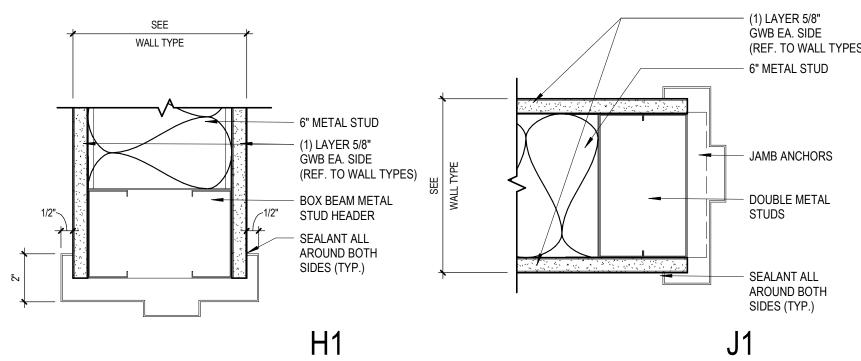
- QT-01, QUARTZ INFILL CUT AROUND COLUMN

> - WOOD PAINTED TO MATCH COLUMN. SEAMLESS

TRANSITION BETWEEN

DETAILS





4 DOOR FRAME @ GWB PARTITION

5/8" GWB ON 3 5/8" MTL STUD F

BLOCKING AS RE

GLAZING SYSTEM 4" TAPERED GLAZING RAIL, TO DOOR RAILS. REFER TO SPECIFIC

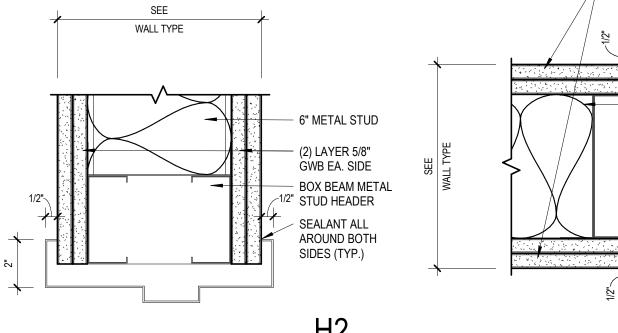
SEE DOOR SC FOR DOO

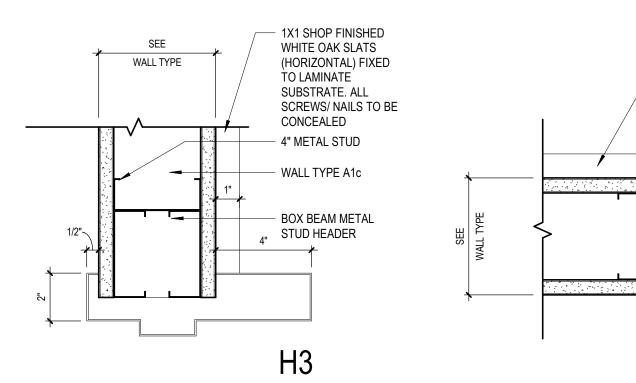
UL LEVEL 3 BULLET-RE

4" TAPERED GLAZING RAIL, TO MATCH -DOOR RAILS. REFER TO SPECIFICATIONS.

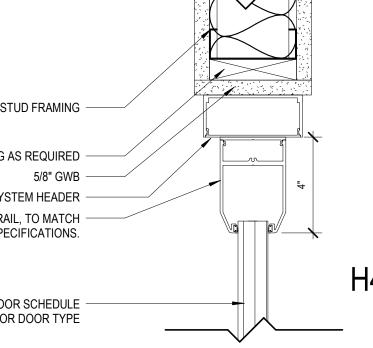


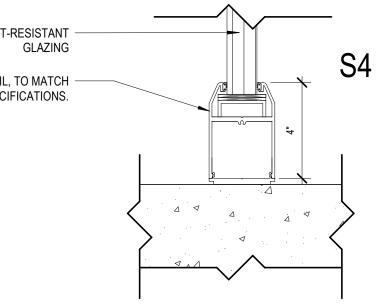
				DOOF	35		DOOF			FRAMES			ETAILS	3					
-			SIZE												HARDW				
DOR /IBER	PANEL ² WIDTH	1 PANEL 2 WIDTH		PANEL THICKNESS	PANEL 1 TYPE	PANEL 2 TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINIS H	HEAD	JAMB	SILL	ARE SET	FIRE RATING	ACOUSTIC RATING	REMARKS	2840 LIBERTY AVE PITTSBL
01-01 01-02	4' - 0" 3' - 0"	4' - 0"	7' - 7" 7' - 0"	2"	FL FL	FL	ALUM EXIST	PNT PNT	A454 F1	ALUM EXIST	 PNT	H4 H1	J1	S4	1				
01-02A 01-02E	3' - 0" 3' - 2"		7' - 0" 0' - 1"	2" 2"	SL NA		WD	PNT	F1	HM	PNT	H3	J3		1				PROFESSIONAL SEAL:
01-03 01-04 01-05	3' - 0" 3' - 0" 2' - 6"	2' - 6"	7' - 0" 7' - 0" 7' - 0"	2" 2" 2"	FL FL FL	 FL	EXIST EXIST HM	PNT PNT PNT	F1 F1 F1	EXIST EXIST ALUM	PNT PNT	H1 H1 H4	J1 J1	S4	8			EXTERIOR	ERED AA
01-09A 01-09B	3' - 0" 3' - 0"	2 - 0	7' - 0" 7' - 0" 7' - 0"	2" 2" 2"	SL SL		HM HM	PNT PNT	F1 F1	HM	PNT PNT	H1 H1	J1 J1		2 2				
01-10 01-10R	3' - 0" 3' - 0"	3' - 0"	7' - 0" 7' - 0"	2" 1 3/4" 2"	FL FL	 FL	EXIST EXIST	PNT PNT	F1 F1	EXIST EXIST	PNT PNT	H1 H1	J1 J1		1				THE WETZEL
05-01 05-02 05-02A	3' - 0" 3' - 0" 3' - 0"		7' - 0" 7' - 0" 7' - 0"	2" 2" 2"	FL FL FL		HM EXIST EXIST	PNT PNT PNT	F1 F1 F1	HM EXIST EXIST	PNT PNT PNT	H2 H1 H1	J2 J1 J1		4	90 MIN			
05-03 05-04	3' - 0" 3' - 0"		7' - 0" 7' - 0"	2" 2"	FL FL		EXIST EXIST	PNT PNT	F1 F1	EXIST EXIST	PNT PNT	H1 H1	J1 J1						L CONSULTANT:
05-05 05-21 05-21B	3' - 0" 3' - 0" 3' - 0"		7' - 0" 7' - 0" 7' - 0"	2" 2" 2"	FL SL		EXIST HM HM	PNT PNT	F1 F1 F1	EXIST HM	PNT PNT PNT	H2 H1	J2 J1		1	90 MIN		1/2" UNDERCUT	
05-23			7' - 0" 7' - 0" 7' - 0"	2" 2"	FL SL FL		HM HM	PNT PNT PNT	F1 F1 F1	HM HM HM	PNT PNT PNT	H1 H1 H1	J1 J1 J1		1 1				
05-25R 06-01	3' - 0" 3' - 0"	3' - 0"	7' - 0" 7' - 0"	1 3/4" 2"	FL FL	FL 	EXIST EXIST	PNT PNT	F1 F1	EXIST EXIST	PNT PNT	H1 H2	J1 J2			90 MIN			
06-02 06-02A 06-03	3' - 0" 3' - 0" 3' - 0"		7' - 0" 7' - 0" 7' - 0"	2" 2" 2"	FL FL FL		EXIST EXIST EXIST	PNT PNT PNT	F1 F1 F1	EXIST EXIST EXIST	PNT PNT PNT	H1 H1 H1	J1 J1 J1						
06-03	<u> </u>		7' - 0" 7' - 0" 7' - 0"	2" 2"	FL FL	 	EXIST	PNT PNT PNT	F1 F1 F1	EXIST EXIST EXIST	PNT PNT PNT	H1 H2	J1 J2			90 MIN			CLIENT:
06-13 06-28	3' - 0" 3' - 0"	3' - 0"	7' - 0" 7' - 0"	1 3/4" 2"	FL FL	FL 	HM HM	PNT PNT	F1 F1	HM HM	PNT PNT	H1 H1	J1 J1		7 1				Housing
06-28R 07-01 07-02	3' - 0" 3' - 0" 3' - 0"	3' - 0"	7' - 0" 7' - 0" 7' - 0"	1 3/4" 2" 2"	FL FL Fl	FL 	EXIST EXIST EXIST	PNT PNT PNT	F1 F1 F1	EXIST EXIST EXIST	PNT PNT PNT	H1 H2 H1	J1 J2 J1		3	90 MIN			
07-02A 07-03	3' - 0" 3' - 0"		7' - 0" 7' - 0"	2"	FL FL		EXIST	PNT PNT	F1 F1	EXIST EXIST	PNT PNT	H1 H1	J1 J1						PITTS
07-04 07-05 07-18	3' - 0" 3' - 0" 3' - 0"		7' - 0" 7' - 0" 7' - 0"	2" 2" 2"	FL FL		EXIST EXIST	PNT PNT PNT	F1 F1	EXIST EXIST	PNT PNT PNT	H1 H2	J1 J2			90 MIN			
07-27 07-27R	3' - 0" 3' - 0"	3' - 0"	7' - 0" 7' - 0"	2" 1 3/4"	SL FL FL	 FL	HM HM EXIST	PNT PNT	F1 F1 F1	HM HM EXIST	PNT	H1 H1 H1	J1 J1 J1		1				
		(Ri	VB EA. SIDE EF. TO WALL TYPES METAL STUD MB ANCHORS OUBLE METAL UDS ALANT ALL OUND BOTH DES (TYP.)	·		WALL TYPE		6" METAL STUD (2) LAYER 5/8" GWB EA. SIDE BOX BEAM MET STUD HEADER SEALANT ALL AROUND BOTH SIDES (TYP.) H2	SEE				SI 6" Di Si	ROUND BOT DES (TYP.) METAL STU OUBLE MET TUDS	JD -AL	<u>IV. KEYING</u> FALCON: 6 F V. <u>HARDWARE</u> <u>SET #1</u>	HAGER ATCHSETS FALCON ES FALCON HAGER IS HAGER TOP ABH RIKES H.E.S N CHROME); US32D (SATIN IN, INTERCHANGEABLE CO SETS HINGES BB1279 4.5" 4.5" 2 STOREROOM LOCKSET BS CLOSER 5200-AL KICK PLATE 8" X 34" X .050 WALL STOP 236W 32D ELECTRIC STRIKE 5200C-6	26D 581BD-D-626 0 X 32D	uthority of the City of Pittsburgh
		<u> </u>		(5	3" = 1'-0"		R GWB PARTI								_		HINGES BB1279 4.5" 4.5" 2 PANIC DEVICE 25-R-510L-{ CYLINDER, INT, CORE		Auth
						SEE WALL TYPE	WHITE (HORIZ TO LAN SUBST SCREW CONCE 4" MET	RATE. ALL /S/ NAILS TO BE ALED AL STUD TYPE A1c					WHIT (HOF TO L SUBS SCRI CON SE AF	SHOP FINISI TE OAK SLA RIZONTAL) F AMINATE STRATE. ALI EWS/ NAILS CEALED EALANT ALL ROUND BOT DES (TYP.) METAL STU	TS FIXED L TO BE	<u>SET #3</u>	CLOSER 5200-AL KICK PLATE 8" X 34" X .050 ELECTRIC STRIKE 5200C-6 CARD READER, POWER, CC BHINGES BB1279 4.5" 4.5" 2 STOREROOM LOCKSET BS KICK PLATE 8" X 34" X .050 WALL STOP 236W 32D ELECTRIC HINGE BB1279 1 ELECTRIC TRIM PANIC DE CLOSER 5200-AL KICK PLATE 8" X 34" X .050 WALL STOP 236W 32D POWER SUPPLY PS902	630 ONTROLS BY SECURITY VENDOR) 26D 581BD-D-262 1 CLOSER 5200-AL 0 X 32D 26D ETW-8 4.5" 4.5" 26D EVW-8 4.5" 4.5" 26D EVICE FSA-F-25-R-510NL-630 (FAIL SAFE) 1 CYLIN	HACP - Housing
			H4		1/2" +		BOX BE		SEE	WALL TYPE	ľ			MB ANCHO			HINGES BB1279 4.5" 4.5" 2 STOREROOM LOCKSET B	26D 581BD-D-626 1 OVERHEAD STOP 4423 32D	
			-						د					OUBLE MET. IUDS	AL			-D-626 I WALL STOP 236W 32D	
		Y										L					CLASSROOM LOCKSET B5 FLUSH BOLTS 282D 26D	561BD-D-626	
			H4					EAM METAL IEADER	SEE .	MALL	*** <u>*</u> ***********			MB ANCHO	RS	<u>SET #6</u>	STOREROOM LOCKSET B HINGES BB1279 4.5" 2 ENTRY LOCKSET B511BD- HINGES BB1279 4.5" 4.5" 2 CLASSROOM LOCKSET B5	581BD-D-626 1 OVERHEAD STOP 4423 32D 26D -D-626 I WALL STOP 236W 32D 26D 561BD-D-626 X 26D	











	HACP - Housing	412 Boulevard of the Allies	
	TRUCTION	I DOCUMENTS #3	09/03/2020
100% CONS		DOCUMENTS	07/30/2020
100% CONS	TRUCTION	DOCUMENTS	07/09/2020
	REVISION TRUCTION	#1 I DOCUMENTS	05/22/2020
	ESCRIPTI		DATE
		ISSUANCE	
OJECT NO: 90427.00	DRAWN Autho		VIEWED BY: Checker
ET NAME:		Į	
OOR T	YPES	, DETAI	LS &
CHEDU		,	
ET NO:			
			TRUE NORTH
	2 A	00	
/			PLAN NORTH
	@ 4E7	' Pittsburgh	

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PANEL.

SET #9 1 STOREROOM LOCKSET B581BD-D-626 1 ELECTRIC STRIKE 5200C-630

7. COORDINATE ALL KEYING WITH HACP LOCKSMITH.

DOOR NOTES

(BALANCE OF HARDWARE EXISTING)

SET #10 1 STOREROOM LOCKSET B581BD-D-626 (BALANCE OF HARDWARE EXISTING)

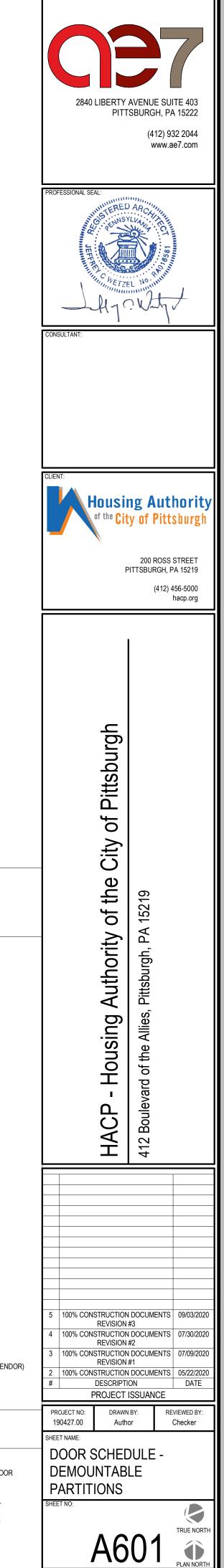
1. REFER TO FLOOR PLANS FOR DIRECTION OF SLIDE, SWING, AND HAND OF EACH DOOR

2. REFER TO SCHEDULE FOR DESCRIPTION OF HARDWARE SET 3. PROVIDE RESILIENT SILENCERS AT HOLLOW METAL FRAMES - 3 PER DOOR PANEL.

A. PROVIDE RESILIENT SILENCERS AT HOLLOW INE FACT NAMES - STEEN BOOKT AND L.
 PROVIDE BLOCKING AS REQUIRED.
 DIMENSIONS AT EXISTING OPENINGS REQUIRE FIELD VERIFICATION PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS.
 ALL DOORS WILL RECEIVE NEW FALCON LOCKSETS, LATCHSETS.
 COORDINATE ALL REVEIVE WITH HARD LOCKSMITH

SET #11 1 OFFICE LOCKSET B511BD-D-626 (BALANCE OF HARDWARE EXISTING)

							DOOR SCH	EDULE				
				DOOR	S			FRAMES D	ETAILS	5		
			SIZE								HARDW	
wt	PANEL 1 WIDTH	PANEL 2 WIDTH	PANEL HEIGHT	PANEL THICKNESS		PANEL 2 TYPE		MATERIAL FINISH HEAD		SILI	ARE SET	REMARKS
ννι	VIDIII	VIDIII		THORAEOO						OILL		
D1-03 D1-04			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D1-06	6 3' - 4"		7' - 8"	1 3/4"	NA						D3 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D1-07 D1-08			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-01A	3' - 2"		7' - 7"	2"	NA						D6 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-01B D5-02A			7' - 7" 7' - 8"	2" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-02B D5-03			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-05	5 3' - 4"		7' - 8"	1 3/4"	NA						D3 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-05A D5-05B			7' - 7" 7' - 7"	2"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-06	6 3' - 4"		7' - 8"	1 3/4"	NA						D3 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-10A D5-10B			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-10C	3' - 4"		7' - 8"	1 3/4"	NA						D2 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-10D D5-10E			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-11		3' - 4"	7' - 8"	1 3/4"	NA	NA						
D5-12 D5-13	3 3' - 4"		7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA						D3 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-14B D5-14C			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-15A	3' - 4"		7' - 7"	2"	NA	NA					D4 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-18 D5-19			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-20) 3' - 4"		7' - 8"	1 3/4"	NA						D2 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D5-22 D5-24			7' - 8" 7' - 8"	1 3/4" 2"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-01A	3' - 4"		7' - 7"	2"	NA						D6 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-01B D6-02			7' - 7" 7' - 8"	2" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-03	3' - 4"		7' - 10"	2"	NA	NA					D5 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-04 D6-06			7' - 10" 7' - 8"	1 3/4"	NA NA	NA						R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-07 D6-08			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-09			7 - 0 7' - 8"	1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-10 D6-12A			7' - 6" 7' - 8"	1 3/4" 1 3/4"	NA NA							TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-12A			7 - 8"	1 3/4"	NA							TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-12C D6-14			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-15	5 3' - 4"	3' - 4"	7' - 8"	1 3/4"	NA	NA					D1 REFER	TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-16 D6-16S		3' - 4"	7' - 8" 7' - 10"	1 3/4" 1 3/4"	NA F	F						R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-17A	3' - 4"		7' - 8"	1 3/4"	NA						D2 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-17B D6-17C			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-17D) 3' - 4"		7' - 8"	1 3/4"	NA						D2 REFER	TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-17E D6-17F			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-18	3' - 4"	01 41	7' - 7"	2"	NA	NA					D4 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-18A D6-18B		3' - 4" 3' - 4"	7' - 10" 7' - 10"	1 3/4" 1 3/4"	F F	F F						R TO DEMOUNTABLE PARTITION SHOP DRAWINGS R TO DEMOUNTABLE PARTITION SHOP DRAWINGS.1/2" UNDERCUT.
D6-21			7' - 8" 7' - 8"	1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-22 D6-23			7 - 8	1 3/4" 1 3/4"	NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-24			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D6-25 D6-26	6 3' - 4"		7' - 8"	1 3/4"	NA NA						D2 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-01A D7-01B			7' - 7" 7' - 7"	2"	NA NA							TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-02	2 3' - 4"		7' - 8"	1 3/4"	NA						D4 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-03 D7-04			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-05A	3' - 4"		7' - 7"	2"	NA						D4 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-05B D7-06			7' - 7" 7' - 8"	2" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-07	3' - 4"		7' - 8"	1 3/4"	NA						D4 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-08 D7-09			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-10) 3' - 4"		7' - 8"	2"	NA						D4 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-11A D7-11C			7' - 10" 7' - 8"	2" 1 3/4"	NA NA	NA						R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-11D) 3' - 4"		7' - 8"	1 3/4"	NA						D2 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-11E D7-11F			7' - 8" 7' - 8"	1 3/4" 2"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-11G	3' - 4"		7' - 8"	1 3/4"	NA						D2 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-11H D7-11J			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-13	3' - 4"		7' - 7"	2"	NA						D6 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-14A D7-14B			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-14C			7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA						D2 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-14D D7-15A			7' - 8" 7' - 8"	1 3/4" 2"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-15B D7-15S		3' - 4"	7' - 8" 7' - 10"	2" 1 3/4"	NA							TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-16	6 3' - 4"	J - 4	7' - 7"	2"	F NA						D4 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-16C D7-17			7' - 7" 7' - 8"	1 3/4" 1 3/4"	NA NA							TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-19) 3' - 4"		7' - 8"	2"	NA						D5 REFER	R TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-20 D7-21			7' - 8" 7' - 10"	2"	NA NA	NA						TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-23	3' - 4"		7' - 10"	2"	NA	NA NA					D5 REFER	TO DEMOUNTABLE PARTITION SHOP DRAWINGS
D7-24	3' - 4" 3' - 4"		7' - 8" 7' - 8"	1 3/4" 1 3/4"	NA NA							R TO DEMOUNTABLE PARTITION SHOP DRAWINGS

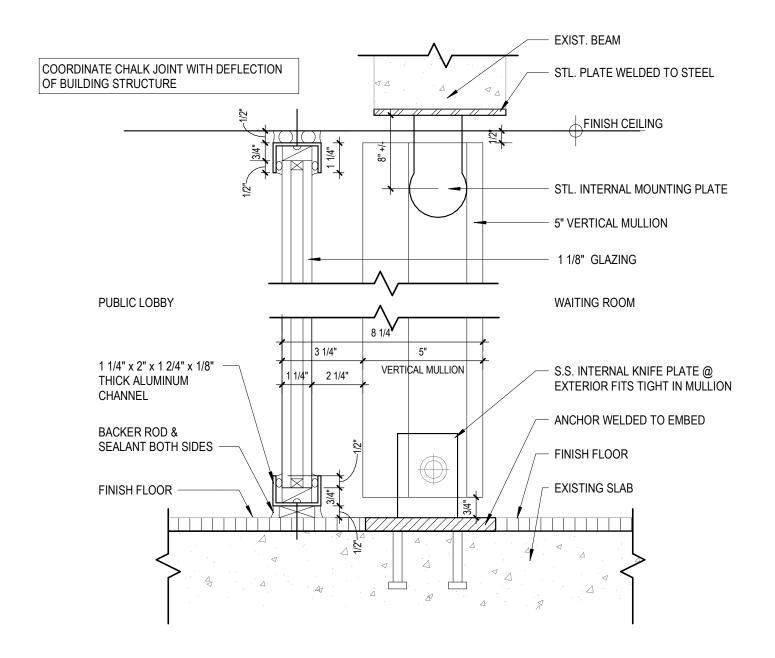


DEMOUNTABLE PARTITION DOOR HARDWARE SETS

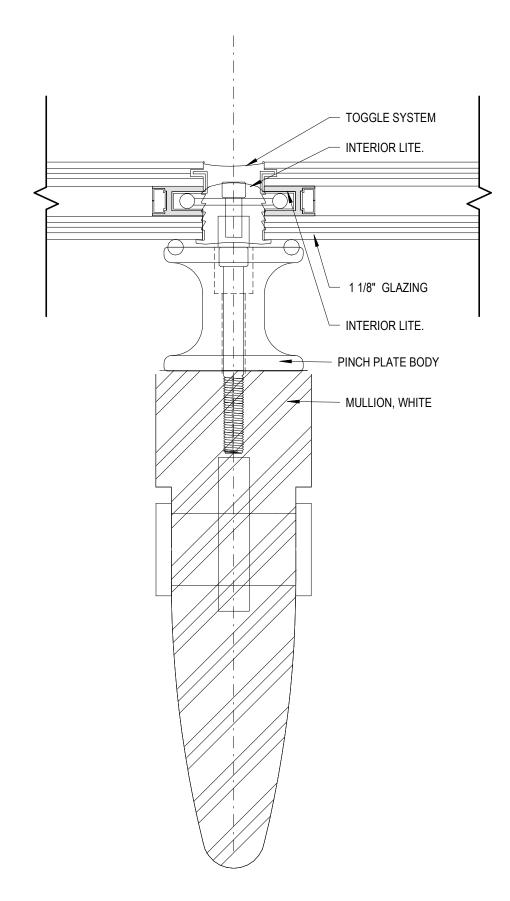
II. MANUFACTURERS	
HINGES LOCKSETS, LATCHSETS PANIC DEVICES CLOSERS STOPS, BOLTS OVERHEAD STOP ELECTRIC STRIKES	HAGER FALCON FALCON HAGER HAGER ABH H.E.S
III. FINISH	
630 FINISH	
IV. KEYING	
FALCON: 6 PIN, INTERCHAN	GEABLE CORES
V. HARDWARE SETS	
SET #D1 (DOUBLE SLIDER)	1 BLADE BACK TO BACK BAR PULL – 30" 1 DOUBLE BARN DOOR V4 TRACK 1 SOFT CLOSE
SET #D2 (LOCKING)	1 BLADE BACK TO BACK BAR PULL 630 FINISH – 30" 1 ADAMS LOCK 1 BARIVOT BARN DOOR SLIM TRACK 1 SOFT CLOSE
SET #D3 (NON-LOCKING)	1 BLADE BACK TO BACK BAR PULL 630 FINISH – 30" 1 BARIVOT BARN DOOR SLIM TRACK 1 SOFT CLOSE
SET #D4 (PIVOTING)	1 BLADE BACK TO BACK BAR PULL 630 FINISH – 30" 1 SOFT CLOSE
SET #D5 (PIVOTING, LOCKING)	1 BLADE BACK TO BACK BAR PULL 630 FINISH – 30" 1 SOFT CLOSE
SET #D6 (PIVOTING, CARD REA	ADER) 1 BLADE BACK TO BACK BAR PULL 630 FINISH – 30" 1 CLOSER 5200-AL 1 ELECTRIC STRIKE 5200C-630 (CARD READER, POWER, CONTROLS BY SECURITY VE
DOOR NO [.]	TES

1. REFER TO FLOOR PLANS FOR DIRECTION OF SLIDE, SWING, AND HAND OF EACH DOOR REFER TO FLOOR PLANS FOR DIRECTION OF SLIDE, SWING, AND HAND OF EACH DOOR PANEL.
 REFER TO SCHEDULE FOR DESCRIPTION OF HARDWARE SET
 PROVIDE RESILIENT SILENCERS AT HOLLOW METAL FRAMES - 3 PER DOOR PANEL.
 PROVIDE BLOCKING AS REQUIRED.
 DIMENSIONS AT EXISTING OPENINGS REQUIRE FIELD VERIFICATION PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS.
 ALL DOORS WILL RECEIVE NEW FALCON LOCKSETS, LATCHSETS.
 COORDINATE ALL KEYING WITH HACP LOCKSMITH.

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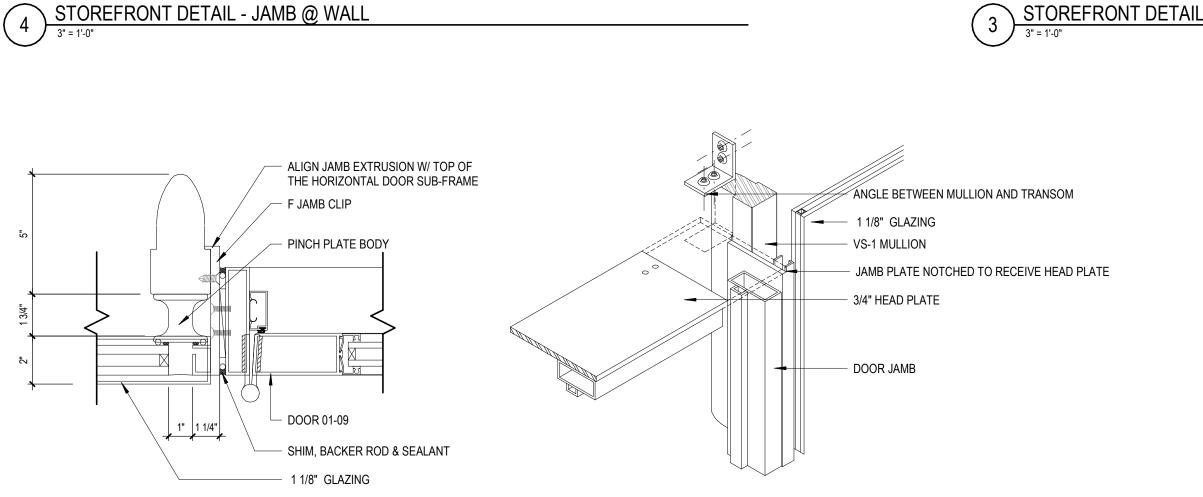


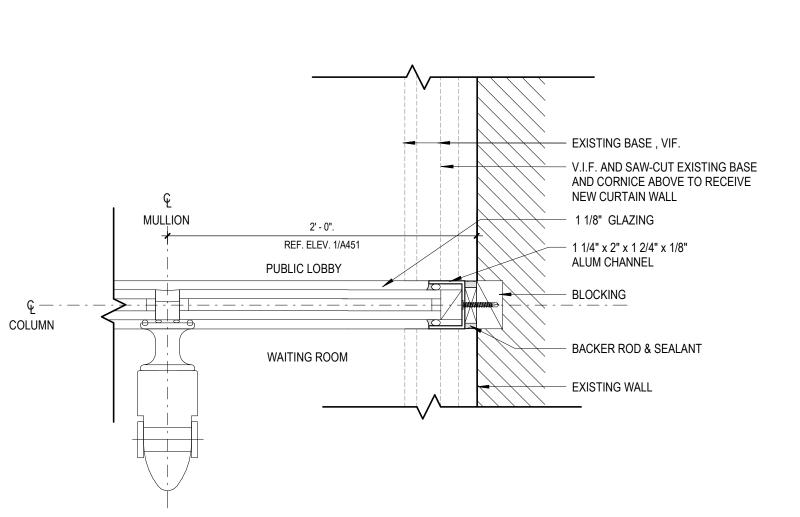
2 STOREFRONT DETAIL - HEAD & BASE

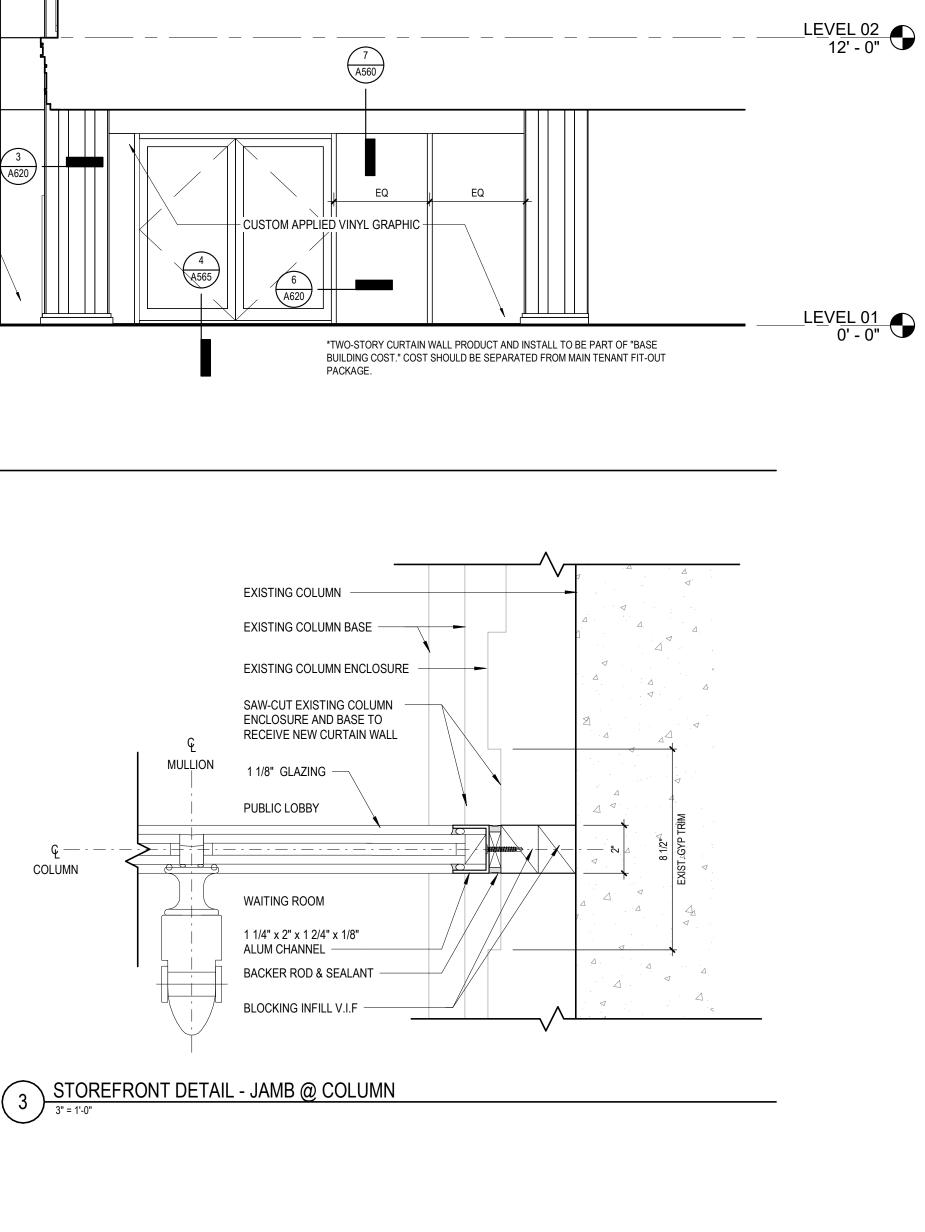


7 STOREFRONT DETAIL - MULLION

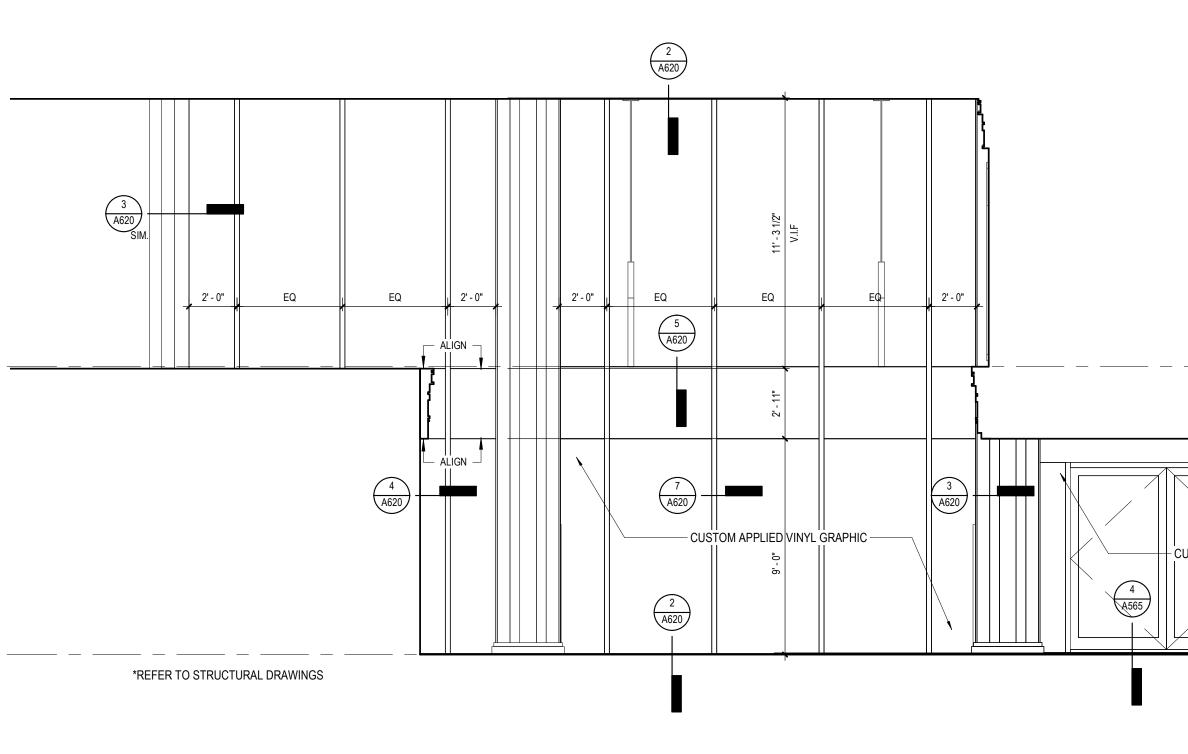


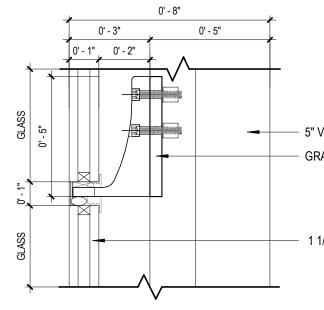






1/4" = 1'-0"



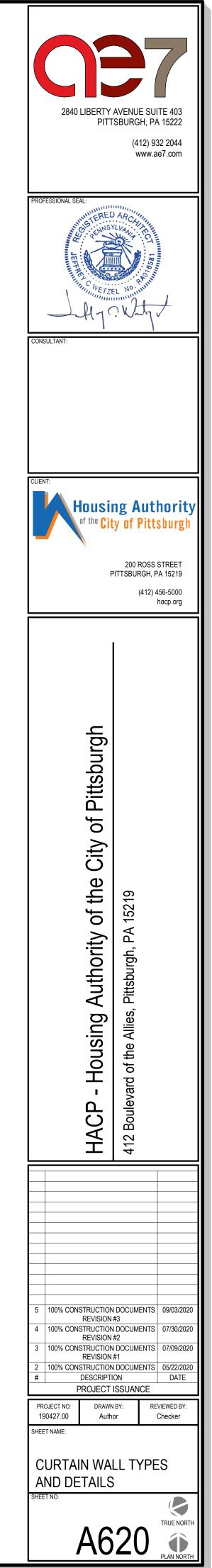


5" VERTICAL MULLION - GRAVITY SHELF

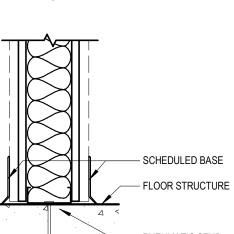
— 1 1/8" GLAZING

5 STOREFRONT DETAIL - GRAVITY FITTING

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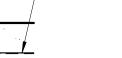


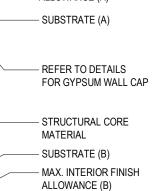
- STRUCTURAL CORE MATERIAL - SUBSTRATE (B) - MAX. INTERIOR FINISH ALLOWANCE (B)



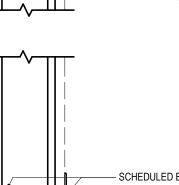
ANCHOR





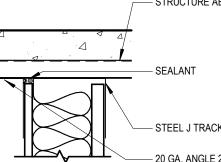


ALLOWANCE (B)

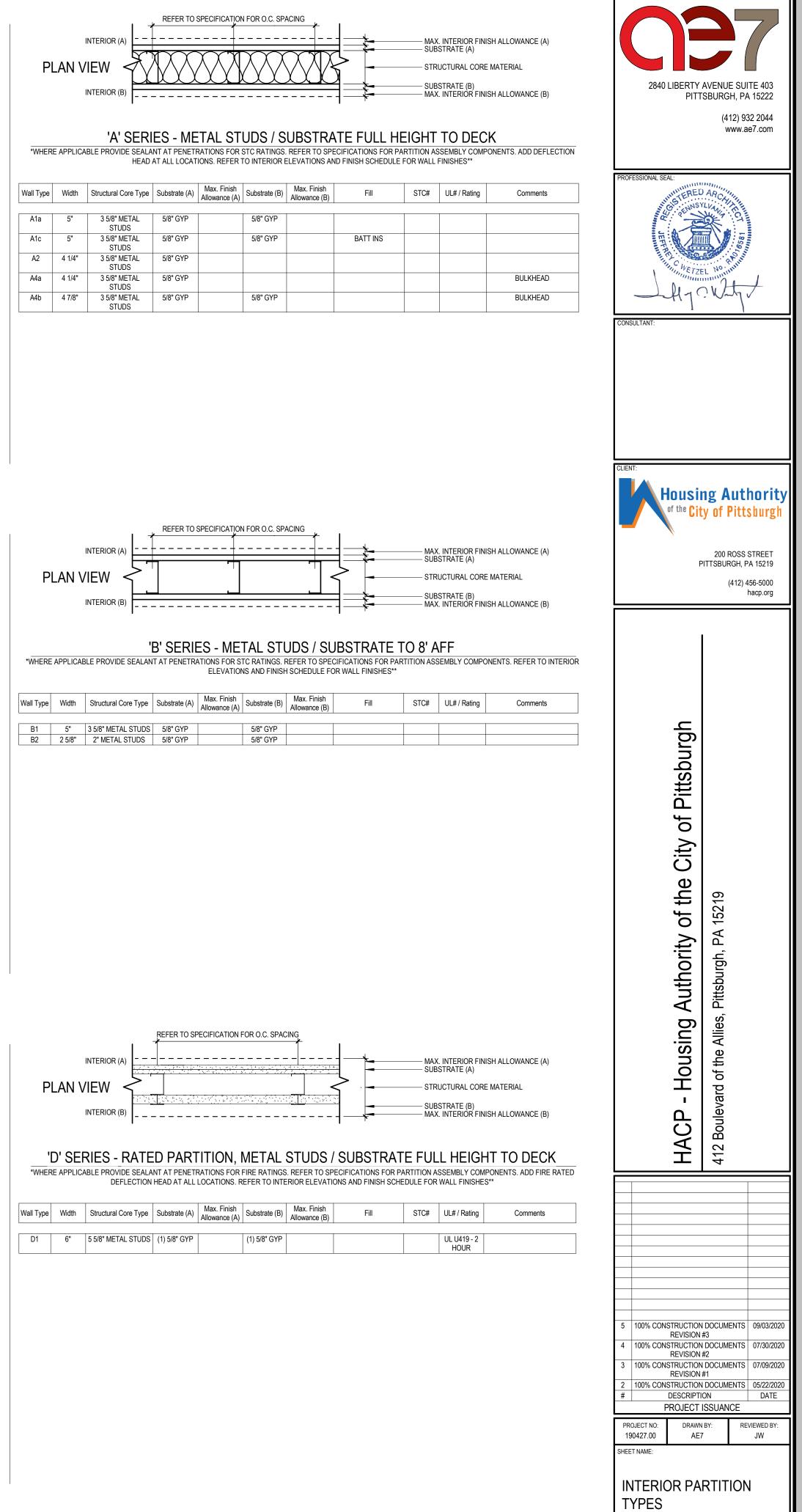


- SCHEDULED BASE - FLOOR STRUCTURE

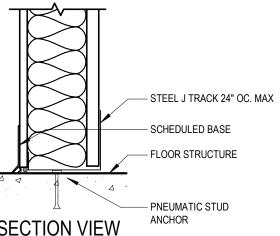
ANCHOR



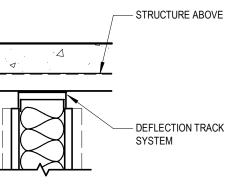
20 GA. ANGLE 24" OC. MAX

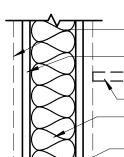


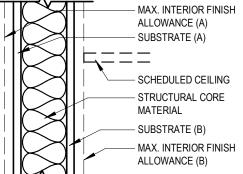
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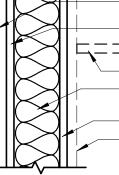


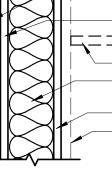
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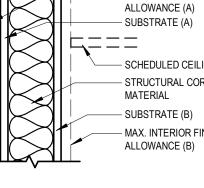


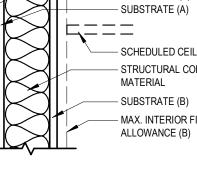


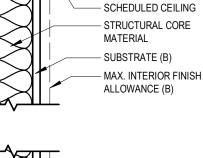


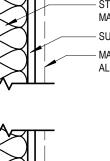


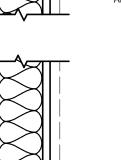


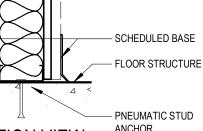


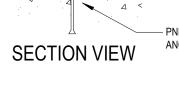






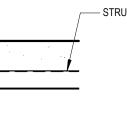


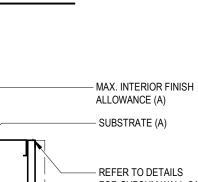


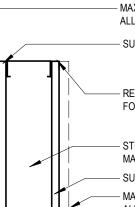


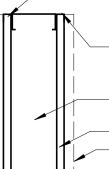


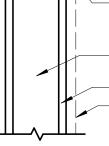


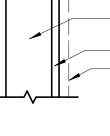


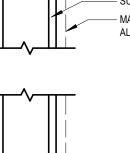


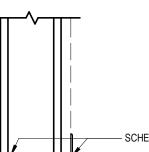


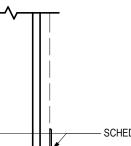


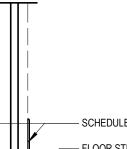


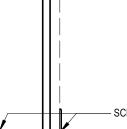


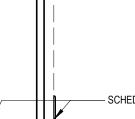


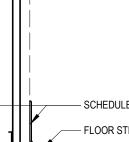






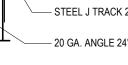




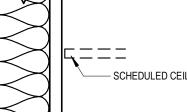


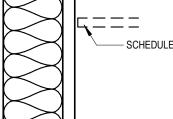
PNEUMATIC STUD

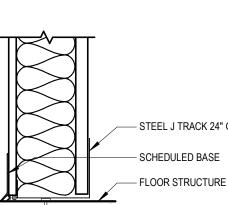
SECTION VIEW — STRUCTURE ABOVE



















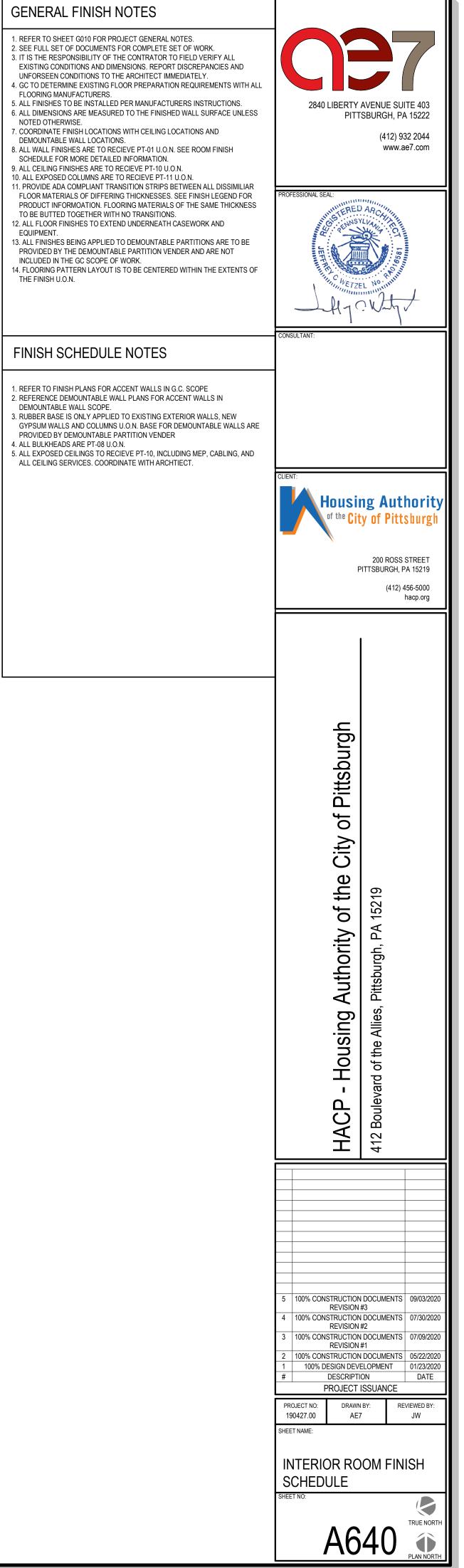
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727R RISER 515 HCV CONTROL OPEN 700 CORRIDOR 714 I.C. OPEN OFFICE 100 CORRIDOR 711A VAULT/STORAGE 105 KIDS AREA 106 SMALL CONSULTATIC 107 SMALL CONSULTATIC 108 MEDIUM CONSULTATIC 109 MDF 612 PROC WORKSTATION 612A MANAGER'S OFFICE 614A COAT/STORAGE 519 DIRECTOR'S OFFICE 518 MANAGER'S OFFICE 516 PARALEGAL 626 MANAGER'S OFFICE		CPT-01 RT-01	RB-01 RB-01	PT-05 PT-01	PT-01 PT-01	WF-01 PT-01	PT-04 PT-01	
700 CORRIDOR 714 I.C. OPEN OFFICE 100 CORRIDOR 711A VAULT/STORAGE 105 KIDS AREA 106 SMALL CONSULTATIC 107 SMALL CONSULTATIC 108 MEDIUM CONSULTATION 612 PROC WORKSTATION 612A MANAGER'S OFFICE 624A COAT/STORAGE 519 DIRECTOR'S OFFICE 518 MANAGER'S OFFICE 516 PARALEGAL 626 MANAGER'S OFFICE		RT-01 RT-01	RB-01 RB-01	PT-01 PT-01	PT-01 PT-01	PT-01 PT-01	PT-01 PT-01	
100 CORRIDOR 711A VAULT/STORAGE 105 KIDS AREA 106 SMALL CONSULTATIC 107 SMALL CONSULTATIC 108 MEDIUM CONSULTATION 109 MDF 612 PROC WORKSTATION 612A MANAGER'S OFFICE 624A COAT/STORAGE 519 DIRECTOR'S OFFICE 518 MANAGER'S OFFICE 516 PARALEGAL 626 MANAGER'S OFFICE	EN OFFICE	CPT-01 CPT-01	RB-01 RB-01	PT-06 REFER TO FINISH PLANS	PT-01 REFER TO FINISH PLANS	PT-06 REFER TO FINISH PLANS	PT-03 REFER TO FINISH PLANS	
105 KIDS AREA 106 SMALL CONSULTATIC 107 SMALL CONSULTATIC 108 MEDIUM CONSULTATIC 100 MDF 612 PROC WORKSTATION 612A MANAGER'S OFFICE 624A COAT/STORAGE 519 DIRECTOR'S OFFICE 518 MANAGER'S OFFICE 516 PARALEGAL 626 MANAGER'S OFFICE		CPT-01 CPT-01	RB-01 WB-01, TO MATCH EXISTING	WF-01 WF-01	WF-01 PT-01	WF-01 PT-01	PT-03 WF-01	
107SMALL CONSULTATION108MEDIUM CONSULTATION110MDF612PROC WORKSTATION612AMANAGER'S OFFICE624ACOAT/STORAGE519DIRECTOR'S OFFICE518MANAGER'S OFFICE516PARALEGAL626MANAGER'S OFFICE		CPT-01 CPT-05	RB-01 EXISTING WOOD BASE, TOUCH UP AS NEEDED	PT-01 PT-06	PT-01 N/A	PT-01 REFER TO ELEVATION	PT-01 REFER TO ELEVATION	
110MDF612PROC WORKSTATION612AMANAGER'S OFFICE624ACOAT/STORAGE519DIRECTOR'S OFFICE518MANAGER'S OFFICE516PARALEGAL626MANAGER'S OFFICE		CPT-03 CPT-03	EXISTING WOOD BASE, TOUCH UP AS NEEDED EXISTING WOOD BASE, TOUCH UP AS NEEDED	PT-06 PT-06	WF-01 WF-01	PT-06 PT-03	PT-01 PT-01	
612PROC WORKSTATION612AMANAGER'S OFFICE624ACOAT/STORAGE519DIRECTOR'S OFFICE518MANAGER'S OFFICE516PARALEGAL626MANAGER'S OFFICE	ATION	CPT-03 RT-01	EXISTING WOOD BASE, TOUCH UP AS NEEDED RB-01	PT-06 PT-01	WF-01 PT-01	PT-06 PT-01	PT-06 PT-01	
624ACOAT/STORAGE519DIRECTOR'S OFFICE518MANAGER'S OFFICE516PARALEGAL626MANAGER'S OFFICE		CPT-01 CPT-01	RB-01 RB-01	REFER TO FINISH PLANS PT-01	N/A PT-01	WF-01 PT-04	PT-04 WF-01	
518MANAGER'S OFFICE516PARALEGAL626MANAGER'S OFFICE		CPT-01 CPT-01	RB-01 RB-01	PT-01 PT-06	PT-01 PT-01	PT-01 PT-01	PT-01 WF-01	
626 MANAGER'S OFFICE		CPT-01 CPT-01 CPT-01	RB-01 RB-01	PT-06 PT-06	PT-01 PT-01 PT-01	PT-01 PT-01 N/A	WF-01 WF-01 PT-06	
	æ	CPT-01 CPT-01 CPT-07	RB-01 RB-01	REFER TO FINISH PLANS PT-01	WF-01 PT-01	PT-01 PT-01	WF-01 PT-01	
618A AV CLOSET 618B STORAGE		CPT-07	RB-01	PT-01	PT-01	PT-01	PT-01	
622 MANAGER'S OFFICE 621 HUDDLE		CPT-01 CPT-01	RB-01 RB-01	PT-04 PT-04	PT-01 PT-01	PT-01 PT-01	WF-01 WF-01	
627 DISABILITY COMPLIAN 521 LEGAL ADMIN		CPT-01 CPT-01	RB-01 RB-01	PT-05 PT-03	N/A PT-01	WF-01 WF-01	PT-01 PT-01	
514 OCCUPANCY OPEN O 500 CORRIDOR 600 CORRIDOR		CPT-01 CPT-04 CPT-04	RB-01 RB-01 RB-01	N/A REFER TO FINISH PLANS REFER TO FINISH PLANS	REFER TO FINISH PLANS REFER TO FINISH PLANS REFER TO FINISH PLANS	REFER TO FINISH PLANS REFER TO FINISH PLANS REFER TO FINISH PLANS	N/A REFER TO FINISH PLANS REFER TO FINISH PLANS	

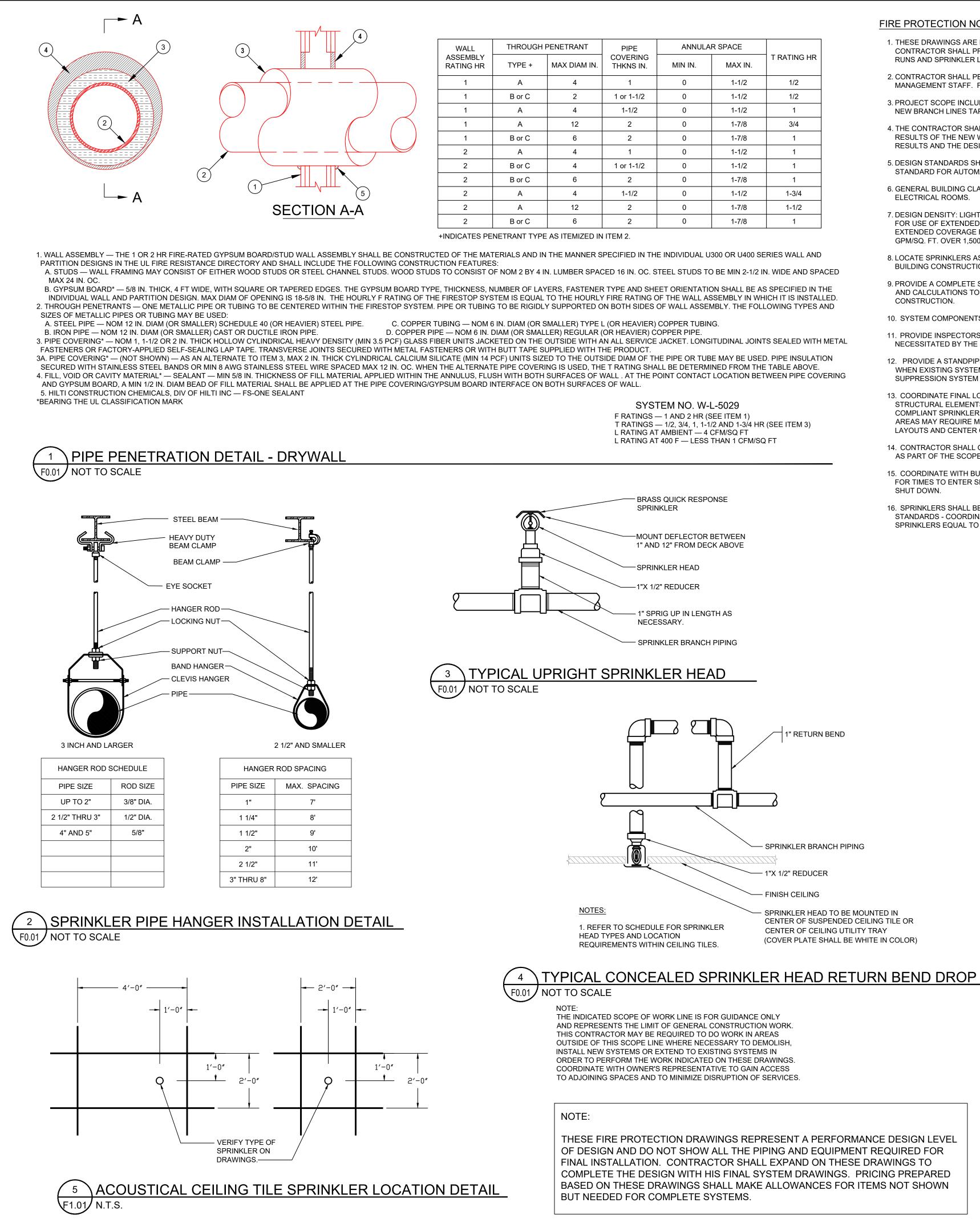
	CEILING	NOTES
	EXISTING ACT-02	
EDED	ACT-02 GWB, ACP-04	
	GWB ACT-01 ACT-01	
	ACT-01 ACT-01 PT-10, ACP-02	
	ACT-01 ACT-01 ACT-01	
	ACT-01 ACT-01 ACT-01	
	ACT-01 ACT-01 ACT-01	
ABOVE	ACT-01 GWB, ACP-03	
	GWB ACT-01	
	ACT-01 ACT-01 ACT-01	
	ACT-01	
	ACT-01 ACT-01 ACT-01	
	ACT-01 PT-10	
	ACT-01 ACT-01	RB-01 ON EXISTING EXTERIOR WALLS, EXISTING WALLS, OR NEW GYPSUM WALLS
	ACT-01 ACT-01	REFER TO FINISH PLANS FOR PAINTS ON EXTERIOR OF OFFICE
	ACT-01 PT-12, AP-02 (PAINTED TO MATCH CEILING) ACT-01	
	PT-10 ACT-01	
	ACT-01 ACT-01	
	ACT-01 ACT-01 ACT-01	
	ACT-01 ACT-01	
N	ACT-01 ACT-01 ACT-01	
	ACT-01 ACT-01	
	ACT-01 ACT-01	
	ACT-01 ACT-01 PT-10	
	ACT-01 ACT-01	
	PT-10, ACP-01 ACT-01 PT-10	
	PT-10 PT-10, ACP-01	
	ACT-01 ACT-01 ACT-01	
	ACT-01 ACT-01	REFER TO FINISH PLANS FOR PAINTS ON EXTERIOR OF OFFICE
	ACT-01 ACT-01 ACT-01	
1	ACT-01 PT-10	
	ACT-01 ACT-01 ACT-01	
	ACT-01 ACT-01	
	ACT-01 PT-10, ACP-02 PT-10, ACP-01	
	ACT-01 ACT-01	
1	PT-10 PT-10 PT-10	
	PT-10 ACT-01 PT-10, ACP-01	
	PT-10, ACP-02 PT-10, ACP-02	
	PT-10, ACP-02 PT-10, ACP-02 PT-10, ACP-02	
	PT-10, ACP-02 ACT-01	COORDINATE SHELVING INTERIOR WITH DEMOUNTABLE WALL MANUF.
	ACT-01 PT-10, ACP-02 EXISTING	COORDINATE SHELVING INTERIOR WITH DEMOUNTABLE WALL MANUF.
	EXISTING EXISTING	
	PT-10, ACP-02 PT-10	
	PT-10, ACP-02 EXISTING, TOUCH UP AS NEEDED ACT-01	
	ACT-02 ACT-02	
	ACT-02 ACT-02 ACT-01	
	PT-10, ACP-02 ACT-01	
	ACT-01 ACT-01 ACT-01	COORDINATE SHELVING INTERIOR WITH DEMOUNTABLE WALL MANUF.
	PT-10, ACP-02 ACT-01	
	ACT-01 ACT-01 ACT-01	
	ACT-01 PT-10, ACP-02	
	PT-10 PT-10, ACP-02 PT-10	
	PT-10	

*ROOM FINISH SCHEDULE FOLLOWS TITLEBLOCK PLAN NORTH



			FINISH	TYPES						ACCESSOR			
FINISH TYPE	MANUFACTURER	MODEL	DESCRIPTION	MATERIAL TYPE	MATERIAL FINISH	SIZING	LOCATION	COMMENTS	CONTACT INFO				
FLOORING CPT-01	SHAW CONTRACT	COMMUNITY FLAT WEAVE 5T321/ 01101 WITH ECOWORX SOLUTION Q BACKING	ARGAN EARTH	CARPET TILE	N/A	9" x 36"	REFER TO FINISH PLANS	BRICK INSTALL	DAVE SAVILLE; 412.719.7079	AC-01 SEMI-RECESSED AUTOMATIC, UNIVERSAL ROLL PAPER TOWEL DISPENSER	BOBRICK WASHROOM EQUIPMEN		MOUNTED TO COMPLY WITH AD GUIDELINES
CPT-02 CPT-03	SHAW CONTRACT SHAW CONTRACT	HAVEN SHELTER TILE 5T240/ 38675 WITH ECOWORX SOLUTION Q BACKING HAVEN SHELTER TILE 5T240/ 38760 WITH ECOWORX SOLUTION Q BACKING	APRICOT TRUFFLE	CARPET TILE	N/A N/A	9" x 36" 9" x 36"	REFER TO FINISH PLANS REFER TO FINISH PLANS	BRICK INSTALL BRICK INSTALL	DAVE SAVILLE; 412.719.7079 DAVE SAVILLE; 412.719.7079	AC-02 AUTOMATIC WALL-MOUNTED FOAM SOAP DISPENSER	BOBRICK WASHROOM EQUIPMEN		MOUNTED TO COMPLY WITH AD GUIDELINES
CPT-04	FLOR (INTERFACE)	21-1455 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	AC-03 RECESSED CONVERTIBLE AUTOMATIC, UNIVERS/ ROLL TOWEL DISPENSER/ WASTE RECEPTACLE	INC.		MOUNTED TO COMPLY WITH AD GUIDELINES
CPT-05 CPT-06	SHAW CONTRACT FLOR (INTERFACE)	HAVEN SHELTER TILE 5T240/ 38327 WITH ECOWORX SOLUTION Q BACKING 21-1455 OASIS RETREAT WITH GLASBAC TILE BACKING TYPE 6 NYLON	MINT GRANITE	CARPET TILE CARPET TILE	N/A N/A	9" x 36" 19.7" x 19.7"	REFER TO FINISH PLANS REFER TO FINISH PLANS	BRICK INSTALL STACKED INSTALL	DAVE SAVILLE; 412.719.7079 JULIE KOCZKO; 412.738.4076	AC-04 FOAMING SOAP DISPENSER AC-05 24 INCH BUILT IN ADA COMPLIANT DISHWASHER,	SLOAN GE APPLIANCES	ESD2000-BN GDT226SSLSS	DECK MOUNTED ENERGY STAR
CPT-07 CPT-08	SHAW CONTRACT SHAW CONTRACT	HAVEN HONEST 5T236/ 35760 WITH ECOWORX SOLUTION Q BACKING HAVEN HONEST 5T236/ 35675 WITH ECOWORX SOLUTION Q BACKING	TRUFFLE APRICOT	CARPET TILE	N/A N/A	9" x 36" 9" x 36"	REFER TO FINISH PLANS REFER TO FINISH PLANS	BRICK INSTALL BRICK INSTALL	DAVE SAVILLE; 412.719.7079 DAVE SAVILLE; 412.719.7079	STAINLESS STEEL AC-06 36 INCH COUNTER DEPTH FRENCH DOOR	GE APPLIANCES	GYE22GYNFS	ENERGY STAR
CPT-09 CPT-10	SHAW CONTRACT SHAW CONTRACT	HAVEN HONEST 5T236/ 35327 WITH ECOWORX SOLUTION Q BACKING HAVEN HONEST FOG 25%, HAVEN HONEST MINT 25%, HAVEN FAMILIAR FOG 25%	MINT MINT AND FOG	CARPET TILE	N/A N/A	9" x 36" 9" x 36"	REFER TO FINISH PLANS REFER TO FINISH PLANS	BRICK INSTALL BRICK INSTALL	DAVE SAVILLE; 412.719.7079 DAVE SAVILLE; 412.719.7079	 REFRIGERATOR, EXTERNAL WATER/ICE DISPENSER, ADA COMPLIANT, STAINLESS STEEL 			
CPT-11	SHAW CONTRACT	HAVEN FAMILIAR MINT 25% COMMUNITY EXCHANGE TILE - 5T304/ 01100 WITH ECOWORX SOLUTION Q BACKING	ARGAN	CARPET TILE	N/A	18"X36"	REFER TO FINISH PLANS	BRICK INSTALL	DAVE SAVILLE; 412.719.7079	AC-07 24 INCH BUILT IN UNDERCOUNTER ADA REFRIGERATOR, STAINLESS STEEL (REFER TO	MARVEL	MA24RAS1	ENERGY STAR
CPT-12	SHAW CONTRACT	COMMUNITY KNOTTED TILE - 5T301/ 01100 WITH ECOWORX SOLUTION Q BACKING	ARGAN	CARPET TILE	N/A	18"X36"	REFER TO FINISH PLANS	BRICK INSTALL	DAVE SAVILLE; 412.719.7079	PLANS FOR DOOR SWING HINGE)			
LVT-01 LVT-02	INTERFACE INTERFACE	LEVEL SET TEXTURED WOODGRAINS A004/ A00406 LEVEL SET TEXTURED WOODGRAINS A004/ A00406	ANTIQUE LIGHT OAK ANTIQUE LIGHT OAK	LUXURY VINYL TILE		25CMX 1M 25CMX 1M	REFER TO FINISH PLANS REFER TO FINISH PLANS	HERRINGBONE LOOSELAY INSTALL ASHLAR LOOSELAY INSTALL	JULIE KOCZKO; 412.738.4076 JULIE KOCZKO; 412.738.4076	_			
RT-01 RT-02	NORA NORA	NORAPLAN SENTICA 6520 NORAMENT ARAGO 5179	SNOW DAY TRANQUIL	RUBBER TILE RUBBER TILE	SMOOTH N/A	12" x 12" 20"X40"	REFER TO FINISH PLANS REFER TO FINISH PLANS	STACK INSTALL REFER TO FLOOR PLAN FOR DETAIL	MICHELLE COADY; 585.281.6446 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		KALNA 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 BROSOM; 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 BROSOM; FISHMAN FLOORING; 412.303.0078	_			
WB-01	N/A	STRAIGHT PAINTED POPLAR WOOD BASE TO MATCH WALL	PAINTED TO MATCH BASE BUILDING WOOD OF ACCENT WALL	R 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		DOROTHY HAZINSKI; 330.353.3850	_			
PT-02	BENJAMIN MOORE	CSP-1563	QUIET MOMENTS	PAINT	SATIN	N/A	U.O.N. LVL 01 KIDS ACCENT WALL AND		DOROTHY HAZINSKI; 330.353.3850	-			
PT-03	BENJAMIN MOORE	CW-645	APOLLO BLUE	PAINT	SATIN	N/A	LVL 06 OFFICE ACCENT WALL ACCENT WALL		DOROTHY HAZINSKI; 330.353.3850	_			
PT-04 PT-05	BENJAMIN MOORE BENJAMIN MOORE	CSP-1095 CW-640 (DIRTT'S SUCCULENT EQUIVALENT)	FIRE GLOW PEARL	PAINT PAINT	SATIN SATIN	N/A N/A	ACCENT WALL ACCENT WALL		DOROTHY HAZINSKI; 330.353.3850 DOROTHY HAZINSKI; 330.353.3850				
PT-06	BENJAMIN MOORE	CSP-735	SEA GLASS	PAINT	SATIN SATIN SATIN	N/A N/A	ACCENT WALL		DOROTHY HAZINSKI; 330.353.3850	-			
PT-07 PT-09	BENJAMIN MOORE BENJAMIN MOORE	CW-630 MATCH TO SW 7014	WASHINGTON BLUE MATCH TO SW EIDER WHITE	PAINT PAINT	SATIN SEMI GLOSS	N/A N/A	ACCENT WALL EXISTING AND NEW HOLLOW		DOROTHY HAZINSKI; 330.353.3850 DOROTHY HAZINSKI; 330.353.3850	-			
PT-13	BENJAMIN MOORE	CSP-40	MUSEUM PIECE	PAINT	SATIN	N/A	METAL DOOR FRAMES U.O.N. CONFERENCE ACCENT		DOROTHY HAZINSKI; 330.353.3850	_			
PT-14 PT-15	BENJAMIN MOORE BENJAMIN MOORE	2128-10 2126-20	BLACK BEAUTY RACOON FUR	PAINT PAINT	SATIN EG-SHEL	N/A N/A	PUBLIC SAFETY ACCENT WALL LVL 01 BOH PAINT TOUCH UP		DOROTHY HAZINSKI; 330.353.3850 DOROTHY HAZINSKI; 330.353.3850	-			
PT-16	BENJAMIN MOORE	OC-64	PURE WHITE (OR TO MATCH BASE BUILDING WHITE)		EG-SHEL	N/A	LVL 01 BASE BUILDING TOUCH UPS, DOUBLE HEIGHT SPACE,	PROVIDE ARCHITECT SAMPLE	DOROTHY HAZINSKI; 330.353.3850	_			
			(v))))))))))))))))))))))))))))))))))))				DECORATIVE COLUMNS, RADIATOR COVERS, EXTERIOR						
TI 04		CADENZA STROKE	VINTAGE WHITE	CEMENT TILE	MATTE	0101	WALLS U.O.N.			_			
WC-01	TILE BAR KNOLL TEXTILES	BESPOKE WALL WC2339/6	FICUS	VINYL WALLCOVERING	G N/A	2" x 9" 50" W	BREAK ROOM BACKSPLASH BREAK ROOM FEATURE WALLS	STACKED INSTALL	AARON YERES; 888.541.3840 X182 NICOLE LANIER; 614.271.5456	_			
WC-02	CARNEGIE	AERIAL 8084 42	AERIAL	VINYL WALLCOVERIN		52" W	EXECUTIVE SUITE		SUSAN WONSOCK; DAN BINFORD & ASSOCIATES; 412.877.7022	_			
WC-03	J JOSEPHSON TOWER	TEV-653	VALUES 6	VINYL WALLCOVERIN	G N/A	54" W	EXECUTIVE SUITE		JENNA TUTTLE; MOMENTUM TEXTILES & WALLCOVERING;				
WC-04	MDC INTERIOR SOLUTIONS	S DEW15303	48" MAGNETIC RECEPTIVE DRY ERASE	MAGNETIC DRY	N/A	48" ROLLED	REFER TO FINISH PLANS AND		800.366.6839 x349 WILL MICHAEL; 724.261.8359	_			
			WALLCOVERING	ERASE WALLCOVERING		GOOD	ELEVATIONS						
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	BREAK ROOMS CONTACT KNOLL TEXTILES FOR SHOP DRAWING	MARK YOCCA; 877.946.3693	_			
WF-02	US FILM CREW	CUSTOM	CUSTOM DOT PATTERN	WINDOW FILM	WHITE, PROVIDE	REFER TO	U.O.N. LVL 01 CURTAIN WALL AND	MOCKUPS COORDINATE WITH U.S. FILM	MARK YOCCA; 877.946.3693	_			
VVI -02							STOREFRONT GLASS		WARK TOCCA, 071.340.3033				
WF-03	NOT USED		CUSTOM PHOTOGRAPH DOT PATTERN ON LVL							-			
WF-04	US FILM CREW	CUSTOM	05 GYPSUM FINISH	. WINDOW FILM	COORDINATE COLORS AND MOCKUP SAMPLE	REFER TO ELEVATIONS	LVL 05 ELEVATOR LOBBY	WITH ARCHITECT	MARK YOCCA; US FILM; 877.946.3693				
14/5 05					WITH ARCHITECT					_			
WF-05	US FILM CREW	CUSTOM	CUSTOM PHOTOGRAPH DOT PATTERN ON LVL 05 GYPSUM FINISH	. WINDOW FILM	COORDINATE COLORS AND	REFER TO ELEVATIONS	LVL 06 ELEVATOR LOBBY	COORDINATE OPACITY AND MOCKUPS WITH ARCHITECT	MARK YOCCA; US FILM; 877.946.3693				
					MOCKUP SAMPLE WITH ARCHITECT					_			
WF-06	US FILM CREW	CUSTOM	CUSTOM PHOTOGRAPH DOT PATTERN ON LVL 05 GYPSUM FINISH	. WINDOW FILM	COORDINATE COLORS AND	REFER TO ELEVATIONS	LVL 07 ELEVATOR LOBBY	COORDINATE OPACITY AND MOCKUPS WITH ARCHITECT	MARK YOCCA; US FILM; 877.946.3693				
					MOCKUP SAMPLE WITH ARCHITECT					_			
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	i	REFER TO DRAWINGS	OPEN OFFICES		WILLIAM T. CAULEY; 878.600.1893				
ACP-03	ARMSTRONG CEILINGS	WOODWORKS SHAPES FOR DESIGNFLEX - PATTERN SH 3	CONSTANTS WALNUT REDUX WOOD WHEAT	ACOUSTICAL CEILING	i	REFER TO DRAWINGS	BOARD ROOM	REFER TO DETAILS FOR TRIM PEICES AND GRID	WILLIAM T. CAULEY; 878.600.1893	1			
ACP-04	ARMSTRONG CEILINGS	FELTWORKS ACOUSTIC PANELS BPSM1049FWH	WHITE	ACOUSTICAL CEILING	i	1" THICK, REFER TO	LVL 01 DOUBLE HEIGHT	REFER TO DETAILS	WILLIAM T. CAULEY; 878.600.1893	1			
				PANEL		DRAWINGS	APPLICATION SPACE						
ACT-01	ARMSTRONG CEILINGS	ULTIMA HIGH NRC SQUARE LAY IN 15/16"	WHITE		WHITE	24"X24"	REFER TO RCP		WILLIAM T. CAULEY; 878.600.1893	1			
ACT-02	ARMSTRONG CEILINGS	CALLA HIGH CAC 45-50 PRIVASSURE PERFORMANCE TEGULAR 15/16"	WHITE	TILE ACOUSTICAL CEILING	WHITE	24"X24"	REFER TO RCP		WILLIAM T. CAULEY; 878.600.1893	-			
PT-08	BENJAMIN MOORE	CSP-725	BARELY THERE	TILE 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 NO WITHIN 6-9 RANGE					
PT-11 PT-12	SHERWIN WILLIAMS	PRO INDUSTRIAL ARYCLIC EG-SHEL, B66-660 SERIES PRO INDUSTRIAL WATERBORNE ACRYLIC DRYFALL B42W00181	TO MATCH DRYFALL CEILING BLACK BASE	PAINT	EG-SHEL FLAT	N/A N/A	AL EXPOSED COLUMNS U.O.N. VIEWING ROOM	PRIMER IS NEED IF PH LEVELS ARE NO	JAMES GEIST: 724.933.1900 x104	-			
PT-12	SHERWIN WILLIAMS					IN/ <i>T</i> A		WITHIN 6-9 RANGE	י עראאובט טבוט ז. <i>ו</i> 24.303. 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,		KALNA BOBYN; 952.944.1676				
							EXECUTIVE SUITE COUNTER U.O.N.						
ADDITIONAL MA	TERIALS												
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	1			
PL-02	NEVAMAR DECORATIVE SURFACES	ARMOURED PROTECTION S3022T	DEEP BLUE	PLASTIC LAMINATE	TEXTURED	REFER TO DRAWINGS	BREAKROOM BASE CASEWORK U.O.N.		JULIE BACQUET; 937.477.7837	1			
PL-03	TAFISA	SOMMET SERIES T2003 (VA)	WEEKEND GETAWAY	PLASTIC LAMINATE	VIVA	REFER TO	ALL BASE CASEWORK U.O.N.		SANDRA WILSON; 267.229.5507	-			
PL-05	TAFISA	SOMMET SERIES T2004 (VA)	WINTER FUN	PLASTIC LAMINATE	VIVA	DRAWINGS REFER TO	ALL UPPER WALL CASEWORK		SANDRA WILSON; 267.229.5507	-			
PL-06	NEVAMAR DECORATIVE	ARMOURED PROTECTION S3022T	DEEP BLUE	PLASTIC LAMINATE	TEXTURED	DRAWINGS REFER TO	U.O.N. LVL 01 RECEPTION		JULIE BACQUET; 937.477.7837	-			
PL-07	SURFACES WILSONART	TRACELESS LAMINATE 15507	SLATE VELVET	PLASTIC LAMINATE	TRACELESS	DRAWINGS REFER TO	EXISTING LVL 05, LVL 06, LVL 07		AMBER LEDDON; 412.335.5620	-1			
PL-08	WILSONART	7992-K-12	PINNACLE WALNUT	PLASTIC LAMINATE	FINE VELVET	DRAWINGS REFER TO	RESTROOMS LVL 07 EXECUTIVE SUITE		AMBER LEDDON; 412.335.5620	-			
				_	TEXTURE	DRAWINGS				J			

IN	CE SC MODEL NUMBER		GENERAL FINISH NOTES	
NT,	B-29744 B-2013	MOUNTED TO COMPLY WITH ADA AND UFAS GUIDELINES MOUNTED TO COMPLY WITH ADA AND UFAS GUIDELINES	 REFER TO SHEET G010 FOR PROJECT GENERAL NOTES. SEE FULL SET OF DOCUMENTS FOR COMPLETE SET OF WORK. IT IS THE RESPONSIBILITY OF THE CONTRATOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. REPORT DISCREPANCIES AND UNFORSEEN CONDITIONS TO THE ARCHITECT IMMEDIATELY. GC TO DETERMINE EXISTING FLOOR PREPARATION REQUIREMENTS WITH ALL FLOORING MANUFACTURERS. 	OP7
NT,	B-39747 ESD2000-BN GDT226SSLSS	MOUNTED TO COMPLY WITH ADA AND UFAS GUIDELINES DECK MOUNTED ENERGY STAR	 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. 	2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
	GYE22GYNFS MA24RAS1	ENERGY STAR ENERGY STAR	 8. ALL WALL FINISHES ARE TO RECIEVE PT-01 U.O.N. SEE ROOM FINISH SCHEDULE FOR MORE DETAILED INFORMATION. 9. ALL CEILING FINISHES ARE TO RECIEVE PT-10 U.O.N. 10. ALL EXPOSED COLUMNS ARE TO RECIEVE PT-11 U.O.N. 11. PROVIDE ADA COMPLIANT TRANSITION STRIPS BETWEEN ALL DISSIMILIAR FLOOR MATERIALS OF DIFFERING THICKNESSES. SEE FINISH LEGEND FOR PRODUCT INFORMOATION. FLOORING MATERIALS OF THE SAME THICKNESS TO FOUTTINFORMOATION. FLOORING MATERIALS OF THE SAME THICKNESS 	PROFESSIONAL SEAL:
			 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. 	HETZEL NO.
			FINISH SCHEDULE NOTES	CONSULTANT:
			 REFER TO FINISH PLANS FOR ACCENT WALLS IN G.C. SCOPE REFERENCE DEMOUNTABLE WALL PLANS FOR ACCENT WALLS IN DEMOUNTABLE WALL SCOPE. 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 ALL BULKHEADS ARE PT-08 U.O.N. ALL EXPOSED CEILINGS TO RECIEVE PT-10, INCLUDING MEP, CABLING, AND ALL CEILING SERVICES. COORDINATE WITH ARCHTIECT. 	
				CLIENT: Housing Authority of the City of Pittsburgh
				200 ROSS STREET PITTSBURGH, PA 15219 (412) 456-5000 hacp.org
				ity of Pittsburgh
				O O
				HACP - Housing Authority of the 412 Boulevard of the Allies, Pittsburgh, PA 15219
				Housin Ind of the Alli
				HACP - 412 Bouleve
				5 100% CONSTRUCTION DOCUMENTS 09/03/2020 REVISION #3 00% CONSTRUCTION DOCUMENTS 07/30/2020
				a 100% CONSTRUCTION DOCUMENTS 07/09/2020 3 100% CONSTRUCTION DOCUMENTS 07/09/2020 REVISION #1 # DESCRIPTION PROJECT ISSUANCE 07/09/2020
				PROJECT NO: DRAWN BY: REVIEWED BY: 190427.00 Author Checker SHEET NAME:
				INTERIOR FINISH SCHEDULES
				A641



PIPE	ANNULA	R SPACE	
OVERING HKNS IN.	MIN IN.	MAX IN.	T RATING HR
1	0	1-1/2	1/2
or 1-1/2	0	1-1/2	1/2
1-1/2	0	1-1/2	1
2	0	1-7/8	3/4
2	0	1-7/8	1
1	0	1-1/2	1
or 1-1/2	0	1-1/2	1
2	0	1-7/8	1
1-1/2	0	1-1/2	1-3/4
2	0	1-7/8	1-1/2
2	0	1-7/8	1

RY PENDENT (USE IN FREEZING

ENVIRONMENTS)

HORIZONTAL SIDEWALL

SPRINKLER

VIKING STANDARD RESPONSE

VIKING MICROFAST QUICK

RESPONSE

VK154

VK305

5.6

5.6

• _{DP}

Δ

NOTES

SYSTEM NO. W-L-5029

BRASS QUICK RESPONSE

-MOUNT DEFLECTOR BETWEEN

1" AND 12" FROM DECK ABOVE

1" SPRIG UP IN LENGTH AS

- SPRINKLER BRANCH PIPING

1" RETURN BEND

- SPRINKLER BRANCH PIPING

SPRINKLER HEAD TO BE MOUNTED IN

CENTER OF CEILING UTILITY TRAY

CENTER OF SUSPENDED CEILING TILE OR

(COVER PLATE SHALL BE WHITE IN COLOR)

— 1"X 1/2" REDUCER

- FINISH CEILING

SPRINKLER

-SPRINKLER HEAD

-1"X 1/2" REDUCER

NECESSARY.

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

FIRE PROTECTION NOTES AND DE	SIGN PARAMI	ETERS [.]				EIR		N SCHEDULE AND LEG			η [
1. THESE DRAWINGS ARE DIAGRAMATICAL	AND SHOW THE G	ENERAL INTENT OF THE FIRE SUPPR		SYI	'MBOL	ABRV.							
CONTRACTOR SHALL PROVIDE FULL SPR RUNS AND SPRINKLER LOCATIONS SHOW	INKLER COVERA	GE IN THE PROJECT AREAS. MAKE A	DJUSTMENTS TO PIPE	5-	0		PIPE TURNED UP						
2. CONTRACTOR SHALL PERFORM A NEW W MANAGEMENT STAFF. FLOW TEST INFOR	-			<u>ج</u>	>		PIPE TURNED DO	WN			28	40 LIBERTY AVENUE	SUITE 403
3. PROJECT SCOPE INCLUDES: RENOVATION NEW BRANCH LINES TAPPED INTO EXISTI				ء ا			PIPE TEE UP					PITTSBURGH	, PA 15222 2) 932 2044
4. THE CONTRACTOR SHALL HYDRAULICALI RESULTS OF THE NEW WATER FLOW TES				ب			PIPE TEE DOWN						/w.ae7.com
RESULTS AND THE DESIGN PRESSURE.	DO NOT USE THE	QUICK RESPONSE DERATING FACTO	R FOR COVERAGE AREA.	<u> </u>]		CAPPED PIPE				PROFESSIONAL	SEVI -	
5. DESIGN STANDARDS SHALL INCLUDE: INT STANDARD FOR AUTOMATIC SPRINKLERS			בט בטו ווסא; NFPA -13		<u>ب</u>		PIPE BREAK				INGRESSIONAL	NWEAL T	
6. GENERAL BUILDING CLASSIFICATION: LIG ELECTRICAL ROOMS.	GHT HAZARD IN PL	JBLIC SPACES AND ORDINARY HAZAF	RD IN MECHANICAL OR		0							REGISTERED PROFESSIONAL	
7. DESIGN DENSITY: LIGHT HAZARD = 0.10 G FOR USE OF EXTENDED COVERAGE SPRI			,		<u> </u>		SEMI RECESSED					DAVID C. PRIC	
EXTENDED COVERAGE FOR REQUIRED FI GPM/SQ. FT. OVER 1,500 SQ. FT. WITH 130	LOW AND PRESSU	JRE BASED ON COVERAGE AREA. OR			●		UPRIGHT SPRINK					No. PEOB1572	
8. LOCATE SPRINKLERS AS NECESSARY TO BUILDING CONSTRUCTION OF NON-COME			HEY APPLY TO NEW		•			EWALL SPRINKLER			CONSULTANT:	Manager 1	
9. PROVIDE A COMPLETE SET OF LAYOUT D AND CALCULATIONS TO THE CITY AND O					O _{EC}			EWALL SPRINKLER	ER			4	
CONSTRUCTION. 10. SYSTEM COMPONENTS SHALL BE UL LIS	STED AND FM/GLC	DBAL APPROVED.			• _{EC}			SE IN FREEZING ENVIRONME				Allen & Sh DESIGN I BUILD I M	MANAGE
11. PROVIDE INSPECTORS TEST VALVE AT I NECESSITATED BY THE SYSTEM LAYOUT.	MOST REMOTE AF		AUXILIARY DRAINS AS		O _{DP}		DRY SPRINKLER				700	& Shariff Engineer River Avenue, Su Pittsburgh, PA 152 Tel: 412.322.9280	ite 600
12. PROVIDE A STANDPIPE FOR USE DURIN	IG CONSTRUCTIO						EXISTING SPRINK	LER TO REMAIN				Tel: 412.322.9280)
WHEN EXISTING SYSTEMS ARE SHUT DO SUPPRESSION SYSTEM IS REACTIVTED.	WN FOR CONSTR	UTION, PROVIDE FIRE WATCH SERVIO	JES UNTIL THE		O _{RX}		EXISTING SPRINK	LER TO BE REMOVED			CLIENT:		
13. COORDINATE FINAL LOCATION OF SPRI STRUCTURAL ELEMENTS AND CEILING EL COMPLIANT SPRINKLERED PROJECT SITE	EVATIONS. CON	TRACTOR SHALL PROVIDE AN END PI	RODUCT OF A FULLY CODE				CHECK VALVE					Housing Au	
AREAS MAY REQUIRE MORE THAN CODE LAYOUTS AND CENTER OF TILE REQUIRE	MINIMUM NUMBE			-۲		FHV	FIRE HOSE VALVE	Ē			🖊	of the City of Pi	ttsburgh
14. CONTRACTOR SHALL OBTAIN NECESSA AS PART OF THE SCOPE OF THIS PROJEC		TION SYSTEMS PERMITS, TESTS, APF	PROVALS, AND INSPECTIONS	<u>ب</u>	Ę,		FLOW SWITCH					200 Ross St, Pittsbur	gh, PA 15219
15. COORDINATE WITH BUILDING MANAGEN	IENT FOR ACCEP		,	<u>ب</u>	Ψ,		TAMPER SWITCH					(2	12) 456-5000 hacp.org
FOR TIMES TO ENTER SECTIONS OF THE SHUT DOWN.				<u> </u>			PRESSURE SWIT	СН					
16. SPRINKLERS SHALL BE ALL NEW EQUIP STANDARDS - COORDINATE WITH BUILDIN SPRINKLERS EQUAL TO THOSE LISTED IN	NG MANAGEMENT	. IN THE ABSENCE OF BUILDING STA	NDARDS, PROVIDE	-با	φ,	PG	PRESSURE GAUG	GE				I	
OF MININELING EQUAL TO THUSE LISTED IN	INC SUREDULE.	DO NOT INLUGE EXISTING SPRINKLE					FIRE HOSE RACK						
	PR	OJECT SPRINKLER DESIGN	SUMMARY				FIRE HOSE RACK						
				(\bigcirc		WET PIPE SPRIN	KLER ALARM VALVE				لير ا	
	DESIGN AREA	A DESIGN AREA IS	1,500 SQ. FT.		♦		DRY PIPE SPRINK	KLER ALARM VALVE) JIIC	
	CEILING HEIGH	HT CEILINGS VARY FROM 9'-0" T	O OPEN TO DECK ABOVE		k k ta		OS&Y VALVE					Pittsburgh	
	TYPE OF SYST	EM WET SPRINKLER SYS	TEM RENOVATION		然。			H TAMPER SWITCH				of Pi	
	DESIGN CRITER	RIA NFPA - 13; NFPA -	14; NFPA - 20		\$		FIRE DEPARTMEN	NT SIAMESE CONNECTION					
	AHJ	CITY OF PITTSBURGH BUILDI		<u>۶</u>			FIRE PUMP TEST	MANIFOLD				e Ci	
	DESIGN DENSI	ORDINARY HAZARD = 0.15 C	GPM OVER 1,500 SQ. FT.	<u>۶</u>	- F\$	F	FIRE PROTECTIO	N PIPING				of the 15219	
		LIGHT HAZARD = 0.10 GP		\$	DF ——	DF	DRY FIRE PROTE	CTION PIPING					
	HOSE STREAI ALLOWANCE			5	PAF —— \$	PAF	PRE-ACTION FIRE	PROTECTION PIPING					
	SPRINKLER SPACING	ORDINARY HAZARD = 200 S LIGHT HAZARD = 130 SQ		5	-D5	D	FIRE PROTECTIO	N DRAIN PIPING				Authori	
	K-FACTOR	ORDINARY HAZA LIGHT HAZARI			SP — f	SP	SPRINKLER PIPIN					ing A Allies, P	
	FIRE PUMP INF	750 GPM FIRE PLIMP - 60 F	HP-208V, 3 PH, 60 AMP		DSP — S	DSP	DRY SPRINKLER					Housing rd of the Allies	
		TO FOI DOUGT, JUCKEY PU				EXF						HOL d of th	
							REMOVE EXISTIN	G FIRE PROTECTION PIPING				CP - H Boulevard	
ITED IN				NOTE.							,	$\mathbf{A} \mid \mathbf{A}$	
NG TILE OR RAY				RINKLER S		.E						H/ 411	
E IN COLOR)	TYPE SYMBOL	TYPE DESCRIPTION	MANUFACTURER & MODEL NUMBER	SIN	K-FAC	FOR	FINISH	TEMP RATING	PSI RATING	COMMENTS			
RN BEND DROP	۲	UPRIGHT SPRINKLER	VIKING MICROFAST QUICK RESPONSE	VK300	5.6		BRASS/CHROME	155 °F TYPICAL, 212 °F MECHANICAL AND ELECTRICAL SPACES	175	2			
	0	SEMI RECESSED SPRINKLER	VIKING MICROFAST QUICK RESPONSE	VK302	5.6		WHITE	155 °F	175	1			
	0	CONCEALED PENDENT	VIKING MIRAGE QUICK RESPONSE	VK462	5.6		BRASS WITH COLORED COVER	155 °F WITH 135 °F	175	1			
			VIKING MICROFAST QUICK		-		PLATE	COVER PLATE		·		ONSTRUCTION DOCUMEN REVISION #3	
	•		RESPONSE	VK302	5.6		WHITE	MECHANICAL AND ELECTRICAL SPACES	175			ONSTRUCTION DOCUMEN REVISION #2 ONSTRUCTION DOCUMEN	

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.

CHROME

WHITE

155 °F

155 °F WITH CHROME

MODEL

175

175

REVISION #1

DESCRIPTION

PROJECT ISSUANCE

2 100% CONSTRUCTION DOCUMENTS 100% DESIGN DEVELOPMENT

#

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.
- POINTS IN FIELD.
- 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.
- 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.
- RELATED WORK SPECIFIED ELSEWHERE C
- 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.
- 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 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 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.

- 6. CONTRACTORS SHALL CONFIRM TO UTILITY COMPANY REQUIREMENTS. COORDINATE CONNECTION
- 7. ARRANGE FOR AND OBTAIN OWNER'S AND INSURANCE REPRESENTATIVE'S PERMISSION FOR ANY

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.
- 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 ENGINEERS 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.

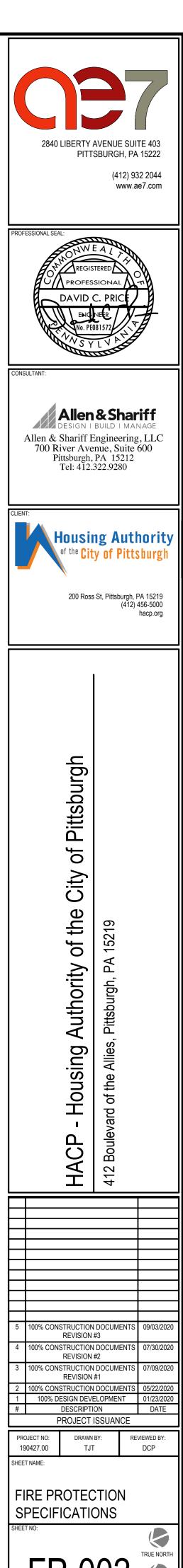
- e. CONTRACTOR SHALL ARRANGE FOR SHUTDOWN OF EXISTING SYSTEM WITH LANDLORD, OWNER MAINTENANCE AND FIRE ALARM PERSONNEL, AND INSURANCE UNDERWRITER. PROVIDE FIRE WATCH WHILE SYSTEM IS SHUT DOWN.
- f. FLUSH PIPING UPON COMPLETION OF PROJECT AND TEST PER NFPA 13.
- g. INSTALL INSPECTOR'S TEST CONNECTION 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.

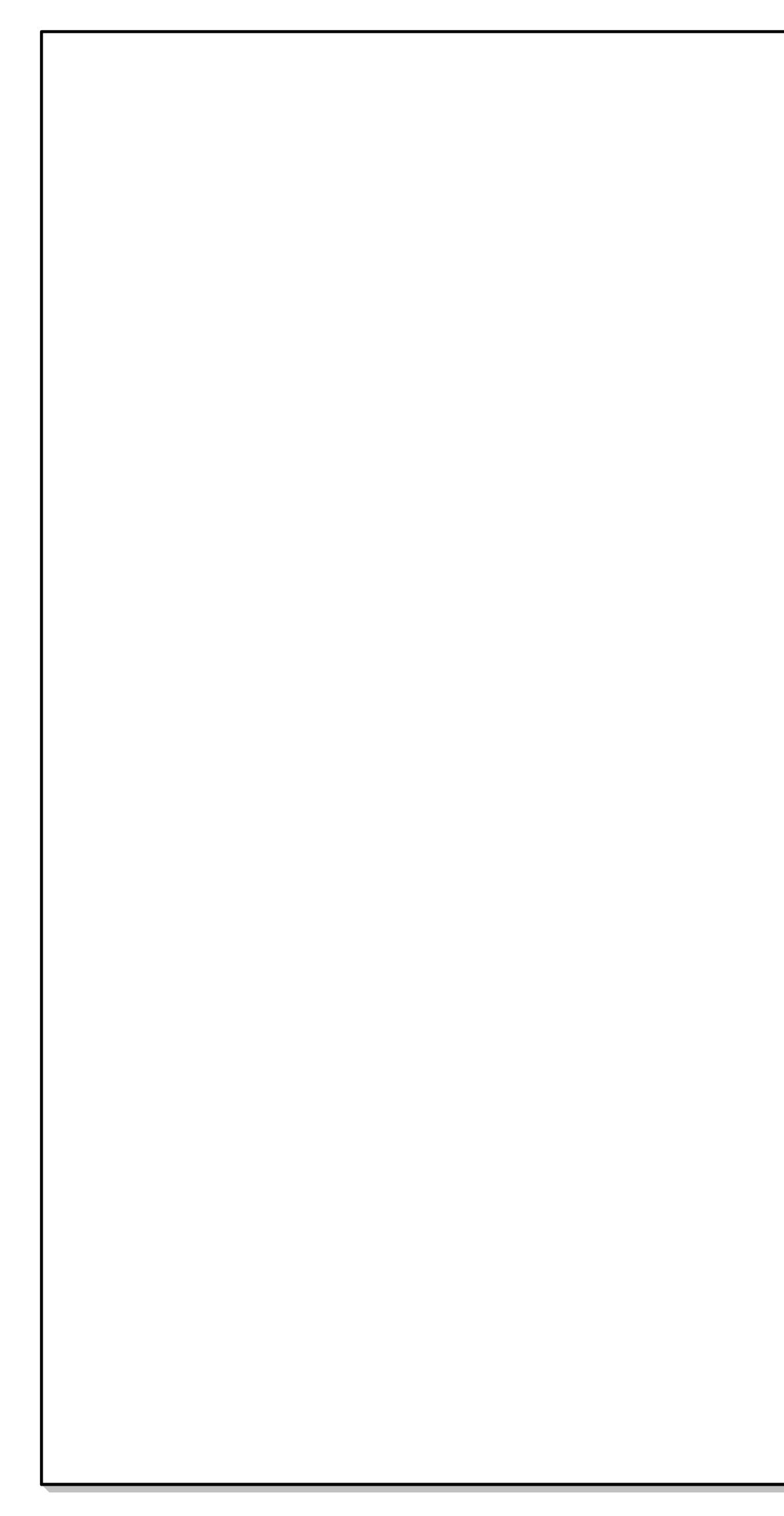
SPRINKLERS

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





- 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

- 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.

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.

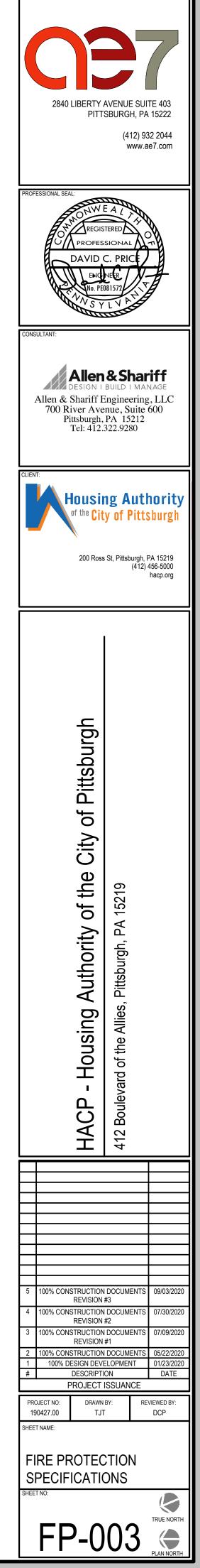
13. PRESSURE SENSITIVE PIPE MARKERS SHALL BE MANUFACTURED BY THE BRADY CO., OR APPROVED EQUAL. PIPE MARKERS SHALL BE MANUFACTURER'S STANDARD PRODUCT.

M. ACCESS DOORS

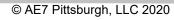
- 1. ACCESS DOORS SHALL BE PROVIDED IN WALLS AND CEILINGS WHERE REQUIRED TO PERMIT PROPER ACCESS TO VALVES AND ANY OTHER SUCH DEVICES WHICH REQUIRE MAINTENANCE OR SERVICE. DOORS PLACED IN WALLS, PARTITIONS OR OTHER FIRE-RATED CONSTRUCTION SHALL HAVE A LABEL SIGNIFYING THAT THE DOOR HAS THE SAME FIRE 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.

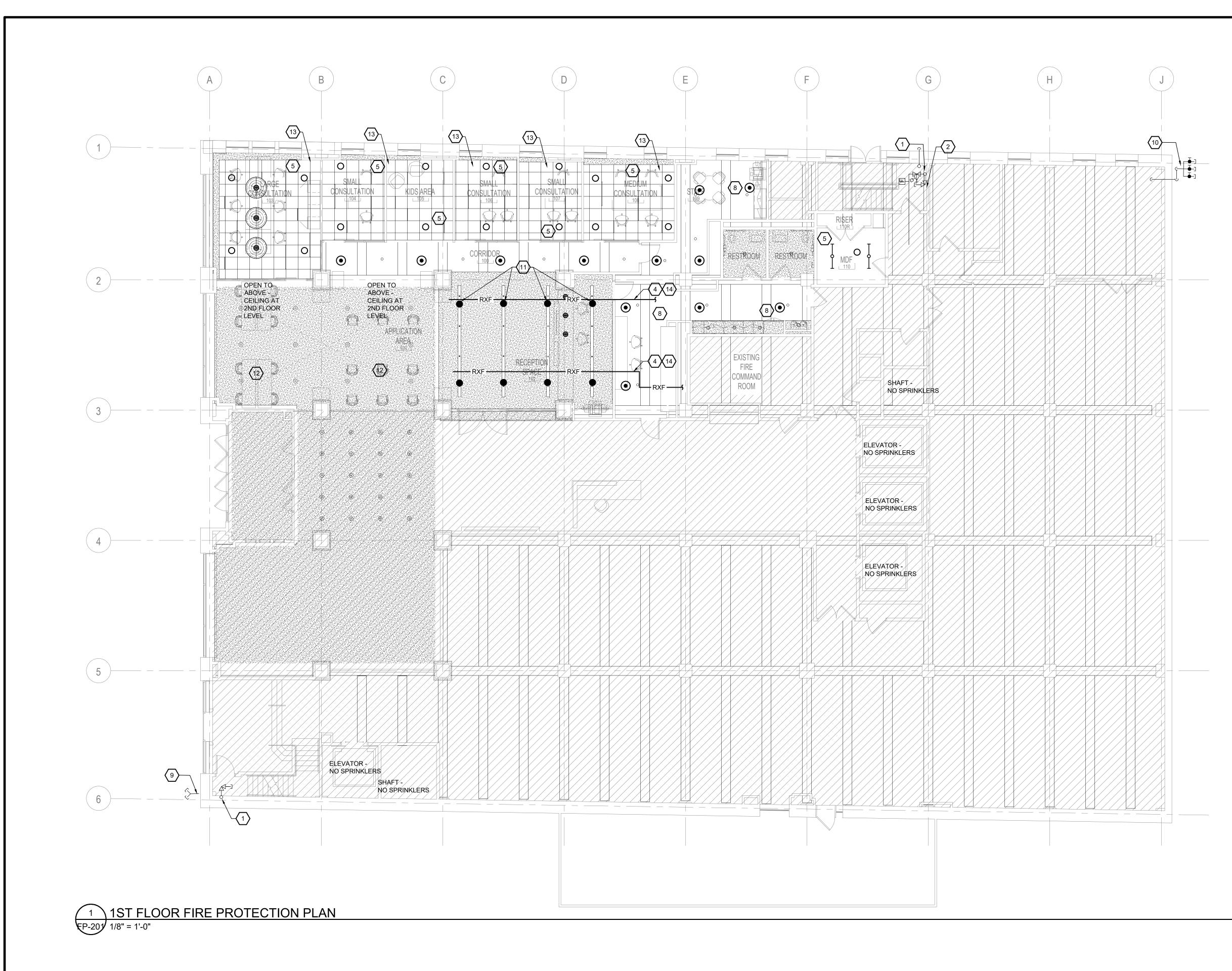
N. FIRESTOPPING

- 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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FIRE PROTECTION KEY NOTES: (#) 1. EXISTING 6 INCH STANDPIPE AND FIRE HOSE VALVE SHALL REMAIN AT THIS APPROXIMATE LOCATION AND CONTINUE IN USE.

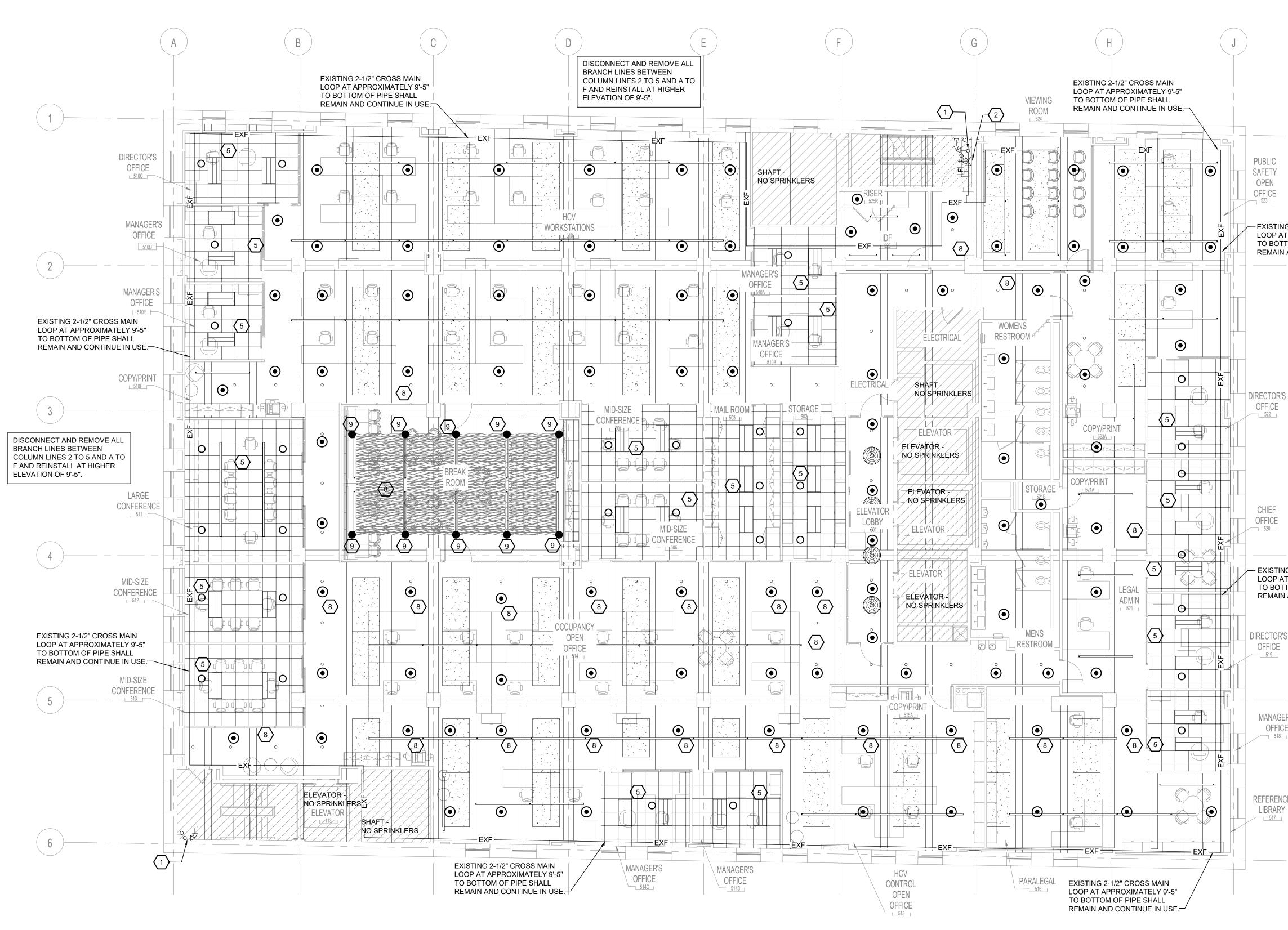
- 2. EXISTING SPRINKLER SYSTEM FLOOR CONTROL VALVE SHALL REMAIN AT THIS APPROXIMATE LOCATION AND CONTINUE IN USE. TO COMPLY WITH CITY INSPECTOR, PROVIDE NEW PRESSURE GAUGES UP AND DOWN STREAM OF THE EXISTING PRESSURE REGULATING VALVE AND PROVIDE NEW 3/4" 175 PSI PRESSURE RELIEF VALVE DOWNSTREAM OF THE 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 "RXF" 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.

2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com PROFESSIONAL SEAL PROFESSION DAVID C. PRICE Allen & Shariff Allen & Shariff Engineering, LLC 700 River Avenue, Suite 600 Pittsburgh, PA 15212 Tel: 412.322.9280 **Housing Authority** of the City of Pittsburg 200 Ross St, Pittsburgh, PA 15219 (412) 456-5000 hacp.org Pittsburgh Ō City Authority of the 15219 ΡA Housing HACP 412 00% CONSTRUCTION DOCUMENT **REVISION #3** 0% CONSTRUCTION DOCUMENT /30/20 **REVISION #2** 100% CONSTRUCTION DOCUMENT **REVISION #1** 2 100% CONSTRUCTION DOCUMENT 100% DESIGN DEVELOPMENT # DESCRIPTION DATE PROJECT ISSUANCE PROJECT NO: DRAWN BY: REVIEWED BY: 190427.00 TJT DCP SHEET NAME: 1ST FLOOR FIRE PROTECTION PLAN **FP-20**

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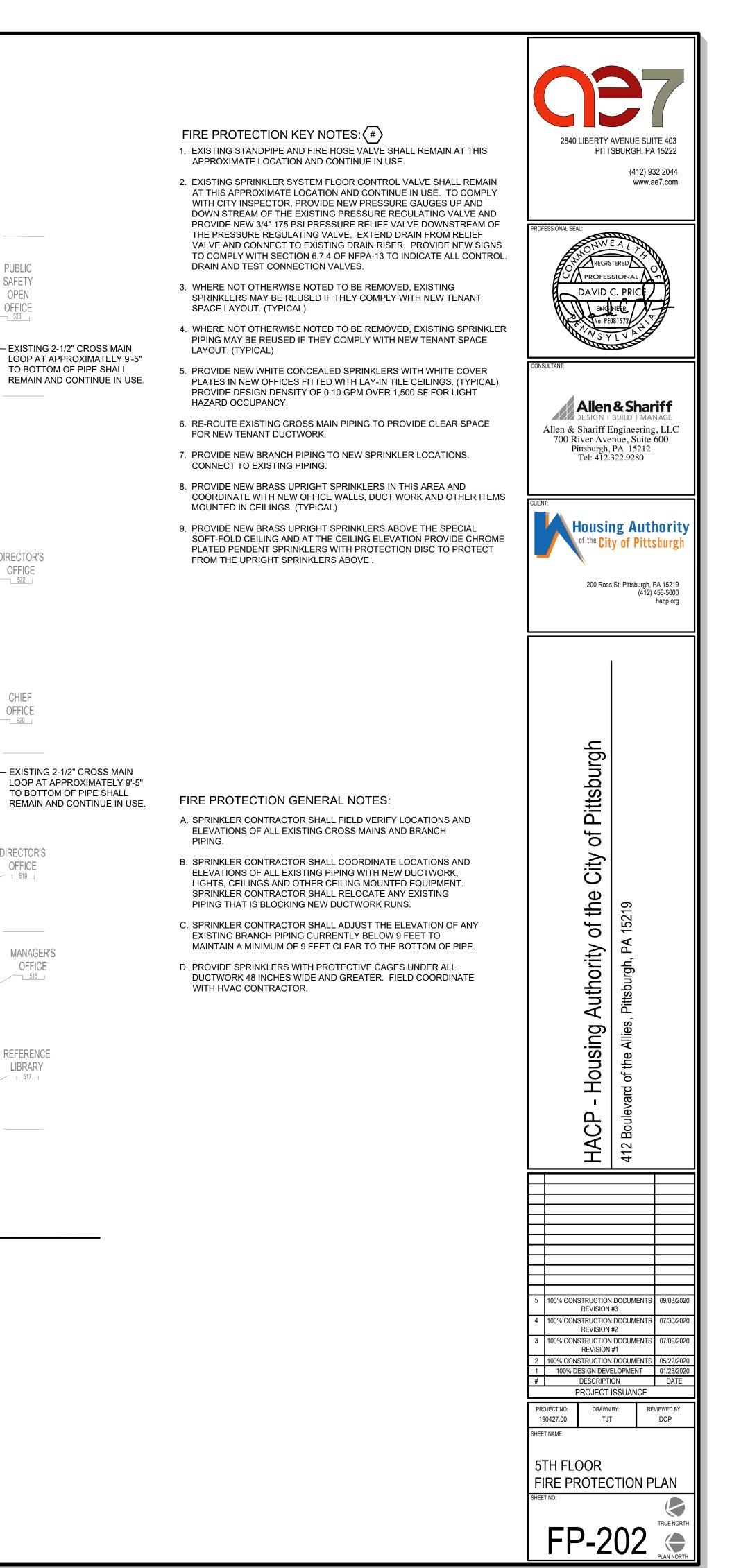
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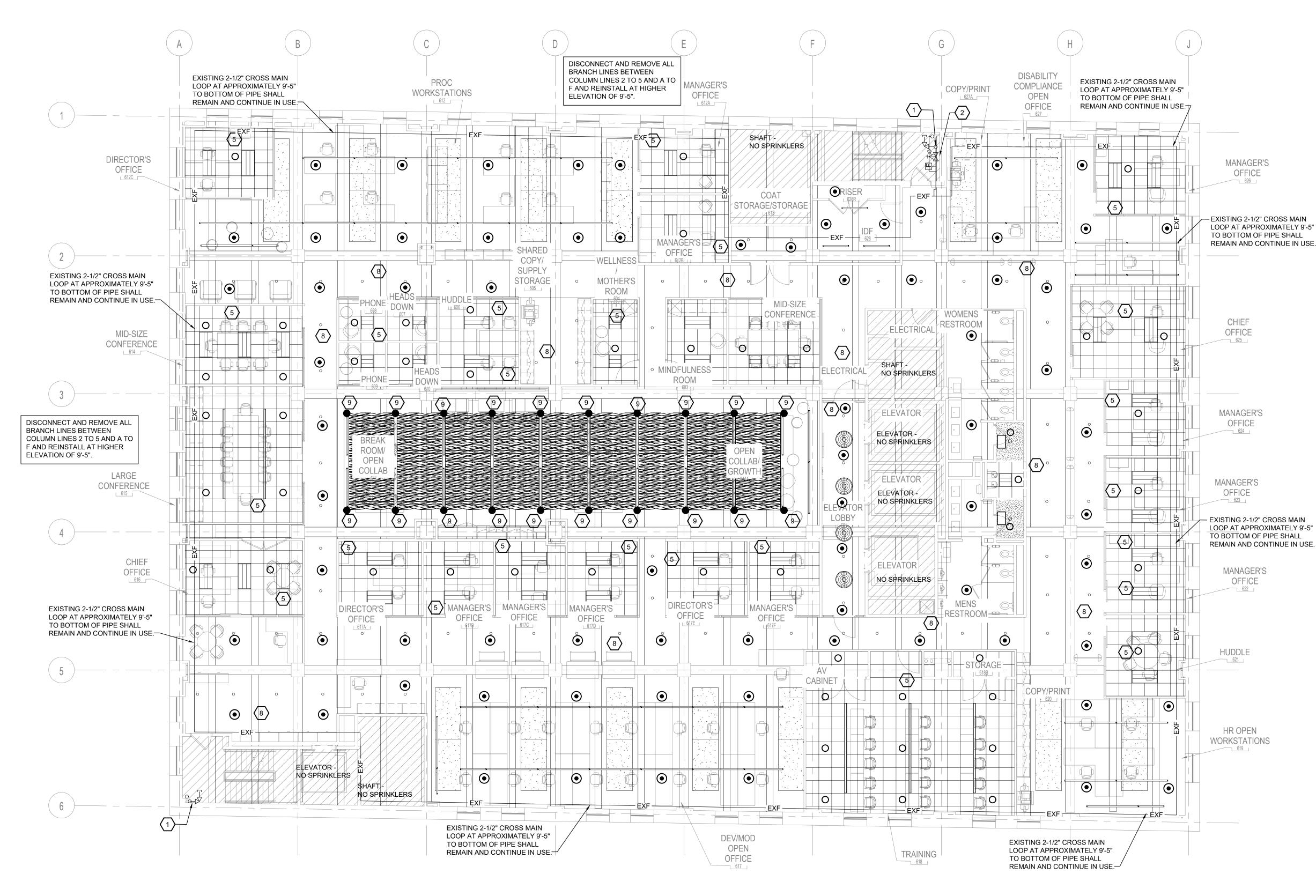
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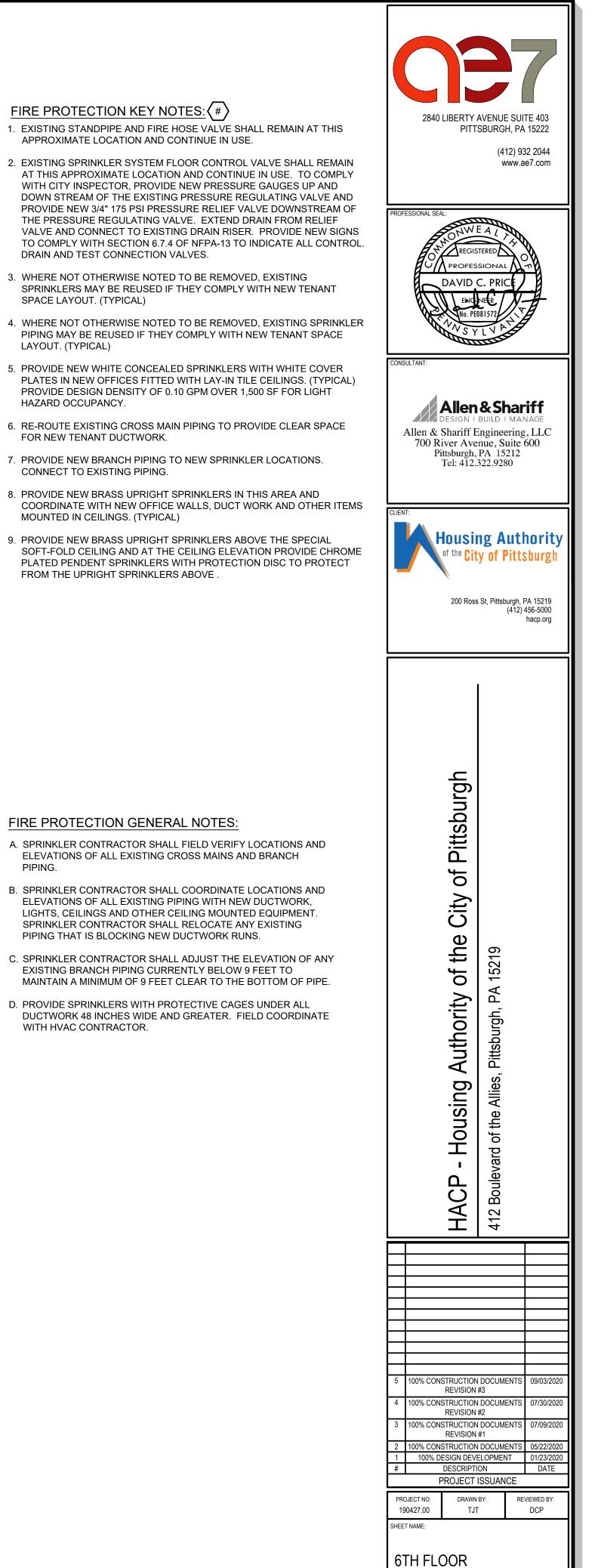
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DRAIN AND TEST CONNECTION VALVES.

- 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.

HR OPEN WORKSTATIONS _____619___

MANAGER'S

OFFICE

626

CHIEF

OFFICE

- 625

MANAGER'S

OFFICE

624

MANAGER'S

OFFICE

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MANAGER'S

OFFICE

HUDDLE

621

- EXISTING 2-1/2" CROSS MAIN

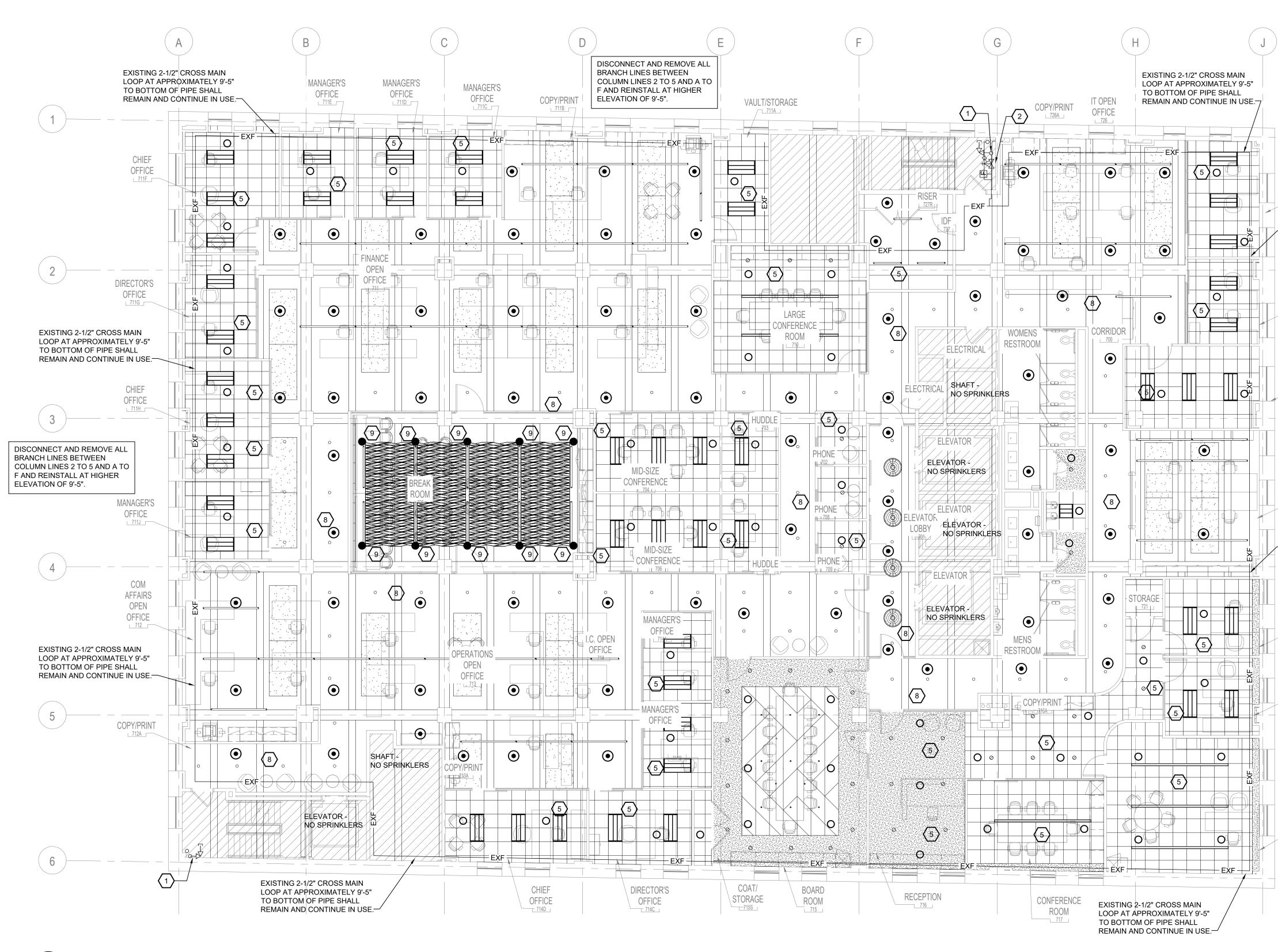
TO BOTTOM OF PIPE SHALL

LOOP AT APPROXIMATELY 9'-5"

REMAIN AND CONTINUE IN USE.

FIRE PROTECTION PLAN

FP-203





DIRECTOR'S

OFFICE

725

MANAGER'S

OFFICE

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EQUIPMENT

STORAGE

723

EXECUTIVE

WORKSTATIONS

MANAGER'S

OFFICE

MANAGER'S

OFFICE

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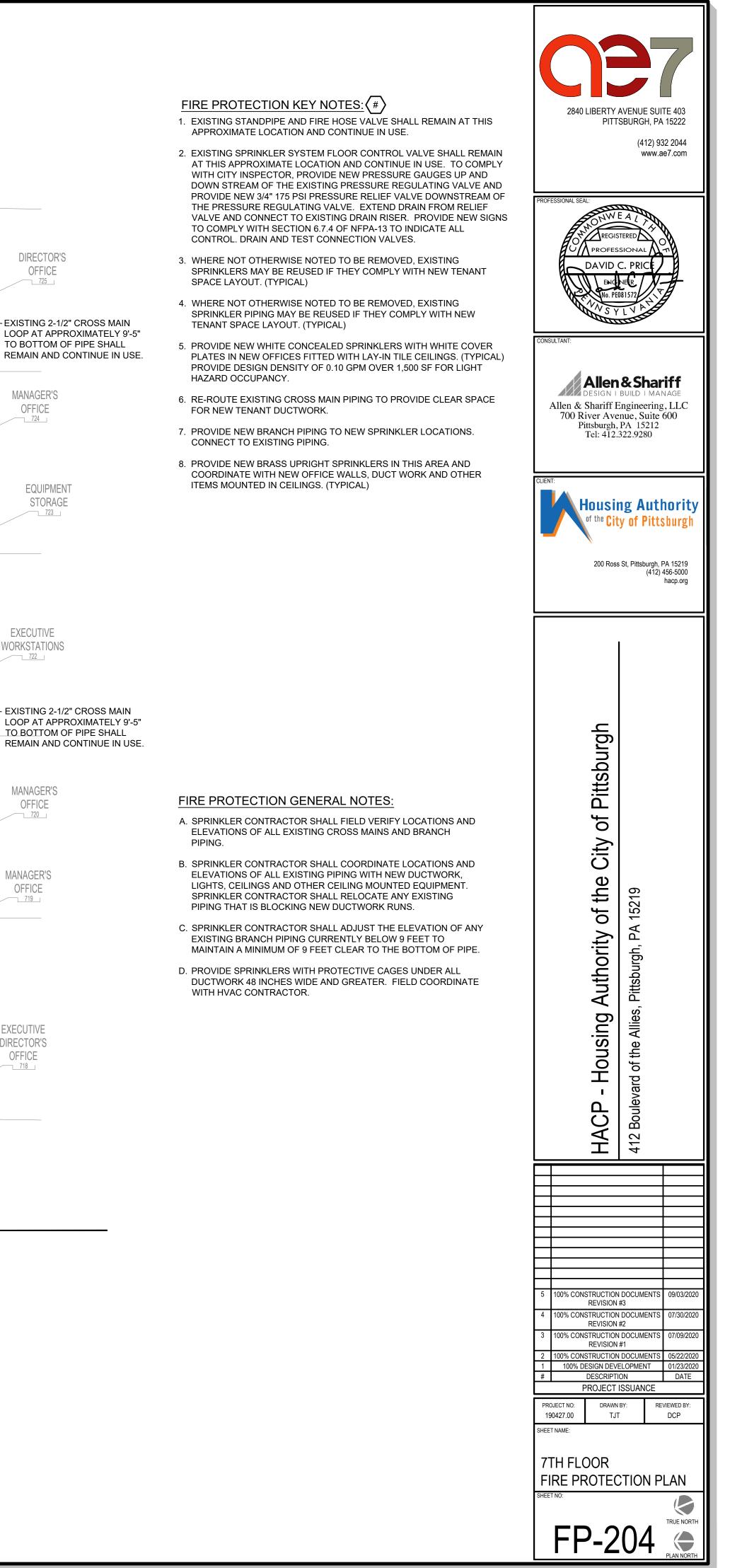
EXECUTIVE

DIRECTOR'S

OFFICE

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722



MARK	FIXTURE TYPE	CW	CW SFU's	нw	HW SFU'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 #ELUHAD321655-5.5" 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 #216-086 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 #775B.305-0.5 GPM WITH #PK00.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	211-53-31-14WHA	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	211-53-31-14WHA	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	211-53-31-14WHA	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	211-53-31-14WHA	1/2" FEMALE IRON THREAD x 3/8" COMPRESSION OUTLET	QUARTER TURN BALL VALVE - CHROME PLATED	SEE DETAIL ON P301

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

HEAD

RATE PRESSURE

POWER

WATTS

IN ACCESS PANEL

VOLTAGE

120 VOLT,

OPTIONS/NOTES

ADJUSTABLE SET POINT, INTEGRAL

STRAINERS ON SUPPLY INLET, BRONZE

FINISH, MOUNTING BRACKET, PROVIDED

1 PHASE

FLOW

WATER HEATER 2 GPM 11 FEET

MANUFACTURER & MODEL NUMBER

"BRADLEY VERNATHERM

MODEL # S59-4008"

EXPANS	ION TANK SCHE	DULE				
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

EXPANSION TANK SCHEDULE	

5. ACCEPTABLE MANUFACTURERS - A.O.SMITH, BRADFORD WHITE, LOCHINVAR.

EXPANS	ION TANK SCHE	DULE			
MARK	DESCRIPTION	MANUFACTURER & MODEL NUMBER	LOCATION	TANK SIZE	ACCEI VOI

MODEL

NUMBER

NBF-12U/LW

LOCATION

UNDER HAND SINKS

1. PROVIDE EXPANSION TANK. REFER TO EXPANSION TANK SCHEDULE ON THIS DRAWING.

4. DISCONNECTS BY PLUMBING CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR.

EXPANS	ION TANK SCHE	I TANK SCHEDULE	

3. PROVIDE HEAT TRAPS ON WATER HEATER IF NOT INTEGRAL TO HEATER.

NOTES -

NOTES -

PUMP SCHEDULE

MARK DESCRIPTION

CP-1 CIRCULATION

MARK

MV-1

120 DEGREE

PUMP

1. WORKING PRESSURE - 150 PSIG.

MIXING VALVE SCHEDULE

DESCRIPTION

120 DEG TO 105 DEG FOR

PUBLIC LAVATORIES

2. MAXIMUM SYSTEM TEMPERATURE - 140 DEG F.

3. ACCEPTABLE MANUFACTURERS - WESSELS, WATTS

MANUFACTURER &

MODEL NUMBER

(BASIS OF DESIGN)

BELL & GOSSETT

EXPANS	ION TANK SCHE	DULE				
MARK	DESCRIPTION	MANUFACTURER & MODEL NUMBER (BASIS OF DESIGN)	LOCATION	TANK SIZE	ACCEPTANCE VOLUME	NOTES
FT-1	DOMESTIC WATER	AMTROL ST-5	ONE AT EACH WATER HEATER	2 GALLONS	0.9 GALLONS	1.2

LOCATION

AT 6th FLR

2. THIS WATER HEATER IS TO BE MOUNTED ABOVE CEILING WITH PRE-MANUFACTURED DRAIN PAN AND SUPPORT - SEE DETAIL.

NOTES/ACCESSORIES							
BRONZE CONSTRUCTION, 24 HR TIME CLOCK, CIRCUIT SETTER VALVE, TC-1 TIMER KIT, PILOT LIGHT SWITCH							
S LOAD RANGE							

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. FURNISH ALL PLUMBING FIXTURES, EQUIPMENT AND MATERIAL INDICATED AND SHOWN 3. ON DRAWINGS AND INSTALL COMPLETE AND PLACE IN PROPER OPERATION.
- PROVIDE SANITARY WASTE AND VENT PIPING AND SANITARY SEWER AND EXTEND TO 4. 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. 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

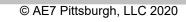
							1
	SYMBOL	ABRV.	PLUMBING	SYMBOL	ABRV.	DESCRIPTION	
ş	-SANS	SAN	SANITARY PIPING	∽		PIPE UP	
<u>۶</u>	—кw— - s	KW		<u>ہ</u>		PIPE DOWN	
ş	—st—	ST	(TO GREASE INTERCEPTOR) STORM PIPING (PRIMARY)	۔ ۲ <u>−</u> €{		PIPE TEE DOWN	2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222
	— OD —	OD	SECONDARY / OVERFLOW DRAIN PIPING	 ۶ابــــــــــ		PIPE UNION	(412) 932 2044 www.ae7.com
	V	V	VENT PIPING			PIPE CAP	
		cw	COLD WATER PIPING	, 		PIPE TRAP	PROFESSIONAL SEAL:
,							REGISTERED REGISTERED
\$ <u> </u>	— HW — \$	HW	HOT WATER PIPING	<u>, ₹ ,</u>		BALL VALVE	DAVID C. PRICE
<u>۶</u>	HWR	HWR	HOT WATER RETURN PIPING	<u>₹</u>		BALL VALVE OR SHUTOFF VALVE IN RISE	ENGINEER No. PEOR 1572
۶	— TP \$	TP	TRAP PRIMER PIPING			GLOBE VALVE	W SYLVAT S
<u>۶</u>	—G—— \$	G	GAS PIPING (NATURAL OR PROPANE)	∫ ⊱ ∳\$		BUTTERFLY VALVE	CONSULTANT:
<u>۶</u>	— FO —— \$	FO	FUEL OIL PIPING	°+⊠+		GATE VALVE	
<u>۶</u>	—s—_	S	SPRINKLER PIPING	⊱⊽→		GAS COCK	Allen & Shariff DESIGN I BUILD I MANAGE Allen & Shariff Engineering, LLC
s	— CD — - 	CD	CONDENSATE DRAIN PIPING	н у н	MV	MIXING VALVE	700 River Avenue, Suite 600 Pittsburgh, PA 15212 Tel: 412.322.9280
— —			PIPING ROUTED BELOW GRADE / SLAB (LINE TYPE INDICATES SERVICE TYPE UNO)	۲ ۲		VACUUM RELIEF VALVE	101. 412.522.5200
<u>۶</u> ـــــ	– EX (X) —→	EX	EXISTING PIPING TO REMAIN - (X) DESIGNATES SERVICE	۲Î	VB	VACUUM BREAKER	CLIENT:
جـــ	-RX (X)	RX	EXISTING PIPING TO BE REMOVED - (X) DESIGNATES SERVICE	∽ ;≛;		GAS SOLENOID VALVE	Housing Authority
	– VAC ——	VAC	MEDICAL VACUUM PIPING	5- \$ -\$	BV	BALANCING VALVE	of the City of Pittsburgh
	– MA ——	MA	MEDICAL AIR PIPING	<u>به</u>	PRV	PRESSURE REDUCING VALVE	200 Ross St, Pittsburgh, PA 15219 (412) 456-5000
	– OXY —	OXY	OXYGEN PIPING	-	PRV	PRESSURE REGULATING VALVE	hacp.org
	- HEX	HEX	HELIX PIPING	म्र्र्सिन मन्नून	cv	CHECK VALVE	
					Cv		
	— N ——	N		5 H5H5		STRAINER	
	– CA —	CA	COMPRESSED AIR PIPING	۲ <u>گ</u> ر	T&P	TEMPERATURE AND PRESSURE RELIEF VALVE	
	- AV	AV	ACID VENT PIPING		BFP	BACK FLOW PREVENTER	
	– AW ——	AW	ACID WASTE PIPING	<u>ب</u> چې ز	PG	PRESSURE GAUGE	Pittsburgh
	– CO2 —	CO2	CARBON DIOXIDE PIPING	<u>بالج</u>		THERMOMETER	ittsk
	— MAI ——	MAI	MEDICAL AIR INTAKE PIPING	<u>ب</u>		AQUASTAT	of Di
	– MVD ——	MDV	MEDICAL VACUUM DISCHARGE PIPING	بطح		HOT WATER RECIRC. PUMP	
	– NO ——	NO	NITROUS OXIDE PIPING	~~		INTERIOR HOSE BIBB OR HOSE END DRAIN VALVE	City
_	– PD ——	PD	PUMP DISCHARGE	+		EXTERNAL WALL HYDRANT	if the 5219
_	WAGD —	WAGD	WASTE ANESTHETIC GAS DISCHARGE	₅ ₽		DOMESTIC SHOCK ABSORBER/WATER HAMMER ARRESTER; TEXT DENOTES SIZE (PDI: A ~ F)	
	—+ <u>,</u>		MEDICAL GAS OUTLET (LETTER DESIGNATES GAS TYPE)	<u>ه</u>	FCO	CLEAN OUT, FLOOR	Authority Pittsburgh, P/
L	~			ار ډار	со	CLEAN OUT, EXPOSED	Authorit Pittsburgh,
			OORDINATION DRAWINGS ARE APPROVED BY	•	FD	FLOOR DRAIN	
RCHITECT. DINATE ANI	D FIELD VERIF	/ SANIT/	ARY PIPE ROUTING WITH OWNER ON THIS FLOOR		RD	ROOF DRAIN	e Allies
			N CONDITIONS IN THE CEILING OF SPACE BELOW D TO MISS CONFLICTS WITH DUCTWORK AND			FLOOR DRAIN WITH TRAP PRIMER	Housing d of the Allies
UPPLY BRA	S AND COUPLI	NGS WIT	PRESS TYPE" HEAVY DUTY HIGH COMPRESSION TH O-RING SEALS OR TRADITIONAL LEAD-FREE			FLOOR SINK/RECEPTOR WITH HALF GRATE	ar l
TTED AT TH DICATED S	HE SUPPLY MA SCOPE OF THE	NIFOLDS DRAWIN	RILL FITTINGS WITH BRAZED JOINTS ARE S BEHIND BANKS OF PLUMBING FIXTURES. IGS ARE FOR GUIDANCE ONLY AND		0000		
QUIRED TO	DO WORK IN A	REAS C	ONSTRUCTION WORK. THIS CONTRACTOR MAY OUTSIDE OF THIS SCOPE WHERE NECESSARY TO EXTEND TO EXISTING SYSTEMS IN ORDER TO		OS&Y		412 HA
ORM THE WO	ORK INDICATE E TO GAIN ACC	D ON TH	IESE DRAWINGS. COORDINATE WITH OWNER'S ADJOINING SPACES AND TO MINIMIZE	HAT.	T.S.	OS&Y VALVE WITH TAMPER SWITCH	
PTION OF S	SERVICES.			<i>∽</i> \$		FIRE DEPARTMENT SIAMESE CONNECTION	
			IBLE FOR ALL PLUMBING RELATED DEMOLITION	42 × *		FIRE PUMP TEST HEADER	
			ALLS, PARTITIONS, CEILINGS, ETC. THAT ARE TO	<u></u>	FHV	FIRE HOSE VALVE CABINET	
	LL BE COORDIN	NATED A	ND SCHEDULED WITH THE OWNER, PRIOR TO	(I.E. XX.XX		INVERT ELEVATION B.F.F. (IN FEET)	5 100% CONSTRUCTION DOCUMENTS 09/03/2020
		EMOVEI	D COMPLETELY INCLUDING ALL ASSOCIATED			KITCHEN EQUIPMENT DESIGNATION; REFER TO KITCHEN EQUIPMENT DRAWINGS FOR DETAILS	REVISION #3 4 100% CONSTRUCTION DOCUMENTS REVISION #2 07/30/2020
, UNLESS C			STANCES SHALL WORK BE LEFT ABANDONED IN D. REMOVE ALL UNUSED PIPING AND HANGERS	⊱@		UTILITY METER	3 100% CONSTRUCTION DOCUMENTS REVISION #1 07/09/2020 2 100% CONSTRUCTION DOCUMENTS 05/22/2020
ISCARD. ALVAGEABI	LE MATERIAL A	T THE F	REQUEST OF THE OWNER SHALL BE RETURNED	Ð		CONNECT TO EXISTING	1 100% DESIGN DEVELOPMENT 01/23/2020 # DESCRIPTION DATE
-	DURING DEMOL	-				DISCONNECT FROM EXISTING	PROJECT ISSUANCE PROJECT NO: DRAWN BY: REVIEWED BY: 1004037.00 T IT DOD
RITY. CAP	BRANCHES AT	MAINS	RING DEMOLITION TO MAINTAIN SYSTEM TO PREVENT DEAD LEGS. PATCH HOLES IN NG - COORDINATE WITH GC.	·		FLEXIBLE PIPE CONNECTION	190427.00 TJT DCP SHEET NAME:
NG OF THE XISTING PIP E PRACTIC	E MAINS. THE C PING BOTH FOR	ONTRA SIZE AI IFY BES	GS IS DIAGRAMMATIC AND SHOWS THE BASIC CTOR SHALL BE RESPONSIBLE TO FIELD VERIFY ND LOCATION. EXISTING PIPING MAY BE REUSED T ROUTING FOR NEW PIPING INSTALLATIONS IN THE FIELD				PLUMBING DATA SHEET SHEET NO:

COORDI THE ARC

- 18. COORDII AND FLC THIS FL STRUCT
- 19. NEW SU COPPER SOLDER PERMITT
- 20. THE IND REPRES BE REQL DEMOLIS PERFOR REPRES DISRUPT

PLUMBIN

- 1. THE CON WORK. BE REMO
- 2. DEMOLT BEGINNI
- 3. DEMOLI APPURT PLACE, AND DIS
- 4. ANY SAL TO THE
- 5. CAP ALL INTEGRI FLOORS
- 6. THE PIPI ROUTING ALL EXIS WHERE PRACTICAL. FIELD VERIFY BEST ROUTING FOR NEW PIPING INSTALLATIONS AND MAKE NECESSARY ADJUSTMENTS IN THE FIELD.



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:

- 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

- 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 0&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.
- 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.

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.

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

- DIVISION 23 "MECHANICAL SYSTEMS COMMISSIONING"
- 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.
- 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.

- SEQUENCES OF CONSTRUCTION AND THE SAFETY OF WORKMEN.
- EQUIPMENT OR THROUGH ELEVATOR MACHINE ROOMS.
- CONTRACTOR COORDINATION OF ELECTRICAL EQUIPMENT CHARACTERISTICS.
- ADDITIONAL COST TO THE OWNER.
- SPECIFICATIONS FOR PHASING REQUIREMENTS.
- PRIOR TO BIDDING.

B. CODES, PERMITS, STANDARDS AND REGULATIONS

- GOVERNMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, AND APPLICABLE STANDARDS.
- PROVIDE COPIES OF INSPECTIONS, AND APPROVALS TO THE ARCHITECT-ENGINEER.
- C. RELATED WORK SPECIFIED ELSEWHERE

- CONSTRUCTION.
- 3. POURED-IN-PLACE CONCRETE.
- 4. FINISH PAINTING.
- 5. ELECTRIC POWER WIRING.
- D. DRAWINGS
 - MEASUREMENT.
 - THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY.
- OR LABOR CALLED FOR IN ONE BUT NOT THE OTHER SHALL BE PROVIDED.

E. DEMOLITION AND REMOVAL

- INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR THE PROJECT.
- TO THE OWNER'S ON SITE.
- REQUIREMENTS SHALL BE REPLACED AND/OR REPAIRED AT HIS EXPENSE.
- CONTRACTOR SHALL COORDINATE WORK WITH OTHER TRADES PERFORMING DEMOLITION WORK.
- 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.
- STATED IN THIS SPECIFICATION, SHALL BE KNOWN AS A "STANDARD".
- 4. PROPOSALS SHALL BE BASED ON "STANDARDS" SPECIFIED.
- EQUIVALENT IN ALL RESPECTS TO THE BASE SPECIFICATIONS.
- CONTRACTOR FROM THIS RESPONSIBILITY.
- CONFORM TO THESE REQUIREMENTS.
- G. CHECK, TEST, START, ADJUST, BALANCE AND INSTRUCTIONS

- H. CUTTING, PATCHING AND DRILLING
 - THIS CONTRACTOR. CUTTING SHALL BE IN A NEAT AND WORKMANLIKE MANNER.
 - OR PROVIDE TRIM FLANGE AROUND OPENINGS.

9. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS,

10. PIPING, CONTROLS, ETC., SHALL NOT BE INSTALLED, OR ROUTED ABOVE, ELECTRICAL PANELS AND

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

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

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

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

CONFORM TO APPLICABLE CODES (LOCAL, STATE, NATIONAL CODES, NFPA, OSHA, ETC.),

OBTAIN PERMITS AND PAY FEES. ARRANGE FOR REQUIRED TESTS, INSPECTIONS AND APPROVALS.

1. OPENINGS AND CHASES, WHEN SHOWN ON ARCHITECTURAL DRAWINGS.

2. TEMPORARY WATER SERVICE, SANITARY FACILITIES, FIRE PROTECTION AND HEATING DURING

1. THE SYSTEMS SHOWN THE DRAWINGS ARE DIAGRAMMATIC. CONFIRM DIMENSIONS BY FIELD

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

DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT ONE ANOTHER. ANY MATERIALS

1. DISCONNECT, DISASSEMBLE, CAP, PLUG AND REMOVE ALL PIPING, DUCTS AND EQUIPMENT

2. ANY EQUIPMENT DESIGNATED BY OWNER TO BE SALVAGED SHALL BE PROTECTED AND DELIVERED

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

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.

6. REMOVE SUPPORTS, HANGERS, AND ACCESSORIES FROM EQUIPMENT AND MATERIAL INDICATED TO

3. THE NAME OR MAKE OF ANY ARTICLE, DEVICE, MATERIAL, FORM OF CONSTRUCTION, FIXTURE, ETC.,

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.

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

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

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

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. 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.

CUTTING AND PATCHING OF THE BUILDING CONSTRUCTION REQUIRED FOR THIS WORK SHALL BE BY

2. NEATLY SAW CUT RECTANGULAR OPENINGS, SET SLEEVE THROUGH OPENING, AND FINISH PATCH

- 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.
- CORE DRILL AND SLEEVE ROUND OPENINGS.
- 5. DO NOT CUT ANY STRUCTURAL COMPONENTS WITHOUT ARCHITECT'S/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

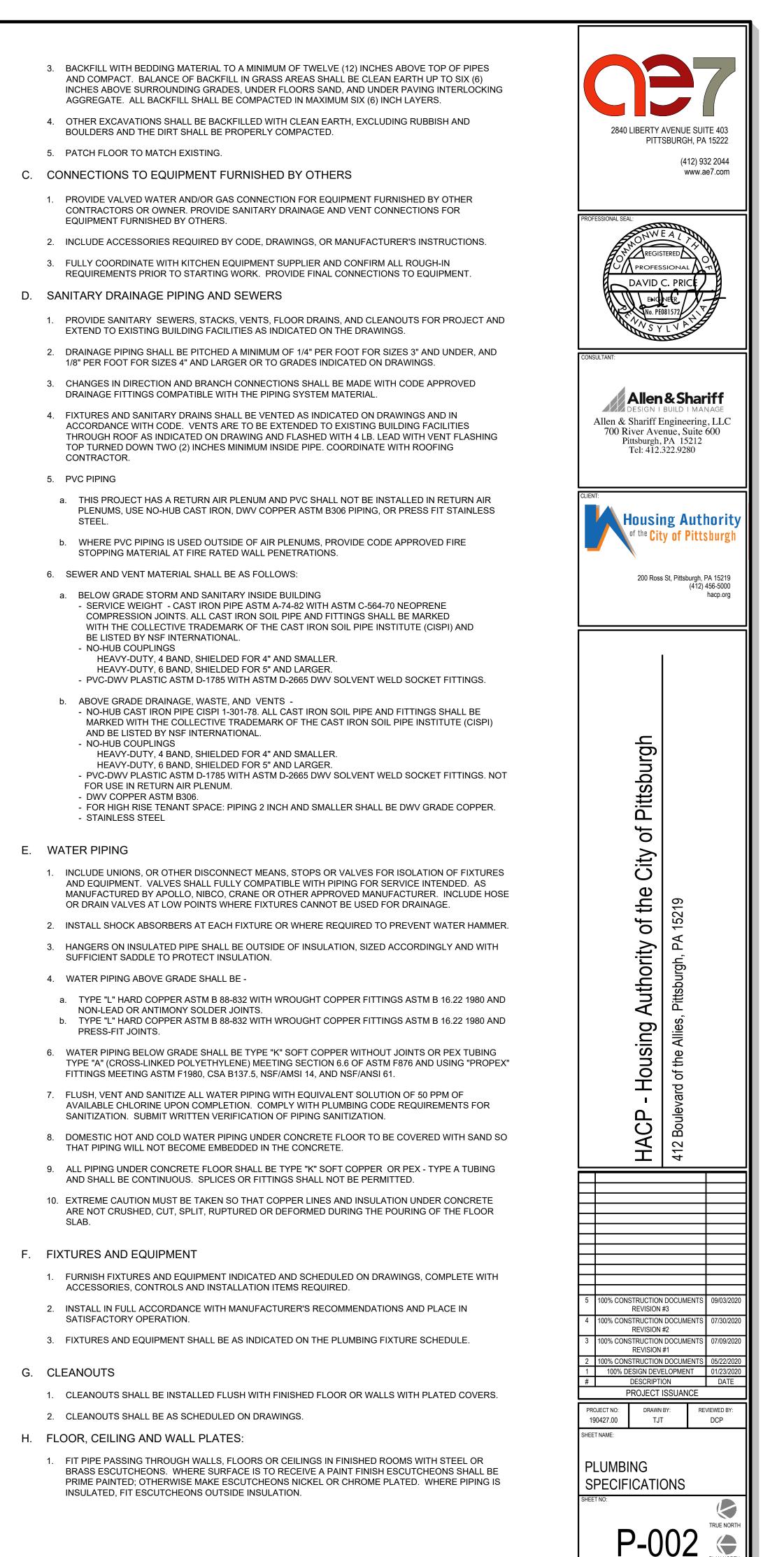
- 1. EACH CONTRACTOR OR SUBCONTRACTOR SHALL KEEP ONE (1) COMPLETE SET OF THE CONTRACT WORKING DRAWINGS ON THE JOB SITE. THE CONTRACTOR SHALL REGULARLY RECORD DEVIATIONS OR CHANGES FROM SUCH CONTRACT DRAWINGS MADE DURING CONSTRUCTION.
- 2. THESE DRAWINGS SHALL RECORD THE LOCATION OF ALL CONCEALED EQUIPMENT, 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.
 - 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.
 - 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.

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).



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

- 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 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.
- 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	<u>R</u>
1/2" THRU 1-1/2" 2" THRU 3" 4" THRU 5" 6" AND LARGER	6 FT. 10 FT 12 FT 16 FT	
CAST IRON PIPING:		
DIAMETER OF PIPE	MAXIMUM SPACING	<u>R</u>
1 1/2" THRU 3" 4" AND 5"	EACH JOINT EACH JOINT	

EACH JOINT 10" THRU 15" EACH JOINT (TWO HANGERS)

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

6" AND 8"

- 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-11/70LF-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.

- ROD SIZE
- 3/8' 1/2" 5/8" 3/4
- ROD SIZE
- 3/8" 1/2" 3/4" 3/4"

- 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
 - 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
 - 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.
- 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 4X, INDOOR USE SHALL BE NEMA TYPE 1, EXPLOSION PROOF USE SHALL BE NEMA TYPE 7.
- S. DISCONNECT SWITCHES
 - 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.

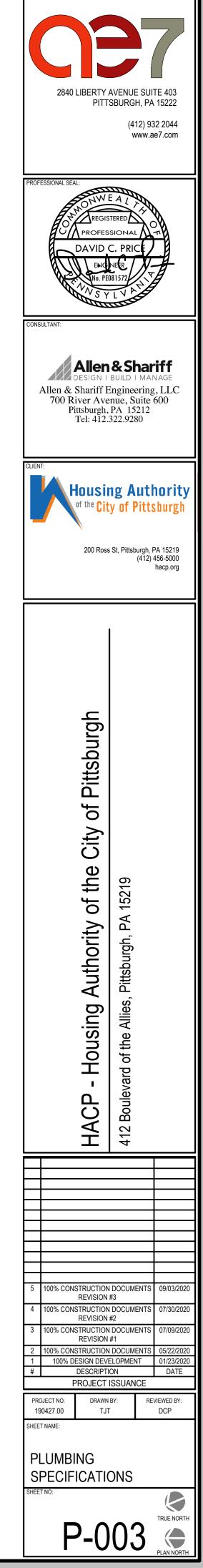
T. FIRESTOPPING

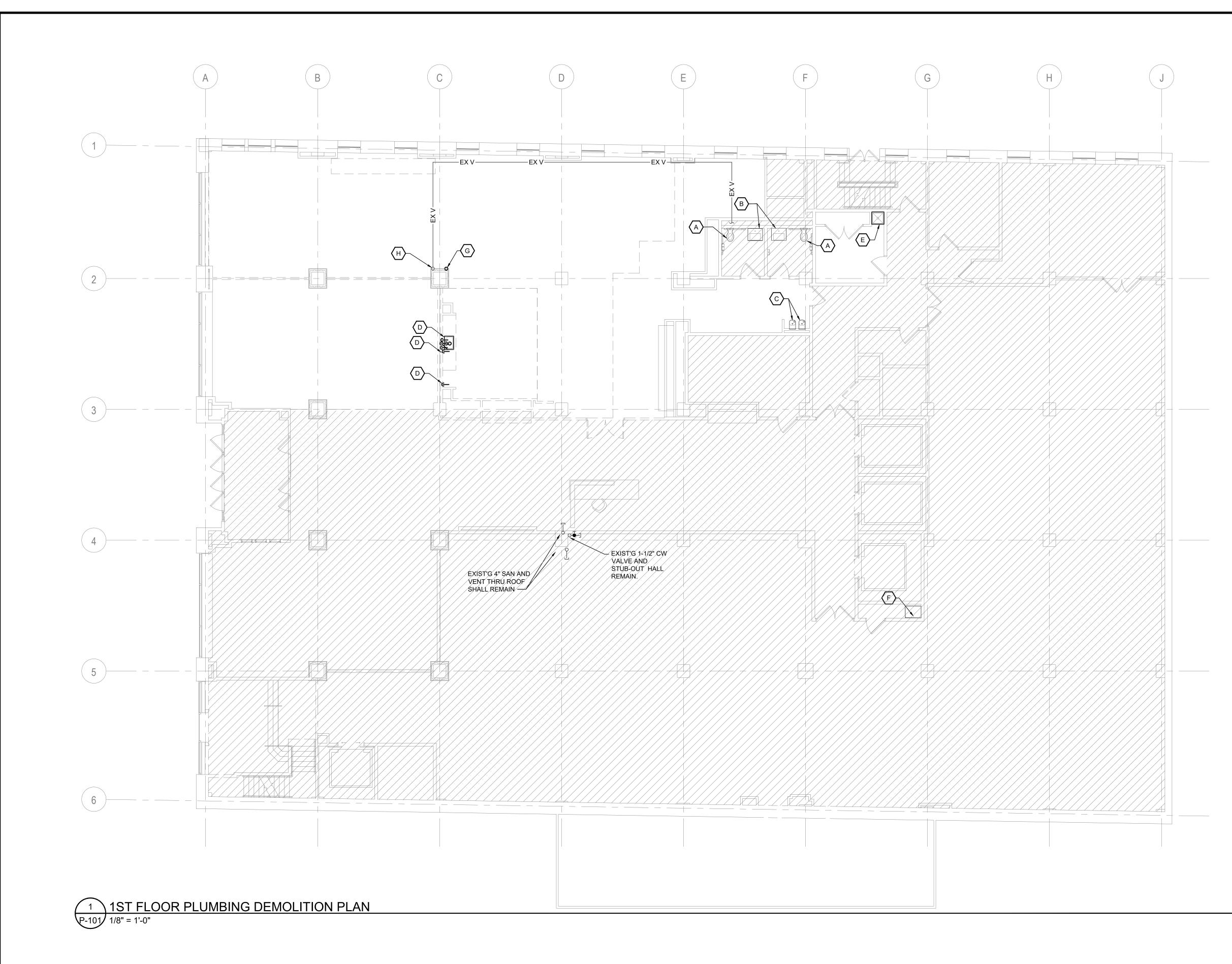
- 1. SERVICES THAT PASS THRU FIRE OR SMOKE RATED PARTITIONS, WALLS, FLOORS, SHALL BE FIRESTOPPED. FIRE STOPPING SYSTEM RATING SHALL MATCH PARTITION RATING. FIRE STOPPING SYSTEM SHALL MEET THE REQUIREMENTS OF ASTM E 814, UL 1479, AND BE FACTORY MUTUAL APPROVED.
- 2. FIRESTOPING AND/OR SMOKE STOPPING MATERIAL 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 BULIDING CONSTRUCTION. ANCHOR FASTENERS TO BUILDING CONSTRUCTION WITH PULL-OUT AND SHEAR CAPACITIES APPROPRIATE FOR THE SUSPENDED CEILING.
- 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 ASSEMBLIES AS INDICATED ON THE PLANS OR AS REQUIRED BY CODE.

END OF PLUMBING SPECIFICATIONS

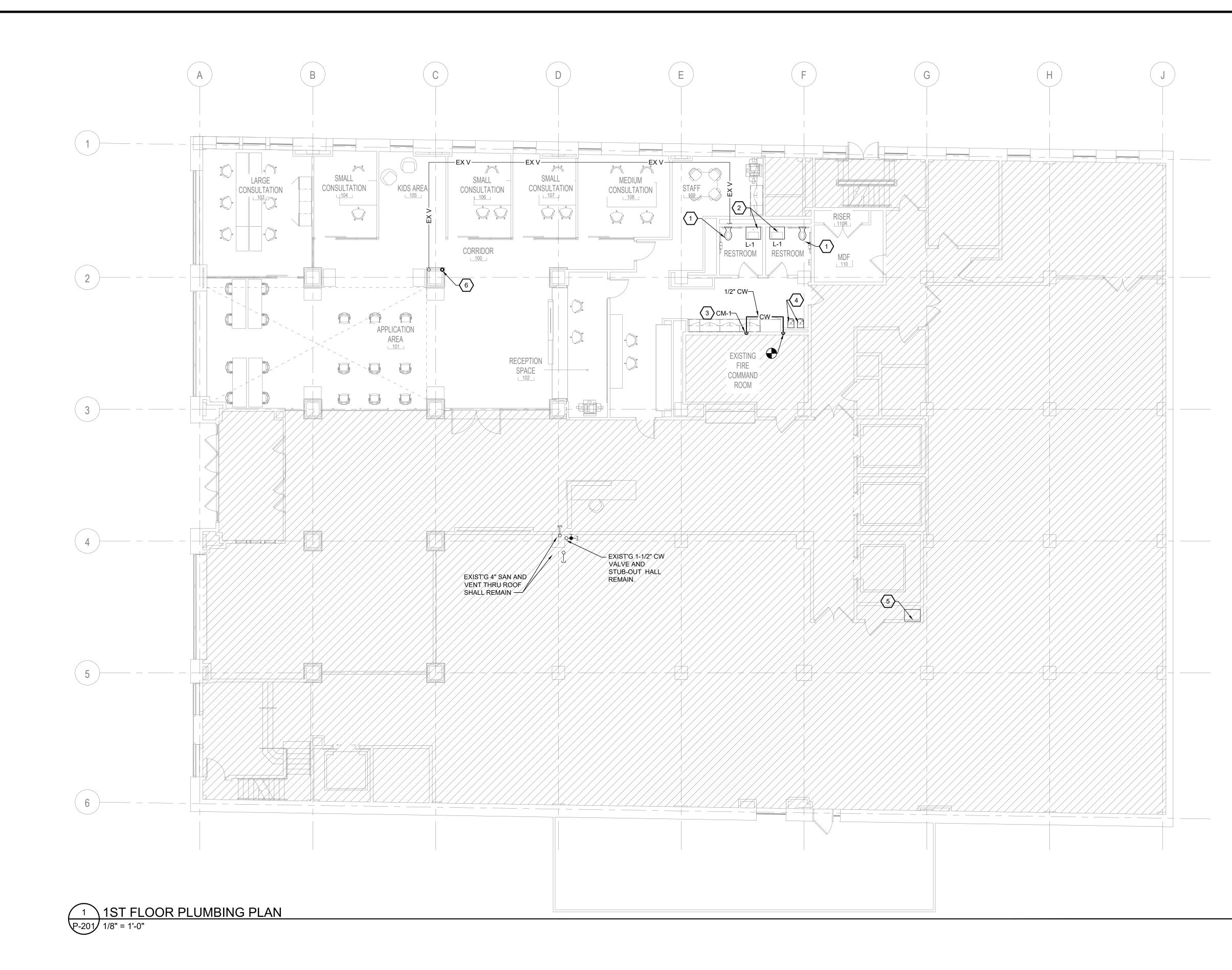




PLUMBING DEMOLITION KEY NOTES: (#)

- 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.

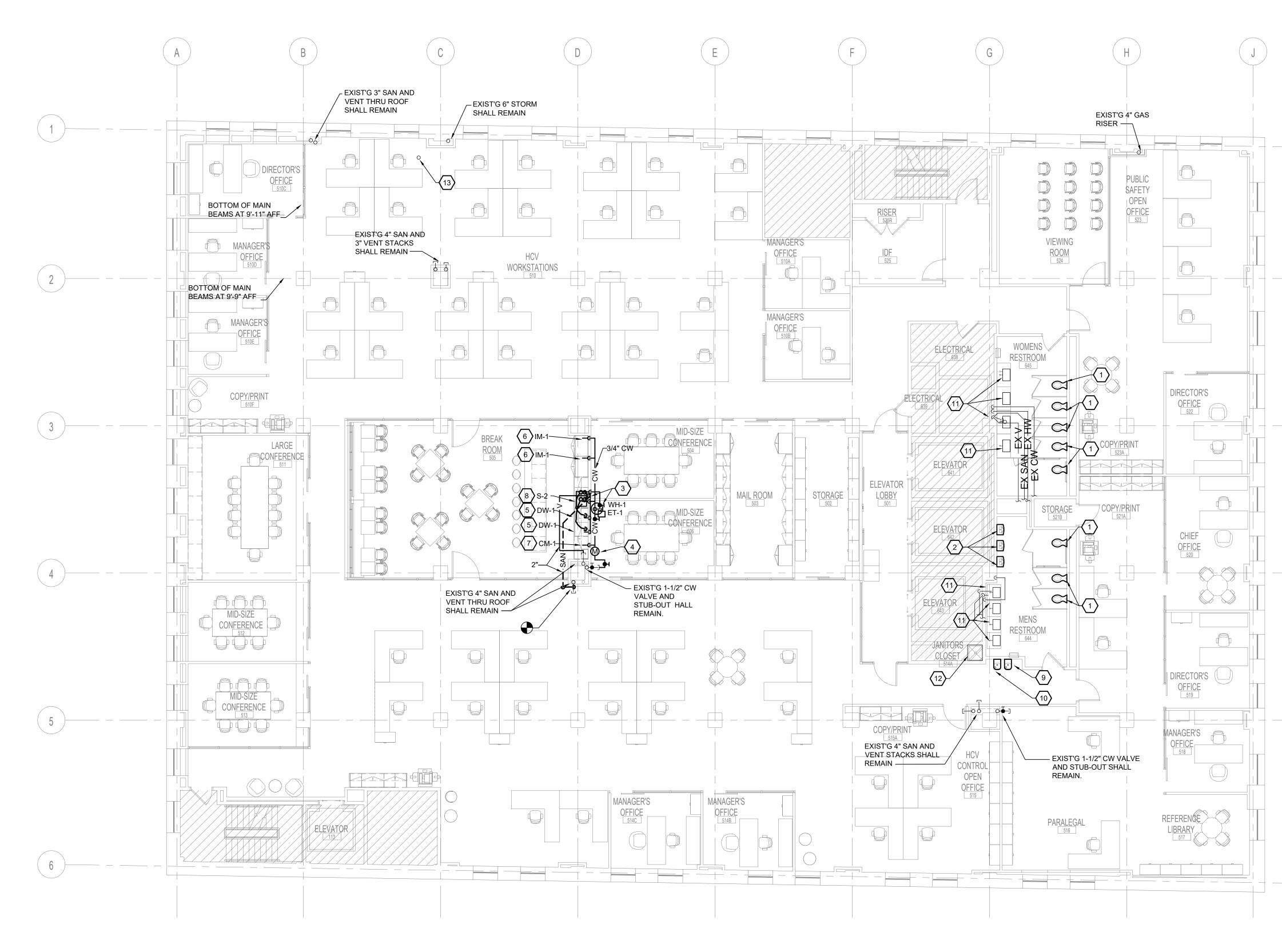
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PLUMBING KEY NOTES: $\langle \# \rangle$

- 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.
- 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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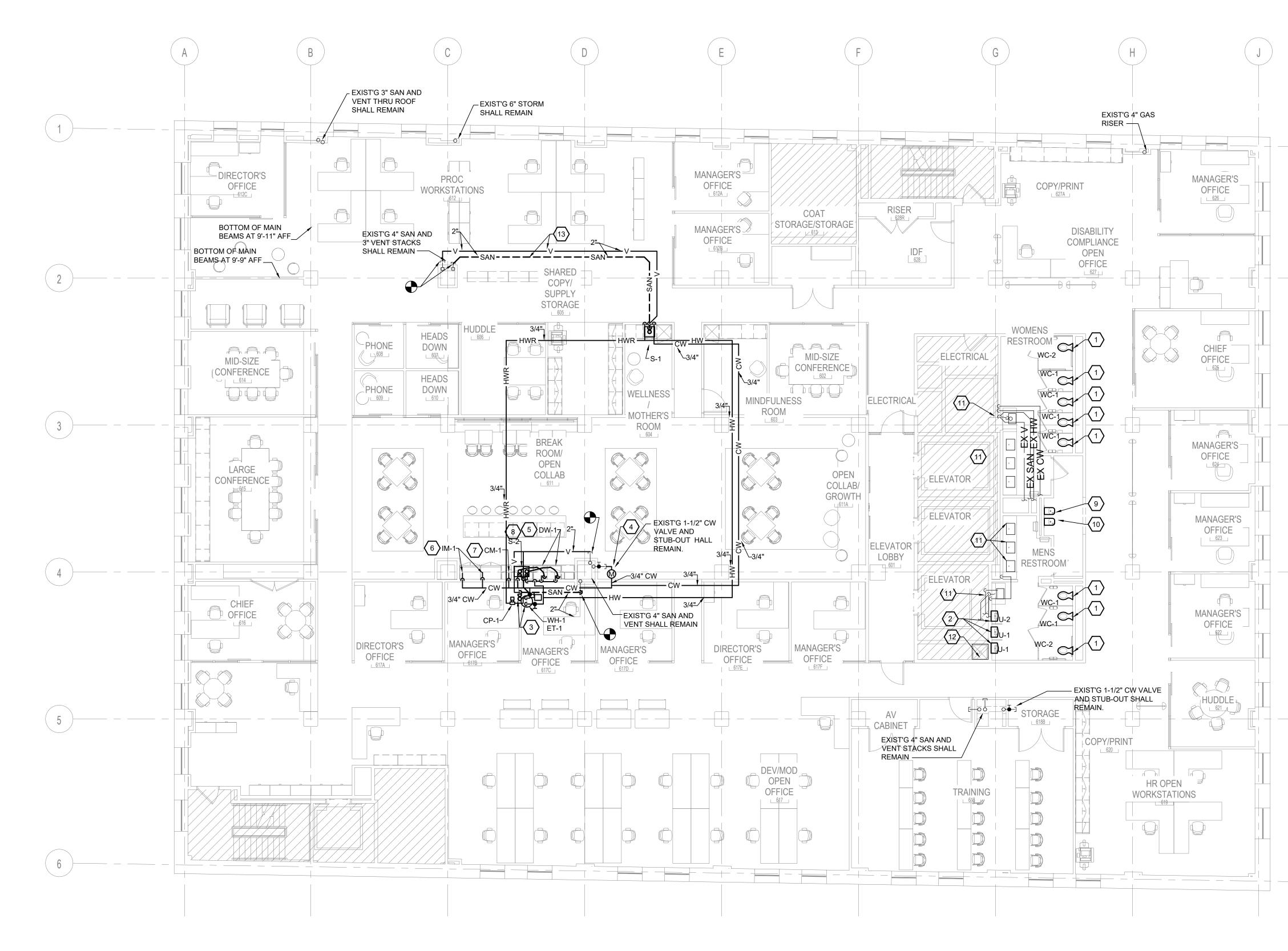






- 1. EXISTING LOW FLOW 1.28 GPF WATER CLOSET WITH MANUAL OPERATED 1.28 GPF WATER CLOSET FLUSH VALVE RECENTLY INSTALLED SHALL REMAIN IN THIS LOCATION AND CONTINUE IN USE. REPLACE THE MANUAL FLUSH VALVE WITH NEW BATTERY OPERATED UNIT LISTED FOR WC-1 IN THE FIXTURE SCHEDULE.
- 2. EXISTING RECENTLY INSTALLED 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.
- 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.

2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com	
PROFESSIONAL TH DAVID C. PRICE ENGINEER No. PEOBIS72	
CONSULTANT: Allen & Shariff DESIGN I BUILD I MANAGE Allen & Shariff Engineering, LLC 700 River Avenue, Suite 600 Pittsburgh, PA 15212 Tel: 412.322.9280	
CLIENT: Housing Authorit of the City of Pittsburg 200 Ross St, Pittsburgh, PA 15219 (412) 456-5000 hacp.org	
HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219	
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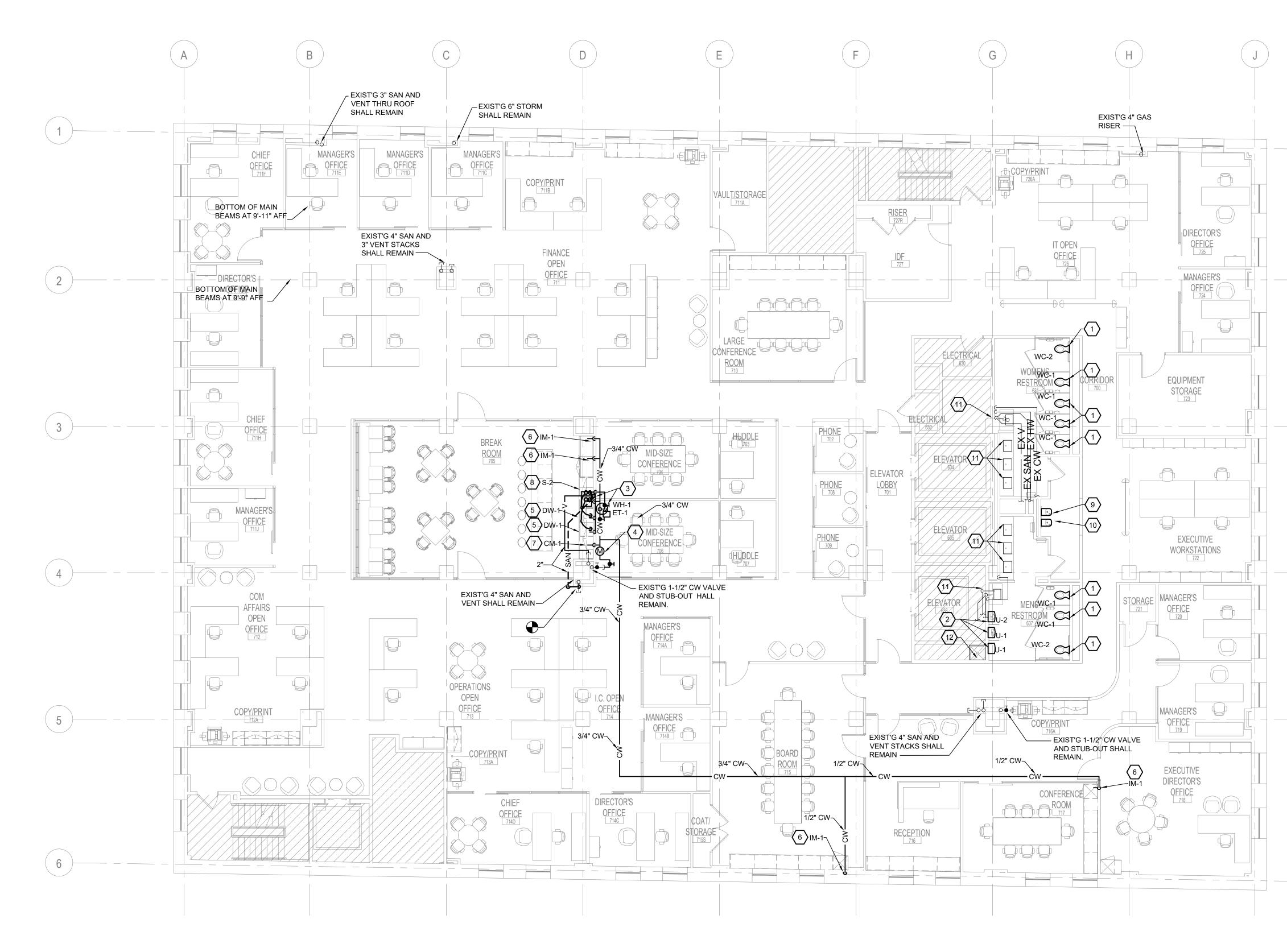




PLUMBING KEY NOTES: (#)

- 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.
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- 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.

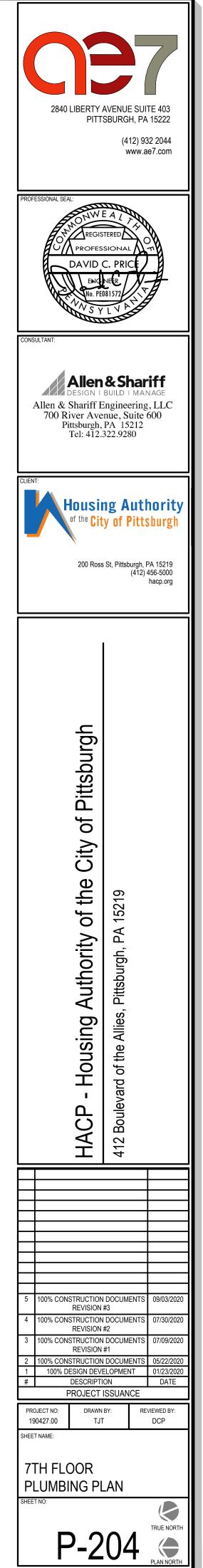
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CONSULTANT: Allen & Shariff DESIGN I BUILD I MANAGE Allen & Shariff Engineering, LLC 700 River Avenue, Suite 600 Pittsburgh, PA 15212 Tel: 412.322.9280
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6TH FLOOR PLUMBING PLAN
SHEET NO: P-203

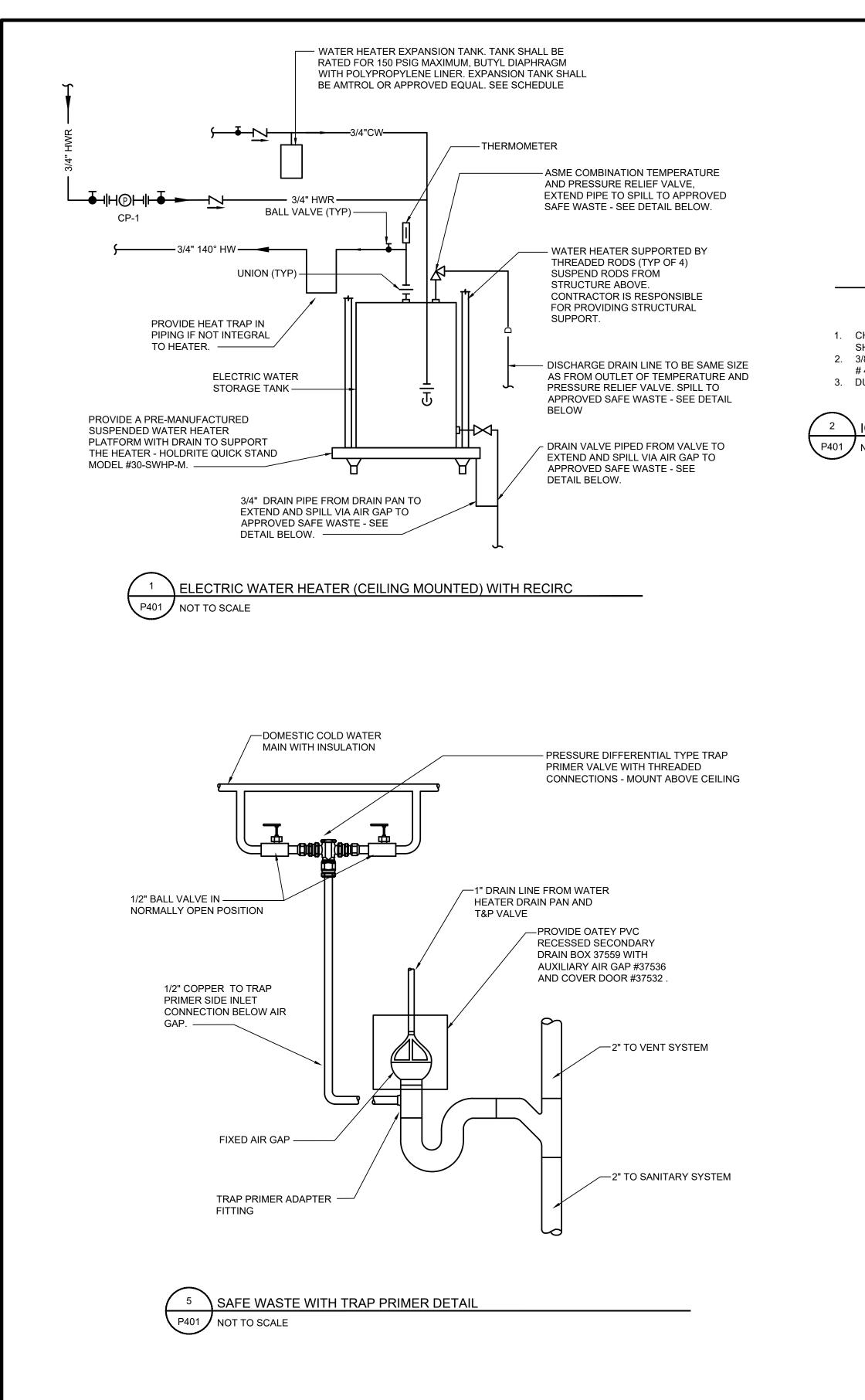


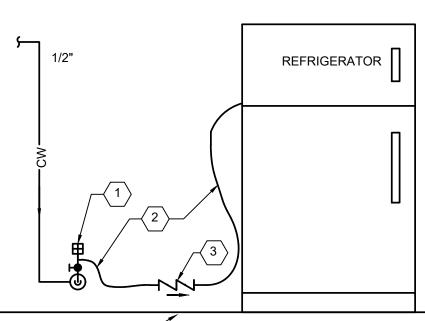
1 7TH FLOOR PLUMBING PLAN P-204 1/8" = 1'-0"

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.



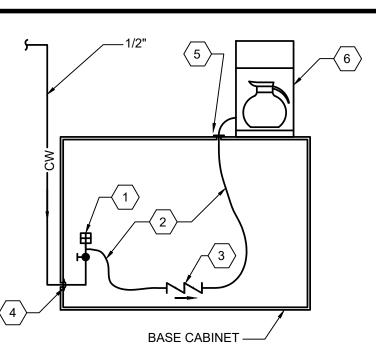




FLOOR-

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)

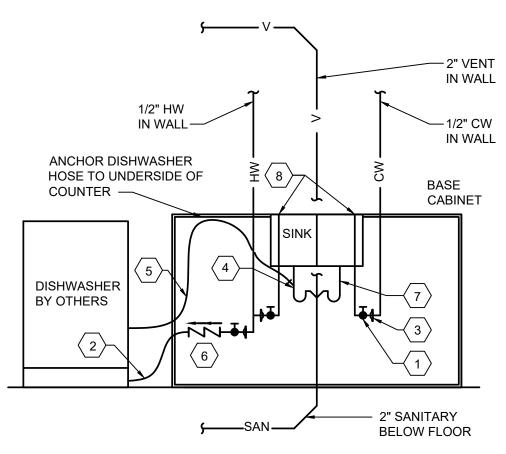
ICE MAKER WITHOUT FILTER CONNECTION SCHEMATIC P401 / NOT TO SCALE



- 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.

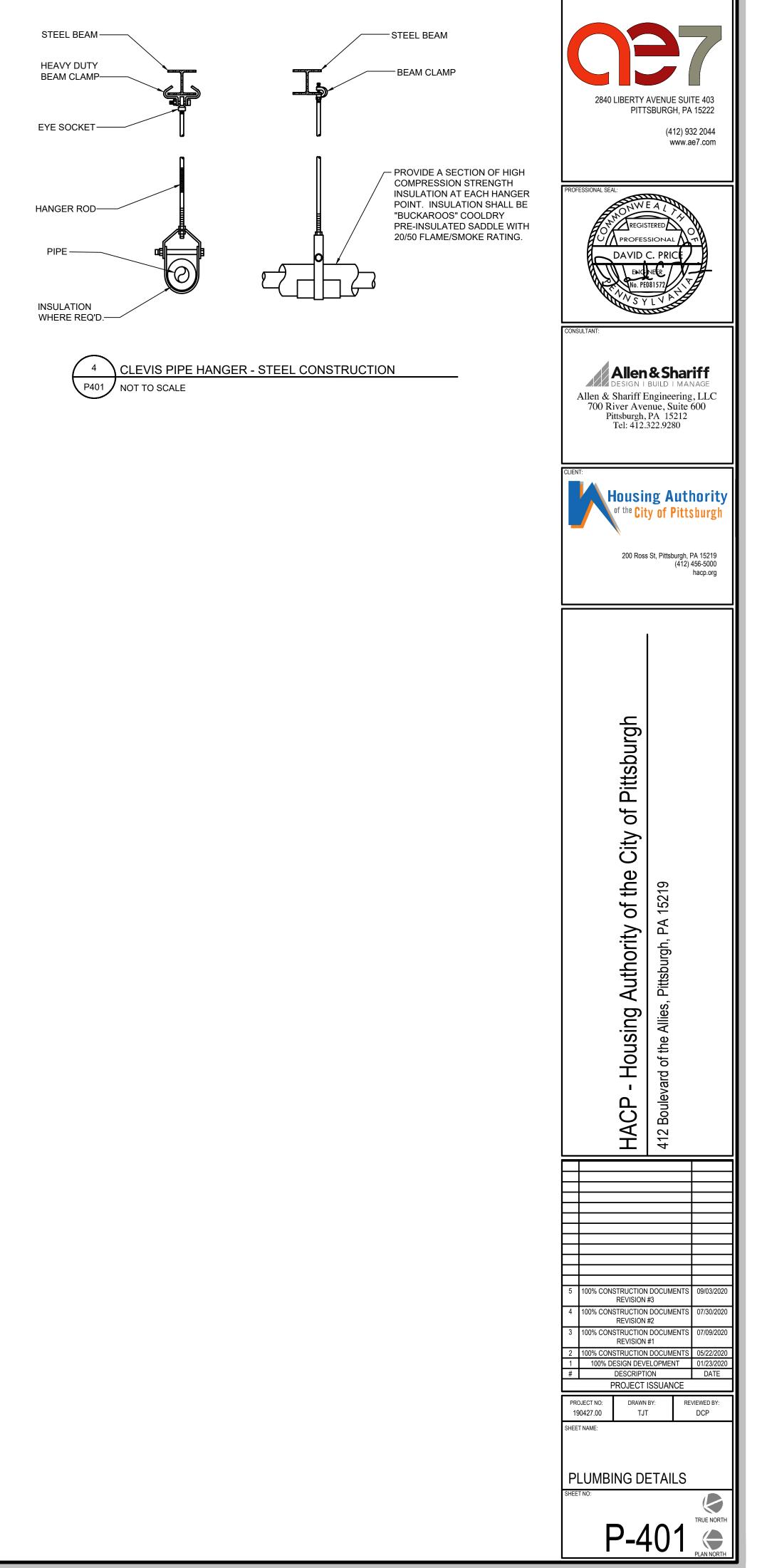


COFFEE MAKER (CM-1) CONNECTION SCHEMATIC AND WATER DISPENSER (WD-1) CONNECTION SCHEMATIC NOT TO SCALE



- 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 TAIL PIECE 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-7C 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

SINK WITH DISHWASHER CONNECTIONS SCHEMATIC P401 NOT TO SCALE



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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.

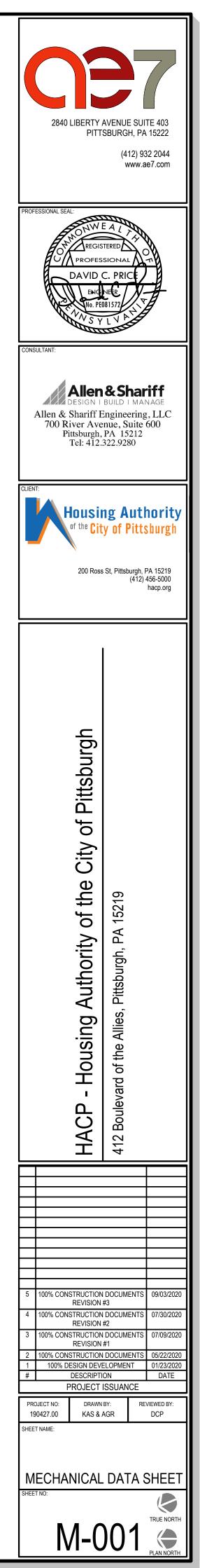
DUCTWORK GENERAL NOTES (ALL DRAWINGS)

- 1. ALL DUCTWORK INDICATED IS SCHEMATIC AND SHOW ONLY RELATIVE POSITIONS. PROVIDE OFFSETS, RISES, TRANSITIONS AND ELBOWS AS NEEDED TO INSTALL PROPERLY.
- PROVIDE ACCESS DOORS IN DUCTWORK FOR OPERATION, ADJUSTMENT, AND 2. MAINTENANCE OF ALL HVAC DEVICES, FANS, DAMPERS, (FIRE, SMOKE, BALANCING) COILS, AND TERMINAL EQUIPMENT.
- LOCATIONS OF TERMINAL DEVICES, AIR OUTLETS AND INLETS ARE 3. 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.
- 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.
- FINAL CONNECTIONS FROM HIGH VELOCITY MAIN DUCTS TO AIR TERMINAL 5. 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.
- FLEXIBLE DUCTWORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 6 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.
- 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.
- 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.
- PROVIDE SERVICE VALVES AT EACH BRANCH CONNECTION FROM MAINS AND 3. 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.

MECHANI SYMBOL	ABRV.	CTWORK & GENERAL SYMBOLS LEGEND	SYMBOL		NICAL PIPING SYMBOLS LEGEND DESCRIPTION	ABRV.	MECHANICAL ABBREVIATIONS DESCRIPTION
	XTR	EXISTING EQUIPMENT OR DUCTWORK TO REMAIN	—HWS	HWS	HEATING WATER SUPPLY PIPING	HVAC	
	RX	EXISTING EQUIPMENT OR DUCTWORK TO BE REMOVED	— — HWR— —	HWR	HEATING WATER RETURN PIPING	MBH KW	1000 - BRITISH THERMAL UNITS 1000-WATT (1 KW = 3,412 BTUH)
		NEW EQUIPMENT OR DUCTWORK	cws	CWS	CONDENSER WATER SUPPLY PIPING	SENS. LAT.	SENSIBLE LATENT
		LINED DUCTWORK	——————————————————————————————————————	CWR	CONDENSER WATER RETURN PIPING	E.A.T.	ENTERING AIR TEMPERATURE
		SUPPLY DUCT UP	— CHWS —	CHWS	CHILLED WATER SUPPLY PIPING	L.A.T.	
		SUPPLY DUCT DOWN	— — CHWR— —	CHWR	CHILLED WATER RETURN PIPING	E.W.T. L.W.T.	ENTERING WATER TEMPERATURE LEAVING WATER TEMPERATURE
		RETURN / EXHAUST DUCT UP	G	G	NATURAL GAS PIPING	DB/WB	DRY BULB / WET BULB INCHES WATER GAUGE (AIR)
		RETURN / EXHAUST DUCT DOWN	D	D	CONDENSATE DRAIN PIPING	FT. W.G. E.S.P.	FEET WATER GAUGE (HYDRONIC) EXTERNAL STATIC PRESSURE
} ©_}		ROUND DUCT ELBOW UP	—— R — —	R	REFRIGERANT PIPING	T.S.P.	TOTAL STATIC PRESSURE
		ROUND DUCT ELBOW DOWN	LPS	LPS	LOW PRESSURE STEAM SUPPLY PIPING (0-15 PSIG)	TG TR	TRANSFER GRILLE TOP REGISTER
		ELBOW WITH TURNING VANES		MPS	MEDIUM PRESSURE STEAM SUPPLY PIPING (16-60 PSIG)	(E)	EXISTING
$\begin{array}{c} \xrightarrow{R} \\ x \xrightarrow{R} $		DUCT OFFSET UP	—— HPS ——	HPS	HIGH PRESSURE STEAM SUPPLY PIPING (61 TO 200 PSIG)	R / R UNO	REMOVE EXISTING ITEM & RELOCATE TO NEW LOCATION UNLESS NOTED OTHERWISE
		DUCT OFFSET DOWN	— — LPR — —	LPR	LOW PRESSURE STEAM CONDENSATE RETURN		NOT TO SCALE
		SQUARE / RECTANGULAR DUCT TRANSITION	— — MPR — —	MPR	MEDIUM PRESSURE STEAM CONDENSATE RETURN	NIC Ø OR PH	NOT IN CONTRACT PHASE
		SQUARE/RECTANGULAR TO ROUND DUCT TRANSITION	— — HPR — —	HPR	HIGH PRESSURE STEAM CONDENSATE RETURN	Ø	DIAMETER ABOVE FINISHED FLOOR
	CD	CEILING DIFFUSER ROUND NECK - # THROW DIRECTIONS	PC	PC	PUMPED STEAM CONDENSATE	AFF ELEV.	ABOVE FINISHED FLOOR ELEVATION FROM DATUM
	SD	SUPPLY DIFFUSER - RECTANGULAR - MULTI-DIRECT.	V	v	VENT PIPING	<u>NOTES:</u> 1. NOT ALL SYMBC	OLS AND ABBREVIATIONS ARE IN USE FOR THIS PROJECT.
 ┨ ┨-~		SIDEWALL SUPPLY or RETURN GRILLE - (R = REGISTER)	CW	cw	CITY (DOMESTIC) WATER		
	LD	LINEAR DIFFUSER. SEE SCHEDULE FOR INFORMATION.	FOS	FOS	FUEL OIL SUPPLY PIPING		
	RG/EG	RETURN or EXHAUST GRILLE - (R = REGISTER)	FOR	FOR	FUEL OIL RETURN PIPING		
		FLEXIBLE DUCT	0		ELBOW TURNED UP		
	FLEX	FLEXIBLE DUCT CONNECTION (TO EQUIPMENT)			ELBOW TURNED DOWN		
		SPIN TAP WITH VOLUME CONTROL DAMPER			BOTTOM PIPE CONNECTION		
	AD	DUCT ACCESS DOOR			TOP PIPE CONNECTION		
	VD	VOLUME CONTROL DAMPER			PIPING CAP		
	BDD	BACKDRAFT DAMPER			UNION		
	MD	MOTORIZED DAMPER			FLANGED CONNECTION		
	FD	VERTICAL FIRE DAMPER (WALL)			CONCENTRIC PIPE REDUCER		
	HFD	HORIZONTAL FIRE DAMPER (FLOOR)			ECCENTRIC PIPE REDUCER		
	SD	VERTICAL SMOKE DAMPER (WALL)			FLOW ARROW		
\rightarrow	HSD	HORIZONTAL SMOKE DAMPER (FLOOR)		BV	BALL VALVE		
	FD/SD			BFV	BUTTERFLY VALVE		
•	HFD/SD	COMBINATION HORIZONTAL FIRE & SMOKE DAMPER	···· ·→	PV	PLUG VALVE		
	RD	CEILING RADIATION FIRE DAMPER		GV	GATE VALVE		
	DD	DUCT SMOKE DETECTOR		GBV	GLOBE VALVE		
T		THERMOSTAT		CV	CHECK VALVE		
		THERMAL DIFFUSER THERMOSTAT			2-WAY CONTROL VALVE		
SP		STATIC PRESSURE SENSOR			3-WAY CONTROL VALVE		
		CARBON DIOXIDE SENSOR	-4× 		CIRCUIT SETTER (BALANCING VALVE)		
TAG		EQUIPMENT UNIT DESIGNATION			STRAINER (W/ BALL VALVE AND CAP)		
TAG CFM		DIFFUSER, REGISTER & GRILLE UNIT DESIGNATION W/ CFM			BACKFLOW PREVENTER		
		UNDER CUT DOOR			PRESSURE REGULATING VALVE		
		LOUVERED DOOR			PRESSURE RELIEF VALVE		
		CONNECTION POINT, NEW TO EXISTING			TRIPLE DUTY VALVE WITH MEASURING CONNECTIONS		
		DISCONNECTION POINT			PRESSURE GAGE W/ SHUT-OFF		
$\langle 1 \rangle$		DRAWING KEYNOTE			<u> </u>		
		DEMOLITION DRAWING KEYNOTE					
		REVISION NUMBER					
	RA or EA	RETURN OR EXHAUST AIR					
	SA OR OA	SUPPLY OR OUTSDIE AIR					



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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.
- MAINTAIN AN ISSUES AND BENEFITS LOG THROUGHOUT THE COMMISSIONING PROCESS.
- 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 DOCUMENT ISSUE.
- 4. PROVIDE 0&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

- 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

- B. DEMOLITION
- SITE

- E. WARRANTY

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.

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

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.

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.

- ACCOMPANYING DOCUMENTS THE NATURE AND REASON FOR VARIATIONS.

- G. RECORD DRAWINGS
- CONSTRUCTION.
- BELOW-GRADE LINES.
- PERMANENT RECORD OF THE INSTALLATION AS ACTUALLY CONSTRUCTED.
- H. FIRESTOPPING
- MUTUAL APPROVED.
- I. ACCESS DOORS & PANELS

DUCTWORK (233113)

- BULLETIN 90A REQUIREMENTS.
- RATING WITH SEAL CLASS A SEAMS AND JOINTS.

- JOINTS.

- FITTINGS. BUTT FITTINGS ARE NOT ACCEPTABLE.
- SHALL MEET ALL NFPA AND IBC REQUIREMENTS.

- FOR BY MECHANICAL CONTRACTOR.
- 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

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

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.

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

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

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

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

2. ALL FIRESTOPING AND/OR SMOKE STOPPING MATERIAL AND INSTALLATION SHALL BE AS MANUFACTURED BY HILTI OR APPROVED EQUAL.

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.

1. FABRICATE AND ERECT ALL DUCTWORK TO ASHRAE AND SMACNA STANDARDS FROM NO. 1 GALVANIZED STEEL. COMPLY WITH NFPA

2. SUPPLY DUCTWORK UPSTREAM OF TERMINAL UNITS AND WITHIN 15' OF ANY AHU FAN OUTLET SHALL HAVE A SMACNA 3" STATIC PRESSURE

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 45' 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

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 #076 | 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

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

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

15. PROVIDE BIG FOOT H FRAME SETS SUPPORT SYSTEM OR SIMILAR FOR ALL ROOFTOP DUCTWORK. SPACING SHALL BE

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CONSULTANT: Allen & Sha DESIGN I BUILD I MA Allen & Shariff Engineerin 700 River Avenue, Suite Pittsburgh, PA 15212 Tel: 412.322.9280	anage .g, LLC 2 600				
CLIENT: Housing Aut of the City of Pitt 200 Ross St, Pittsburgh (412	sburgh				
HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219					
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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 B16.9) 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 660 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 1/2" 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 (1/2" 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-VAULE = 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 #3036 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.

EQUIPMENT (235000)

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)

•	EXIST	FING C
	1.1.	FLOO
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	1.2.	ROOF
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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 IN 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 ITS 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 OCCR 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.

- EFFICIENCY.

TRANE

10. REPLACE DAMAGED INSULATION WHICH CANNOT BE REPAIRED SATISFACTORILY, INCLUDING UNITS WITH VAPOR BARRIER DAMAGE AND MOISTURE SATURATED UNITS.

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.

CONTROL SYSTEM HAS BEEN INSTALLED (CARRIER I-VUE) AND CONSISTS OF THE FOLLOWING ESSENTIAL DEVICES; DR BY FLOOR COMMUNICATION LOOPS, INCLUDING BACNET ROUTERS, TERMINAL DEVICE CONTROLLERS, NETWORK CONTROL

F LEVEL COMMUNICATION LOOP, INCLUDING BACNET ROUTER, UNIT CONTROLLERS (FOR PACKAGED RTU'S) NETWORK CONTROL

TRAL HYDRONIC SYSTEM CONTROL, INCLUDING HEATING CONTROLLERS, SENSORS, BOILER AND PUMP CONTROLS, AND VORK WIRING.

DING STATIC PRESSURE CONTROL.

BASE BUILDING SYSTEM SEQUENCE OF OPERATIONS (FOR REFERENCE) RONIC HEATING SYSTEM (EXISTING BOILERS & PUMPING)

THE BOILERS ARE SET UP TO RUN AS LEAD/LAG WITH BOILER B-1 BEING THE LEAD BOILER. ROTATION TO THE LAG BOILER WILI 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 S PROVEN FROM EITHER HOT WATER HEATING PUMP. ONCE ENABLED THE ONBOARD CONTROLS OF THE BOILER WILL ENABLE TS 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 NALBED 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.

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

8. BUILDING AUTOMATION SYSTEM SHALL INTEGRATE WITH EXISTING CORE AND SHELL CONTROL SYSTEM. INDPENDENT 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, SERGICE, STARTUP, 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:

 JCI PITTSBURGH BRANCH OFFICE SIEMENS PITTSBURGH

- 2. CONTROL SEQUENCE SHALL BE AS FOLLOWS: 2.1. VARIABLE AIR VOLUME BOXES W/O REHEAT
- 2.1.2. AND COOLING SETPOINTS.
- SETPOINT. 2.1.5. PROVIDE WIRELESS THERMOSTATS/CONTROLLERS.
- 2.2. VARIABLE AIR VOLUME BOXES W/ REHEAT
- NORMALLY CLOSED MODULATING TWO WAY VALVE TO MEET SPACE DEMAND. 2.2.4. EXCEED THE MAXIMUM HEATING SUPPLY AIR TEMPERATURE SETPOINT OF 95°F. 2.2.6. PROVIDE WIRELESS THERMOSTATS/CONTROLLERS. 2.3. VARIABLE AIR VOLUME BOXES W/ REHEAT & THERMAL DIFFUSERS POINT
- SPACE TEMPERATURE SETPOINT. GREATER THAN .25" WC DOWNSTREAM OF THE VAV BOX.
- VALVE TO MEET SPACE DEMAND
- 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 SENSO
2.4.2.	THE CONTROLLER WILL STORE BOTH OC THE CONTROLLER WILL MONITOR THE PE DAMPER FORM ITS MINIMUM CFM SET PO HEATING AND COOLING SETPOINTS.
2.4.3.	IF COOLING IS REQUIRED AND THE PRIMA FROM ITS MINIMUM CFM SETPOINT TO ITS
2.4.4.	IF HEAT IS REQUIRED AND THE PRIMARY CONFIGURABLE LENGTH OF TIME IN ORD
2.4.5.	IF THE DEMAND IS STILL PRESENT, THE C MEET SPACE DEMAND.
2.4.6.	THE CONTROLLER WILL MONITOR THE DI EXCEED THE MAXIMUM SUPPLY AIR SETF CONFIGURED AUXILIARY HEATING CFM S

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)

- NO. 400, COPPER TUBING = MODEL NO. 102-A.
- FOR ALL INSULATED PIPING.
- LIMITED.
- BE MANUFACTURED BY PENTAIR, MODEL 300 OR APPROVED EQUAL
- ENGINEER'S APPROVAL PRIOR TO INSTALLING THOSE SUPPORTS.

2.1.1. A WALL MOUNTED TEMPERATURE SENSOR WILL BE USED BY THE VAV BOX CONTROLLER FOR ITS CONTROL LOGIC POINT 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

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

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

THE CONTROLLER WILL MONITOR THE DISCHARGE AIR TEMPERATURE AFTER THE COIL AND WILL NOT ALLOW THE AIR TO

2.2.5. DURING HEATING THE CONTROLLER WILL MAINTAIN THE CONFIGURED AUXILIARY HEATING CFM SET POINT.

2.3.1. A WALL MOUNTED THERMOSTAT WILL BE USED BY EACH MASTER THERMAL DIFFUSER CONTROLLER FOR ITS CONTROL LOGIC

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

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

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

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.

> OR WILL BE USED BY THE CARRIER CONTROLLER FOR ITS CONTROL LOGIC POINT. CCUPIED AND UNOCCUPIED SCHEDULES AND SET POINTS THROUGH LINKAGE CONTROL, PRIMARY AIR TEMPERATURE TO THE FPVAV BOX AND MODULATE THE PRIMARY AIR OINT TO ITS MAXIMUM CFM SET POINT IN ORDER TO MAINTAIN THE SPACE WITHIN THE

IARY AIR IS SUITABLE FOR COOLING, THE CONTROLLER WILL MODULATE ITS DAMPER IS MAXIMUM CFM SETPOINT TO SATISFY THE DEMAND. AIR IS NOT SUITABLE FOR HEATING, TEH CONTROLLER WILL ENERGIZE THE FAN FOR A DER TO UTILIZE THE PLENUM AIR TO SATISFY THE HEATING DEMAND. CONTROLLER WILL MODULATE ITS NORMALLY CLOSED MODULATING TWO WAY VALVE TO

DISCHARGE AIR TEMPERATURE AFTER THE COIL AND WILL NOT ALLOW THE AIR TO POIINT OF 95°F. DURING HEATING SEASON, THE CONTROLLER WILL MAINTAIN THE SETPOINT.

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 B31.1 AND MSS SP-69. HANGERS SHALL BE MANUFACTURED BY PENTAIR., OR APPROVED EQUAL. BLACK OR GALVANIZED STEEL PIPE = MODEL NO. 100, CAST IRON PIPE = MODEL

2. CONTRACTOR SHALL PROVIDE INSULATION HANGER WITH PROTECTIVE SHIELDS, SUCH AS PENTAIR, MODEL NO. 125, OR APPROVED EQUAL

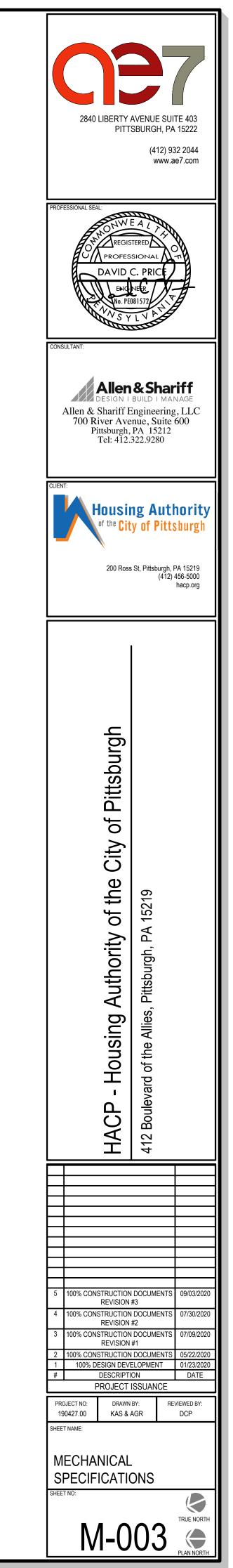
3. CONTRACTOR SHALL PROVIDE RISER CLAMPS FOR VERTICAL PIPING AT EACH LEVEL. RISER CLAPS SHALL BE PENTAIR MODEL NO. 510 FOR STEEL PIPING AND MODEL NO. 511 FOR COPPER TUBING OR APPROVED EQUAL. USE "SHORT-END" RISER CLAMPS WHERE SPACE IS

4. CONTRACTOR SHALL PROVIDE SIDE BEAM CLAMPS FOR SUPPORTING PIPING FROM STRUCTURAL STEEL MEMBERS. BEAM CLAMPS SHALL

5. WHERE OTHER MEANS OF SUPPORT PIPING ARE REQUIRED OR DESIRED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE

6. 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. HANGER SHALL BE PROVIDED AT EACH CHANGE OF DIRECTION.

7. 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.



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MANUFACTURED BY ALLEN-BRADLEY, GENERAL ELECTRIC, CUTLER-HAMMER APPROVED EQUAL PIPE WALL SEALS (230517) 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 1. WALL PIPE SEALS WITH RUBBER LINKS SHALL BE THUNDERLINE LINK SEAL, OR APPROVED EQUAL. INTERLOCK TO PREVENT UNAUTHORIZED OPENING OF THE SWITCH DOOR IN THE ON POSITION OR WALL PIPE SEALS WITH INORGANIC MATERIAL LINKS THE PENETRATIONS OF FIRE RATED WALLS SHALL CLOSING OF THE SWITCH MECHANISM WITH THE DOOR OPEN. CURRENT CARRYING PARTS SHALL BE BE THUNDERLINE PYRO-PAC. OR APPROVED EQUAL. CONSTRUCTED OF HIGH-CONDUCTIVITY COPPER WITH SILVER-TUNGSTEN TYPE SWITCH CONTACT. 2. SEALS SHALL BE MODULAR MECHANICAL TYPE CONSISTING OF INTERLOCKING SYNTHETIC RUBBER OR 5. FUSE CLIPS SHALL BE POSITIVE PRESSURE TYPE REINFORCED FUSE CLIPS. 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 6. THE ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL AND CONNECT ALL POWER WIRING TO ALL MECHANICAL CONTRACTOR FURNISHED EQUIPMENT. THE MECHANICAL CONTRACTOR SHALL HEAD AND NUT OF EACH LINK. SEALS SHALL BE CONSTRUCTED TO PROVIDE ELECTRICAL INSULATION FURNISH. INSTALL AND CONNECT ALL CONTROL WIRING TO ALL FURNISHED EQUIPMENT. INCLUDING BETWEEN THE PIPE AND SLEEVE, THUS REDUCING CHANCES OF CATHODIC REACTION BETWEEN CONTROL DEVICES. STARTERS AND INTEGRAL DISCONNECT SWITCHES OF CONTRACTOR FURNISHED THESE TWO MEMBERS. EQUIPMENT. 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 CHECK, TEST, START, ADJUST, BALANCE AND INSTRUCTIONS (230593) BETWEEN THE PIPE AND SLEEVE. 1. AFTER INSTALLATION, CHECK ALL EQUIPMENT, AND PERFORM START UP IN ACCORDANCE WITH THE 4. SLEEVES SHALL BE MANUFACTURED FROM HEAVY-WALL, WELDED OR SEAMLESS STEEL PIPE. A FULL MANUFACTURER'S INSTRUCTIONS. 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 2. ALL PIPING SHALL BE TESTED AND FREE OF LEAKS. PRIMER. 3. CONCEALED OR INSULATED WORK SHALL REMAIN UNCOVERED UNTIL REQUIRED TESTS HAVE BEEN **IDENTIFICATION** (230593) COMPLETED. BUT IF CONSTRUCTION SCHEDULE REQUIRES IT. ARRANGE FOR PRIOR TESTS ON PARTS OF SYSTEM AS APPROVED BY THE TENANT. 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 4. BALANCE ALL SYSTEMS, CALIBRATE CONTROLS, CHECK FOR PROPER OPERATION AND SEQUENCE A13.1. PRESSURE SENSITIVE MARKERS SHALL BE MANUFACTURED BY THE BRADY CO., OR APPROVED UNDER ALL CONDITIONS AND MAKE ALL NECESSARY ADJUSTMENTS. 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. 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. MOTOR CONTROLLERS (230513) 6. ADJUST AND BALANCE THE AIR SYSTEMS BEFORE HYDRONIC, STEAM, AND REFRIGERANT SYSTEMS. 1. UNLESS OTHERWISE INDICATED, EVERY MOTOR NOT SPECIFIED TO BE PROVIDED WITH A TESTING AND BALANCING SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT AABC NATIONAL CONTROLLER AT THE FACTORY SHALL BE PROVIDED WITH A CONTROLLER AS SPECIFIED HEREIN. STANDARDS FOR TOTAL SYSTEM BALANCE. GPM'S SHALL BE BALANCED WITHIN 10% OF DESIGN. CONTROLLERS SHALL BE FURNISHED BY THIS CONTRACTOR. INSTALLATION OF ALL CONTROLLERS AFTER ALL AIR SYSTEMS ARE INSTALLED, EACH SUPPLY AIR OUTLET SHALL BE AIR BALANCED TO SHALL BE BY THE ELECTRICAL CONTRACTOR. 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 2. MOTOR CONTROLLERS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF NEMA STANDARD SERVING OTHER SPACES AND WHICH MAY BE AFFECTED BY THE PROJECT SHALL BE TRAVERSED IC-1, INDUSTRIAL CONTROL AND BE HEAVY DUTY CONSTRUCTION. CONTROLLER SIZES SHALL BE PRIOR TO CONSTRUCTION. THE FINAL AIR BALANCE SHALL RESTORE THESE AIR QUANTITIES. BEFORE VERIFIED TO BE COMPATIBLE WITH HORSEPOWER OF THE MOTOR. CONTROLLERS SHALL BE AND AFTER AIR QUANTITIES SHALL BE LISTED IN THE AIR BALANCE REPORT MANUFACTURED BY ALLEN-BRADLEY CO., GENERAL ELECTRIC, CUTLER-HAMMER OR APPROVED EQUAL. 7. START UP AND PLACE ALL SYSTEMS IN OPERATION AND TAG ALL SWITCHES AND CONTROLS WITH PERMANENT LABELS. 3. MANUAL MOTOR STARTERS: a. SWITCHES SHALL BE TUMBLER-SWITCH STYLE. THE MANUAL MOTOR STARTERS SHALL PROVIDE 5. INSTRUCT OWNER IN OPERATION OF SYSTEMS AND SUBMIT OPERATING AND MAINTENANCE MANUAL OVERLOAD PROTECTION WHICH CLOSELY FOLLOWS THE MOTOR LOAD. MANUAL MOTOR STARTERS ON ALL EQUIPMENT AND SYSTEMS. FOR OUTDOOR USE SHALL BE NEMA TYPE 4X. INDOOR USE SHALL BE NEMA TYPE 1. EXPLOSION PROOF USE SHALL BE NEMA TYPE 7. BUILDING FLUSH-OUT AND AIR TESTING (NO SPECIFICATION SECTION) 4. COMBINATION MOTOR CONTROLLERS: a. COMBINATION MOTOR CONTROLLERS SHALL BE PROVIDED WITH MOLDED CASE MOTOR CIRCUIT 1. IN ACCORDANCE WITH THE INDOOR AIR QUALITY ASSESSMENT CREDIT OF LEED V4.1, THE PROTECTORS OR MOLDED CASE CIRCUIT BREAKERS AS INDICATED. MOTOR CIRCUIT PROTECTIVE MECHANICAL CONTRACTOR SHALL PERFORM ONE OF THE FOLLOWING TWO OPTIONS AFTER DEVICES SHALL HAVE SHORT CIRCUIT CAPACITY AS REQUIRED. UNIT CONTROL CIRCUIT FUSING CONSTRUCTION HAS CONCLUDED. ALL INTERIOR FINISHES, SUCH AS MILLWORK, DOORS, PAINT, SHALL BE PROVIDED. THE MOTOR CIRCUIT PROTECTIVE DEVICE SHALL BE MOUNTED IN THE SAME CARPET, ACOUSTIC TILES, AND MOVEABLE FURNISHINGS MUST BE INSTALLED PRIOR TO EITHER ENCLOSURE AS THE MAGNETIC CONTROLLER AND SHALL BE OPERABLE BY HAND FROM OUTSIDE OPTION BEING IMPLEMENTED. THE ENCLOSURE. THE HANDLE SHALL BE SO INTERLOCKED WITH THE DOOR THAT IT MUST BE 2. OPTION 1 : FLUSH-OUT: PATH 1 OR PATH 2 CAN BE PURSUED. PATH SHALL BE DETERMINED IN RETURNED TO THE "OFF" POSITION BEFORE THE DOOR CAN BE OPENED. BUT A COIN-PROOF COORDINATION WITH OWNER PREFERENCE. DEFEAT MECHANISM SHALL BE PROVIDED TO ALLOW AUTHORIZED PERSONNEL TO OPEN THE ENCLOSURE DOOR WITHOUT OPENING THE DISCONNECTING DEVICE. PROVISIONS FOR 2.1. PATH 1 : PRIOR TO OCCUPANCY FLUSH-OUT PADLOCKING THE DISCONNECT HANDLE IN THE "OFF" POSITION SHALL BE MADE. THE ENCLOSURE INSTALL NEW FILTRATION MEDIA а FOR COMBINATION STARTERS SHALL BE NEMA TYPE 1 FOR INDOOR USE AND NEMA TYPE 4X FOR PERFORM A BUILDING FLUSHOUT BY SUPPLYING A TOTAL AIR VOLUME OF 14,000 CUBIC FEET OF OUTDOOR USE, AND NEMA TYPE 7 FOR EXPLOSION PROOF USE. OUTDOOR AIR PER SQUARE FOOT OF GROSS FLOOR AREA WHILE MAINTAINING AN INTERNAL b. MOTOR CIRCUIT PROTECTORS SHALL BE THE CONTINUOUSLY ADJUSTABLE, INSTANTANEOUS TEMPERATURE OF AT LEAST 60 DEGREES FAHRENHEIT AND NO HIGHER THAN 80 DEGREES MAGNETIC TRIP TYPE CIRCUIT BREAKER AND SHALL BE SO CONSTRUCTED THAT ALL POLES OPEN. FAHRENHEIT AND RELATIVE HUMIDITY NO HIGHER THAN 60%. CLOSE AND TRIP SIMULTANEOUSLY. c. ESTIMATED TIME OF BUILDING FLUSH-OUT : 180 HOURS (7.5 DAYS) 2.1. PATH 2 : DURING OCCUPANCY 6. OVERLOAD AND SHORT CIRCUIT PROTECTION: a. PERFORM A BUILDING FLUSHOUT BY SUPPLYING A TOTAL AIR VOLUME OF 3,500 CUBIC FEET OF a. HEATER ELEMENTS SHALL BE PROVIDED FOR OVERLOAD PROTECTION. MOTOR CIRCUIT OUTDOOR AIR PER SQUARE FOOT OF GROSS FLOOR AREA WHILE MAINTAINING AN INTERNAL PROTECTOR SHALL BE PROVIDED FOR MOTOR SHORT CIRCUIT PROTECTION. 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 **DISCONNECT SWITCHES (230514)** MINIMUM OUTDOOR AIR RATE DETERMINED IN EQ PREREQUISITE MINIMUM INDOOR AIR QUALITY PERFORMANCE IN LEED V4.1, WHICHEVER IS GREATER. 1. THIS CONTRACTOR SHALL FURNISH ALL SAFETY DISCONNECT SWITCHES (FUSED AND NON-FUSED) b. DURING EACH DAY OF THE FLUSHOUT PERIOD, VENTILATION MUST BEGIN AT LEAST 3 HOURS REQUIRED FOR EQUIPMENT FURNISHED UNDER THIS CONTRACT. IN ADDITION. THIS CONTRACTOR BEFORE OCCUPANCY AND CONTINUE DURING OCCUPANCY. CONDITIONS SHALL BE MAINTAINED SHALL FURNISH A SAFETY DISCONNECT SWITCH FOR ALL MOTORS AND EQUIPMENT WHICH DO NOT UNTIL A TOTAL OF 14,000 CUBIC FEET PER SQUARE FOOT OF OUTDOOR AIR HAS BEEN DELIVERED HAVE COMBINATION STARTERS OR INTEGRAL DISCONNECTING MEANS. FUSIBLE DISCONNECT TO THE SPACE. SWITCHES SHALL BE PROVIDED FOR ALL EQUIPMENT RATED FOR USE ONLY WITH FUSES (SUCH AS c. ESTIMATED TIME OF BUILDING FLUSH-OUT PRIOR TO OCCUPANCY : 45 HOURS (1.9 DAYS) 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 d. ESTIMATED TIME OF COMPLETE BUILDING FLUSH-OUT: 135 HOURS (11.6 DAYS AT 4AM STARTUP TO VOLTAGE RATING AS REQUIRED. INSTALLATION OF ALL DISCONNECT SWITCHES SHALL BE BY THE 6PM)

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.

ELECTRICAL CONTRACTOR.

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

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.

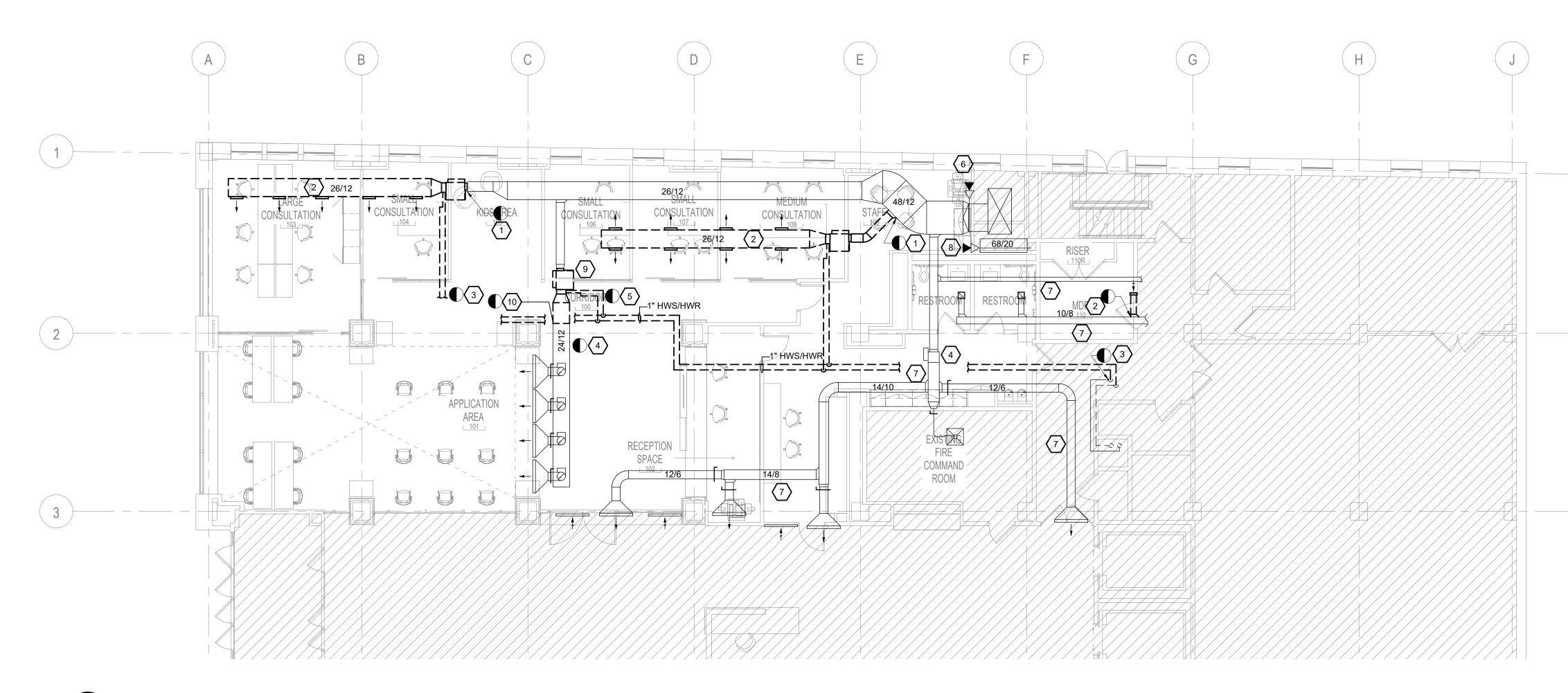
d. TVOC LEVELS EXCEEDING 500 MICROGRAMS PER CUBED METER SHALL RESULT IN AN

ASSESSMENT

INVESTIGATION OF POTENTIAL ISSUES IN ACCORDANCE WITH LEED V4.1 INDOOR AIR QUALITY

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	HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219					
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1 1ST FLOOR MECHANICAL PLAN - DEMOLITION M-101 1/8" = 1'-0"



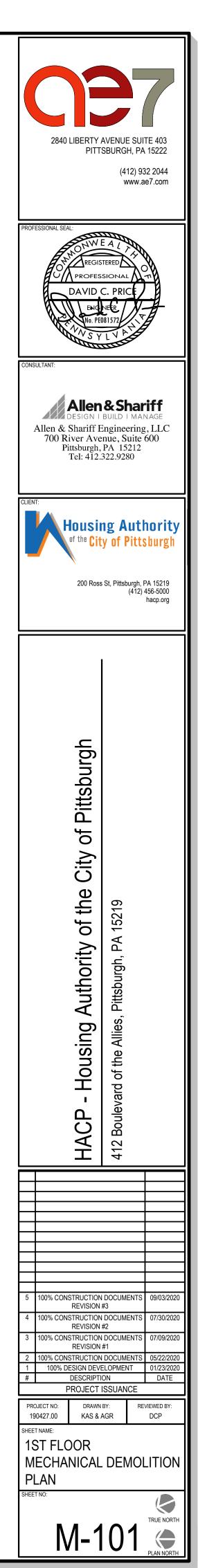
- 1. MC SHALL VERIFY ALL EXISTING EQUIPMENT, PIPING, DUCTWORK, AND APPURTENANCE SIZES AND LOCATION IN FIELD PRIOR TO BID.
- 2. MC SHALL VERIFY ALL EQUIPMENT TO REMAIN IS FUNCTIONING PROPERLY AND IS IN GOOD WORKING CONDITION.
- 3. MC SHALL PROVIDE NEW ISOLATION VALVES AT ANY PIPING CAP AS A RESULT OF 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.

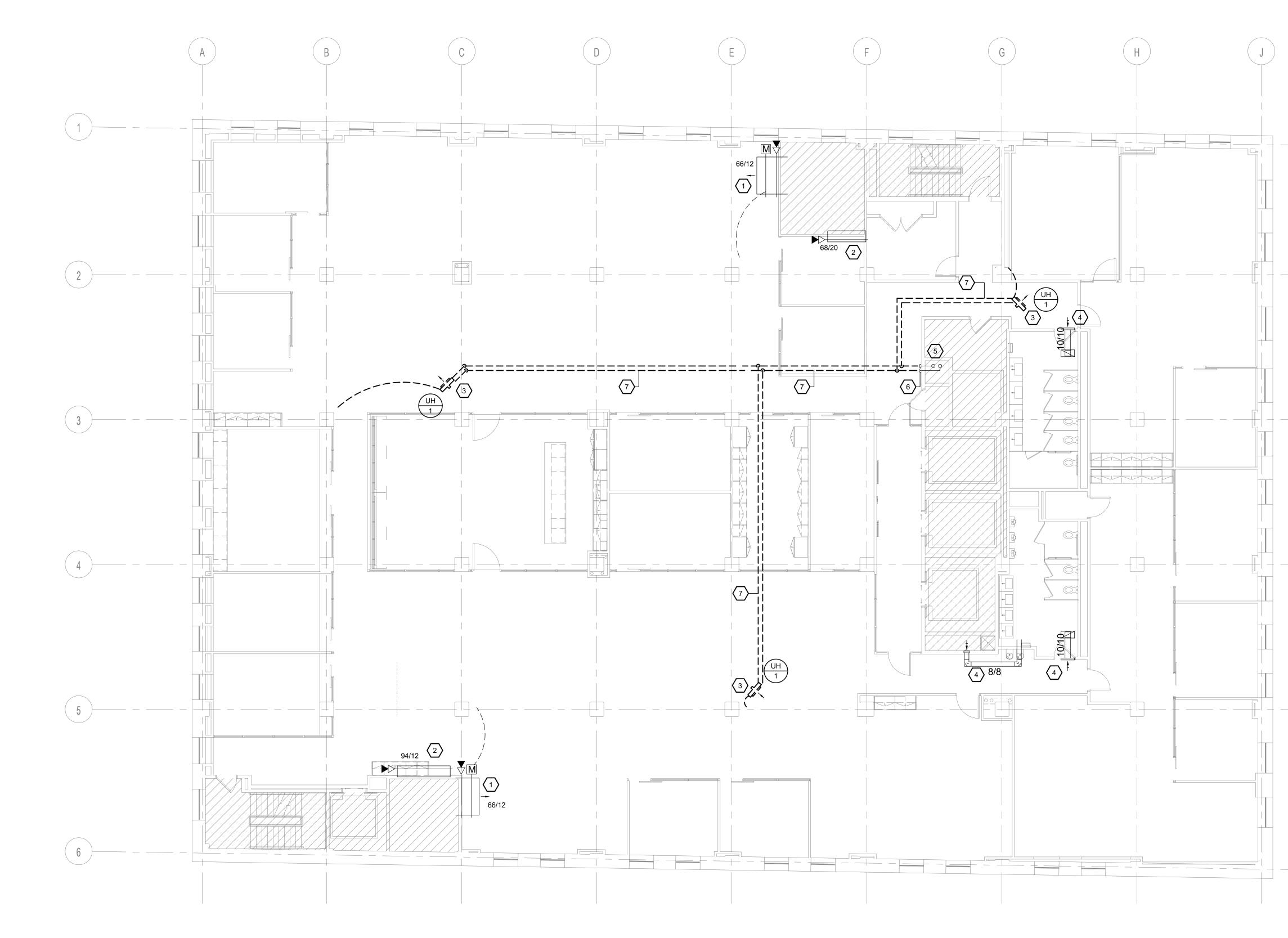
MECHANICAL KEY NOTES: $\langle \# \rangle$

- 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.

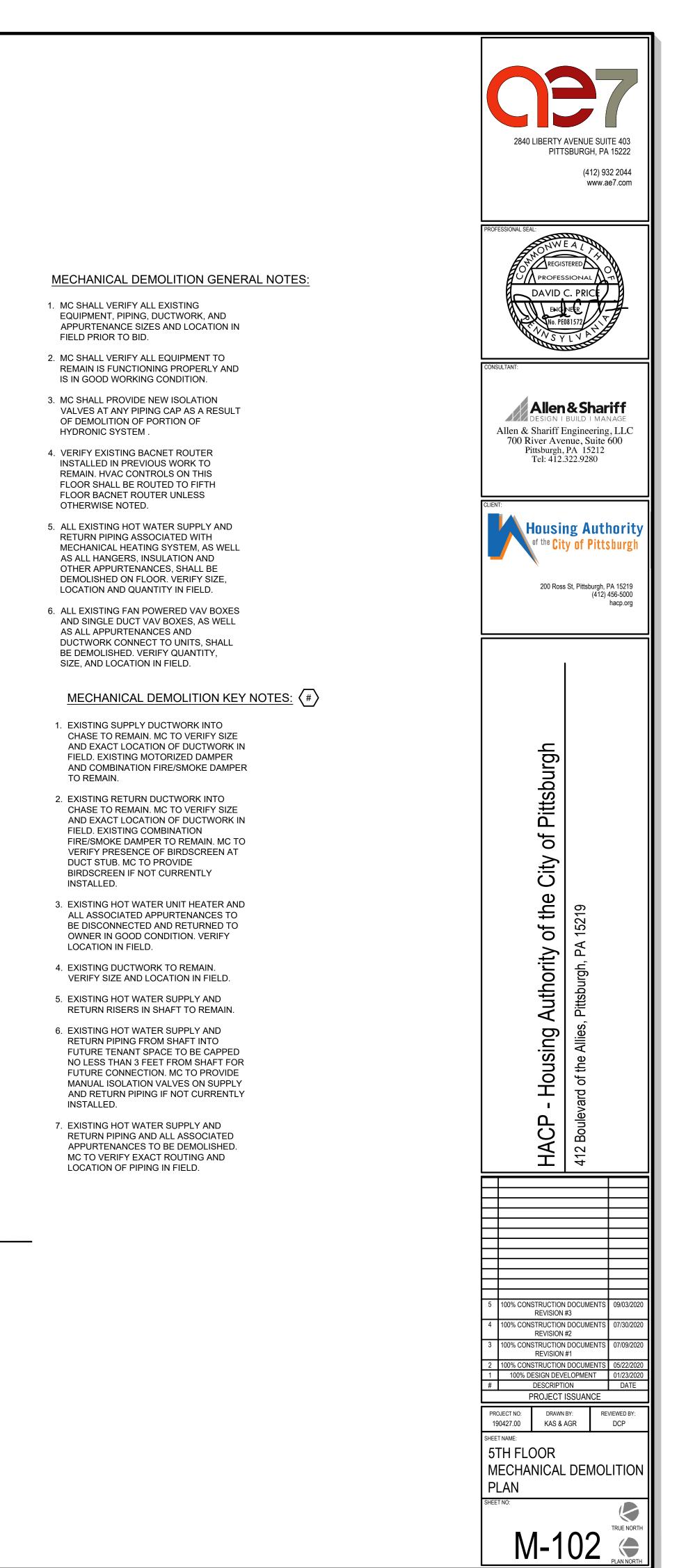
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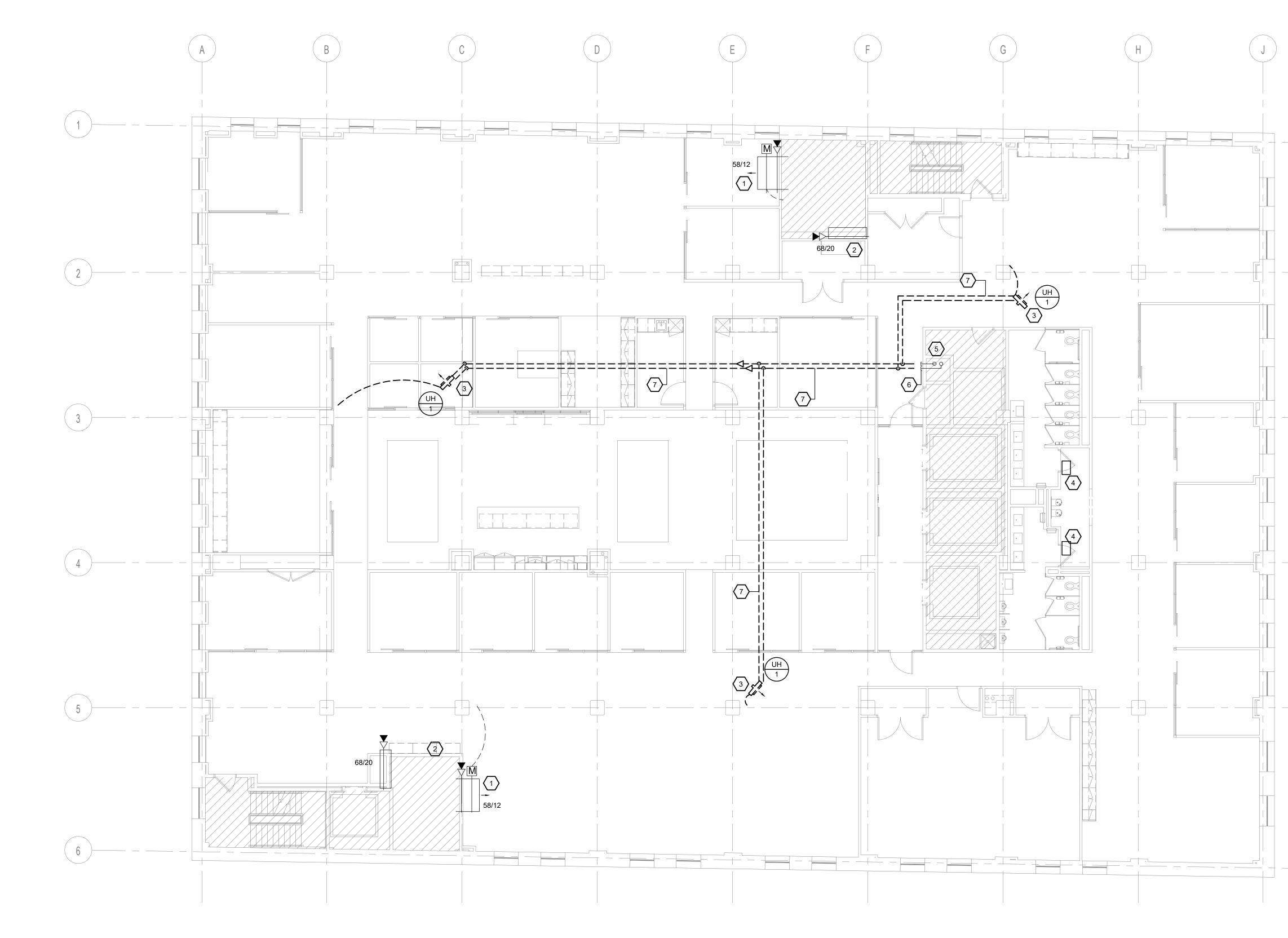
10. SUPPLY DUCT TO BE DEMOLISHED FROM FAN POWERED BOX SUPPLY AIR OPENING UP TO THIS POINT. VERIFY SIZE AND EXACT LOCATION IN FIELD.



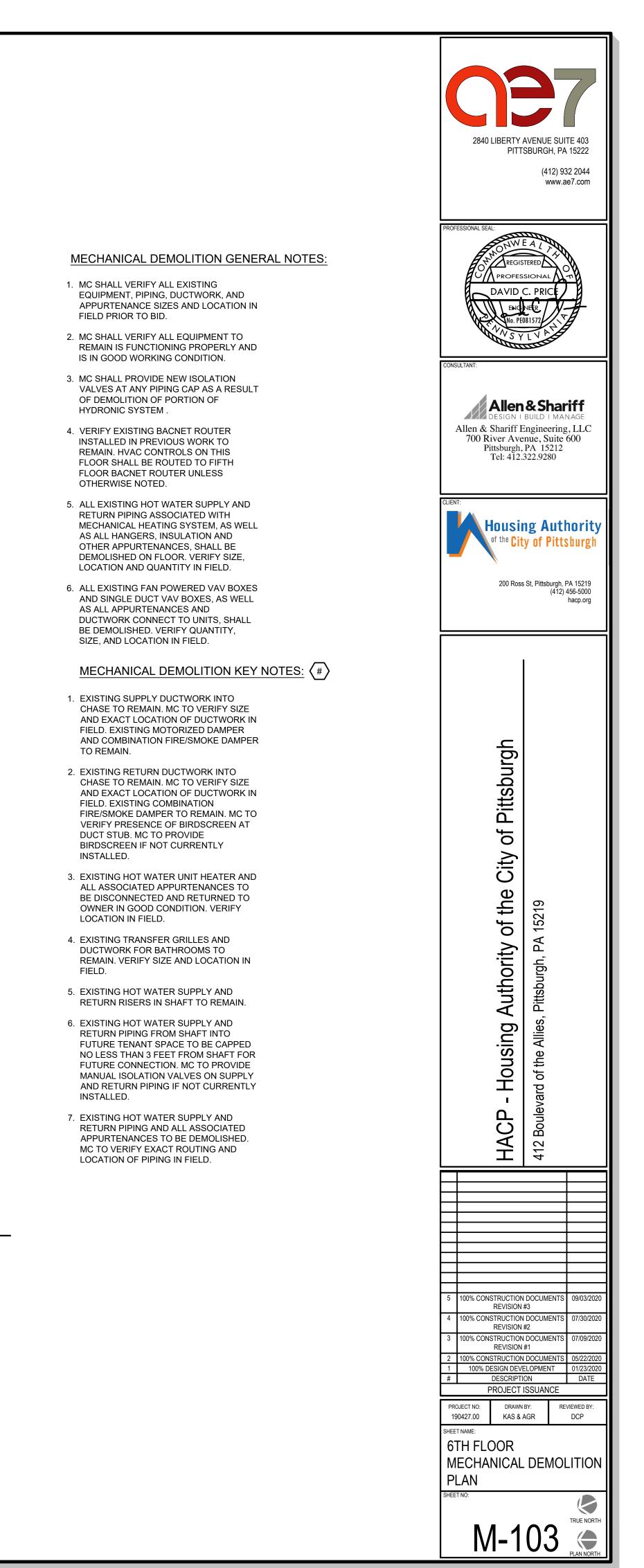


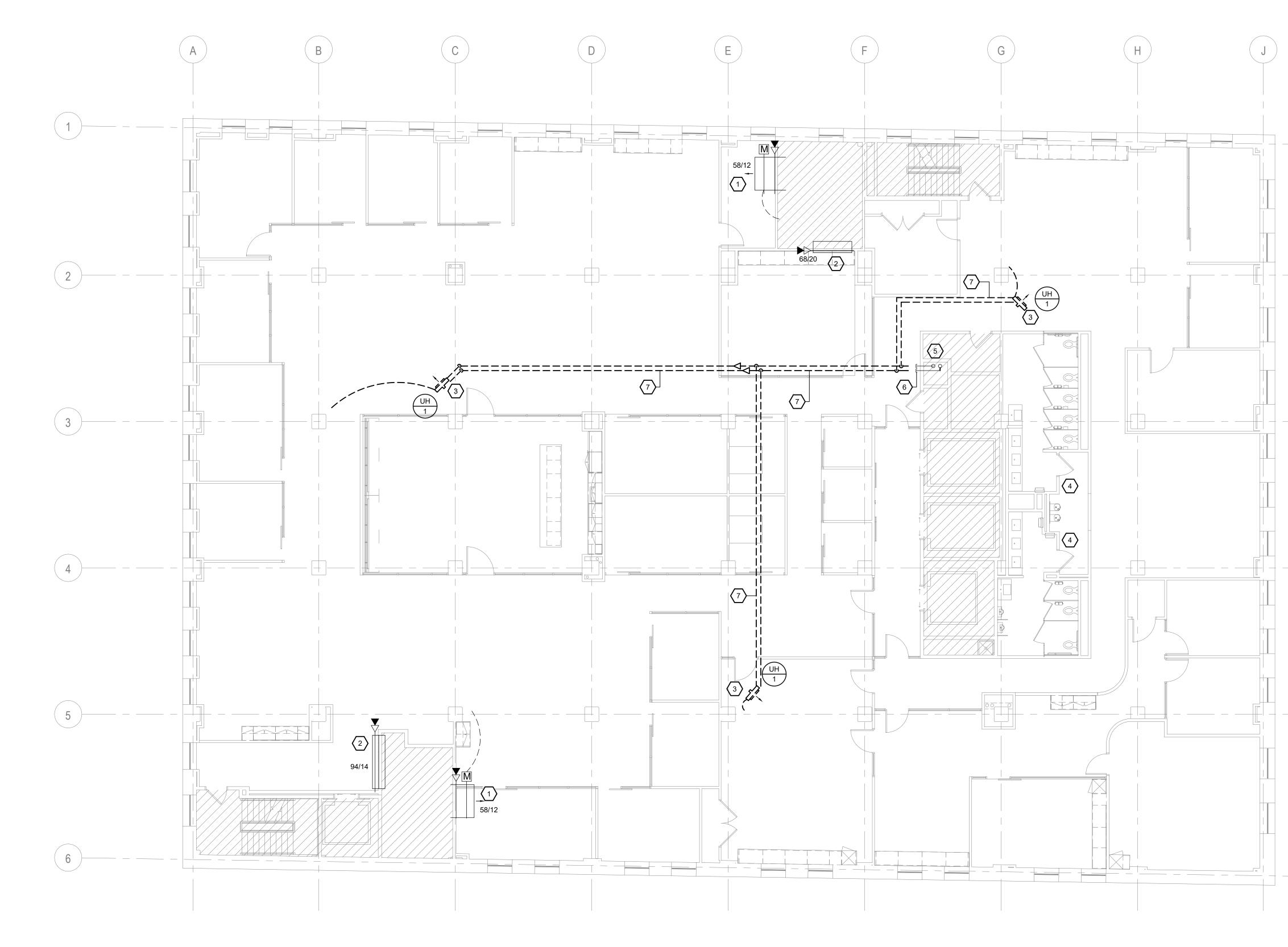




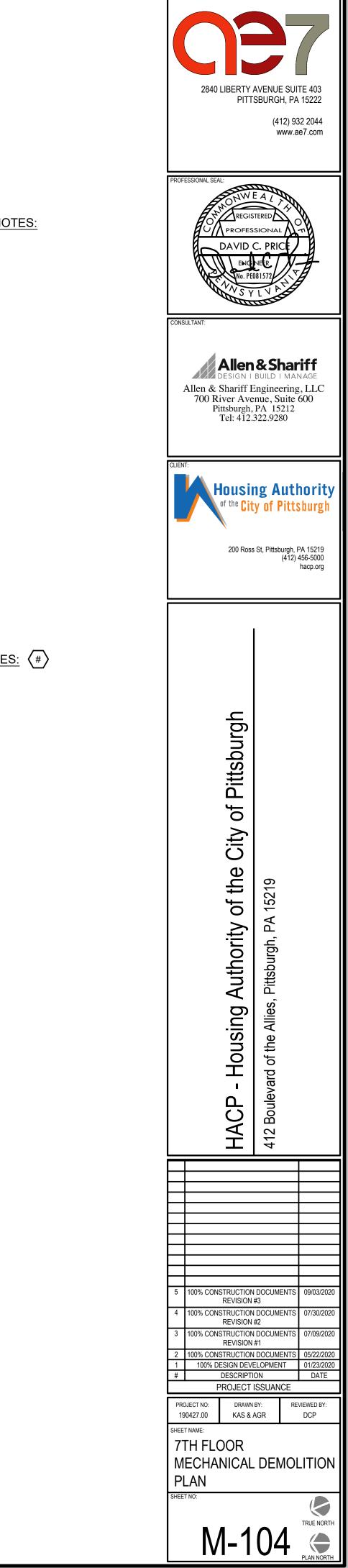










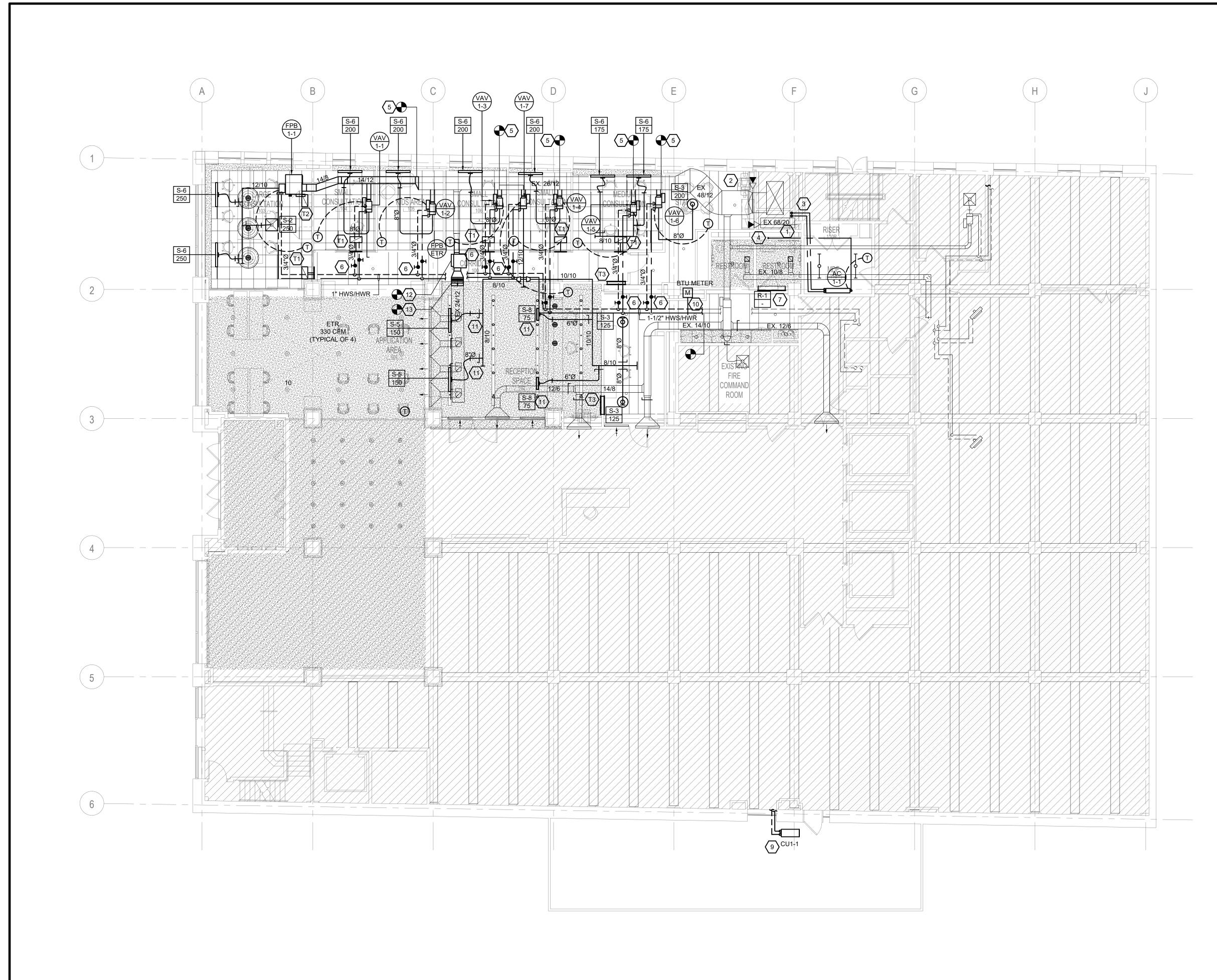


MECHANICAL DEMOLITION GENERAL NOTES:

- 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.





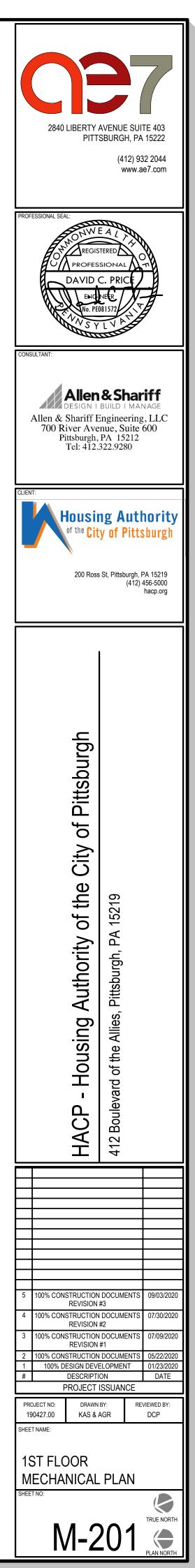
M-201/ 1/8" = 1'-0"

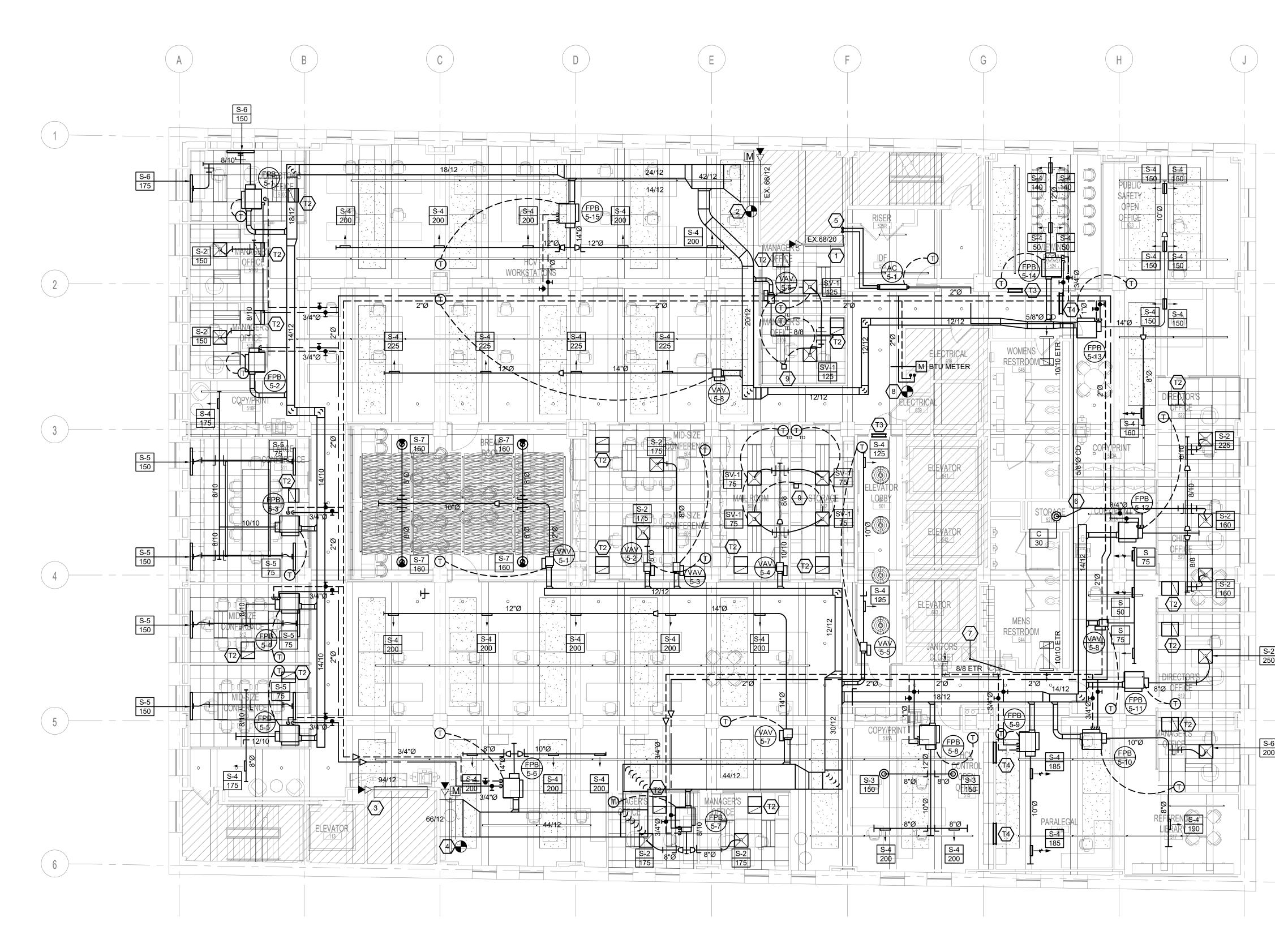
MECHANICAL GENERAL NOTES:

- 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.

ME<u>CHANICAL KEY NOTES:</u> $\langle \# \rangle$

- 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 AHU1-1. 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.





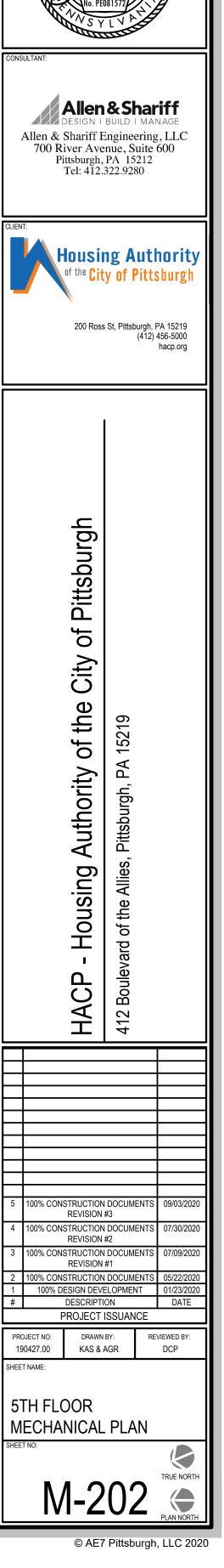


MECHANICAL GENERAL NOTES:

- 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.
- 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.
- 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.



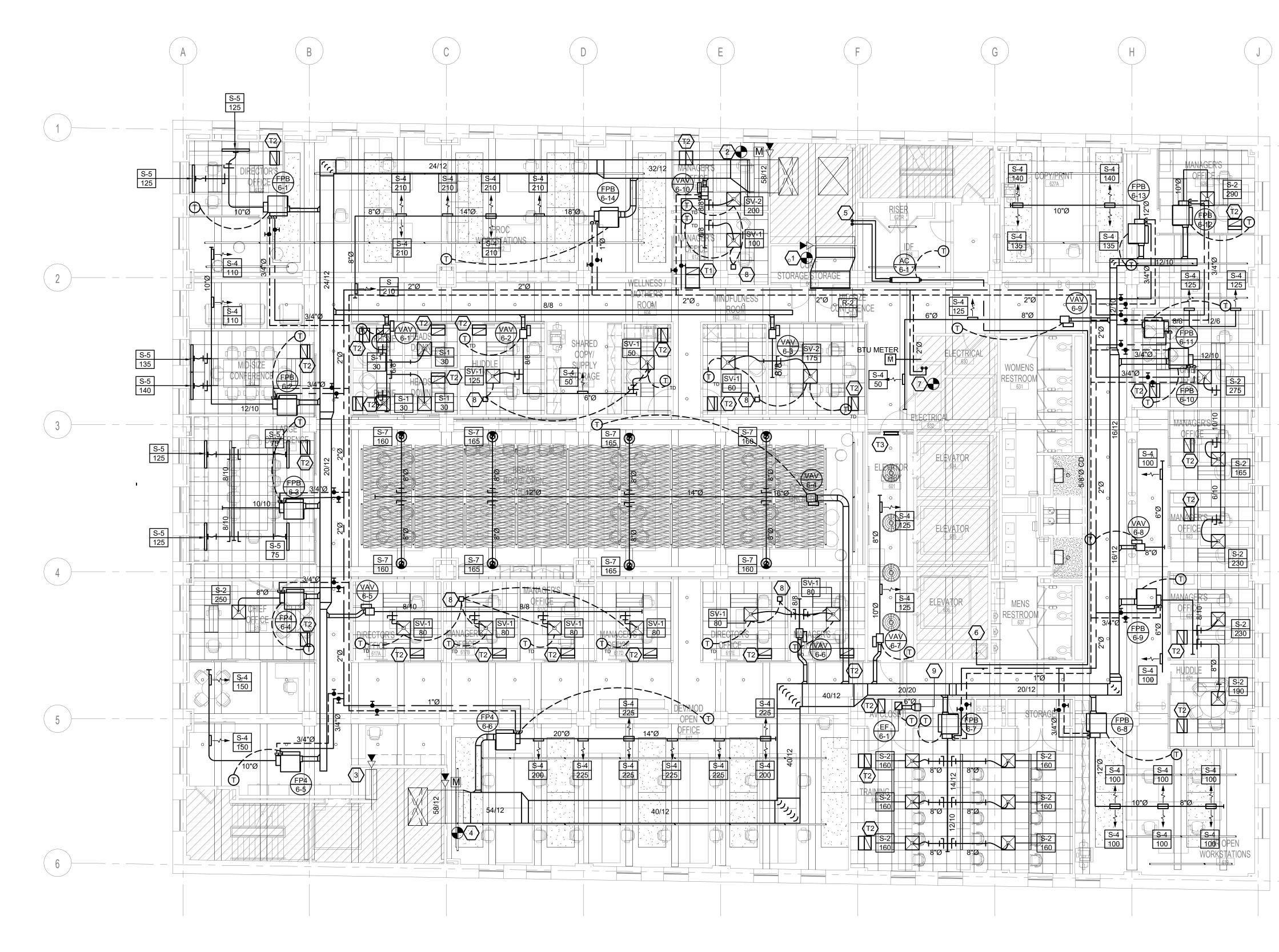
2840 LIBERTY AVENUE SUITE 403

DAVID C. PRI

PITTSBURGH, PA 15222

(412) 932 2044

www.ae7.com



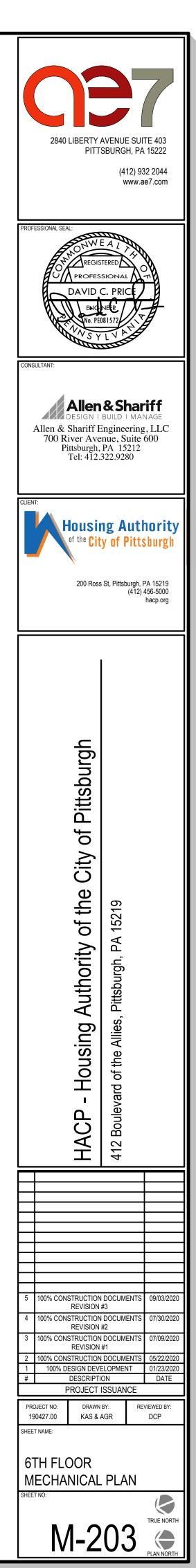
1 6TH FLOOR MECHANICAL PLAN M-203/ 1/8" = 1'-0"

MECHANICAL GENERAL NOTES:

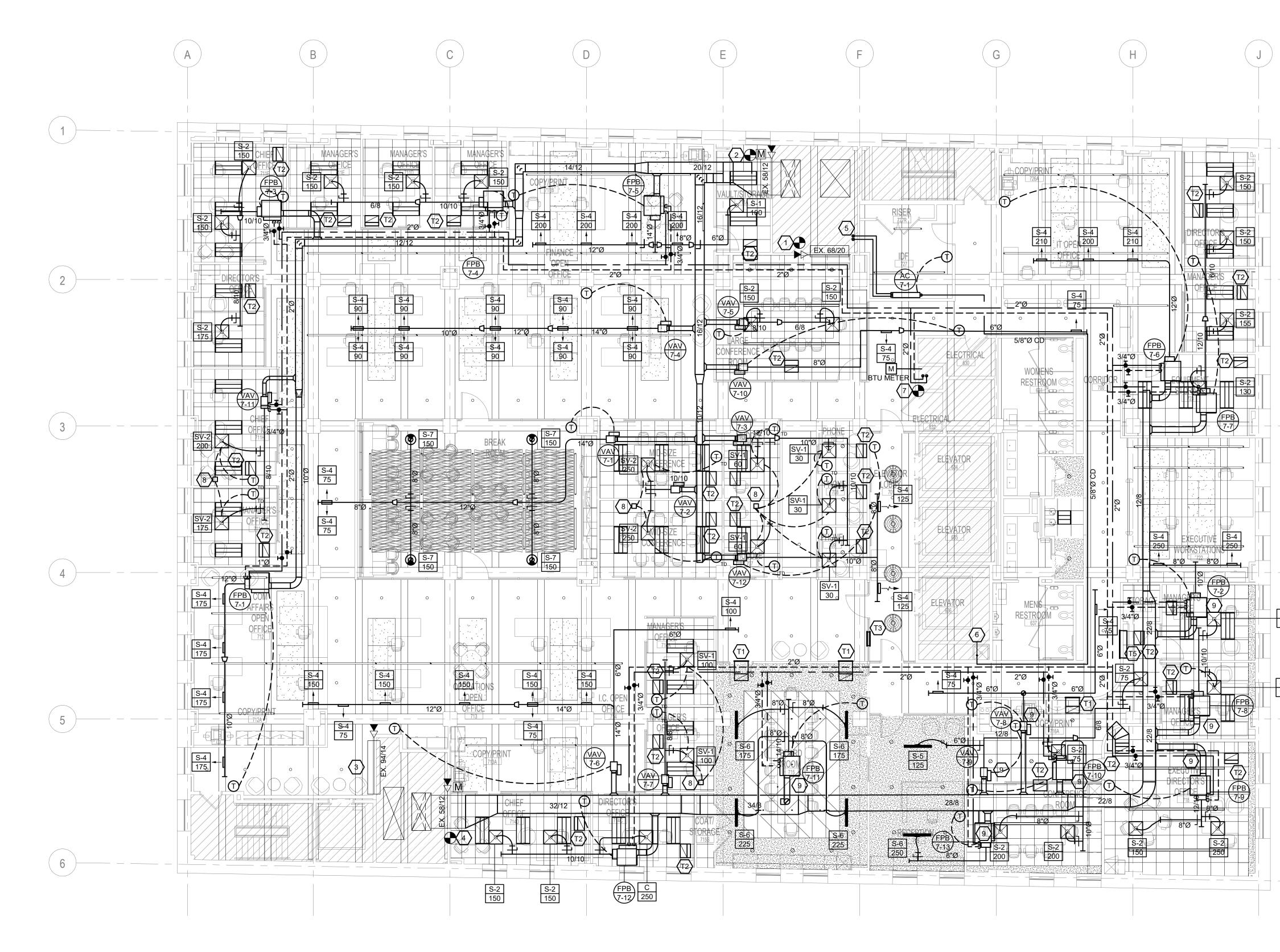
- 1. PROVIDE MERV 8 FILTERS AT ALL PARELLEL FAN POWERED BOX RETURN OPENINGS.
- 2. THERMOSTATS SHALL BE COMPATIBLE WITH THE EXISTING BAS CONTROLS. MC SHALL VERIFY EXISTING CONTROLS SYSTEM IN BUILDING PRIOR TO BID.
- 3. THERMOSTATS SHALL BE INSTALLED AT 44" ABOVE FINISHED FLOOR.
- 4. PROVIDE CONDENSATE 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. EC TO 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" DUCT STUBS INTO PLENUM SPACE ABOVE ACOUSTIC TILE CEILING.



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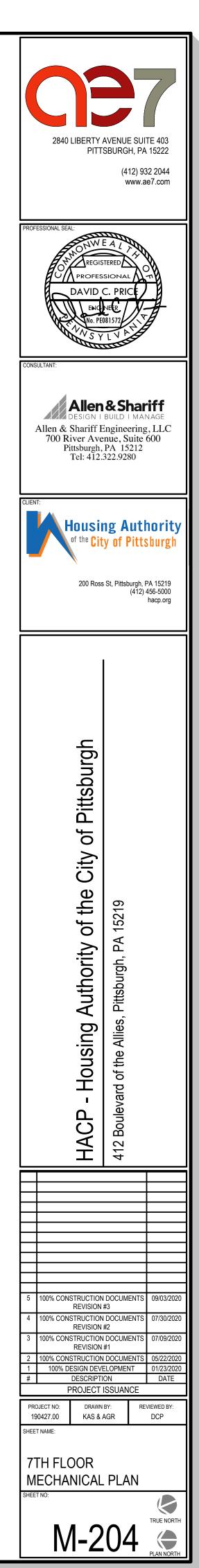
7TH FLOOR MECHANICAL PLAN M-204/ 1/8" = 1'-0"

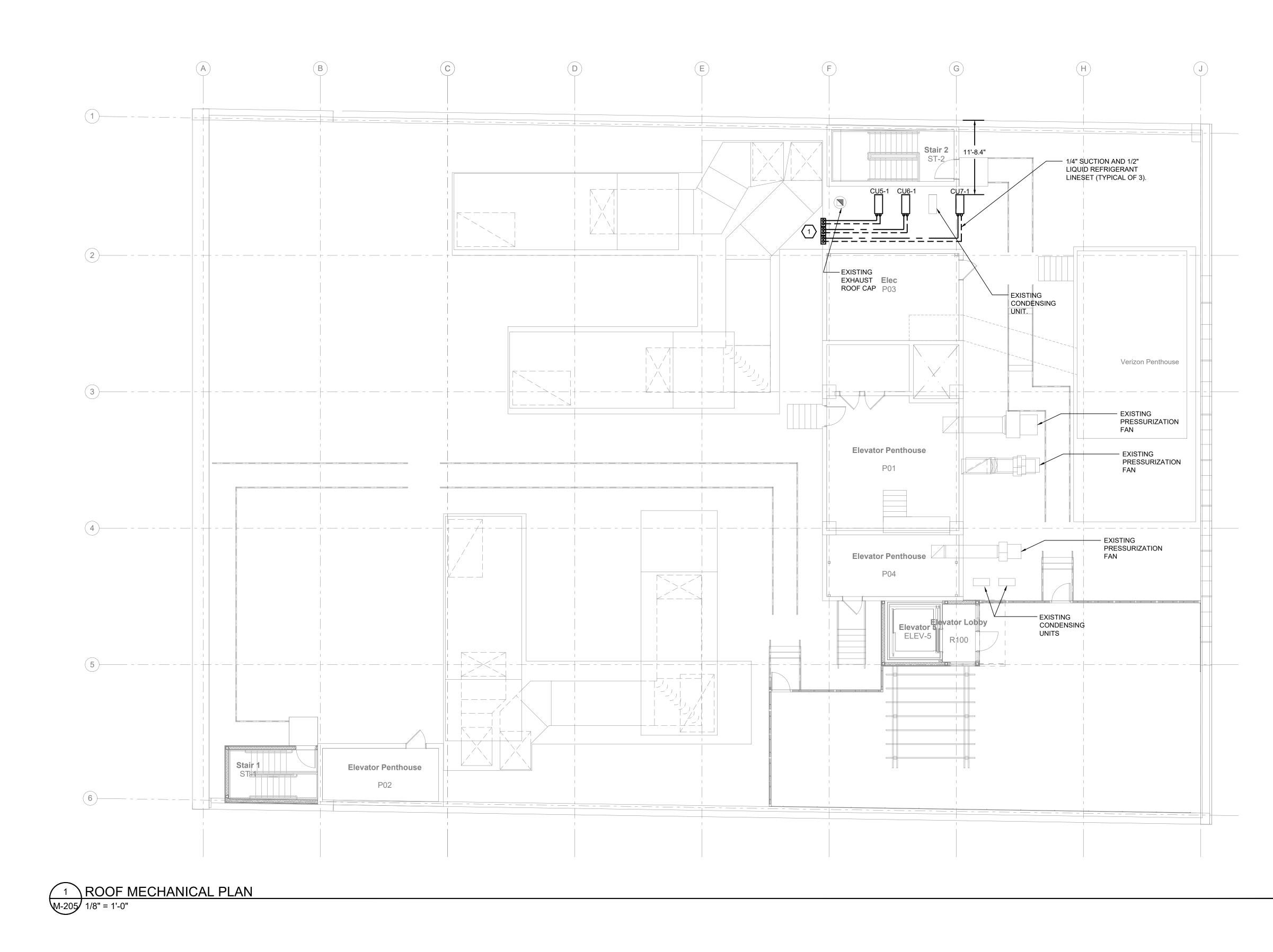
MECHANICAL GENERAL NOTES:

- 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.
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- 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: $\langle \# \rangle$

- 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.
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- 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 120V 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.



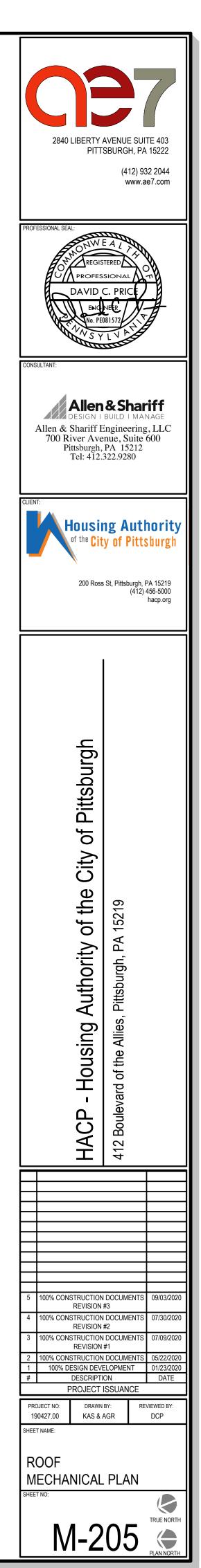


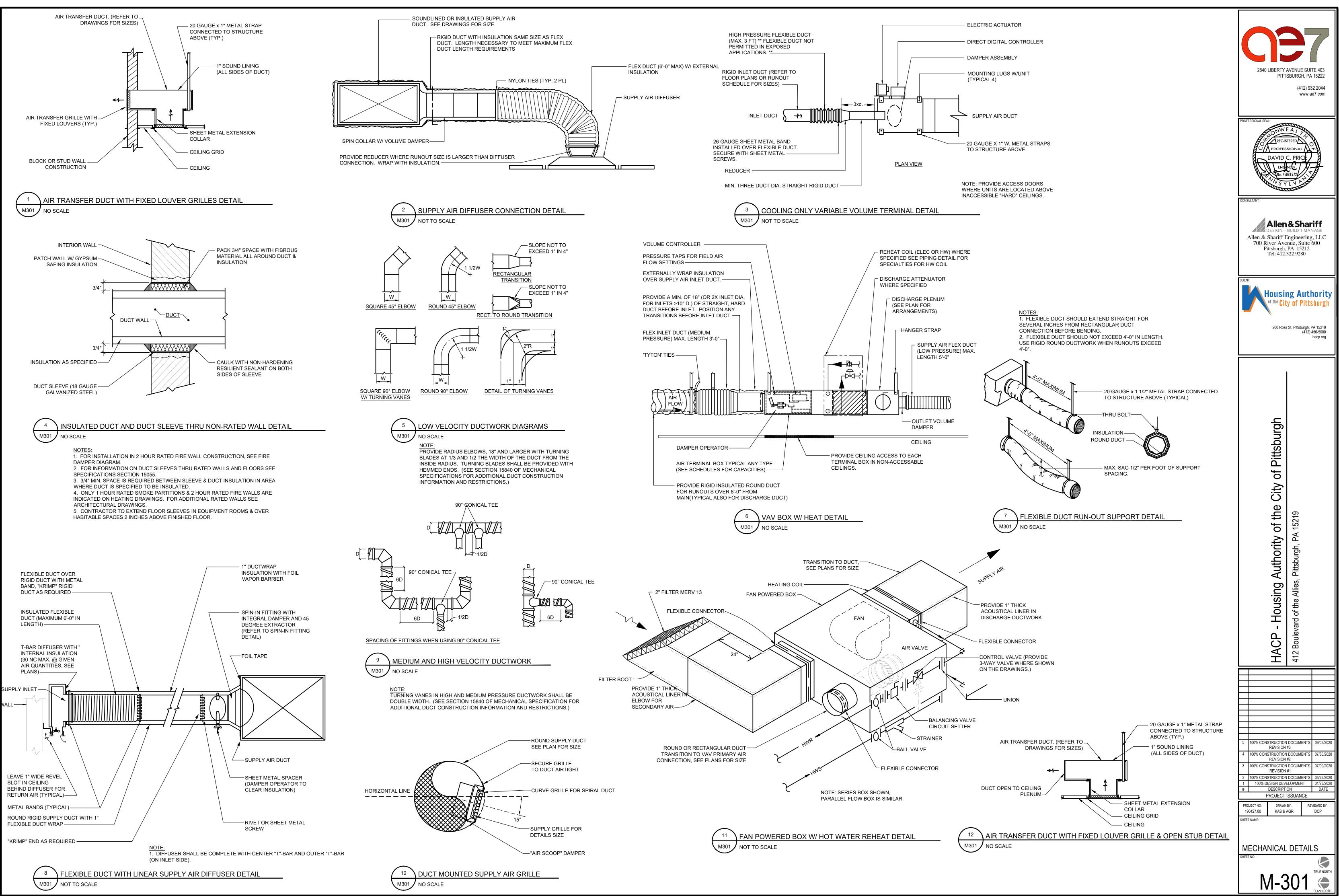
MECHANICAL GENERAL NOTES:

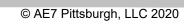
- 1. VERIFY LOCATION OF ALL EXISTING EQUIPMENT, DUCTWORK, AND PIPING ON ROOF PRIOR TO BID. COORDINATE LOCATION OF NEW EQUIPMENT WITH EXISTING CONDITIONS.
- 2. NEW MECHANICAL EQUIPMENT SHALL BE INSTALLED NO LESS THAN 10 FEET FROM THE ROOF EDGE OR PARAPET. ANY MECHANICAL EQUIPMENT INSTALLED WITHIN 10 FEET 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.

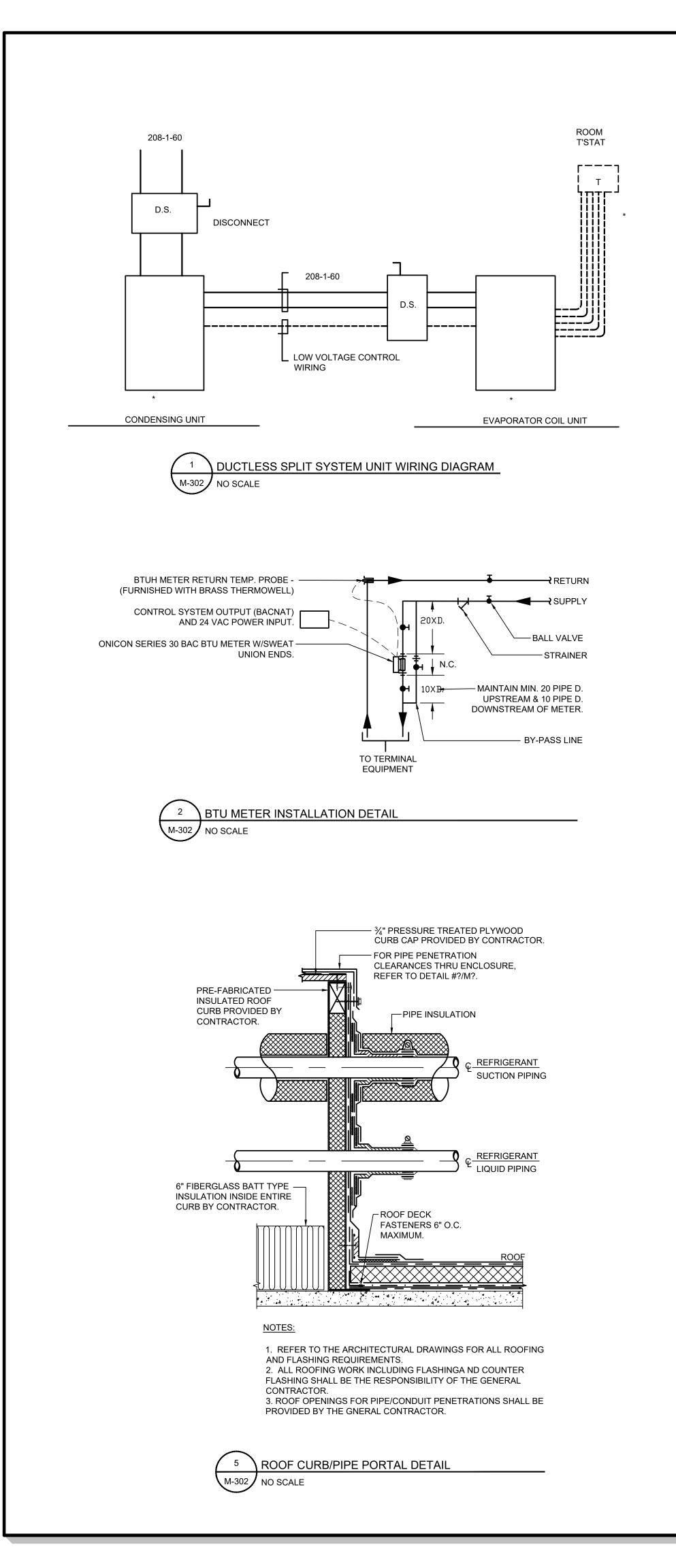
MECHANICAL KEY NOTES: (#)

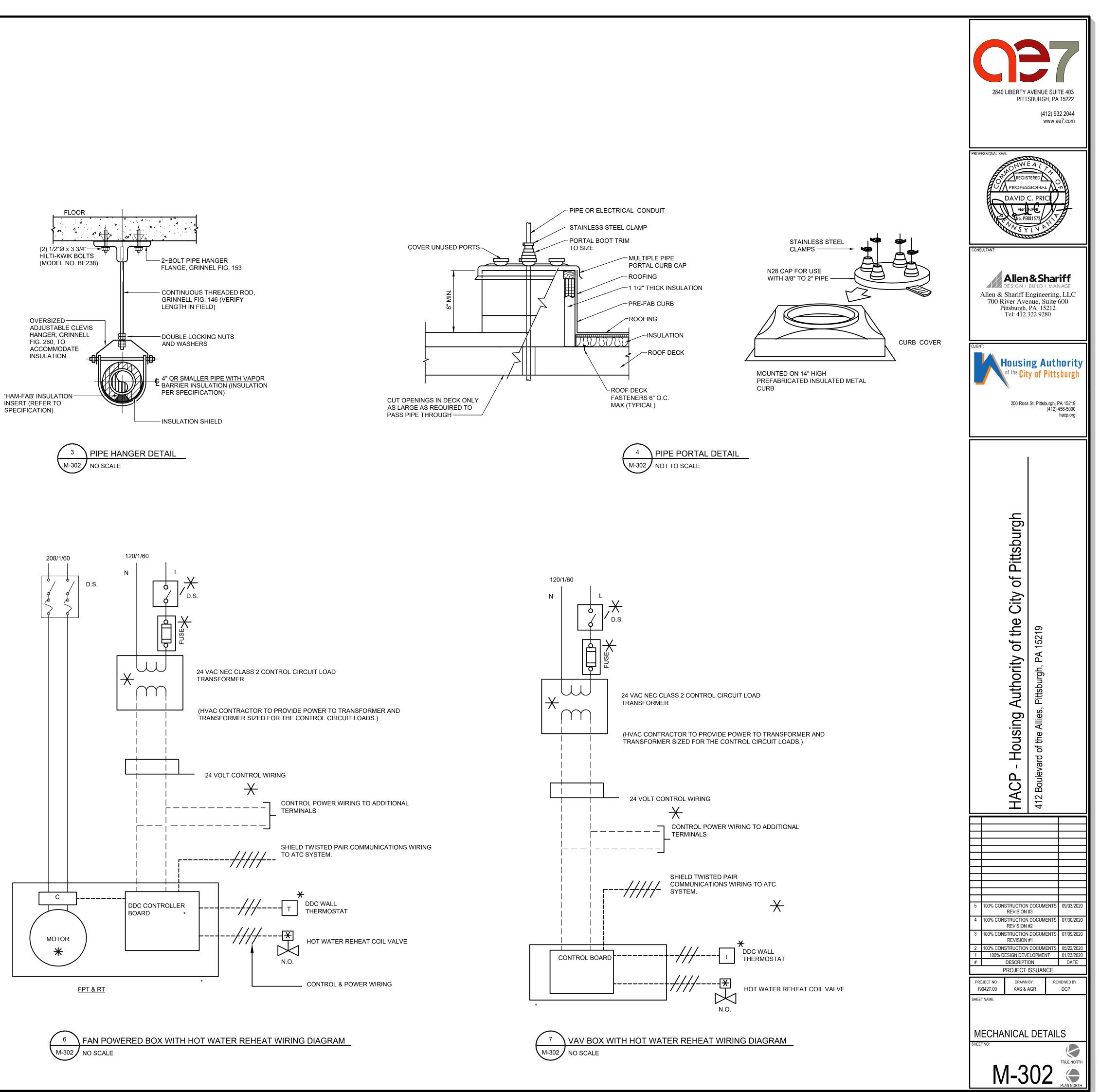
1. 1/4" SUCTION AND 1/2" LIQUID REFRIGERANT LINESET DN IN INSULATED PIPE PORTAL TO CHASE BELOW. COORDINATE FINAL LOCATION OF PIPE PORTAL WITH EXISTING DUCTWORK, PIPES, AND STRUCTURE WITHIN CHASE. (TYPICAL OF 3)











PARALLEL FAN POW	/ERED V/	V- BOX V	V/ HOT	WATER RE	HEAT (COIL SCI	HEDUL	.E											FPB-7.11	BOARD ROOM 800	240 8"Ø 40	0 0.60"	1/2	640 2	25.6 2.0	2	STD 140	60/97	0.94 PF	ICE FDV 300	6.2 / 15	208 / 1 1 THF	IRU 7
		RIMARY AIR		FAN				НОТ	WATER H	HEATING C	COIL DATA			BASIS (F DESIGN	ELEC	TRICAL		FPB-7.12		165 8"Ø 27				17.6 2.0		STD 140			ICE FDV 200		208 / 1 1 THF	
TAG SERVES				EVE														REMARKS	FPB-7.13	RECEPTION 717 250	75 6"Ø 12	5 0.50"	1/3	250	9.9 1.0	1 +	IGH 140	60/97	0.73 PF	ICE FDV 200	o 3.2 / 15	208 / 1 1 THF	IRU 7
	MAX CFM		NLET DIA.	CFM S.P. IN. W.C.	HP	HEATING CFM	МВН	GPM	ROWS	COIL CAPACITY	Y (°F)		MAX. WTR. P.D. (FT. HD)	MFR.	MODEL - UNIT SIZE	MCA/MOCP	VOLS/PH		REMARKS: 1. DDC CONT	ROLS COMPATIBLE WITH B	BUILDING CONTROL S	SYSTEM.											
FPB- 1.1 CONSULTATI	ION 750	225	8"Ø 3	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	2. 1/2" THICK I 3. SINGLE PO	FIBRE FREE LINER. NT POWER CONNECTION / R SHALL BE ECM TYPE WIT	AND DOOR INTERLOO	CK DISCONNE											
EDB 5 1 DIRECTOR		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	5. SPRING HA 6. 2" THICK PL	NGER BRACKETS. EATED MERV 13 FILTERS V R COIL - 10 FINS PER INCH	WITH SLANTED FILTE	R BOOT.					RE 12 FINS PE						
FPB-5.2 OFFICE 510 MANAGER'	IS		6"Ø -	150 0.50"	1/3		9.9	1.0	1	STD	140	60/97	0.73	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7		LE FAN POWERED VAV BO		ECONNECTIC				ACT I SHALL	DE 12 FINO FE	R INCH.					
510E LARGE											140								SINGLE DU	JCT VAV BOX SCHE	DULE												
FPB-5.3 CONFERENC 511 MID SIZE		188	8"Ø 3	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			BASIS OF DESIGN	PRI	IMARY AIR				HEATING COIL	. DATA	1				
FPB-5.4 CONFERENC		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	TAG	SERVES	MANU.F/ MODEL#	DESIGN CFM	MIN. CFM	INLET DIA.	CAPACITY MBH	GPM RO	VS COIL CAPAC		VT EAT/LAT	MAX. WTR. P.D. (FT. HD)	ELECTRICAL VOLTS/ PHASE	REMARKS	
FPB-5.5 MID SIZE CO 513	NF. 400	120	6"Ø 2	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	VAV-1.1	CONSULTATION 104	PRICE - SDV 04	200	125	4"Ø	5.5	0.5	STD	140 / 11	5 60 / 95	0.14	120 / 1	1 THRU 5	
FPB-5.6 HCV CONTR OFFICE 51	OL 600	180	8"Ø 3	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	VAV-1.2	KID'S AREA 105	PRICE - SDV 04	200	125	4"Ø	5.5	0.5	STD			0.14	120 / 1	1 THRU 5	
		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	VAV-1.3	CONSULTATION 106	PRICE - SDV 04	200	125	4"Ø	5.5	0.5	STD			0.14	120 / 1	1 THRU 5	
FPB-5.8 HCV CONTR	OL 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	VAV-1.4	CONSULTATION 107	PRICE - SDV 04	200	125	4"Ø	5.5	0.5	STD	140 / 11	5 60 / 95	0.14	120 / 1	1 THRU 5	
FPB-5.9 PARALEGAL	5				1/3		12.8	2.0	1	STD	140	60/97	2.53	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7	VAV-1.5	CONSULTATION 108	PRICE - SDV 05	350	175	6"Ø	7.5	1.0	STD	140 / 11	5 60 / 95	0.46	120 / 1	1 THRU 5	
MANAGER'	S								·										VAV-1.6	STAFF 121	PRICE - SDV 04	200	125	4"Ø	5.5	0.5	STD	140 / 11	5 60 / 95	0.14	120 / 1	1 THRU 5	
FPB-5.10 OFFICE 524 STORAGE 5	519 'S			200 0.50"	1/3		12.8	2.0	1	STD	140	60/97	2.53	PRICE	FDV 2006	3.2 / 15	208 / 1	1 THRU 7	VAV-1.7	RECEPTION 102	PRICE - SDV 08	700	350	6"Ø	13.2	2.0	HIGH	H 140 / 11	5 60 / 95	2.34	120 / 1	1 THRU 5	
FPB-5.11 DIRECTOR OFFICE 52		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	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	
FPB-5.12 CHIEF'S OFF 518A & DIRECTOR'	545	164	8"Ø 2	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	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	
OFFICE 519	A																		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	
FPB-5.13 PUBLIC SAFE OFFICE 51	9	318 1	0"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	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	
FPB-5.14 VIEWING RO 519C	OM 400	120	6"Ø 2	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	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	
HCV FPB-5.15 WORKSTATIC 510	ONS 1000	300 1	0"Ø 5	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	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	
FPB-6.1 DIRECTOR' OFFICE 620		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	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	
FPB-6.2 MID-SIZE CONFERENC		149	8"Ø 2	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	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	
FPB-6.3 CONFERENC	CE 400	120	6"Ø 2	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	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	
623 FPB-6.4 CHIEF OFFIC 624	CE 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	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	
FPB-6.5 DEV/MOD OFF	FICE 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	VAV-6.2	HUDDLE 606, COPY/STORAGE 605 &	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	
FPB-6.6 DEV/MOD OFF	FICE 1750	525 1	2"Ø 8	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		MOTHER'S ROOM 604													
FPB-6.7 TRAINING 62	26A 960	288 1	0"Ø 4	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	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	
HR OPEN FPB-6.8 WORKSTATIO		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	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	
626 MANAGER' FPB-6.9 OFFICE 6260		126	o"a	210 0.50"	1/3	336	12.4	2.0	1	STD	140	60/97	3.43	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7	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	
HUDDLE 63		120		210 0.50	1/3		13.4	2.0		510	140	60/97	3.43	PRICE	FDV 2008	3.2 / 15	20871		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	
FPB-6.10 MAN.OFFICE 626E, 626F & OFFICE 627	DIR. 670	201	8"Ø 3	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	VAV-6.7	ELEVATOR LOBBY 601	PRICE - SDV 05	250	75	5"Ø	N/A	N/A N/			N/A	N/A	120 / 1	1 THRU 4	
EDB 6 11 COPY/PRIN		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	VAV-6.8	6TH FLOOR CORRIDOR		200	60 53	4"Ø	N/A	N/A N/			N/A	N/A	120 / 1	1 THRU 4	
EDR 6 12 MANAGER'	'S 200			145 0.50"	1/3			-		STD	140	60/97	0.99	PRICE	FDV 2000	3.2 / 15	208 / 1	1 THRU 7	VAV-6.9 VAV-6.10	6TH FLOOR CORRIDOR OFFICE 620A & 620B	PRICE - SDV 04 PRICE - SDV 05	175 300	53 150	4"Ø 5"Ø	N/A 6.9	N/A N/	A N/A STD		N/A 5 60 / 95	N/A 1.61	120 / 1	1 THRU 4	
EDB 6 13 COPY/PRIN	'E			275 0.50"	1/3		17.6			STD	140	60/97	0.50	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7	VAV-7.1	BREAK ROOM 705	PRICE - SDV 08	750	225	8"Ø	N/A	N/A N/			N/A	N/A	120 / 1	1 THRU 4	
EPB-7 1 COPY/PRIN		+		350 0.50"	1/2		22.4	3.0	2	STD	140	60/97	0.60	PRICE	FDV 3008	6.2 / 15	208 / 1	1 THRU 7	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	
EXECUTIV	E			250 0.50"															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	
FPB-7.2 WORKSTATI 717G	= 0				1/3		15.9			HIGH	140	60/97	0.60	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7	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	
	475				1/2		15.1		1	HIGH	140	60/97	3.43	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7	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	
	450	+		225 0.50"			15.1		1	HIGH	140	60/97	3.43	PRICE	FDV 2008	3.2 / 15	208 / 1	1 THRU 7	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	
FPB-7.5 709B	900			450 0.50"	1/2		28.7		2	STD	140	60/97	0.50	PRICE	FDV 3010	6.2 / 15	208 / 1	1 THRU 7	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	
OFFICE 718	B,				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	VAV-7.8	CORRIDOR	PRICE - SDV 04	150	45	4"Ø	N/A	N/A N/			N/A	N/A	120 / 1	1 THRU 4	
FPB-7.7 718C & STOR/ 718D	AGE 586	176	8"Ø 2	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	VAV-7.9 VAV-7.10	COPY/PRINT 717B CORRIDOR	PRICE - SDV 04 PRICE - SDV 04	275 150	83 45	4"Ø 4"Ø	N/A N/A	N/A N/			N/A N/A	N/A N/A	120 / 1	1 THRU 4	
FPB-7.8 OFFICE 717E	^{D &} 500	150	8"Ø 2	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	VAV-7.10 VAV-7.11	OFFICE 710B & 710C	PRICE - SDV 04 PRICE - SDV 06	375	45 200	4"Ø 6"Ø	N/A 8.7	2.0 ×	STD			1.61	120 / 1	1 THRU 4 1 THRU 6	
FPB-7.9 OFFICE 717		120	6"Ø 2	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	VAV-7.12	ELEVATOR LOBBY 701		250	75	4"Ø	N/A	N/A N/			N/A	N/A	120 / 1	1 THRU 4	
FPB-7.10 CONFERENC		120	6"Ø 2	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		I PRING HANGER BRACKETS		<u> </u>		I		1	1	I		I	1		
																				SED ON 1" INLET S.P. , CAP. FIBRE FREE LINER.	. U.25" DOWNSTREAM	ι.											

SOUND BASED ON 1" INLET S.P., CAP. 0.25" DOWNSTREAM.
 1/2" THICK FIBRE FREE LINER.
 SINGLE POINT POWER CONNECTION AND DOOR INTERLOCK DISCONNECT SWITCH.

DDC CONTROLS COMPATIBLE WITH BUILDING CONTROL SYSTEM.
 HOT WATER COIL - 10 FINS PER INCH WITH SLIP AND DRIVE CONNECTION. COILS INDICATED AS 'HIGH' CAPACITY SHALL BE 12 FINS PER INCH.
 SINGLE DUCT BOX SHALL OPERATE VIA STATIC PRESSURE TO MAINTAIN NO GREATER THAN .25 IN. WC. AT THERMAL VAV DIFFUSER.

284	EAL:	SBURGH (41) W E A L SIONAL C. PRIC		222 044
700 1	Allen DESIGN I z Shariff F River Ave Pittsburgh, Tel: 412.	BUILD I Engineer enue, Su	manac ring, L ite 600	E LC
CLIENT:	of the Cit	s St, Pittsbu	ittsbı rgh, РА 1: 412) 456-	1rgh 5219
	HACP - Housing Authority of the City of Pittsburgh	412 Boulevard of the Allies, Pittsburgh, PA 15219		
4 100% CO 3 100% CO 2 100% CO	NSTRUCTION REVISION NSTRUCTION REVISION NSTRUCTION REVISION DESIGN DEVI DESCRIPTI PROJECT DRAWN KAS &	#3 I DOCUMEI #2 I DOCUMEI #1 I DOCUMEI ELOPMENT ON ISSUANC	NTS 07 NTS 07 NTS 05 T 01	
SHEET NAME: MECHA SHEET NO:	ANICAL		TRU	

RMAL INSUL	ATION SCHEDULE								
					S	MACNA CLASS			
SYSTEM	SYSTEM- LOCATION	OPERATING TEMPERATURE	MATERIAL	TYPE	THICKNESS IN.S	DENSITY LB/CU. FT.	INSTALLED "R" VALUE/ CONDUCTIVITY	JACKET	REMARKS
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				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	ED REFER TO PIPING INSULATION THICKNE			ASJ+SSL	6
PIPING	COLD CONDENSATE DRAIN - INDOOR, ONLY ON METAL PIPE	40-60	MINERAL-FIBER	PRE-MOLDED	ED			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.

				EVAPOR	ATOR						CC	NDENSER
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.
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
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
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
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

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 T	HICKNESS SCH	IEDULE									
	INSULATION	CONDUCTIVITY	NOMINAL PIPE OR TUBE SIZE (IN)								
FLUID OPERATING TEMPERATURE AND USAGE (°F)	CONDUCTIVITY BTU·IN.(h·ft ² ·°F)	MEAN RATING TEMPERATURE (°F)	< 1	1 to < 1 ¹ / ₂	1 ¹ / ₂ < 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 AS PART OF A HEATING OR COOLING SYSTEM SHALL BE THERMALLY INSULATED IN ACCORDANCE WITH TABLE ABOVE (IECC 2015 TABLE C403.2.10) 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 AI	R DUCT SCHED	OULE	
DESIGNATION	DUCT SIZE	DETAIL	
T1	24 x 12	0-1200	#1/M301
T2	24 x 12	0-1200	#12/M301
Т3	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

EXHAUST	EXHAUST FAN SCHEDULE													
			BASIS OF DESIGN				MAX	WALL/	мото	DR				
MARK	SERVES	TYPE	(GREENHECK)	CFM	SP IN WC	RPM	SONES (INLET)	ROOF OPENING SIZE	HP (WATT)	VOLTS/ PH	REMARKS			
EF 6-1	205 RESTROOM	CABINET	QTXE080	75	0.3	950	0.3	6"Ø	(23.3)	120/1	1,2,3,4			

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.

MANUF./

CONDENSER

MODEL

MITSUBISHI

PUY-A24NKA7

MITSUBISHI

PUY-A12NKA7

MITSUBISHI

PUY-A12NKA7

MITSUBISHI

PUY-A12NKA7

WEIGHT

151 LBS.

92 LBS.

92 LBS.

92 LBS.

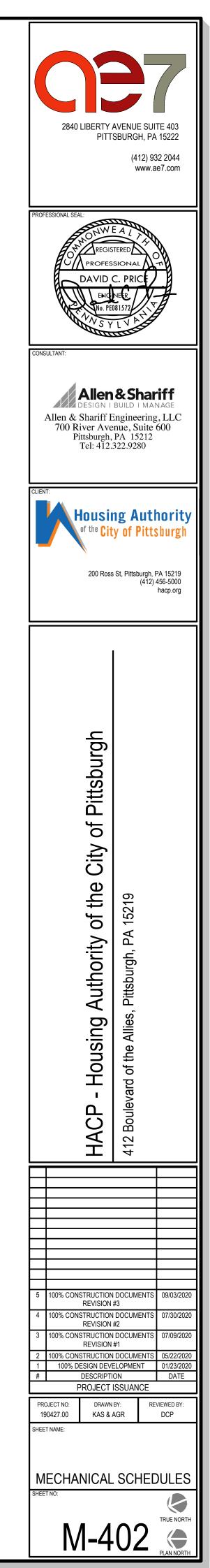
REMARKS

1,2,3,4,5,6,7,8,9,10

1,2,3,4,5,6,7,8,9,10

1,2,3,4,5,6,7,8,9,10

1,2,3,4,5,6,7,8,9,10



GRILL	E, REG	ISTER &	DIFFL	ISER S	CHEDL	JLE				
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.

THER	MAL VA	V DIFFU	ISER SC	HEDUI	LE						
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
	/0.										

<u>REMARKS:</u> 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)
VENTILATION SCHEDULE (I)

VENTILATION	I SCHEDULE (1)												
AIR HANDLING	AREA SERVED	SPACE DESIGNATION		AREA RATE			PEOPLE RA	TE		TOTAL REQ'D VENT @ ROOM	VENT EFFECTIVENES	TOTAL REQ'D VENT @ AHU	REMARKS
UNIT			AREA (SQFT)	REQ'D VENT (CFM/SQFT)	REQ'D VENT (CFM)	PEOPLE	REQ'D VENT (CFM/PERSON)	DIVERSITY	REQ'D VENT (CFM)	(CFM)	S (%)	INLET (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

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).

2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com ROFESSIONAL SEAL PROFESSIO DAVID C. PRIC Allen & Shariff AXX DF Allen & Shariff Engineering, LLC 700 River Avenue, Suite 600 Pittsburgh, PA 15212 Tel: 412.322.9280 Housing Authority of the City of Pittsburg 200 Ross St, Pittsburgh, PA 15219 (412) 456-5000 hacp.org Pittsburgh Ō City Authority of the 15219 ΡA Δ Housing of $\overline{\mathbf{O}}$ 1 HACP 412 5 100% CONSTRUCTION DOCUMENTS REVISION #3 9/03/2020 100% CONSTRUCTION DOCUMENTS 07/30/202 **REVISION #2** 3 100% CONSTRUCTION DOCUMENTS REVISION #1 J7/09/202′ 2100% CONSTRUCTION DOCUMENTS1100% DESIGN DEVELOPMENT DESCRIPTION PROJECT ISSUANCE # DATE PROJECT NO: DRAWN BY: REVIEWED BY: 190427.00 KAS & AGR DCP SHEET NAME: MECHANICAL SCHEDULES RUE NORT M-403

VENTILATIO	N SCHEDULE (CONTINUED)												
AIR HANDLING UNIT	AREA SERVED	SPACE DESIGNATION		AREA RATE			PEOPLE R			TOTAL REQ'D VENT @ ROOM (CFM)	VENT EFFECTIVENES S (%)	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	0.00	6	2	5.0	1.0	10	16	0.8	19.9	
110-1			30	0.00		۷	0.0	1.0		10	0.0	10.0	
REMARKS:													
1. CALCULA	HONS WERE PERFORMED BASE	D ON IMC-2015 SECTIONS 402 & 403. I	WINIMUM OA FOR EXISTING	NUUF I UP UNITS HAV	E BEEN SET FOR 10,00	UU CHM EACH (QT	Y.4).						
												l de manente a Nice and	t of this drawing may be

And With Market Street Str																	
And Accorded Accor		ENTILATION	SCHEDULE (CONTINUED)														2840 LIBERTY AVENUE SUITE PITTSBURGH, PA 15
min minu minu<	No. Prior	AIR				AREA RATE			PEOPLE RA	ATE		TOTAL REQ'D	VENT	TOTAL REQ'D			(412) 932 2 www.ae7
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td< td=""><td>vi Norman Norman</td><td>ANDLING</td><td>AREA SERVED</td><td>SPACE DESIGNATION</td><td>AREA (SQFT)</td><td>REQ'D VENT (CFM/SQFT)</td><td>REQ'D VENT (CFM)</td><td>PEOPLE</td><td>REQ'D VENT (CFM/PERSON)</td><td>DIVERSITY</td><td>REQ'D VENT (CFM)</td><td>VENT @ ROOM</td><td>EFFECTIVENES</td><td>VENT @ AHU</td><td>REMARKS</td><td></td><td>PROFESSIONAL SEAL:</td></td<>	vi Norman	ANDLING	AREA SERVED	SPACE DESIGNATION	AREA (SQFT)	REQ'D VENT (CFM/SQFT)	REQ'D VENT (CFM)	PEOPLE	REQ'D VENT (CFM/PERSON)	DIVERSITY	REQ'D VENT (CFM)	VENT @ ROOM	EFFECTIVENES	VENT @ AHU	REMARKS		PROFESSIONAL SEAL:
		RTU-1	708 LARGE CONFERENCE	CONFERENCE/MEETING	407	0.06	24	10	5.0	1.0	50	74	0.8	93.0			
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Normal	me deservation Normal He He </td <td>RTU-1</td> <td>709B COPY/PRINT</td> <td>OFFICE</td> <td>383</td> <td>0.06</td> <td>23</td> <td>6</td> <td>5.0</td> <td>1.0</td> <td>30</td> <td>53</td> <td>0.8</td> <td>66.2</td> <td></td> <td></td> <td>CONSULTANT:</td>	RTU-1	709B COPY/PRINT	OFFICE	383	0.06	23	6	5.0	1.0	30	53	0.8	66.2			CONSULTANT:
mi <td></td> <td>RTU-1</td> <td>709C MANAGER'S OFFICE</td> <td>OFFICE</td> <td>134</td> <td>0.06</td> <td>8</td> <td>1</td> <td>5.0</td> <td>1.0</td> <td>5</td> <td>13</td> <td>0.8</td> <td>16.3</td> <td></td> <td></td> <td></td>		RTU-1	709C MANAGER'S OFFICE	OFFICE	134	0.06	8	1	5.0	1.0	5	13	0.8	16.3			
Description Description <thdescription< th=""> <thdescription< th=""></thdescription<></thdescription<>		RTU-1	709D MANAGER'S OFFICE	OFFICE	140	0.06	8	1	5.0	1.0	5	13	0.8	16.8			Allen & Shariff Engineering,
Image: Section of the sectin of the section of the	Normalize	RTU-1	709E MANAGER'S OFFICE	OFFICE	136	0.06	8	1	5.0	1.0	5	13	0.8	16.5			700 River Avenue, Suite 60 Pittsburgh, PA 15212 Tel: 412.322.9280
Image: mark <		RTU-1	709F CHIEF'S OFFICE	OFFICE	243	0.06	15	1	5.0	1.0	5	20	0.8	24.5			
Main	min min <td>RTU-1</td> <td></td> <td>OFFICE</td> <td>514</td> <td>0.06</td> <td>31</td> <td>6</td> <td>5.0</td> <td>1.0</td> <td>30</td> <td>61</td> <td>0.8</td> <td>76.1</td> <td></td> <td></td> <td></td>	RTU-1		OFFICE	514	0.06	31	6	5.0	1.0	30	61	0.8	76.1			
a in provinentials 0 monomentials 0	math	RTU-1	710A DIRECTOR'S OFFICE	OFFICE	161	0.06	10	1	5.0	1.0	5	15	0.8	18.3			of the City of Pittsk
V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V <	M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M	RTU-1	710B CHIEF'S OFFICE	OFFICE	214	0.06	13	1	5.0	1.0	5	18	0.8	22.3			200 Ross St, Pittsburgh, PA
N Jugo Ju		RTU-1		OFFICE	144	0.06	9	1	5.0	1.0	5	14	0.8	17.1			(412) 450 ha
Note Note <th< td=""><td>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td><td>RTU-3</td><td></td><td>OFFICE</td><td>1,554</td><td>0.06</td><td>93</td><td>12</td><td>5.0</td><td>1.0</td><td>60</td><td>153</td><td>0.8</td><td>191.6</td><td></td><td></td><td></td></th<>	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	RTU-3		OFFICE	1,554	0.06	93	12	5.0	1.0	60	153	0.8	191.6			
	Multiple Multiple <th< td=""><td>RTU-3</td><td>711A COPY/PRINT</td><td>OFFICE</td><td>300</td><td>0.06</td><td>18</td><td>6</td><td>5.0</td><td>1.0</td><td>30</td><td>48</td><td>0.8</td><td>60.0</td><td></td><td></td><td></td></th<>	RTU-3	711A COPY/PRINT	OFFICE	300	0.06	18	6	5.0	1.0	30	48	0.8	60.0			
Norm Norm <th< td=""><td>Normal control 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200</td><td>RTU-3</td><td>711B CHIEF'S OFFICE</td><td>OFFICE</td><td>211</td><td>0.06</td><td>13</td><td>1</td><td>5.0</td><td>1.0</td><td>5</td><td>18</td><td>0.8</td><td>22.1</td><td></td><td></td><td></td></th<>	Normal control 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200 200	RTU-3	711B CHIEF'S OFFICE	OFFICE	211	0.06	13	1	5.0	1.0	5	18	0.8	22.1			
Image: Province of the constraint of	un <td></td> <td></td> <td></td> <td></td> <td></td> <td>8</td> <td>1</td> <td></td> <td>-</td> <td>5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ح</td>						8	1		-	5						ح
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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 REPAIR DAMAGE: EXERCISE CARE IN REMOVAL OF 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 REMAIN. AVOID CONFLICTS.

DASHED ITEMS: ALL ITEMS SHOWN DASHED ON DEMOLITION PLANS ARE EXISTING AND SHALL BE STARTERS, WIRING, CONDUIT, ETC.) ASSOCIATED REMOVED COMPLETE INCLUDING BOXES, CONDUIT, WITH EQUIPMENT TO BE REMOVED BY OTHERS. WIRE, FASTENERS, AND ASSOCIATED APPURTENANCES UON.

SOLID ITEMS: ALL ITEMS SHOWN SOLID ON

KNOCKOUT PLUGS AND COVERS: ALL CONDUIT REMOVED SHALL BE REMOVED IN ITS ENTIRETY, INCLUDING FITTINGS, MOUNTING DEVICES DEMOLITION PLANS ARE EXISTING TO REMAIN. MOUNTING HARDWARE, ETC. PROVIDE CONDUIT PLUGS AND BLANKS FOR ALL OPENINGS CREATED CIRCUITING TO REMAIN: EXISTING CIRCUITING TO BY THE REMOVAL OF CONDUIT. PROVIDE BLANK REMAIN SHALL BE REROUTED OR RECONNECTED, COVER PLATES FOR ALL OPENED OUTLET BOXES AS REQUIRED, WHERE AFFECTED BY NEW WORK IN CREATED BY THE REMOVAL OF THE EQUIPMENT ORDER TO MAINTAIN CONTINUITY OF CIRCUIT. AND/OR DEVICES.

REUSE OF EXISTING CIRCUITRY: EXISTING DEMOLISHED MATERIALS: ALL MATERIALS REMOVED CIRCUITRY SERVING LIGHTING FIXTURES AND/OR UNDER DEMOLITION, NOT TO BE RELOCATED OR RECEPTACLES FOR A GIVEN AREA SHALL BE DESIGNATED TO BE TURNED OVER TO THE OWNER. REUSED WHERE CONVENIENT TO SERVE THE NEW SHALL BECOME PROPERTY OF THE CONTRACTOR LAYOUT. PROVIDE CIRCUIT MODIFICATIONS AND SHALL BE REMOVED COMPLETELY FROM THE INDICATED OR AS OTHERWISE REQUIRED TO SITE. MAINTAIN THE CONTINUITY OF THE EXISTING CIRCUITS THAT REMAIN. SCHEDULE OUTAGES: ALL WORK AND ALL POWER

SCHEDULES AT TIMES CONVENIENT TO THE OWNER. EXISTING CONDUIT: ALL EXISTING CONDUITS AND WIRING THAT WILL NOT BE REUSED SHALL BE REMOVED WHERE THEY WILL BE EXPOSED UPON NOTIFICATION: NOTIFY THE OWNER PRIOR TO TURNING OFF ANY CIRCUITS. COMPLETION OF NEW WORK. EXISTING CONDUIT TO REMAIN CONCEALED IN WALLS SHALL BE ABANDONED. EXISTING CONDUIT TO REMAIN EXISTING CIRCUITS: IF DURING THE COURSE OF BELOW FLOOR SLAB SHALL BE CUT OFF ONE INCH CONSTRUCTION. IT IS DETERMINED BY THE CONTRACTOR THAT AN EXISTING CIRCUIT BECOMES BELOW ROUGH FLOOR AND GROUTED FLUSH. ALL EXISTING WIRING IN CONDUITS TO BE ABANDONED SPARE. THE CONTRACTOR SHALL UPDATE THE SHALL BE DISCONNECTED FROM POWER SOURCE PANELBOARD DIRECTORY TO INDICATE SUCH, EVEN IF IT IS NOT EXPLICITLY MARKED ON THE AND REMOVED. ELECTRICAL PLANS.

DEMOLITION ITEMS. REPAIR, AT NO ADDITIONAL COST TO OWNER, ANY DAMAGE CAUSED TO **EXISTING CONSTRUCTION AND/OR EQUIPMENT TO**

ASSOCIATED APPURTENANCES: REMOVE ALL ELECTRICAL APPURTENANCES (DISCONNECTS

OUTAGES IN THE EXISTING BUILDING SHALL BE

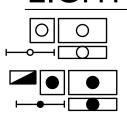
COMMUNICATIONS

- ▼ 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.
- CABLE TELEVISION OUTLET JUNCTION BOX, 4"X4"X2 1/4"D BOX WITH ĪΓV SINGLE GANG PLASTER RING, WITH A 1"C WITH PULL STRING STUBBED ABOVE ACCESSIBLE CEILING AND TERMINATED WITH BUSHING. MOUNT 18"AFF UON.
- PROVIDE SINGLE GANG JUNCTION BOX AT 44" AFF, WITH 1" CONDUIT CR 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



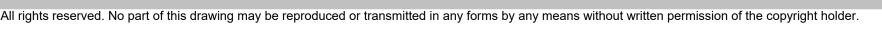
LIGHTING FIXTURE.

LIGHTING FIXTURE ON EMERGENCY CIRCUIT. SUBSCRIPT "NL" WHERE USED, INDICATES NIGHT LIGHT CONNECTED AHEAD OF LIGHTING CONTROLS.

- O 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.
- SINGLE POLE SWITCH, 20A, 120/277V, 44"AFF UON. SUBSCRIPT "a" INDICATES ASSOCIATED FIXTURES TO BE CONTROLLED.
- DIGITAL TIMED OFF SWITCH UP TO 6 HOURS, 20A 120/277V, 44"AFF UON.
- 判_{V1a}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.
- $\mathfrak{P}_{1,V2}$ 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.
- ¶ VD MULTI-BUTTON LOW VOLTAGE SWITCH, 44" AFF UON WITH RAISE LOWER FUNCTION.
- P_{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.
- PD3 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.
- **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
- DUAL TECHNOLOGY VACANCY SENSOR, CEILING VS# 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
- DAYLIGHT PHOTOSENSOR NLIGHT CAT. #
- PPIN LIGHTING RELAY POWER PACK WITH 0-10V DIMMING. PROVIDE NLIGHT MODEL NPP16-D OR APPROVED EQUAL.
- PP FR UL 924 LISTED EMERGENCY LIGHTING RELAY POWER PACK FOR ON/OFF CONTROL. PROVIDE NLIGHT MODEL NPP16-ER OR APPROVED EQUAL.
- FRD PP UL 924 LISTED EMERGENCY LIGHTING RELAY POWER PACK WITH 0-10V DIMMING. PROVIDE NLIGHT MODEL NPP16-D-ER OR APPROVED EQUAL.
 - PPID 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.
 - NLIGHT NETWORK BRIDGE MODEL NBRG8 OR EQUIVALENT.
 - G NLIGHT NETWORK GATEWAY MODEL NGWY2 OR EQUIVALENT

GENERAL

(1) KEYED WORK NOTE.



£	Allen & Shariff DESIGN I BUILD I MANAGE Allen & Shariff Engineering, LLC 700 River Avenue, Suite 600 Pittsburgh, PA 15212 Tel: 412.322.9280						
	Housing Auth of the City of Pitts 200 Ross St, Pittsburgh, F (412)	sburgh					
	HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219						
5 4 3 2 1 #	100% CONSTRUCTION DOCUMENTS REVISION #3 100% CONSTRUCTION DOCUMENTS REVISION #2 100% CONSTRUCTION DOCUMENTS REVISION #1 100% CONSTRUCTION DOCUMENTS 100% DESIGN DEVELOPMENT DESCRIPTION PROJECT ISSUANCE	09/03/2020 07/30/2020 07/09/2020 05/22/2020 05/22/2020 01/23/2020 DATE					
19	PROJECT NO: DRAWN BY: REVIEWED BY: 190427.00 MWM DEB						
SHEET NAME: ELECTRICAL DATA SHEET SHEET NO: E-001 ELEN NORTH EAR NORTH							

2840 LIBERTY AVENUE SUITE 403

DAVID C. PRICE

No. PE081572

PITTSBURGH, PA 15222

(412) 932 2044

www.ae7.com

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.
- 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.
- 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,<u>Z3</u>
 - 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.

L^I 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 POLÈS -SIZE (AMPS)

MANUAL MOTOR STARTER SWITCH WITH THERMAL OVERLOAD

 \bigwedge 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
- DOD 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.

- DEMOUNTABLE PARTITION MANUFACTURER Dfrvi 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.
- (CF) 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.
- FLEXIBLE FURNITURE CONNECTION WALL/COLUMN (WF) 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.
- (WF) 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.
- (FF) 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.
- NACP 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.
- ADDRESSABLE FIRE ALARM SYSTEM PHOTO-ELECTRIC SMOKE DETECTOR FOR ELEVATOR RECALL
- P_{SD} ADDRESSABLE FIRE ALARM SYSTEM PHOTO-FI ECTRIC SMOKE DETECTOR 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) FIRE ALARM VISUAL (STROBE) APPLIANCE. 'C' SUBSCRIPT DENOTES CEILING MOUNTED.
- W(V) 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.
- cÃŇ CEILING MOUNTED FIRE ALARM VOICE EVAC/VISUAL NOTIFICATION APPLIANCE. 'C' SUBSCRIPT DENOTES CEILING MOUNTED.
- WAY 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.
- CA FIRE ALARM VOICE EVAC SPEAKER NOTIFICATION APPLIANCE. SUBSCRIPT INDICATES MINIMUM CANDELA RATING. 'C' SUBSCRIPT DENOTES CEILING MOUNTED.
- WA 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.

AC	REFER
BFG CATV CBCTV CBCTV CFL CBE ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE EFU ECCE ECCE	EXISTIN ELECTF ELECTF EXISTIN FRACTI FULL LC FIRE PF GENER GROUN INTERR GROUN HIGH IN HORSE
OFCI PC PCP PF PNL PNL PNL PNL PNL PNL PNL PNL PNL PNL	POLE PLUMBI PUMP C POWER PROPEI PANEL PANEL PANEL PANEL PRIMAR RECEP ROOF T SERVIC SECON TELEPH TAMPEI TRIPLE TRANSI SURGE TYPICA UNLESS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS VOLTS V

AIC

ABBREVIATIONS

AMPERE AFF ABOVE FINISHED FLOOR AFG ABOVE FINISHED GRADE AHU AIR HANDLING UNIT AMPERE INTERRUPTING CURRENT ABOVE COUNTER TOP. TO ARCH. DWGS

> VISUAL **FINISHED GRADE** ANTENNA TELEVISION T BREAKER D CIRCUIT TELEVISION **CT FLUORESCENT**

SENCY BATTERY UNIT CONDUIT RICAL CONTRACTOR SED CIRCUIT BREAKER

ST FAN Y RECOVERY UNIT MENT

NG TO REMAIN RIC WATER COOLER RIC WATER HEATER

IONAL HORSE POWER OAD AMPS ROTECTION CONTRACTOR AL CONTRACTOR ID FAULT CIRCUIT

UPTER ITENSITY DISCHARGE POWER/HEAT PUMP IG, VENTILATING, **R** CONDITIONING

ED GROUND ON BOX OLT AMPERE ΔΤΤ

NG CONTACTOR JP AIR UNIT

IM CIRCUIT AMPS NICAL CONTACTOR CLAD

IRCUIT BREAKER ACTURER UGS ONLY

NAL ELECTRICAL CODE JSED CONTRACT

LIGHT CCT. ON 24/7 SCALE NTER

FURNISHED ACTOR INSTALLED

ING CONTRACTOR CONTROL PANEL

FACTOR RTY LINE BOARD

TACLE FOP UNIT E ENTRANCE DARY HONE BACKBOARD

R RESISTANT **TUBE FLUORESCENT** IENT VOLTAGE SUPPRESSER

S OTHERWISE NOTED ALTERNATING CURRENT BLE AIR VOLUME

DIRECT CURRENT BLE FREQUENCY DRIVE WIRE JUARD IERPROOF FORMER NG TO REMAIN NG TO BE DISCONNECTED EMOVED NG

2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com DAVID C. PRICE ENGNEER Allen & Sharif Allen & Shariff Engineering, LLC 700 River Avenue, Suite 600 Pittsburgh, PA 15212 Tel: 412.322.9280 Housing Authority ^{the} City of Pittsburg 200 Ross St, Pittsburgh, PA 15219 (412) 456-5000 hacp.or Pittsburgh Ó City the 19 of Authority Housing Ω HACI 412 CONSTRUCTION DOCUMENT REVISION #3 ONSTRUCTION DOCUMENT REVISION #2 00% CONSTRUCTION DOCUMENT **REVISION #1** 2 100% CONSTRUCTION DOCUMENT 100% DESIGN DEVELOPMEN DESCRIPTION # PROJECT ISSUANCE PROJECT NC DRAWN BY: REVIEWED B MWM DEB 190427.00 HEET NAME ELECTRICAL DATA SHEET E-001A

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SECTION 019113 - GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

- I.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.
- 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.
- 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 O INDIVIDUAL ITEMS THAT SUPPORT THE DESIGN PROCESS.
- 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.
- SYSTEMS, SUBSYSTEMS, EQUIPMENT AND COMPONENTS: WHERE THESE TERMS ARE USED TOGETHER OR SEPARATELY, THEY SHALL MEAN "AS-BUILT" SYSTEMS, SUBSYSTEMS, EQUIPMENT AND COMPONENTS.
- I.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:
- 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
- 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 OF THE ELECTRICAL DRAWINGS, AND NOTE 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 FINALLY 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 PORTION OF THE INSTALLATION/EQUIPMENT DURING THE PROGRESS OF ITS ERECTION. THIS CONTRACTOR SHALL TEST ALL WIRING FOR CONTINUITY AND GROUNDS 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 WHEREVER STANDARDS HAVE BEEN ESTABLISHED BY THAT AGENCY. DEFECTIVE EQUIPMENT OR EQUIPMENT DAMAGED IN THE COURSE OF INSTALLATION OR TEST SHALL BE REPLACED OR REPAIRED IN A MANNER MEETING THE APPROVAL OF THE OWNER. ALL ITEMS OF THE SAME TYPE AND RATING SHALL BE IDENTICAL.
- 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 MFANS
- 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 PROVIDED AND WIRED COMPLETE UNDER THIS DIVISION. MOTOR CONTROLLERS AND MOTOR STARTERS FURNISHED UNDER OTHER DIVISIONS SHALL BE SET IN PLACE AND CONNECTED TO SOURCE AND LOAD UNDER THIS DIVISION. IN GENERAL, MOTORS WILL BE PROVIDED WITH THE EQUIPMENT THEY DRIVE AND ARE NOT PART OF THIS WORK UNDER THIS DIVISION, EXCEPT THAT THEY SHALL BE CONNECTED HEREUNDER
- 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, I PHASE WITH GROUND FAULT INTERRUPTER WITH SOLIDLY GROUNDED NEUTRAL 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 THERETO WITH SELF-TAPPING SCREWS OR RIVETS. ALL COMPONENT PARTS OF EACH ITEM OF EQUIPMENT OR DEVICE SHALL BEAR THE MANUFACTURER'S NAMEPLATE, 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 AND MATERIAL 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 CERTIFICATE OF COMPLETION 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

PART 1 - GENERAL 1.1 SUBMITTALS

CABLES

- 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
- 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

LARGER

- A. FEEDERS: COPPER. CONDUCTORS SHALL BE SOLID OR STRANDED FOR NO. 10 AWG AND SMALLER; STRANDED FOR NO. 8 AWG AND
- 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: PREDRILLED 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 USE IN 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 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 GROUNDING 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. UNDERGROUND CONNECTIONS: WELDED CONNECTORS EXCEPT
- AT TEST WELLS AND AS OTHERWISE INDICATED. 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 BUSES 3.3 EQUIPMENT GROUNDING A. INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH
- ALL FEEDERS 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 RACEWAY RUNS. 7. METAL-CLAD CABLE RUNS.
- 8. COMPUTER AND RACK-MOUNTED ELECTRONIC EQUIPMENT CIRCUITS: INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTOR IN BRANCH-CIRCUIT RUNS FROM EQUIPMENT-AREA POWER PANELS AND POWER-DISTRIBUTION UNITS.
- 3.4 INSTALLATION A. GROUNDING CONDUCTORS: ROUTE ALONG SHORTEST AND
- STRAIGHTEST PATHS POSSIBLE UNLESS OTHERWISE INDICATED OR REQUIRED BY CODE. AVOID OBSTRUCTING ACCESS OR PLACING CONDUCTORS WHERE THEY MAY BE SUBJECTED TO STRAIN, IMPACT, OR DAMAGE
- B. GROUND RODS: DRIVE RODS UNTIL TOPS ARE 6 INCHES BELOW FINISHED FLOOR OR FINAL GRADE UNLESS OTHERWISE INDICATED. 1. INTERCONNECT GROUND RODS WITH GROUNDING ELECTRODE CONDUCTOR BELOW GRADE AND AS OTHERWISE INDICATED.
- MAKE CONNECTIONS WITHOUT EXPOSING STEEL OR DAMAGING COATING IF ANY. 2. USE EXOTHERMIC WELDS FOR ALL BELOW-GRADE
- CONNECTIONS. 3. FOR GROUNDING ELECTRODE SYSTEM, INSTALL AT LEAST THREE RODS SPACED AT LEAST ONE-ROD LENGTH FROM EACH OTHER AND LOCATED AT LEAST THE SAME DISTANCE FROM OTHER GROUNDING ELECTRODES, AND CONNECT TO THE
- SERVICE GROUNDING ELECTRODE CONDUCTOR. C. TEST WELLS: GROUND ROD DRIVEN THROUGH DRILLED HOLE IN BOTTOM OF HANDHOLE. HANDHOLES SHALL BE AT LEAST 12 INCHES DEEP, WITH COVER

- 1. INSTALL AT LEAST ONE TEST WELL FOR EACH SERVICE UNLESS OTHERWISE INDICATED. INSTALL AT THE GROUND ROD ELECTRICALLY CLOSEST TO SERVICE ENTRANCE. SET TOP OF TEST WELL FLUSH WITH FINISHED GRADE OR FLOOR.
- D. BONDING STRAPS AND JUMPERS: INSTALL IN LOCATIONS ACCESSIBLE FOR INSPECTION AND MAINTENANCE EXCEPT WHERE ROUTED THROUGH SHORT LENGTHS OF CONDUIT. 1. BONDING TO STRUCTURE: BOND STRAPS DIRECTLY TO BASIC
- STRUCTURE, TAKING CARE NOT TO PENETRATE ANY ADJACENT PARTS 2. BONDING TO EQUIPMENT MOUNTED ON VIBRATION ISOLATION HANGERS AND SUPPORTS: INSTALL BONDING SO VIBRATION IS NOT TRANSMITTED TO RIGIDLY MOUNTED EQUIPMENT. 3. USE EXOTHERMIC-WELDED CONNECTORS FOR OUTDOOR
- LOCATIONS; IF A DISCONNECT-TYPE CONNECTION IS REQUIRED, USE A BOLTED CLAMP. E. GROUNDING AND BONDING FOR PIPING:
- 1. METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING. CONNECT GROUNDING CONDUCTORS TO MAIN METAL WATER SERVICE PIPES; USE A BOLTED CLAMP CONNECTOR OR BOLT A LUG-TYPE CONNECTOR TO A PIPE FLANGE BY USING ONE OF THE LUG BOLTS OF THE FLANGE. WHERE A DIELECTRIC MAIN WATER FITTING IS INSTALLED, CONNECT GROUNDING CONDUCTOR ON STREET SIDE OF FITTING. BOND METAL GROUNDING CONDUCTOR CONDUIT OR SLEEVE TO CONDUCTOR AT EACH
- 2. WATER METER PIPING: USE BRAIDED-TYPE BONDING JUMPERS TO ELECTRICALLY BYPASS WATER METERS. CONNECT TO PIPE
- WITH A BOLTED CONNECTOR. 3. BOND EACH ABOVEGROUND PORTION OF GAS PIPING SYSTEM DOWNSTREAM FROM EQUIPMENT SHUTOFF VALVE. EQUIPMENT GROUNDING CONDUCTORS OF ASSOCIATED FANS, BLOWERS, ELECTRIC HEATERS, AND AIR CLEANERS, INSTALL
- F. BONDING INTERIOR METAL DUCTS: BOND METAL AIR DUCTS TO TINNED BONDING JUMPER TO BOND ACROSS FLEXIBLE DUCT CONNECTIONS TO ACHIEVE CONTINUITY. G. GROUNDING FOR STEEL BUILDING STRUCTURE: INSTALL A DRIVEN GROUND ROD AT BASE OF EACH CORNER COLUMN AND AT
- INTERMEDIATE EXTERIOR COLUMNS AT DISTANCES NOT MORE THAN 60 FEET APART.
- H. CONNECTIONS: MAKE CONNECTIONS SO POSSIBILITY OF GALVANIC ACTION OR ELECTROLYSIS IS MINIMIZED. SELECT CONNECTORS, CONNECTION HARDWARE, CONDUCTORS, AND CONNECTION METHODS SO METALS IN DIRECT CONTACT ARE GALVANICALLY COMPATIBLE.
- 1. USE ELECTROPLATED OR HOT-TIN-COATED MATERIALS TO ENSURE HIGH CONDUCTIVITY AND TO MAKE CONTACT POINTS CLOSER IN ORDER OF GALVANIC SERIES.
- 2. MAKE CONNECTIONS WITH CLEAN, BARE METAL AT POINTS OF CONTACT.
- MAKE ALUMINUM-TO-STEEL CONNECTIONS WITH STAINLESS-STEEL SEPARATORS AND MECHANICAL CLAMPS. 4. MAKE ALUMINUM-TO-GALVANIZED-STEEL CONNECTIONS WITH
- TIN-PLATED COPPER JUMPERS AND MECHANICAL CLAMPS. 5. COAT AND SEAL CONNECTIONS HAVING DISSIMILAR METALS WITH INERT MATERIAL TO PREVENT FUTURE PENETRATION OF MOISTURE TO CONTACT SURFACES.

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL 1.1 ACTION SUBMITTALS

2.1 METAL CONDUITS AND FITTINGS

2. GRC: COMPLY WITH ANSI C80.1.

3. IMC: COMPLY WITH ANSI C80.6.

5. EMT: COMPLY WITH ANSI C80.3.

COMPLYING WITH UL 360.

CONDUIT, LOCATION, AND USE.

EXTERNAL BONDING JUMPER.

TO ENHANCE THEIR CONDUCTIVITY.

BELOWGROUND RACEWAYS.

5. LFNC: COMPLY WITH UL 1660.

CONDUIT, LOCATION, AND USE

LFNC: COMPLY WITH UL 514B.

QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED

COMPRESSION.

A. NONMETALLIC CONDUIT

APPLICATION.

B. NONMETALLIC FITTINGS:

APPLICATION.

2.4 SURFACE RACEWAYS

LOCATION AND APPLICATION.

CABINETS.

PART 2 - PRODUCTS

A. METAL CONDUIT:

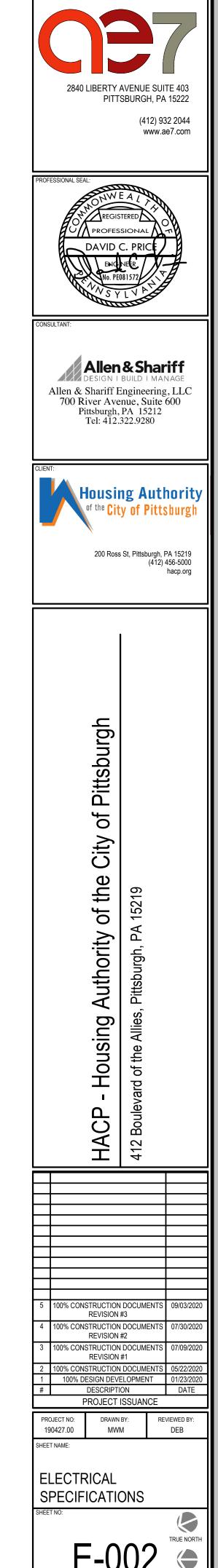
B. METAL FITTINGS:

- A. PRODUCT DATA: FOR SURFACE RACEWAYS, WIREWAYS AND FITTINGS, FLOOR BOXES, HINGED-COVER ENCLOSURES, AND
- 1. LISTING AND LABELING: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- PVC-COATED STEEL CONDUIT: PVC-COATED RIGID STEEL CONDUIT IMC. COMPLY WITH NEMA RN 1.
- 6. FMC: COMPLY WITH UL 1; ZINC-COATED STEEL OR ALUMINUM. 7. LFMC: FLEXIBLE STEEL CONDUIT WITH PVC JACKET AND
- 1. COMPLY WITH NEMA FB 1 AND UL 514B.
- 2. LISTING AND LABELING: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- 3. FITTINGS, GENERAL: LISTED AND LABELED FOR TYPE OF
- 4. CONDUIT FITTINGS FOR HAZARDOUS (CLASSIFIED) LOCATIONS: COMPLY WITH UL 1203 AND NFPA 70. 5. FITTINGS FOR EMT: MATERIAL: STEEL OR DIE CAST. TYPE:
- 6. EXPANSION FITTINGS: PVC OR STEEL TO MATCH CONDUIT TYPE, COMPLYING WITH UL 651, RATED FOR ENVIRONMENTAL CONDITIONS WHERE INSTALLED, AND INCLUDING FLEXIBLE
- 7. COATING FOR FITTINGS FOR PVC-COATED CONDUIT: MINIMUM THICKNESS OF 0.040 INCH, WITH OVERLAPPING SLEEVES
- PROTECTING THREADED JOINTS. C. JOINT COMPOUND FOR IMC, GRC, OR ARC: APPROVED, AS DEFINED IN NFPA 70, BY AUTHORITIES HAVING JURISDICTION FOR USE IN CONDUIT ASSEMBLIES, AND COMPOUNDED FOR USE TO LUBRICATE AND PROTECT THREADED CONDUIT JOINTS FROM CORROSION AND
- 2.2 NONMETALLIC CONDUITS AND FITTINGS
- 1. LISTING AND LABELING: NONMETALLIC CONDUIT SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND
- 2. FIBERGLASS: COMPLY WITH NEMA TC 14. COMPLY WITH UL 2515 FOR ABOVEGROUND RACEWAYS. COMPLY WITH UL 2420 FOR
- 3. ENT: COMPLY WITH NEMA TC 13. 4. RNC: TYPE EPC-80-PVC, COMPLYING WITH NEMA TC 2 AND UL 651 UNLESS OTHERWISE INDICATED.
- 1. FITTINGS, GENERAL: LISTED AND LABELED FOR TYPE OF
- 2. FITTINGS FOR ENT AND RNC: COMPLY WITH NEMA TC 3; MATCH TO CONDUIT OR TUBING TYPE AND MATERIAL. FITTINGS FOR
- 2.3 METAL WIREWAYS AND AUXILIARY GUTTERS A. DESCRIPTION: SHEET METAL, COMPLYING WITH UL 870 AND NEMA 250, TYPE 1, TYPE 3R, OR TYPE 4 UNLESS OTHERWISE
- INDICATED, AND SIZED ACCORDING TO NFPA 70. 1. METAL WIREWAYS INSTALLED OUTDOORS SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND
- B. FITTINGS AND ACCESSORIES: INCLUDE COVERS, COUPLINGS, OFFSETS, ELBOWS, EXPANSION JOINTS, ADAPTERS, HOLD-DOWN STRAPS, END CAPS, AND OTHER FITTINGS TO MATCH AND MATE WITH WIREWAYS AS REQUIRED FOR COMPLETE SYSTEM. C. WIREWAY COVERS: HINGED TYPE SCREW-COVER TYPE FLANGED-AND-GASKETED TYPE UNLESS OTHERWISE INDICATED.
- D. FINISH: MANUFACTURER'S STANDARD ENAMEL FINISH. A. LISTING AND LABELING: SURFACE RACEWAYS AND TELE-POWER POLES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A
- B. SURFACE METAL RACEWAYS: GALVANIZED STEEL WITH SNAP-ON

COVERS COMPLYING WITH UL 5. MANUFACTURER'S STANDARD ENAMEL FINISH IN COLOR SELECTED BY ARCHITECT. 2.5 BOXES, ENCLOSURES, AND CABINETS

- A. GENERAL REQUIREMENTS FOR BOXES, ENCLOSURES, AND CABINETS: BOXES, ENCLOSURES, AND CABINETS INSTALLED IN WET LOCATIONS SHALL BE LISTED FOR USE IN WET LOCATIONS. B. SHEET METAL OUTLET AND DEVICE BOXES: COMPLY WITH NEMA OS 1
- AND UL 514A. C. CAST-METAL OUTLET AND DEVICE BOXES: COMPLY WITH NEMA FB 1, FERROUS ALLOY ALUMINUM, TYPE FD, WITH GASKETED COVER.
- D. NONMETALLIC OUTLET AND DEVICE BOXES: COMPLY WITH
- NEMA OS 2 AND UL 514C. E. METAL FLOOR BOXES: MATERIAL: CAST METAL OR SHEET METAL.
- TYPE: FULLY ADJUSTABLE. SHAPE: RECTANGULAR. F. LUMINAIRE OUTLET BOXES: NONADJUSTABLE, DESIGNED FOR ATTACHMENT OF LUMINAIRE WEIGHING 50 LB. OUTLET BOXES DESIGNED FOR ATTACHMENT OF LUMINAIRES WEIGHING MORE THAN 50 LB SHALL BE LISTED AND MARKED FOR THE MAXIMUM ALLOWABLE WEIGHT
- G. SMALL SHEET METAL PULL AND JUNCTION BOXES: NEMA OS 1. H. CAST-METAL ACCESS, PULL, AND JUNCTION BOXES: COMPLY WITH NEMA FB 1 AND UL 1773, CAST ALUMINUM OR GALVANIZED, CAST
- IRON WITH GASKETED COVER. BOX EXTENSIONS USED TO ACCOMMODATE NEW BUILDING FINISHES SHALL BE OF SAME MATERIAL AS RECESSED BOX.
- J. DEVICE BOX DIMENSIONS: 4 INCHES SQUARE BY 2-1/8 INCHES DEEP OR 4 INCHES BY 2-1/8 INCHES BY 2-1/8 INCHES DEEP. K. GANGABLE BOXES ARE PROHIBITED.
- L. HINGED-COVER ENCLOSURES: COMPLY WITH UL 50 AND NEMA 250, TYPE 1 TYPE 3R TYPE 4 WITH CONTINUOUS-HINGE COVER WITH FLUSH LATCH UNLESS OTHERWISE INDICATED.
- 1. METAL ENCLOSURES: STEEL, FINISHED INSIDE AND OUT WITH MANUFACTURER'S STANDARD ENAMEL
- 2. NONMETALLIC ENCLOSURES: FIBERGLASS 3. INTERIOR PANELS: STEEL; ALL SIDES FINISHED WITH
- MANUFACTURER'S STANDARD ENAMEL. M. CABINETS:
- NEMA 250, TYPE 1 TYPE 3R TYPE 12 GALVANIZED-STEEL BOX WITH REMOVABLE INTERIOR PANEL AND REMOVABLE FRONT, FINISHED INSIDE AND OUT WITH MANUFACTURER'S STANDARD ENAMEL. HINGED DOOR IN FRONT COVER WITH FLUSH LATCH AND CONCEALED HINGE. KEY LATCH TO MATCH PANELBOARDS. METAL BARRIERS TO SEPARATE WIRING OF DIFFERENT SYSTEMS AND VOLTAGE. ACCESSORY FEET WHERE REQUIRED FOR FREESTANDING EQUIPMENT.
- NONMETALLIC CABINETS SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION. 2.6 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING
- A. GENERAL REQUIREMENTS FOR HANDHOLES AND BOXES: 1. BOXES AND HANDHOLES FOR USE IN UNDERGROUND SYSTEMS SHALL BE DESIGNED AND IDENTIFIED AS DEFINED IN NFPA 70, FOR INTENDED LOCATION AND APPLICATION
- 2. BOXES INSTALLED IN WET AREAS SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION. PART 3 - EXECUTION 3.1 RACEWAY APPLICATION
- A. OUTDOORS: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW UNLESS OTHERWISE INDICATED:
- 1. EXPOSED CONDUIT: GRC, IMC, RNC, TYPE EPC-80-PVC. 2. CONCEALED CONDUIT, ABOVEGROUND: GRC, IMC AND EMT 3. UNDERGROUND CONDUIT: RNC, TYPE EPC-80-PVC, DIRECT BURIED AND CONCRETE ENCASED WHERE UNDER DRIVES AND
- PARKING AREAS. 4. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID. OR MOTOR-DRIVEN EQUIPMENT): LFMC AND LFNC. BOXES AND ENCLOSURES, ABOVEGROUND: NEMA 250, TYPE 3R
- AND TYPE 4. B. INDOORS: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW UNLESS OTHERWISE INDICATED:
- 1. EXPOSED, NOT SUBJECT TO PHYSICAL DAMAGE: EMT.
- 2. EXPOSED, NOT SUBJECT TO SEVERE PHYSICAL DAMAGE: EMT. 3. EXPOSED AND SUBJECT TO SEVERE PHYSICAL DAMAGE: GRC. RACEWAY LOCATIONS INCLUDE THE FOLLOWING: LOADING DOCK. CORRIDORS USED FOR TRAFFIC OF MECHANIZED CARTS. FORKLIFTS, AND PALLET-HANDLING UNITS, MECHANICAL ROOMS. 4. CONCEALED IN CEILINGS AND INTERIOR WALLS AND PARTITIONS:
- 5. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): FMC, EXCEPT USE LFMC IN DAMP OR WET LOCATIONS.
- DAMP OR WET LOCATIONS: GRC. 7. BOXES AND ENCLOSURES: NEMA 250, TYPE 1, EXCEPT USE NEMA 250, TYPE 4 STAINLESS STEEL IN INSTITUTIONAL AND COMMERCIAL KITCHENS AND DAMP OR WET LOCATIONS.
- MINIMUM RACEWAY SIZE: 3/4-INCH TRADE SIZE. D. RACEWAY FITTINGS: COMPATIBLE WITH RACEWAYS AND SUITABLE FOR USE AND LOCATION
- 1. RIGID AND INTERMEDIATE STEEL CONDUIT: USE THREADED RIGID STEEL CONDUIT FITTINGS UNLESS OTHERWISE INDICATED. COMPLY WITH NEMA FB 2.10.
- 2. PVC EXTERNALLY COATED, RIGID STEEL CONDUITS: USE ONLY FITTINGS LISTED FOR USE WITH THIS TYPE OF CONDUIT. PATCH AND SEAL ALL JOINTS, NICKS, AND SCRAPES IN PVC COATING AFTER INSTALLING CONDUITS AND FITTINGS. USE SEALANT RECOMMENDED BY FITTING MANUFACTURER AND APPLY IN THICKNESS AND NUMBER OF COATS RECOMMENDED BY MANUFACTURER.
- 3. EMT: USE SETSCREW, STEEL FITTINGS. COMPLY WITH NEMA FB 2.10.
- 4. FLEXIBLE CONDUIT: USE ONLY FITTINGS LISTED FOR USE WITH FLEXIBLE CONDUIT. COMPLY WITH NEMA FB 2.20. E. DO NOT INSTALL ALUMINUM CONDUITS, BOXES, OR FITTINGS IN
- CONTACT WITH CONCRETE OR EARTH. F. INSTALL SURFACE RACEWAYS ONLY WHERE INDICATED ON
- DRAWINGS 3.2 INSTALLATION
- A. COMPLY WITH NECA 1 AND NECA 101 FOR INSTALLATION REQUIREMENTS EXCEPT WHERE REQUIREMENTS ON DRAWINGS OR IN THIS ARTICLE ARE STRICTER. COMPLY WITH NECA 102 FOR ALUMINUM CONDUITS. COMPLY WITH NFPA 70 LIMITATIONS FOR TYPES OF RACEWAYS ALLOWED IN SPECIFIC OCCUPANCIES AND NUMBER OF FLOORS.
- B. KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT-WATER PIPES. INSTALL HORIZONTAL RACEWAY RUNS ABOVE WATER AND STEAM PIPING
- C. ARRANGE STUB-UPS SO CURVED PORTIONS OF BENDS ARE NOT VISIBLE ABOVE FINISHED SLAB. D. INSTALL NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE
- BENDS IN ANY CONDUIT RUN EXCEPT FOR CONTROL WIRING CONDUITS, FOR WHICH FEWER BENDS ARE ALLOWED. SUPPORT WITHIN 12 INCHES OF CHANGES IN DIRECTION. E. CONCEAL CONDUIT AND EMT WITHIN FINISHED WALLS, CEILINGS,
- AND FLOORS UNLESS OTHERWISE INDICATED. INSTALL CONDUITS PARALLEL OR PERPENDICULAR TO BUILDING LINES. F. SUPPORT CONDUIT WITHIN 12 INCHES OF ENCLOSURES TO WHICH ATTACHED.
- G. RACEWAYS EMBEDDED IN SLABS: RUN CONDUIT LARGER THAN 1-INCH TRADE SIZE, PARALLEL OR AT RIGHT ANGLES TO MAIN REINFORCEMENT. WHERE AT RIGHT ANGLES TO REINFORCEMENT, PLACE CONDUIT CLOSE TO SLAB SUPPORT. SECURE RACEWAYS TO REINFORCEMENT AT MAXIMUM 10-FOOTINTERVALS. ARRANGE RACEWAYS TO CROSS BUILDING EXPANSION JOINTS AT RIGHT ANGLES WITH EXPANSION FITTINGS. ARRANGE RACEWAYS TO KEEP A MINIMUM OF 3 INCHES OF CONCRETE COVER IN ALL DIRECTIONS.

DO NOT EMBED THREADLESS FITTINGS IN CONCRETE UNLESS SPECIFICALLY APPROVED BY ARCHITECT FOR EACH SPECIFIC LOCATIONS, SOME AUTHORITIES HAVING JURISDICTION MAY NOT PERMIT NONMETALLIC TUBING IN FIRE-RATED SLABS IN SUBPARAGRAPH BELOW. CHANGE FROM ENT TO GRC OR IMC



- BEFORE RISING ABOVE FLOOR. 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. 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.
- COAT FIELD-CUT THREADS ON PVC-COATED RACEWAY WITH A CORROSION-PREVENTING CONDUCTIVE COMPOUND PRIOR TO ASSEMBLY
- RACEWAY TERMINATIONS AT LOCATIONS SUBJECT TO MOISTURE OR VIBRATION: USE INSULATING BUSHINGS TO PROTECT CONDUCTORS INCLUDING CONDUCTORS SMALLER THAN NO. 4 AWG
- 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.
- 1. 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
- D. 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.
- 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 LFMC OR LFNC IN DAMP OR WET LOCATIONS NOT SUBJECT TO SEVERE PHYSICAL DAMAGE. MOUNT BOXES AT HEIGHTS INDICATED ON DRAWINGS. IF MOUNTING
- HEIGHTS OF BOXES ARE NOT INDIVIDUALLY INDICATED. GIVE PRIORITY TO ADA REQUIREMENTS. INSTALL BOXES WITH HEIGHT MEASURED TO CENTER OF BOX UNLESS OTHERWISE INDICATED. RECESSED BOXES IN MASONRY WALLS: SAW-CUT OPENING 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. HORIZONTALLY SEPARATE BOXES MOUNTED ON OPPOSITE SIDES OF
- WALLS SO THEY ARE NOT IN THE SAME VERTICAL CHANNEL. . LOCATE BOXES SO THAT COVER OR PLATE WILL NOT SPAN
- DIFFERENT BUILDING FINISHES.
- . 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.
- ECTION 260923 LIGHTING CONTROL DEVICES PART 1 - GENERAL
- .1 SUBMITTALS
- A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED. I.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 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, CONTACTOR COILS, OR MICROPROCESSOR INPUT; COMPLYING WITH UL 773A. SPECIFIC PRODUCT AS INDICATED ON DRAWINGS.
- .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.
- .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.
- 3. INDICATOR: LED, TO SHOW WHEN MOTION IS BEING DETECTED DURING TESTING AND NORMAL OPERATION OF THE SENSOR.
- 4. BYPASS SWITCH: OVERRIDE THE ON FUNCTION IN CASE OF SENSOR FAILURE 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)
- 2. DETECTION COVERAGE (ROOM): DETECT OCCUPANCY ANYWHERE IN A CIRCULAR AREA OF 1000 SQ. FT. (93 SQ. M) WHEN MOUNTED ON A 96-INCH- (2440-MM-) HIGH CEILING.
- DETECTION COVERAGE (CORRIDOR): DETECT OCCUPANCY WITHIN 90 FEET (27.4 M) WHEN MOUNTED ON A 10-FOOT- (3-M-) HIGH CEILING C. ULTRASONIC TYPE: CEILING MOUNTING; DETECT OCCUPANCY BY
- SENSING A CHANGE IN PATTERN OF REFLECTED ULTRASONIC ENERGY IN AREA OF COVERAGE. SPECIFIC PRODUCT AS INDICATED ON DRAWINGS.

- 1. DETECTOR SENSITIVITY: 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.
- 1. 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 BUII DING
- 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 SUPPLYING THE CONTROL DEVICE. EMERGENCY LIGHTING OPERATION SHALL BE INDEPENDENT FOR EACH CONTROLLED AREA AND SHALL NOT REQUIRE A GENERALIZED POWER FAILURE FOR PROPER 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 DOOR.
- 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. DUAL TECHNOLOGY SENSORS SHALL BE SET TO "TURN ON" WHEN BOTH TECHNOLOGIES SENSE MOTION AND MAINTAIN "ON" WITH EITHER TECHNOLOGY. SET SENSOR TO MID-RANGE SENSITIVITY WITH A 15 MINUTE DELAY TIME TO 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 431 (DOE 2016) EFFICIENCY LEVELS. 2. MARKED AS COMPLIANT WITH DOE 2016 EFFICIENCY LEVELS BY AN NRTI
- 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.

SYSTEMS. SURFACE.

3.3 CONNECTIONS

- 3.4 CLEANING

PART 1 - GENERAL 1.1 SUBMITTALS

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 WITHIN 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
 - WEATHER-RESISTANT ENAMEL
- 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 NORMAL 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. 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.
- 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 4X 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
- INSTALL TRANSFORMERS LEVEL AND PLUMB ON A CONCRETE BASE WITH VIBRATION-DAMPENING SUPPORTS. LOCATE TRANSFORMERS AWAY FROM CORNERS AND NOT PARALLEL TO ADJACENT WALL
- 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.
- 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.
- A. VACUUM DIRT AND DEBRIS; DO NOT USE COMPRESSED AIR TO ASSIST IN CLEANING.

SECTION 262416 - PANELBOARDS

- A. PRODUCT DATA: FOR EACH TYPE OF PANELBOARD.
- 1. INCLUDE MATERIALS, SWITCHING 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. POWER 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. INNER DOOR SHALL PERMIT ACCESS TO BREAKER OPERATING HANDLES AND LABELING, BUT CURRENT CARRYING TERMINALS AND BUS SHALL REMAIN CONCEALED.
- F. PANELS KNOWN 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 AIC RATING. 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. MOUNT TOP OF TRIM 90 INCHES ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED.

SECTION 262726 - WIRING DEVICES

- PART 1 GENERAI
- 1.1 SUBMITTALS A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT

2.3 USB CHARGER DEVICES

- PART 2 PRODUCTS
- 2.1 GENERAL WIRING-DEVICE REQUIREMENTS
- A. WIRING DEVICES, COMPONENTS, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- B. DEVICES THAT ARE MANUFACTURED FOR USE WITH MODULAR PLUG-IN CONNECTORS MAY BE SUBSTITUTED UNDER THE FOLLOWING CONDITIONS:
- A. CONNECTORS SHALL COMPLY WITH UL 2459 AND SHALL BE MADE WITH STRANDING BUILDING WIRE.
- B. DEVICES SHALL COMPLY WITH THE REQUIREMENTS IN THIS SECTION. C. DEVICES FOR OWNER-FURNISHED EQUIPMENT: RECEPTACLES: MATCH PLUG CONFIGURATIONS. CORD AND PLUG SETS: MATCH EQUIPMENT REQUIREMENTS.
- D. SOURCE LIMITATIONS: OBTAIN EACH TYPE OF WIRING DEVICE AND ASSOCIATED WALL PLATE FROM SINGLE SOURCE FROM SINGLE MANUFACTURER. ACCEPTABLE MANUFACTURERS ARE EATON, HUBBELL, PASS & SEYMOUR, AND LEVITON, UNLESS OTHERWISE NOTED.
- 2.2 STRAIGHT-BLADE RECEPTACLES A. DUPLEX CONVENIENCE RECEPTACLES: 125 V, 20 A; COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, AND FS W-C-596
- B. ISOLATED-GROUND, DUPLEX CONVENIENCE RECEPTACLES: 125 V, 20 A; COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, AND FS W-C-596.
- 1. DESCRIPTION: STRAIGHT BLADE; EQUIPMENT GROUNDING CONTACTS SHALL BE CONNECTED ONLY TO THE GREEN GROUNDING SCREW TERMINAL OF THE DEVICE AND WITH INHERENT ELECTRICAL ISOLATION FROM MOUNTING STRAP. ISOLATION SHALL BE INTEGRAL TO RECEPTACLE CONSTRUCTION AND NOT DEPENDENT ON REMOVABLE PARTS.

A. TAMPER-RESISTANT, USB CHARGER RECEPTACLES: 12 V DC, 2.0 A,

USB DUAL TYPE A; COMPLY WITH NEMA WD 1, NEMA WD 6

CONFIGURATION 5-20R, UL 498, UL 1310, AND FS W-C-596. 1. DESCRIPTION: SINGLE-PIECE, RIVETLESS, NICKEL-PLATED, ALL-BRASS GROUNDING SYSTEM. NICKEL-PLATED, BRASS

A. DUPLEX RECEPTACLE, 125 V, 20 A, STRAIGHT BLADE,

MOUNTING STRAP.

NON-FEED-THROUGH TYPE.

2.5 TWIST-LOCKING RECEPTACLES

GRADE, AND FS W-C-596.

2.4 GFCI RECEPTACLES

PROTECTION.

UL 498.

A. DESCRIPTION:

CONNECTOR.

2.7 CORD AND PLUG SETS

CONNECTED.

2.8 TOGGLE SWITCHES

FS W-S-896.

2.10 WALL PLATES

WIRING DEVICES

THERMOPLASTIC.

THERMOPLASTIC.

WET AND DAMP LOCATIONS

DATA COMMUNICATION CABLING.

WITH LOCKABLE COVER.

2.12 POKE-THROUGH ASSEMBLIES

REQUIREMENTS.

MATCHED TO FLOOR THICKNESS.

FLOOR-CEILING ASSEMBLY

ORANGE TRIANGLE ON FACE.

AGAINST OUTSIDE OF BOXES.

A. DESCRIPTION:

2.13 FINISHES

A. DEVICE COLOR

PART 3 - EXECUTION

3.1 INSTALLATION

C. CONDUCTORS:

PIGTAII S

D. EXISTING CONDUCTORS

E. DEVICE INSTALLATION:

CONDUCTORS.

2.11 FLOOR SERVICE FITTINGS

PLATE FINISH.

EQUIPMENT RATING.

B. SWITCHES, 120/277 V, 20 A:

LIEU OF SWITCH HANDLE.

A. DESCRIPTION:

- COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R,
- UL 498, UL 943 CLASS A, AND FS W-C-596. INCLUDE INDICATOR LIGHT THAT SHOWS WHEN THE GFCI HAS MALFUNCTIONED AND NO LONGER PROVIDES PROPER GFCI
- A. TWIST-LOCK, SINGLE CONVENIENCE RECEPTACLES: 125 V, 20 A; COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION L5-20R, AND
- 2.6 PENDANT CORD-CONNECTOR DEVICES
- 1. MATCHING, LOCKING-TYPE PLUG AND RECEPTACLE BODY
- 2. NEMA WD 6 CONFIGURATIONS L5-20P AND L5-20R, HEAVY-DUTY 3. BODY: NYLON, WITH SCREW-OPEN, CABLE-GRIPPING JAWS AND PROVISION FOR ATTACHING EXTERNAL CABLE GRIP.
- 4. EXTERNAL CABLE GRIP: WOVEN WIRE-MESH TYPE MADE OF HIGH-STRENGTH, GALVANIZED-STEEL WIRE STRAND, MATCHED TO CABLE DIAMETER, AND WITH ATTACHMENT PROVISION DESIGNED FOR CORRESPONDING CONNECTOR.
- 1. MATCH VOLTAGE AND CURRENT RATINGS AND NUMBER OF CONDUCTORS TO REQUIREMENTS OF EQUIPMENT BEING
- 2. CORD: RUBBER-INSULATED, STRANDED-COPPER CONDUCTORS, WITH TYPE SOW-A JACKET; WITH GREEN-INSULATED GROUNDING CONDUCTOR AND AMPACITY OF AT LEAST 130 PERCENT OF THE
- 3. PLUG: NYLON BODY AND INTEGRAL CABLE-CLAMPING JAWS. MATCH CORD AND RECEPTACLE TYPE FOR CONNECTION.
- A. COMPLY WITH NEMA WD 1, UL 20, AND FS W-S-896.
- C. PILOT-LIGHT SWITCHES: 120/277 V, 20 A. 1. DESCRIPTION: SINGLE POLE, WITH LED-LIGHTED HANDLE, ILLUMINATED WHEN SWITCH IS OFF. 2. KEY-OPERATED SWITCHES: 120/277 V, 20 A.
- 3. DESCRIPTION: SINGLE POLE, WITH FACTORY-SUPPLIED KEY IN 2.9 WALL SWITCH SENSOR LIGHT SWITCH, DUAL TECHNOLOGY
- A. DESCRIPTION: SWITCHBOX-MOUNTED, COMBINATION
- LIGHTING-CONTROL SENSOR AND CONVENTIONAL SWITCH LIGHTING-CONTROL UNIT USING DUAL TECHNOLOGY. ADJUSTABLE
- TIME DELAY OF 20 MINUTES. ABLE TO BE LOCKED TO AUTOMATIC-ON OR MANUAL-ON MODE. COMPLY WITH NEMA WD 1, UL 20, AND
- A. SINGLE AND COMBINATION TYPES SHALL MATCH CORRESPONDING
- B. PLATE-SECURING SCREWS: METAL WITH HEAD COLOR TO MATCH
- C. MATERIAL FOR FINISHED SPACES: SMOOTH, HIGH-IMPACT
- D. MATERIAL FOR UNFINISHED SPACES: SMOOTH, HIGH-IMPACT
- E. MATERIAL FOR DAMP LOCATIONS: THERMOPLASTIC WITH
- SPRING-LOADED LIFT COVER, AND LISTED AND LABELED FOR USE IN F. WET-LOCATION, WEATHERPROOF COVER PLATES: NEMA 250, COMPLYING WITH TYPE 3R, WEATHER-RESISTANT THERMOPLASTIC
- A. TYPE: MODULAR, DUAL-SERVICE UNITS SUITABLE FOR WIRING METHOD USED. TYPE AS INDICATED ON DRAWINGS.
- B. COMPARTMENTS: BARRIER SEPARATES POWER FROM VOICE AND C. SERVICE PLATE: AS INDICATED BY ARCHITECT WITH SATIN FINISH.
- D. POWER RECEPTACLE: NEMA WD 6 CONFIGURATION 5-20R, GRAY FINISH, UNLESS OTHERWISE INDICATED. E. DATA COMMUNICATION OUTLET: AS DIRECTED BY THE OWNER.
- 1. FACTORY-FABRICATED AND -WIRED ASSEMBLY OF BELOW-FLOOR JUNCTION BOX WITH MULTICHANNELED, THROUGH-FLOOR RACEWAY/FIRESTOP UNIT AND DETACHABLE MATCHING FLOOR SERVICE-OUTLET ASSEMBLY. 2. COMPLY WITH UL 514 SCRUB WATER EXCLUSION
- 3. SERVICE-OUTLET ASSEMBLY: TYPE AS INDICATED ON DRAWINGS. 4. SIZE: SELECTED TO FIT NOMINAL CORED HOLES IN FLOOR AND
- 5. FIRE RATING: UNIT IS LISTED AND LABELED FOR FIRE RATING OF
- 6. CLOSURE PLUG: ARRANGED TO CLOSE UNUSED CORED OPENINGS AND REESTABLISH FIRE RATING OF FLOOR.
- 1. WIRING DEVICES CONNECTED TO NORMAL POWER SYSTEM: AS SELECTED BY ARCHITECT UNLESS OTHERWISE INDICATED OR REQUIRED BY NFPA 70 OR DEVICE LISTING.
- 2. WIRING DEVICES CONNECTED TO EMERGENCY POWER SYSTEM:
- 3. ISOLATED-GROUND RECEPTACLES: AS SPECIFIED ABOVE, WITH A. WALL PLATE COLOR: FOR PLASTIC COVERS, MATCH DEVICE COLOR.
- A. COMPLY WITH NECA 1, INCLUDING MOUNTING HEIGHTS LISTED IN THAT STANDARD, UNLESS OTHERWISE INDICATED.
- **B. COORDINATION WITH OTHER TRADES** 1. PROTECT INSTALLED DEVICES AND THEIR BOXES. DO NOT PLACE WALL FINISH MATERIALS OVER DEVICE BOXES AND DO NOT CUT HOLES FOR BOXES WITH ROUTERS THAT ARE GUIDED BY RIDING
- 2. KEEP OUTLET BOXES FREE OF PLASTER, DRYWALL JOINT COMPOUND, MORTAR, CEMENT, CONCRETE, DUST, PAINT, AND OTHER MATERIAL THAT MAY CONTAMINATE THE RACEWAY SYSTEM, CONDUCTORS, AND CABLES.
- 3. INSTALL DEVICE BOXES IN BRICK OR BLOCK WALLS SO THAT THE COVER PLATE DOES NOT CROSS A JOINT UNLESS THE JOINT IS TROWELED FLUSH WITH THE FACE OF THE WALL 4. INSTALL WIRING DEVICES AFTER ALL WALL PREPARATION,
- INCLUDING PAINTING, IS COMPLETE. 1. DO NOT STRIP INSULATION FROM CONDUCTORS UNTIL RIGHT BEFORE THEY ARE SPLICED OR TERMINATED ON DEVICES. 2. STRIP INSULATION EVENLY AROUND THE CONDUCTOR USING
- TOOLS DESIGNED FOR THE PURPOSE. AVOID SCORING OR NICKING OF SOLID WIRE OR CUTTING STRANDS FROM STRANDED
- 3. THE LENGTH OF FREE CONDUCTORS AT OUTLETS FOR DEVICES SHALL MEET PROVISIONS OF NFPA 70, ARTICLE 300, WITHOUT
- a. CUT BACK AND PIGTAIL, OR REPLACE ALL DAMAGED
- b. STRAIGHTEN CONDUCTORS THAT REMAIN AND REMOVE CORROSION AND FOREIGN MATTER. c. PIGTAILING EXISTING CONDUCTORS IS PERMITTED,
- PROVIDED THE OUTLET BOX IS LARGE ENOUGH. 1. REPLACE DEVICES THAT HAVE BEEN IN TEMPORARY USE DURING CONSTRUCTION AND THAT WERE INSTALLED BEFORE
- BUILDING FINISHING OPERATIONS WERE COMPLETE. 2. KEEP EACH WIRING DEVICE IN ITS PACKAGE OR OTHERWISE

- PROTECTED UNTIL IT IS TIME TO CONNECT CONDUCTORS. 3. DO NOT REMOVE SURFACE PROTECTION, SUCH AS PLASTIC FILM
- AND SMUDGE COVERS, UNTIL THE LAST POSSIBLE MOMENT. 4. CONNECT DEVICES TO BRANCH CIRCUITS USING PIGTAILS THAT ARE NOT LESS THAN 6 INCHES (152 MM) IN LENGTH.
- 5. WHEN THERE IS A CHOICE, USE SIDE WIRING WITH BINDING-HEAD SCREW TERMINALS. WRAP SOLID CONDUCTOR
- TIGHTLY CLOCKWISE, TWO-THIRDS TO THREE-FOURTHS OF THE WAY AROUND TERMINAL SCREW.
- 6. USE A TORQUE SCREWDRIVER WHEN A TORQUE IS RECOMMENDED OR REQUIRED BY MANUFACTURER
- 7. WHEN CONDUCTORS LARGER THAN NO. 12 AWG ARE INSTALLED ON 15- OR 20-A CIRCUITS, SPLICE NO. 12 AWG PIGTAILS FOR DEVICE CONNECTIONS.
- 8. TIGHTEN UNUSED TERMINAL SCREWS ON THE DEVICE. WHEN MOUNTING INTO METAL BOXES, REMOVE THE FIBER OR PLASTIC WASHERS USED TO HOLD DEVICE-MOUNTING SCREWS IN YOKES, ALLOWING METAL-TO-METAL CONTACT. F. RECEPTACLE ORIENTATION:
- INSTALL GROUND PIN OF VERTICALLY MOUNTED RECEPTACLES UP, AND ON HORIZONTALLY MOUNTED RECEPTACLES TO THE RIGHT. G. DEVICE PLATES: DO NOT USE OVERSIZED OR EXTRA-DEEP PLATES. REPAIR WALL FINISHES AND REMOUNT OUTLET BOXES WHEN
- STANDARD DEVICE PLATES DO NOT FIT FLUSH OR DO NOT COVER ROUGH WALL OPENING H. ARRANGEMENT OF DEVICES: UNLESS OTHERWISE INDICATED, MOUNT FLUSH, WITH LONG DIMENSION VERTICAL AND WITH
- GROUNDING TERMINAL OF RECEPTACLES ON TOP. GROUP ADJACENT SWITCHES UNDER SINGLE, MULTIGANG WALL PLATES I. ADJUST LOCATIONS OF FLOOR SERVICE OUTLETS AND SERVICE POLES TO SUIT ARRANGEMENT OF PARTITIONS AND FURNISHINGS.
- 3.2 IDENTIFICATION A. IDENTIFY EACH RECEPTACLE WITH PANELBOARD IDENTIFICATION AND CIRCUIT NUMBER. USE HOT, STAMPED, OR ENGRAVED MACHINE PRINTING WITH BLACK-FILLED LETTERING ON FACE OF PLATE, AND DURABLE WIRE MARKERS OR TAGS INSIDE OUTLET BOXES. SECTION 262813 - FUSES
- PART 1 GENERAL
- 1.1 SUBMITTALS A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT. INCLUDE
- CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, DIMENSIONS OF INDIVIDUAL COMPONENTS AND PROFILES, AND FINISHES FOR SPARE-FUSE CABINETS.
- 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. FUSES: 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 MANUFACTURERS
- A. SOURCE LIMITATIONS: OBTAIN FUSES, FOR USE WITHIN A SPECIFIC PRODUCT OR CIRCUIT, FROM SINGLE SOURCE FROM SINGLE MANUFACTURER 2.2 CARTRIDGE FUSES
- A. CHARACTERISTICS: NEMA FU 1, CURRENT-LIMITING, NONRENEWABLE CARTRIDGE FUSES WITH VOLTAGE RATINGS CONSISTENT WITH CIRCUIT VOLTAGES.
- 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. COMPLY WITH NEMA FU 1 FOR CARTRIDGE FUSES. D. COORDINATE FUSE RATINGS WITH UTILIZATION EQUIPMENT NAMEPLATE LIMITATIONS OF MAXIMUM FUSE SIZE AND WITH SYSTEM
- SHORT-CIRCUIT CURRENT LEVELS.
- 2.3 SPARE-FUSE CABINET A. CHARACTERISTICS: WALL-MOUNTED STEEL UNIT WITH FULL-LENGTH, RECESSED PIANO-HINGED DOOR AND KEY-CODED CAM LOCK AND PULL
- 1. SIZE: ADEQUATE FOR STORAGE OF SPARE FUSES SPECIFIED WITH 15 PERCENT SPARE CAPACITY MINIMUM.
- 2. FINISH: GRAY, BAKED ENAMEL. 3. IDENTIFICATION: "SPARE FUSES" IN 1-1/2-INCH- (38-MM-) HIGH LETTERS ON EXTERIOR OF DOOR.
- 4. FUSE PULLERS: FOR EACH SIZE OF FUSE. WHERE APPLICABLE AND AVAILABLE, FROM FUSE MANUFACTURER.
- PART 3 EXECUTION 3.1 FUSE APPLICATIONS
- A. CARTRIDGE FUSES: 1. SERVICE ENTRANCE: CLASS L, FAST ACTING
- 2. FEEDERS: CLASS RK1, FAST ACTING
- 3. MOTOR BRANCH CIRCUITS: CLASS RK1, TIME DELAY. LARGE MOTOR BRANCH (601-4000 A): CLASS L, TIME DELAY.
- 5. OTHER BRANCH CIRCUITS: CLASS RK1. TIME DELAY
- 6. ELEVATOR POWER MODULES: CLASS J
- 3.2 INSTALLATION
- A. INSTALL FUSES IN FUSIBLE DEVICES. ARRANGE FUSES SO RATING INFORMATION IS READABLE WITHOUT REMOVING FUSE. B. INSTALL SPARE-FUSE CABINET(S) IN LOCATION SHOWN ON THE DRAWINGS OR AS INDICATED IN THE FIELD BY OWNER.

SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS PART 1 - GENERAL

- 1.1 SUBMITTALS A. PRODUCT DATA: FOR EACH TYPE OF ENCLOSED SWITCH, CIRCUIT BREAKER, ACCESSORY, AND COMPONENT INDICATED. INCLUDE NAMEPLATE RATINGS, DIMENSIONED ELEVATIONS, SECTIONS, WEIGHTS, AND MANUFACTURERS' TECHNICAL DATA ON FEATURES, PERFORMANCE, ELECTRICAL CHARACTERISTICS, RATINGS ACCESSORIES, AND FINISHES.
- 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. FUSES: 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 GENERAL REQUIREMENTS
- A. SOURCE LIMITATIONS: OBTAIN ENCLOSED SWITCHES AND CIRCUIT BREAKERS, OVERCURRENT PROTECTIVE DEVICES, COMPONENTS, AND ACCESSORIES, WITHIN SAME PRODUCT CATEGORY, FROM SINGLE MANUFACTURER.
- B. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY AN NRTL, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- C. ACCEPTABLE MANUFACTURERS ARE EATON, SIEMENS, SQUARE D, AND GE. 2.2 FUSIBLE SWITCHES
- A. FUSIBLE SWITCH, 800 A AND SMALLER: NEMA KS 1, TYPE HD, WITH CLIPS OR BOLT PADS TO ACCOMMODATE SPECIFIED FUSES, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT TWO PADLOCKS. AND INTERLOCKED WITH COVER IN CLOSED POSITION.
- B. ACCESSORIES: 1. EQUIPMENT GROUND KIT: INTERNALLY MOUNTED AND LABELED
- FOR COPPER AND ALUMINUM GROUND CONDUCTORS. 2. NEUTRAL KIT: INTERNALLY MOUNTED; INSULATED, CAPABLE OF 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.
- 2.3 NONFUSIBLE SWITCHES A. NONFUSIBLE SWITCH, 800 A AND SMALLER: NEMA KS 1, TYPE HD, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT TWO PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.
- B. ACCESSORIES: 1. EQUIPMENT GROUND KIT: INTERNALLY MOUNTED AND LABELED FOR COPPER AND ALUMINUM GROUND CONDUCTORS.
- 2. NEUTRAL KIT: INTERNALLY MOUNTED; INSULATED, CAPABLE OF

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DAVID C. PRICE

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Allen & Sharif

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200 Ross St, Pittsburgh, PA 15219

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(412) 456-5000

Allen & Shariff Engineering, LLC

700 River Avenue, Suite 600

Pittsburgh, PA 15212

Tel: 412.322.9280

FESSIONAL SEAL

PITTSBURGH, PA 15222

(412) 932 2044

www.ae7.com

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 FOUIPMENT
- 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 ENDWALLS
- 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 IN 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 WARRANT 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 1.2 SUBMITTALS

WORK

- 1.3 QUALITY ASSURANCE

- 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. 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: 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
 - 5/32-INCH- (4-MM-) DIAMETER AIRCRAFT CABLE SUPPORTS ADJUSTABLE TO 120 INCHES (6 M) IN LENGTH.
- 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:
 - 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 AIM 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 THE MAIN EXISTING 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.
- 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
- 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
- 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. INCLUDE AUDIO/ALARM 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. 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
- 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 TYPF
- 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 BETWEEN THE FACP 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 FOR ADJUSTMENT OF
 - SENSITIVITY AT FIRE-ALARM CONTROL UNIT.
- b. TEMPERATURE SENSORS SHALL ADDITIONALLY TEST FOR AND COMMUNICATE THE SENSITIVITY 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
- 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 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 STATION SHALL BE EQUIPPED WITH TERMINAL STRIP AND PRESSURE STYLE SCREW TERMINALS FOR THE CONNECTION OF FIELD WIRING. HOUSINGS SHALL BE MADE OF 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 AN INTERNAL IDENTIFYING CODE FOR CONTROL PANEL USE TO IDENTIFY THE MODULE TYPE. 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 SERVICE 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.
- 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

OR CONNECTIONS.

D. MANUAL FIRE-ALARM BOXES:

CONTRASTING COLOR.

SUPPORTED AT BOTH ENDS.

FROM NORMAL VIEWING POSITION.

UNLESS OTHERWISE INDICATED.

3.2 PATHWAYS

NEAR THE DEVICE THEY MONITOR.

4. MANUAL TEST REPORT FUNCTION AND MANUAL TRANSMISSION

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

C. INSTALL WALL-MOUNTED EQUIPMENT, WITH TOPS OF CABINETS NOT MORE THAN 78 INCHES (1980 MM) ABOVE THE FINISHED FLOOR.

1. INSTALL MANUAL FIRE-ALARM BOX IN THE NORMAL PATH OF EGRESS WITHIN 60 INCHES (1520 MM) OF THE EXIT DOORWAY. 2. MOUNT MANUAL FIRE-ALARM BOX ON A BACKGROUND OF A

3. THE OPERABLE PART OF MANUAL FIRE-ALARM BOX SHALL BE BETWEEN 42 INCHES (1060 MM) AND 48 INCHES (1220 MM) ABOVE FLOOR LEVEL. ALL DEVICES SHALL BE MOUNTED AT THE SAME HEIGHT UNLESS OTHERWISE INDICATED.

E. SMOKE- OR HEAT-DETECTOR SPACING: COMPLY WITH NFPA 72. F. DUCT SMOKE DETECTORS: COMPLY WITH NFPA 72 AND NFPA 90A. INSTALL SAMPLING TUBES SO THEY EXTEND THE FULL WIDTH OF DUCT. TUBES MORE THAN 36 INCHES (9100 MM) LONG SHALL BE

G. SINGLE-STATION SMOKE DETECTORS: WHERE MORE THAN ONE SMOKE ALARM IS INSTALLED WITHIN A DWELLING OR SUITE, THEY SHALL BE CONNECTED SO THAT THE OPERATION OF ANY SMOKE ALARM CAUSES THE ALARM IN ALL SMOKE ALARMS TO SOUND. H. REMOTE STATUS AND ALARM INDICATORS: INSTALL IN A VISIBLE LOCATION NEAR EACH SMOKE DETECTOR, SPRINKLER WATER-FLOW SWITCH, AND VALVE-TAMPER SWITCH THAT IS NOT READILY VISIBLE

AUDIBLE ALARM-INDICATING DEVICES: INSTALL NOT LESS THAN 6 INCHES (150 MM) BELOW THE CEILING. INSTALL BELLS AND HORNS ON FLUSH-MOUNTED BACK BOXES WITH THE DEVICE-OPERATING MECHANISM CONCEALED BEHIND A GRILLE. INSTALL ALL DEVICES AT

THE SAME HEIGHT UNLESS OTHERWISE INDICATED. J. VISIBLE ALARM-INDICATING DEVICES: INSTALL ADJACENT TO EACH ALARM BELL OR ALARM HORN AND AT LEAST 6 INCHES (150 MM) BELOW THE CEILING. INSTALL ALL DEVICES AT THE SAME HEIGHT

K. DEVICE LOCATION-INDICATING LIGHTS: LOCATE IN PUBLIC SPACE

A. PATHWAYS SHALL BE INSTALLED IN EMT. FIRE ALARM MC CABLE IS SUITABLE ONLY WHERE NOT EXPOSED

B. FIRE ALARM BOXES SHALL BE PAINTED RED ENAMEL. C. WIRING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE AND NFPA 72, AND ALL OTHER APPLICABLE STATE AND LOCAL CODES. THE CONTRACTOR SHALL PROVIDE. IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. ALL WIRING, CONDUIT, AND OUTLET BOXES REQUIRED FOR THE ERECTION OF THE COMPLETE SYSTEM AS DESCRIBED HEREIN AND AS SHOWN ON THE DRAWINGS. CONDUIT AND WIRE SHALL

CONFORM TO THE APPLICABLE REQUIREMENTS FOR LIGHTING AND RECEPTACLE BRANCH CIRCUITS. THE SIZES OF THE DIFFERENT WIRES SHALL BE AS REQUIRED FOR SYSTEM OPERATION. COLOR-CODED WIRES SHALL BE USED.

3.3 CONNECTIONS A. FOR FIRE-PROTECTION SYSTEMS RELATED TO DOORS IN FIRE-RATED WALLS AND PARTITIONS AND TO DOORS IN SMOKE PARTITIONS, COMPLY WITH REQUIREMENTS IN SECTION 087100 "DOOR HARDWARE." CONNECT HARDWARE AND DEVICES TO FIRE-ALARM

SYSTEM. 1. VERIFY THAT HARDWARE AND DEVICES ARE LISTED FOR USE WITH INSTALLED FIRE-ALARM SYSTEM BEFORE MAKING CONNECTIONS.

B. MAKE ADDRESSABLE CONNECTIONS WITH A SUPERVISED INTERFACE DEVICE TO THE FOLLOWING DEVICES AND SYSTEMS. INSTALL THE INTERFACE DEVICE LESS THAN 36 INCHES (910 MM) FROM THE DEVICE CONTROLLED. MAKE AN ADDRESSABLE CONFIRMATION CONNECTION WHEN SUCH FEEDBACK IS AVAILABLE AT THE DEVICE

- OR SYSTEM BEING CONTROLLED. 1. SMOKE DAMPERS IN AIR DUCTS OF DESIGNATED HVAC DUCT SYSTEMS.
- 2. MAGNETICALLY HELD-OPEN DOORS.
- 3. ELECTRONICALLY LOCKED DOORS AND ACCESS GATES.
- 4. ALARM-INITIATING CONNECTION TO ELEVATOR RECALL SYSTEM AND COMPONENTS. 5. ALARM-INITIATING CONNECTION TO ACTIVATE EMERGENCY
- LIGHTING CONTROL. 6. ALARM-INITIATING CONNECTION TO ACTIVATE EMERGENCY
- SHUTOFFS FOR GAS AND FUEL SUPPLIES. 7. SUPERVISORY CONNECTIONS AT VALVE SUPERVISORY SWITCHES.
- 8. SUPERVISORY CONNECTIONS AT LOW-AIR-PRESSURE SWITCH OF EACH DRY-PIPE SPRINKLER SYSTEM.
- 9. SUPERVISORY CONNECTIONS AT ELEVATOR SHUNT-TRIP
- BREAKER. 10. SUPERVISORY CONNECTIONS AT FIRE-EXTINGUISHER LOCATIONS.
- 3.4 GROUNDING
- A. GROUND FIRE-ALARM CONTROL UNIT AND ASSOCIATED CIRCUITS; COMPLY WITH IEEE 1100. INSTALL A GROUND WIRE FROM MAIN SERVICE GROUND TO FIRE-ALARM CONTROL UNIT.
- 3.5 FIELD QUALITY CONTROL A. FIELD TESTS SHALL BE WITNESSED BY AUTHORITIES HAVING JURISDICTION.
- B. PERFORM THE FOLLOWING TESTS AND INSPECTIONS WITH THE ASSISTANCE OF A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE:
- 1. VISUAL INSPECTION: CONDUCT VISUAL INSPECTION PRIOR TO TESTING.
- a. INSPECTION SHALL BE BASED ON COMPLETED RECORD DRAWINGS AND SYSTEM DOCUMENTATION THAT IS REQUIRED BY NFPA 72 IN ITS "COMPLETION DOCUMENTS, PREPARATION" TABLE IN THE "DOCUMENTATION" SECTION OF THE "FUNDAMENTALS" CHAPTER.
- b. COMPLY WITH THE "VISUAL INSPECTION FREQUENCIES" TABLE IN THE "INSPECTION" SECTION OF THE "INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72; RETAIN THE "INITIAL/REACCEPTANCE" COLUMN AND LIST ONLY THE INSTALLED COMPONENTS.
- 2. SYSTEM TESTING: COMPLY WITH THE "TEST METHODS" TABLE IN THE "TESTING" SECTION OF THE "INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72.
- 3. TEST AUDIBLE APPLIANCES FOR THE PUBLIC OPERATING MODE ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. PERFORM THE TEST USING A PORTABLE SOUND-LEVEL METER COMPLYING WITH TYPE 2 REQUIREMENTS IN ANSI S1.4.
- 4. TEST AUDIBLE APPLIANCES FOR THE PRIVATE OPERATING MODE ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. 5. TEST VISIBLE APPLIANCES FOR THE PUBLIC OPERATING MODE
- ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. 6. FACTORY-AUTHORIZED SERVICE REPRESENTATIVE SHALL
- PREPARE THE "FIRE ALARM SYSTEM RECORD OF COMPLETION" IN THE "DOCUMENTATION" SECTION OF THE "FUNDAMENTALS" CHAPTER IN NFPA 72 AND THE "INSPECTION AND TESTING FORM" IN THE "RECORDS" SECTION OF THE "INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72.
- C. REACCEPTANCE TESTING: PERFORM REACCEPTANCE TESTING TO VERIFY THE PROPER OPERATION OF ADDED OR REPLACED DEVICES AND APPLIANCES.
- D. FIRE-ALARM SYSTEM WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.
- 3.6 DEMONSTRATION A. TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN FIRE-ALARM SYSTEM.

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		nue, Suite PA 15212	g, LLC 600
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	HACP - Housing Authority of the City of Pittsburgh	412 Boulevard of the Allies, Pittsburgh, PA 15219	
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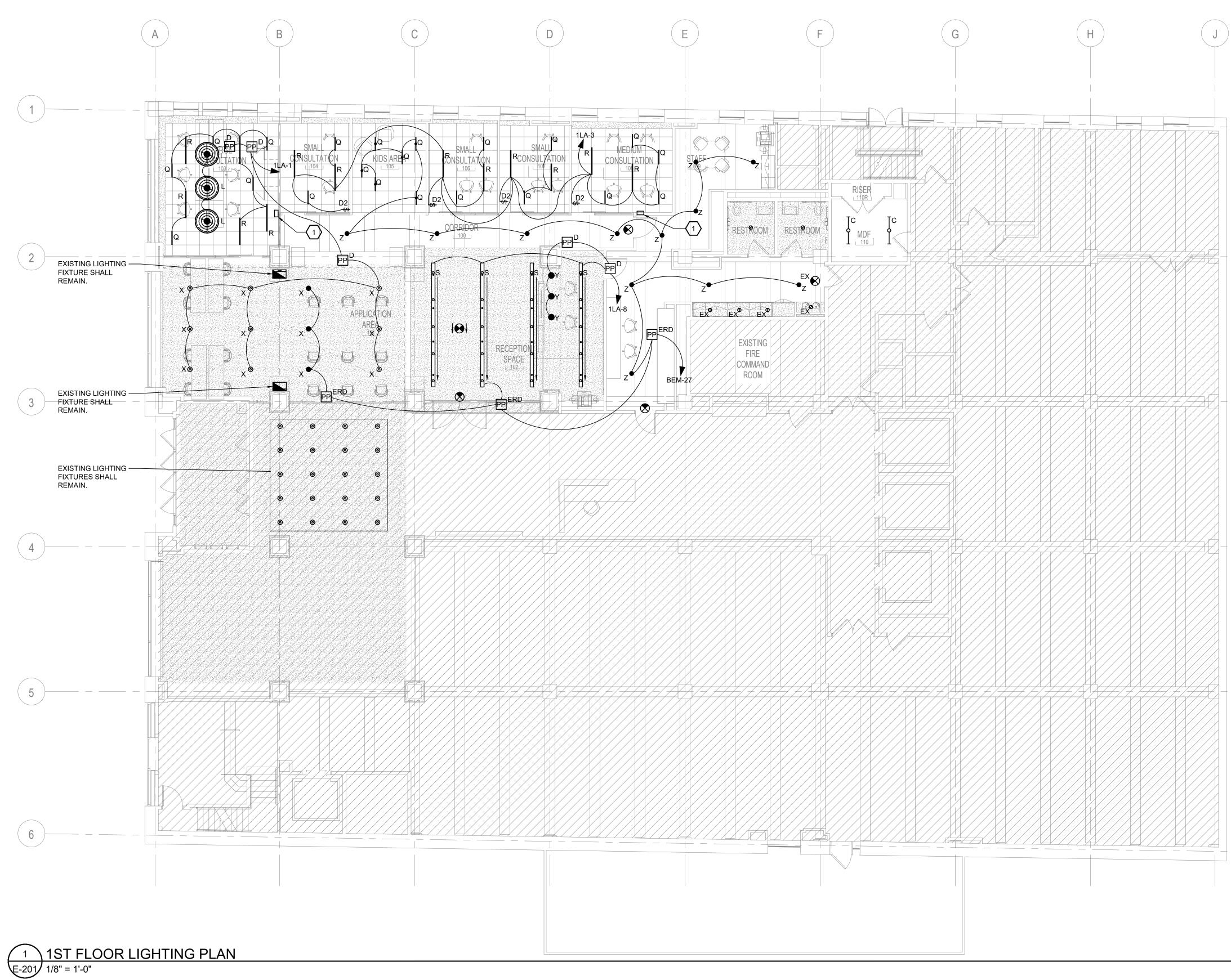


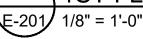
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ELECTRICAL DEMOLITION KEY NOTES: $\langle \# \rangle$

- 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.
- 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.

		SBURGH, PA (412) 93	15222
PROF	ESSIONAL SEAL:		
		nue, Suite	NAGE 5, LLC
CLIEN	Housin of the Cit	1g Aut y of Pitts St, Pittsburgh, I (412)	sburgh
	HACP - Housing Authority of the City of Pittsburgh	412 Boulevard of the Allies, Pittsburgh, PA 15219	
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3 2 1 # 19 SHEET 1S EL	REVISION 100% CONSTRUCTION REVISION 100% CONSTRUCTION 100% DESIGN DEVE DESCRIPTI PROJECT NJECT NO: 0427.00 TNAME: DRAWN MWI TNAME: DRAWN DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI TNAME: DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN MWI DRAWN DRAWN MWI DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN DRAWN	#2 DOCUMENTS #1 DOCUMENTS ELOPMENT ON ISSUANCE BY: RE M	07/09/2020 05/22/2020 01/23/2020 DATE VIEWED BY: DEB
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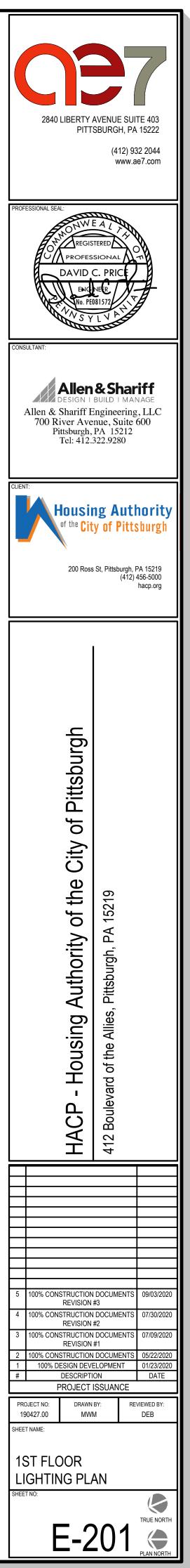


LIGHTING GENERAL NOTES:

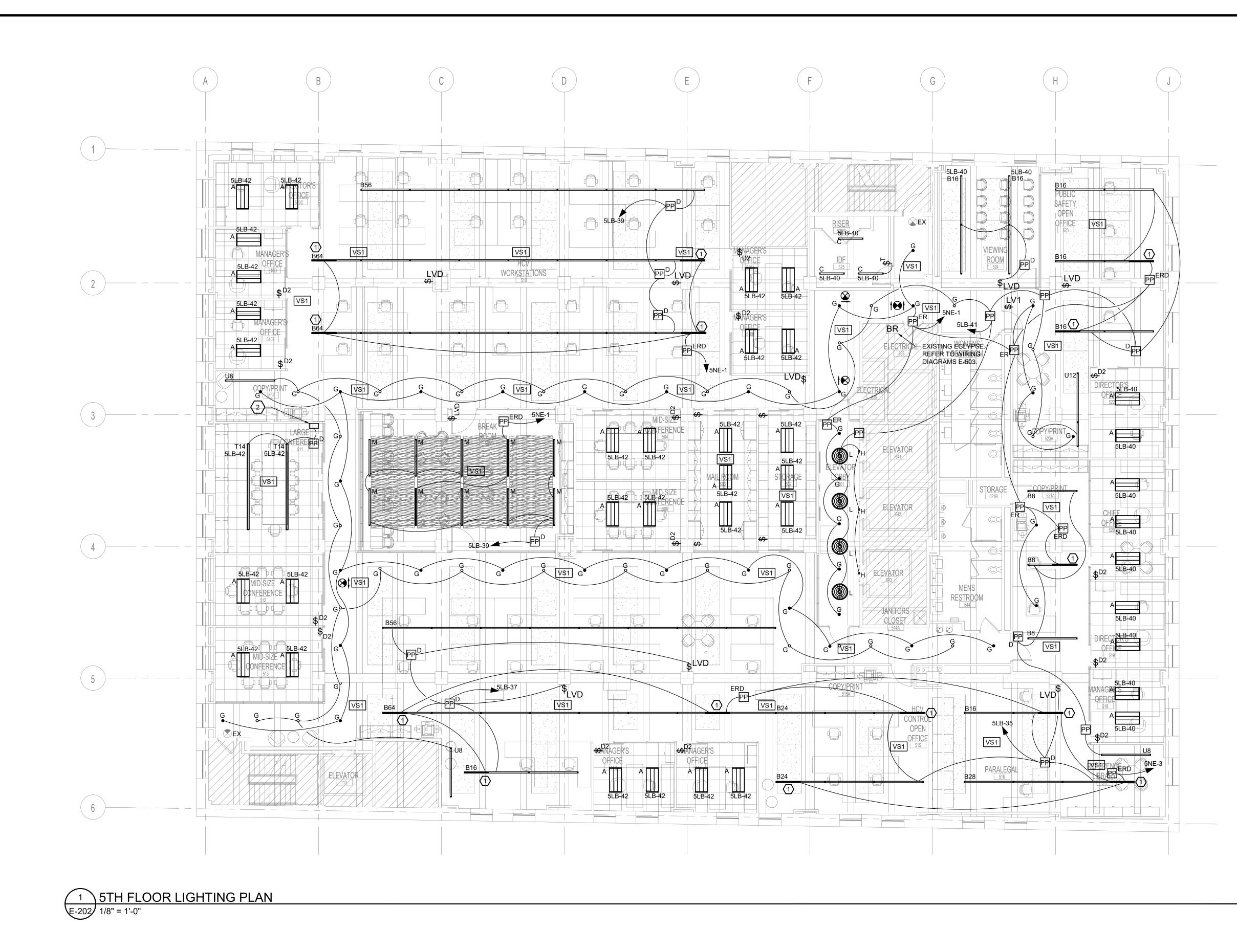
- 1. PROVIDE (2) #18 PURPLE/GRAY WIRES FOR 0-10V FOR ALL LIGHTING FIXTURES BEING DIMMED IN TENANT SPACE.
- 2. PROVIDE A 20A. 1P., 120 V. NORMAL/EMERGENCY UNSWITCHED BRANCH LIGHTING CIRCUIT TO SERVE ALL EXIT SIGNS IN TENANT SPACE.

LIGHTING KEY NOTES: $\langle \#
angle$

1. PROVIDE AN ACUITY NPOD-GFX ROOM CONTROLLER. VERIFY LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.



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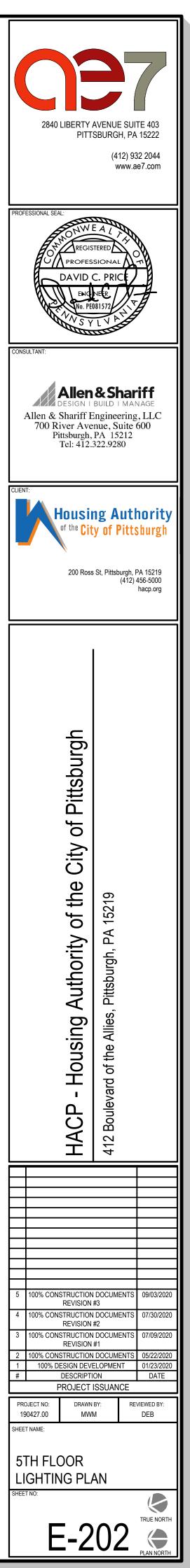


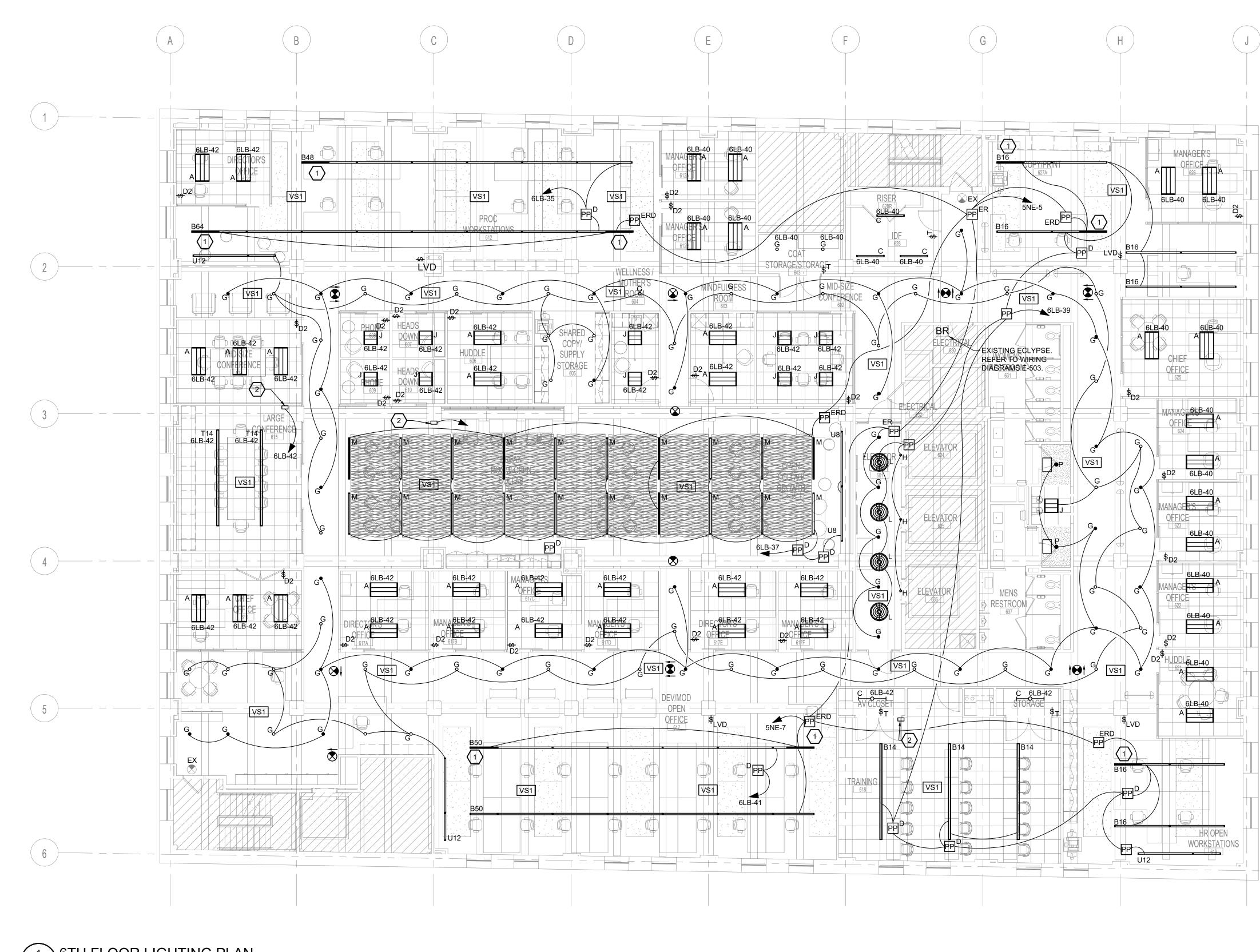
ALL BRANCH CIRCUITING RACEWAY, MC CABLE AND BRANCH CIRCUITING SHALL BE ROUTED IN A NEAT, ORGANIZED AND ORDERLY FASHION, TIGHT TO BUILDING STRUCTURE AND AT 90 DEGREE BENDS. LIGHTING GENERAL NOTES:

- PROVIDE (2) #18 PURPLE/GRAY WIRES FOR 0-10V FOR ALL LIGHTING FIXTURES BEING DIMMED IN TENANT SPACE.
- 2. <u>PROVIDE A 20A. 1P., 120 V. NORMAL/EMERGENCY</u> <u>UNSWITCHED BRANCH LIGHTING CIRCUIT TO SERVE</u> <u>ALL EXIT SIGNS IN TENANT SPACE.</u>

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.





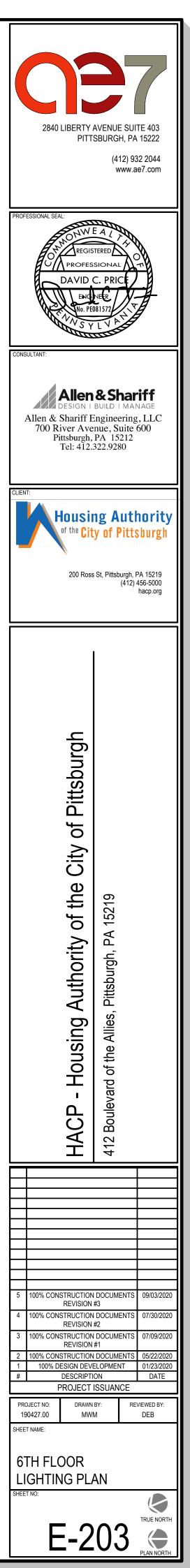
1 6TH FLOOR LIGHTING PLAN E-203 1/8" = 1'-0"

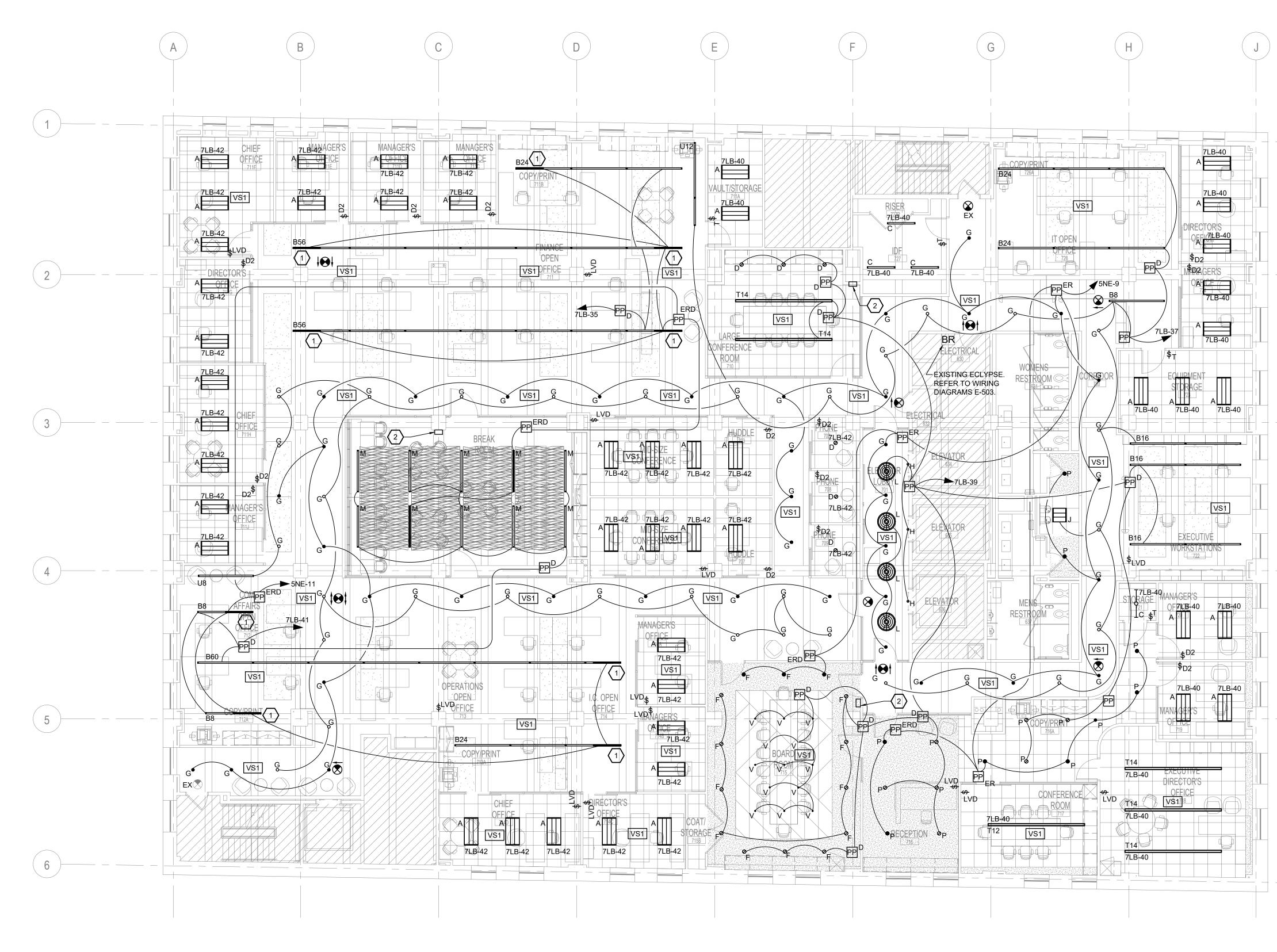
ALL BRANCH CIRCUITING RACEWAY, MC CABLE AND BRANCH CIRCUITING SHALL BE ROUTED IN A NEAT, ORGANIZED AND ORDERLY FASHION, TIGHT TO BUILDING STRUCTURE AND AT 90 DEGREE BENDS.

- 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 ACUITY NPOD-GFX ROOM CONTROLLER. VERIFY LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. PROVIDE 120 VOLT POWER.





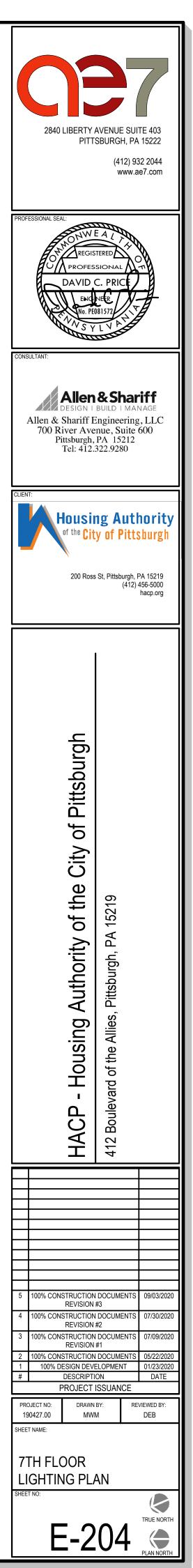
1 7TH FLOOR LIGHTING PLAN E-204 1/8" = 1'-0"

> 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.

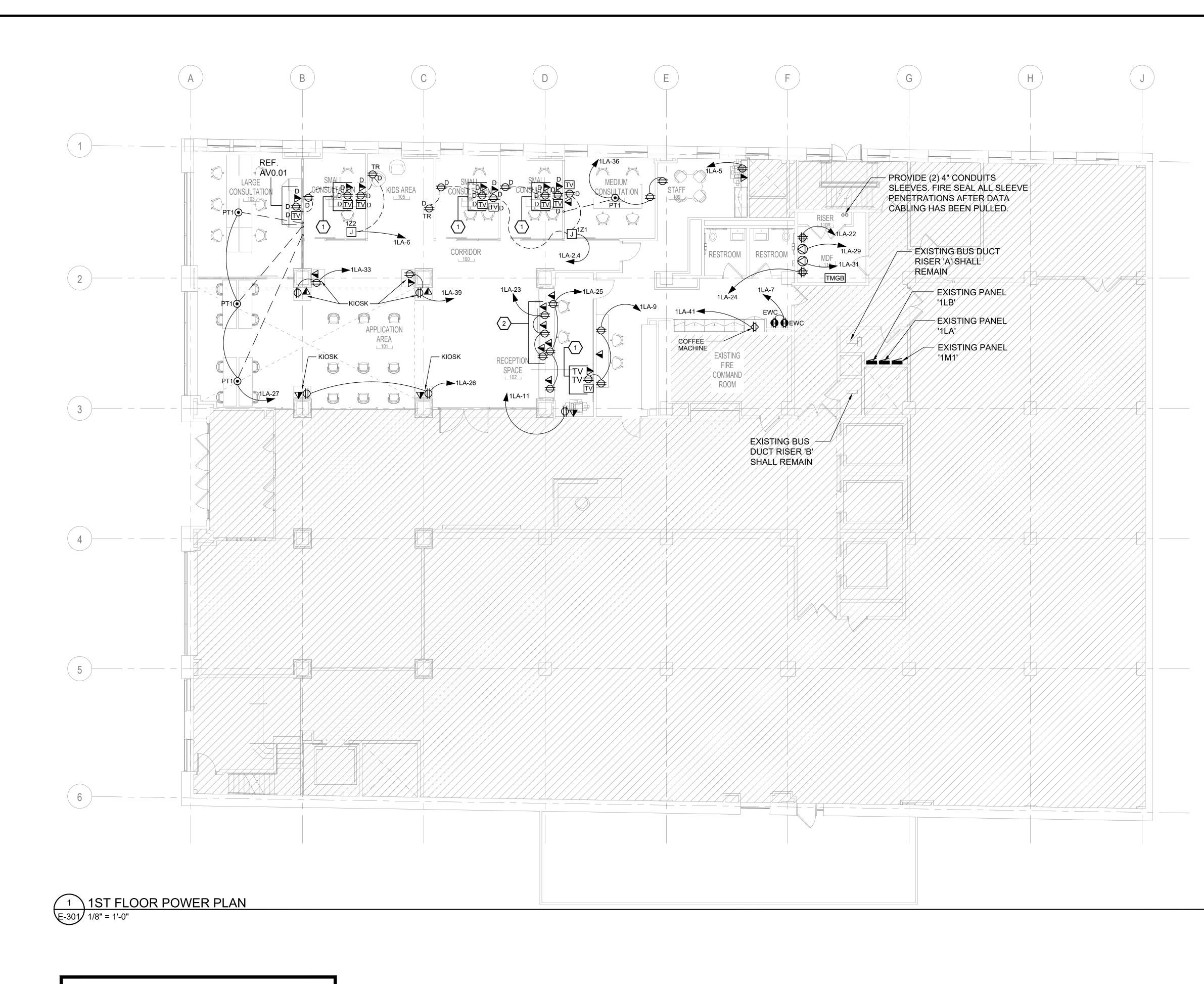
- LIGHTING GENERAL NOTES:
- 1. PROVIDE (2) #18 PURPLE/GRAY WIRES FOR 0-10V FOR ALL LIGHTING FIXTURES BEING DIMMED IN TENANT SPACE.
- 2. PROVIDE A 20A. 1P., 120 V. NORMAL/EMERGENCY UNSWITCHED BRANCH LIGHTING CIRCUIT TO SERVE ALL EXIT SIGNS IN TENANT SPACE.

LIGHTING KEY NOTES: $\langle \# \rangle$

- 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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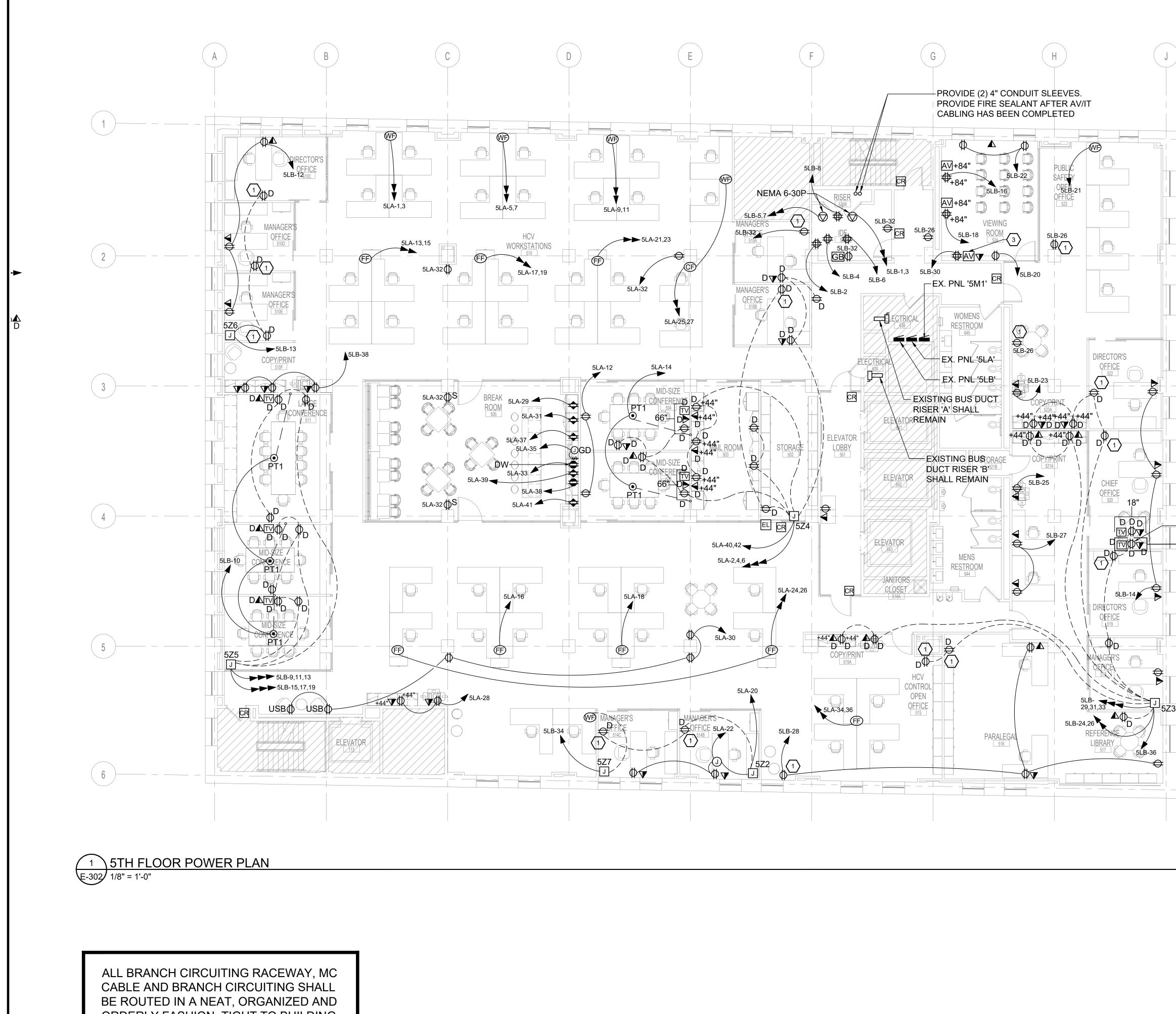
ALL BRANCH CIRCUITING RACEWAY, MC CABLE AND BRANCH CIRCUITING SHALL BE ROUTED IN A NEAT, ORGANIZED AND ORDERLY FASHION, TIGHT TO BUILDING STRUCTURE AND AT 90 DEGREE BENDS.

<u>POWER KEY NOTES:</u> $\langle \# \rangle$

- THESE (3) DEVICES ARE IN THE DEMOUNTABLE PARTITION AND MOUNTED PER DWG. AV0.01. COORDINATE FINAL LOCATION WITH ARCHITECT.
- MOUNT DEVICES HORIZONTALLY AT 37" AFF TO CENTER OF JUNCTION BOX. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECT PRIOR TO ROUGH-IN.

2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
PROFESSIONAL SEAL:
CONSULTANT: Allen & Shariff DESIGN I BUILD I MANAGE Allen & Shariff Engineering, LLC 700 River Avenue, Suite 600 Pittsburgh, PA 15212 Tel: 412.322.9280
CLIENT: Housing Authority of the City of Pittsburgh 200 Ross St, Pittsburgh, PA 15219 (412) 456-5000 hacp.org
HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219
5 100% CONSTRUCTION DOCUMENTS REVISION #3 09/03/2020 4 100% CONSTRUCTION DOCUMENTS 07/30/2020
REVISION #2 3 100% CONSTRUCTION DOCUMENTS REVISION #1 07/09/2020 05/22/2020 2 100% CONSTRUCTION DOCUMENTS 05/22/2020
2 100% CONSTRUCTION DOCUMENTS 05/22/2020 1 100% DESIGN DEVELOPMENT 01/23/2020 # DESCRIPTION DATE PROJECT ISSUANCE
PROJECT NO: DRAWN BY: REVIEWED BY: 190427.00 MWM DEB
SHEET NAME: 1ST FLOOR POWER PLAN SHEET NO: E-301

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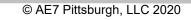


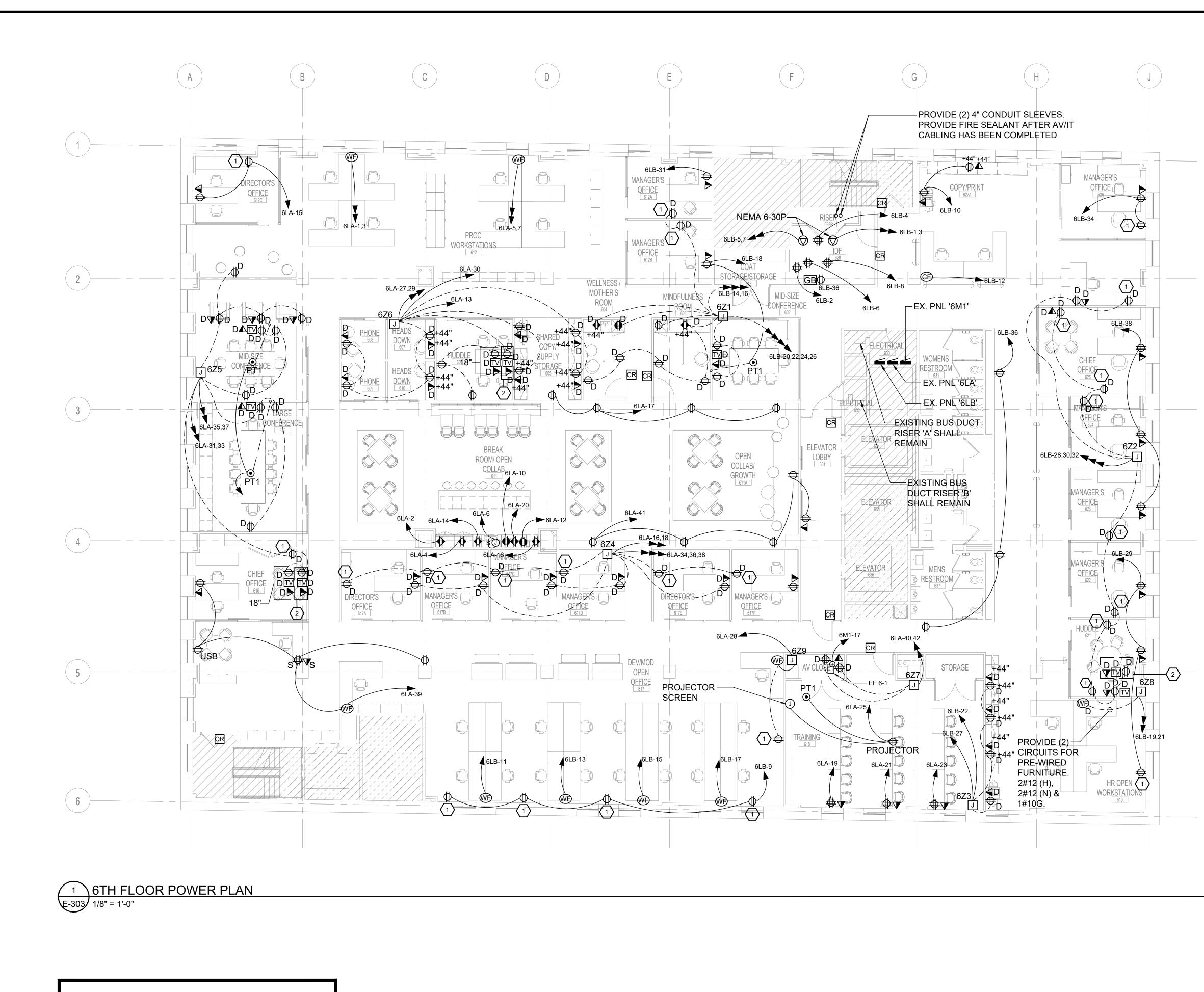
ORDERLY FASHION, TIGHT TO BUILDING STRUCTURE AND AT 90 DEGREE BENDS.

POWER KEY	NOTES: $\langle \# \rangle$

- 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.
- PROVIDE A (3) GANG LOW VOLTAGE OPEN ROUGH-IN WITH (2) 2" CONDUITS UP TIGHT TO ABOVE CLOUD CEILING. PROVIDE PULL STRING.

2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
PROFESSIONAL SEAL: PROFESSIONAL PROFESSIONAL DAVID C. PRICE No. PE081572
CONSULTANT: Allen & Shariff DESIGN I BUILD I MANAGE Allen & Shariff Engineering, LLC 700 River Avenue, Suite 600 Pittsburgh, PA 15212 Tel: 412.322.9280
CLIENT: Housing Authority of the City of Pittsburgh 200 Ross St, Pittsburgh, PA 15219 (412) 456-5000 hacp.org
HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219
Image: Construction documents of the construction document of the constructin document of the construction document of the cons
SHEET NAME: 5TH FLOOR POWER PLAN SHEET NO: E-302



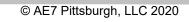


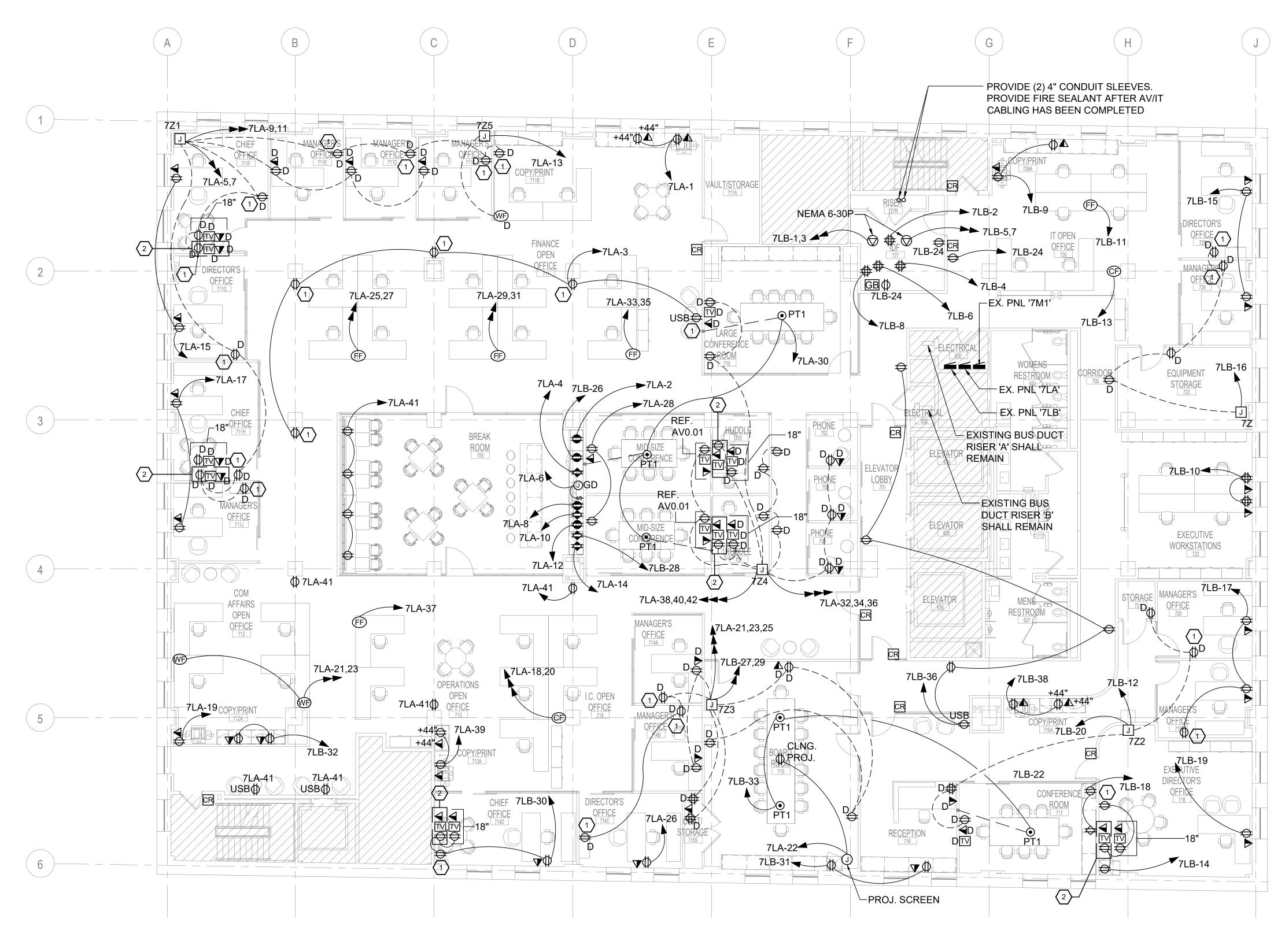
ALL BRANCH CIRCUITING RACEWAY, MC CABLE AND BRANCH CIRCUITING SHALL BE ROUTED IN A NEAT, ORGANIZED AND ORDERLY FASHION, TIGHT TO BUILDING STRUCTURE AND AT 90 DEGREE BENDS.

POWER KEY NOTES:	(#)	
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- 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.

	2840 LIBERTY AVENUE SUITE 40 PITTSBURGH, PA 1522 (412) 932 204 www.ae7.co	2
Ē	PROFESSIONAL SEAL:	
	Allen & Shariff DESIGN I BUILD I MANAGE Allen & Shariff Engineering, LL 700 River Avenue, Suite 600 Pittsburgh, PA 15212 Tel: 412.322.9280	С
C	CLIENT: Housing Author of the City of Pittsbur 200 Ross St, Pittsburgh, PA 152 (412) 456-50 hacp.c	gh 19 00
	HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219	
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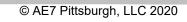


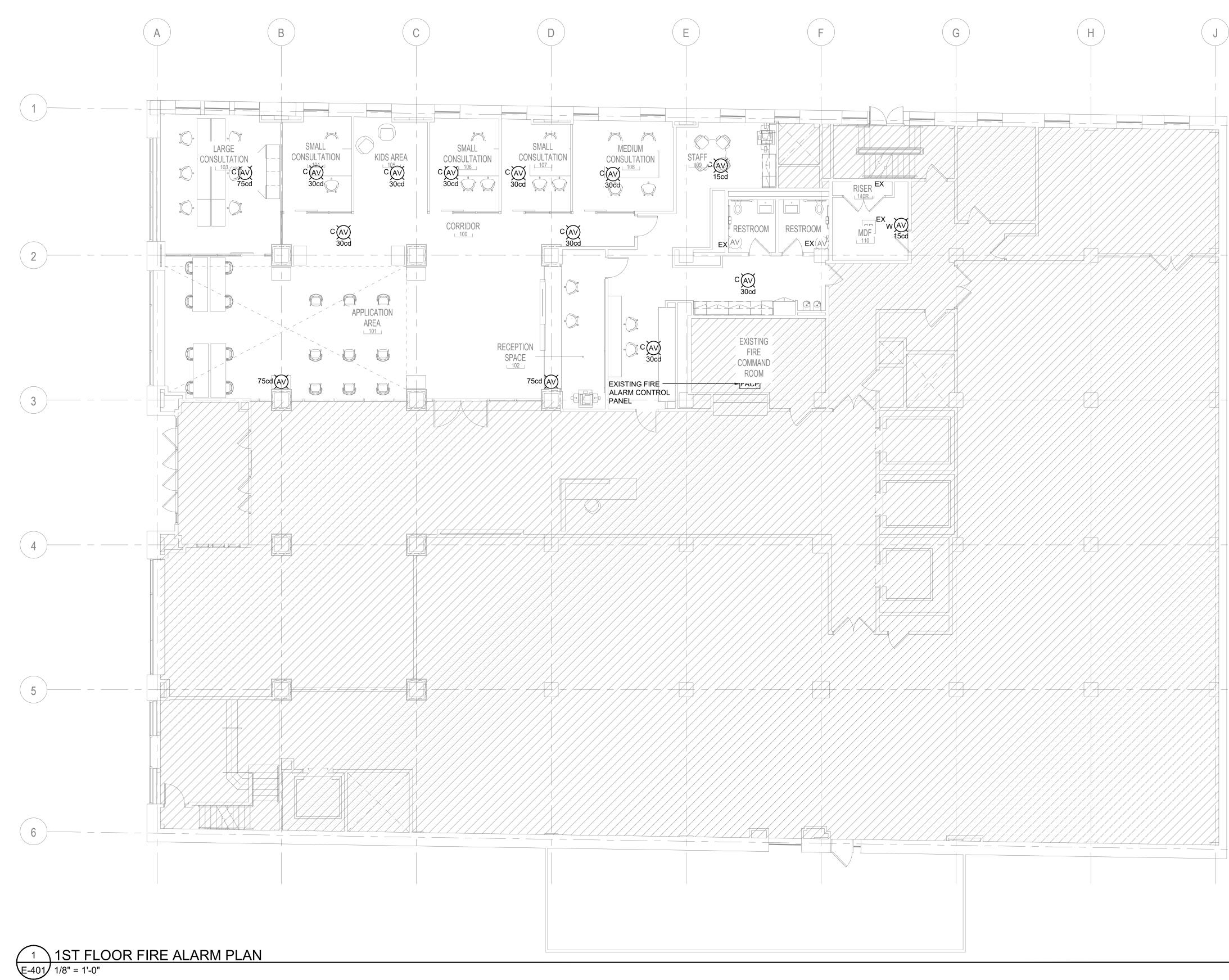
ALL BRANCH CIRCUITING RACEWAY, MC CABLE AND BRANCH CIRCUITING SHALL BE ROUTED IN A NEAT, ORGANIZED AND ORDERLY FASHION, TIGHT TO BUILDING STRUCTURE AND AT 90 DEGREE BENDS.

POWER KEY NOTES: $\langle \# \rangle$	
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- 2. THESE (3) DEVICES ARE IN THE DEMOUNTABLE PARTITION AND MOUNTED PER DWG. AV0.01. COORDINATE FINAL LOCATION WITH ARCHITECT.

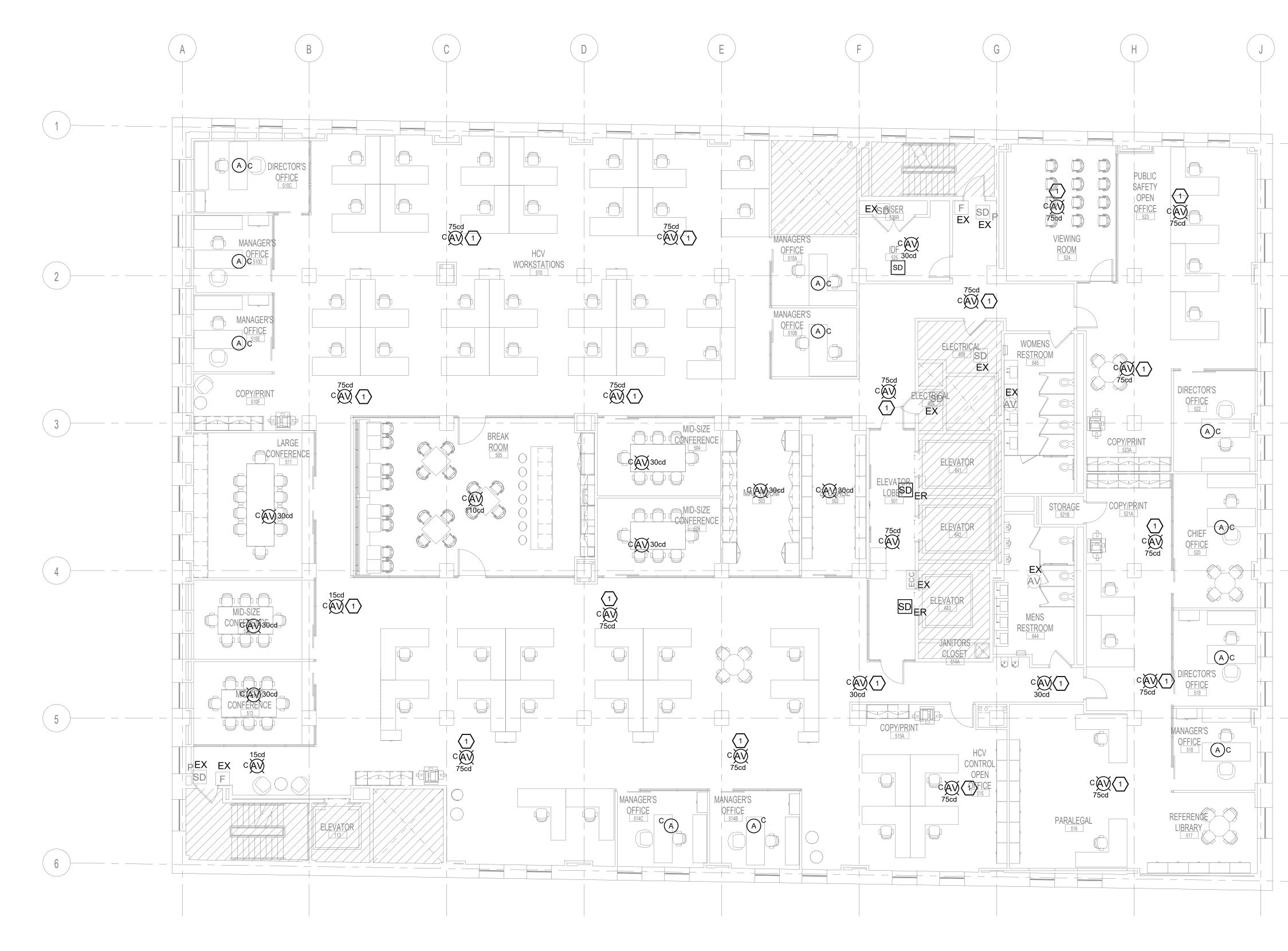
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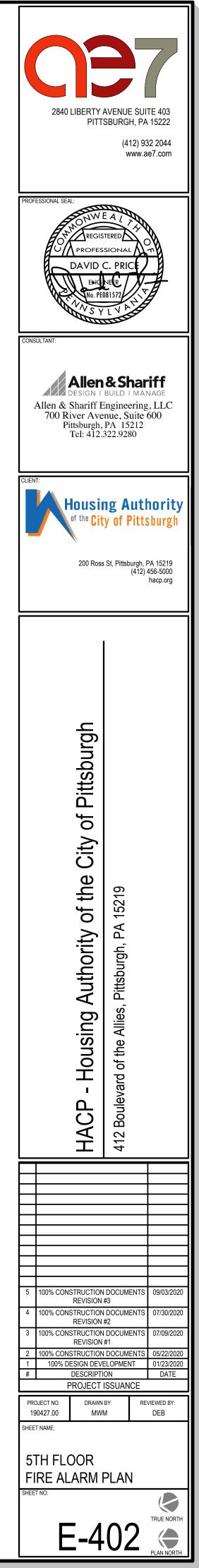


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PROFESSIONAL SEAL: NUW E A / PROFESSIONAL DAVID C. PRICE ENDINEER No. PE081572				
CONSULTANT: Allen & Shariff Engineering 700 River Avenue, Suite (Pittsburgh, PA 15212 Tel: 412.322.9280	NAGE , LLC			
CLIENT: Housing Authority of the City of Pittsburgh 200 Ross St, Pittsburgh, PA 15219 (412) 456-5000 hacp.org				
HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219				
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REVISION #2 3 100% CONSTRUCTION DOCUMENTS REVISION #1 2 100% CONSTRUCTION DOCUMENTS	07/09/2020			
1 100% CONSTRUCTION DOCUMENTS 1 100% DESIGN DEVELOPMENT # DESCRIPTION PROJECT ISSUANCE	03/22/2020 01/23/2020 DATE			
PROJECT NO: DRAWN BY: REV 190427.00 MWM SHEET NAME: 1ST FLOOR FIRE ALARM PLAN	/IEWED BY: DEB			
SHEET NO: E-401	TRUE NORTH			

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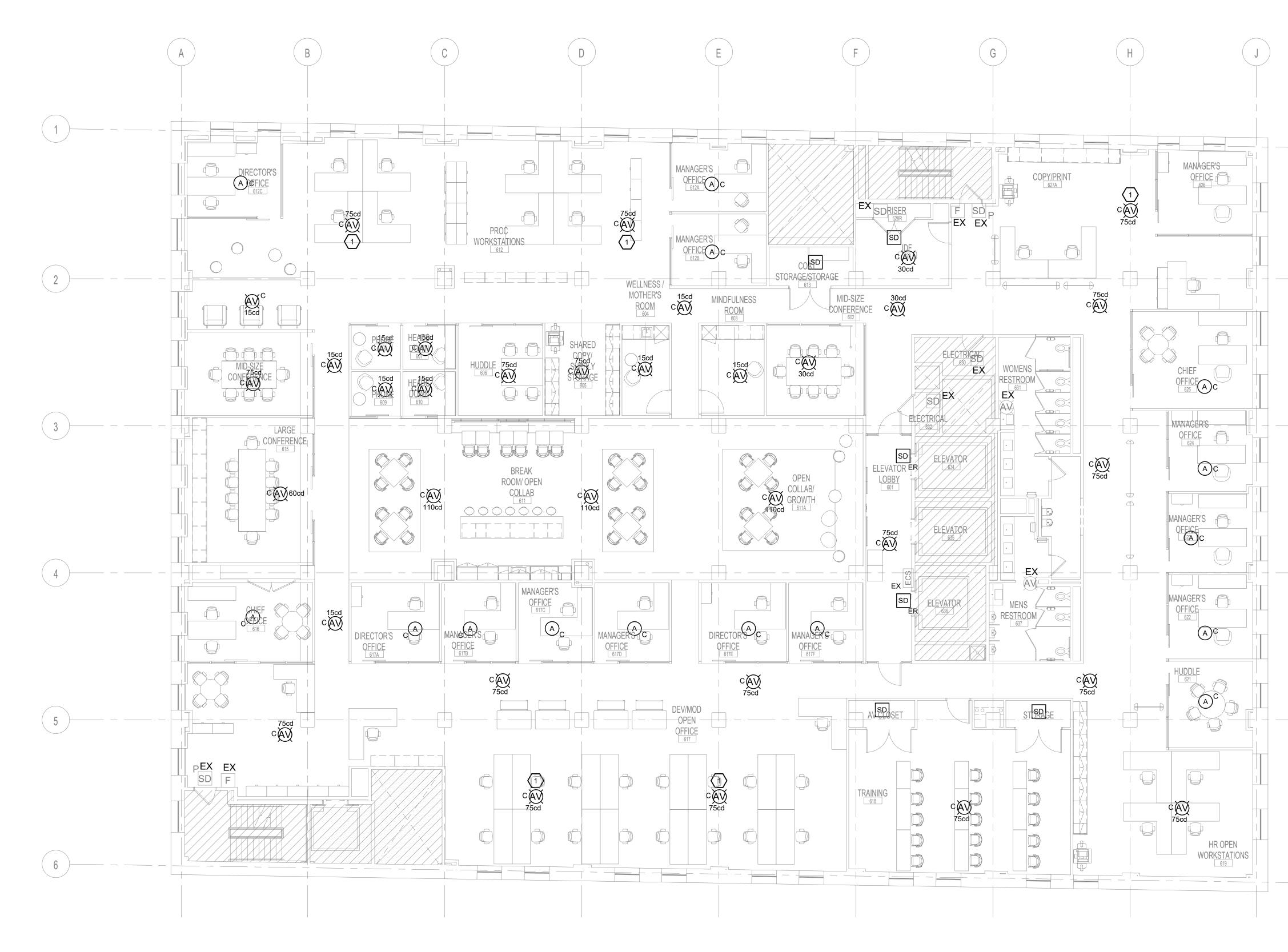
1 5TH FLOOR FIRE ALARM PLAN E-402 1/8" = 1'-0"



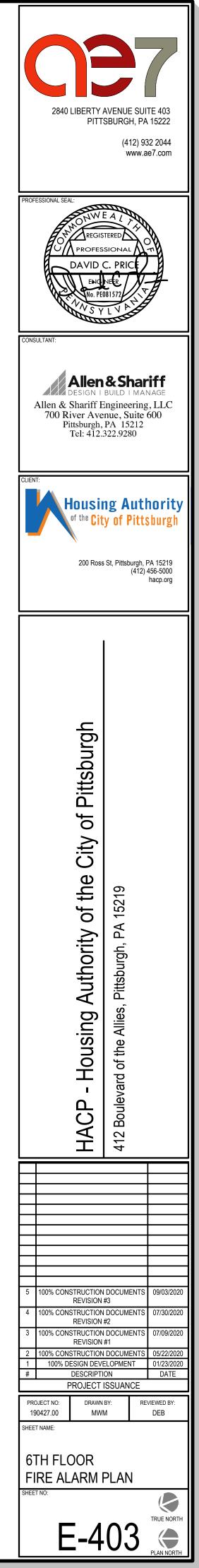
FIRE ALARM KEY NOTES: $\langle \# \rangle$

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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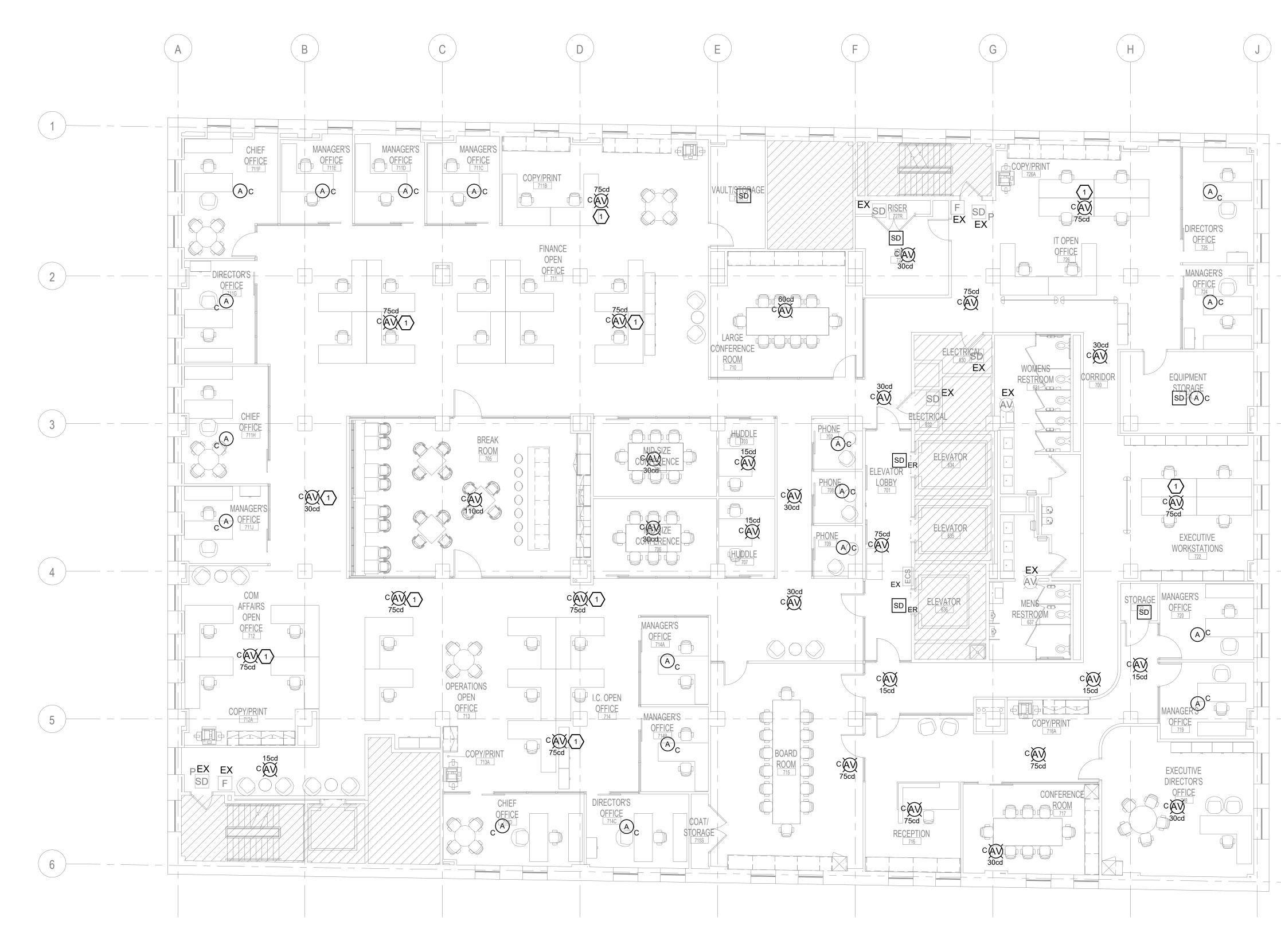
1 6TH FLOOR FIRE ALARM PLAN E-403 1/8" = 1'-0"



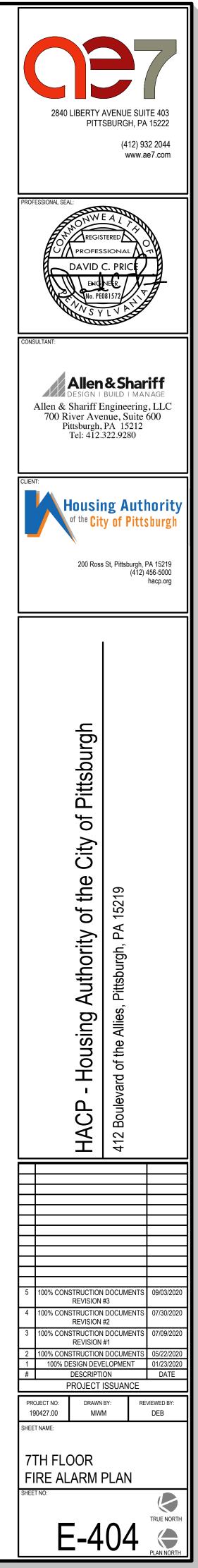
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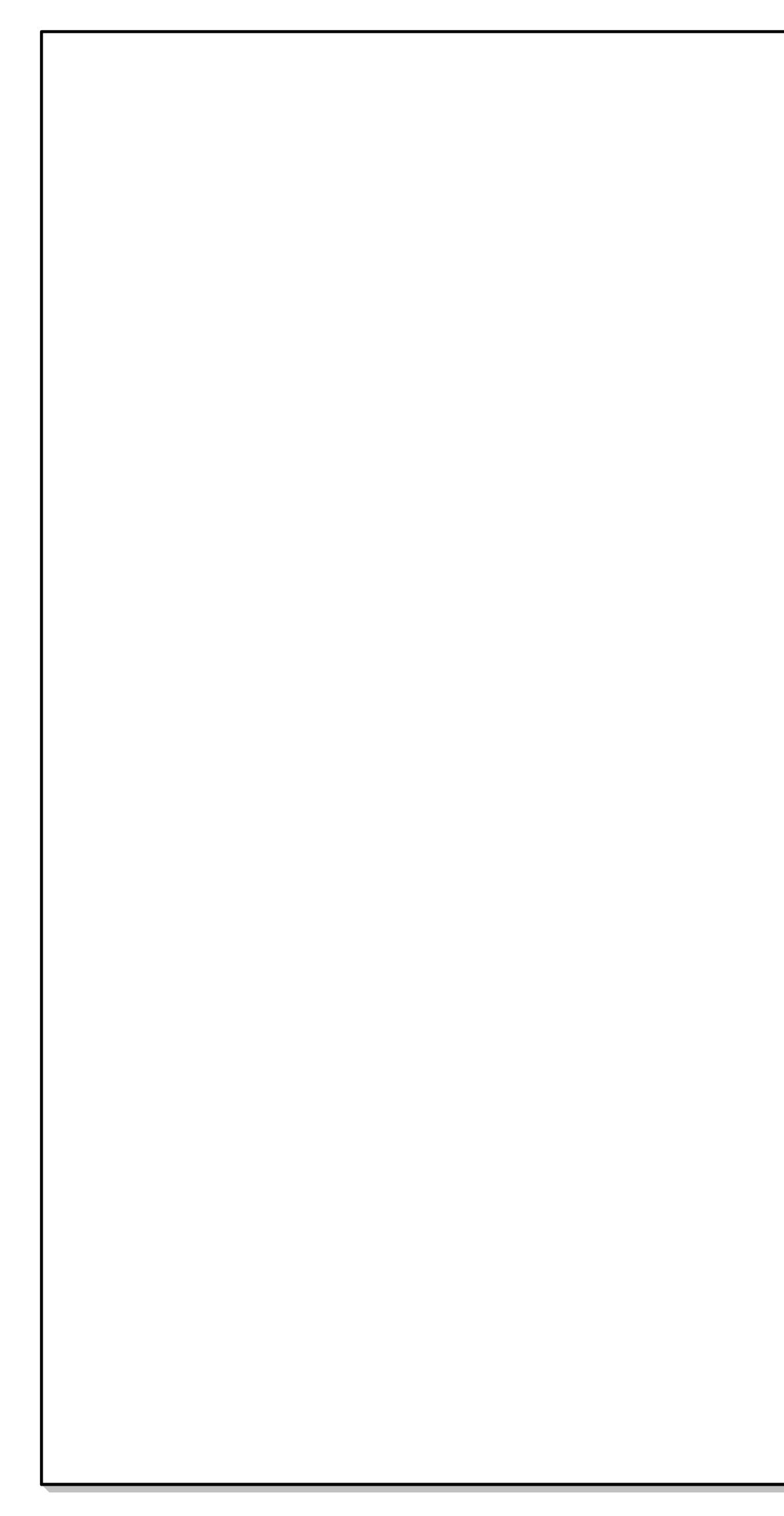
1 7TH FLOOR FIRE ALARM PLAN E-404 1/8" = 1'-0"



<u>FIRE ALARM KEY NOTES:</u> $\langle \# \rangle$

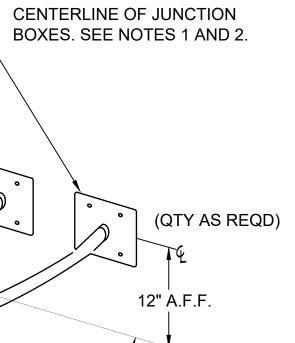
PROVIDE CONDUIT STEM TO MOUNT CEILING FIRE ALARM DEVICE TO BE AT THE SAME HEIGHT AS ADJACENT CEILING SYSTEMS. COORDINATE HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.

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– INSTALL 12" A.F.F. TO LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR POWER SEE NOTE 1. CONNECTION FOR DISTRIBUTION \neg_{Λ} HARNESS (BY FURNITURE MFR.) (1) POWER, (1) COMMUNICATION \wedge PUT E E 90° CONNECTOR, FIXED -└─ FLEXIBLE NONMETALLIC IN ONE DIRECTION. PROTRUDES TUBING FOR COMMUNICATION SEE NOTE 2. THE WIDTH OF CONDUIT, TYP. (PROVIDED BY E.C.)





FLOOR LINE -

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 FURNITURE SYSTEM CONNECTION DETAIL - WALL/COLUMN FEED WP

	15222				
PROFESSIONAL SEAL: NOTIVE A 1 PROFESSIONAL PROFESSIONAL DAVID C. PRICE NO. PEOBI572					
CONSULTANT: Allen & Shariff DESIGN I BUILD I MANAGE Allen & Shariff Engineering, LLC 700 River Avenue, Suite 600 Pittsburgh, PA 15212 Tel: 412,322.9280					
CLIENT: Housing Authority of the City of Pittsburgh 200 Ross St, Pittsburgh, PA 15219 (412) 456-5000 hacp.org					
HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219					
5 100% CONSTRUCTION DOCUMENTS	09/03/2020				
REVISION #3 4 100% CONSTRUCTION DOCUMENTS REVISION #2 3 100% CONSTRUCTION DOCUMENTS	07/30/2020				
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PROJECT ISSUANCE PROJECT NO: DRAWN BY: REV 190427.00 MWM	VIEWED BY: DEB				
ELECTRICAL DETAILS	S TRUE NORTH				

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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.

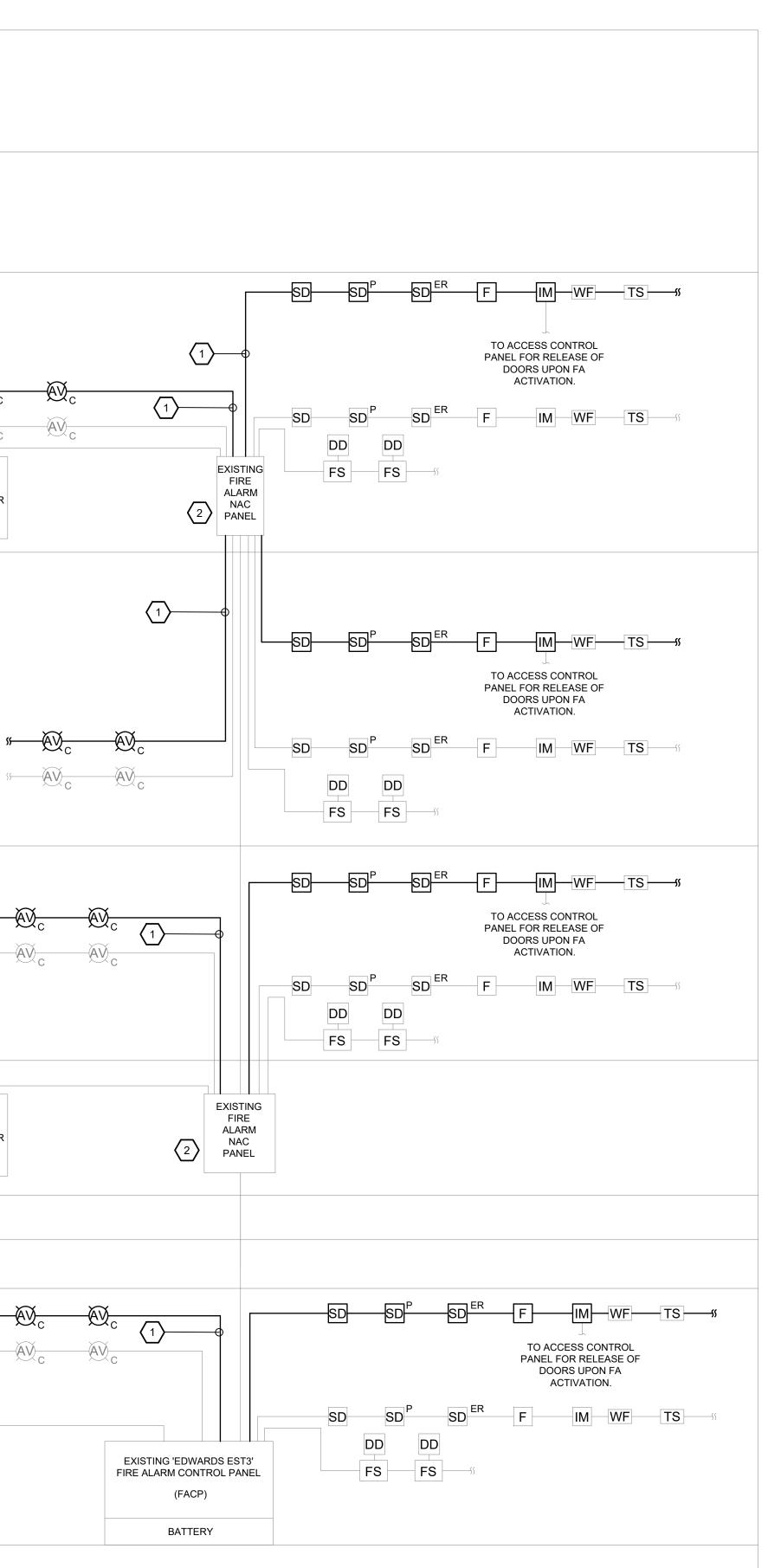
6. PROVIDE CONDUIT SLEEVES WITH ESCUTCHEON PLATES WHERE WIRING PASSES THROUGH WALLS, FLOORS, OR CEILINGS.

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.

ROOF/PENTHOUSE	
NINTH	
EIGHTH	
	\$\$
	EXISTI FIRE ALAR TRANSPO PANE
SEVENTH	
SIXTH	
FIFTH	
	EXISTI FIRE ALAR
FOURTH	2 TRANSPO PANE
THIRD	
SECOND	



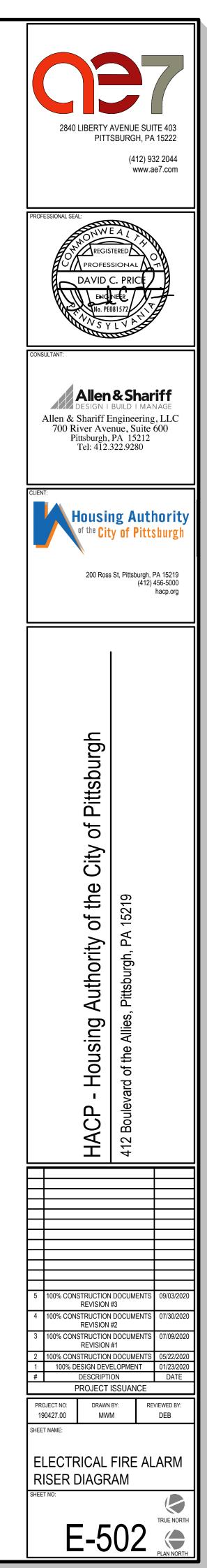


PITTSBURGH:

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.

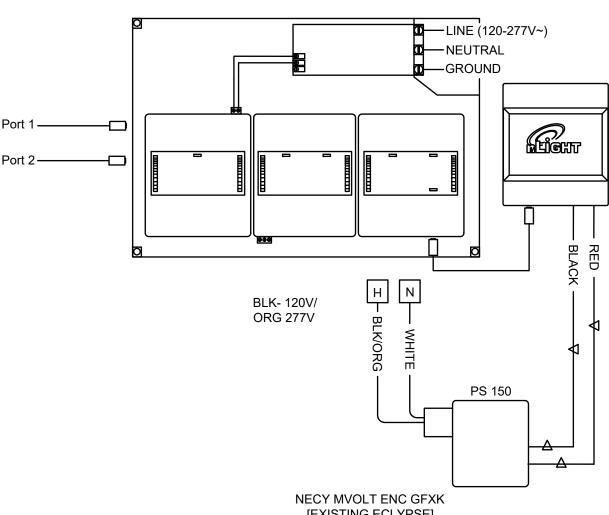
FIRE ALARM GENERAL NOTE FOR PERMIT - CITY OF



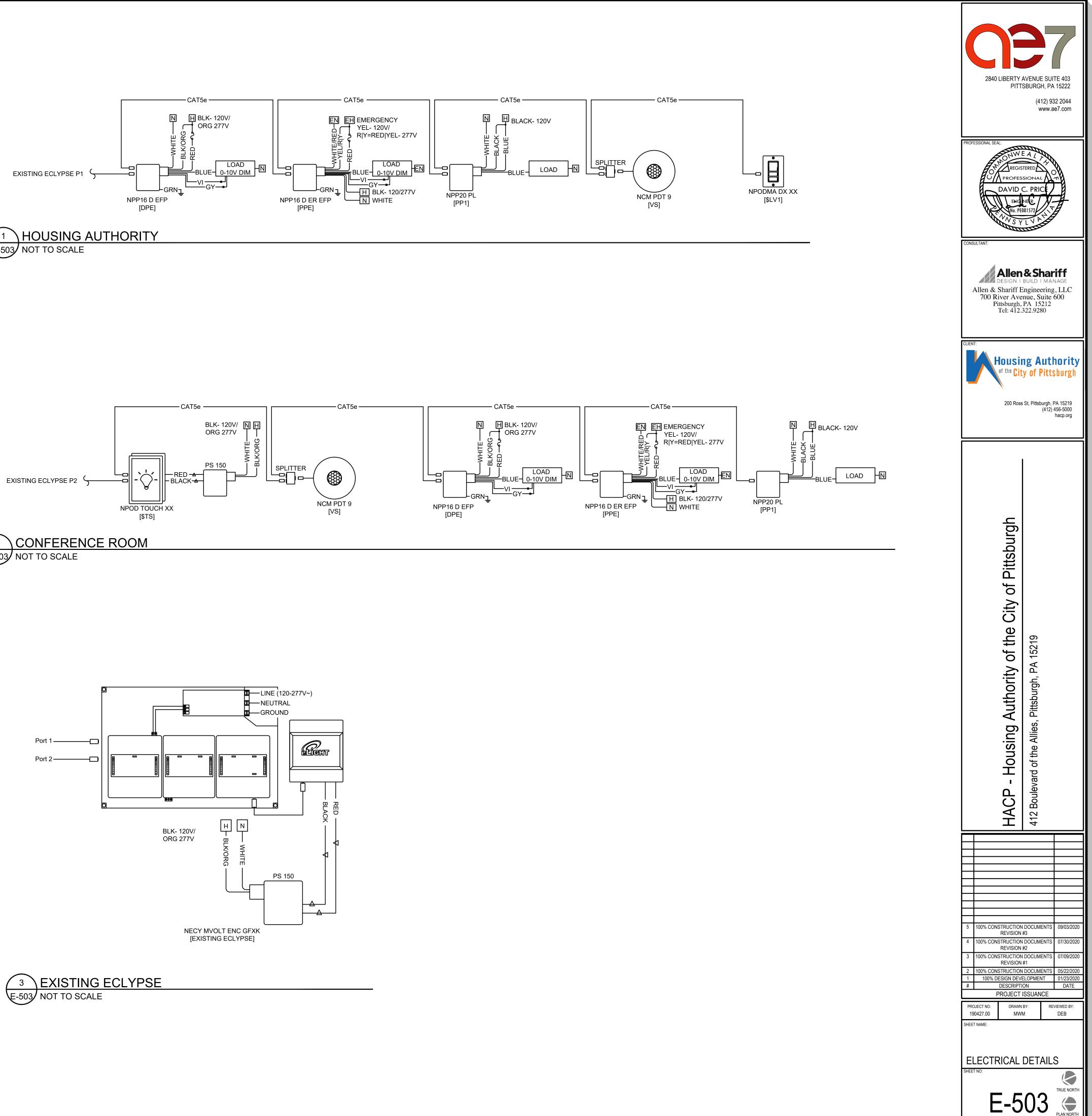
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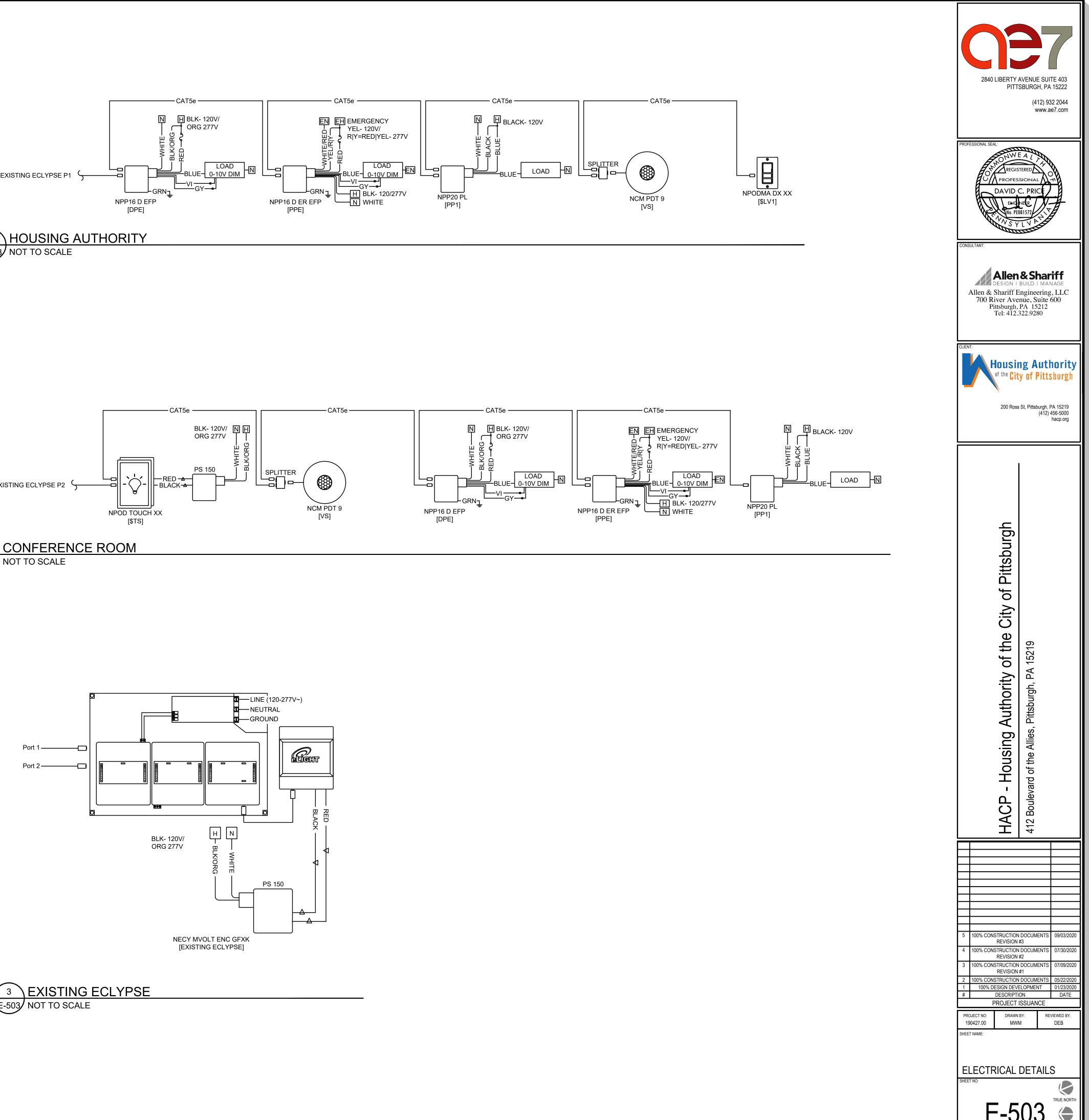


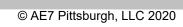




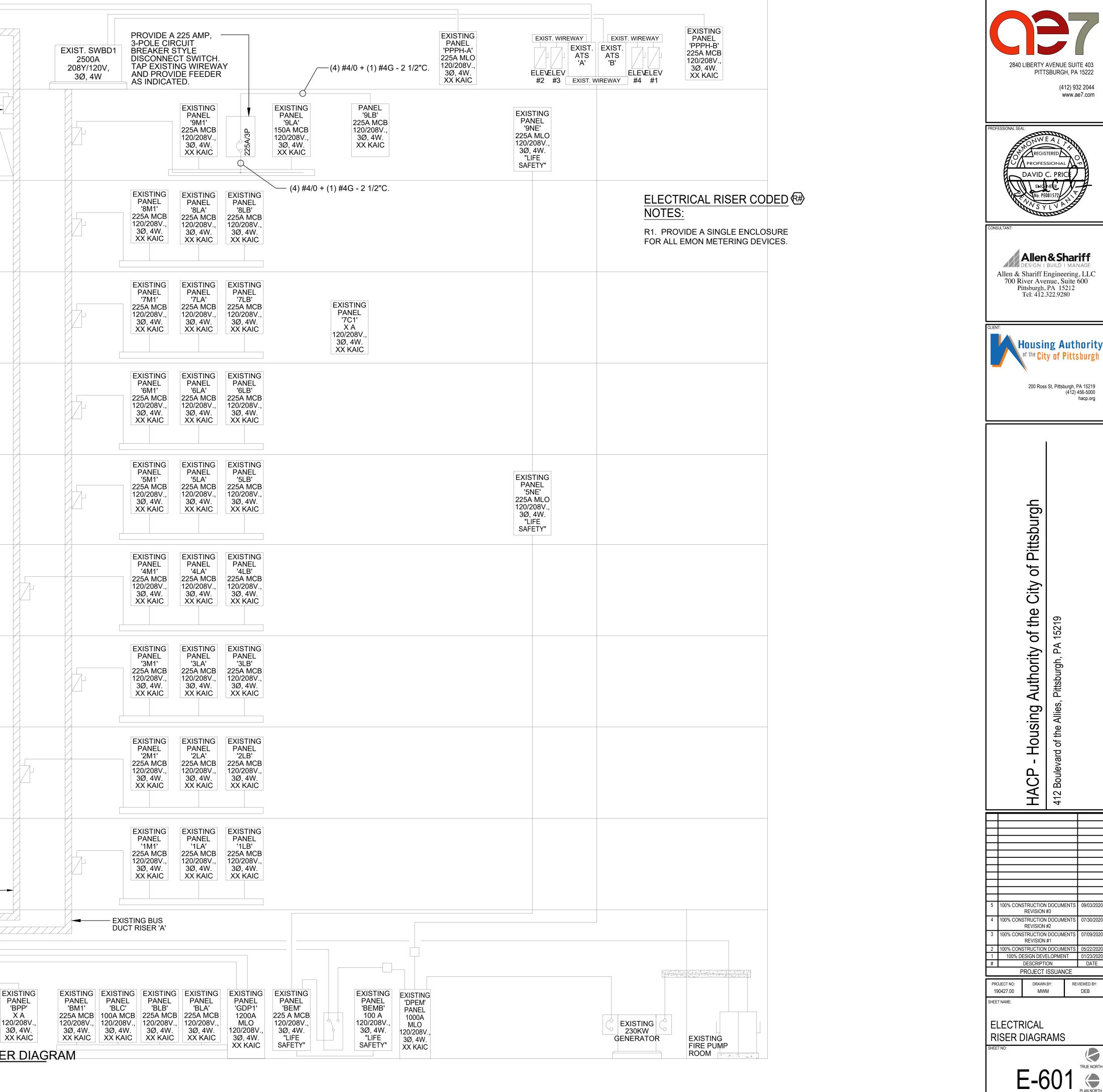


1 HOUSING AUTHORITY E-503 NOT TO SCALE

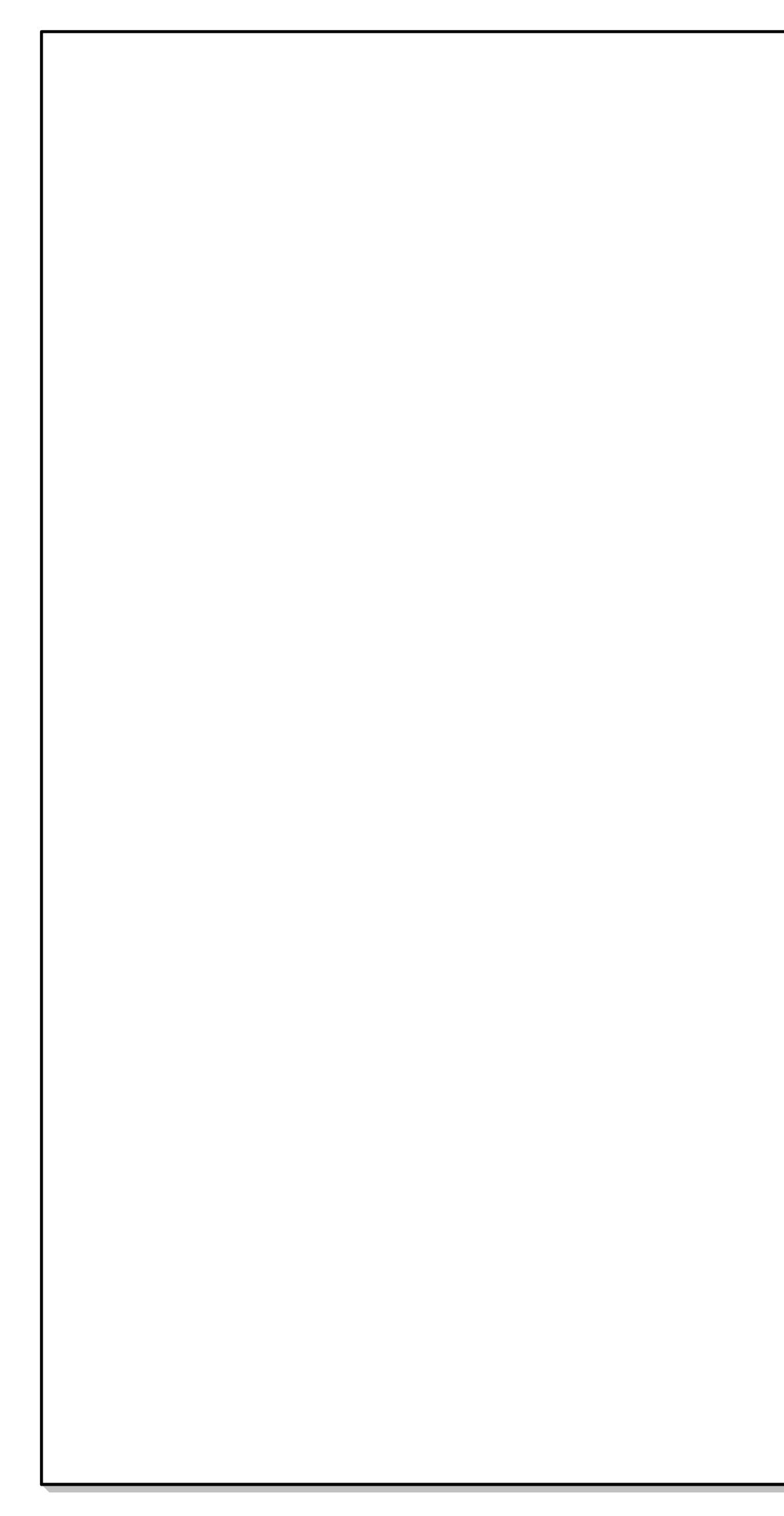




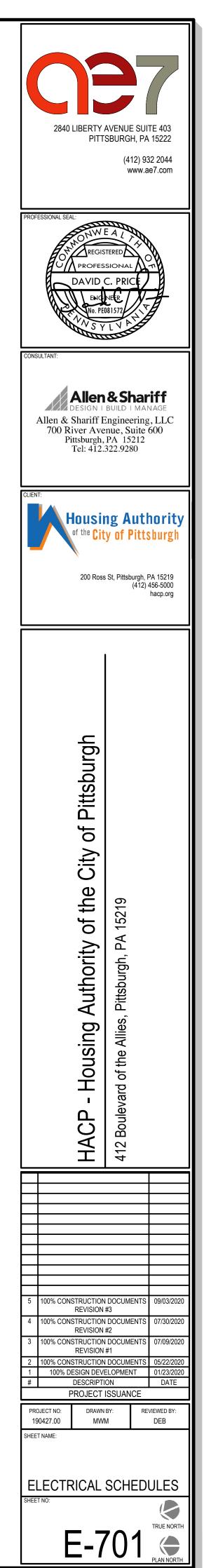
ROOF				EXIST. SWBD2 2500A 208Y/120V, 3Ø, 4W	
			EXISTING ELEV. #5 CONTROLLE	EXISTING 200 AMP FUSIBLE PLUG-IN UNI FUSED AT 110 AMPS SERVE ELEVATOR #5 EXISTING 800 AMP, 5	то 3-Р — — —
NINTH				FUSED DISCONNEC SWITCH	T
EIGHTH					
SEVENTH					
SIXTH					
FIFTH					
FOURTH					
THIRD					
SECOND					
FIRST					
GROUND	EXIST. SWBD 3000A 208Y/120V, 3Ø, 4W	EXIST. FIRE PUMP DISC. SW. 208Y/120V, 3Ø, 4W	EXIST. SWBD 3000A 208Y/120V, 3Ø, 4W	EXISTING PANEL 'G31' X A 120/208V., 3Ø, 4W. XX KAIC 1 E6-01	EXISTING PANEL 'BPA' X A 120/208V., 3Ø, 4W. XX KAIC



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			LIGHTING FIXTURE	L/	AMP(S)		INPUT			
PE	DESCRIPTION	MANUFACTURER	MODEL 2BLT4 48L ADSM 120 EZ1 LP 835	LAMP #	LAMP TYPE	BALLAST	WATTS	VOLTS	MOUNTING	REMARKS PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACH
	2' X 4' LED RECESSED LIGHTING FIXTURE.		2DL 14 40L AD SMI 120 EZ I LP 635	1	LED		31	120	RECESSED	TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
ļ	14'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SLIMDI 14' 500 350 SD BW 35K XX AC W05 U	1	LED		88	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACH TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
	8'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SLIMDI 8' 500 350 SD BW 35K XX AC W05 U	1	LED		50	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACH TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
4	54'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SLIMDI 54' 500 350 SD BW 35K XX AC W05 U	1	LED		338	1 20	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACE TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
6	16'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SLIMDI 16' 500 350 SD BW 35K XX AC W05 U	1	LED		100	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACE TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
0	60'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SLIMDI 60' 500 350 SD BW 35K XX AC W05 U	1	LED		375	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACE TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
24	24'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SLIMDI 24' 500 350 SD BW 35K XX AC W05 U	1	LED		150	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACI TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
8	48'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SLIMDI 48' 500 350 SD BW 35K XX AC W05 U	1	LED		300	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PACE TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
6	56'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SLIMDI 56' 500 350 SD BW 35K XX AC W05 U	1	LED		350	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PAC TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
4	64'-0" LED LINEAR SUSPENDED LIGHTING FIXTURE.	STARTEK	SLIMDI 64' 500 350 SD BW 35K XX AC W05 U	1	LED		400	120	CABLE SUSPENDED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PAC TO LIGHTING FIXTURE AND TERMINATE. MOUNT LIGHT FIXTURE AT 8'-0" TO BOTTOM OF FIXTURE.
;	4'-0" LED STRIP LIGHTING FIXTURE	LITHONIA	ZL1D L48 SMR 5000LM FST 120 35K 80C RI	1	LED		41	120	CABLE SUSPENDED	
)	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 PAC TO LIGHTING FIXTURE AND TERMINATE
	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		
6	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 PAC TO LIGHTING FIXTURE AND TERMINATE
	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 SUPPOR FIXTURE ABOVE ELEVATOR DOOR.
	RECESSED LED 2X2.	LITHONIA	2BLT2 33L ADSM 120 EZ1 LP835	1	LED		26	120	RECESSED	PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PAC TO LIGHTING FIXTURE AND TERMINATE
	DECORATIVE PENDANT			1	LED		43	120		PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PAC TO LIGHTING FIXTURE AND TERMINATE
	36" DECORATIVE PENDANT	PABLO	BOLA FELT 36	1			35	120		PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PAC TO LIGHTING FIXTURE AND TERMINATE
I	12'-0" DECORATIVE LINEAR LED PENDANT MOUNTED HORIZONTALLY.	SPI LIGHTING	PAVO 2" 12FT-L97W 120 DF PSC 3500K DF MA01	1	LED		97	120		PROVIDE 2#18 PURPLE/GRAY WIRES FROM POWER PAC TO LIGHTING FIXTURE AND TERMINATE
[RECESSED 2" LED DOWNLIGHT			1	LED		23	120		
D	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 PACI TO LIGHTING FIXTURE AND TERMINATE
ג	2 FOOT T-BAR 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 PAC TO LIGHTING FIXTURE AND TERMINATE
2	4 FOOT T-BAR 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 PAC TO LIGHTING FIXTURE AND TERMINATE
;	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 PAC TO LIGHTING FIXTURE AND TERMINATE. PROVIDE (6) DIE CAST CYLINDRICAL LIGHTING UNIT S PER SECTION.
14	14'-0" RECESSED LINEAR LED SLOT FIXTURE	FINELITE	HP4 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
8	8'-0" LINEAR LED WALL WASHER	VODE LIGH TING	107-WG 01 8'-0" C C 96 4R AE 1 S O 359 XX 0 XX	1	LED 3500K		60	120		
12	12'-0" LINEAR LED WALL WASHER	VODE LIGHTING	107-WG 01 12'-0" C C 96 4R AE 1 SO 359 XX 0 XX	1	LED 3500K		74	120		
1	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
ĸ	36" LONG DECORATIVE STICK LED PENDANT	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 CON TRO
•	FIXTURE WITH CABLE SUSPENSION FOR A TOTAL LENGTH OF 144"		COTTION SUCH ANALED I SIK UNV UAH 144 DMU					120		THE THE POINT ON LENGTH WINES FOR UNUV CON IKU
										EXISTING FIXTURE SHALL BE DISCONNECTED AND
,	EXISTING ACRYLIC LENS PENDANT FIXTURE. DECORATIVE 8" GLOBE STYLE PENDANT WITH				LED		50	120		RECONNECTED AS SHOWN.
	CHROME SUSPENSION STEM	PABLO DESIGNS	BOLA SPH 8 CRM	1	LED 3500K		20	120		
	UNIVERSAL MOUNTED EDGE LIT LED EXIT SIGN	LITHONIA	EDG-2-R-EL							
\$	WITH RED LETTERS			-	LED		4	120	UNIVERSAL	PER FLOOR PLAN. PROVIDE CONDUIT STEM SUSPENSIO TO LOWER EXIT SIGNS MOUNTING HEIGHTS



	Location: Supply From: Mounting: Enclosure:						I	Volts: Phases: Wires:		V			A.I.C. Ratin Mains Typ Mains Ratin MCB Ratin	e: MCB g: 225	
CKT	Circuit Description	Wire Size	Trip	Pole		•		D (VA)		2	Pole	Trip	Wire Size	Circuit Description	С
1					1	4 775	l	B							
3	CU5-1 (NOTE 1)	2#12, 1#12G - 3/4"C	30	2		115		775			2	20	3#12, 1#12G-3/4"C	FPB-5-1, 5-2, 5-3 (NOTE 1)	
5 7	FPB-5-15 (NOTE 1)	3#12, 1#12G-3/4"C	20	2	650				650		2	20	3#12, 1#12G-3/4"C	FPB-5-13 (NOTE 1)	
9 11	FPB-5-7, 5-8, 5-9 (NOTE 1)	3#12, 1#12G-3/4"C	20	2					775		2	20	3#12, 1#12G-3/4"C	FPB-5-14 (NOTE 1)	
3	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	T
15		0// 12, 1// 120 0/1 0		-				600			1	20	2#12, 1#12G - 3/4"C	VAV BOXES	
17	SPARE		20	1					500	400	1	20	2#12, 1#12G - 3/4"C	VAV BOXES	
9	SPARE		<mark>5</mark> 0	2		500					1	20	2#12, 1#12G - 3/4"C	CONTROL BOXES	
21											1	20			
23	AC5-1 (NOTE 1)	2#12, 1#12G - 3/4"C	20	2							1	20			
25											1	20			
27	WH-1 (NOTE 1)	2#8, 1#10G - 3/4"C	35	2							1	20			
9											1	20			
31	CP-1	2#12, 1#12G - 3/4"C	20	1		1000					1	20		EXIST BRIDGE LTG CNTLS	
33	SPARE		20	1				500			1	20		EXIST HVAC CONTROLS	
35	SPARE		20	1						590	1	20		EXIST MENS/WMNS BATH LTG	
37	SPARE		20	1		600					1	20		EXIST EWC	
	EXIST UH-1		20	1			500	600			1	20		EXIST EWC	
11	EXIST UH-1 (2)		20	1					1000	1500	1	20		EXIST MENS/WOMENS RECPTS	
			Total Panel /			00 2.5		975 4.8		15 5.1					

2. BREAKERS INDICATED IN BOLD SHALL BE "HACR" RATED.

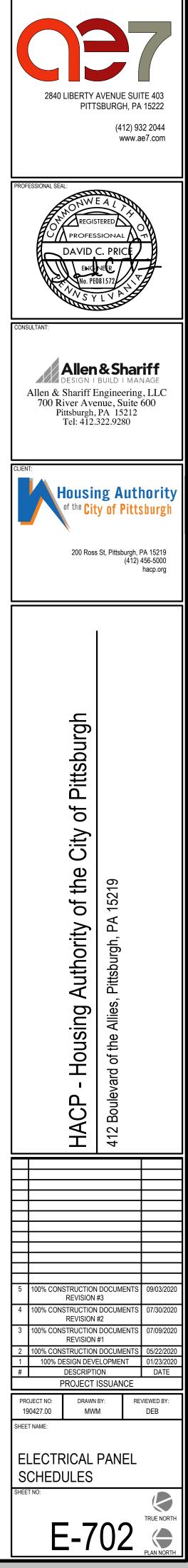
	Location: Supply From: Mounting: Enclosure:					I	Volts: Phases: Wires:		V			A.I.C. Rating Mains Type Mains Rating MCB Rating	: MCB : 225		
CKT	Circuit Description	Wire Size	Trip	Pole		Ą	LOAD		(0	Pole	Trip	Wire Size	Circuit Description	Cł
1					1000	800		,	, ,	, 	1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	2
3	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	
5									1000	800	1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	
7	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	
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	1
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	
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	
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	
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	1
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	2
21	PRE-WRED FURN.	2#12, 1#12G - 3/4"C	20	1			1600	800			1	20	2#12, 1#12G - 3/4"C	RECEPTS VIEWING RM	2
23	COPIER	2#12, 1#12G - 3/4"C	20	1					1200	800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTACLES	5
25	COPIER	2#12, 1#12G - 3/4"C	20	1	1200	1500					1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	
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	
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	3
31	DEMOUNTABLE RECEPTACLES	2#12, 1#12G - 3/4"C	20	1	800	1000					1	20	2#12, 1#12G - 3/4"C	RECEPTACLES	
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	
35	LIGHTING	2#10, 1#10G - 3/4"C	20	1					750		1	20	2#12, 1#12G - 3/4"C	COPIER RECEPTS	3
37	LIGHTING	2#10, 1#10G - 3/4"C	20	1	1100						1	20	2#12, 1#12G - 3/4"C	COPIER RECEPTS	
39	LIGHTING	2#10, 1#10G - 3/4"C	20	1			1000				1	20		SPARE	4
41	LIGHTING	2#10, 1#10G - 3/4"C	20	1					1000		1	20	2#10, 1#10G - 3/4"C	OFFICE LIGHTING	4
			Total	Load:	122	200	11(000	11	050					
			Panel /	Amps:	10	1.6	91	.6	92	2.0					

	Location: Supply From: Mounting: Enclosure:	SURFACE					I	Volts: Phases: Wires:		V			A.I.C. Rating Mains Type Mains Rating MCB Rating	:: MCB j: 225	
СКТ	Circuit Description	Wire Size	Trip	Pole		4	LOAD	· ·	(0	Pole	Trip	Wire Size	Circuit Description	CK
1	PRE-WRED FURNITURE	2#12, 1#12G - 3/4"C	20	1	800	800	-	-		-	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTACLES	2
	PRE-WRED FURNITURE	2#12, 1#12G - 3/4"C	20	1			800	800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTACLES	_
	PRE-WRED FURNITURE	2#12, 1#12G - 3/4"C	20	1					800	800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTACLES	
	PRE-WRED FURNITURE	2#12, 1#12G - 3/4"C	20	1	800	800			34 45 62		1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTACLES	_
9	PRE-WRED FURNITURE	2#12, 1#12G - 3/4"C	20	1			800	800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTACLES	1
11	PRE-WRED FURNITURE	2#12, 1#12G - 3/4"C	20	1					800	1000	1	20	2#12, 1#12G - 3/4"C	CONF. RM. RECEPTACLES	1
3	PRE-WRED 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	1
15	PRE-WRED FURNITURE	2#12, 1#12G - 3/4"C	20	1			800	600			1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURNITURE	1
17	PRE-WRED FURNITURE	2#12, 1#12G - 3/4"C	20	1					800	800	1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURNITURE	1
9	PRE-WRED FURNITURE	2#12, 1#12G - 3/4"C	20	1	800	800					1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURNITURE	2
21	PRE-WRED FURNITURE	2#12, 1#12G - 3/4"C	20	1			800	1000			1	20	2#12, 1#12G - 3/4"C	OFFICE RECEPTACLES	2
23	PRE-WRED FURNITURE	2#12, 1#12G - 3/4"C	20	1					800	800	1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURNITURE	2
25	PRE-WRED FURNITURE	2#12, 1#12G - 3/4"C	20	1	800	800					1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURNITURE	2
27	PRE-WRED FURNITURE	2#12, 1#12G - 3/4"C	20	1			<mark>80</mark> 0	1200			1	20	2#10, 1#10G - 3/4"C	COPIER	2
29	REFRIGERATOR	2#12, 1#12G - 3/4"C	20	1					1500	1000	1	20	2#12, 1#12G - 3/4"C	GENERAL RECEPTACLES	3
31	REFRIGERATOR	2#12, 1#12G - 3/4"C	20	1	1500	800					1	20	2#12, 1#12G - 3/4"C	RECEPTS	3
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	3
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	3
37	DEDICATED RECEPTACLE	2#12, 1#12G - 3/4"C	20	1	1500	1000					1	20	2#12, 1#12G - 3/4"C	DISHWASHER	3
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	4
1 1	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	4
			Total	Load:	128	300	130	000	129	900					
			Panel /	Amps:	10	6.6	108	8.3	10	7.4					

Existing Branch	Panel: 5NE
Location:	

eappij i term	
Mounting:	SURFACE
Enclosure:	TYPE 1
Circuit Description	Wire Size

	xisting Branc Location: Supply From: Mounting: Enclosure:	SURFACE				ļ	Volts: Phases: Wires:					A.I.C. Ratir Mains Typ Mains Ratir MCB Ratir	e: MLO g: 225	
C <mark>KT</mark>	Circuit Description	Wire Size	Trip	Pole	A) (VA) 3	С		Pole	Trip	Wire Size	Circuit Description	CKT
1					750			Ĩ		1	20		EXIST 4TH FLOOR LIGHTING	2
3	5TH FLR. N/E LIGHTING	2#10, 1#10G - 3/4"C	20	2						1	20		4TH FLOOR LIGHTING (SPARE)	4
5		0//10 1//100 0////0		~					750	1	20		EXIST 5TH FLOOR LIGHTING	6
7	6TH FLR. N/E LIGHTING	2#10, 1#10G - 3/4"C	20	2						1	20		5TH FLOOR LIGHTING (SPARE)	8
9		2#10, 1#10G - 3/4"C	20	2			750			1	20		EXIST 6TH FLOOR LIGHTING	10
11	7TH FLR. N/E LIGHTING	2#10, 1#10G - 3/4 C	20	2						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)	<mark>16</mark>
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	17	50	2750	0					-
			Panel /	Amps:	14.6	14	l.6	22.9)					
NOTE	ES:													



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Existing	Branch	Panel:	6M1

	Sting Bran Location Supply From Mounting Enclosure	: :: :: SURFACE					I	Volts: Phases: Wires:		V			A.I.C. Rating Mains Type Mains Rating MCB Rating	e: MCB g: 225	
KT	Circuit Description	Wire Size	Trip	Pole		٨	1) (VA) 3	(<u>`</u>	Pole	Trip	Wire Size	Circuit Description	СК
1 3 CU6	6 - 1 (NOTE 1)	3#10, 1#10G - 3/4"C	30	2	975	A 	975				2	20	2#12, 1#12G - 3/4"C	FPB-6-7,6-8	2
5 7 AC6	8-1 (NOTE 1)	3#12, 1#12G - 3/4"C	20	2	500				500		2	20	2#12, 1#12G - 3/4"C	FPB-6-9,6-10 (NOTE 1)	6 8
9 11 FPB	3-6-14 (NOTE 1)	3#12, 1#12G - 3/4"C	20	2			750		750		2	20	2#12, 1#12G - 3/4"C	FPB-6-12,6-13 (NOTE 1)	10 12
13 15	3-6-1,6-2,6-3 (NOTE 1)	3#12, 1#12G - 3/4"C	20	2	650	500	650	400			1 1	20 20	2#12, 1#12G - 3/4"C 2#12, 1#12G - 3/4"C	CONTROL BOXES VAV BOXES	14 16
17 EF 6	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 21 SPA 23	ARE		30	3		600					1 1 1	20 20 20	2#12, 1#12G - 3/4"C	VAV BOXES SPARE SPARE	20 22 24
25 27 FPB	3-6-4,6-5 (NOTE 1)	2#12, 1#12G - 3/4"C	20	2	650		650				1 1	20 20		SPARE SPARE	26 28
29 31 FPB	3-6-6 (NOTE 1)	2#12, 1#12G - 3/4"C	20	2	650				650		1 1	20 20		SPARE SPARE	30 32
33 WH- 35	-2 (NOTE 1)	2#8, 1#10G - 3/4"C	35	2							1 1	20 20		SPARE SPARE	34 36
37 CP-	1	2#12, 1#12G - 3/4"C	20	1							1	20		SPARE	38
39 EXIS			20	1			500	1000			1	20		EXIST BRIDGE LTG CNTLS	40
41 EXIS	ST UH-1 (2)		20	1					1000	500	1	20		EXIST HVAC CONTROLS	42
OTES:			Total Panel /			525 7.7		025 1.0	40 33						

						I	Volts: Phases: Wires:		V			A.I.C. Rating Mains Type Mains Rating MCB Rating	: MCB 9: 225	
(T Circuit Description	Wire Size	Trip	Pole		٩) (VA) 3		C	Pole	Trip	Wire Size	Circuit Description	С
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	
SPECIAL FURF. RECEPTACLE	5#10, 1#100 - 3/4 0	30	2			900	1500			1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	
	2#10_1#10C2/4#C	30	2					900	1500	1	20	2#12, 1#12G - 3/4"C	DEDICATED QUAD	
, 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	
GENERAL RECEPTACLES	2#12, 1#12G - 3/4"C	20	1			800	1200			1	20	2#12, 1#12G - 3/4"C	COPIER	
1 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	
3 PREWIRED FURN.	2#12, 1#12G - 3/4"C	20	1	800	800					1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	
5 PREWIRED FURN.	2#12, 1#12G - 3/4"C	20	1			800	800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	
7 PREWIRED FURN.	2#12, 1#12G - 3/4"C	20	1					800	800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	3
9 DEMOUNTABLE RECEPTS.	2#12, 1#12G - 3/4"C	20	1	800	800					1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	
1 DEMOUNTABLE RECEPTS.	2#12, 1#12G - 3/4"C	20	1			800	800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	
3 SPARE		20	1						800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	
5 SPARE		20	1		800					1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	
7 DEMOUNTABLE RECEPTS.	2#12, 1#12G - 3/4"C	20	1			800	800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	
9 OFFICE RECEPTS.	2#12, 1#12G - 3/4"C	20	1					1000	800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	
1 OFFICE RECEPTACLE	2#12, 1#12G - 3/4"C	20	1	1000	800					1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS.	
3 SPARE		20	1				1000			1	20	2#12, 1#12G - 3/4"C	RECEPTACLES	
5 LIGHTING	2#10, 1#10G - 3/4"C	20	1					1000	1000	1	20	2#12, 1#12G - 3/4"C	RECEPTACLES	
7 LIGHTING	2#10, 1#10G - 3/4"C	20	1	1400	1000					1	20	2#12, 1#12G - 3/4"C	OFFICE RECEPTS.	
9 LIGHTING	2#10, 1#10G - 3/4"C	20	1			1000	1000			1	20	2#10, 1#10G - 3/4"C	OFFICE LIGHTING	
1 LIGHTING	2#10, 1#10G - 3/4"C	20	1					1000	1200	1	20	2#10, 1#10G - 3/4"C	OFFICE LIGHTING	5
		Total	Load:	13	000	12	200	12	400					
		Panel	Amps:	10	8.3	10	1.6	10	3.3					

Existing Branch Panel: 6LA

Location: Supply From:

Mounting: SURFACE Enclosure: TYPE 1

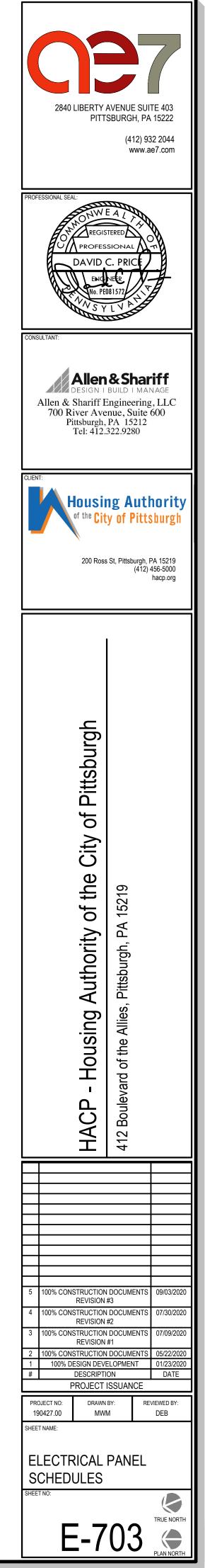
Volts: 208/120V Phases: 3

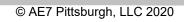
Wires: 4

скт	Circuit Description	Wire Size	Trip	Pole			LOAD	D (VA)			Pole	Trip	Wire Size	Circuit Description	СКТ
UNI	Circuit Description	Wire Size	пр	Fole	9	A	E	В	(C	FOIE	пр	VVII e Size		UN
1	PRE-WRED 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-WRED 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-WRED 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-WRED 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-WRED 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-WRED 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					1	20	2#12, 1#12G - 3/4"C	DEDICATED RECEPT (NOTE 1)	20
21	DEDICATED QUAD (NOTE 1)	2#12, 1#12G - 3/4"C	20	1			1500				1	20	2#12, 1#12G - 3/4"C	PRINTER RECEPTS (NOTE 1)	22
23	DEDICATED QUAD (NOTE 1)	2#12, 1#12G - 3/4"C	20	1					1500		2			SPARE	24
25	PRJCTR & SCREEN (NOTE 1)	2#12, 1#12G - 3/4"C	20	1	1000						1				26
27	DEMOUNTABLE RECEPTS.	2#12, 1#12G - 3/4"C	20	1			800				1	20	2#12, 1#12G - 3/4"C	PREWRED 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:	12	800	124	400	12	400					
			Panel /	Amps:	10	6.6	10	3.3	10	3.3					
NOT	ES:														
	OVIDE BREAKER IN SPACE AS IN	DICATED TURN OVER EXIST	ING BR	FAKE											

1. PROVIDE BREAKER IN SPACE AS INDICATED. TURN OVER EXISTING BREAKER TO BUILDING LANDLORD.

A.I.C. Rating: KAIC
Mains Type: MCB
Mains Rating: 225
MCB Rating: 225





Existing Branch Panel: 7M1

Location: Supply From:

Mounting: SURFACE Enclosure: TYPE 1

Volts: 208/120V Phases: 3 Wires: 4

СКТ	Circuit Description	Wire Size	Trip	Pole			LOAI	D (VA)			Pole	Trip	
ONI		Wire Size	ттр		В	A)	В	(C	I UIC	Пр	
1	CU7-1 (NOTE 1)	3#10, 1#10G - 3/4"C	20	2							2	20	
3													
5	AC-7-1 (NOTE 1)	3#10, 1#10G - 3/4"C	20	2					900		2	20	
7				_	900								
9	FPB-7-5 (NOTE 1)	2#12, 1#12G - 3/4"C	20	2			900				2	20	
11		,		_					900		_		
13	FPB-7-3, 7-4 (NOTE 1)	2#12, 1#12G - 3/4"C	20	2							2	20	
15		,											
17	FPB-7-1 (NOTE 1)	2#12, 1#12G - 3/4"C	20	2							1	20	
19											1	20	
	VAV BOXES	2#12, 1#12G - 3/4"C	20	1							1	20	
23	VAV BOXES	2#12, 1#12G - 3/4"C	20	1							1	20	
25	VAV BOXES	2#12, 1#12G - 3/4"C	20	1							1	20	
27	WH-3 (NOTE 1)	2#8, 1#10G - 3/4"C	35	2							1	20	
29											1	20	
31	CP-1	2#12, 1#12G - 3/4"C	20	1							1	20	
33	SPARE		20	1							1	20	
35	SPARE		20	1							1	20	
37	SPARE		20	1							1	20	
39	EXIST. UH-1		20	1			500	1000			1	20	
41	EXIST. UH-1 (2)		20	1					1000	500	1	20	
		00	24	100	33	00							
		Pa	nel A	mps:	7	.5	20	0.0	27	7.5			

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: 7LB Location:

Volts: 208/120V Phases: 3 Wires: 4

Supply From: Mounting: SURFACE Enclosure: TYPE 1

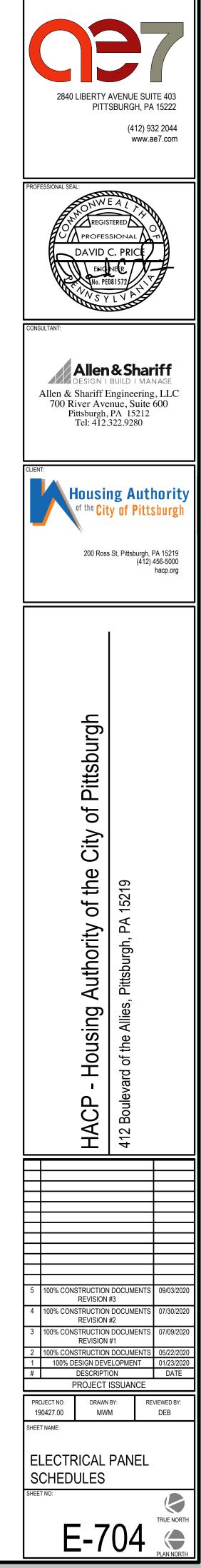
скт	Circuit Description	Wire Size	Trip	Pole			LOAD) (VA)			Pole	Trip	
ONI	Circuit Description	Wile Size	пр		/	Ą	I	3	(C		ттр	
1	SPECIAL PURP. RECEPTACLE	2#10, 1#10G - 3/4"C	30	2	1000	1000					1	20	
3	OF EDINET ON TREDEFINIOLE	2//10, 1//100 0/4 0					1000	1000			1	20	
5	SPECIAL PURP. RECEPTACLE	2#10, 1#10G - 3/4"C	30	2					1000	1000	1	20	
7		2//10, 1//100 0/4 0			1000	1000					1	20	
9	COPIER	2#12, 1#12G - 3/4"C	20	1			1200	1000			1	20	
11	PRE-WRED FURN.	2#12, 1#12G - 3/4"C	20	1					1600	800	1	20	
13	PRE-WRED FURN.	2#12, 1#12G - 3/4"C	20	1	1600	800					1	20	
15	OFFICE RECEPTS.	2#12, 1#12G - 3/4"C	20	1			400	800			1	20	
17	OFFICE RECEPTS.	2#12, 1#12G - 3/4"C	20	1					400	800	1	20	
19	OFFICE RECEPTS.	2#12, 1#12G - 3/4"C	20	1	400	800					1	20	
21	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1			600	800			1	20	
23	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1					400	800	1	20	
25	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1	1500	1200					1	20	
27	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1			1500	1500			1	20	
29	DEMOUNTABLE RECEPTS	2#12, 1#12G - 3/4"C	20	1					600	1000	1	20	Γ
31	REFRIG.	2#12, 1#12G - 3/4"C	20	1	600						1	20	
33	POKE-THRU'S	2#12, 1#12G - 3/4"C	20	1			800				1	20	
35	LIGHTING	2#10, 1#10G - 3/4"C	20	1					1000		1	20	
37	LIGHTING	2#10, 1#10G - 3/4"C	20	1	1000						1	20	
39	LIGHTING	2#10, 1#10G - 3/4"C	20	1			1000				1	20	
41	LIGHTING	2#10, 1#10G - 3/4"C	20	1					1100		1	20	
			Total	Load:	11	900	11	600	10	500			
			Panel /	Amps:	99	9.1	96	6.6	87	7.4			

NOTES:

A.I.C. Rating: Mains Type: Mains Rating: MCB Rating:	MCB 225	
Wire Size	Circuit Description	<mark>ск</mark> т
2#12, 1#12G - 3/4"C	FPB-7-11, 7-12 (NOTE 1)	2 4
2#12, 1#12G - 3/4"C	FPB-7-10, 7-13 (NOTE 1)	6 8
2#12, 1#12G - 3/4"C	FPB-7-2, 7-8, 7-9 (NOTE 1)	10 12
2#12, 1#12G - 3/4"C	FPB-7-6, 7-7 (NOTE 1)	14 16
2#12, 1#12G - 3/4"C	CONTROL BOXES	18
	SPARE	20
	SPARE	22
	SPARE	24
	SPARE	26
	SPARE	28
	SPARE	30
	SPARE	32
	SPARE	34
	SPARE	36
	SPARE	38
	EXIST BRIDGE LTG CNTLS	40
	EXIST HVAC CONTROLS	42

A.I.C. Rating: Mains Type: Mains Rating: MCB Rating:	MCB 225	
Wire Size	Circuit Description	СКТ
2#12, 1#12G - 3/4"C	DEDICATED QUAD	2
2#12, 1#12G - 3/4"C	DEDICATED QUAD	4
2#12, 1#12G - 3/4"C	DEDICATED QUAD	6
2#12, 1#12G - 3/4"C	DEDICATED QUAD	8
2#12, 1#12G - 3/4"C	QUAD RECEPTS	10
2#12, 1#12G - 3/4"C	RECEPTS	12
2#12, 1#12G - 3/4"C	RECEPTS	14
2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	16
2#12, 1#12G - 3/4"C	RECEPTS	18
2#12, 1#12G - 3/4"C	RECEPTS	20
2#12, 1#12G - 3/4"C	RECEPTS	22
2#12, 1#12G - 3/4"C	GENERAL RECEPTS	24
2#12, 1#12G - 3/4"C	REFRIGERATOR	26
2#12, 1#12G - 3/4"C	DEDICATED RECEPT. BRK RM	28
2#12, 1#12G - 3/4"C	OFFICE RECEPTS.	30
2#12, 1#12G - 3/4"C	PRINTER RECEPTS	32
	SPARE	34
	SPARE	36
	SPARE	38
2#10, 1#10G - 3/4"C	SPARE	40
2#10, 1#10G - 3/4"C	SPARE	42

Trip 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	Pole 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	600 600	A 1000 1500 1500	1	0 (VA) 3 1000 1500 600	800 600	900 1500	Pole 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Trip 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	Wire Size 2#12, 1#12G - 3/4"C 2#12, 1#12G - 3/4"C	Circuit Description REFRIGERATOR REFRIGERATOR GARBAGE DISPOSAL DEDICATED RECEPTACLE DEDICATED RECEPTACLE DEDICATED RECEPTACLE DEDICATED RECEPTACLE	CH 2 4 6 8 10 11
20 20 20 20 20 20 20 20 20 20 20	1 1 1 1 1 1 1 1 1 1 1	600	1500	600	1500	600		1 1 1 1 1 1 1 1	20 20 20 20 20 20	2#12, 1#12G - 3/4"C 2#12, 1#12G - 3/4"C	REFRIGERATORGARBAGE DISPOSALDEDICATED RECEPTACLEDEDICATED RECEPTACLEDEDICATED RECEPTACLE	4 6 8 10 12
20 20 20 20 20 20 20 20 20 20	1 1 1 1 1 1 1 1 1	600	1500	600	1500	600		1 1 1 1 1 1	20 20 20 20	2#12, 1#12G - 3/4"C 2#12, 1#12G - 3/4"C 2#12, 1#12G - 3/4"C 2#12, 1#12G - 3/4"C 2#12, 1#12G - 3/4"C	GARBAGE DISPOSAL DEDICATED RECEPTACLE DEDICATED RECEPTACLE DEDICATED RECEPTACLE	6 8 10 11
20 20 20 20 20 20 20 20	1 1 1 1 1 1 1 1	600	1500			600		1 1 1 1 1	20 20 20	2#12, 1#12G - 3/4"C 2#12, 1#12G - 3/4"C 2#12, 1#12G - 3/4"C	DEDICATED RECEPTACLE DEDICATED RECEPTACLE DEDICATED RECEPTACLE	8 1(1)
20 20 20 20 20 20 20	1 1 1 1 1 1 1	600	1500				1500	1 1 1	20 20	2#12, 1#12G - 3/4"C 2#12, 1#12G - 3/4"C	DEDICATED RECEPTACLE DEDICATED RECEPTACLE	1(1;
20 20 20 20 20 20	1 1 1 1 1						1500	1 1 1	20	2#12, 1#12G - 3/4"C	DEDICATED RECEPTACLE	1
20 20 20 20	1 1 1 1			400	600		1500	1 1				_
20 20 20	1 1 1			400	600			1	20	2#12 1#12G - 3/4"C	DEDICATED RECEPTACLE	_
20 20	1 1 1	1200		400	600							14
20	1	1200						1	20	2#12, 1#12G - 3/4"C	EXISTING EWC	1
	1	1200				400	1500	1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURN.	1
20		1200	1000					1	20	2#12, 1#12G - 3/4"C	PRE-WIRED FURN.	20
	1			1600	1000			1	20	2#12, 1#12G - 3/4"C	CLNG PROJ & PROJ. SCREEN	2
20	1					1600	800	1	20	2#12, 1#12G - 3/4"C	OFFICE RECEPTS.	2
20	1	1600	800					1	20	2#12, 1#12G - 3/4"C	OFFICE RECEPTS.	2
20	1			1600	800			1	20	2#12, 1#12G - 3/4"C	CONF. RM. TV RECEPTS	2
20	1					1600	800	1	20	2#12, 1#12G - 3/4"C	CONF. RM POKE-THRU'S	3
20	1	1600	800					1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	3
20	1			1600	800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	3
20	1					1600	800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	3
20	1	1600	800					1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	3
20	1			1200	800			1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	4
20	1					800	800	1	20	2#12, 1#12G - 3/4"C	DEMOUNTABLE RECEPTS	4
			800	14:	300	145	500					
nel Ar	mps:	13	1.6	11	9.1	120	0.7					
ot	20 20 20 20 20 20 20 al L	20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1	20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1	20 1 1600 800 20 1 1600 800 20 1 1 1 20 1 1600 800 20 1 1600 800 20 1 1600 800 20 1 1600 800 20 1 15800 15800	20 1 1600 800 20 1 1600 800 20 1 1600 1600 20 1 1600 800 20 1 1600 800 20 1 1600 800 20 1 1600 800 20 1 1600 800 20 1 1600 800 20 1 1600 1200 20 1 15800 143	20 1	20 1 1600 1600 20 1 1600 800 1600 20 1 1600 800 1600 20 1 1600 800 1600 20 1 1600 800 1600 20 1 1600 800 1600 20 1 1600 800 1600 20 1 1600 800 1600 20 1 1600 800 1600 20 1 1600 800 1600 20 1 1600 800 1600 20 1 15800 14300 14500	20 1	20 1	20 1	20 1 1 1 1600 800 1 20 2#12, 1#12G - 3/4"C 20 1 1600 800 1 20 2#12, 1#12G - 3/4"C 20 1 1600 800 1 20 2#12, 1#12G - 3/4"C 20 1 1600 800 1 20 2#12, 1#12G - 3/4"C 20 1 1 1600 800 1 20 2#12, 1#12G - 3/4"C 20 1 1600 800 1 20 2#12, 1#12G - 3/4"C 20 1 1600 800 1 20 2#12, 1#12G - 3/4"C 20 1 1600 800 1 20 2#12, 1#12G - 3/4"C 20 1 1200 800 1 20 2#12, 1#12G - 3/4"C 20 1 1 1200 800 1 20 2#12, 1#12G - 3/4"C 20 1 1 1200 800 800 1 20 2#12, 1#12G - 3/4"C 20 1 1 20 2#12, 1#12G - 3/4"C 1	20 1 1 1600 800 1 20 2#12, 1#12G - 3/4"C CONF. RM POKE-THRU'S 20 1 1600 800 1 20 2#12, 1#12G - 3/4"C DEMOUNTABLE RECEPTS 20 1 1600 800 1 20 2#12, 1#12G - 3/4"C DEMOUNTABLE RECEPTS 20 1 1600 800 1 20 2#12, 1#12G - 3/4"C DEMOUNTABLE RECEPTS 20 1 1600 800 1 20 2#12, 1#12G - 3/4"C DEMOUNTABLE RECEPTS 20 1 1600 800 1 20 2#12, 1#12G - 3/4"C DEMOUNTABLE RECEPTS 20 1 1600 800 1 20 2#12, 1#12G - 3/4"C DEMOUNTABLE RECEPTS 20 1 1600 800 1 20 2#12, 1#12G - 3/4"C DEMOUNTABLE RECEPTS 20 1 1200 800 1 20 2#12, 1#12G - 3/4"C DEMOUNTABLE RECEPTS 20 1 1 1200 800 1 20 2#12, 1#12G - 3/4"C DEMOUNTABLE RECEPTS



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	n:					I	Volts: Phases: Wires:		V			A.I.C. Rating Mains Type Mains Rating MCB Rating	9: MCB 9: 225	
KT Circuit Description	Wire Size	Trip	Pole		A	1) (VA) 3	()	Pole	Trip	Wire Size	Circuit Description	СКТ
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
1 FPB-1-1	3#10, 1#10G - 3/4"C	25	2					450	450	2	20		EXIST.FPB-4-101	12
3				450	450									14
5 SPARE		20	2			450	450			2	20		EXIST.FPB-4-102	16
17								450	450					18
9 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
B7 EXISTING EXHAUST FAN EF-2		3	20		2000					2	25		EXIST. EWH-1	38
39							2000							40
1									500	1	20		EXIST.HVAC CONTROLS	42
			Load:		300		00	78						
		Panel	Amps:	60) <mark>.</mark> 8	69	9.9	65	0.0					

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

СКТ	Circuit Description	Wire Size	Trip	Pole			LOAD) (V/
UNI		Wire Size	пр			A	E	3
1	LIGHTING	2#12 + 1#12G-3/4"C	20	1	900	1200		
3	LIGHTING	2#12 + 1#12G-3/4"C	20	1			700	
5	COPIER	2#12 + 1#12G-3/4"C	20	1				
7	EWC	2#12 + 1#12G-3/4"C	20	1	400	1500		
9	GENERAL RECEPTACLES	2#12 + 1#12G-3/4"C	20	1			1200	1
11	COPIER	2#12 + 1#12G-3/4"C	20	1				
13	EXISTING		20	1	900	800		
15		2#12 + 1#12G-3/4"C	20	1			600	1
17	EXISTING		20	1				
19	EXISTING	2#12 + 1#12G-3/4"C	20	1	1000	500		
21	EXISTING AV/IT EQUIPMENT		20	1			1000	1
23	GENERAL RECEPTACLES	2#12 + 1#12G-3/4"C	20	1				
25	GENERAL RECEPTACLES	2#12 + 1#12G-3/4"C	20	1	900	1200		
27	FLOOR POKE-THRU'S	2#12 + 1#12G-3/4"C	20	1			1200	1
29	SPECIAL PURP. REC. (NOTE 1)	2#10 + 1#10G-3/4"C	30	1				
31	SPECIAL PURP. REC. (NOTE 1)	2#10 + 1#10G-3/4"C	30	1	1800			
33	KIOSK RECEPTS.	2#12 + 1#12G-3/4"C	20	1			1200	
35	SPARE		20	2				
37								
39	KIOSK RECEPTS.	2#12 + 1#12G-3/4"C	20	1			1200	
41	COFFEE MACHINE	2#12 + 1#12G-3/4"C	30	1				
			Total	Load:	11	100	117	700
			Panel A	Amps:	93	2.4	97	.4

NOTES:

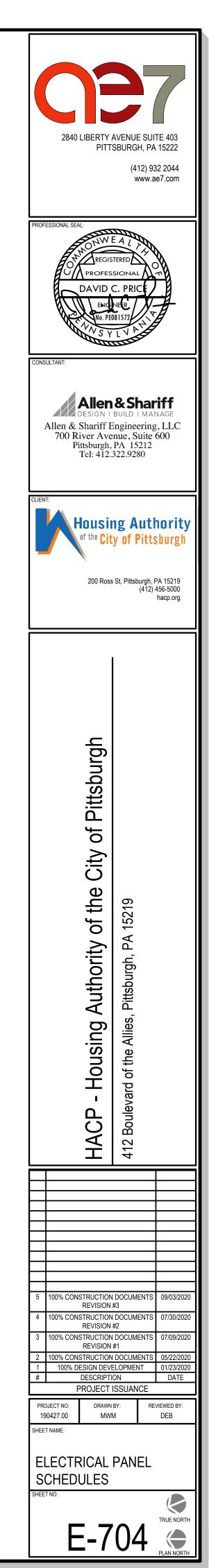
1. PROVIDE BREAKER AS INDICATED.

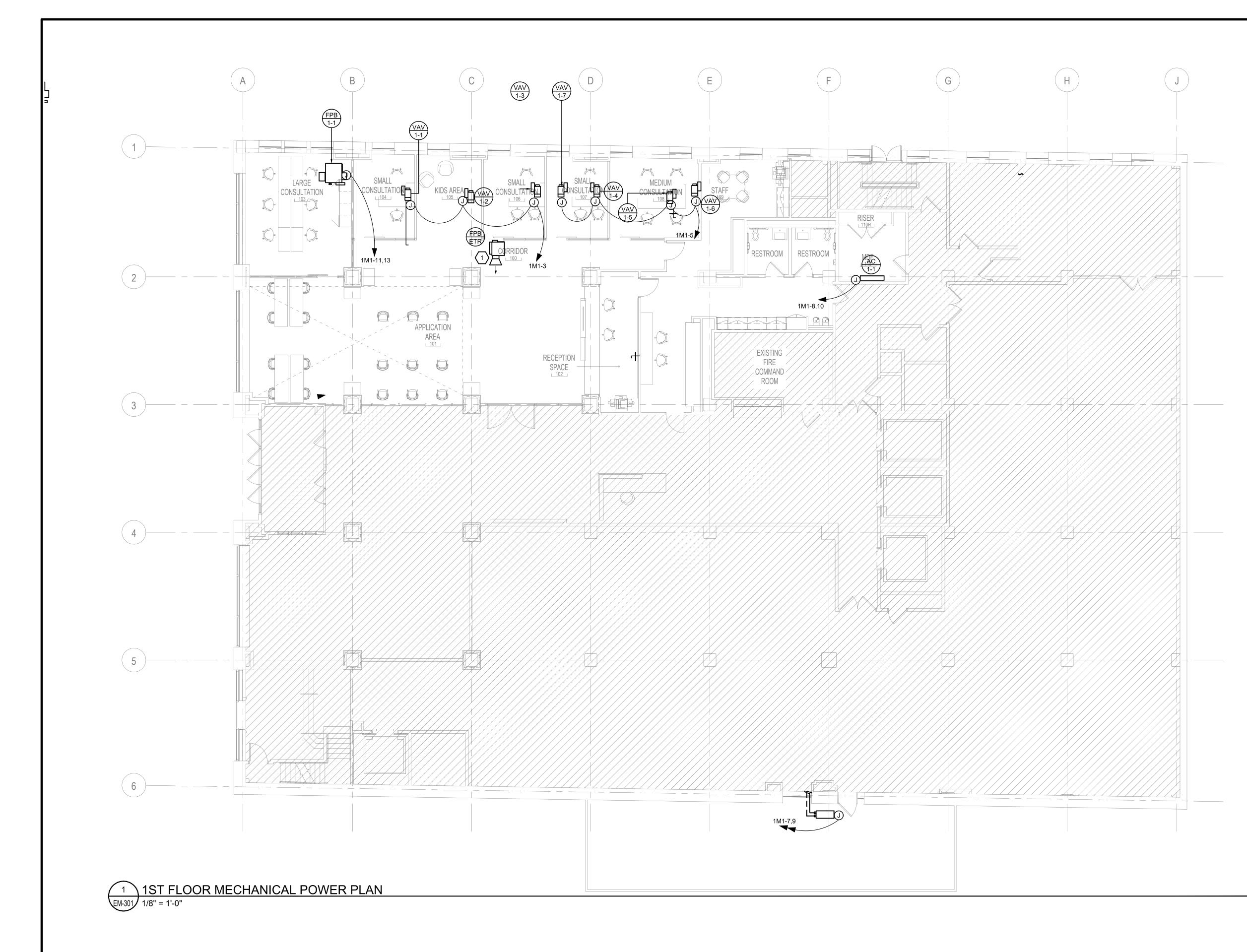
Existing Branch Panel: BEM

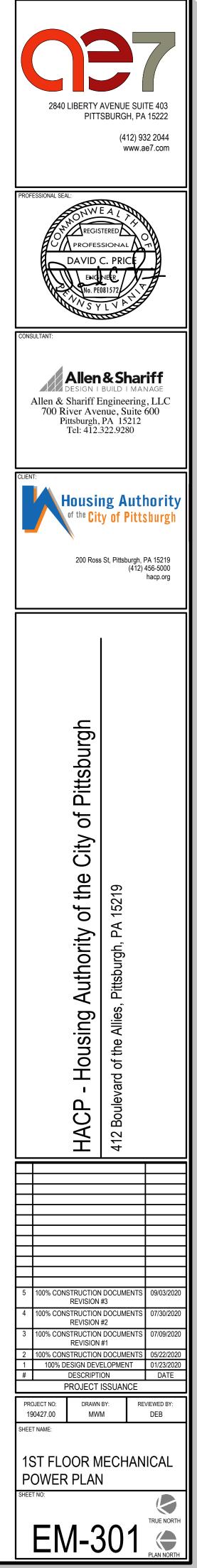
	Location: Supply From: Mounting: Enclosure:	Volts: 208/120V Phases: 0 Wires: 0								A.I.C. Rating: KAIC Mains Type: 0 Mains Rating: 0 MCB Rating: -					
СКТ	Circuit Description	Wire Size	Trip	Pole		A	1	D (VA) B	(;	Pole	Trip	Wire Size	Circuit Description	СКТ
1	EX.FIRE ALARM CNTRL PNL		20	1	1500						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	<mark>14</mark>
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:	99	00	77	/25	87	00					
			Panel /	Amps:	#DI	V/0!	#DI	IV/0!	#DI	V/0!					
NOT	ES:														

hases		V			A.I.C. Ratin Mains Typ	e: MCB	
Wires	: 4				Mains Ratin MCB Ratin		
(VA) 3		C	Pole	Trip	Wire Size	Circuit Description	CKT
			1	20	2#12 + 1#12G-3/4"C	DEMOUNTABLE RECEPTS.	2
			1	20	2#12 + 1#12G-3/4"C	DEMOUNTABLE RECEPTS.	4
	1000		1	20	2#12 + 1#12G-3/4"C	DEMOUNTABLE RECEPTS.	6
			1	20	2#12 + 1#12G-3/4"C	LIGHTING	8
1000			1	20		EXIST. RECEPT. DSK FLR BOX	10
	1000	1000	1	20		EXIST. RECEPT. DSK FLR BOX	12
			1	20		EXISTING GENERAL RECEPTS	14
1000			1	20	2#12 + 1#12G-3/4"C		16
	600	600	1	20		EXISTING POKE-THRU'S	18
			1	20		EXISTING BOTTLE FILLER	20
1500			1	20	2#12 + 1#12G-3/4"C	DEDICATED QUAD RECEPT.	22
	400	1500	1	20	2#12 + 1#12G-3/4"C	DEDICATED QUAD RECEPT.	24
			1	20	2#12 + 1#12G-3/4"C	KIOSK RECEPTS.	26
1100			1	20		EXISTING LOBBY LTG	28
	1800		1	20		EXISTING LOBBY LTG	30
			1	20		EXISTING LOBBY LTG	32
	-	800	1	20	0#40 + 4#400 2/480	EXISTING LOBBY LTG	34
		800			2#12 + 1#12G-3/4"C	the state of the second s	36 38
							38 40
	1500						40
		200		20			TL
	-						
)0 4	-	800 200 4.9	1 1 1	20 20 20 20	2#12 + 1#12G-3/4"C	POKE-THRU & RECEPTS SPARE SPARE SPARE	3 4

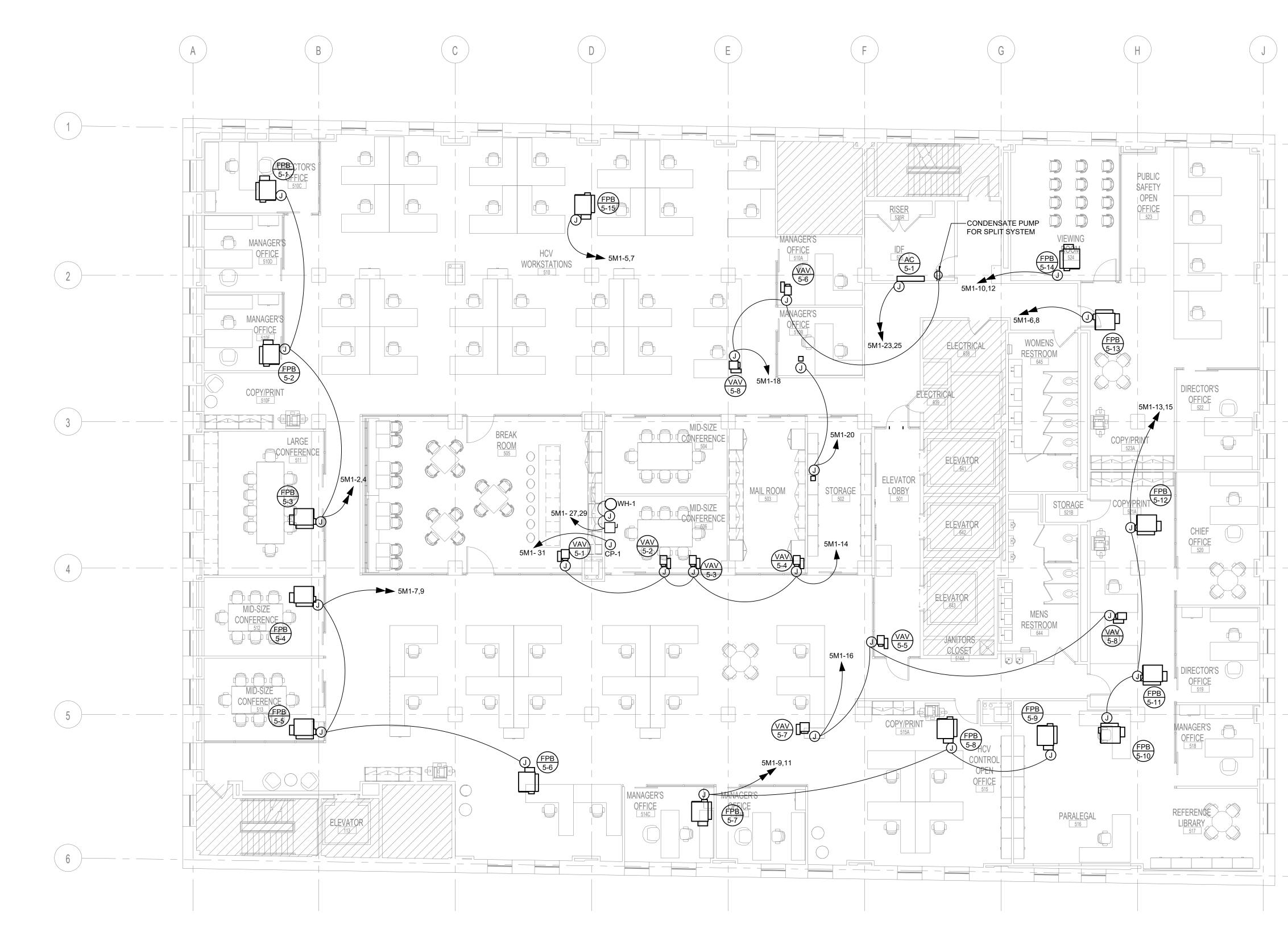
Phases: 3





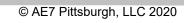


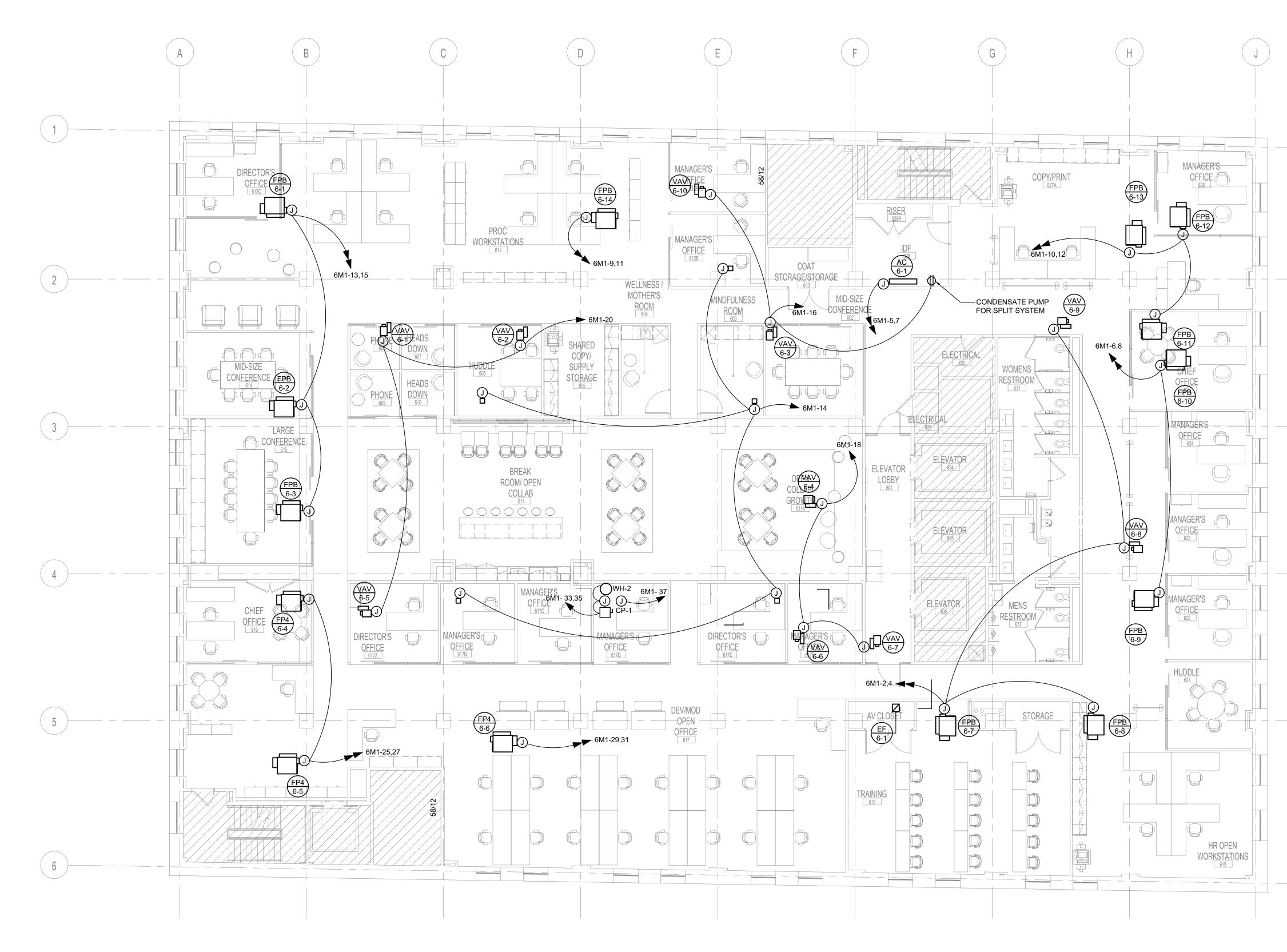
MECHANICAL POWER KEY NOTES: (#) 1. EXISTING FAN POWERED BOX TO REMAIN.





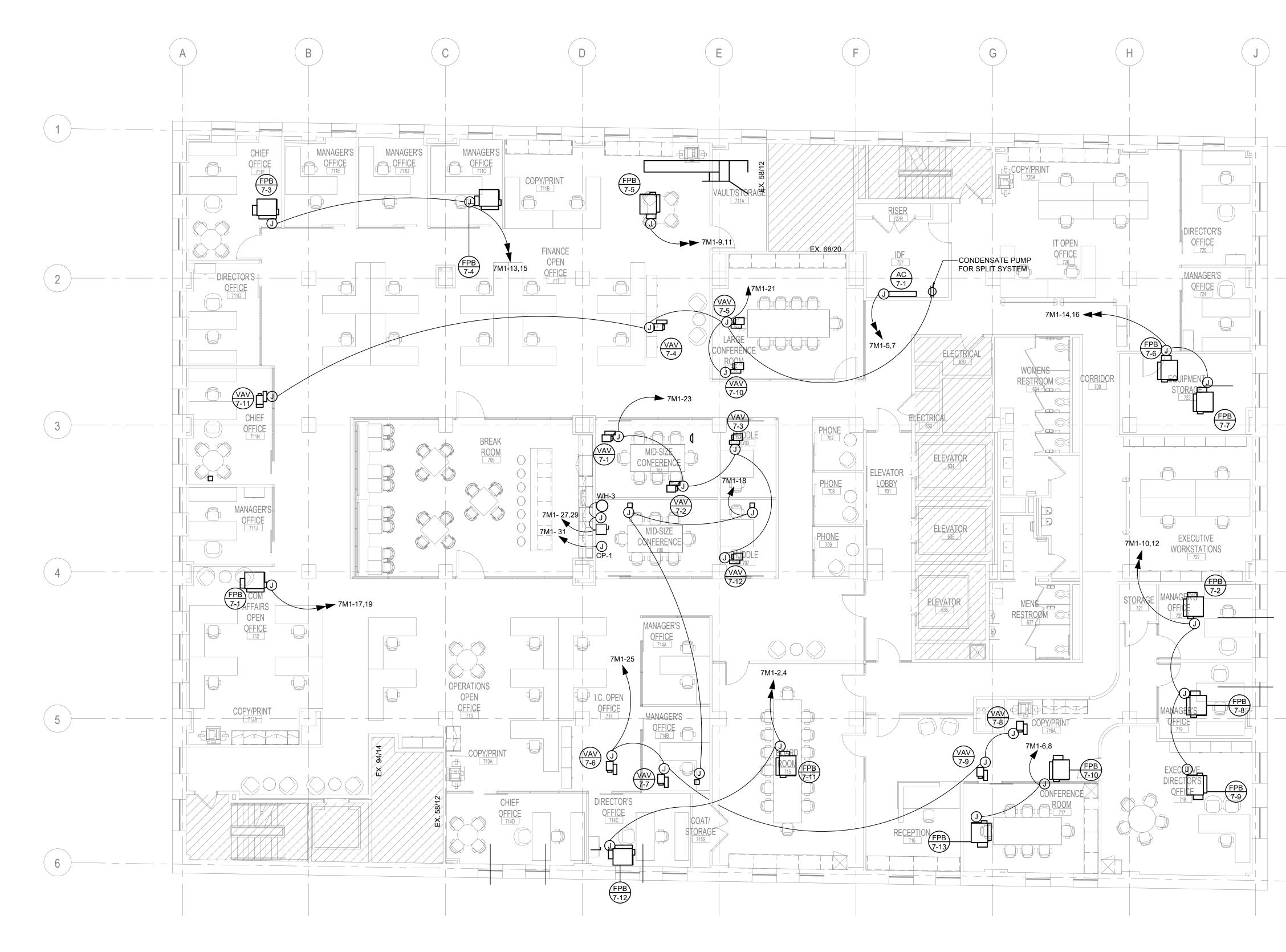
PROF	2840 LIBERTY / PITT	SBURGH, PA (412) 93	15222
	DAVID C	SIONAL	
		nue, Suite PA 15212	NAGE 5, LLC
CLIEN	Housin of the Cit	1g Auth y of Pitts St, Pittsburgh, F (412)	sburgh
	HACP - Housing Authority of the City of Pittsburgh	412 Boulevard of the Allies, Pittsburgh, PA 15219	
5	100% CONSTRUCTION REVISION :	#3	09/03/2020
4	100% CONSTRUCTION REVISION	#2 DOCUMENTS	07/30/2020 07/09/2020
2	REVISION 100% CONSTRUCTION 100% DESIGN DEVE	DOCUMENTS	05/22/2020 01/23/2020
#	DESCRIPTI PROJECT I	SSUANCE	DATE
19	DJECT NO: DRAWN 00427.00 MWN T NAME:		VIEWED BY: DEB
5 ⁻ P(TH FLOOR M OWER PLAN		IICAL
SHEE	T NO:		TRUE NORTH
	<u>EM-3</u>	02	PLAN NORTH





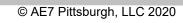


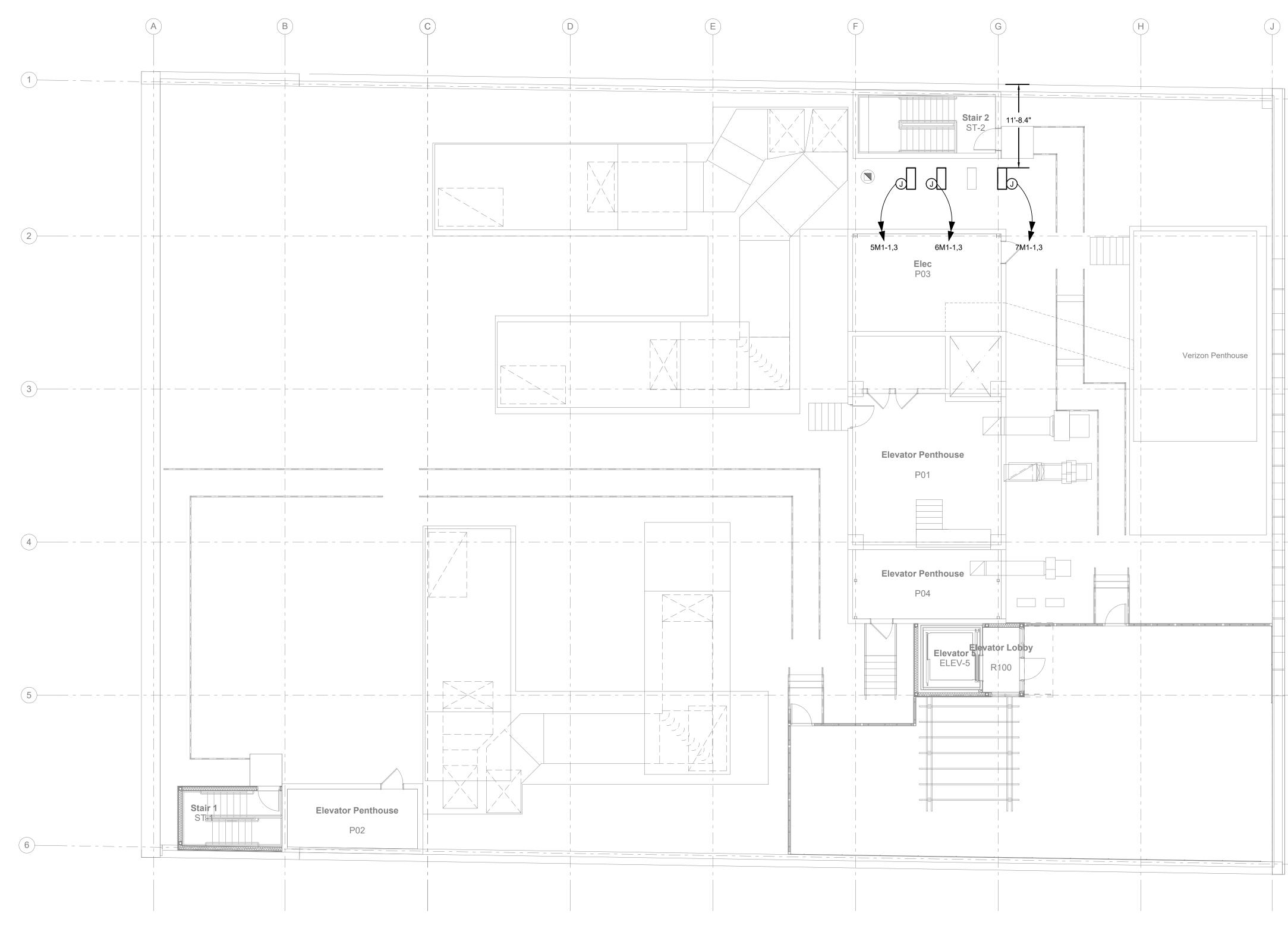
2840 LIBERTY AVENUE SUI PITTSBURGH, PA (412) 93 www.a	15222
DAVID C. PRICE ENCLUER No. PEO81572	
CONSULTANT: Allen & Shari DESIGN I BUILD I MAI Allen & Shariff Engineering 700 River Avenue, Suite Pittsburgh, PA 15212 Tel: 412.322.9280	NAGE 5, LLC
CLIENT: Housing Aut of the City of Pitts 200 Ross St, Pittsburgh, (412)	sburgh
HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219	
5 100% CONSTRUCTION DOCUMENTS REVISION #3 4 100% CONSTRUCTION DOCUMENTS	09/03/2020
4 100% CONSTRUCTION DOCUMENTS REVISION #2 3 100% CONSTRUCTION DOCUMENTS REVISION #1	07/09/2020
2 100% CONSTRUCTION DOCUMENTS 1 100% DESIGN DEVELOPMENT # DESCRIPTION	05/22/2020 01/23/2020 DATE
PROJECT ISSUANCE	VIEWED BY:
190427.00 MWM SHEET NAME:	DEB
6TH FLOOR MECHAN POWER PLAN	IICAL
	TRUE NORTH
EM-303	PLAN NORTH



1 7TH FLOOR MECHANICAL POWER PLAN EM-304 1/8" = 1'-0"

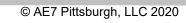
	15222							
PROFESSIONAL SEAL:	DAVID C. PRICE							
CONSULTANT: Allen & Shariff Engineering 700 River Avenue, Suite Pittsburgh, PA 15212 Tel: 412.322.9280	NAGE							
CLIENT: Housing Aut of the City of Pitts 200 Ross St, Pittsburgh, J (412)	sburgh							
HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219								
5 100% CONSTRUCTION DOCUMENTS REVISION #3 4 100% CONSTRUCTION DOCUMENTS	09/03/2020 07/30/2020							
Image: Solution of the	07/09/2020							
2 100% CONSTRUCTION DOCUMENTS 1 100% DESIGN DEVELOPMENT # DESCRIPTION	05/22/2020 01/23/2020 DATE							
PROJECT ISSUANCE PROJECT NO: DRAWN BY: RE 190427.00 MWM	VIEWED BY: DEB							
SHEET NAME: 7TH FLOOR MECHAN POWER PLAN SHEET NO:								
	TRUE NORTH							
EM-304	PLAN NORTH							







2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com
PROFESSIONAL SEAL:
CONSULTANT: Allen & Shariff DESIGN I BUILD I MANAGE Allen & Shariff Engineering, LLC 700 River Avenue, Suite 600 Pittsburgh, PA 15212 Tel: 412.322.9280
CLIENT: Housing Authority of the City of Pittsburgh 200 Ross St, Pittsburgh, PA 15219 (412) 456-5000 hacp.org
HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219
5 100% CONSTRUCTION DOCUMENTS REVISION #3 09/03/2020 4 100% CONSTRUCTION DOCUMENTS REVISION #2 07/30/2020
3 100% CONSTRUCTION DOCUMENTS 07/09/2020 REVISION #1
2 100% CONSTRUCTION DOCUMENTS 05/22/2020 1 100% DESIGN DEVELOPMENT 01/23/2020 # DESCRIPTION DATE PROJECT ISSUANCE
PROJECT ISSUANCE PROJECT NO: DRAWN BY: REVIEWED BY: 190427.00 MWM DEB
SHEET NAME: ROOF MECHANICAL POWER PLAN
SHEET NO: EM-305



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 FURNITU 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 & 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 TELECOMMUNICATIIONS 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.
♥ #	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.
ŴĐ	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
Œ	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
F	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 MANUFACTURER'S REQUIREMENTS. COORDINATE FINAL ROUTING WITH ALL OTHER TRADES TO AVOID INTERFERENCES. SEE PLAN DRAWINGS FOR CABLE TRAY SIZE.		BASKET TRAY
XXX	SECTION/ELEVATION DETAIL. TOP NUMBER INDICATES DETAIL/BOTTOM NUMBER INDICATES DRAWING SHEET		

TELECOM SYSTEM (CABLING AND CONNECTIVITY) INS	TALLATION MA	TRIX		
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	TELELECOMMUNICATIONS GENERAL NOTES (CONTINUED)
	8. ALL PATCH PANELS, TERMINATIONS SHELVES AND LIU ENCLOSURES WILL BE LABELED WITH THEIR IDENTIFIER.
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:	9. ALL FACEPLATES WILL BE LABELED WITH THEIR IDENTIFIER WITH PREPRINTED LABELS.
CONNECTIVITY	10. CABLES WILL BE LABELED WITH THEIR IDENTIFIER WITH PREPRINTED LABELS.
UNIPRISE	11. STANDARD TRADE MEANS AND METHODS SHALL BE USED AND THE INSTALLATION WILL BE ACCOMPLISHED IN ,
SYSTIMAX	
PANDUIT-MINICOM	AND PROFESSIONAL MANNER.
CABLE: UNIPRISE	12. THE INSTALLATION OF COMPONENTS, ETC. WILL CONFORM TO THE MANUFACTURERS RECOMMENDED METHOD INSTALLATION.
SYSTIMAX PANDUIT	13. CATEGORY 6 CABLE SHALL NOT BE PULLED IN EXCESS OF 25LBS. OF FORCE.
2. ALL NATIONAL (NESC, 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.	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 SHA ROUTED WITH A MINIMUM NUMBER OF BENDS. THE BENDS PLACED IN THE CONDUCTOR SHOULD BE SWEEPING.
3. ALL PENETRATIONS SHALL BE FIRE STOPPED WITH NFPA APPROVED INTUMESCENT MATERIAL. LARGE OPENINGS SHALL BE FIRE STOPPED WITH NFPA APPROVED CEMENTITIOUS MATERIAL.	15. MAINTAIN A MINIMUM OF UNTWIST AND SHEATH REMOVAL ON ALL CATEGORY 5E CABLES. A MAXIMUM OF 1/2" UNTWIST IS ALLOWED BY THE STANDARDS.
4. ALL EIA/TIA STANDARDS FOR CABLES, PATHWAYS, SPACES, GROUNDING, AND BONDING WILL BE STRICTLY ADHERED TO:	16. SUPPORT CAT 6CABLES W/ APPROPRIATELY SIZED J-HOOKS. LOCATE THEM ON 48" CENTERS, MIN. SUPPORT NO THAN 50 CABLES EACH.
- TIA/EIA-568A COMMERCIAL BUILDING TELECOMMUNICATIONS CABLE STANDARDS.	17. VERIFY FACEPLATE AND JACK COLORS WITH OWNER PRIOR TO PURCHASE.
- TIA/EIA-569 COMMERCIAL BUILDING STANDARDS FOR TELECOMMUNICATIONS	18. ALL CABLING SHALL BE PLENUM RATED.
PATHWAYS AND SPACES.	19. DO NOT ATTACH CABLING TO SUSPENDED CEILING SYSTEM IN ANY MANNER.
- TIA/EIA 607 COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS.	20. VERIFY PIN/PAIR CONFIGURATION FOR VOICE OUTLET W/ EQUIPMENT MANUFACTURER AND ENGINEER.
5. CATEGORY 6 DROP LENGTHS SHALL NOT EXCEED 90 METERS (295 FT.) FROM PATCH PANEL TO FACEPLATE AND SHALL	21. COORDINATE FINAL LABELING SCHEME FOR ALL TELECOMMUNICATION DEVICES WITH OWNER'S REPRESENTATIV
BE RUN IN A CONTINUOUS MANNER WITH NO SPLICES.	22. TELECOMMUNICATIONS CONTRACTOR SHALL BE CERTIFIED IN CABLING SYSTEM SPECIFIED AND SHALL PROVID OWNER'S REPRESENTATIVE WITH COMPLETE TEST RESULTS AND 20 YEAR CABLE WARRANTY.
6. A MINIMUM 1" BEND RADIUS IS TO BE MAINTAINED IN ALL CATEGORY 5E CABLES AND PATHWAYS.	23. CABLING SHALL BE INSTALLED IN J-HOOKS UTILIZING AVENUE AND STREET LAYOUTS AND SHALL BE PRIMARL
7. ALL CABLE PATHWAYS SHALL MAINTAIN THE FOLLOWING CLEARANCES FROM SOURCES OF EMI:	OVER CORRIDOR AREAS. DIRECT (DIAGONAL RUNS) ARE NOT ACCEPTABLE.
 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. 	24. CONTRACTOR SHALL LIST THE CABLING SOLUTION (MANUFACTURER OF CABLING AND CONNECTIVITY) THAT TH USING ON THE PROJECT UNDER THE BID SHEET.
 A-OOI-A INDICATES PORT NUMBER INDICATES OUTLET NUMBER INDICATES OUTLET NUMBER INDICATES PATCH PANEL NUMBER (A-Z) TELECOMMUNICATION CABLE LABELING DETAIL SCALE: NTS GENERAL NOTES 1. THIS CONTRACTOR SHALL PROVIDE ALL TYPE WRITTEN LABELS TO MEET ELATIA-606 LABELING ADMINISTRATIVE STANDARDS. 1. 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. 	
INDICATES PATCH PANEL NUMBER (A-Z) INDICATES TELECOMMUNICATION ROOM NUMBER(COORDINATE ACTUAL ROOM NUMBER WITH OWNER'S REPRESENTATIVE) OO1-A TR1 PANEL A	

INDICATES PATCH	
PANEL PORT NUMBE	R

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GENERAL NOTES

TO.01

----- INDICATES PORT NUMBER

SCALE: NTS

- INDICATES OUTLET NUMBER

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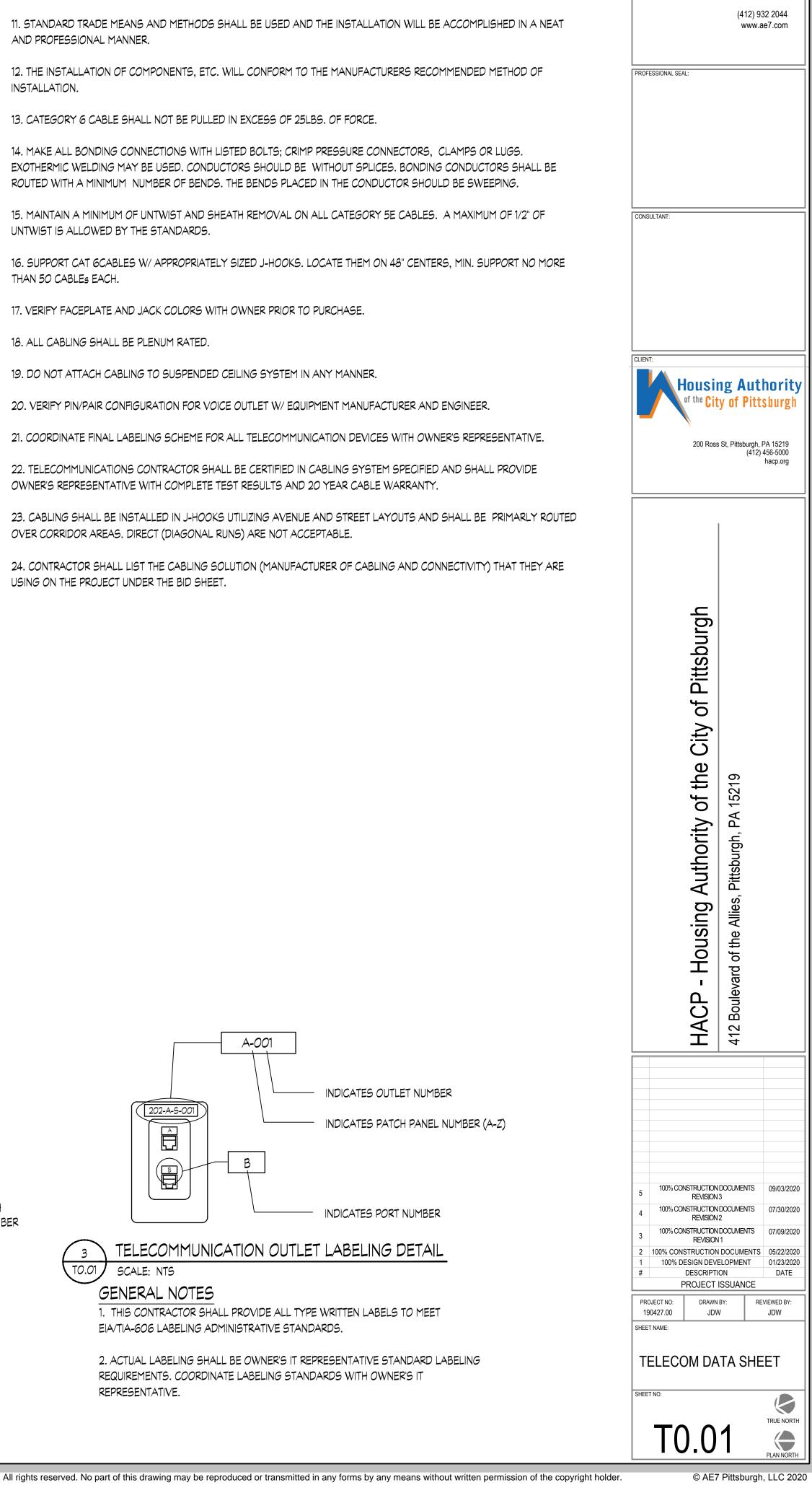
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1. THIS CONTRACTOR SHALL PROVIDE ALL TYPE WRITTEN LABELS TO MEET EIA/TIA-606 LABELING ADMINISTRATIVE STANDARDS

PATCH PANEL LABELING DETAIL

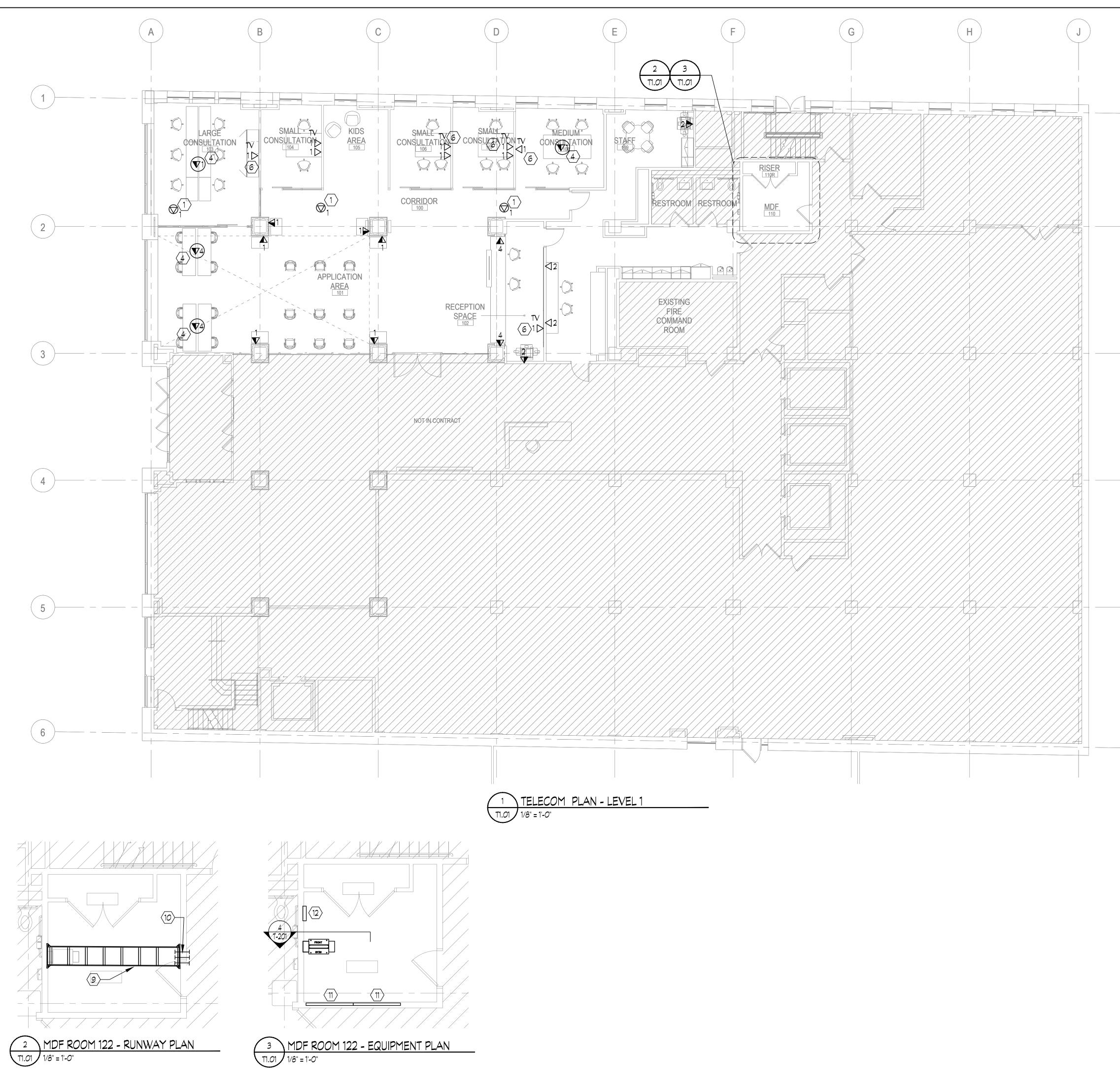
2. REFER TO RACK ELEVATIONS AND SPECIFICATIONS FOR PATCH PANEL SIZE, TYPE, MANUFACTURER AND ADDITIONAL REQUIREMENTS.

3. ACTUAL LABELING SHALL BE OWNER'S IT REPRESENTATIVE STANDARD LABELING REQUIREMENTS. COORDINATE LABELING STANDARDS WITH OWNER'S IT REPRESENTATIVE.



2840 LIBERTY AVENUE SUITE 403

PITTSBURGH, PA 15222



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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:

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WALL SUPPORT CEILING SUPPORT KIT RADIUS DROP KITS

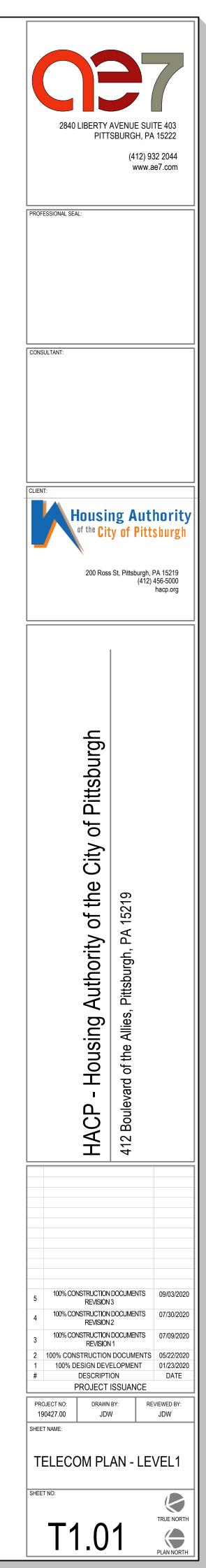
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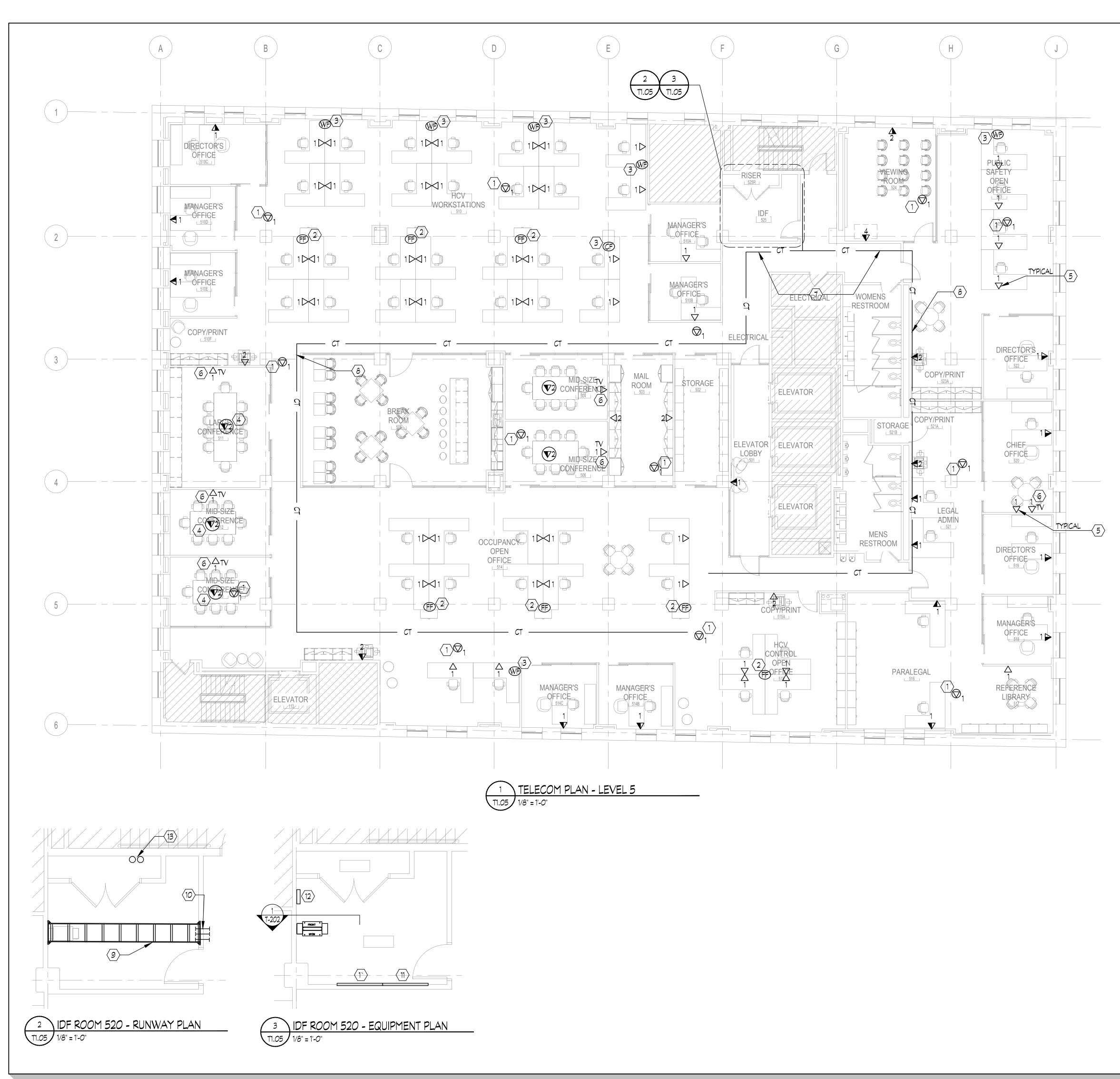
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13. EXISTING (2) 4" SLEEVES DOWN TO FLOOR BELOW. ALL HORIZONTAL BACKBONE SHALL BE RAN THROUGH SLEEVES IN STACKED VERTICAL CLOSETS TO TELECOM PATCH PANEL ON THIS FLOOR UNLESS NOTED OTHERWISE. FIRE STOP SLEEVES AS REQUIRED.



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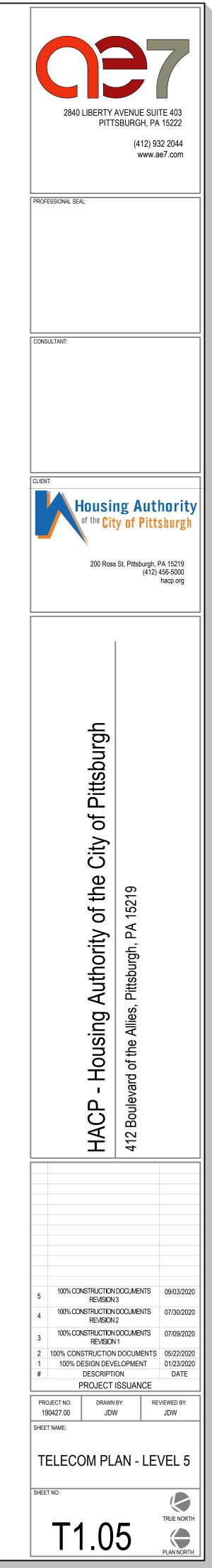
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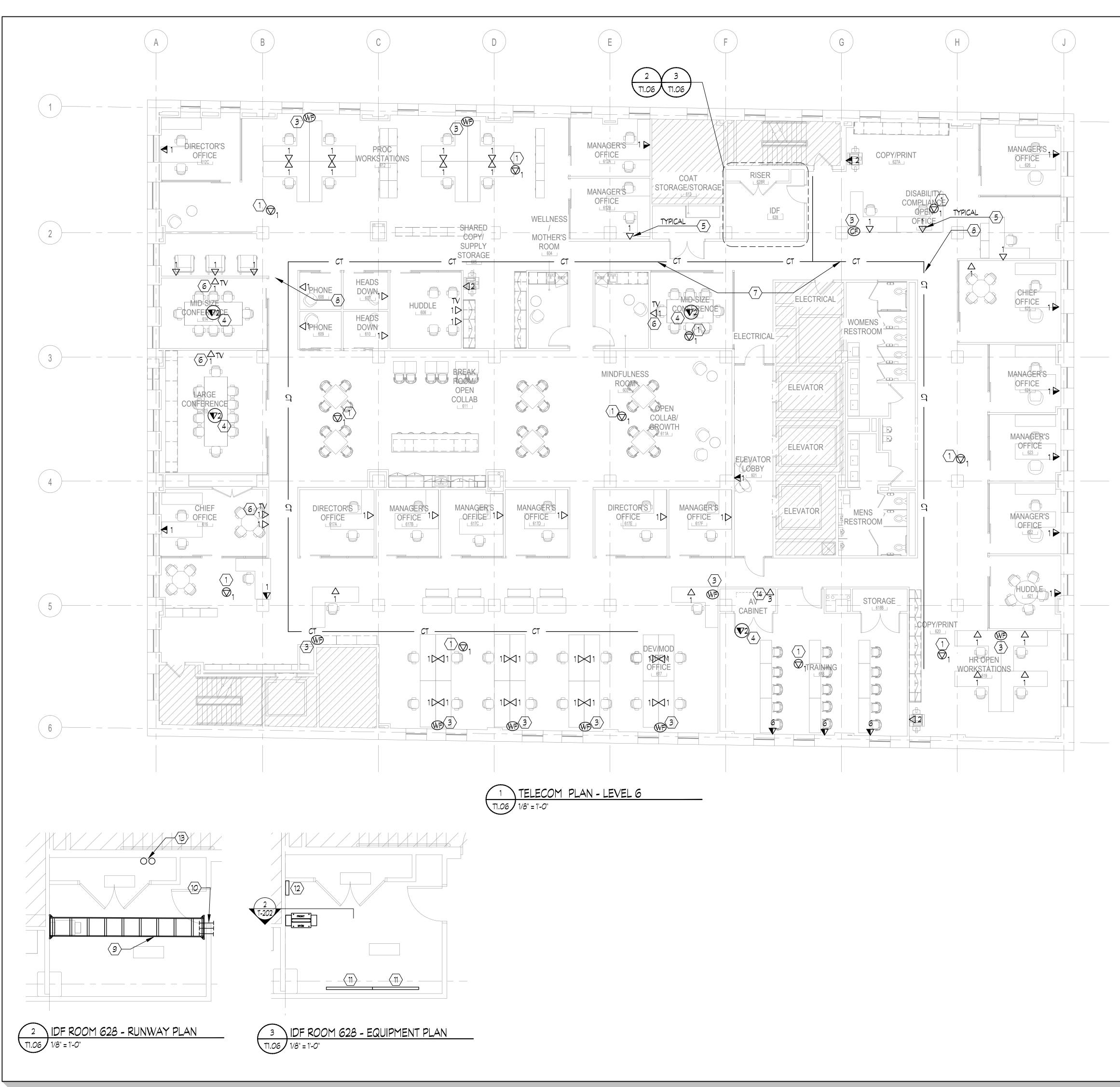
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6. TELEVISION CABLING SHALL BE ROUTED TO OUTLETS IN TELEVISION ROUGH-IN. SEE POWER DRAWING FOR OUTLET BOX INFORMATION. PROVIDE DATA CABLING AS INDICATED

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.

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PROVIDE RADIUS DROP KIT OVER EACH VERTICAL WIRE MANAGER.

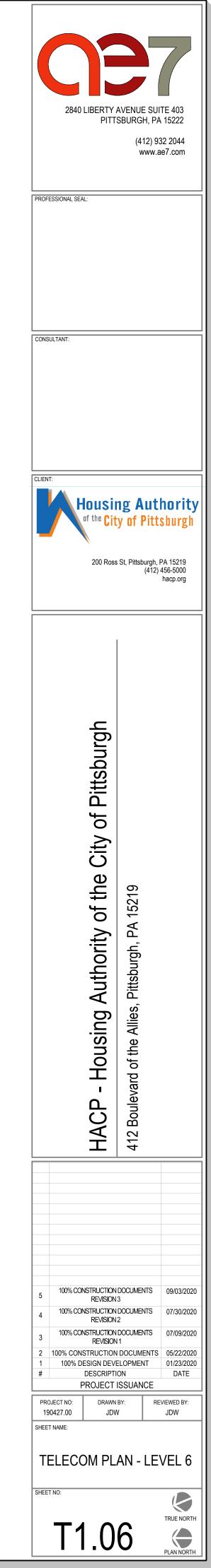
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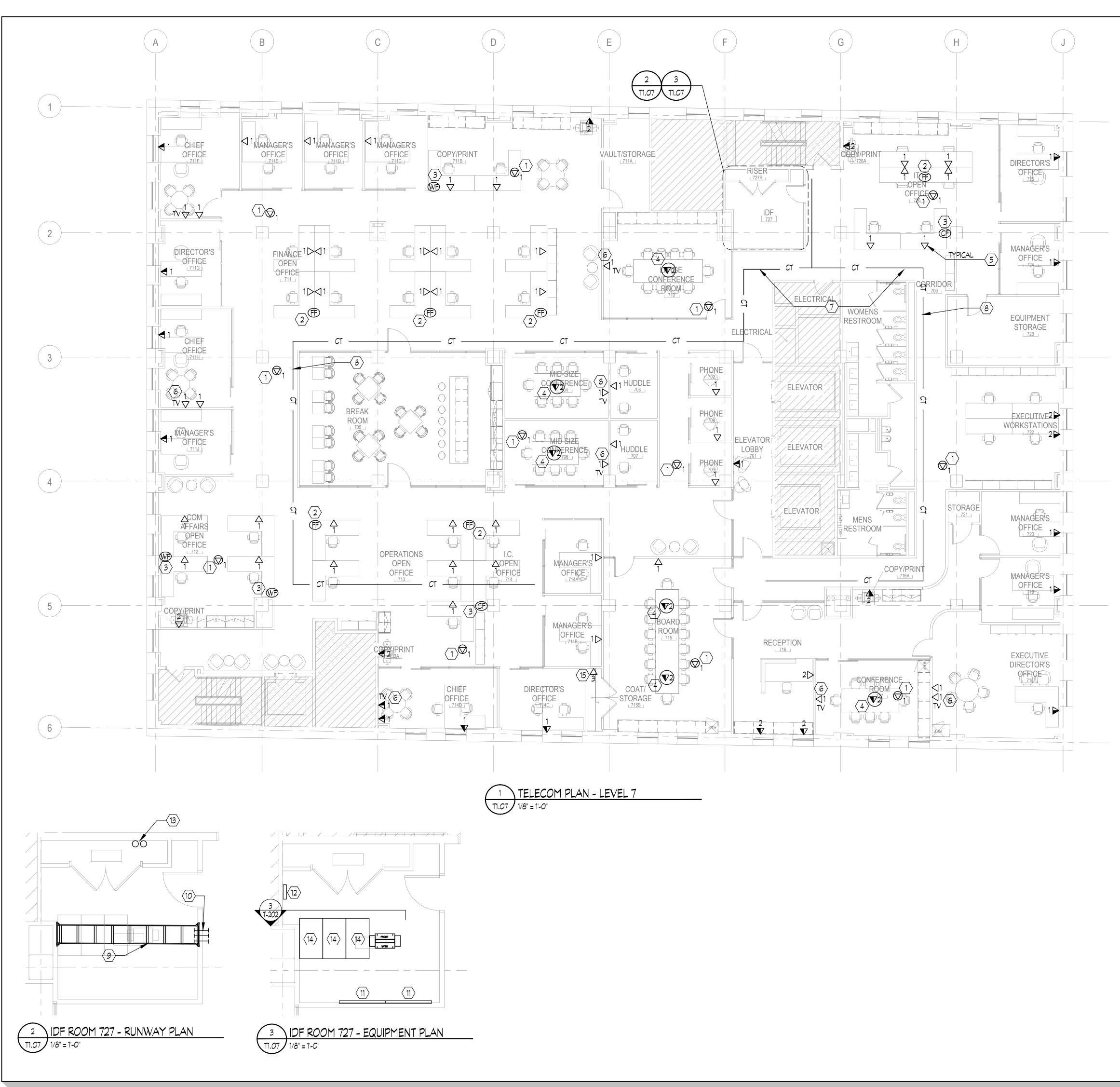
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14. DATA CABLING FOR A/V EQUIPMENT FOR TRAINING ROOM. COORDINATE WITH A/V CONTRACTOR.



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PROVIDE RADIUS DROP KIT OVER EACH VERTICAL WIRE MANAGER.

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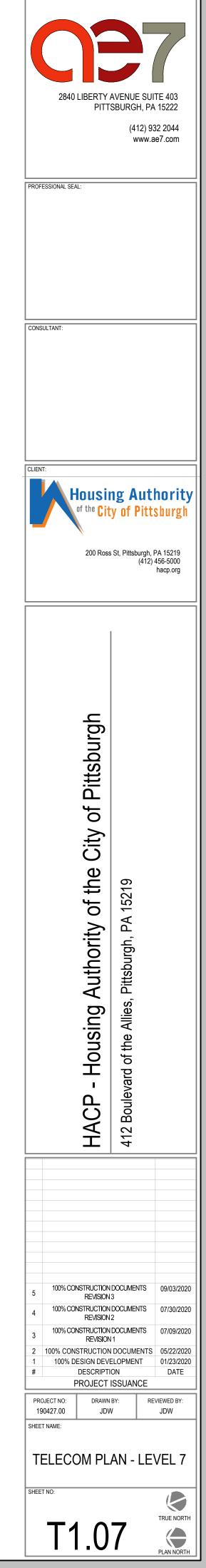
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14. CABINET FURNISHED AND INSTALLED BY HACP.

15. DATA CABLING FOR A/V EQUIPMENT FOR BOARDROOM. COORDINATE WITH A/V CONTRACTOR.

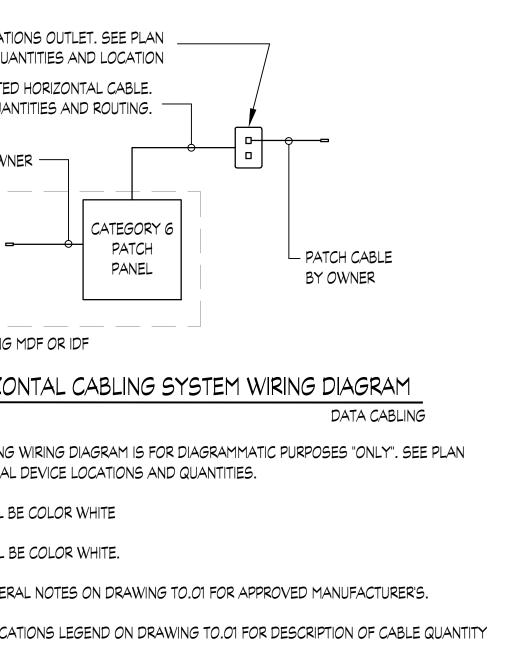


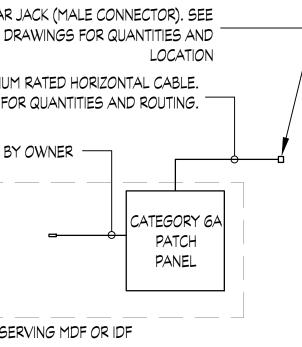
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					TELECOMMUNIC DRAWINGS FOR (
					CATEGORY 6 PLENUM RA SEE PLAN DRAWINGS FOR Q
					PATCH CABLE BY O
EVEL 9					
	EXISTI	NG TO	ING FIBER DISTRIBTUTION UNIT IN BE RELOCATED RACK WITH NEW	V]	
			JTION UNIT. PROVIDE SAME TYPI VILL BE USED IN MDF AND IDF(S)		FLOOR SERV
EVEL 8			·		
			RACK MOUNTED FIBER		T2.01 SCALE: NTS
			DISTRIBUTION		1. HORIZONTAL CABL
EVEL 7		 	IDF 727		DRAWINGS FOR ACT 2. DATA JACKS SHA
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EVEL 6			IDF 628		IDENTIFIER.
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			RACK MOUNTED FIBER	RACK MOUNTED FIBER	PLA
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EVEL 5			IDF 520	VIEWING ROOM 524	SEE PLAN DRAWINGS
					PATCH CABL
PROVIDE 12 STRAND 50 MICRON MULTIMODE OM4 (AQUA) RISER RATED		↓ ↓ ↓ ↓	PROVIDE 6 STRAN MULTIMODE 0M4 (ID 50 MICRON (AQUA) RISER RATED	
INTERLOCK ARMORED CLAD OPTICAL FIBER				RED CLAD OPTICAL	
EVEL 4					
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					T2.01 SCALE: NTS
EVEL 3					1. HORIZONTAL CABLING DRAWINGS FOR ACTUAL
					2. WIRELESS JACKS SHA
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					4. SEE TELECOM GENER
EVEL 2					5. SEE TELECOMMUNICA
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PROVIDE 12 STRAND 50 MICRON MULTIMODE OM4 (AQUA) RISER RATED		$\left \right $	RACK MOUNTED FIBER		
INTERLOCK ARMORED CLAD OPTICAL FIBER			DISTRIBUTION UNIT		
			MDF 122		
EVEL 1					

FIBER BACKBONE WIRING DIAGRAM T2.01 SCALE: NTS 1. SEE TELECOMMUNICATIONS SPECIFICATIONS FOR APPROVED

MANUFACTURER'S.





ONTAL CABLING SYSTEM WIRING DIAGRAM

WIRELESS CABLING

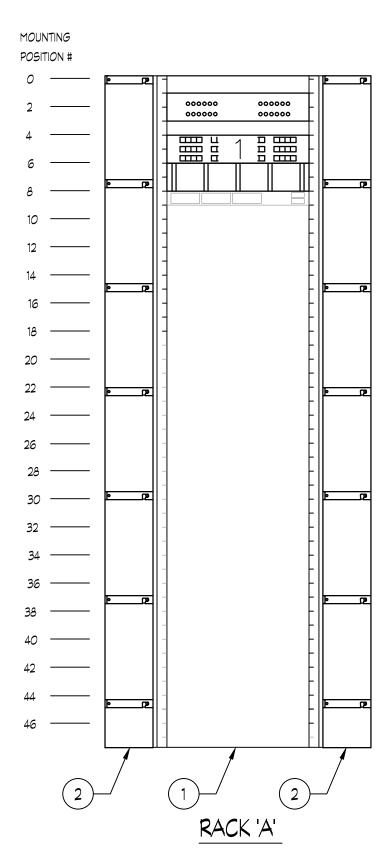
/IRING DIAGRAM IS FOR DIAGRAMMATIC PURPOSES "ONLY". SEE PLAN EVICE LOCATIONS AND QUANTITIES.

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NOTES ON DRAWING TOOI FOR APPROVED MANUFACTURER'S.

ONS LEGEND ON DRAWING T-001 FOR DESCRIPTION OF CABLE QUANTITY SECOND NUMBER.



4 MDF 122 - RACK ELEVATION T2.01 SCALE: 1/" = 1'-0"

RACK 'A' LINE-UP EQUIPMENT SCHEDULE - MDF 122

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 BACKBONE DIAGRAM THIS DRAWING T2.01 ADDITIONAL 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 TOO2 FOR APPROVED MANUFACTURER'S.

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH OWNER'S IT REPRESENTATIVES PROCEDURES. GENERAL MATERIALS NOTES:

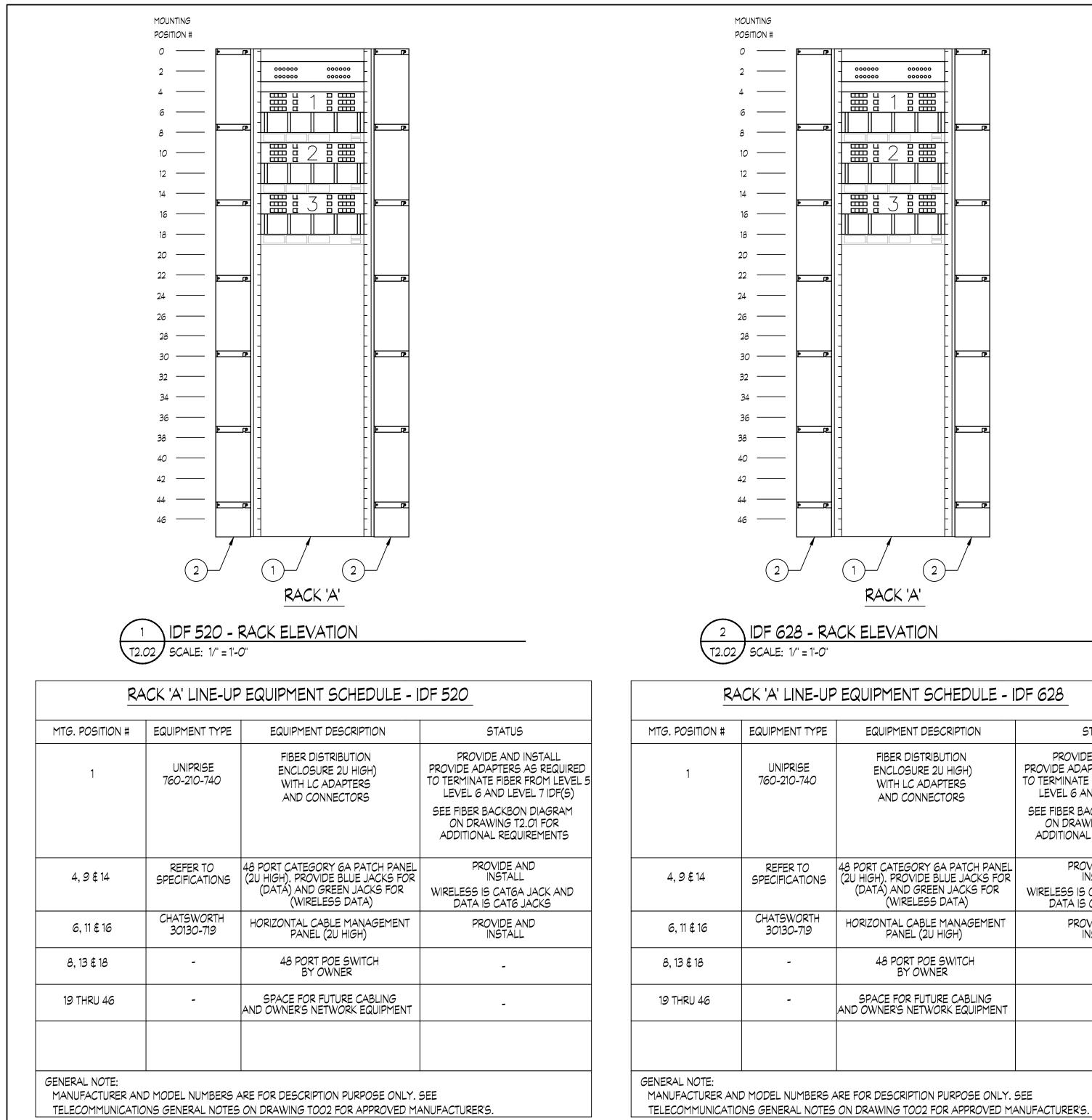
1. THE SYMBOL - (1), ETC. ON THIS DRAWING ARE IN REFERENCE TO THE "LIST OF MATERIALS" SCHEDULE ON THIS DRAWING. REFER TO SCHEDULE FOR MANUFACTURER, MODEL NUMBER AND ADDITIONAL REQUIREMENTS.

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 #GRCBNJ660PY OR APPROVED EQUAL. GROUND AND BOND AS PER EIA/TIA 606 "GROUNDING AND BONDING REQUIREMENTS.

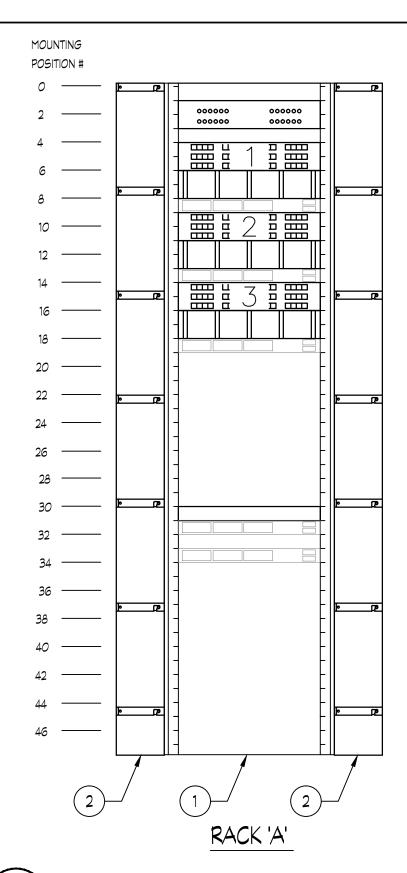
	LIST OF MATERIALS MDF 122						
ITEM NO.	PART NO.	MANUF.	DESCRIPTION	REMARKS			
1	55053-703	CHATSWORTH	7' HIGH X 19" WIDE FLOOR MOUNTED 2 POST RACK				
2	13912-703	CHATSWORTH	7' HIGH X 6" WIDE DOUBLE SIDED VERTICAL WIRE MANAGER				

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CONSULTANT:	
CLIENT:	
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	s St, Pittsburgh, PA 15219
	(412) 456-5000 hacp.org
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EQUIPMENT DESCRIPTION	STATUS
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
48 PORT CATEGORY 6A PATCH PANEL (2U HIGH). PROVIDE BLUE JACKS FOR (DATA) AND GREEN JACKS FOR (WIRELESS DATA)	PROVIDE AND INSTALL WIRELESS IS CATGA JACK AND DATA IS CAT6 JACKS
HORIZONTAL CABLE MANAGEMENT PANEL (2U HIGH)	PROVIDE AND INSTALL
48 PORT POE SWITCH BY OWNER	-
SPACE FOR FUTURE CABLING AND OWNER'S NETWORK EQUIPMENT	-
	FIBER DISTRIBUTION ENCLOSURE 2U HIGH) WITH LC ADAPTERS AND CONNECTORS 48 PORT CATEGORY 6A PATCH PANEL (2U HIGH). PROVIDE BLUE JACKS FOR (DATA) AND GREEN JACKS FOR (DATA) AND GREEN JACKS FOR (WIRELESS DATA) HORIZONTAL CABLE MANAGEMENT PANEL (2U HIGH) 48 PORT POE SWITCH BY OWNER SPACE FOR FUTURE CABLING



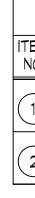
\IDF 727 - RACK ELEVATION T2.02 SCALE: 1/" = 1'-0"

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 CATGA JACK AND DATA IS CATG 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 TOO2 FOR APPROVED MANUFACTURER'S.



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	HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219	
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	SHEET NO: T2.02	TRUE NORTH

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 #GRCBNJ660PY OR APPROVED EQUAL. GROUND AND BOND AS PER EIA/TIA 606 "GROUNDING AND BONDING REQUIREMENTS.

	LIST OF MATERIALS IDF 520, 628 & 727								
EM 10.	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						

	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	
(A)	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.		
M	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.		
R	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.		
ТР	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	

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.

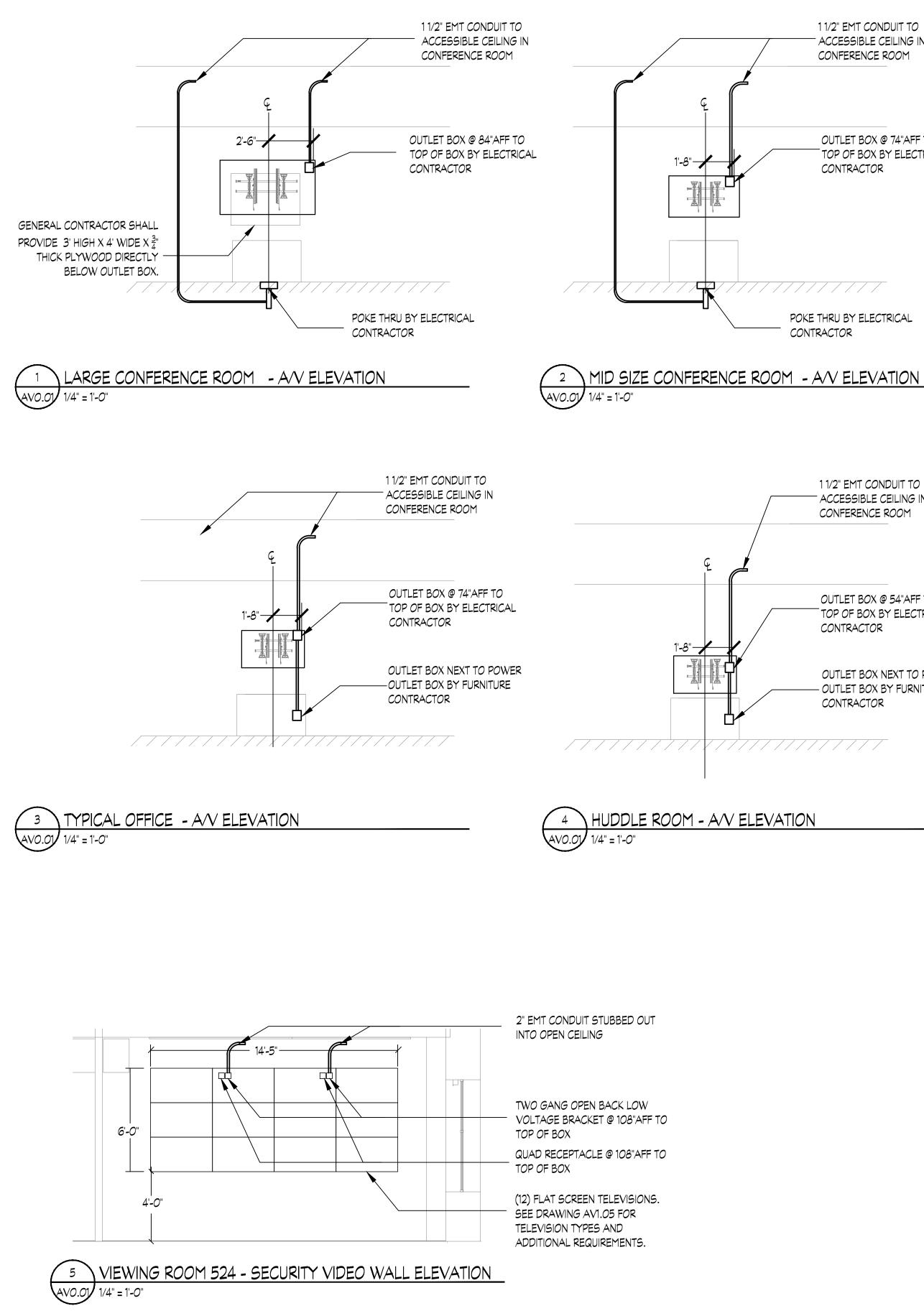
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HACP'S REQUIREMENTS.

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 1/2" EMT CONDUIT TO - ACCESSIBLE CEILING IN CONFERENCE ROOM

OUTLET BOX @ 74"AFF TO TOP OF BOX BY ELECTRICAL CONTRACTOR

POKE THRU BY ELECTRICAL

CONTRACTOR

1 1/2" EMT CONDUIT TO - ACCESSIBLE CEILING IN CONFERENCE ROOM

OUTLET BOX @ 54"AFF TO TOP OF BOX BY ELECTRICAL CONTRACTOR

> OUTLET BOX NEXT TO POWER OUTLET BOX BY FURNITURE CONTRACTOR

2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com PROFESSIONAL SEAL: CONSULTANT: Housing Authority of the City of Pittsburgh 200 Ross St, Pittsburgh, PA 15219 (412) 456-5000 hacp.org Pittsburgh o City Authority of the 15219 ЪЪ Housing , 1 HACP 412 100% CONSTRUCTION DOCUMENTS 09/03/2020 REVISION 3 100% CONSTRUCTION DOCUMENTS 07/30/2020 REVISION 2 100% CONSTRUCTION DOCUMENTS REVISION 1 07/09/2020 100% CONSTRUCTION DOCUMENTS 05/22/2020 100% DESIGN DEVELOPMENT 01/23/2020

> SHEET NAME: AUDIO/VISUAL DATA SHEET SHEET NO: TRUE NORTH AV0.01 PLAN NORTH

DESCRIPTION

PROJECT NO:

190427.00

PROJECT ISSUANCE

DRAWN BY:

JDW

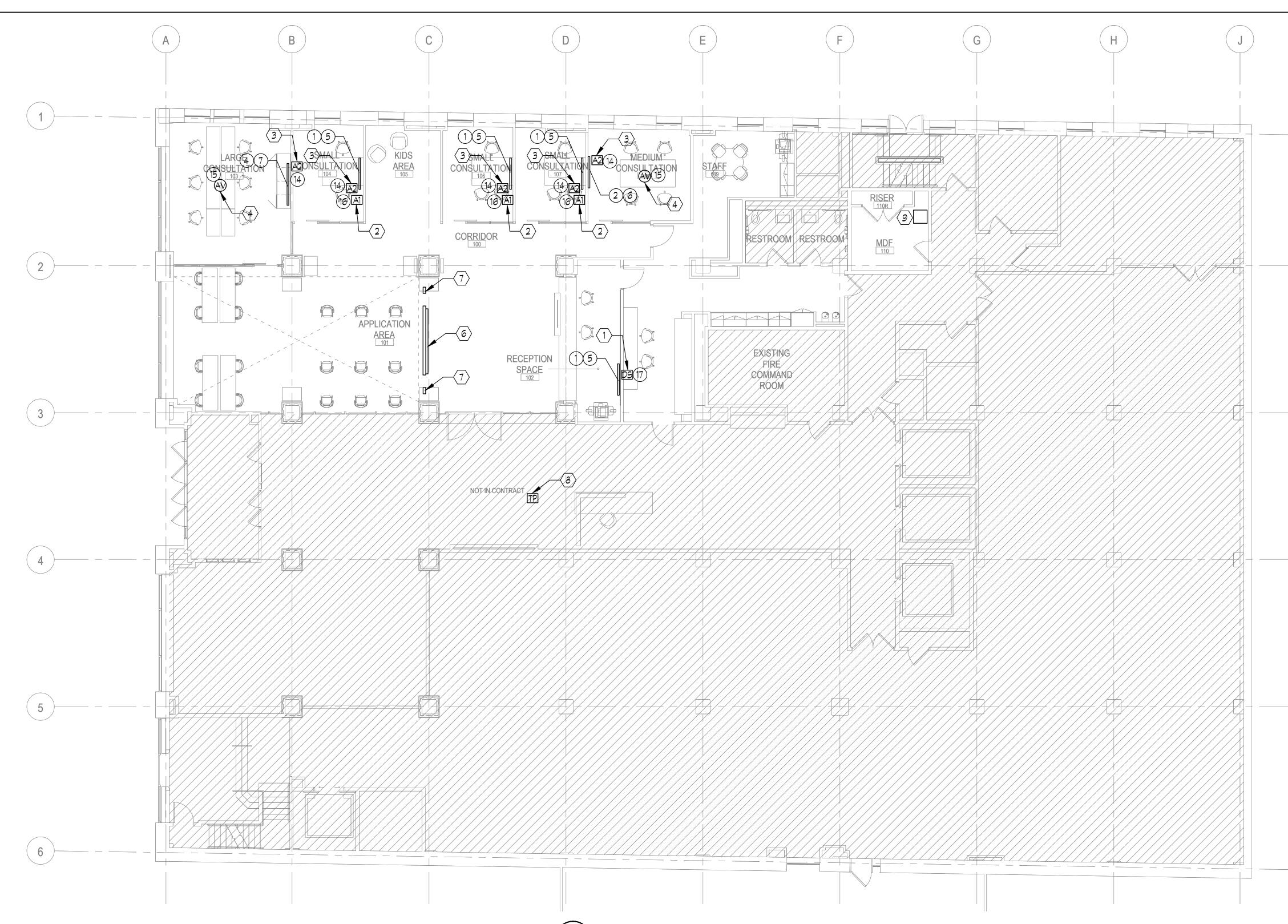
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DATE

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- 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 86UT64OS 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 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 OWNER'S 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.

AUDIO/VISUAL PLAN - LEVEL 1

AV1.01 1/8" = 1'-0"

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 OWNER'S 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. AV 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 AVO.01 FOR ADDITIONAL INFORMATION.

4. POKE THRU PROVIDED BY ELECTRICAL CONTRACTOR. AV 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.

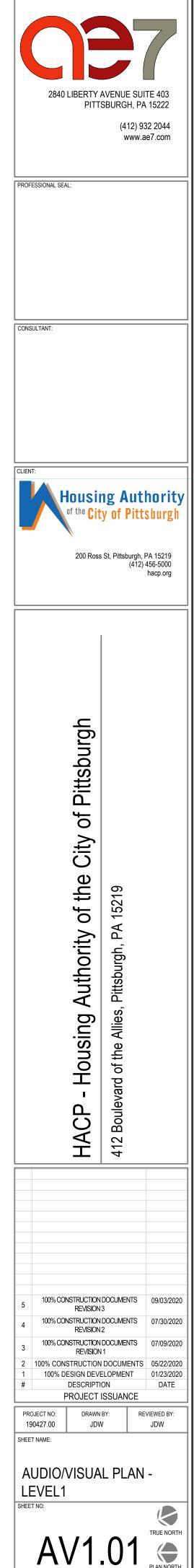
5. TABLETOP BOX PROVIDED BY FURNITURE CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE HDMI AND AUDIO JACKS AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING ON JACKS. ROUTE CABLING DOWN THROUGH FURNITURE FEED AND ASSOCIATED CONDUIT. TELECOM CONDUIT AND JUNCTION BOXES PROVIDED BY ELECTRICAL CONTRACTOR. REFER TO 3 ELECTRICAL DRAWINGS FOR CONDUIT ROUTING. COORDINATE FINAL CONDUIT SIZES AND ROUTING WITH ELECTRICAL CONTRACTOR.

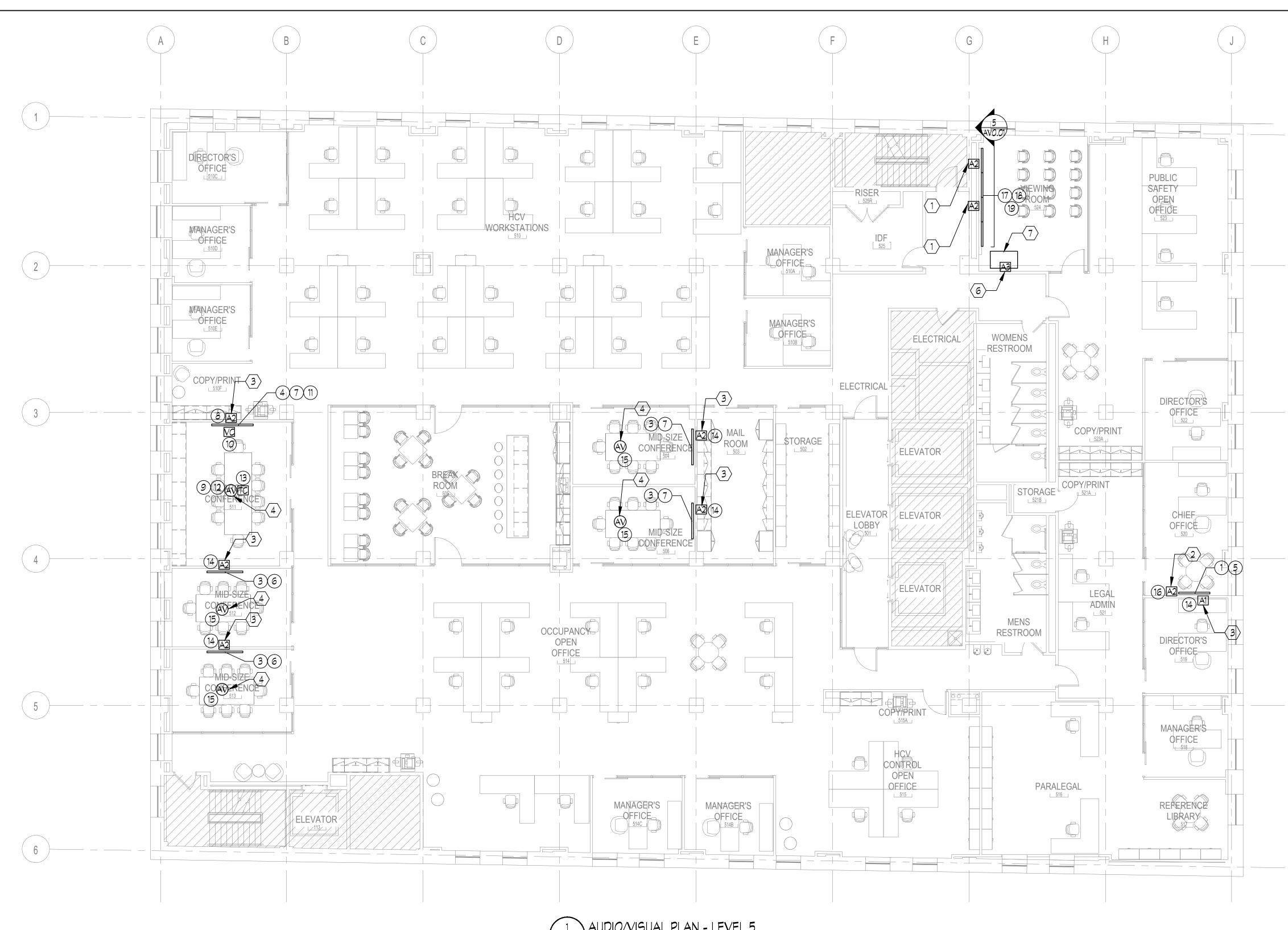
6. EXISTING 3X3 VIDEO WALL - (9) 46" TVS AND ASSOCIATED ACCORDIAN MOUNTS SHALL BE DISCONNECTED REMOVED AND TURNED OVER TO OWNER FOR STORAGE FOR FUTURE INSTALLATION. PULL CABLING BACK TO HEAD END MDF 110 AND COIL FOR FUTURE USE.

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.





- 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 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 OWNER. 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 OWNER'S 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.

AUDIO/VISUAL PLAN - LEVEL 5

AV1.05 1/8" = 1'-0"

17. PROVIDE (12) NEC UNV492VS 49" ULTRA NARROW 1080P LED VIDEO WALL DISPLAY PANELS. SEE VIDEO WALL ELEVATION ON DRAWING AVO.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.

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 AVO.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

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:

1. WALL MOUNTED ROUGH-IN PROVIDED BY ELECTRICAL CONTRACTOR. AV 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.

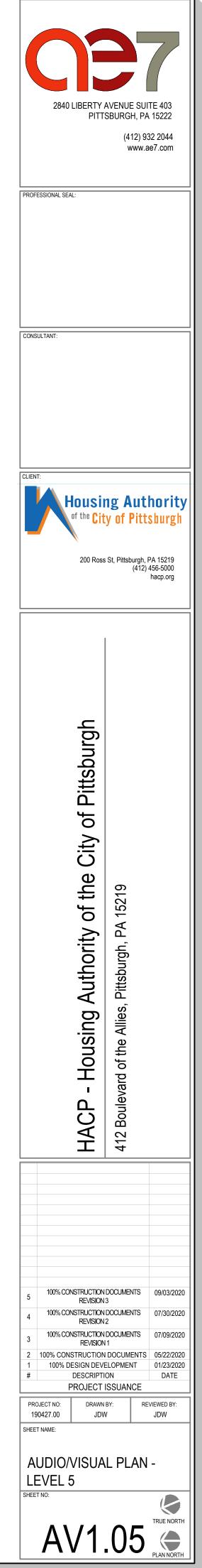
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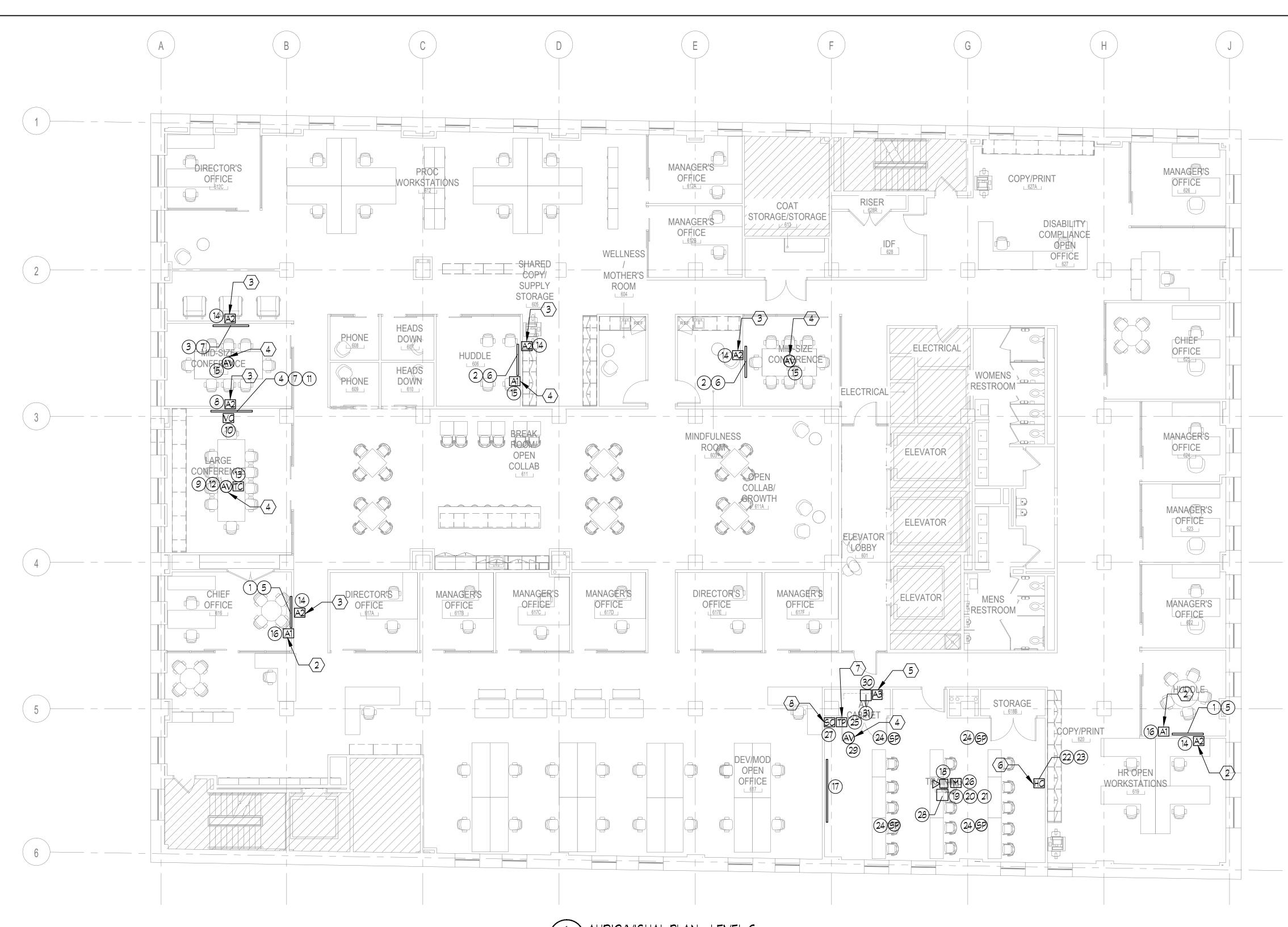
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6. WALL MOUNTED 3 GANG ROUGH-IN AT 18" AFF FOR WIRING TO SECURITY WALL PROVIDED BY ELECTRICAL CONTRACTOR. A/V CONTRACTOR SHALL PROVIDE ALL CABLING THROUGH ROUGH-IN AS INDICATED IN A/V EQUIPMENT LIST AND TERMINATE CABLING AS PER MANUFACTURER'S REQUIREMENTS.

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 ES1.05 FOR ADDITIONAL INFORMATION.





- 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.

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- 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.
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- 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.

AUDIO/VISUAL PLAN - LEVEL 6

AV1.06/ 1/8" = 1'-0"

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 2'X2' PLENUM RATED STORAGE BOX WITH COLUMN DROP.

20. PROVIDE CHIEF CMS006009W 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 2215-68675-001 UNIVERSAL CAMERA MOUNTING FOR EAGLE EYE IV.

24. PROVIDE CRESTRON SAROS ICIGT-W-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 3UI - 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.

REQUIREMENTS.

MOUNT INSIDE CEILING STORAGE BOX.

TERMINATION IN POKE FLOOR BOX WITH ELECTRICAL CONTRACTOR.

- (1) SHURE QLXD1485G50 WIRELESS LAVALIER MIC SYSTEM
- (1) PAKEDGE SX-8P8 PORT MANAGED SWITCH

(1) MIDDLE ATLANTIC PD-915RC-20 RACK MOUNT 9 OUTLET, SINGLE 15 AMP CIRCUIT

GENERAL NOTES

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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:

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 CONTRACRTOR. AV 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.

27. MOTORIZED PROJECTION SCREEN CONTROL BUTTON. WIRE TO PROJECTOR SCREEN PER MANUFACTURER'S

28. PROVIDE CRESTRON DM-RMC-4K-SCALER-C 4K DIGITALMEDIA 8G+RECEIVER AND ROOM CONTROLLER WITH SCALER.

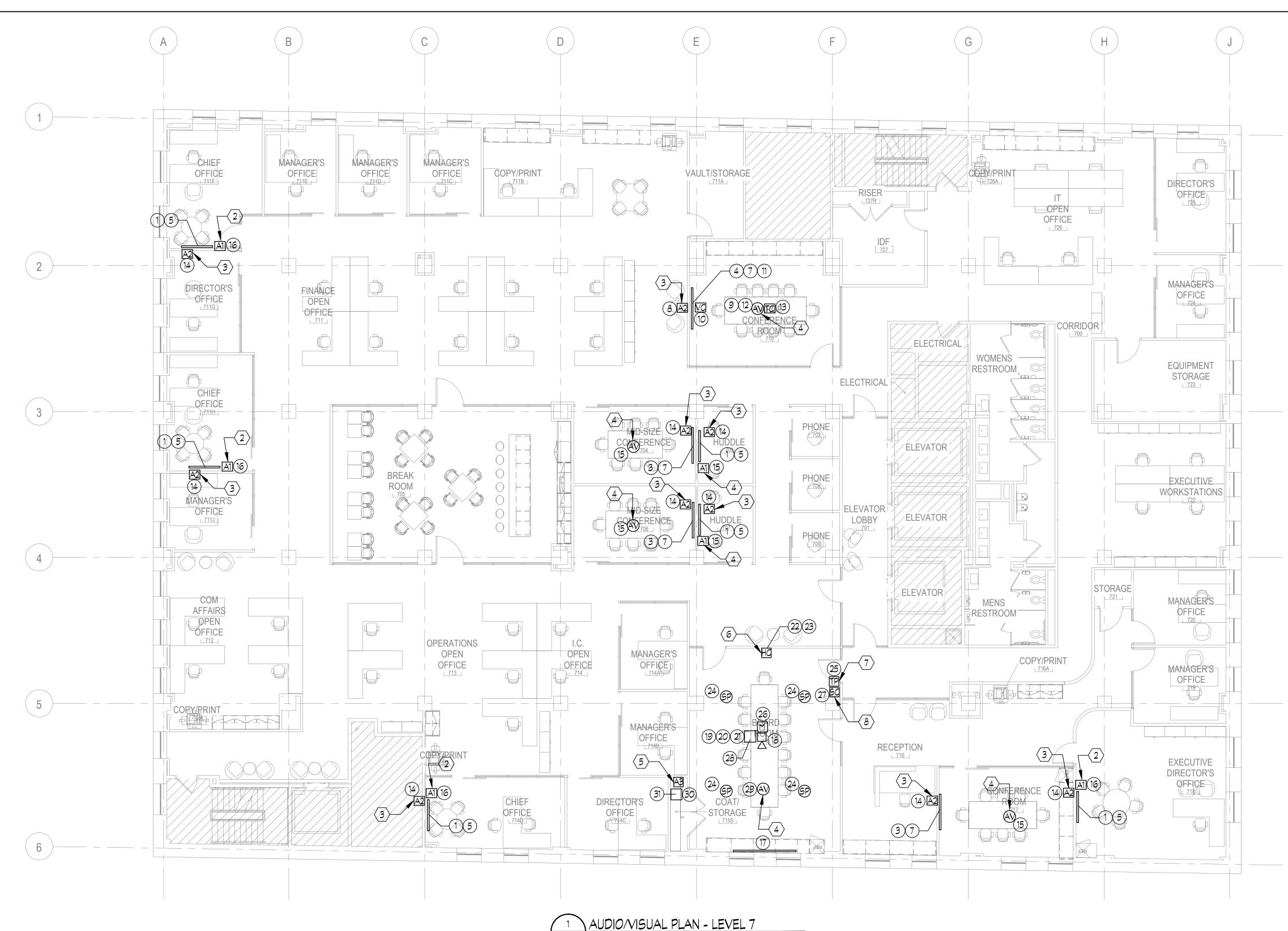
29. PROVIDE CRESTRON DM-TX-200-C -2G-W-T DIGITAL 8G+ TRANSMITTER INSIDE FLOOR BOX. ROUTE DATA CABLE(S) FROM DEVICE TO RECEIVER IN RACK AS REQUIRED BY MANUFACTURER. COORDINATE CABLING ROUTING AND

30. PROVIDE MIDDLE ATLANTIC RCS1824 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 DIGITALMEDIA PRESENTATION SYSTEM 350 (1) CRESTRON AMP-1200-70 SINGLE CHANNEL MODULAR POWER AMPLIFIER -200W,70V (1) BI-AMP TESIRAFORTE DANVT & CHANNEL DANTE DSP WITH AEC, USB, VOIP & ANALOG

(1) APC SMX1500RM2U SMART UPS 1500VA 2U RACK MOUNT 120V

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- 1. PROVIDE 55" LG 55UT640S 4K ULTRA LED FLAT SCREEN.
- 2. PROVIDE 65" LG 65UT640S 4K ULTRA LED FLAT SCREEN.
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- 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.
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19. PROVIDE CHIEF CMS492C 2'X2' PLENUM RATED STORAGE BOX WITH COLUMN DROP.

20. PROVIDE CHIEF CMS006009W 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 2215-68675-001 UNIVERSAL CAMERA MOUNTING FOR EAGLE EYE IV.

24. PROVIDE CRESTRON SAROS ICIGT-W-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 3UI - 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.

REQUIREMENTS.

MOUNT INSIDE CEILING STORAGE BOX.

TERMINATION IN POKE FLOOR BOX WITH ELECTRICAL CONTRACTOR.

- (1) APC SMX1500RM2U SMART UPS 1500VA 2U RACK MOUNT 120V

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:

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 CONTRACRTOR. AV 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.

27. MOTORIZED PROJECTION SCREEN CONTROL BUTTON. WIRE TO PROJECTOR SCREEN PER MANUFACTURER'S

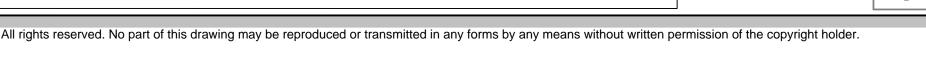
28. PROVIDE CRESTRON DM-RMC-4K-SCALER-C 4K DIGITALMEDIA 8G+RECEIVER AND ROOM CONTROLLER WITH SCALER.

29. PROVIDE CRESTRON DM-TX-200-C -2G-W-T DIGITAL 8G+ TRANSMITTER INSIDE FLOOR BOX. ROUTE DATA CABLE(S) FROM DEVICE TO RECEIVER IN RACK AS REQUIRED BY MANUFACTURER. COORDINATE CABLING ROUTING AND

30. PROVIDE MIDDLE ATLANTIC RCS1824 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 DIGITALMEDIA PRESENTATION SYSTEM 350 (1) CRESTRON AMP-1200-70 SINGLE CHANNEL MODULAR POWER AMPLIFIER -200W,70V (1) BI-AMP TESIRAFORTE DANVT & CHANNEL DANTE DSP WITH AEC, USB, VOIP & ANALOG (1) PAKEDGE SX-24P 24 PORT MANAGED SWITCH WITH 24 POE OR 12 POE+ PORTS

(1) MIDDLE ATLANTIC PD-915RC-20 RACK MOUNT 9 OUTLET, SINGLE 15 AMP CIRCUIT



PROFESSIONAL SE	FAL:	(412) 93 www.a	
CONSULTANT:			
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SECURIT	Y LEGE	END		
SYMBOL	ABRV.	DESCRIPTION	MOUNT	REMARKS
Ô		PROVIDE CEILING/PENDANT MOUNTED FIXED CAMERA IN DOME .		SEE CAMERA SCHEDULE ON DRAWING ES2.02 AND DETAILS ON THIS DRAWING FOR ADDITIONAL REQUIREMENTS
		PROVIDE WALL MOUNTED FIXED CAMERA IN DOME.		SEE CAMERA SCHEDULE ON DRAWING ES2.02 AND DETAILS ON THIS DRAWING FOR ADDITIONAL REQUIREMENTS
#		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 INLCUDING 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.
E		DOOR HARDWARE CONTRACTOR SHALL PROVIDE ELECTRIC LOCK		
ML		DOOR HARDWARE CONTRACTOR SHALL PROVIDE MAGNETIC LOCK		
Þđ		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.
PE		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.
D		ADA DOOR OPERATOR. PROVIDED BY DOOR HARDWARE CONTRACTOR		
XXXXX		DOOR NUMBER IDENTIFIER. THIS CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONNECTIONS TO EQUIPMENT PROVIDED BY DOOR HARDWARE CONTRACTOR PRIOR TO INSTALLING		
XXX		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.

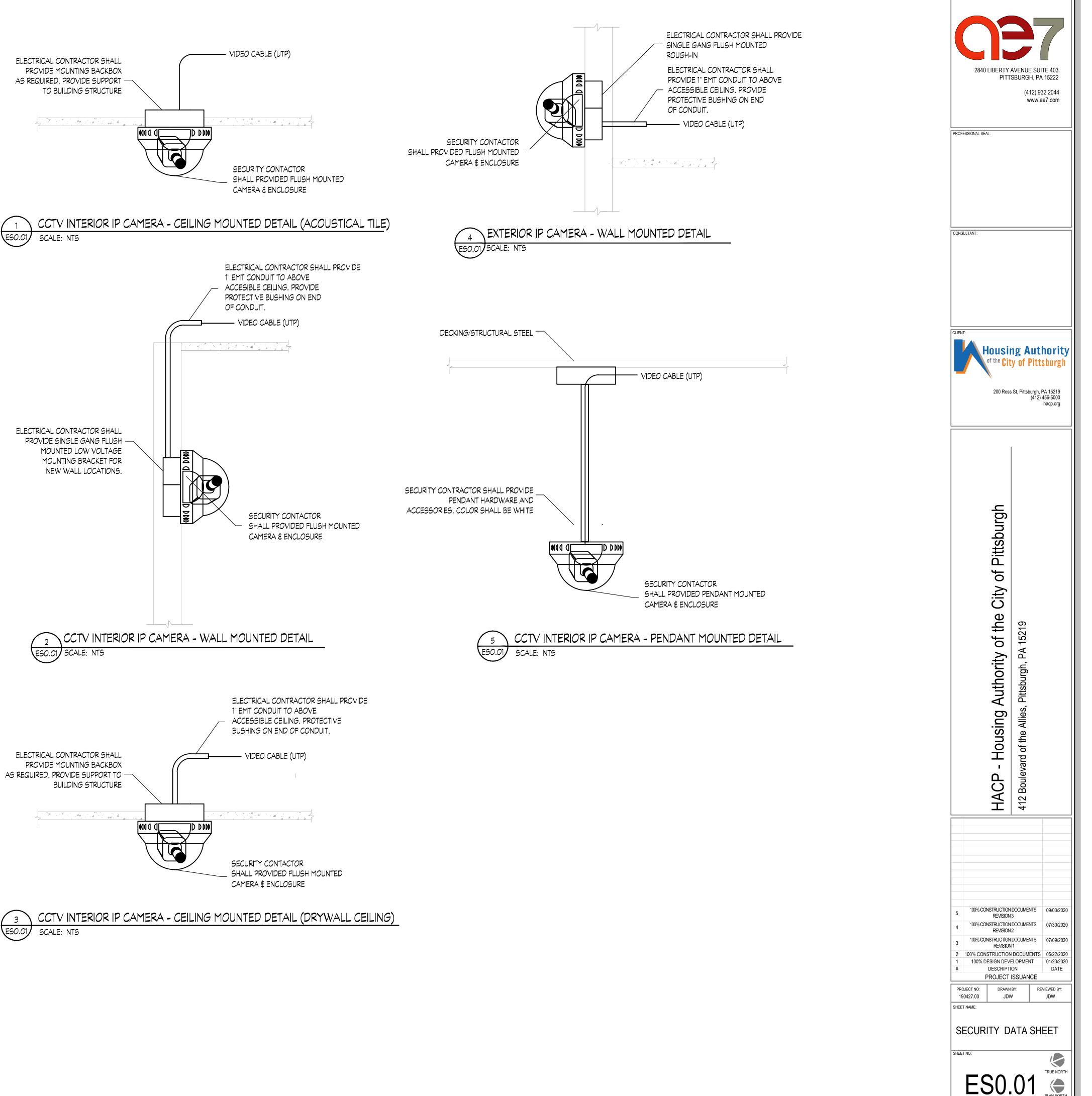
5. SECURITY CONTRACTOR SHALL PROVIDE COORDINATION WITH OTHER TRADES TO AVOID CONFLICTS WITH LIGHT FIXTURES, DIFFUSERS, SPRINKLER HEADS, ETC.

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.

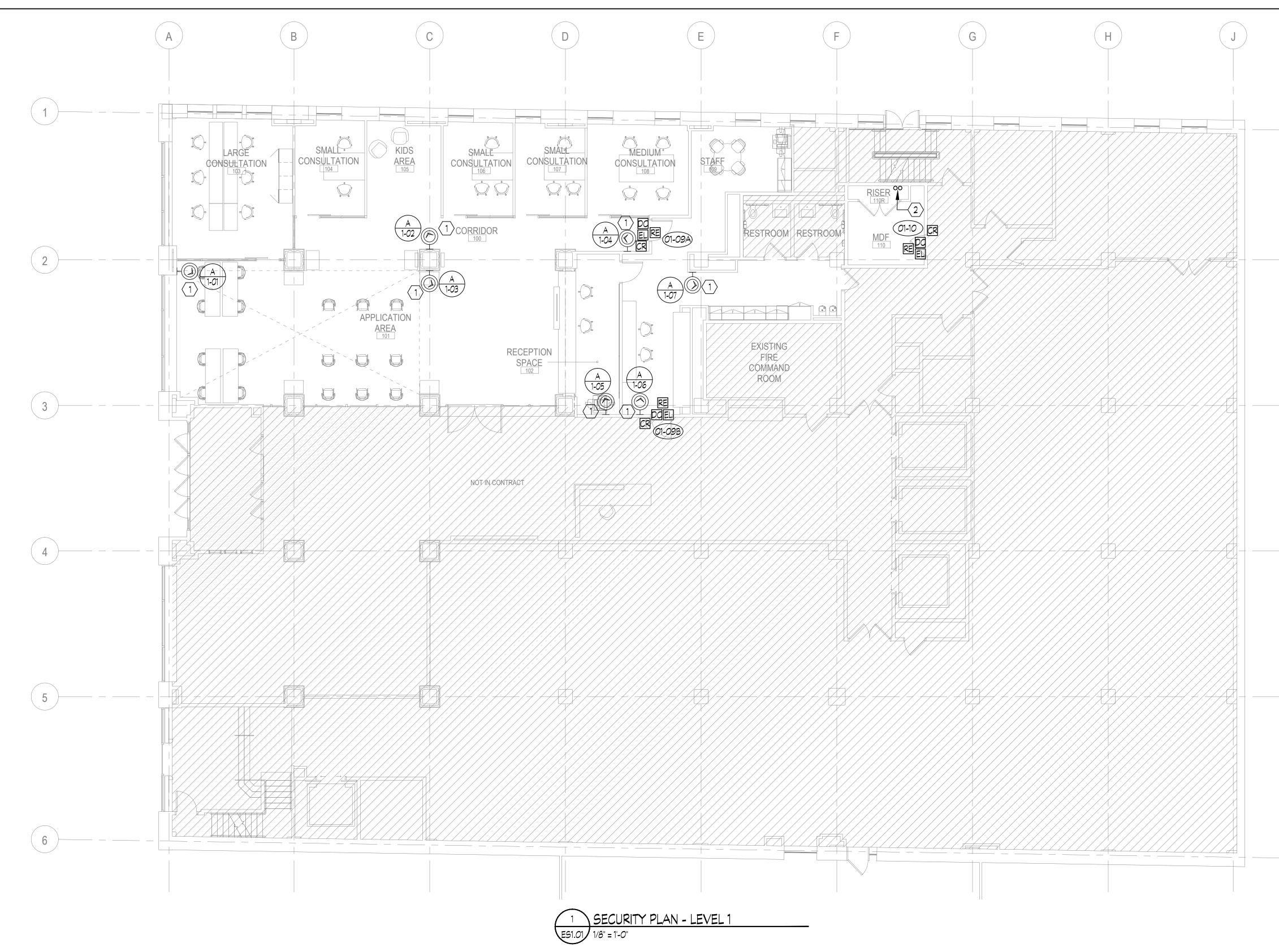
SECURITY SYSTEM (CARD ACCESS AND CAMERA) INSTALLATION MATRIX							
DESCRIPTION	ELECTRICAL CONTRACTOR	SECURITY CONTRACTOR	GENERAL CONTRACTOR				
ROUGH-INS, CONDUITS, PULLSTRING AND POWER FOR SECURITY EQUIPMENT	FURNISH & INSTALL						
ELECTRIFIED DOOR HARDWARE			FURNISH & INSTALL				
SECURITY CABLING TO SECURITY EQUIPMENT		FURNISH & INSTALL					
SECURITY EQUIPMENT (CARD READERS, DOOR CONTACTS, REX SENSORS, CAMERAS, HEAD END EQUIPMENT, SOFTWARE, POWER SUPPLIES, ETC.)		FURNISH & INSTALL					



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LAN NORT



1. SEE DRAWING ESO.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.

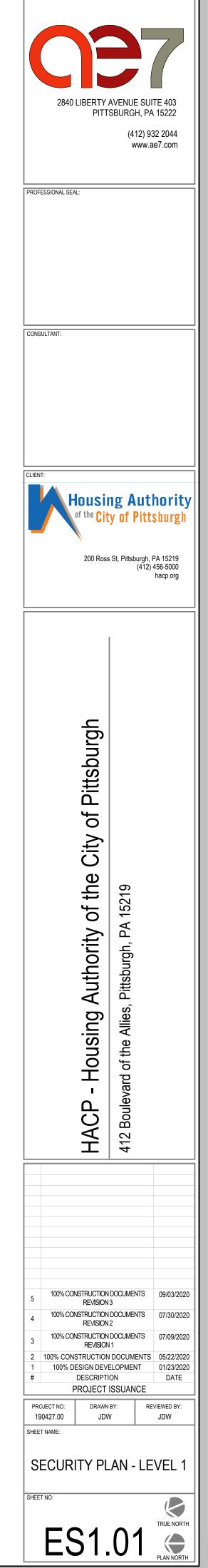
4. ALL CABLE RAN THRU OPEN CEILING MUST BE WHITE CABLING.

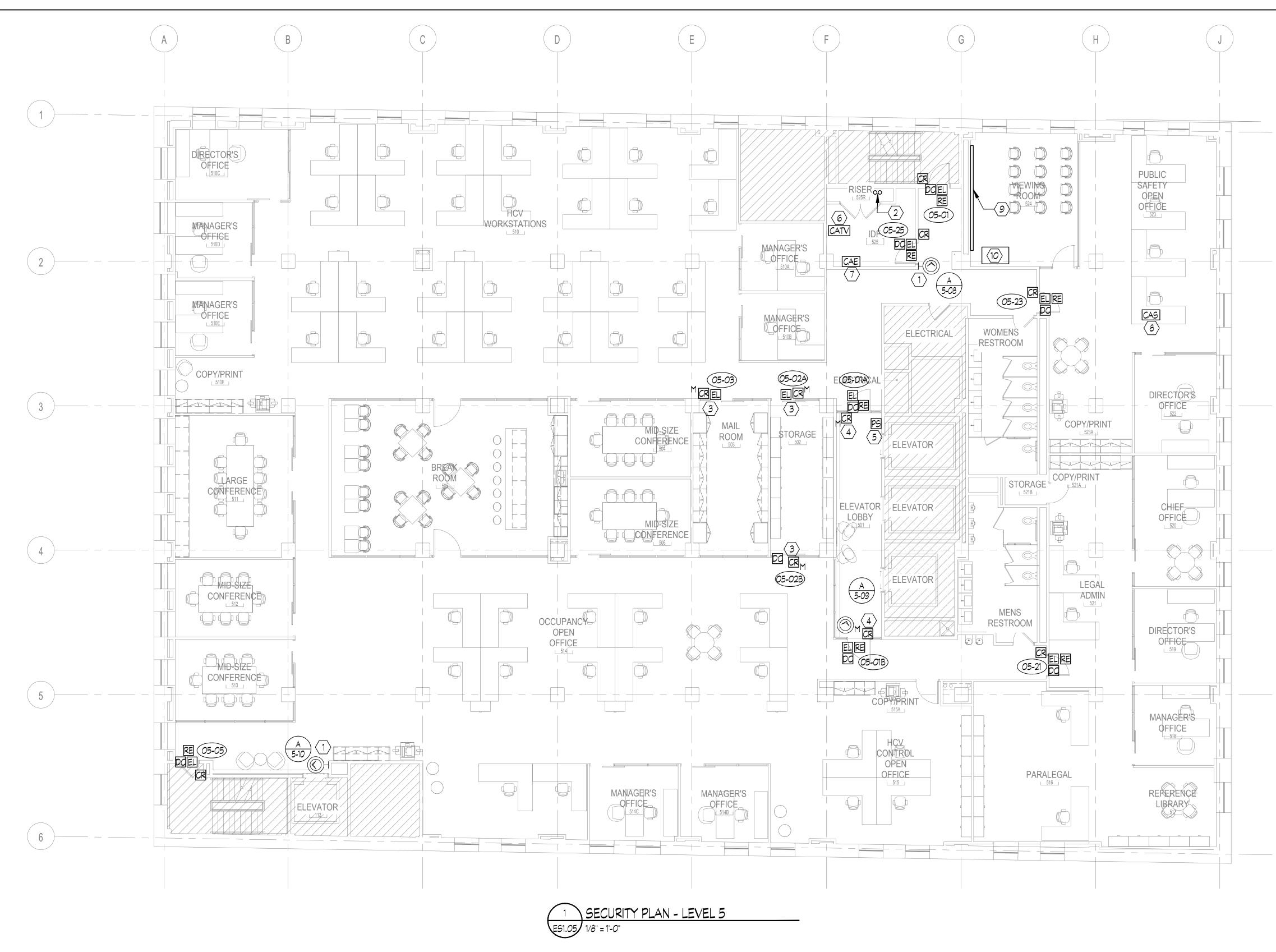
5. SEE TELECOM DRAWINGS FOR BASKET TRAY LOCATIONS THAT SECURITY CABLING CAN BE RAN THRU.

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.





1. SEE DRAWING ESO.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.

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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 492 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.

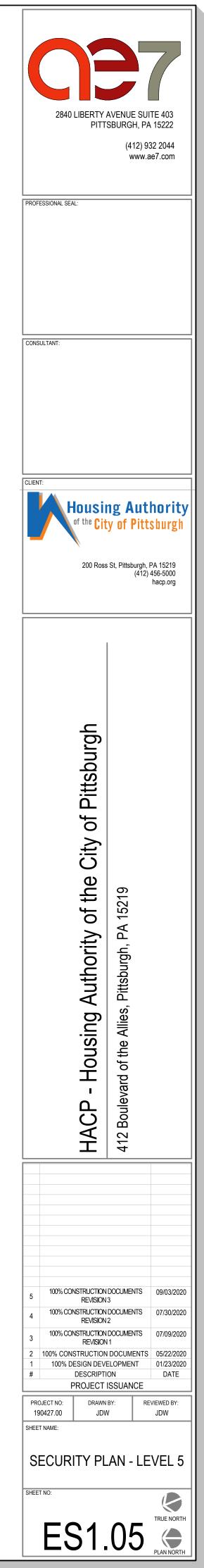
6. CCTV/SURVEILLANCE IP SYSTEM HEAD END EQUIPMENT TO BE MOUNTED IN TELECOM RACK IN THIS ROOM FOR ALL CAMERAS. SEE DETAIL 1 ON DRAWING ES2.02 FOR EQUIPMENT REQUIREMENTS. COORDINATE WITH TELECOM CONTRACTOR PRIOR TO INSTALLATION. SEE DETAIL 3 ON T2.02 FOR LOCATION OF EQUIPMENT TO BE MOUNTED IN RACK. COORDINATE FINAL LOCATION IN RACK WITH TELECOM CONTRACTOR PRIOR TO INSTALLATION.

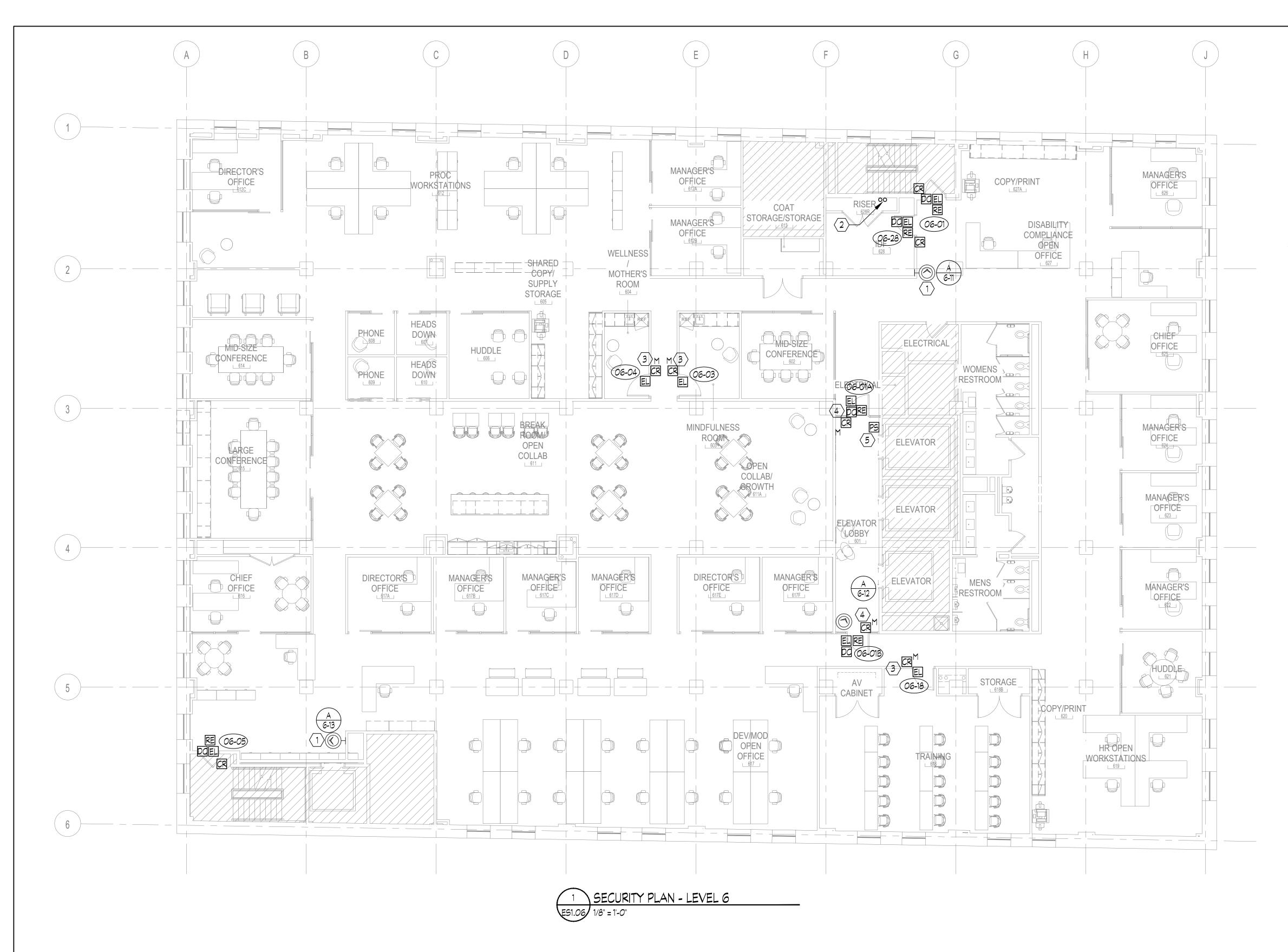
7. CARD ACCESS CONTROLLER ON WALL IN THIS ROOM IS FOR ALL DOOR ACCESS. SEE DETAIL 1 ON DRAWING ES2.01 FOR EQUIPMENT REQUIREMENTS. COORDINATE WITH TELECOM CONTRACTOR PRIOR TO INSTALLATION.

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.





1. SEE DRAWING ESO.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: (#)

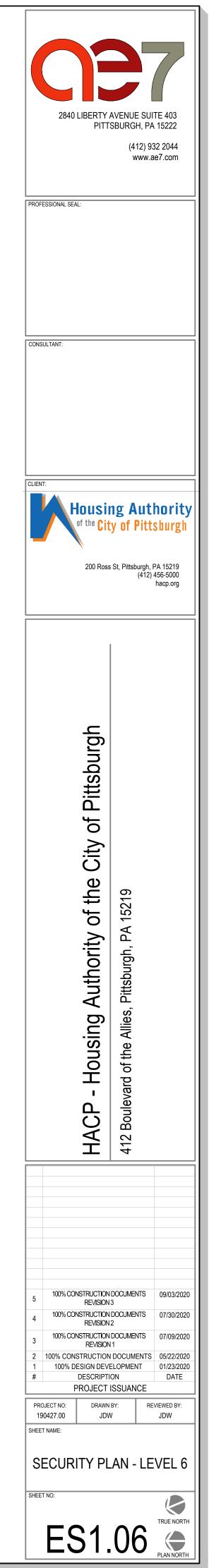
1. MOUNTED ON WALL OR COLUMN AT 10'-0" AFF.

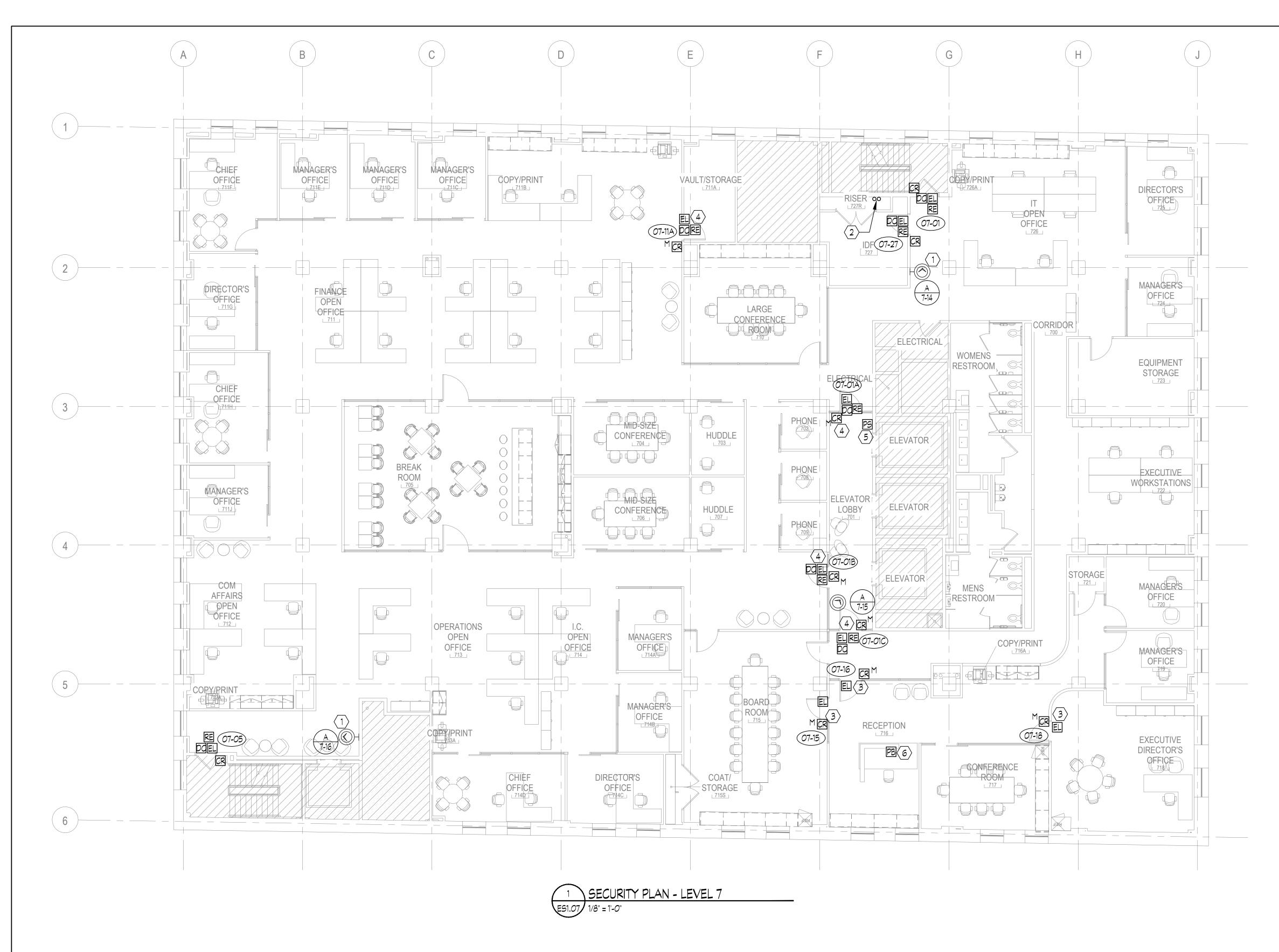
2. EXISTING (2) 4" SLEEVES DOWN TO FLOOR BELOW. ALL HORIZONTAL SECURITY CABLE SHALL BE RAN THROUGH SLEEVES IN STACKED VERTICAL CLOSETS TO HEAD END EQUIPMENT IN IDF 525 UNLESS NOTED OTHERWISE. FIRE STOP SLEEVES AS REQUIRED. SEE CARD ACCESS DETAILS ON DRAWING ES2.01 AND CAMERA DETAILS ON DRAWING ES2.01 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 492 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.





1. SEE DRAWING ESO.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.

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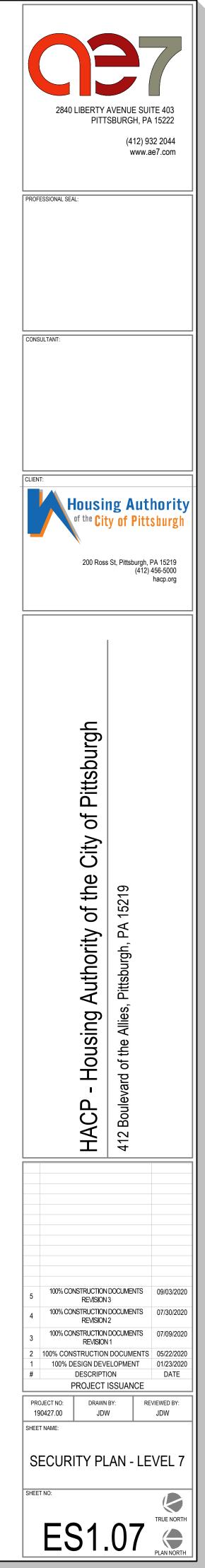
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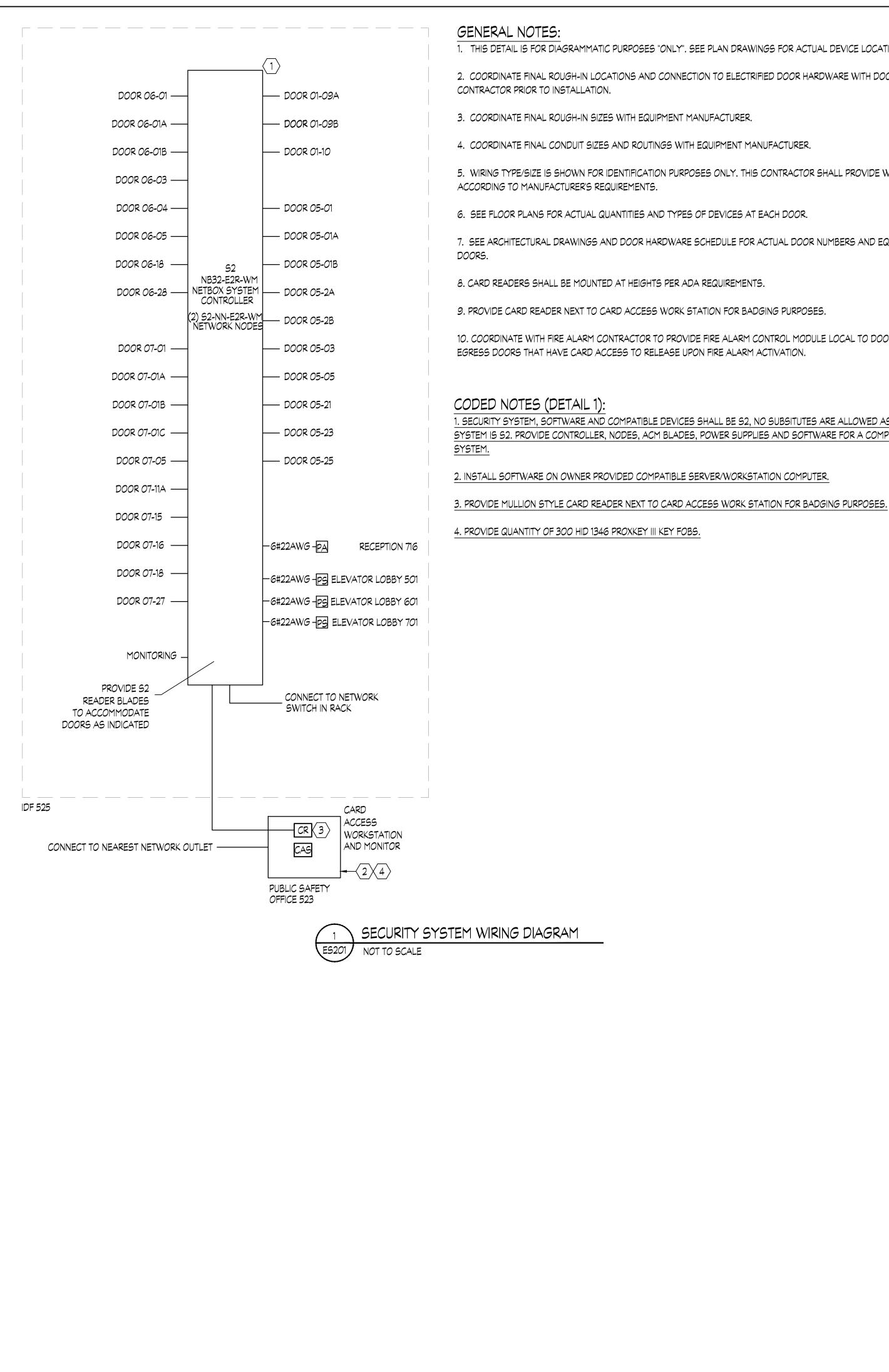
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6. PROVIDE PANIC BUTTON UNDER DESK AND CONNECT BACK TO CARD ACCESS SYSTEM CONTROLLER INPUT BOARD IN IDF 525 ON 5TH FLOOR. THIS PANIC ALARM SHALL SIGNAL HACP SECURITY GROUP ON 5TH FLOOR VIA CARD ACCESS SYSTEM ALARM ON SOFTWARE.





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

5. WIRING TYPE/SIZE IS SHOWN FOR IDENTIFICATION PURPOSES ONLY. THIS CONTRACTOR SHALL PROVIDE WIRING TYPES AND SIZES

7. SEE ARCHITECTURAL DRAWINGS AND DOOR HARDWARE SCHEDULE FOR ACTUAL DOOR NUMBERS AND EQUIPMENT INSTALLED ON

10. COORDINATE WITH FIRE ALARM CONTRACTOR TO PROVIDE FIRE ALARM CONTROL MODULE LOCAL TO DOOR POWER SUPPLIES AT

1. SECURITY SYSTEM, SOFTWARE AND COMPATIBLE DEVICES SHALL BE S2, NO SUBSITUTES ARE ALLOWED AS THE EXISTING BUILDING SYSTEM IS S2. PROVIDE CONTROLLER, NODES, ACM BLADES, POWER SUPPLIES AND SOFTWARE FOR A COMPLETE AND OPERTIONAL

V	
AWGCR AWGRE	PROVIDE BOSCH DS1501 REQUEST TO EXIT DEVICE. COORDINATE COLOR WITH ARCHITECT.
	PROVIDE PUSH TO EXIT DEVICI COORDINATE COLOR WITH ARCHITECT.
	GE INTERLOGIX 2707A-L SURF, PANIC BUTTON MOUNTED UND
	AWG -ES OR M AWG -ES OR M



GENERAL NOTES:

1. WIRING TYPE/SIZE IS SHOWN FOR IDENTIFICATION PURPOSES ONLY. THIS CONTRACTOR SHALL PROVIDE WIRING TYPES AND SIZES ACCORDING TO MANUFACTURER'S REQUIRMENTS.

2. SEE FLOOR PLANS FOR ACTUAL QUANTITIES AND TYPES OF DEVICES AT EACH DOOR.

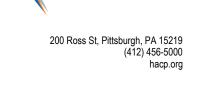
3. MANUFACTURER AND MODEL NUMBERS ARE FOR DESCRIPTION PURPOSE ONLY. PROVIDE APPROVED EQUALS.

4. COORDINATE WITH DOOR HARDWARE SCHEDULE FOR REQUEST TO EXIT DEVICES BUILT INTO DOOR HARDWARE. ALL OTHER LOCATIONS SHALL BE MOUNTED OVER THE DOOR.

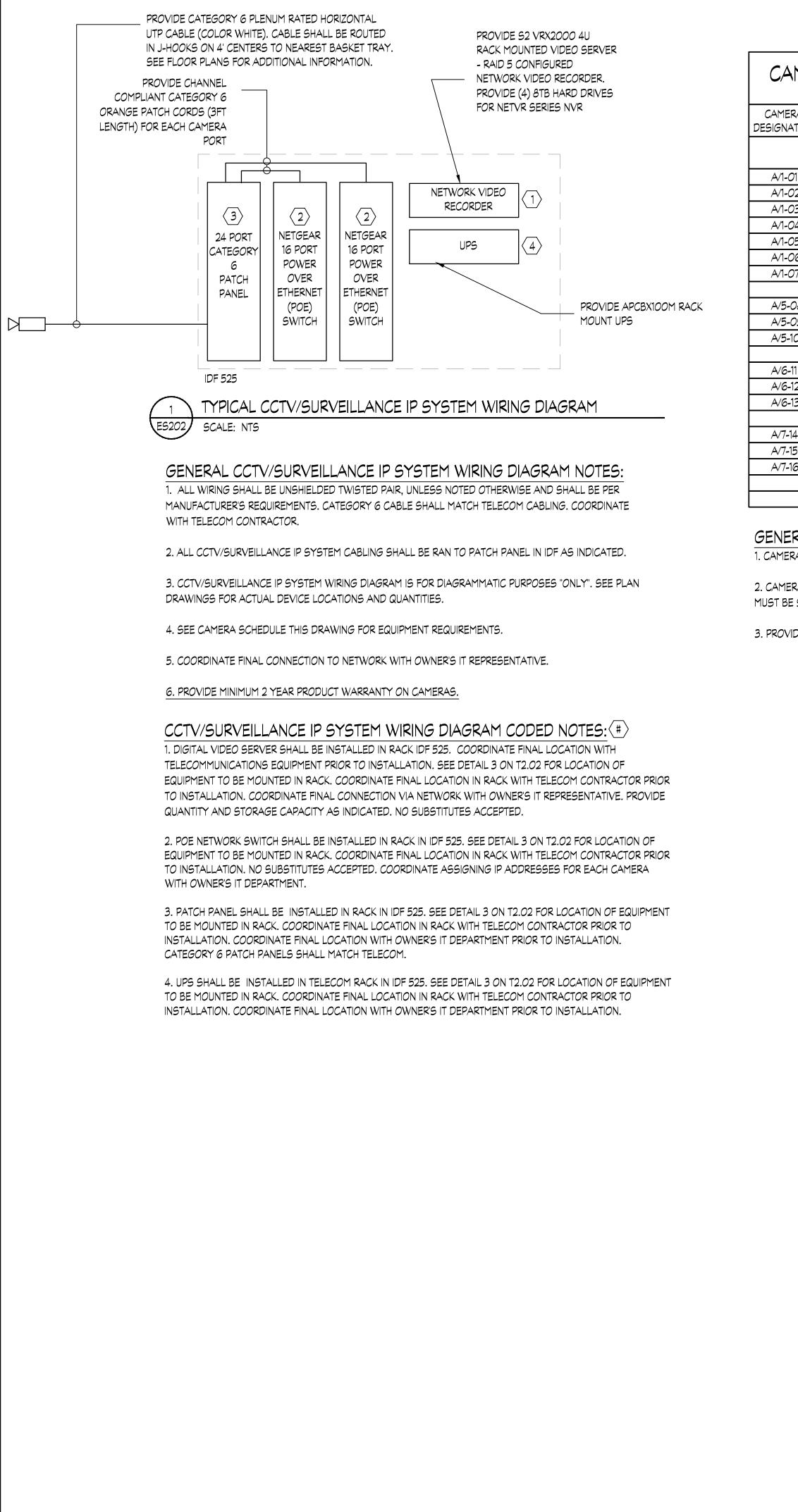
FACE MOUNT SHALL BE XXXXX

DER DESK

2840 LIBERTY AVENUE SUITE 403 PITTSBURGH, PA 15222 (412) 932 2044 www.ae7.com PROFESSIONAL SEAL: CONSULTANT: Housing Authority ^{of the} City of Pittsburgh



	HACP - Housing Authority of the City of Pittsburgh 412 Boulevard of the Allies, Pittsburgh, PA 15219	
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 1	100% CONSTRUCTION DOCUMENTS 100% DESIGN DEVELOPMENT	05/22/2020 01/23/2020
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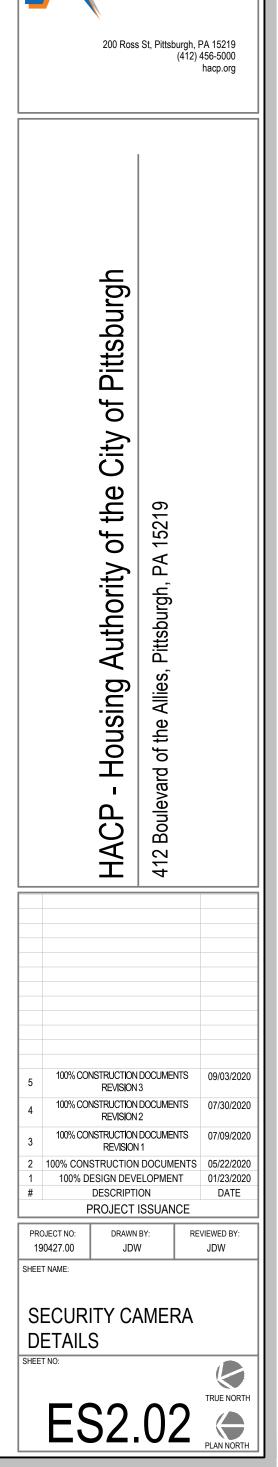
ERA ATION DETA	-# LOCATION	CAMERA MEGAPIXEL	CAMERA LENS	CAMERA FIXED/ HOUSING PTZ	MOUNT	MANUFACTURER	MODEL NUMBER	DEFAULT VIEW	COMMENTS	2840 LIBERTY PITT
				HEATER DOME FIXED PT2						
01	LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP	
02	LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP	PROFESSIONAL SEAL:
03	LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP	
04	LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP	
25	LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP	
06	LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP	
07	LEVEL 1 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP	
8	LEVEL 5 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP	
09	LEVEL 5 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	CEILING	HANWHA	QND-7080R			
10	LEVEL 5 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP	CONSULTANT:
1	LEVEL 6 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP	
12	LEVEL 6 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	CEILING	HANWHA	QND-7080R			
.13	LEVEL 6 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP	
14	LEVEL 7 - INTERIOR	4 MP	2.8-12MM VARIFOCAL		WALL	HANWHA	QND-7080R		PROVIDE WALL MOUNT W/ JUNCTION BOX AND PENDANT CAP	
15	LEVEL 7 - INTERIOR	4 MP	2.8-12MM VARIFOCAL	X	CEILING	HANWHA	QND-7080R			
-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 .



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.
- DIRECT FIELD LOUDSPEAKERS THAT AUTOMATICALLY SEQUENCE THE FOUR NOISE CHANNELS AND THAT ARE MOUNTED EITHER IN OFFICE CEILING TILES OR OTHER
- ENCLOSURES. CAT 3/5/6 PRETERMINATED CABLE ASSEMBLIES.

LABELS

- A. EXCEPT WHERE OTHERWISE SPECIFIED, LABEL EACH ITEM OF CONTROL EQUIPMENT AS SHOWN ON DRAWINGS
 - CONTROLLERS: CONSTRUCTED OF ENGRAVED AND FILLED ANODIZED ALUMINUM PLATES. MINIMUM 1/8" PLATE THICKNESS. DRY TRANSFER OR OTHER TYPES OF ADHESIVE LABELS NOT ACCEPTABLE.
 - 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:
 - 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 APPOVED 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:
 - 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.
- 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.
- 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.
- 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
- NETWORK CAPABLE MANAGEMENT OF SYSTEM ACOUSTIC OUTPUT OF ALL ZONES. CONTROL SOFTWARE THAT IS PRE-INSTALLED AND RESIDENT ON CONTROLLER AND
- ACCESSIBLE VIA ANY STANDARD BROWSER FROM A COMPUTER RESIDENT ON THE NETWORK.
- 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.
- ON TIME OF DAY AND DAY OF WEEK.
- USER SELECTABLE SNTP SERVER. FIELD ADJUSTABLE USING PROVIDED ETHERNETTM CONNECTION AND FACTORY INSTALLED SOFTWARE.
- FOR BACKGROUND SOUND SPECTRUM, PRESET AT FACTORY FOR RECOMMENDED OPERATION. FIELD ADJUSTABLE USING PROVIDED ETHERNETTM CONNECTION AND FACTORY INSTALLED SOFTWARE.
- 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.
- LOUDSPEAKER NETWORK FAULT DETECTION CAPABILITY. 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.
- c. OUTPUT VOLTAGE: 7 VOLTS RMS MINIMUM SINE WAVE AT FULL LOAD, EACH
- 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
- 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.
- CAPABLE OF AUTOMATIC BACKGROUND SOUND LEVEL ADJUSTMENT (RAMPING) BASED ON TIME OF DAY AND DAY OF WEEK.
- 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.
- 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.
- 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
- 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.

3. CAPABILITY OF CONTROLLING BACKGROUND SOUND AND PAGING FOR UP TO THREE

CAPABLE OF AUTOMATIC BACKGROUND SOUND LEVEL ADJUSTMENT (RAMPING) BASED

5. TIME SOURCE PROVIDED BY INTEGRATED REAL TIME CLOCK WITH BATTERY BACKUP OR

DEDICATED 1/3 OCTAVE EQUALIZER COVERING ISO BANDS FROM 200 HZ TO 5,000 HZ

b. RATED AMBIENT TEMPERATURE RANGE: 40 TO 90 DEGREES F (4 TO 32 DEGREES C). CHANNEL TO MEET NEC CLASS 2 REQUIREMENTS FOR LOW VOLTAGE DISTRIBUTION.

CHANNEL TO MEET NEC CLASS 2 REQUIREMENTS FOR LOW VOLTAGE DISTRIBUTION.

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: CAT3 PROVIDED WITH SYSTEM: CAT5/5A. CAT6 ARE COMPATIBLE.
- UNSHIELDED SOLID TWISTED PAIR CONSTRUCTION; STRANDED OPTIONAL.
- 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

- INSTALLED IN CONDUIT.
- PIN-OUT.

SYSTEM TESTS AND ADJUSTMENTS

- TESTS

- COVERED. CORRECT ALL CAUSES OF THESE DEFECTS
- ROOMS TO 42 DBA.
- SPECIFICATIONS HEREUNDER.

A. CABLING ROUTED WITHIN RETURN AIR PLENUMS SHALL BE PLENUM-RATED UNLESS

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

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.

A. INITIAL TEST AND ADJUSTMENTS: PERFORM AND RECORD RESULTS OF THE FOLLOWING

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 SO AS TO CONTACT EACH GRILLE.

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

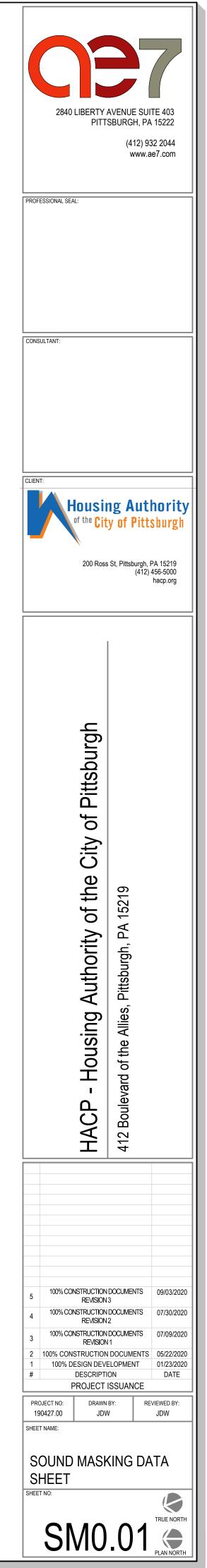
4. CONTROL SETTINGS: ADJUST ALL SPECTRUM AND LEVEL CONTROLS FOR NORMAL OPERATION. MEASURE THE A-WEIGHTED SOUND PRESSURE LEVEL USING A SOUND LEVEL METER SET TO A-WEIGHTING AND SLOW RESPONSE AT REPRESENTATIVE LOCATIONS WITHIN EACH ZONE. ADJUST AVERAGE INITIAL LEVELS IN OPEN PLAN AREAS TO 45 DBA AT NORMAL OCCUPANTS' LOCATIONS AND IN CLOSED OFFICES OR

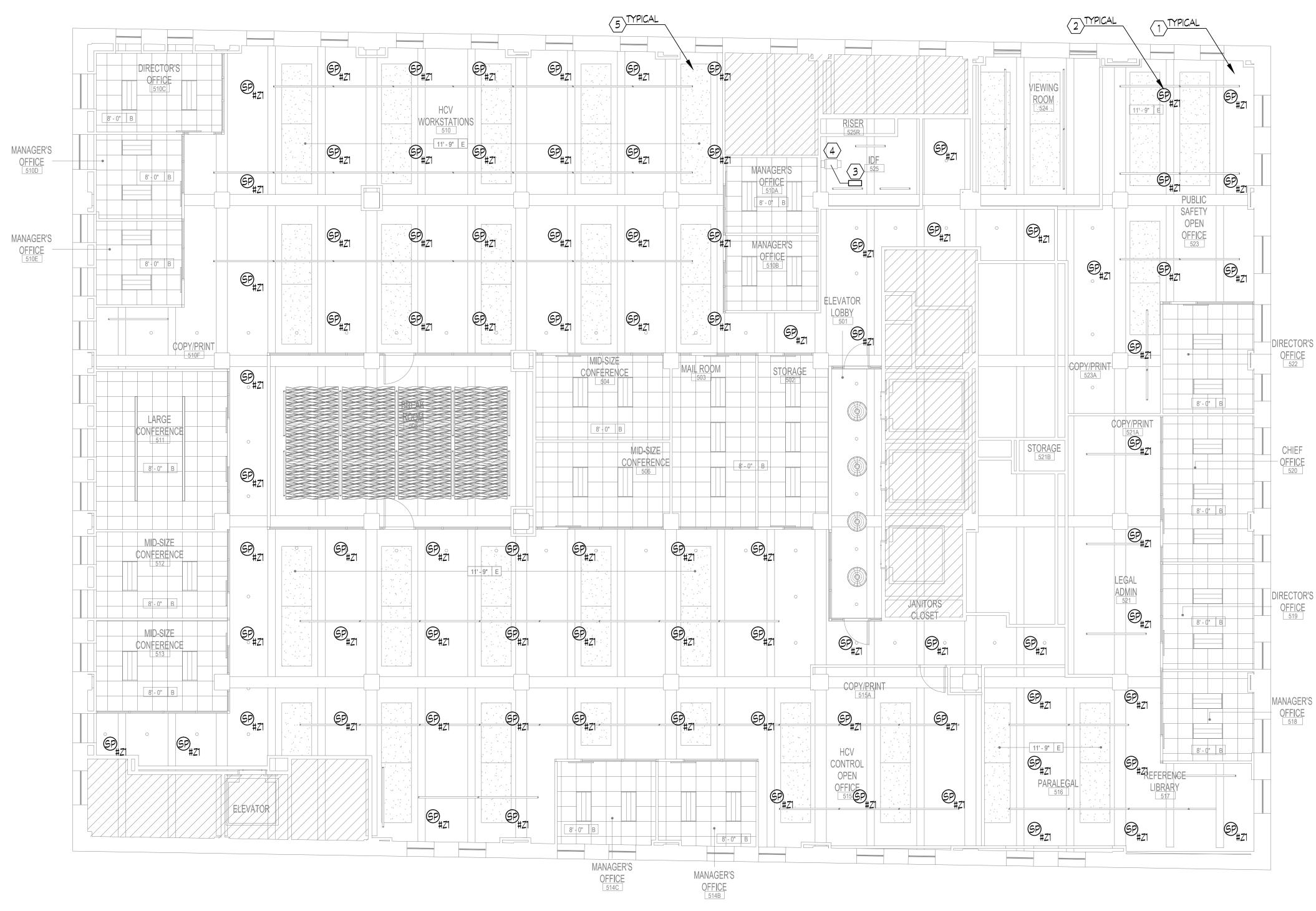
B. IF REQUESTED, DEMONSTRATE TO THE OWNER'S REPRESENTATIVE THAT THE SYSTEM IS FULLY OPERABLE AND INSTALLED IN COMPLIANCE WITH THE TERMS OF THE PERFORMANCE

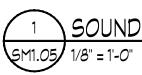
C. TEST THE SYSTEM TO DEMONSTRATE THAT THE DESIGN GOAL OF PRIVACY INDEX (PI) = 80% (NORMAL PRIVACY) OR BETTER IS MET BETWEEN REPRESENTATIVE WORKSTATIONS SEPARATED BY PARTITIONS OF 66" OR GREATER HEIGHT. FOR THIS TEST, SELECT ADJACENT WORKSTATION PAIRS WITHOUT DIRECT LINE OF SIGHT OR SIGNIFICANT SOUND REFLECTING CEILING OR WALL ELEMENTS BETWEEN. AND WITH A CEILING MATERIAL RATED AT NRC OF 0.85 OR HIGHER. TESTS SHALL BE IN ACCORDANCE WITH ASTM STANDARD E1130 EXCEPT THAT THE OCTAVE BAND CALCULATION METHOD OF ANSI STANDARD \$3.5 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 PLARE 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 PLACHIEVED IS LOWER THAN 95% AND CAUSED BY THESE OR OTHER ARCHITECTURAL FACTORS, BRING THIS TO THE ATTENTION OF THE OWNER OR GENERAL CONTRACTOR.







SOUND MASKING PLAN - LEVEL 5

GENERAL NOTES

1. SEE DRAWING SMO.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.

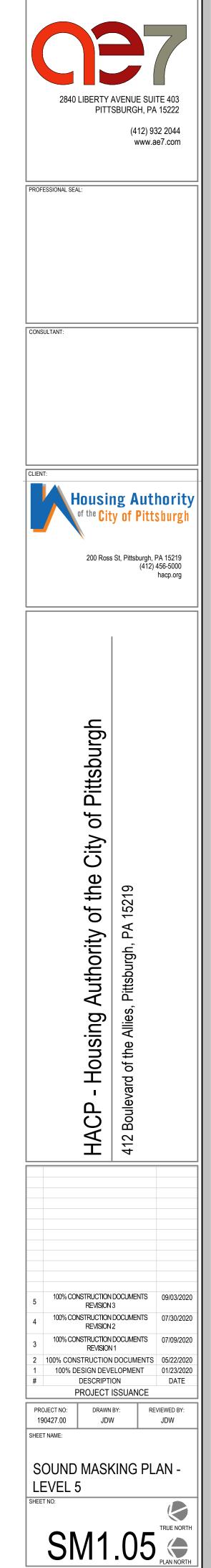
2. EMITTERS IN OPEN CEILING SPACE AND MOUNTING HARDWARE SHALL BE COLOR WHITE. ALL CABLING BETWEEN EMITTERS SHALL BE COLOR WHITE AND SHALL BE CONCEALED ALONG CONCRETE BEAMS.

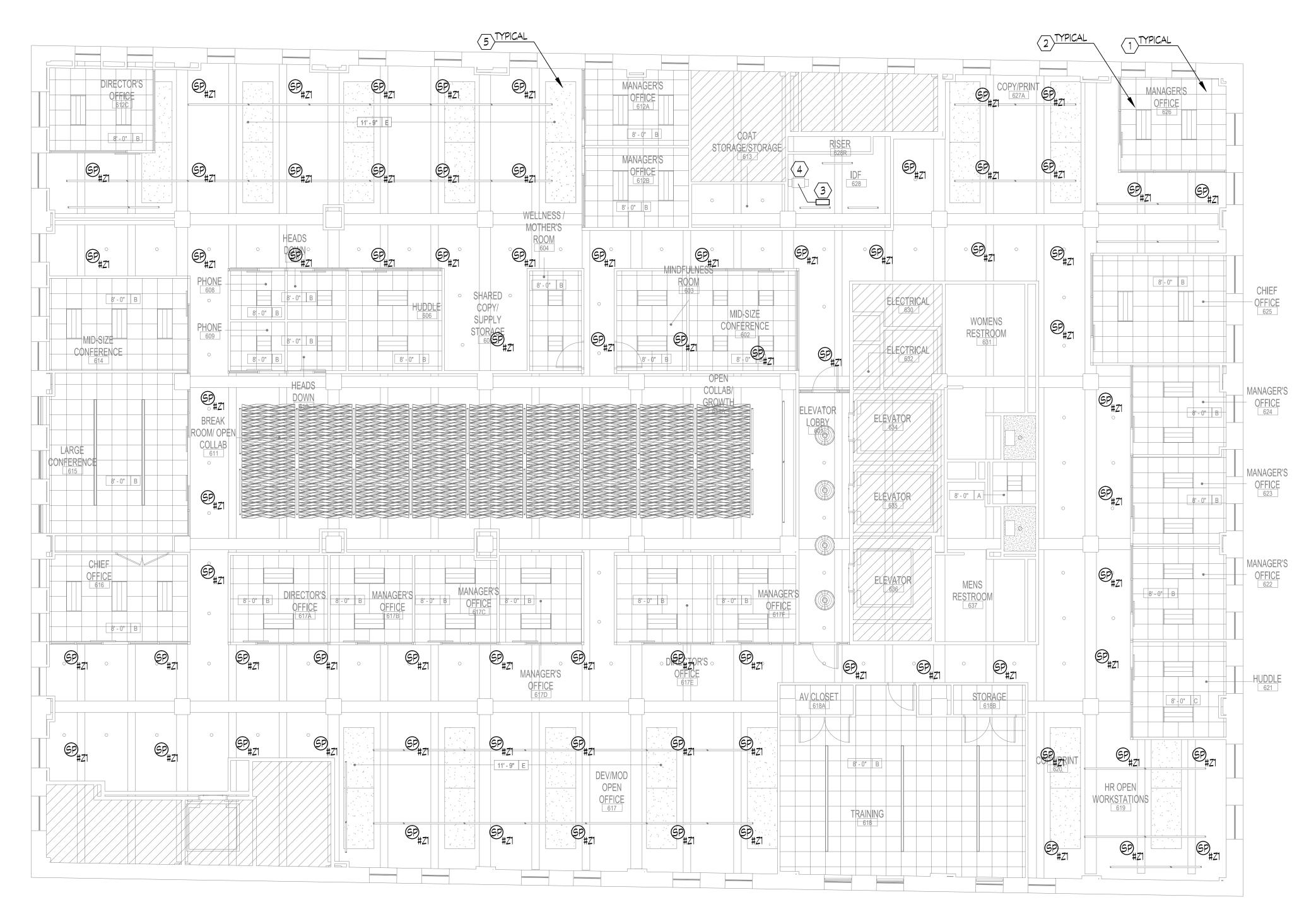
3. PROVIDE (1) 3 ZONE CONTROLLER ON RACK INSIDE IDF ROOM. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL CONTRACTOR. COORDINATE FINAL LOCATION OF CONTROLLERS WITH OWNER'S IT REPRESENTATIVE, SECURITY CONTRACTOR AND TELECOM CONTRACTOR PRIOR TO INSTALLATION.

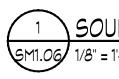
4. 2 POST RACK PROVIDED BY TELECOM CONTRACTOR. SEE TELECOM DRAWINGS FOR ADDITIONAL INFORMATION.

5. ACOUSTICAL CEILING PANEL TIGHT TO DECK. CALL CABLING NEEDS TO BE ROUTED AROUND THIS PANEL. PANEL SHALL NOT BE CUT FOR CABLING.

SOUNDY	1ASKING LEGEND
SYMBOL	DESCRIPTION
هک z#	PROVIDE SOUNDMASKING LOUDSPEAKER. PROVIDE HARDWARE AND MOUNTING BRACKETS AS REQUIRED FOR LAY-IN CEILING, OPEN CEILING OR HARD CEILING WHERE INDICATED. Z# - NEXT TO SPEAKER INDICATES ZONE.







1 SOUND MASKING PLAN - LEVEL 6 SM1.06 1/8" = 1'-0"

GENERAL NOTES

1. SEE DRAWING SMO.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.

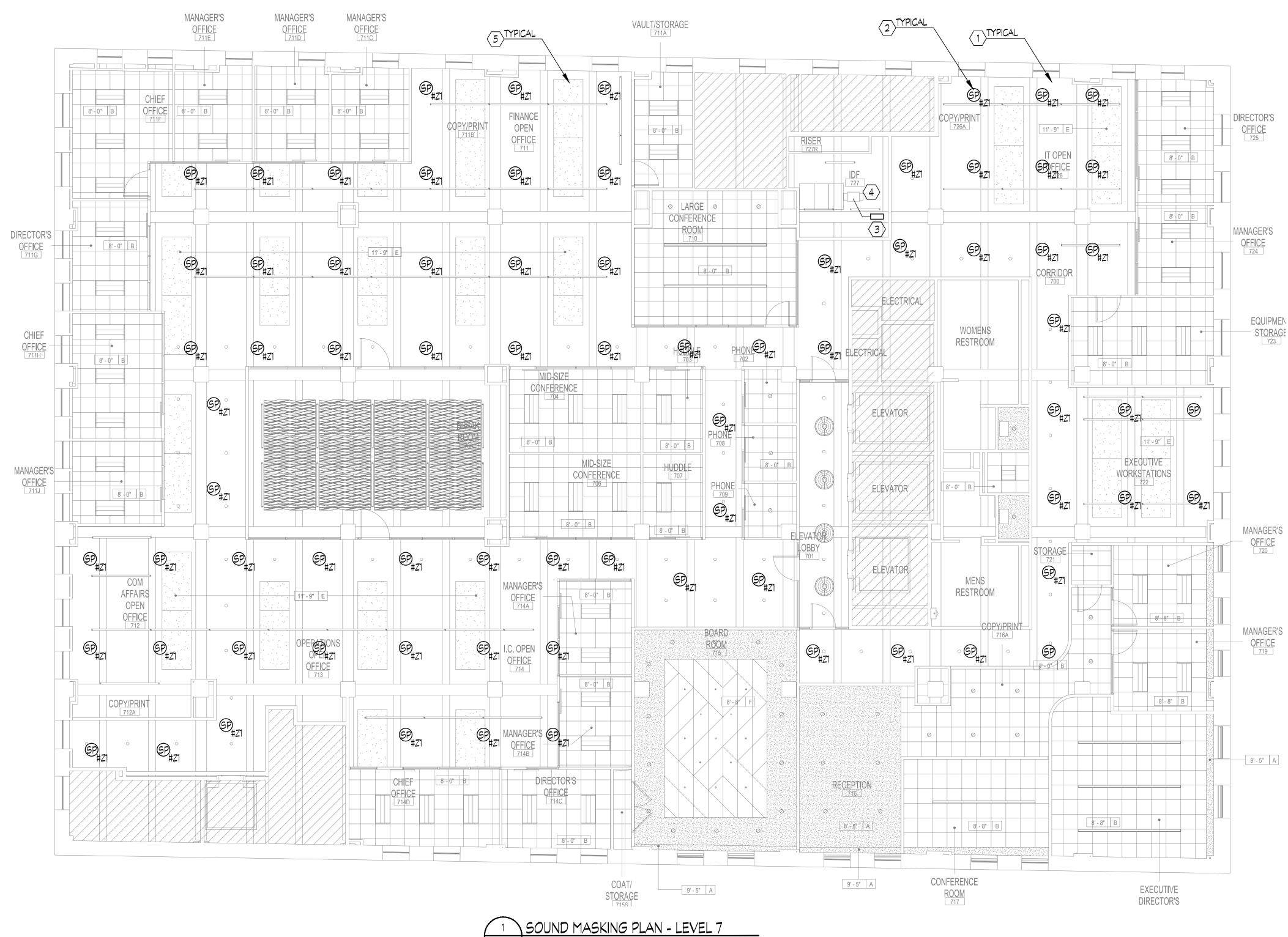
3. PROVIDE (1) 3 ZONE CONTROLLER ON RACK INSIDE IDF ROOM. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL CONTRACTOR. COORDINATE FINAL LOCATION OF CONTROLLERS WITH OWNER'S IT REPRESENTATIVE, SECURITY CONTRACTOR AND TELECOM CONTRACTOR PRIOR TO INSTALLATION.

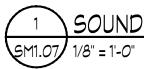
4. 2 POST RACK PROVIDED BY TELECOM CONTRACTOR. SEE TELECOM DRAWINGS FOR ADDITIONAL INFORMATION.

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
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1. SEE DRAWING SMO.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.

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CODED NOTES:

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