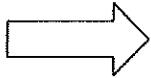


Quote Request

Police Sub Station – HVAC Unit & Technical Support Only

Quotes due June 27, 2018 @ 10:00am



Fax to Brandon Havranek at (412) 456-5007

Scope of Work

441 Mt. Pleasant Rd. Police Station

Vendor to supply (Material Only and TECH to start Unit)

Force Account Department is requesting vendor to supply an Airedale Model # CMP48CAMECHNN12 or equal for the Northview Heights Police Sub Station.

Vendor will supply Tech to preform start up for unit.

Vendor to supply unit per HVAC engineer's specification See attached.

For more information or questions, please contact Brandon Havranek @
412-456-5000 x8546 or Brandon.Havranek@HACP.org

Quote Request

Police Sub Station – HVAC Unit & Technical Support Only

Quotes due June 27, 2018 @ 10:00am

Total Cost: \$ _____

Total Cost: \$ _____
(in words)

Contract award will be based on lowest responsive and responsible bid
amount

(Please print clearly)

Company Name: _____

Address: _____
(of company)

Signature: _____

Print Name: _____
(of person signing)

Phone Number: _____ Fax: _____

Email: _____



AccuSpec V4.15

SUBMITTAL SCHEDULE & DATA

Technical Specifications - Classmate Units

Job Name: HACP

Location:

Submitted by: Mike Sears

Engineer:

Architect:

Contractor:

			Unit Tag	
Model Number		CMP48CAMECAHNN12		
Quantity of Units		1		
PERFORMANCE-REFRIGERANT		HFC-R410A (2 Stage)		
FULL LOAD (1)				
Cooling Capacity Total	Mbh	45.2		
Cooling Capacity Sensible	Mbh	32.2		
Heat Pump Capacity (COP)	Mbh	47.2 (4.0)		
EER		11.00		
IPLV		15.4		
SUPPLY VOLTAGE		230/60/1		
FLA, MCA, MOP		74.2, 92.8, 100.0		
SUPPLY FAN				
Fan - (Quantity) Type			(1) Direct Drive Centrifugal	
Nominal Airflow	CFM	1500		
Motor Size	Hp	3/4		
Max External Static Pressure	" WC	0.50		
POWERED EXHAUST				
Fan - (Quantity) Type			(1) Backward Curved Motorized Impeller	
Nominal Airflow	CFM	2800		
Motor Size	Hp	2.5		
Max External Static Pressure	" WC	0.5		
ENERGY RECOVERY WHEEL (2)				
Outdoor Air (Cooling/Heating)	CFM	350 / 350		
Cooling Air On (Room,Outdoor) DBWB	°F	75 / 63, 95 / 78		
Heating Air On (Room,Outdoor) DB	°F	70, 35		
Total Recovered Cooling	Bluh	12,838		
Total Recovered Heating	Bluh	11,653		
Air Off Wheel Temp (Cooling,Heating)	°F	80.6, 59.6		
OPTIONAL HEATING - AIR ON		Outside/Return Air		
Outdoor Air Flow	CFM	350		
Outdoor Air Temperature	°F	35.0		
Return Air Flow	CFM	1,150		
Return Air Temperature	°F	70.0		
Mixed Air Temp (3)	°F	67.6		
OPTIONAL HEATING		Electric (Unit)		
Heat Size		12 kW (2 stage)		
Heating Capacity	Bluh	20,473		
Heating + Energy Wheel Cap (2)	Bluh	32,126		
Fluid Flow Rate / Pressure		NA		
Temp/Press Drop or Condensate (4)		NA		
Fluid Type		NA		
OPERATING WEIGHT	lbs	765		

(1) Cooling (Heat Pump) capacity based on Air at 80/67°F (70/60°F) Dry/Wet Bulb & 95°F (47/43°F) Ambient.

(2) Detailed Performance of Energy Wheel is given later in submittal. Heating + Energy Wheel Capacity is "NA" if no wheel is selected.

(3) When unit is selected with Energy Wheel, Mixed Air Temp is the mix of Air Off Wheel Temp and Return Air Temp.

(4) Pressure drop is for coil only.



AccuSpec V4.15

SUBMITTAL SCHEDULE & DATA

Model	Description	Qty	Tag
CMP48CAMECAHNN12	Single Packaged Vertical Unit	1	
	CMP48CAMECAHNN12	1	
#76966	WIRING DIA 8H007186	1	
#76967	PIPE DIA 8H007196	1	
#56975	Door Mounted Digital Thermostat	1	
#71608	Disconnect Switch Assembly	1	
#67748	Elect Branch Protection - 40A x 2	1	
#49397	Dirty Filter Switch	1	
#71576	Head Pressure Control Transducer	1	
#67869	Condensate Pump	1	
#67806	Outdoor Coil Filter	1	
#49149	Condensate Pan Float Switch	1	
#67840	Compressor Acoustic Wrap	1	
#50923	Sky White (Hammer-tone Finish)	1	
#67817	Duct Flange - For Unit	1	
67764	Display Module - Hand Held	1	
67778	Wall Sleeve - 8-14" Adj. (Single)	1	
48958	Duct Shroud - 38" High	1	
58946	6" Rear Extension - 22-28" Sill Height	1	
67854	38" x 6" Rear Filler Panels	1	
50359	5 Year Extended Compressor Warranty	1	



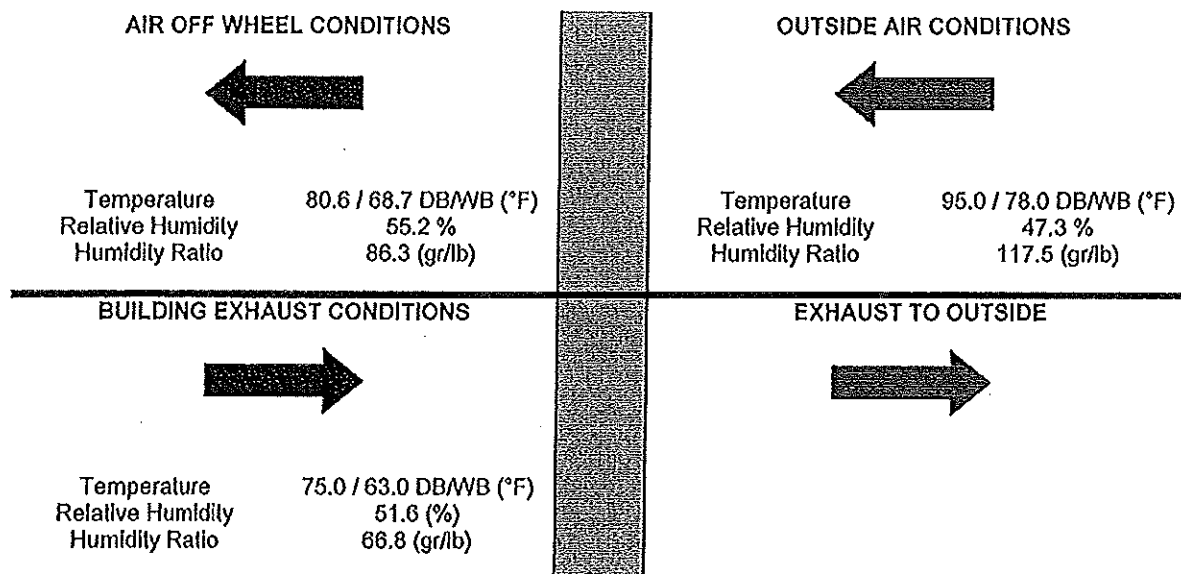
AccuSpec V4.15

SUBMITTAL SCHEDULE & DATA**Energy Wheel Performance Data – Cooling Mode**

Job Name: HACP
Location:
Submitted by: Mike Sears

Engineer:
Architect:
Contractor:

Unit Tag		
	SUPPLY AIR FLOW	EXHAUST AIR FLOW
Airflow Across Wheel (CFM)	350	350



ENERGY RECOVERY	
Total (Btu/hr)	12,838
Sensible (Btu/hr)	5,279
Latent (Btu/hr)	7,559
Total Equivalent Tons	1.1
EFFECTIVENESS	
Latent (%)	60.86
Sensible (%)	71.89



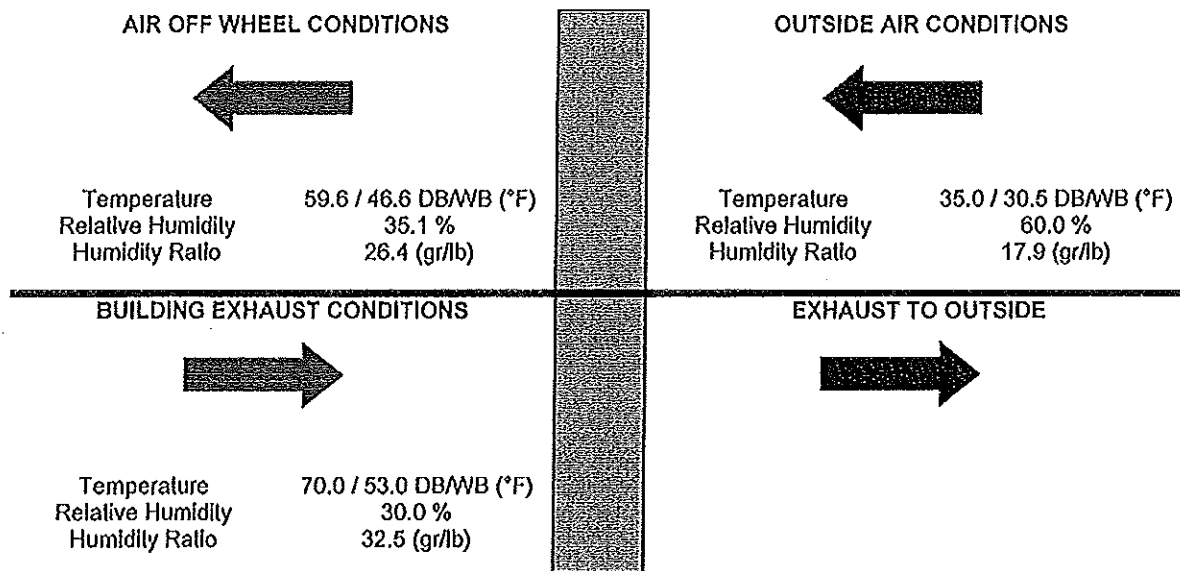
AccuSpec V4.15

SUBMITTAL SCHEDULE & DATA**Energy Wheel Performance Data – Heating Mode**

Job Name: HACP
Location:
Submitted by: Mike Sears

Engineer:
Architect:
Contractor:

Unit Tag		
	SUPPLY AIR FLOW	EXHAUST AIR FLOW
Nominal Airflow (CFM)	350	350



ENERGY RECOVERY	
Total (Btu/hr)	11,653
Sensible (Btu/hr)	9,423
Latent (Btu/hr)	2,229
EFFECTIVENESS	
Latent (%)	60.26
Sensible (%)	71.55



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CMP MODEL NOMENCLATURE

Tag:

1,2	3	4,5	6	7	8	9	10	11	12,13	14	15,16
CM	P	48	C	A	M	E	C	A	HN	N	12

1, 2, – Product Type

CM: Airedale ClassMate Unit

3 – Unit Configuration

P: Heat Pump

4,5 – Nominal Capacity (MBH)

48: 48 MBH

6 – Supply Voltage

C: 230V/60Hz/1Ph

7 – Generation

A: First Generation

8 – Controls

M: Modine Control Systems

9 – Ventilation Configuration

E: ERV with OA & RA Damper & Economizer

10 – Filtration

C: MERV 13

11 – Case Construction

A: 20 Gauge

12,13 – Door Mounted Option(s)

HN: No HGRH, Horiz. Mount Stat

14 – Dehumidification

N: None

15,16 – Heating Option

12: 12kW Electric Heat (Unit Mounted)

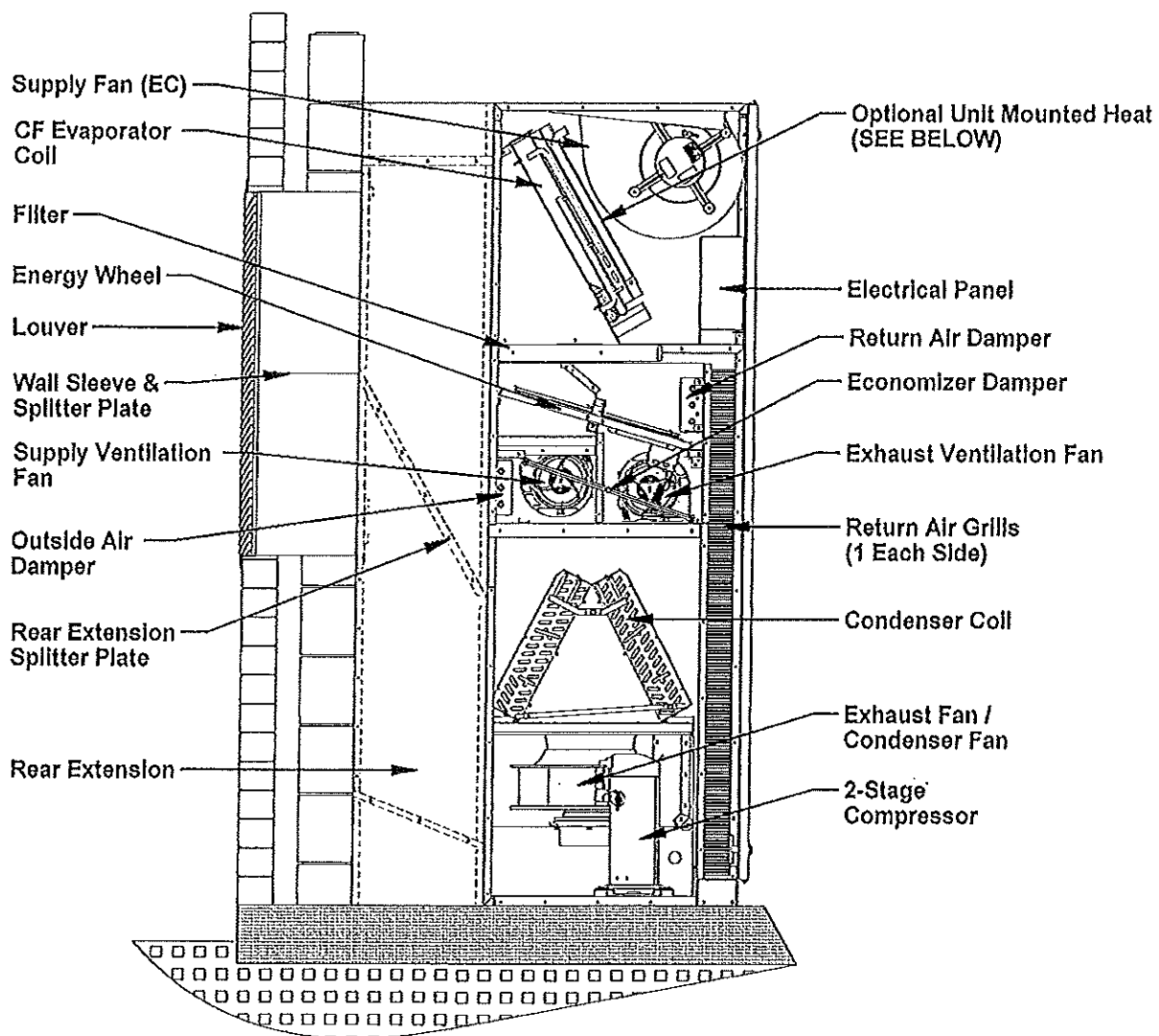


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GENERAL ARRANGEMENT

Model CMP48CAMECAHNN12 - General Arrangement

Tag:



Optional Unit Mounted Heating: Position 1: Electric Element

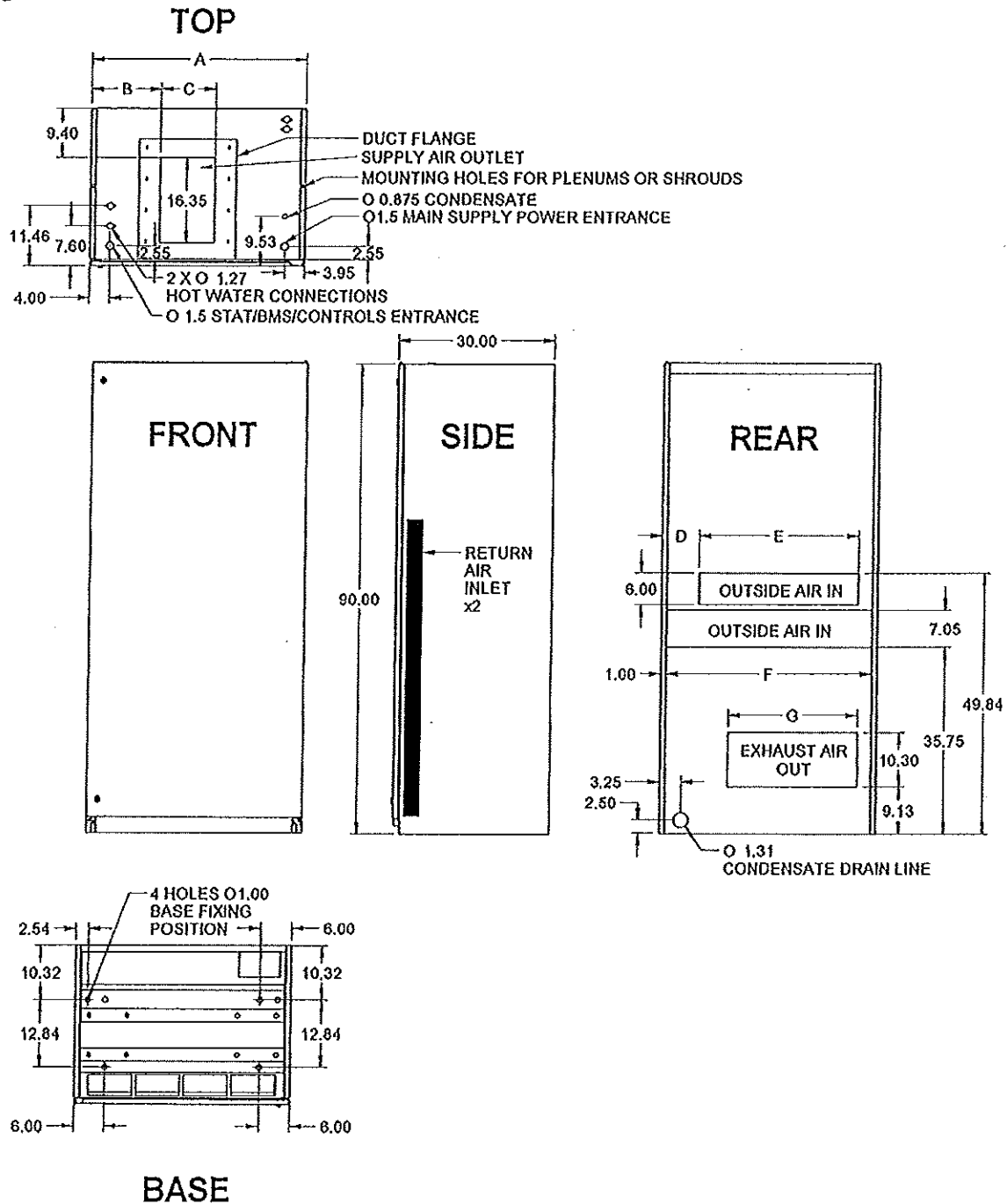
AIREDALE

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DIMENSIONS – UNIT

Model CMP48CAMECAHNN12 Dimensions

Tag:



Unit Dimensions (Inches)

MODEL SIZE	A	B	C	D	E	F	G	Approximate Weight	Filters - (Qty) Dimensions
48	48.00	10.95	20.00	6.30	37.00	46.00	31.12	765	(2) 20 x 25

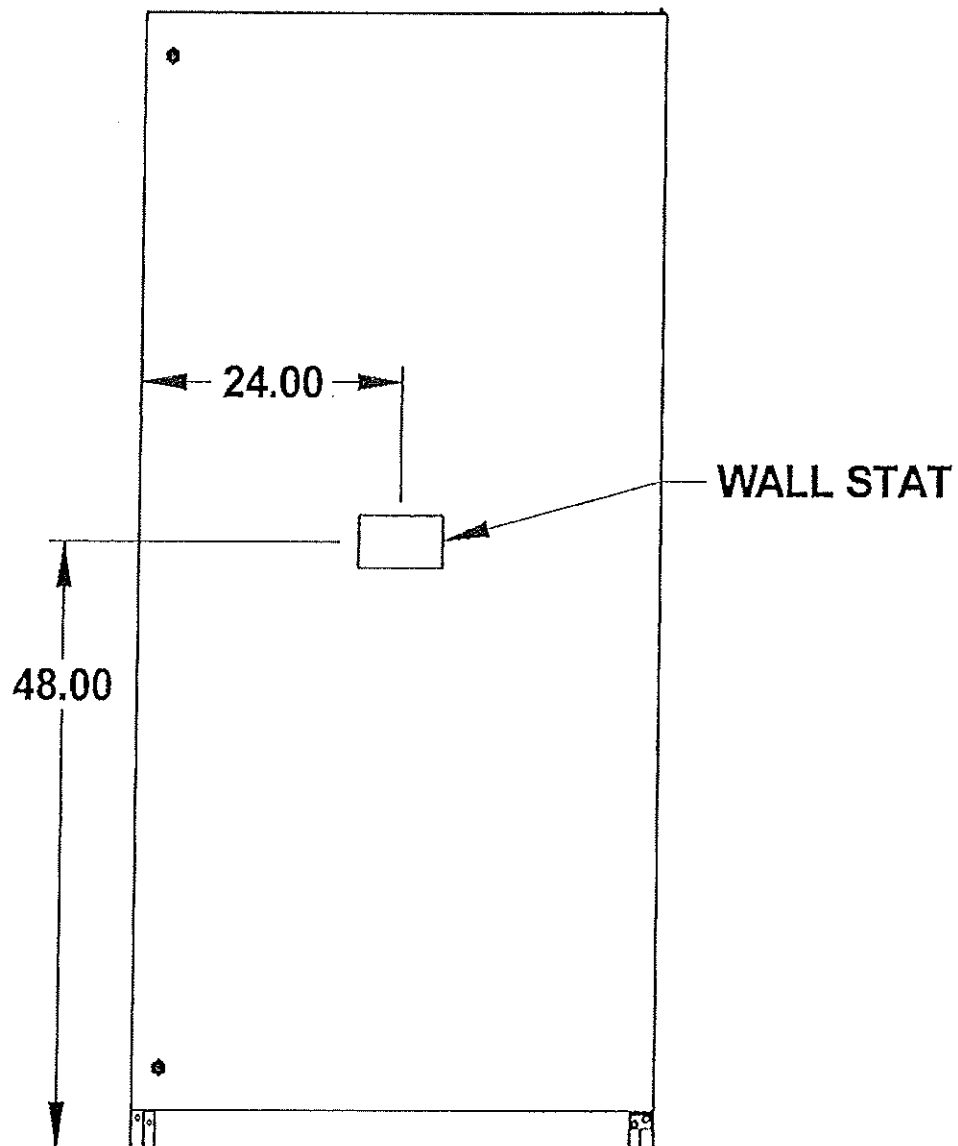


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DOOR OPTION DIMENSIONS – UNIT

Model CMP48CAMECAHNN12 Dimensions

Tag:



Height of mounted components is from bottom of unit. Floor stand height is not included.



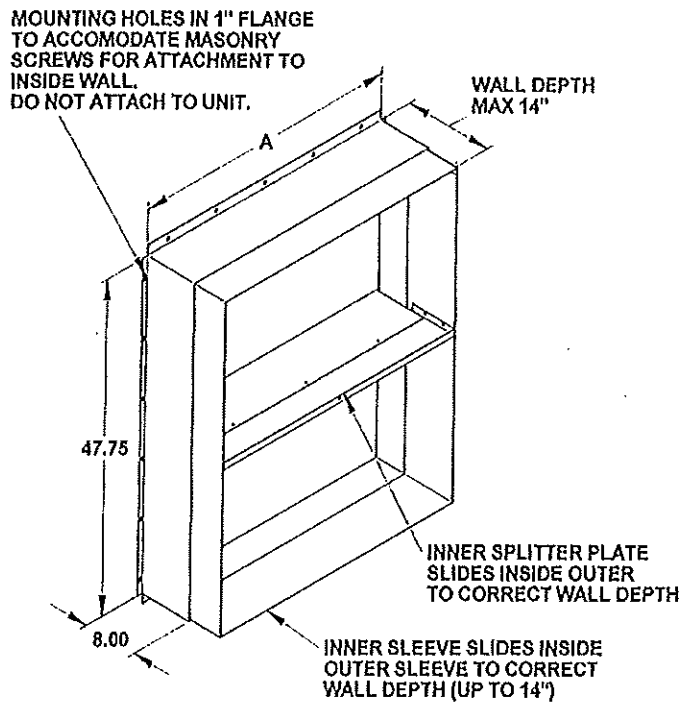
AccuSpec V4.15

DIMENSIONS – WALL SLEEVE AND LOUVER

Model CMP48CAMECAHNN12 Dimensions

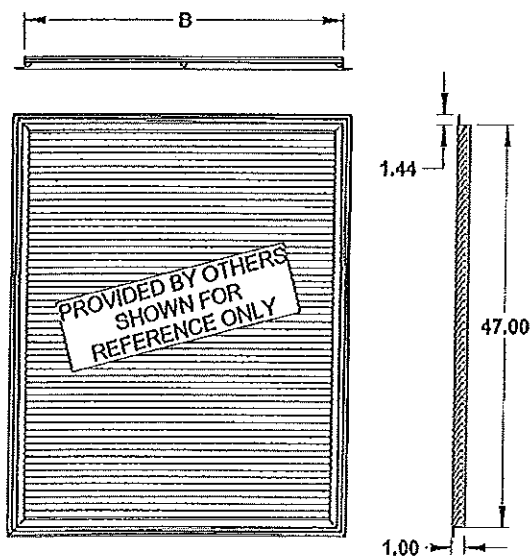
Tag:

Wall Sleeve



Dimension A: 45.75

Louver

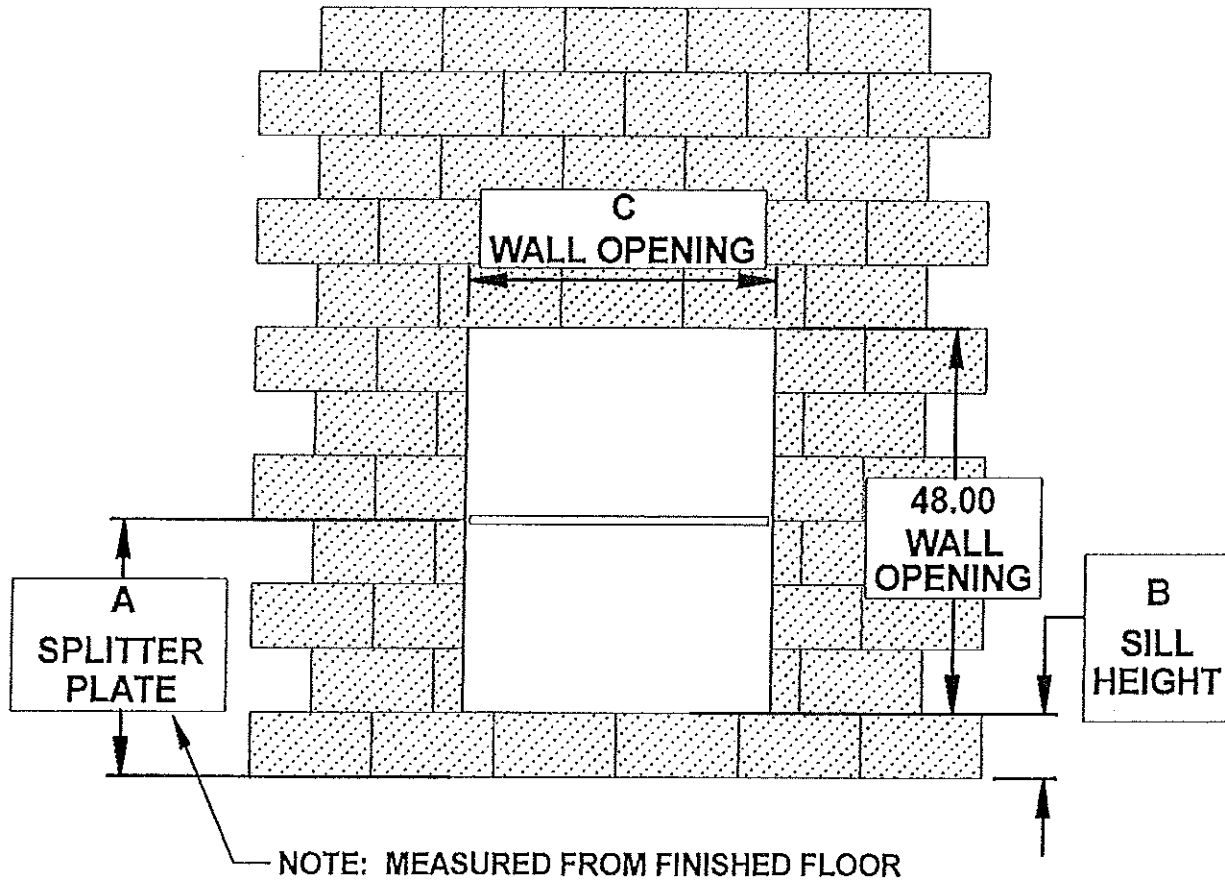


Dimension B: 45.00

DIMENSIONS – WALL OPENING

Model CMP48CAMECAHNN12 Dimensions

Tag:



Wall Opening Dimensions (inches)

Splitter Plate A	Sill Height B	Wall Opening C
42.00	22.00 to 28.00	46.00

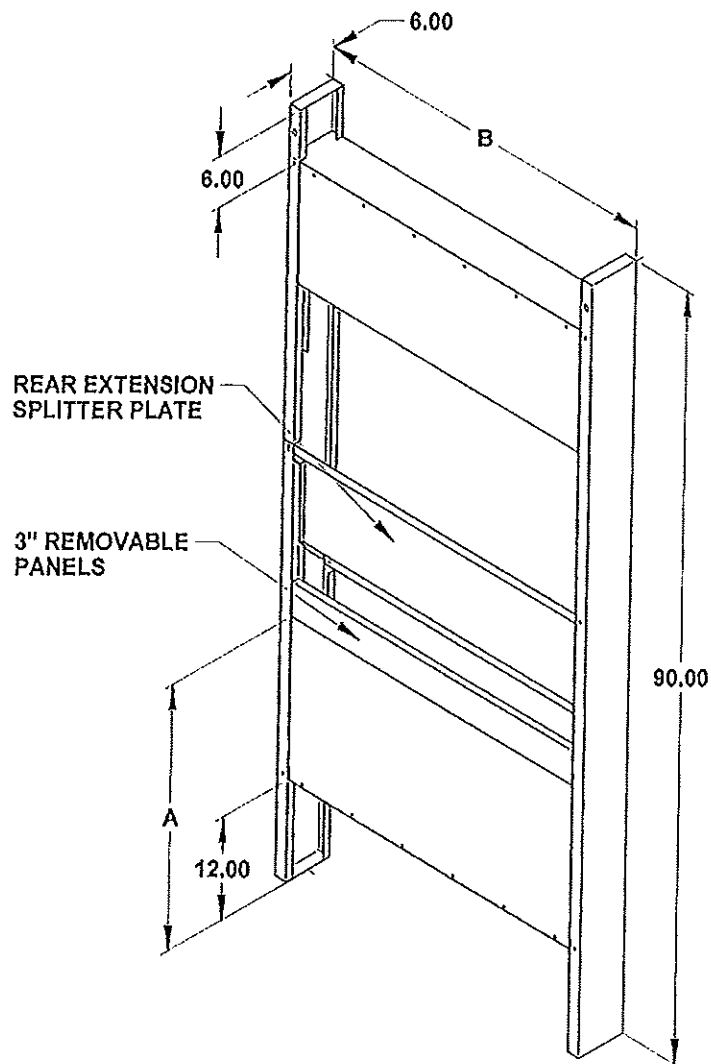


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DIMENSIONS – REAR EXTENSION

Model CMP48CAMECAHNN12 Dimensions

Tag:



Rear Extension Dimensions (inches)

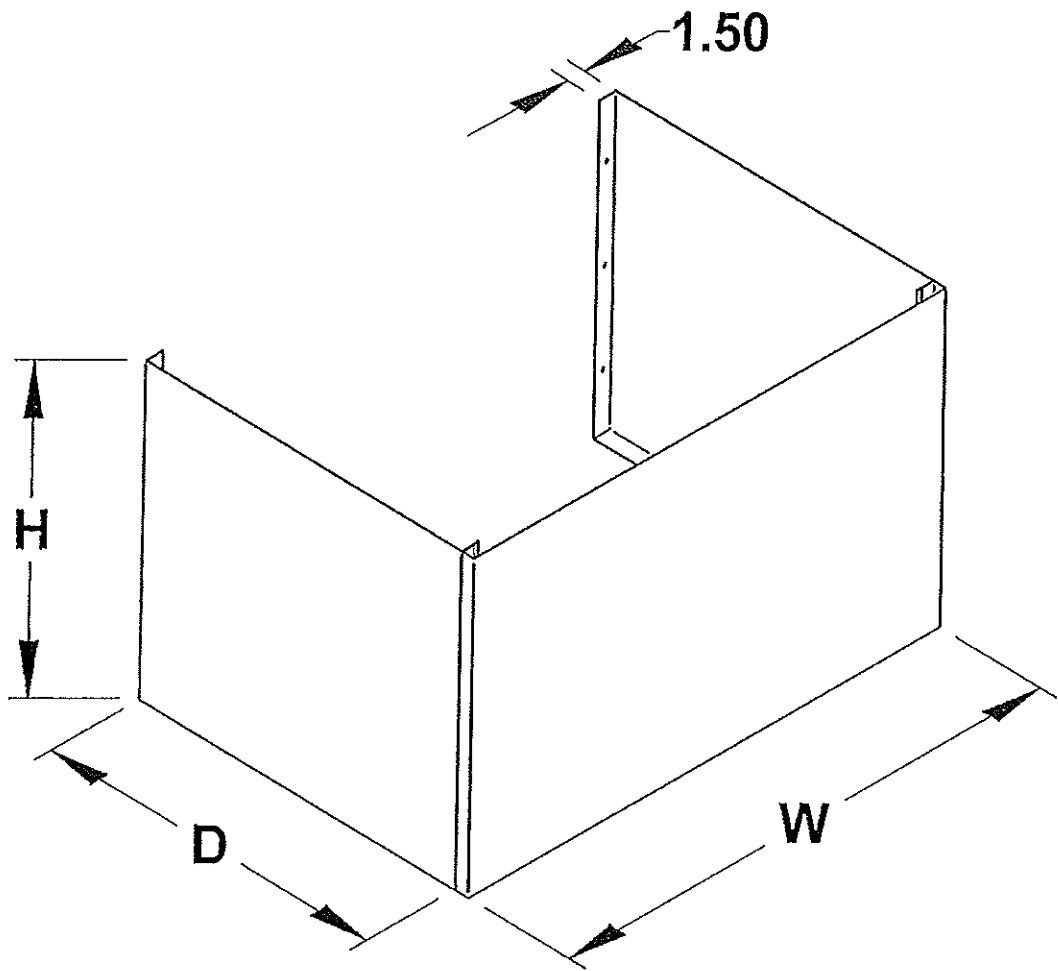
Lower Panel Height A	Width B
22.00	48.00



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DIMENSIONS – DUCT SHROUD

Model CMP48CAMECAHNN12 Dimensions – Duct Shroud
Tag:



Duct Shroud Dimensions (inches)

Height H	Width W	Depth D
38.00	48.00	30.00

SOUND DATA

Model CMP48CAMECAHNN12

Tag:

ClassMate (CMD/CMP) – Sound Pressure
Standard Unit with Standard Plenum (dB(A))

		Economizer Damper With Powered Exhaust	Energy Recovery Wheel 4v DC Signal 350 CFM	Energy Recovery Wheel 7.22v DC Signal 450 CFM	Energy Recovery Wheel 8v DC Signal 467 CFM
24 MBH	1 Meter	43.9	39.8	-	45.9
	5 Feet	43.2	39.4	-	44.8
	10 Feet	43.5	37.7	-	41.6
36 MBH	1 Meter	45.7	41.8	-	46.9
	5 Feet	46.1	41.0	-	45.9
	10 Feet	45.0	40.2	-	43.1
48 MBH	1 Meter	48.5	46.6	48.0	-
	5 Feet	45.7	45.1	46.6	-
	10 Feet	45.6	43.5	44.4	-
60 MBH	1 Meter	52.0	51.3	52.3	-
	5 Feet	49.5	49.7	50.8	-
	10 Feet	49.4	47.3	48.2	-

- (1) Test Configuration: Units tested with Acoustic Sound Wrap and Vibration Mat
- (2) Test Condition: Units tested at standard CFM conditions with no external static pressure
- (3) Unit/room Setup: Free inlet with 30" discharge plenum
- (4) Values recorded in Modine Manufacturing Company Sound Lab Facility
- (5) Actual field results may vary with classroom design and construction
- (6) Integrated values calculated per ANSI/ASA S12.60-2009, Part 2, Section 5.2.2.1, Table 2 Triple Mode Type 3
HVAC System Duty Cycles (Ventilation 58%, Part Load 25%, Full Load 17%). Data used in calculations based on average of 3 readings per ANSI/AHRI 575-2008, Section 5.2.7 Sound Pressure Level Averaging Equation
Note: ANSI/AHRI defines duty cycle percentages from 1 year average analysis of schools in Modesto, CA and Fontana, CA.
Modine can provide project specific calculations available upon request if duty cycles are defined.
- (7) Tested in compliance with ANSI/AHRI Standard 575 which requires that reference point be recorded no less than 1 meter from adjacent wall. For best sound performance units should be installed 12" away from a wall that would restrict the return air openings on the side panels of the product
- (8) Contact Modine Manufacturing for additional information

SECTION 23 81 00 DECENTRALIZED UNITARY HVAC EQUIPMENT

SPECIFICATIONS

Tag:

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes self-contained heat pump unit ventilators and accessories as indicated on drawings and schedules, and by requirements of this section.

1.2 QUALITY ASSURANCE

- A. AHRI Compliance: Test and rate Self Contained Heat Pump unit ventilator in accordance with AHRI Standard 390 "Single Packaged Vertical Air Conditioners and Heat Pumps".
- B. NFPA 70 – National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- C. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1-2010, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."
- D. Listed on <https://www.regulations.doe.gov/certification-data/>. Complies with Energy Policy and Conservation Act (42 USC 6311-6317).
- E. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years documented experience.
- F. The unit shall be constructed in accordance with ANSI standards, and a label shall be affixed to the unit listing the product code under which it is registered.

1.3 WARRANTY

- A. Standard Unit Warranty:
 - 1. For units equipped with Modine Controls System - All Components Warranty: Two years from date of first beneficial use by buyer or any other user, within two years from date of resale by buyer in any unchanged condition, or within 30 months from date of shipment from seller, whichever occurs first.
- B. Extended Compressor Warranty: Compressor warranty five years from date of first beneficial use by buyer or any other user, within five years from date of resale by buyer in any unchanged condition, or within sixty-six months from date of shipment from seller, whichever occurs first.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Furnish and install a self-contained vertical floor standing heat pump unit ventilator. Constructed in accordance with UL and CSA standards with a label affixed to the unit listing the product code under which it is registered. Unit performance shall be certified in accordance with AHRI 390. Unit shall be constructed following ISO: 9001 quality control program procedures and be fully assembled, charged, wired, and tested prior to shipment.

2.2 MANUFACTURERS

- A. Basis-of-Design Product: The design for Single Packaged Vertical Air-Conditioners and Heat Pumps is based on Modine ClassMate Model.

2.3 CABINET

- A. Insulation: 1-inch thick, acoustic Hushcloth Polyester/Polyurethane foam with density of 2-pounds per cubic foot containing no fibrous materials.
 - 1. Fire-Hazard Classification: Insulation shall have a fire rating of UL94HF-1.
 - 2. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1-2010.
- B. Cabinet Construction: Constructed from aluminized steel with 20 gauge panels, degreased and coated with electrostatically applied baked-on polyester powder paint.
- C. Cabinet Interior: Interior right and left hand sides shall employ 20 gauge galvanized steel full double wall construction.
- D. Cabinet Finish: The unit color shall be Sky White (Hammer-tone Finish)
 - 1. Paint finish shall be easily cleanable and hard wearing to give maximum protection.
- E. Service and Maintenance Access: All service and maintenance access shall be possible through the front of the unit only.
- F. Return air openings shall be integrated into the cabinet sides.
- G. Access door is factory installed on the front of the unit. Face of door shall be absent of return air openings to allow for easy cleaning. Door shall be fully insulated to provide for superior noise deadening at front of unit. Door shall employ heavy duty 1/4" zinc plated steel plunger hinges with a spring-loaded 1/4" zinc plated steel pin to allow for easy removal, if required. Door is secured with two (2) key locks. Door swing designed to turn into itself allowing side of the unit to be installed directly against a wall in the corner of a room.
- H. Condensate Connection: Factory installed condensate connection stub provided for connection to the field installed building condensate drain.

2.4 REFRIGERATION SYSTEM

- A. Compressor: Two stage hermetic scroll compressor mounted on four (4) 125# all neoprene rubber 35-45 durometer vibration isolators for quiet operation. Compressor contains an internal unloading mechanism to provide capacity control and enable part load efficiencies to be increased.
 - 1. An internal overload protector included to protect compressor against excessive motor temperatures and currents.
 - 2. Compressor is equipped with a crankcase heater to guard against liquid flood-back conditions and the elimination of oil foaming upon start up.
 - 3. Factory set high and low-pressure switches, automatic reset high pressure cutout, and automatic reset low-pressure cutout.
- B. Compressor Acoustic Wrap with Base: For improved sound attenuation, compressor casing consists of 18oz PVC barrier laminated to 1/2 inch non-woven polyester. Casing includes integral 4 inch foil backed fiberglass heat shield for use with crankcase heater. Compressor base consists of 2 pound EVA barrier with embedded 1/4 inch layered closed cell foam. Cover is easily removable for service.
- C. Refrigeration Circuit (Heat Pump): Heat pump systems shall utilize HFC-R410A and shall be fitted with dual thermal expansion devices and a reversing valve to enable the unit to operate in either cooling or heat pump mode. A factory set defrost control fitted allows defrosting of the outside coil when in heat pump mode. Fitted with factory set automatic reset high-pressure and low-pressure cut-out switches and a sight glass for system observation.
- D. Indoor Coil: Patented micro-channel CFTM evaporator coil designed for maximum heat transfer with minimum footprint and pressure drop. Quick draining evaporator coil designed, tested and fabricated by unit ventilator manufacturer for optimal airflow and heat transfer specific to the unit. Coil is fitted to non-corrosive stainless steel drain trays.
- E. Outdoor Coil: Enhanced, high efficiency, cross rifled coil designed, tested and fabricated by unit ventilator manufacturer for optimal airflow and heat transfer specific to the unit. Coil is fitted to non-corrosive stainless steel drain trays.

2.5 FANS AND MOTORS

- A. The Indoor fan assembly consists of one blower inside teardrop housing assembly engineered specifically for optimal airflow with low noise and minimal power consumption. Blower is powered by electronically commutated motor (ECM). The DC motor features brushless, permanently lubricated ball bearing construction for maintenance free operation. A wide range of programmable speeds and torque characteristics is possible for ultra-high efficiency and low audible noise. The ECM provides constant airflow by automatically adjusting the speed if the external static pressure changes. Electrical and control wiring to fan assembly includes quick disconnect plug local to assembly.
- B. Outdoor (Condenser) Fan Assembly: The outdoor fan assembly consists of one backward curved plug fan with centrifugal blower wheel powered by an electronically commutated motor (ECM). The DC motor features brushless, permanently lubricated ball bearing construction for maintenance free operation. A wide range of programmable speeds and torque characteristics are possible for ultra-high efficiency and low audible noise. Fan design capable of overcoming external static pressures brought on by rear extensions backs and duct work connected to the fan discharge opening. Fan is sized such that powered exhaust shall be integral to the unit to prevent over pressurization of the space when the unit is introducing outside air. Capable of exhausting 100% equivalent of the fresh air intake of the unit. Electrical and control wiring to fan assembly includes quick disconnect plug local to assembly.

2.6 FILTER

- A. Filter: 2" thick and utilize 17.5 pleats per foot. Filter shall be constructed from 100% Synthetic media and be LEED/Green compliant. Minimum Efficiency Reporting Value of MERV 13 per ASHRAE standard 52.2. 99% Arrestance and 70-80% Dust Spot Efficiency based on the ASHRAE 52.1 - 1992 test method.

2.7 CONTROL PANEL

- A. Control Panel: Located at top of the unit behind the front door for direct, centrally located access to controller, controller transformer (24V), and all necessary contactors, relays, and circuit breakers.
- B. Wiring: Individually numbered terminal blocks and wires are to match job-specific wiring diagrams. All electrical wires in the control panel will run in an enclosed trough. Wiring outside the control panel to be contained in a protective sleeve. All controls and wiring is factory installed in a clean, organized arrangement.
- C. Plug and Socket Wiring: Supply and Exhaust Fan decks, compressor, damper assembly, and energy wheel assembly (if applicable) wiring includes plugs local to the assembly allowing for quick wiring disconnect when the component requires removal for service.

2.8 ENERGY RECOVERY VENTILATOR WITH ECONOMIZER DAMPER

- A. Energy recovery ventilation (ERV) provided within the unit through an enthalpy transfer wheel mounted in an insulated cassette frame complete with seals, drive motor, and belt. The rotary wheel is coated with silica gel desiccant and is sized to handle a maximum of 500 cfm of outside air. The entire assembly shall be a UL tested component. Performance shall be certified in accordance with the ASHRAE Standard 84 method of test and AHRI Rating Standard of 1060.
- B. ERV Fans: ERV section employs dual electronically commutated ventilation fans to ensure precise control of airflow through energy wheel and provide optimal wheel frost protection as required.
- C. Outside Air Damper: Separate outside air damper and actuator provided for protection from outdoor elements when unit is not in use.
- D. Complete energy recovery ventilator installed on rails to allow the entire assembly to be slid out of the unit for service. Electrical and control wiring to damper assembly includes quick disconnect plug local to assembly.
- E. Full Economizer Mode: Includes the addition of an economizer damper with actuator and return air damper with actuator. This option enables full economizer functionality by closing off return air allowing up to 100% volume of outside air during free cooling applications.

2.9 CONTROLS

- A. Modine Control System: The unit is fitted with a programmable microprocessor controller provided by the unit manufacturer mounted outside the air stream in the control panel. The controller is designed specifically for operating the unit in its most energy efficient manner

using pre-engineered control strategies. The microprocessor determines mode of operation based on the factory installed return air and supply air temperature sensors.

- B. Factory installed controls shall enable the unit to operate in the following modes:
 - 1. Free Cooling – using outside air in favorable conditions
 - 2. Stage One Mechanical Cooling: 67% capacity compressor, low speed supply fan, reversing valve closed
 - 3. Stage Two Mechanical Cooling: Controller adjusts compressor capacity and supply fan speed based on load conditions through a sequence that is proprietary to Modine Controls, reversing valve closed
 - 4. Stage Three Mechanical Cooling: 100% capacity compressor, high speed supply fan, reversing valve closed
- C. Factory installed controls will allow the following additional modes of operation during heat pump mode:
 - 1. Stage One Heating: 67% capacity compressor, low speed supply fan
 - 2. Stage Two Heating: 67% capacity compressor, high speed supply fan
 - 3. Stage Three Heating: 100% capacity compressor, high speed supply fan
 - 4. Stage Four Heating: First Stage of Electric Heat, high speed supply fan
 - a. Emergency Heat: A second stage of electric heat is utilized for emergency backup only
- D. The microprocessor controller shall also modify the minimum damper position to compensate for mode of operation and fan speed.
- E. Free Cooling Sequence: If the return air temperature is higher than the occupied set point and if the ambient air temperature is low enough to satisfy the cooling load in the occupied space, the microprocessor controller will de-energize the energy recovery ventilator. Outdoor air ventilation fan is 100% energized and economizer damper and return air damper will automatically modulate between 0-100% allowing up to 100% free cooling to maintain conditioned space temperature. The free cooling mode of operation leads to much reduced running time for the compressor leading to cost and equipment savings.
- F. Heat Pump Heating Sequence: If the return air temperature is below the set point and the ambient air temperature is high enough (the heat pump will be locked out at 28°F ambient), the microprocessor controller will de-energize the reversing valve allowing the unit to operate in the reverse cycle DX heating mode. The microprocessor controller will also determine which stage of DX heating is most efficient to handle the heating load based on pre-engineered control strategies and the return air, supply air, and ambient air temperatures. The microprocessor controller will then place the unit in one of two DX heating stages of operation.
- G. Time Clock Card: The Modine Control System microprocessor includes a time clock card for units where time functions, night and weekend setback, etc. are not transmitted from a building management system or remote central time clock. The time clock shall have a full 7-day schedule and calendar function incorporated. The 7-day schedule shall have two adjustable occupied/unoccupied periods per day. The calendar function shall allow 20 calendar periods (start date / stop date = 1 period).
- H. Display Module: User Interface for the Factory Microprocessor Controller. Displays status of controllers inputs and outputs, allows for unoccupied/occupied set-point changes, displays service settings, allows adjustment of control parameters, and is used for troubleshooting the unit.

- I. Door Mounted Digital Thermostat with Humidity Sensor: Digital thermostat with humidity sensing used in conjunction with the Factory Microprocessor Control displays current room temperature, cooling/heating set-point, current room humidity level, humidity set-point, current time and day, current occupied mode, and the unit's compressor and fan speeds. The display will also display a remote alarm from the Microprocessor Control. Thermostat allows for occupied temperature and humidity set-point adjustment. The allowable set-point adjustment range can be limited by the Microprocessor Control. Thermostat allows for occupied override activation allowing user to select the amount of time the unit is to remain in the override state. Mounted on the front door of the unit, 48" above the finished floor (48" AFF only if no floor stand selected).
- J. Dirty Filter Switch: The unit shall be provided with an internally mounted pressure switch to detect pressure drop across the filters and indicate dirty or clogged filters.

2.10 ELECTRIC HEATING

- A. Unit is equipped with 12 kW of electric resistance heating elements controlled in two stages. Electric heat is factory mounted downstream of the evaporator coil. A manual thermal protection and automatic thermal protection switch is included.

2.11 ADDITIONAL FACTORY INSTALLED OPTIONS

- A. Condensate Pump: Capable of 13gph flow rate at maximum discharge head of 20 feet of lift. Includes piston pump, detection unit, built-in thermal protection and safety switch.
- B. Outdoor Coil Filter: A set of two 20-30 PPI polyester foam washable filters attached to a corrosion resistant metal wire frame fitted across the air inlet of the outdoor coil. Average synthetic dust weight arrestance of 60-80%. The filter is reusable and can be vacuum cleaned.
- C. Disconnect Switch: Located on the control panel, a amp power disconnect switch sized for the full load amperage of the unit. Allows the unit to be disconnected from the power supply prior to any maintenance. In the off position the switch can be locked out.

2.12 FIELD INSTALLED ACCESSORIES

- A. Wall Sleeve: Designed to provide a sealed plenum for the fresh air intake and exhaust air outlet on the back of the classroom unit to the outside of the building. Intake and exhaust airstreams are separated with an insulated horizontal splitter plate. A two-piece frame allows for the sleeve to adjust to wall depths between 8" and 14". Includes double-sided gasket to create an air tight seal between the wall sleeves and the back of the unit.
- B. Outside Air Rear Extension: Where site conditions do not permit the use of the standard locations for outside air intake and exhaust air discharge, an insulated outside air rear extension is supplied for site installation between the back of the unit and the outside wall by the mechanical contractor. The outside air rear extension is 6" deep and with adjustable panels to allow for the exhaust air discharge to be at a height from floor of 22"- 28".
- C. Duct Flange: Factory fitted discharge duct flange allowing for easy field connection of a discharge duct to top of the unit

- D. Duct Shroud: 38" three sided duct shroud field mounted on top of the unit for extending the cabinet through the ceiling/soffit. Field trimmed by the installing contractor to suit the ceiling height. Finished and painted to match the unit

PART 3 - EXECUTION

3.1 EXAMINATION

- A. General: Examine areas and conditions under which self-contained heat pumps are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to installer.

3.2 INSTALLATION

- A. General: Install self-contained heat pumps in accordance with manufacturer's installation instructions. Install units plumb and level, firmly anchored in locations indicated, and maintain manufacturer's recommended clearances.
- B. Electrical Wiring: Install electrical devices furnished by manufacturer but not specified to be factory-mounted. Furnish copy of manufacturer's wiring diagram submittal to Electrical Installer.
 - 1. Verify that electrical wiring installation is in accordance with manufacturer's submittal and installation requirements of Division-16 sections. Do not proceed with equipment start-up until wiring installation is acceptable to equipment installer. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."
- C. Ductwork: Refer to Division-15 section "Ductwork". Connect supply and return ducts to units with flexible duct connections. Provide transitions to exactly match unit duct connection size.
- D. Drain Piping: Connect self-contained heat pump's condensate drain to nearest indirect waste connection, or as indicated.

3.3 FIELD QUALITY CONTROL

- A. See section 01-4000 -- Quality Requirements, for additional requirements.

3.4 SYSTEM STARTUP

- A. Start-up units in accordance with manufacturer's start-up instructions. Test controls and demonstrate compliance with requirements. Replace damaged or malfunctioning controls and equipment.

In the interest of product development Airedale reserves the right to amend this specification without prior notice.