



## General Specifications: Bard Wall – Mount I-TEC™ IxxH-Series, R410a Inside Type Heat Pump, CRV Intake & Exhaust, White Rodgers 1F95-1277

### FURNISH and INSTALL

A self-contained, inside type, vertical floor standing, through the wall, factory-assembled, precharged, prewired, tested and ready-to-operate heat pump unit. The unit shall be approved and listed by Intertek ETL Listed (ETL US/C) for installation on combustible surfaces for zero clearance between the unit and wall. The supply duct is approved for zero clearance to combustible material. Unit performance shall be certified in accordance with Air Conditioning and Refrigeration Institute, (AHRI). The Bard manufactured model No. **I48H\*A04MP4XXX** heat pump with integrated CRV (Classroom Ventilator) ventilation, shall be operated by a properly programmed, wall mounted White Rodgers 1F95-1277 thermostat, and installed correctly to meet the Section 120.1 ventilation requirements of California Title 24 Code. See specification sheet **S3451** (current version) for complete unit specifications.

The HVAC unit shall have outside make-up air for ventilation, mixed with return air, filtered through the same filter, prior to passing through the indoor coil, and shall have a factory or field installable, integral classroom ventilator (CRV) capable of providing and exhausting 15 cfm per the anticipated 30 occupants, (450cfm). Outside ventilation air shall not bypass the indoor coil or the filter. The CRV shall be a fan powered vent package with four fixed CFM rates independently selected for intake and exhaust, and meet ANSI/ASHRAE 62.1 ventilation standards.

### VENTILATION OPTIONS – Select One (Some vent devices may require additional building exhaust)

**Commercial Room Ventilator (CRV Option M)** is a fan powered ventilation package to manage intake & exhaust air at fixed rates but without energy recovery capability.

- The rates are: 300-375-450-525 CFM, are independently selectable & has positive shutoff on intake and exhaust sides when unoccupied.
- Requires control system that has a dedicated ventilation control output to be ON during Occupied and OFF during Unoccupied. CO2 controller with ON/OFF output relay can be used.
- Factory setting is 375 CFM balanced to meet pressurization requirements of ASHRAE.

**Commercial Room Ventilator (CRV Option N)** is same as CRV Option M and also has a free-cooling economizer mode that can provide up to 525 CFM when the outdoor ambient temperature is below the set point of the outdoor thermostat.

**Commercial Room Ventilator (CRV Option Q)** is modulating design that requires 0-10Vdc control signal from CO2 controller.

**Energy Recovery Ventilator (ERV)** is designed for both modulating or fixed supply and exhaust airflow operation depending upon environmental controls used, and has positive shutoff on intake and exhaust sides when unoccupied.

- Modulating mode requires CO2 controller, has intake rate that is higher than exhaust, and has optional minimum CFM to address building IAQ requirements. The system modulates to maintain selected maximum CO2 level.
- Fixed mode can be used with thermostat or DDC that has a dedicated Occupied output that is ON during Occupied and OFF during Unoccupied. Intake and exhaust rates can be independently adjusted.

### PERFORMANCE

The HVAC system will have an integrated indoor operating sound level that will not exceed **38 dbA** measured 5 feet directly in front of the return air grille at 5' above the floor and meets ANSI S12.60 Mixed air sound rating.

The HVAC system shall be designed to maintain a minimum indoor temperature of 72 Deg F. in the heating season and a maximum of 78 Deg. F. in the cooling season. HVAC unit shall be sized to provide a maximum total air in circulation equal to a 6 minute air change during heating and/or cooling cycles and not more than a 9 minute air change during the ventilation only cycle.

Energy efficiency rating shall be minimum 16.1 IPLV – 3.7 COP certified by AHRI as meeting Standard 390–2003. Unit complies with efficiency requirements of ASHRAE/IESNA 90.1-2010.

## **BLOWERS and FANS**

To provide a quiet comfortable environment, the indoor blower motor shall be a variable speed (ECM) type to produce the same rated airflow from 0 to .5 inch WC of external static pressure. The blower motor shall be self-adjusting to deliver consistent rated air flow with no deterioration at high static pressures without user adjustment or wiring changes by the user. The blower motor shall be programmed for 20 second ramp up and 60 second ramp down rate for quiet, smooth starting and stopping. Indoor blowers shall discharge vertically into a ducted supply with a maximum internal velocity of 1000 fpm. Maximum air velocity through a minimum 3 ea. 12" flex duct runs to Shoemaker # 104 16 x 16 supply registers with lined 26 ga. side outlet box is not to exceed 500 fpm.

Both indoor and outdoor motors shall be electrically commutated motors. The modulating ECM outdoor fan motor shall be controlled with a low ambient control. Both indoor and outdoor coils shall have non-corrosive drain pans with no standing water. Overflow detection system monitors indoor and out coil drain pans and shuts down compressor to prevent condensate overflow.

## **STANDARD FEATURES**

Unit shall include high and low pressure controls and an electronic heat pump control board with diagnostics.

Two-inch pleated filter (Minimum MERV-8) with a hinged, lockable panel Merv 13 and Merv 16 (OPTIONAL)

24 volt dual tap transformer to have a built-in circuit breaker.

Environmentally Safe R410a refrigerant.

The refrigeration control shall be a factory installed TXV. Freezestat detection system prevents indoor coil freeze up.

Unit shall have a high efficiency 2 stage scroll compressor for maximum efficiency and reliability.

All three (3) phase units to have a built-in phase monitor to prevent reverse rotation of scroll compressor motor.

Full 5 year warranty on all parts and 5 year warranty on the compressor.

Evaporator coils with hydrophilic fin stock: Antimicrobial, Acrylic, Mold Resistant.

Overflow detection system on indoor and outdoor drain pans.

Hinged, lockable, and removable doors.

## **CONTROLS**

Ventilation and temperature control shall consist of a wall-mounted 5-day / 2-day programmable thermostat. The thermostat shall be equipped with key-pad lockout and ventilation control programming. Thermostat to be pre-programmed to bring on continuous ventilation one hour prior to and during anticipated occupancy as per the California Title 24, Section 120-(c)2 ventilation requirements. White Rodgers 1F95-1277.

The defrost circuit shall consist of a solid state electronic heat pump control. A 30-60-90 minute timer shall initiate a defrost cycle if the outdoor coil temperature indicates the possibility of an iced condition. A thermistor sensor, speed up terminal for service, and a ten minute defrost override and diagnostic LED shall all be standard of the electronic heat pump control. To prevent rapid compressor short cycling, a five minute time delay circuit shall be factory installed. A low pressure bypass shall be factory installed to prevent nuisance tripping during low temperature start up.+

## **BARD 8403-096 CO2 Sensor (Optional)**

Furnish and install a Bard 8403-096 CO2 Sensor to control the amount of fresh outdoor air supplied to maintain acceptable levels of CO2 in the space according to Section 120 California Title 24 ventilation standards. The CO2 sensor shall have non dispersion-infrared (NDIR) technology used to measure carbon dioxide gas, provide voltage or current output based on

CO2 levels, provide SPST relay output, and Automatic Background Calibration (ABC) algorithm. The CO2 Sensor shall wire easily to the lxxH\* ventilation board, and provide modulating classroom ventilator (CRV) damper control of outside air between 700 – 1500 ppm CO2.

## **Filtration**

Furnish and install Pure Aire Technologies 2" MERV 13 filters to capture >80% of 1 micron particles @ .23 esp.

Furnish and install Pure Aire Technologies 2" MERV 16 filters to capture >95% of .003 micron particles @ .35 esp.

**ACCESSORIES-(REQUIRED)**

Outdoor louver grilles: Three Colors Available, Clear, Medium Bronze, Dark Bronze

Telescoping Wall Sleeves: Three Wall Thickness Available, up to 8.5", up to 13.5", up to 23.5".

**ACCESSORIES-(OPTIONAL)**

Riser Platforms For Varied Window Heights

Duct Free Supply Plenum or Ducted Supply Plenum Applications

Vinyl Graphics To Your Specifications

*This document is available in MS Word format from:*

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# EQUIPMENT & MATERIAL SCHEDULE

- 3.0 Ton**  
Heat Pump, Bard I-TEC, R410a, "Inside" Type Wall Mount, I36H\*-A05MP4XXX, 5 KW  
35,000 Nom Btuh Cooling Capacity - 16.5 IPLV  
32,800 Nom Btuh Heating Capacity From The Compressor- 3.70 CDP  
Additional 17,065 Nom Btuh Heating From Auxillary Heat Strip @ 240V.  
Furnish With Wall Sleeve, Outdoor Louver Grille,  
Plenum / Extensions Kits As Required.  
MCA 52, MDCP 60, Min. Wire Size #6  
1150 CFM @ .15 Esp, Max. Unit Weight 1040 Lbs.  
230 Volts, 60 Cycle, Single Phase  
SET CRV TO '450 CFM'.  
ENTIRE WALL THICKNESS REQUIRED \_\_\_\_\_' TO SELECT UNIT WALL SLEEVE.
- 3.5 Ton**  
Heat Pump, Bard I-TEC, R410a, "Inside" Type Wall Mount, I42H\*-A05MP4XXX, 5 KW  
41,500 Nom Btuh Cooling Capacity - 15.1 IPLV  
38,500 Nom Btuh Heating Capacity From The Compressor- 3.70 CDP  
Additional 17,065 Nom Btuh Heating From Auxillary Heat Strip @ 240V.  
Furnish With Wall Sleeve, Outdoor Louver Grille,  
Plenum / Extensions Kits As Required.  
MCA 56, MDCP 60, Min. Wire Size #6  
1300 CFM @ .20 Esp, Max. Unit Weight 1090 lbs.  
230 Volts, 60 Cycle, Single Phase  
SET CRV TO '450 CFM'.  
ENTIRE WALL THICKNESS REQUIRED \_\_\_\_\_' TO SELECT UNIT WALL SLEEVE.
- 4.0 Ton**  
Heat Pump, Bard I-TEC, R410a, "Inside" Type Wall Mount, I48H\*-A04MP4XXX, 4 KW  
44,500 Nom Btuh Heating Capacity From The Compressor- 3.70 CDP  
Additional 13,652 Nom Btuh Heating From Auxillary Heat Strip @ 240V  
Furnish With Wall Sleeve, Outdoor Louver Grille,  
Plenum / Extension Kits as Required.  
MCA 54, MDCP 60, Min. Wire Size #6  
1500 CFM @ .20 Esp, Max. Unit Weight 1090 Lbs.  
230 Volts, 60 Cycle, Single Phase  
SET CRV TO '450 CFM'.  
ENTIRE WALL THICKNESS \_\_\_\_\_' REQUIRED TO SELECT UNIT WALL SLEEVE.
- 5.0 Ton**  
Heat Pump, Bard I-TEC, R410a, "Inside" Type Wall Mount, I60H\*-A05MP4XXX, 5 KW  
54,000 Nom Btuh Cooling Capacity - 15.5 IPLV  
54,000 Nom Btuh Heating Capacity From The Compressor- 3.60 CDP  
Additional 17,065 Nom Btuh Heating From Auxillary Heat Strip @ 240V  
Furnish With Wall Sleeve, Outdoor Louver Grille,  
Plenum / Extensions Kits As Required.  
Dual Circuit: Circuit A: MCA 44, MDCP 60, Min. Wire Size #8  
Circuit B: MCA 26, MDCP 30, Min. Wire Size #10  
1700 CFM @ .20 Esp, Max. Unit Weight 1125 Lbs.  
230 Volts, 60 Cycle, Single Phase  
SET CRV TO '450 CFM'.  
ENTIRE WALL THICKNESS \_\_\_\_\_' REQUIRED TO SELECT UNIT WALL SLEEVE.

REQUIRED ACCESSORIES: SEE SPEC SHEET S3451 FOR MORE DETAILS

- ① WALL SLEEVE - CHOOSE ONE FROM: 5.5-8.5" DEPTH OF WALL  
8.0-13.5" DEPTH OF WALL  
13 -23.5" DEPTH OF WALL

- ② STANDARD OUTDOOR GRILLE COLOR -CHOOSE ONE FROM: CLEAR ANODIZED ALUMINUM  
MEDIUM BRONZE ANODIZED ALUMINUM  
DARK BRONZE ANODIZED ALUMINUM  
OTHER COLORS AVAILABLE

**NOTE:**

- \* Unit certified for 1 or 2 Electrical Circuits; Consult  
MEH Specifications Sheet, Form #S3451 for more detailed information.

MCA: Minimum Circuit Ampacity  
MDCP: Maximum Overcurrent Protection

INTERIOR DUCTWORK- FLEX DUCT W/ 1"  
INSULATION- CLASS I U.L.-181  
FLAME SPREAD - 15  
SMOKE DEVELOPED - 25

**LEGEND**

Ⓣ THERMOSTAT - WHITE RODGERS 1F95-1277  
WALL MOUNT AT +48" A.F.F.  
GP WIRING DIAGRAM # 11-0356

Ⓢ STAT GUARD, CLEAR, WHITE-RODGERS, F29-0198,

Ⓢ SHOEMAKER 104 SQ. NECK, T-BAR, 4 WAY  
16" X 16" SUPPLY AIR DIFFUSER  
WITH MIN. 26 GA. LINED SIDE OUTLET BDX

**OPTIONS:**

- ① CO2 SENSOR - BARD #8403-096 MOUNT AT 60" A.F.F. (OPTIONAL)
- ② CABINET EXTENSION TRIM KIT
- ③ RISER PLATFORM 3" OR 6"
- ④ SIDE TRIM 4"
- ⑤ MERV. 13 FILTERS (OPTIONAL)
- ⑥ MERV. 16 FILTERS (OPTIONAL)
- ⑦ UV LIGHT FOR INDOOR COIL (OPTIONAL)

**MECHANICAL NOTES**

ROUND FLEX DUCT SHALL BE 'GLASS FLEX' UL-181 OR EQUAL U.L. LISTED CLASS I FLEXIBLE DUCT WITH 13/16" THICK FIBERGLASS INSULATION. NON-PERFORATED LINER AND ADJUSTABLE SHEET METAL COLLARS.

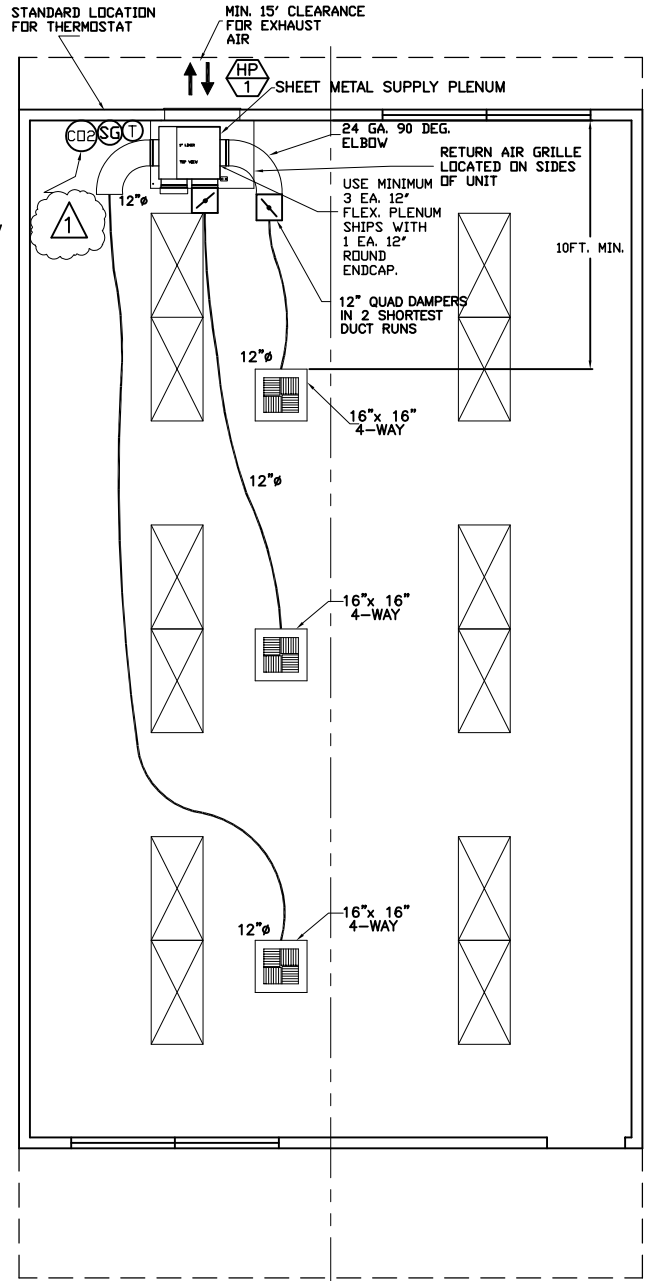
THERMOSTAT PROGRAMMING TO BE PERFORMED AND BATTERY PROVIDED BY OTHERS ON SITE.

TEST AND BALANCE OF HVAC SYSTEM, CRV, OR ECONOMIZER TO BE PROVIDED AND PERFORMED BY OTHERS ON SITE.

ALL HVAC EQUIPMENT LEAVES FACTORY WIRED FOR 240V. OPERATION. THE ACCEPTABLE OPERATING RANGE FOR THE 240 & 208 TAPS ARE:

TAP	RANGE
240	253-216
208	220-187

SAVE AS: 06-0044.DWG



**MECHANICAL PLAN**

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DWG NAME BARD "IxxH" "I-TEC" R410a "INSIDE TYPE" WALLMOUNT HEAT PUMP WITH 3 EA. 12" RD. SUPPLY DUCTS

SIZE  
A

CUSTOMER NAME

JOB NO

DATE

REV. DATE

REV#

APR

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