



THE WALL-MOUNT™ “QUIET CLIMATE” AIR CONDITIONERS

WA381, WA491, WA611
3 to 5 Ton (36,500 to 56,500 Btuh)
Right Side Control Panel

60Hz
Refrigerant 22

- **High Efficiency**
- **Ultra Low Sound Level**

The Bard Wall-Mount Air Conditioner is a self contained energy efficient system, which is designed to offer maximum indoor comfort at a minimal cost without using valuable indoor floor space or outside ground space. This unit is the ideal product for versatile applications such as: new construction, modular offices, school modernization, telecommunication structures, portable structures or correctional facilities. Factory or field installed accessories are available to meet specific job requirements.

Engineered Features

Aluminum Finned Copper Coils:

Grooved tubing and enhanced louvered fin for maximum heat transfer and energy efficiency.

Twin Blowers:

Move air quietly. All models feature multispeed blower motors providing airflow adjustment for low static or free blow (non-ducted) operation at a very low sound level. Motor overload protection is standard on all models.

Air Conditioner Compressor:

Copeland scroll compressors are designed for increased efficiency, quieter operation and improved reliability for longer life. Eliminates need for crankcase heater.

Compressor Control Module:

Built-in off-delay timer adjustable from 30 seconds to 5 minutes. 2-minute on-delay if power interrupt. 120-second bypass for low pressure control, and both soft and manual lockouts for high and low pressure controls. Alarm output for alarm relay.

High Pressure Switch is Auto-Reset

Built-in lockout circuit resets from the room thermostat. Provides commercial quality protection to the compressor.

Phase Rotation Monitor:

Standard on all 3 phase scroll compressors. Protects against reverse rotation if power supply is not properly connected.

Galvanized 20 Gauge Zinc Coated Steel Cabinet:

Cleaned, rinsed, sealed and dried before the polyurethane primer is applied. The cabinet is handsomely finished with a baked on textured enamel, which allows it to withstand 1000 hours of salt spray tests per ASTM B117-03.

Electrical Components:

Are easily accessible for routine inspection and maintenance through a right side, service panel opening. Features a lockable, hinged access cover to the circuit breaker or pull disconnect switch.

Electric Heat Strips:

Features an automatic limit and thermal cutoff safety control. Heater packages can be factory or field installed for all models.

One Inch, Disposable Air Filters:

Are standard equipment. Optional one inch washable filters available and filter racks permit the addition of 2" pleated filter. Factory or field installed.

Condenser Fan and Motor

Shroud Assembly:
Slides out for easy access.

Barometric Fresh Air Damper:

Standard on all units. Allows up to 25% outside fresh air.

Built-in Circuit Breakers:

Standard on all electric heat versions of single (230/208 volt) and three phase (230/208 volt) equipment. Toggle disconnects are standard on all electric heat versions of three phase (460 volt) equipment.

Slope Top:

Standard feature for water runoff.

Full Length Mounting Brackets:

Built into cabinet for improved appearance and easy installation. NOTE: Bottom mounting bracket included to assist in installation.

Top Rain Flashing:

Standard feature on all models.



MEA #357-93-E

Ventilation System Packages

All packages are designed to meet your specific ventilation requirements utilizing one of five ventilation options for the product. The ventilation package is mounted within the unit eliminating the need for an exterior mounted hood or damper assembly on the unit. All assemblies can be factory installed, installed in the field at time of installation or as a retrofit system after installation.

- Standard - Barometric Fresh Air Damper
- Optional - Motorized Fresh Air Damper
- Optional - Blank off Plate
- Optional - Commercial Room Ventilator with Exhaust
 - CRV - Spring Return
 - CRVP - Power Return
- Optional - Economizer with Exhaust
- Optional - Energy Recovery Ventilator

- Complies with efficiency requirements of ASHRAE/IESNA 90.1-2007.
- Certified to ARI Standard 390-2003 for SPVU (Single Package Vertical Units).
- Commercial Product - Not intended for Residential application.



Capacity and Efficiency Ratings

| MODELS | WA381 | WA491 | WA611 |
|-------------------------|--------|--------|--------|
| Cooling Capacity BTUH ① | 36,400 | 48,000 | 56,500 |
| EER ② | 10.7 | 10.0 | 10.2 |

① Capacity is certified in accordance with ANSI/ARI Standard 390-2003.

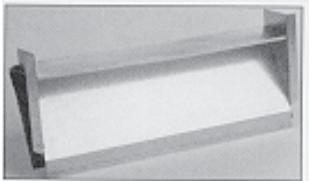
② EER = Energy Efficiency Ratio and is certified in accordance with ARI Standard 390-2003.
All ratings based on fresh air intake being 100% closed (no outside air introduction).

Specifications 3 Ton through 5 Ton

| MODELS | WA381-A | WA381-B | WA381-C | WA491-A | WA491-B | WA491-C | WA611-A | WA611-B | WA611-C |
|---|-------------------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Cooling Capacity | 36,400 | 36,400 | 36,400 | 48,000 | 48,000 | 48,000 | 56,500 | 56,500 | 56,500 |
| Heating Capacity | See Electric Heat Table | | | | | | | | |
| Electrical Rating--60 Hz | 230/208-1 | 230/208-3 | 460-3 | 230/208-1 | 230/208-3 | 460-3 | 230/208-1 | 230/208-3 | 460-3 |
| Operating Voltage Range | 197-253 | 197-253 | 414-506 | 197-253 | 197-253 | 414-506 | 197-253 | 197-253 | 414-506 |
| Compressor--Circuit A | | | | | | | | | |
| Voltage | 230/208 | 230/208 | 460 | 230/208 | 230/208 | 460 | 230/208 | 230/208 | 460 |
| Rated Load Amps | 14.0/14.3 | 10.2/10.4 | 5.1 | 18.6/20.6 | 14.3/15.8 | 6.9 | 21.7/24.2 | 14.1/15.7 | 7.6 |
| Branch Circuit Selection Current | 14.3 | 10.4 | 5.2 | 20.6 | 15.8 | 7.1 | 28.9 | 17.4 | 9.0 |
| Lock Rotor Amps | 93/93 | 77/77 | 39 | 137/137 | 91/91 | 50 | 148/148 | 123/123 | 62 |
| Compressor Type | Scroll | Scroll | Scroll | Scroll | Scroll | Scroll | Scroll | Scroll | Scroll |
| Fan Motor & Condenser | | | | | | | | | |
| Fan Motor--HP-RPM-SPD | 1/3-850-2 | 1/3-850-2 | 1/3-850-2 | 1/3-850-2 | 1/3-850-2 | 1/3-850-2 | 1/3-850-2 | 1/3-850-2 | 1/3-850-2 |
| Fan Motor--Amps | 2.5 | 2.5 | 1.3 | 2.5 | 2.5 | 1.3 | 2.5 | 2.5 | 1.3 |
| Fan--DIA/CFM | 24" - 2600 | 24" - 2600 | 24" - 2600 | 24" - 2600 | 24" - 2600 | 24" - 2600 | 24" - 2600 | 24" - 2600 | 24" - 2600 |
| Blower Motor & Evap. | | | | | | | | | |
| Blower Motor--HP-RPM-SPD | 1/4-800-2 | 1/4-800-2 | 1/4-800-2 | 1/4-800-2 | 1/4-800-2 | 1/4-800-2 | 1/4-800-2 | 1/4-800-2 | 1/4-800-2 |
| Blower Motor--Amps | 1.9 | 1.9 | 1.1 | 1.9 | 1.9 | 1.1 | 1.9 | 1.9 | 1.1 |
| CFM Cooling & E.S.P. w/Filter (Rated-Wet Coil) | 1100 - .15 | 1100 - .15 | 1100 - .15 | 1250 - .20 | 1250 - .20 | 1250 - .20 | 1350 - .20 | 1350 - .20 | 1350 - .20 |
| Filter Sizes (inches) STD. | 20x30x1 | 20x30x1 | 20x30x1 | 20x30x1 | 20x30x1 | 20x30x1 | 20x30x1 | 20x30x1 | 20x30x1 |
| Shipping Weight --LBS. | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 |

Ventilation System Packages

Bard Wall-Mounts are designed to provide optional ventilation packages to meet all of your ventilation and indoor air quality requirements. All units are equipped with a barometric fresh air damper as the standard ventilation package. All ventilation packages can be built-in at the factory, or field-installed at a later date.



BAROMETRIC FRESH AIR DAMPER

BAROMETRIC FRESH AIR DAMPER - BFAD

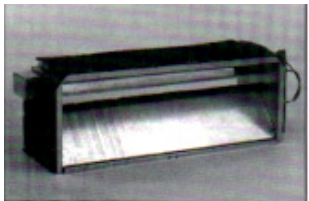
STANDARD

The barometric fresh air damper is a standard feature on all models. It is installed on the inside of the service door and allows outside ventilation air, up to 25% of the total airflow rating of the unit, to be introduced through the air inlet openings and to be mixed with the conditioned air. The damper opens during blower operation and closes when the blower is off. Adjustable blade stops allow different amounts of outside air to be introduced into the building and can be easily locked closed if required.

BLANK OFF PLATE - BOP

OPTIONAL

A blank off plate is installed on the inside of the service door. It covers the air inlet openings which restricts any outside air from entering the unit. The blank off plate should be utilized in applications where outside air is not required to be mixed with the conditioned air.



MOTORIZED FRESH AIR DAMPER

MOTORIZED FRESH AIR DAMPER - MFAD

OPTIONAL

The motorized fresh air damper is internally mounted behind the service door and allows outside ventilation air, up to 25% of the total airflow rating of the unit, to be introduced through the air inlet openings and to be mixed with the conditioned air. The two position damper can be fully open or closed. The damper blade is powered open by a 24VAC motor with spring return on power loss. The damper can be controlled by indoor blower operation or can be field connected to be managed based on building occupancy.

NOTE: The above vent systems are intake only without built-in exhaust capability. Building will likely require separate field installed barometric relief or mechanical exhaust elsewhere within the conditioned space. Balancing dampers in the return air grille may be required to achieve specified amount of outdoor air intake.

COMMERCIAL ROOM VENTILATOR - CRV

OPTIONAL

The built-in commercial room ventilator is internally mounted behind the service door and allows outside ventilation air, up to 50% of the total airflow rating of the unit, to be introduced through the air inlet openings. It includes a built-in exhaust air damper.

The commercial room ventilator (CRV) is a simple and innovative approach to improving the indoor air quality by providing fresh air intake and exhaust capability through the CRV. The damper can be easily adjusted to control the amount of fresh air supplied into the building. The CRV can be controlled by indoor blower operation or field controlled based on room occupancy. Two versions are available: the CRVS is power open - spring return on power loss and the CRVP is power open and power close. Complies with ANSI/ASHRAE Standard 62.1 "Ventilation for Acceptable Indoor Air Quality."



COMMERCIAL ROOM VENTILATOR

ECONOMIZER - EIFM

OPTIONAL

The built-in economizer system is internally mounted behind the service door and allows outdoor air to be introduced through the air inlet openings. The amount of outdoor air varies in response to the system controls and settings defined by the end user. It includes a built-in exhaust air damper. The economizer is designed to provide "free cooling" when outside air conditions are cool and dry enough to satisfy cooling requirements without running the compressor. This in turn provides lower operating costs, while extending the life of the compressor.

Standard Features:

- One Piece Construction - Easy to install with no mechanical linkage adjustment required.
- Exhaust Air Damper - Built in with positive closed position. Provides exhaust air capability to prevent pressurization of tight buildings.
- Actuator Motor - 24 volt, power open, spring return with built in torque limiting switch.
- Proportioning Type Control - for maximum "free cooling" economy and comfort.
- Moisture Eliminator & Prefilter - permanent, washable aluminum construction.
- Enthalpy Control - adjustable to monitor outdoor temperature and humidity.
- Minimum Position Potentiometer - adjustable to control minimum damper blade position for ventilation purposes.
- Mixed Air Sensor - to monitor outside and return air to automatically modulate damper position.



ECONOMIZER

WALL-MOUNT ENERGY RECOVERY VENTILATOR - WERV

OPTIONAL

The wall-mount energy recovery ventilator (WERV) is a highly innovative approach to meeting indoor air quality ventilation requirements as established by ANSI/ASHRAE Standard 62.1. The WERV allows from 200 to 450 CFM (depending upon model) of fresh air and exhaust through the unit while maintaining superior indoor comfort and humidity levels. In most cases this can be accomplished without increasing equipment sizing or operating costs. Heat transfer efficiency is up to 67% during summer and 75% during winter conditions.

The WERV consists of a unique "rotary energy recovery cassette" that provides effective sensible and latent heat transfer capabilities during summer and winter conditions. Various control schemes are addressed including limiting ventilation during building occupancy only.

The WERV is designed to be internally mounted behind the service door in the WA, WH or WL model wall-mount units. It can be built-in at the factory or field installed as an option. WERV-*5C can be independently adjusted for intake and exhaust rates.



ENERGY RECOVERY VENTILATOR

Electrical Specifications

| Model | Rated Volts and Phase | No. Field Power Circuits | Single Circuit | | | |
|---|-----------------------|--------------------------|----------------------------|---------------------------------------|-------------------------|----------------------|
| | | | ③ Minimum Circuit Ampacity | ① Maximum External Fuse or Ckt. Brkr. | ② Field Power Wire Size | ④ Ground Wire |
| WA381 - A00, A0Z - A05 - A08 - A10 | 230/208-1 | 1 1 1 1 | 25 32 47 58 | 35 35 50 60 | 8 8 8 6 | 10 10 10 10 |
| WA381 - B00, B0Z - B06 - B09 | 230/208-3 | 1 1 1 | 20 24 33 | 30 30 35 | 10 10 8 | 10 10 10 |
| WA381 - C00, C0Z - C06 - C09 | 460-3 | 1 1 1 | 11 13 17 | 15 15 20 | 14 14 12 | 14 14 12 |
| WA491 - A00, A0Z - A05 - A08 - A10 | 230/208-1 | 1 1 1 1 | 33 33 47 58 | 50 50 50 60 | 8 8 8 6 | 10 10 10 10 |
| WA491 - B00, B0Z - B06 - B09 | 230/208-3 | 1 1 1 | 27 27 33 | 40 40 40 | 8 8 8 | 10 10 10 |
| WA491 - C00, C0Z - C06 - C09 | 460-3 | 1 1 1 | 13 13 17 | 15 15 20 | 14 14 12 | 14 14 12 |
| WA611 - A00, A0Z - A05 - A08 - A10 | 230/208-1 | 1 1 1 1 | 43 43 47 58 | 60 60 60 60 | 8 8 8 6 | 10 10 10 10 |
| WA611 - B00, B0Z - B09 | 230/208-3 | 1 1 | 29 33 | 45 45 | 8 8 | 10 10 |
| WA611 - C00, C0Z - C09 | 460-3 | 1 1 | 15 17 | 20 20 | 12 12 | 12 12 |

① Maximum size of the time delay fuse or HACR type circuit breaker for protection of field wiring conductors.

② Based on 75C copper wire. All wiring must conform to the National Electrical Code and all local codes.

③ These "Minimum Circuit Ampacity" values are to be used for sizing the field power conductors. Refer to the National Electrical code (latest version), Article 310 for power conductor sizing.

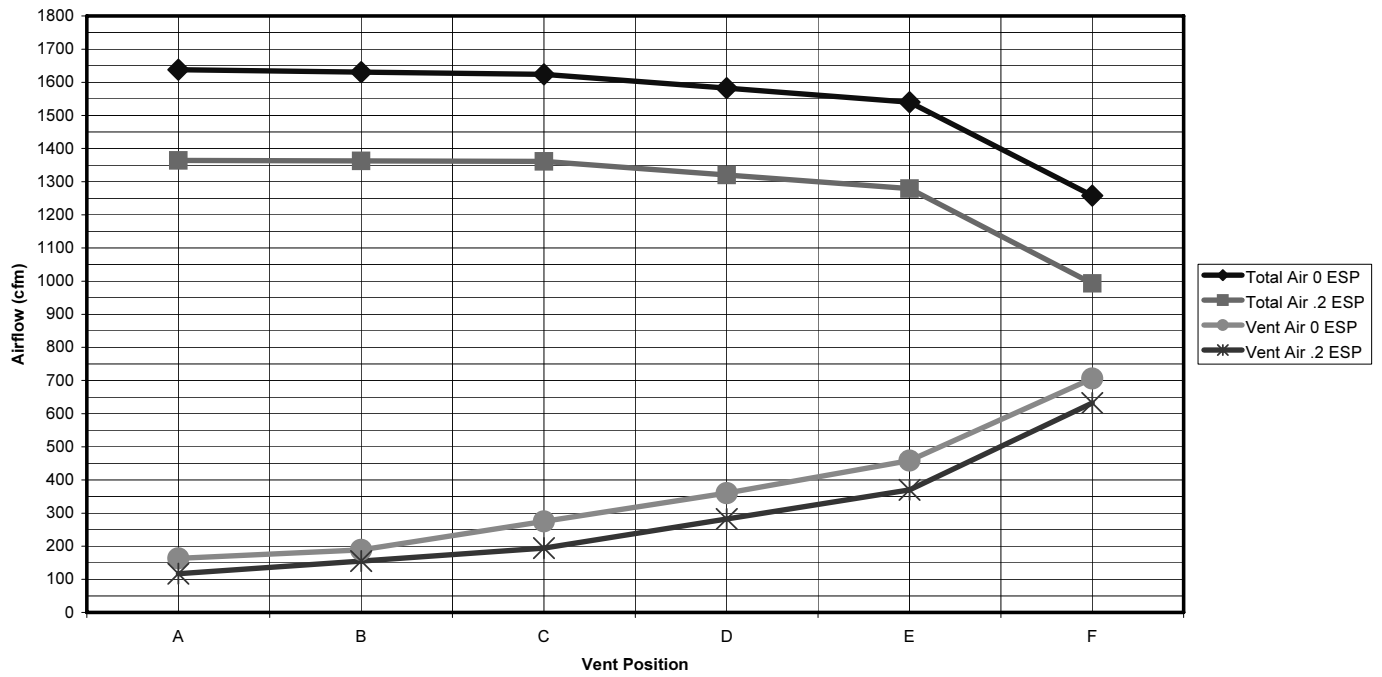
Caution: When more than one field power circuit is run through one conduit, the conductors must be derated. Pay special attention to note 8 of Table 310 regarding Ampacity Adjustment Factors when more than three (3) current carrying conductors are in a raceway.

* Top outlet supply option is available only factory installed and only on the selected models.

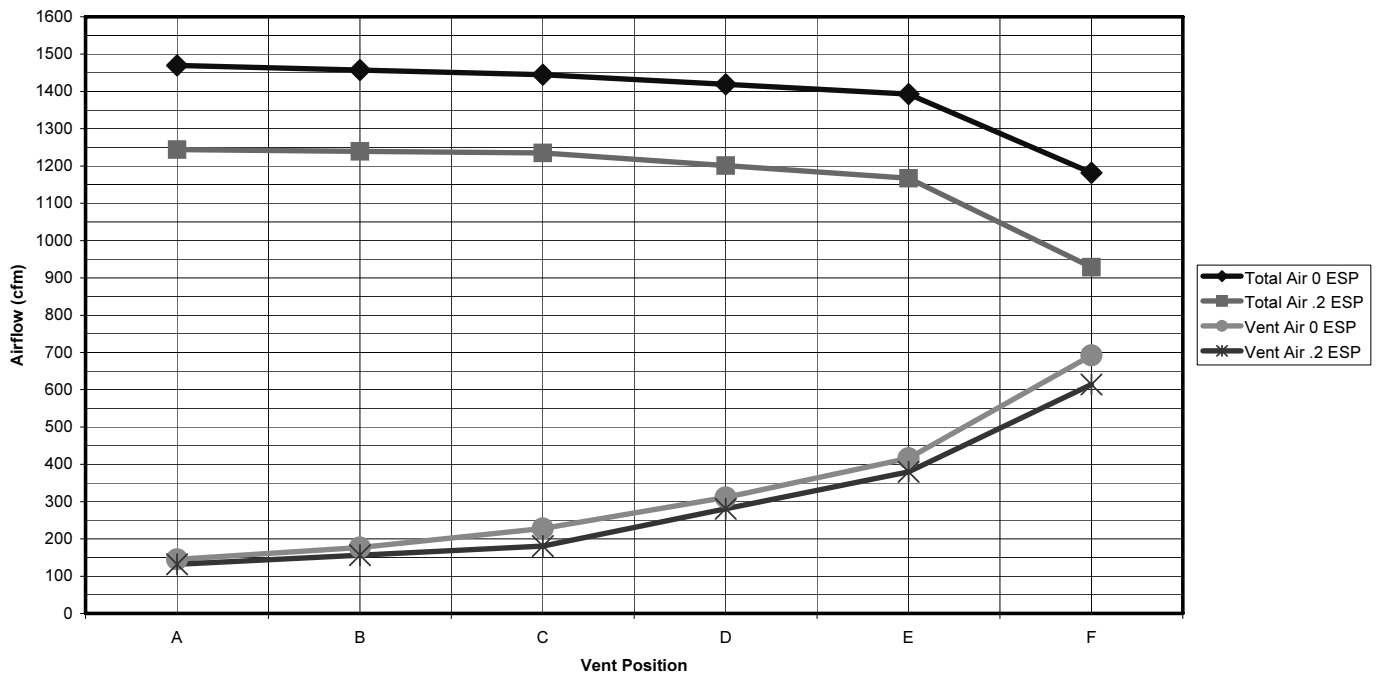
IMPORTANT: While this electrical data is presented as a guide, it is important to electrically connect properly sized fuses and conductor wires in accordance with the National Electrical Code and all local codes.

Commercial Room Ventilator Performance Data : CRVS-5 and CRVP-5

WA381, WA491, WA611 High Speed Total and Ventilation Airflow



WA381, WA491, WA611 Medium Speed Total and Ventilation Airflow



Performance and Application Data - WERV-*5C (WA381, WA491 & WA611)

SUMMER COOLING PERFORMANCE (INDOOR DESIGN CONDITIONS 75°DB/62°WB)

| Ambient O.D. | VENTILATION RATE -- 450 CFM 65% EFFICIENCY | | | | | | VENTILATION RATE -- 375 CFM 66% EFFICIENCY | | | | | | VENTILATION RATE -- 300 CFM 67% EFFICIENCY | | | | | | | |
|--------------|---|---|-------|-------|-------|-------|---|-------|-------|-------|-------|-------|---|-------|-------|------|-------|-------|------|-------|
| | DB/ WB | F | VLT | VLS | VLL | HRT | HRS | HRL | VLT | VLS | VLL | HRT | HRS | HRL | VLT | VLS | VLL | HRT | HRS | HRL |
| 105 | 75 | | 21465 | 14580 | 6884 | 13952 | 9477 | 4475 | 17887 | 12150 | 5737 | 11805 | 8018 | 3786 | 14310 | 9720 | 4590 | 9587 | 6512 | 3075 |
| | 70 | | 14580 | 14580 | 0 | 9477 | 9477 | 0 | 12150 | 12150 | 0 | 8018 | 8018 | 0 | 9720 | 9720 | 0 | 6512 | 6512 | 0 |
| | 65 | | 14580 | 14580 | 0 | 9477 | 9477 | 0 | 12150 | 12150 | 0 | 8018 | 8018 | 0 | 9720 | 9720 | 0 | 6512 | 6512 | 0 |
| 100 | 80 | | 31590 | 12150 | 19440 | 20533 | 7897 | 12635 | 26325 | 10125 | 16200 | 17374 | 6682 | 10692 | 21060 | 8100 | 12960 | 14110 | 5427 | 8683 |
| | 75 | | 21465 | 12150 | 9314 | 13952 | 7897 | 6054 | 17887 | 10125 | 7762 | 11805 | 6682 | 5123 | 14310 | 8100 | 6210 | 9587 | 5427 | 4160 |
| | 70 | | 12352 | 12150 | 202 | 8029 | 7897 | 131 | 10293 | 10125 | 168 | 6793 | 6682 | 111 | 8235 | 8100 | 135 | 5517 | 5427 | 90 |
| | 65 | | 12150 | 12150 | 0 | 7897 | 7897 | 0 | 10125 | 10125 | 0 | 6682 | 6682 | 0 | 8100 | 8100 | 0 | 5427 | 5427 | 0 |
| | 60 | | 12150 | 12150 | 0 | 7897 | 7897 | 0 | 10125 | 10125 | 0 | 6682 | 6682 | 0 | 8100 | 8100 | 0 | 5427 | 5427 | 0 |
| 95 | 80 | | 31590 | 9720 | 21870 | 20533 | 6318 | 14215 | 26325 | 8100 | 18225 | 17374 | 5345 | 12028 | 21060 | 6480 | 14580 | 14110 | 4341 | 9768 |
| | 75 | | 21465 | 9720 | 11744 | 13952 | 6318 | 7634 | 17887 | 8100 | 9787 | 11805 | 5345 | 6459 | 14310 | 6480 | 7830 | 9587 | 4341 | 5246 |
| | 70 | | 12352 | 9720 | 2632 | 8029 | 6318 | 1711 | 10293 | 8100 | 2193 | 6793 | 5345 | 1447 | 8235 | 6480 | 1755 | 5517 | 4341 | 1175 |
| | 65 | | 9720 | 9720 | 0 | 6318 | 6318 | 0 | 8100 | 8100 | 0 | 5345 | 5345 | 0 | 6480 | 6480 | 0 | 4341 | 4341 | 0 |
| | 60 | | 9720 | 9720 | 0 | 6318 | 6318 | 0 | 8100 | 8100 | 0 | 5345 | 5345 | 0 | 6480 | 6480 | 0 | 4341 | 4341 | 0 |
| 90 | 80 | | 31590 | 7290 | 24300 | 20533 | 4738 | 15794 | 26325 | 6075 | 20250 | 17374 | 4009 | 13365 | 21060 | 4860 | 16200 | 14110 | 3256 | 10854 |
| | 75 | | 21465 | 7290 | 14175 | 13952 | 4738 | 9213 | 17887 | 6075 | 11812 | 11805 | 4009 | 7796 | 14310 | 4860 | 9450 | 9587 | 3256 | 6331 |
| | 70 | | 12352 | 7290 | 5062 | 8029 | 4738 | 3290 | 10293 | 6075 | 4218 | 6793 | 4009 | 2784 | 8235 | 4860 | 3375 | 5517 | 3256 | 2261 |
| | 65 | | 7290 | 7290 | 0 | 4738 | 4738 | 0 | 6075 | 6075 | 0 | 4009 | 4009 | 0 | 4860 | 4860 | 0 | 3256 | 3256 | 0 |
| | 60 | | 7290 | 7290 | 0 | 4738 | 4738 | 0 | 6075 | 6075 | 0 | 4009 | 4009 | 0 | 4860 | 4860 | 0 | 3256 | 3256 | 0 |
| 85 | 80 | | 31590 | 4860 | 26730 | 20533 | 3159 | 17374 | 26325 | 4050 | 22275 | 17374 | 2672 | 14701 | 21060 | 3240 | 17820 | 14110 | 2170 | 11939 |
| | 75 | | 21465 | 4860 | 16605 | 13952 | 3159 | 10793 | 17887 | 4050 | 13837 | 11805 | 2672 | 9132 | 14310 | 3240 | 11070 | 9587 | 2170 | 7416 |
| | 70 | | 12352 | 4860 | 7492 | 8029 | 3159 | 4870 | 10293 | 4050 | 6243 | 6793 | 2672 | 4120 | 8235 | 3240 | 4995 | 5517 | 2170 | 3346 |
| | 65 | | 4860 | 4860 | 0 | 3159 | 3159 | 0 | 4050 | 4050 | 0 | 2672 | 2672 | 0 | 3240 | 3240 | 0 | 2170 | 2170 | 0 |
| | 60 | | 4860 | 4860 | 0 | 3159 | 3159 | 0 | 4050 | 4050 | 0 | 2672 | 2672 | 0 | 3240 | 3240 | 0 | 2170 | 2170 | 0 |
| 80 | 75 | | 21465 | 2430 | 19035 | 13952 | 1579 | 12372 | 17887 | 2025 | 15862 | 11805 | 1336 | 10469 | 14310 | 1620 | 12690 | 9587 | 1085 | 8502 |
| | 70 | | 12352 | 2430 | 9922 | 8029 | 1579 | 6449 | 10293 | 2025 | 8268 | 6793 | 1336 | 5457 | 8235 | 1620 | 6615 | 5517 | 1085 | 4432 |
| | 65 | | 4252 | 2430 | 1822 | 2764 | 1579 | 1184 | 3543 | 2025 | 1518 | 2338 | 1336 | 1002 | 2835 | 1620 | 1215 | 1899 | 1085 | 814 |
| | 60 | | 2430 | 2430 | 0 | 1579 | 1579 | 0 | 2025 | 2025 | 0 | 1336 | 1336 | 0 | 1620 | 1620 | 0 | 1085 | 1085 | 0 |
| 75 | 70 | | 12352 | 0 | 12352 | 8029 | 0 | 8029 | 10293 | 0 | 10293 | 6793 | 0 | 6793 | 8235 | 0 | 8235 | 5517 | 0 | 5517 |
| | 65 | | 4252 | 0 | 4252 | 2764 | 0 | 2764 | 3543 | 0 | 3543 | 2338 | 0 | 2338 | 2835 | 0 | 2835 | 1899 | 0 | 1899 |
| | 60 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

WERV-*5C WINTER HEATING PERFORMANCE (INDOOR DESIGN CONDITIONS 70°F DB)

| Ambient O.D. | VENTILATION RATE | | | | | |
|--------------|---------------------------|-------|---------------------------|-------|---------------------------|-------|
| | 450 CFM 80% EFFICIENCY | | 375 CFM 81% EFFICIENCY | | 300 CFM 82% EFFICIENCY | |
| DB/°F | WVL | WHR | WVL | WHR | WVL | WHR |
| 65 | 2430 | 1944 | 2025 | 1640 | 1620 | 1328 |
| 60 | 4860 | 3888 | 4050 | 3280 | 3240 | 2656 |
| 55 | 7290 | 5832 | 6075 | 4920 | 4860 | 3985 |
| 50 | 9720 | 7776 | 8100 | 6561 | 6480 | 5313 |
| 45 | 12150 | 9720 | 10125 | 8201 | 8100 | 6642 |
| 40 | 14580 | 11664 | 12150 | 9841 | 9720 | 7970 |
| 35 | 17010 | 13608 | 14175 | 11481 | 11340 | 9298 |
| 30 | 19440 | 15552 | 16200 | 13122 | 12960 | 10627 |
| 25 | 21870 | 17496 | 18225 | 14762 | 14580 | 11955 |
| 20 | 24300 | 19440 | 20250 | 16402 | 16200 | 13284 |
| 15 | 26730 | 21384 | 22275 | 18042 | 17820 | 14612 |

NOTE: Sensible performance only is shown for winter application.

LEGEND:

- VLT = Ventilation Load - Total
- VLS = Ventilation Load - Sensible
- VLL = Ventilation Load - Latent
- HRT = Heat Recovery - Total
- HRS = Heat Recovery - Sensible
- HRL = Heat Recovery - Latent
- WVL = Winter Ventilation Load
- WHR = Winter Heat Recovery

Indoor Blower Performance - CFM at Rated Volts

| E.S.P. In H ₂ O | WA381 | | | | | | WA491 [Ⓞ] | | | | WA611 [Ⓞ] | | | |
|----------------------------------|------------|----------|---------------------------|----------|-----------|----------|-------------------------|----------|--------------|----------|-------------------------|----------|--------------|----------|
| | High Speed | | Medium Speed [Ⓞ] | | Low Speed | | High Speed [Ⓞ] | | Medium Speed | | High Speed [Ⓞ] | | Medium Speed | |
| | Dry Coil | Wet Coil | Dry Coil | Wet Coil | Dry Coil | Wet Coil | Dry Coil | Wet Coil | Dry Coil | Wet Coil | Dry Coil | Wet Coil | Dry Coil | Wet Coil |
| .0 | 1625 | 1475 | 1425 | 1325 | 1125 | 1100 | 1700 | 1550 | 1475 | 1375 | 1700 | 1600 | 1475 | 1425 |
| .1 | 1475 | 1350 | 1325 | 1200 | 1100 | 1000 | 1550 | 1400 | 1375 | 1250 | 1550 | 1500 | 1375 | 1350 |
| .2 | 1350 | 1150 | 1200 | 1025 | 1000 | 850 | 1400 | 1250 | 1250 | 1100 | 1400 | 1350 | 1250 | 1200 |
| .3 | 1150 | | 1025 | 875 | | | 1250 | 1100 | 1100 | | 1250 | 1150 | | |

Above data is with 1" standard throwaway filter and 1" washable filter.

For optional 2" pleated filter - reduce ESP by .15 in.

See installation instructions for maximum ESP information on various KW application.

Ⓞ Factory connected motor speed.

Ⓞ Low speed is not suitable for operation on these models.

Electric Heat Table - Refer to Electrical Specifications for Availability by Unit Model

| Nominal KW | At 240V (1) | | | | At 208V (1) | | | | At 480V (2) | | | At 460V (2) | | |
|---------------|-------------|--------------|--------------|--------|-------------|--------------|--------------|--------|-------------|--------------|--------|-------------|--------------|--------|
| | KW | 1-Ph Amps | 3-Ph Amps | BTUH | KW | 1-Ph Amps | 3-Ph Amps | BTUH | KW | 3-Ph Amps | BTUH | KW | 3-Ph Amps | BTUH |
| 5.0 | 5.0 | 20.8 | | 17,065 | 3.75 | 18.0 | | 12,799 | | | | | | |
| 6.0 | 6.0 | | 14.4 | 20,478 | 4.50 | | 12.5 | 15,359 | 6.0 | 7.2 | 20,478 | 5.52 | 6.9 | 18,840 |
| 8.0 | 8.0 | 33.3 | | 27,304 | 6.00 | 28.8 | | 20,478 | | | | | | |
| 9.0 | 9.0 | | 21.7 | 30,717 | 6.75 | | 18.7 | 23,038 | 9.0 | 10.8 | 30,717 | 8.28 | 10.4 | 28,260 |
| 10.0 | 10.0 | 41.7 | | 34,130 | 7.50 | 36.1 | | 25,598 | | | | | | |

(1) These electric heaters are available in 230/208V units only.

(2) These electric heaters are available in 480V units only.

Heater Packages - Field Installed

- Designed for adding Electric Heat to 0 KW Units
- Circuit Breaker Standard on 230/208V Models
- Pull Disconnect Standard on 460V Models
- UL Listed
- CUL Listed

| Air Conditioner Models | -A00 Models 230/208-1 | | -B00 Models 230/208-3 | | -C00 Models 460-3 | |
|---------------------------|--------------------------|----|--------------------------|----|----------------------|----|
| | Heater Model # | KW | Heater Model # | KW | Heater Model # | KW |
| WA381 | EHWA38-A05 | 5 | EHWA38-B06 | 6 | EHWA38-C06 | 6 |
| | EHWA38-A08 | 8 | EHWA38-B09 | 9 | EHWA05A-C09 | 9 |
| | EHWA38-A10 | 10 | | | | |
| WA491 | EHWA49-A05 | 5 | EHWA49-B06 | 6 | EHWA38-C06 | 6 |
| | EHWA38-A08 | 8 | EHWA38-B09 | 9 | EHWA05A-C09 | 9 |
| | EHWA38-A10 | 10 | | | | |
| WA611 | EHWA61-A05 | 5 | EHWA61-B09 | 9 | EHWA05A-C09 | 9 |
| | EHWA61-A08 | 8 | | | | |
| | EHWA61-A10 | 10 | | | | |

Cooling Application Data - Outdoor Temperature ①

| Model | D.B./W.B. ② | Cooling Capacity | 75°F | 80°F | 85°F | 90°F | 95°F | 100°F | 105°F | 110°F | 115°F | 120°F | 125°F |
|-------|----------------|------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| WA381 | 75/ 62 | Total Cooling | 37,900 | 36,200 | 34,700 | 33,200 | 31,800 | 30,600 | 29,300 | 28,200 | 27,100 | 26,100 | 25,100 |
| | | Sensible Cooling | 29,700 | 28,900 | 28,200 | 27,500 | 26,800 | 26,200 | 25,500 | 24,900 | 24,200 | 23,700 | 23,100 |
| | 80/ 67 | Total Cooling | 40,400 | 39,400 | 38,500 | 37,500 | 36,400 | 35,600 | 34,600 | 33,600 | 32,600 | 31,600 | 30,600 |
| | | Sensible Cooling | 28,800 | 28,300 | 27,900 | 27,500 | 27,000 | 26,600 | 26,100 | 25,700 | 25,200 | 24,800 | 24,300 |
| | 85/ 72 | Total Cooling | 48,100 | 46,100 | 44,200 | 42,400 | 40,600 | 39,000 | 37,300 | 35,800 | 34,300 | 32,900 | 31,500 |
| | | Sensible Cooling | 29,500 | 28,700 | 28,100 | 27,300 | 26,500 | 25,800 | 24,900 | 24,100 | 23,200 | 22,400 | 21,500 |
| WA491 | 75/ 62 | Total Cooling | 50,700 | 48,200 | 45,800 | 43,800 | 41,800 | 40,100 | 38,500 | 37,200 | 35,800 | 34,700 | 33,700 |
| | | Sensible Cooling | 36,100 | 35,300 | 34,500 | 33,600 | 32,800 | 31,900 | 31,100 | 30,300 | 29,500 | 28,700 | 27,900 |
| | 80/ 67 | Total Cooling | 54,100 | 52,500 | 50,900 | 49,500 | 48,000 | 46,700 | 45,400 | 44,300 | 43,100 | 42,100 | 41,100 |
| | | Sensible Cooling | 35,000 | 34,600 | 34,100 | 33,600 | 33,100 | 32,500 | 31,900 | 31,300 | 30,700 | 30,000 | 29,300 |
| | 85/ 72 | Total Cooling | 64,500 | 61,400 | 58,500 | 55,900 | 53,300 | 51,100 | 49,000 | 47,100 | 45,300 | 43,800 | 42,300 |
| | | Sensible Cooling | 35,900 | 35,100 | 34,300 | 33,400 | 32,500 | 31,500 | 30,400 | 29,400 | 28,300 | 27,100 | 25,900 |
| WA611 | 75/ 62 | Total Cooling | 57,200 | 55,400 | 53,500 | 51,400 | 49,200 | 46,900 | 44,400 | 41,800 | 39,100 | 36,100 | 33,100 |
| | | Sensible Cooling | 40,600 | 39,800 | 38,900 | 37,900 | 36,900 | 35,800 | 34,700 | 33,600 | 32,300 | 31,100 | 29,700 |
| | 80/ 67 | Total Cooling | 61,100 | 60,400 | 59,400 | 58,100 | 56,500 | 54,600 | 52,400 | 49,900 | 47,000 | 43,800 | 40,300 |
| | | Sensible Cooling | 39,400 | 39,000 | 38,500 | 37,900 | 37,200 | 36,400 | 35,600 | 34,700 | 33,600 | 32,500 | 31,300 |
| | 85/ 72 | Total Cooling | 72,800 | 70,600 | 68,200 | 65,600 | 62,800 | 59,700 | 56,500 | 53,100 | 49,400 | 45,500 | 41,500 |
| | | Sensible Cooling | 40,400 | 39,600 | 38,700 | 37,700 | 36,500 | 35,200 | 33,900 | 32,500 | 31,000 | 29,400 | 27,700 |

① Below 65°F, unit requires a factory or field installed low ambient control.

② Return air temperature °F.

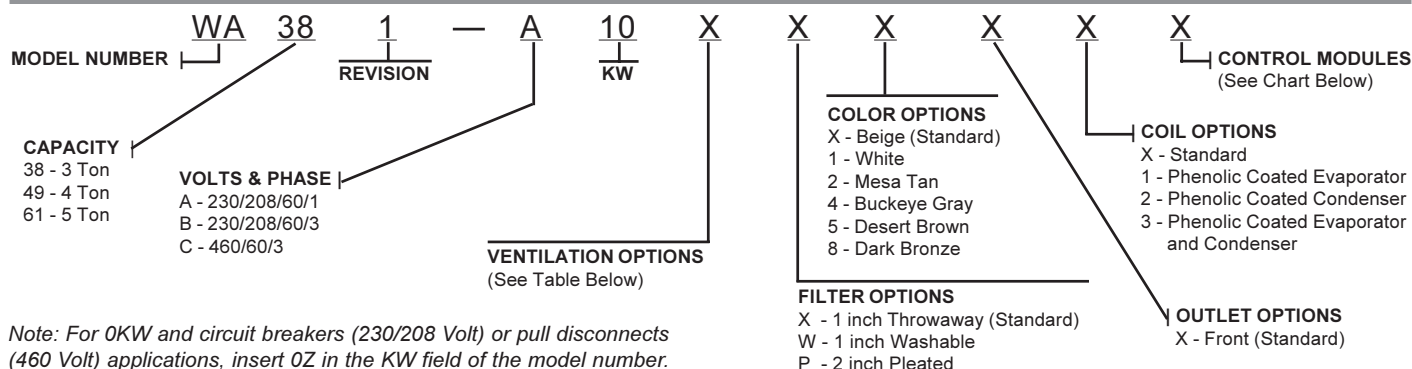
Capacity Multiplier Factors

| % of Rated Airflow | -10 | Rated | +10 |
|--------------------|-------|-------|------|
| Total BTUH | 0.975 | 1.0 | 1.02 |
| Sensible BTUH | 0.950 | 1.0 | 1.05 |

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Air Conditioning Wall-Mount Model Nomenclature



Note: For 0KW and circuit breakers (230/208 Volt) or pull disconnects (460 Volt) applications, insert 0Z in the KW field of the model number.

Ventilation Options

| Models | WA381, WA491, WA611 | |
|---|----------------------------|--------------------------|
| Description | Factory Installed Code No. | Field Installed Part No. |
| Barometric Fresh Air Damper - Standard | X | BFAD-5 |
| Blank-Off Plate | B | BOP-5 |
| Motorized Fresh Air Damper | M | MFAD-5 |
| Commercial Ventilator - Spring Return w/Exhaust | V | CRVS-5 |
| Commercial Ventilator - Power Return w/Exhaust | P | CRVP-5 |
| Economizer - Fully Modulating ① | E | EIFM-5C |
| Economizer - Fully Modulating ①② | D | N/A |
| Energy Recovery Ventilator - 230 Volt | R | WERV-A5C-* ③ |
| Energy Recovery Ventilator - 460 Volt | R | WERV-C5C-* ③ |

① Low ambient control is required with economizer for low temperature compressor operation.

② For use only with "V" Control Module and TCS23 Controller.

③ Intake and exhaust can be independently adjusted.

* Color option must be specified to match unit.

Air Conditioning Control Modules

| AVAILABLE CONTROL OPTIONS | | | | | | | | WA381, WA491, WA611 Models with Scroll Compressors | |
|---------------------------|-------|-------|-------|-------|------|-------|-------|---|-----------------------------|
| HPC ① | LPC ② | CCM ③ | LAC ④ | ALR ⑤ | SK ⑥ | ODT ⑦ | DDC ⑧ | Factory Installed Code | Field Installed Part |
| STD | ● | STD | | | | | | G | CMA-16A |
| STD | ● | STD | ● | | | | | H | CMA-18A |
| STD | | STD | ● | | | | | I | CMA-6 |
| STD | ● | STD | ● | ● | | | | J | Factory Only |
| STD | ● | STD | ● | | ● | | | K | CMA-13A & CMC-15 |
| STD | ● | STD | ● | ● | ● | | | M | Factory Only |
| STD | | STD | | | ● | | | Field Installed Only | CMC-15 ⑩ |
| STD | | STD | | | ● | | | Field Installed Only | SK111 ⑧ WA381-A, WA491-A |
| STD | | STD | | | ● | | | Field Installed Only | SK113 ⑧ WA611-A |
| STD | | STD | | | | ● | | Field Installed Only | CMA-14 |
| STD | ● | STD | ● | ● | | | ● | V ⑪ | Factory Only |
| STD | | STD | | | | | ● | Field Installed Only | CMA-24 |

STD = Standard equipment for these specified models.

① HPC. High pressure control is auto reset. Always used with compressor control module (CCM) which is included. See note ③.

② LPC. Low pressure control is auto reset. Always used with compressor control module (CCM) which is included. See note ③.

③ CCM. Compressor control module has adjustable 30-second to 5-minute delay-on-break timer. On initial power-up, or any time the power is interrupted, the delay-on-make will be 2 minutes plus 10% of the delay-on-break setting. There is no delay-on-make during routine operation of the unit. The module also provides the lockout feature (with 1 retry) for high and/or low-pressure controls, and a 2-minute timed bypass for low-pressure control.

④ LAC. Low ambient control permits cooling operation down to 0°F.

⑤ ALR. The alarm relay has a set of normally open and normally closed dry contacts to provide the ability to signal a condition of shutdown on either high or low pressure controls.

⑥ SK. Start kit can be used with all -A single phase models only. Is not used or available for -B or -C three phase models.

⑦ PTCR start kit can be used with all -A single phase models. Increases starting torque 2-3x. Not used for -B or -C three phase models. Do not use if SK111 or SK113 is used.

⑧ Start capacitor and potential relay start kit can be used with all -A single phase models. Increases starting torque 9x. Not used for -B or -C three phase models. Do not use if CMC-15 is used. Use SK111 for WA611-A only. Use SK113 for WA381-A and WA491-A only.

⑨ ODT. Outdoor thermostat is adjustable from 0 to 50°F. It is suitable for use as a compressor cutoff thermostat.

⑩ DDC. Incorporates 4 additional sensors: discharge air temperature, indoor blower airflow, compressor current, and dirty filter. These sensing devices function to input analog data such as temperature, as well as digital data such as air flow, compressor status or filter status.

⑪ "V" control module should be ordered in conjunction w/direct digital controller (DDC) model TCS23. Refer to DDC specification sheet S3280 for more information.

Clearances Required for Service Access and Adequate Condenser Airflow

| MODELS | LEFT SIDE | RIGHT SIDE |
|---------------------|-----------|------------|
| WA381, WA491, WA611 | 20" | 20" |

Minimum Clearances Required to Combustible Materials

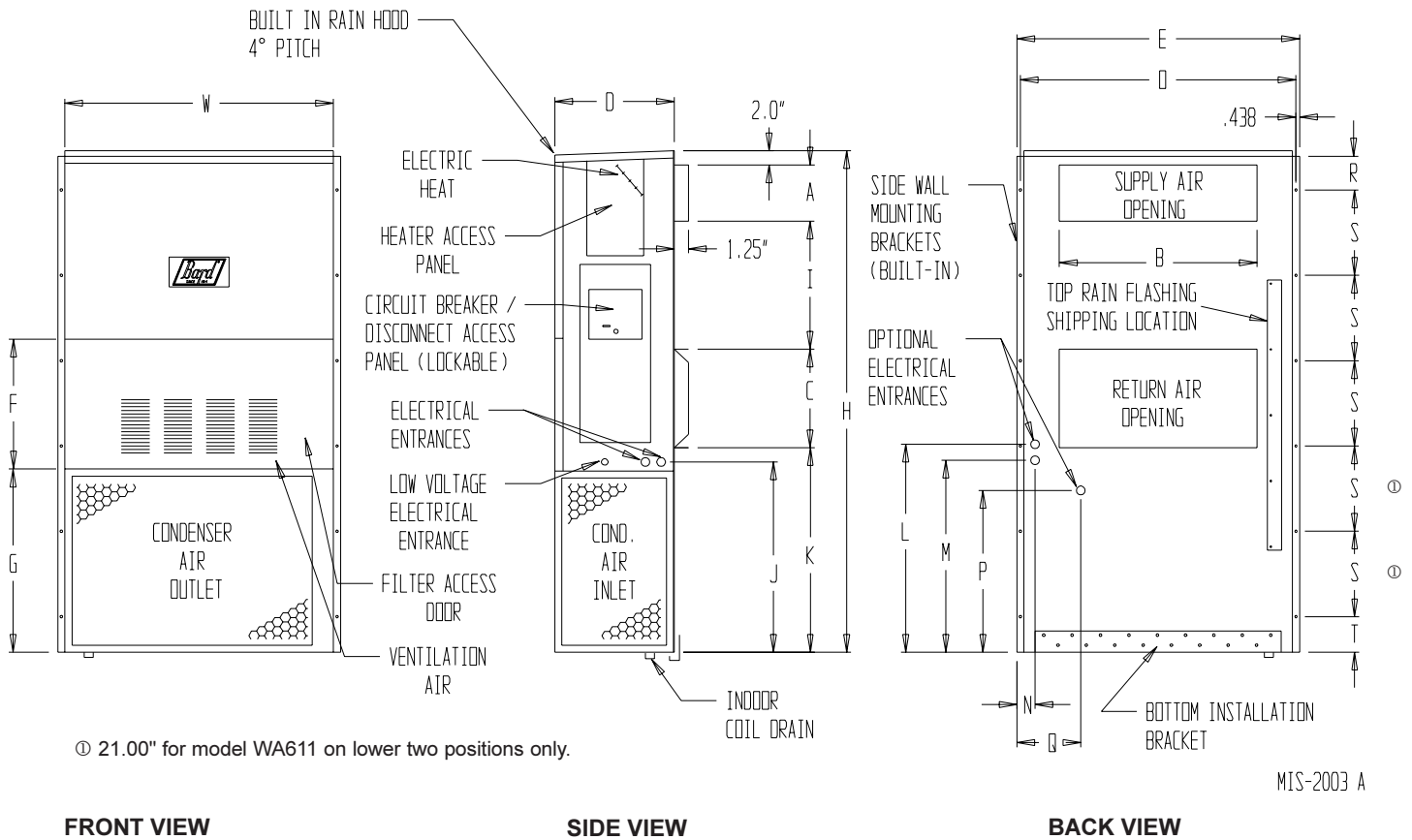
| MODELS ① | SUPPLY AIR DUCT FIRST THREE FEET | CABINET |
|---------------------|----------------------------------|---------|
| WA381, WA491, WA611 | 1/4" | 0" |

① Refer to Installation Instructions for detailed information

Dimensions of Basic Unit for Architectural and Installation Requirements (Nominal)

| MODEL | WIDTH (W) | DEPTH (D) | HEIGHT (H) | SUPPLY | | RETURN | | | | | | | | | | | | | | | | |
|----------------|-----------|-----------|------------|--------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|------|-------|------|
| | | | | A | B | C | B | E | F | G | I | J | K | L | M | N | O | P | Q | R | S | T |
| WA381 WA491 | 42.075 | 22.432 | 84.875 | 9.88 | 29.88 | 15.88 | 29.88 | 43.88 | 19.10 | 31.66 | 30.00 | 32.68 | 26.94 | 34.69 | 32.43 | 3.37 | 42.88 | 23.88 | 10.00 | 1.44 | 16.00 | 1.88 |
| WA611 | 42.075 | 22.432 | 94.875 | 9.88 | 29.88 | 15.88 | 29.88 | 43.88 | 19.10 | 41.66 | 30.00 | 42.68 | 36.94 | 44.69 | 42.43 | 3.37 | 42.88 | 33.88 | 10.00 | 2.00 | 16.00 | 1.88 |

All dimensions are in inches. Dimensional drawings are not to scale.



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Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

Form No.
S3348
February, 2009

Supersedes S3348-1008