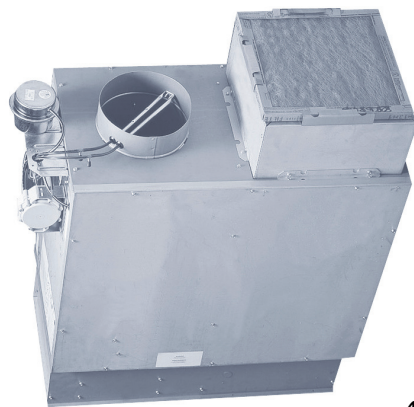




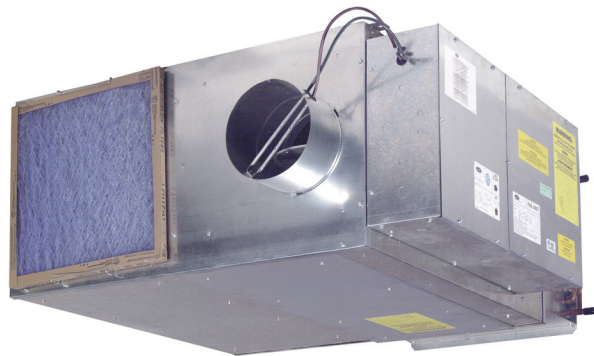
Product Data

Standard, Quiet, and Low Profile Fan-Powered Variable Air Volume Terminals

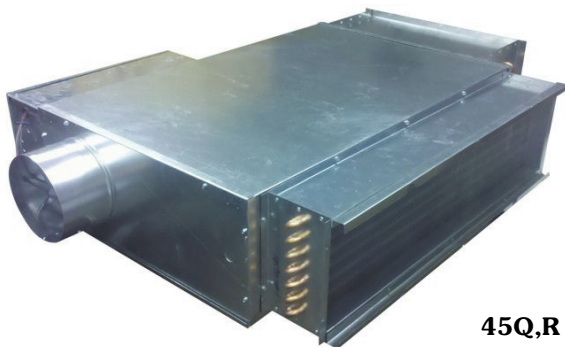
Nominal 100 to 3900 cfm



45J,M



45K,N



45Q,R

45J, M, K, N, Q, R
Standard, Quiet, and Low Profile Fan-Powered Variable Air
Volume Terminals

Carrier's 45J,M,K,N,Q,R fan-powered variable air volume (VAV) units are designed to maintain optimum temperatures in the conditioned zone through the accurate mixing of plenum return air and cold primary air to the zone.

- Series units that provide constant airflow to the zone to help maintain optimal occupant comfort
- Parallel units that draw primary air from the air source and warm air from the return plenum to satisfy zone temperature requirements
- 45K,N quiet fan units were designed with the lowest sound levels in the industry
- 45Q,R low profile units offer a low height (10 5/8 in.) for installation in compact spaces
- 45Q,R dedicated outdoor air mixing box supplied with cooling coil to handle sensible loads in the space

Flexible, high performance units

The 45 Series units are available in 6 sizes, with capacities ranging from 90 to 3900 cfm. All units have round inlets (6 in. to 16 in. diameter, depending on model size and type) to fit standard spiral and flex duct. Fan airflow is field-adjustable through the use of an electronic fan speed controller (SCR).

The 45 Series units offer excellent performance characteristics and affordability in a compact unit with optimum physical dimensions.

The 45J,K,Q constant volume operation unit's recirculation fan draws cold air from the primary air duct and warm air from the return plenum in varying amounts to satisfy zone temperature requirements. Warm air and cold air blend in the unit fan before entering the discharge plenum. Optional heating coils may be used for additional terminal heating requirements.

The 45M,N,R units feature intermittent parallel fan operation, designed to maintain optimum occupant comfort levels by supplying warm induced plenum air, cold primary air (VAV), or a mixture of both to condition the space. The 45M,N,R fan cycles on to satisfy zone heating requirements. Optional heating coils provide terminal heat only after the fan has cycled on.

The 45K,N fan-powered variable air volume (VAV) units have a premium design with the lowest sound levels in the industry and a multitude of linings to meet all IAQ (indoor air quality) designs. The units are designed to allow maximum flexibility in configuration and control. Strong integral panel/post construction allows long lasting service access. Multi-voltage motors are standard. The series fan arrangement in the 45K unit has the lowest possible sound levels available, while providing a constant airflow to the space.

The 45Q,R units offer excellent performance characteristics and affordability in a compact unit with

optimum low height physical dimensions (10 5/8 in. high).

The standard unit casing is constructed of 22-gage zinc coated steel (20 gage optional) with 1/2 in. dual density fiberglass insulation and a removable bottom panel for easy access. Recirculation fans, mounted on permanently lubricated, multi-voltage motors, combined with dual density insulation and foil lined option, ensure quiet and clean operation. An external filter option offers quick access for routine maintenance.

All casings and liners meet UL 181 (Underwriters Laboratories) and NFPA 90A (National Fire Protection Association). Recirculation fan motors are certified in accordance with AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Standard 880.

Superior control offerings

Each 45 Series unit is supplied with a linear averaging flow probe as a standard feature. This probe offers flow averaging capability and results in flow sensing capability equal to competitive units. All units have a standard SCR.

Factory-installed control options include pressure-independent pneumatic, analog electronic, pressure independent VAV (variable air volume) and pressure dependent VVT® (variable volume and temperature) in both BACnet¹ and Carrier Comfort Network® (CCN) protocols. Both VVT and VAV controls are communicating Product Integrated Controls (PIC).

Pneumatic controls are available with linear actuators and either single function or multi-function controller. The multi-function controller provides a simple switchover from normally open to normally closed applications. Electronic control units feature a factory-installed enclosure that provides easy access for field connections.

Designed for easy installation

Units have round inlets with a flange type discharge duct connection.

The units can be specified with electric or hot water heat, and a number of linings. Each unit features an integral inlet attenuator for decreasing radiated sound.

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1. BACnet is a registered trademark of ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers).

Factory-installed options — 45J and 45M



45J and 45M units

Unit liner

1. All liners are attached to the unit casing with both adhesive and weld pins to ensure long term durability (except Sterilwall and Perforated Doublewall).
2. Standard Unit liner is 1/2-in. thick, 1 1/2-in. lb. density fiberglass liner meeting UL 181 and NFPA-90A.
3. An optional 1-in. thick, 3 lb. density fiberglass liner is available and meets UL 181 and NFPA-90A.
4. Optional Cellular liner consists of a closed-cell elastomeric thermal insulation that is 1/2-in. or 1-in. thick and has a smooth surface and is typically used in fiber free applications.
5. Optional Foil Encapsulated liner includes 1/2-in. or 1-in. thick fiberglass encased in foil with wrapped edges.
6. Unlined units are also available.

Hot water heat

- One or two row coils are constructed of ten aluminum fins per inch with 5/8-in. O.D. sweat type, left or right hand, tubing connections are available.
- The coil tubing is water leakage tested to 400 PSIG.
- Optional coils with vent and drain are available.

Packaging

- Units are palletized. Each pallet of units is banded and stretch wrapped with cellophane.

Electric heat

- Heaters are ETL listed in accordance with UL standards and are constructed of 20 gage galvanized steel.
- Heaters are available in Single Phase (120V, 208V, 240V, 277V) or Three Phase (208/240V/3 wire, 460V/4 wire).
- Standard heaters are equipped with primary automatic reset thermal cutout, de-energizing magnetic contactors, airflow proving switch and 80/20 Ni-Cr elements.
- Electric heater options include fused or non-fused door interlocking disconnect switch, Proportional SSR heater control, discharge temperature sensor, manual reset thermal cut out, fuse block and dust tight control enclosure.

Control transformers

- Units with and without electric heat and electronic controls (DDC or Analog) include a factory supplied, mounted, and wired 24V control transformer. The control transformer is located inside the electric heat enclosure for electronic control applications.

Fan Motors

- Fan motors are multi-voltage (120V, 208/240V or 277V, Single Phase) permanent split capacitor (PSC) type.
- Optional (120V, 208/240V, or 277V, Single Phase) ECM (electronically commutated motor) fan motor is available.
- Units equipped with (120V, 208/240V, or 277V, Single Phase) electric heat have fan motor wired with the same line voltage. Units with (208V, three-phase, three-

wire) electric heat use 208/240V fan motors. Units with (480V, three-phase, four-wire) heat are equipped with 277V fan motors.

- Quick electrical disconnect switch is available (not available if the unit is equipped with electric heat including the door locking disconnect option).
- Motor fusing is available.

Fan speed control

- All units with PSC motors are equipped with an SCR fan speed controller capable of reducing fan output by as much as 50-55%.
- All units with optional ECM motors include either a VCU or ACU speed controller. The VCU fan speed controller features a digital display that alternates between the RPM of the motor and percentage of flow. The VCU is manually set and adjusted in the field. The ACU fan speed controller communicates with a DDC controller to remotely set and/or adjust the fan speed using either a 0-10 VDC or 2-10 VDC signal. The ACU also provides a manual override capability to field set and/or adjust the fan speed.

Labels

- Unit information adhered to each unit includes model name, unit size, configuration code, airflow (CFM), balancing chart, tagging data, electrical ratings, removal of fan protection packing material information, and all required agency listings.

Controls

- Factory provided and installed pneumatic, analog or direct digital controls are available.
- Units are available with “no controls” for field or factory mounting of field provided controls.

45JC/45MC - VAV CCN controls and 45JD/45MD - Open VAV controls

- The VAV units are furnished with factory installed PICs for integration into either the Carrier Comfort Network (45JC/45MC) or Carrier i-Vu® Open (45JD/45MD) Digital Control Systems.
- Each unit with Carrier VAV controls includes:
 - Control Enclosure
 - Airflow Sensor
 - VAV Controller with integral actuator
- Room Temperature Sensors are **not** included

45MV - VVT® CCN controls and 45MB - Open VVT® controls

- The VVT units are furnished with factory installed PICs for integration into either the Carrier Comfort Network (45MV) or Carrier i-Vu Open (45MB) Digital Control Systems Constant
- Each unit with Carrier VVT controls include:
 - Control Enclosure
 - Airflow Sensor
 - VAV Controller with integral actuator
- Room Temperature Sensors are **not** included

45JA/45MA - analog electronic controls

- The Analog units are furnished standard with Analog controls. Consult the Application Drawings for control package details.

Factory-installed options — 45J and 45M (cont)



- Each Analog unit has pressure independent controls and includes:
 - Control Enclosure
 - Airflow Sensor
 - Digital Thermostat
- Damper Actuator and Analog Controller

45JP/45MP - Pneumatic control units

- The Pneumatic units are furnished standard with controls by KMC. The standard 45JP/45MP unit includes control sequences that are pressure independent
- Each unit with Pneumatic controls includes:
 - Airflow sensor

- Pneumatic Damper Actuator and Volume Reset Controller
- Thermostats are **not** included in the standard control packages. Pneumatic thermostats may be ordered in control accessory field.

45JN/45MN - No control units (factory or field mounted)

- The standard no control units are provided with the airflow sensor control enclosure, fan speed controller, transformer to 24 volts, and fan relay.
- 45JN/45MN unit can have field provided controls and accessories mounted and wired at the factory (factory-mounted actuator).

45K and 45N units

Unit liner

1. All liners are attached to the unit casing with both adhesive and weld pins to ensure long term durability (except Sterilwall and Perforated Doublewall).
2. Standard unit liner is 1/2-in. thick, 1 1/2-in. lb. density fiberglass liner meeting UL 181 and NFPA-90A.
3. An optional 1-in. thick, 3 lb. density fiberglass liner is available and meets UL 181 and NFPA-90A.
4. Optional Steriliner liner consists of rigid 13/16-in. 4 lb. density duct board insulation with fiber reinforced foil material covering the insulation fibers. The lining is attached to the terminal unit casing by insulation adhesive and full-seam-length steel Z-strips which enclose and seal the insulation edges, thus eliminating tape and adhesives to cover the cut edges.
5. Optional Sterilwall liner consists of standard 1/2-in. thick, blanket type insulation, enclosed between the unit's zinc coated sheet metal casing and a non-perforated internal zinc coated sheet metal cover which extends over the fiberglass insulation, as well as the cut edges of the material.
6. Optional Cellular liner consists of a closed-cell elastomeric thermal insulation that is 1/2-in. or 1-in. thick and has a smooth surface and is typically used in fiber free applications.
7. Optional Foil Encapsulated liner includes 1/2-in. or 1-in. thick fiberglass encased in foil with wrapped edges.
8. Optional Perforated Doublewall liner consists 1/2-in., 1 1/2 lb. dual density fiberglass insulation, meeting UL 181 and NFPA 90A, enclosed between the unit casing and a perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.
9. Unlined units are also available.

Induced air inlet attenuator

- Integral induced air sound attenuator is a standard component for reducing radiated sound.

Hot water heat

- One or two row coils are constructed of ten aluminum fins per inch with 5/8-in. O.D. sweat type, left or right hand, tubing connections are available.
- The coil tubing is water leakage tested to 400 PSIG.
- Optional coils with vent and drain are available.

Packaging

- Units are palletized. Each pallet of units is banded and stretch wrapped with cellophane.

Electric heat

- Heaters are ETL listed in accordance with UL standards and are constructed of 20 gage galvanized steel.
- Heaters are available in Single Phase (120V, 208V, 240V, 277V) or Three Phase (208/240V/3 wire, 460V/4 wire).

- Standard heaters are equipped with primary automatic reset thermal cutout, de-energizing magnetic contactors, airflow proving switch and 80/20 Ni-Cr elements.
- Electric heater options include fused or non-fused door interlocking disconnect switch, Proportional SSR heater control, discharge temperature sensor, manual reset thermal cut out, fuse block and dust tight control enclosure.

Control transformers

- Units with and without electric heat and electronic controls (DDC or Analog) include a factory supplied, mounted, and wired 24V control transformer. The control transformer is located inside the electric heat enclosure for electronic control applications.

Fan motors

- Fan motors are multi-voltage (120V, 208/240V or 277V, Single Phase) permanent split capacitor (PSC) type.
- Optional (120V, 208/240V, or 277V, Single Phase) ECM (electronically commutated motor) fan motor is available.
- Units equipped with (120V, 208/240V, or 277V, Single Phase) electric heat have fan motor wired with the same line voltage. Units with (208V, three-phase, three-wire) electric heat use 208/240V fan motors. Units with (480V, three-phase, four-wire) heat are equipped with 277V fan motors.
- Quick electrical disconnect switch is available (not available if the unit is equipped with electric heat including the door locking disconnect option).
- Motor fusing is available.

Fan speed control

- All units with PSC motors are equipped with an SCR fan speed controller capable of reducing fan output by as much as 50-55%.
- All units with optional ECM motors include either a Visual Control Unit (VCU) or Automation Control Unit (ACU) speed controller. The VCU fan speed controller features a digital display that alternates between the RPM of the motor and percentage of flow. The VCU is manually set and adjusted in the field. The ACU fan speed controller communicates with a DDC controller to remotely set and/or adjust the fan speed using either a 0-10 VDC or 2-10 VDC signal. The ACU also provides a manual override capability to field set and/or adjust the fan speed.

Labels

- Unit information adhered to each unit includes model name, unit size, configuration code, airflow (CFM), balancing chart, tagging data, electrical ratings, removal of fan protection packing material information, and all required agency listings.

Controls

- Factory provided and installed pneumatic, analog or direct digital controls are available.
- Units are available with "no controls" for field or factory mounting of field provided controls.

45KC/45NC - VAV CCN controls and 45KD/45ND - Open VAV controls

- The VAV units are furnished with factory installed PICs for integration into either the Carrier Comfort Network (45KC/45NC) or Carrier i-Vu Open (45KD/45ND) Digital Control Systems.
- Each unit with Carrier VAV controls include:
 - Control Enclosure
 - Airflow Sensor
 - VAV Controller with integral actuator
- Room Temperature Sensors are **not** included.

45NV - VVT® CCN controls and 45NB - Open VVT® controls

- The VVT units are furnished with factory installed PICs for integration into either the Carrier Comfort Network (45NV) or Carrier i-Vu Open (45NB) Digital Control Systems Constant
- Each unit with Carrier VAV controls include:
 - Control Enclosure
 - Airflow Sensor
 - VAV Controller with integral actuator
- Room Temperature Sensors are **not** included.

45KA/45NA - analog electronic controls

- The Analog units are furnished standard with Analog controls. Consult the Application Drawings for control package details.
- Each Analog unit has pressure independent controls and includes:
 - Control Enclosure
 - Airflow Sensor
 - Digital Thermostat
 - Damper Actuator and Analog Controller

45KP/45NP - Pneumatic control units

- The Pneumatic units are furnished standard with controls by KMC. The standard 45JP/45MP unit includes control sequences that are pressure independent
- Each unit with Pneumatic controls includes:
 - Airflow sensor
 - Pneumatic Damper Actuator and Volume Reset Controller
- Thermostats are **not** included in the standard control packages. Pneumatic thermostats may be ordered in control accessory field.

45KN/45NN - No control units (factory or field mounted)

- The standard no control units are provided with the airflow sensor control enclosure, fan speed controller, transformer to 24 volts, and fan relay.
- 45KN/45NN unit can have field provided controls and accessories mounted and wired at the factory (factory-mounted actuator).

45Q and 45R units

Unit liner

1. All liners are attached to the unit casing with both adhesive and weld pins to ensure long term durability (except Sterilwall and Perforated Doublewall).
2. Standard unit liner is 1/2-in. thick, 1 1/2 lb. density fiberglass liner meeting UL 181 and NFPA-90A.
3. Optional Sterilwall liner consists of standard 1/2-in. thick, blanket type insulation, enclosed between the unit's zinc coated sheet metal casing and a non-perforated internal zinc coated sheet metal cover which extends over the fiberglass insulation, as well as the cut edges of the material.
4. Optional Cellular liner consists of a closed-cell elastomeric thermal insulation that is 1/2 in. thick and has a smooth surface and is typically used in fiber free applications.
5. Optional Foil Encapsulated liner includes 1/2 in. thick fiberglass encased in foil with wrapped edges.
6. Optional Perforated Doublewall liner consists 1/2 in., 1 1/2 lb. dual density fiberglass insulation, meeting UL 181 and NFPA 90A, enclosed between the unit casing and a perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.

Sensible cooling coil

- The 45Q DOAS offers two, four, or six row coils constructed of 10 aluminum fins per inch with 7/8 in. O.D. sweat type, upstream or downstream tubing connections.
- The coil tubing is water leakage tested to 400 PSIG.

Hot water heat

- One or two row coils are constructed of ten aluminum fins per inch with 5/8-in. O.D. sweat type, left or right hand, tubing connections are available.
- The coil tubing is water leakage tested to 400 PSIG.
- Optional coils with vent and drain are available.

Packaging

- Units are palletized. Each pallet of units is banded and stretch wrapped with cellophane.

Electric heat

- Heaters are ETL listed in accordance with UL standards and are constructed of 20 gage galvanized steel.
- Heaters are available in Single Phase (120V, 208V, 240V, 277V) or Three Phase (208/240V/3 wire, 460V/4 wire).
- Standard heaters are equipped with primary automatic reset thermal cutout, de-energizing magnetic contactors, airflow proving switch and 80/20 Ni-Cr elements.
- Electric heater options include fused or non-fused door interlocking disconnect switch, Proportional SSR heater control, discharge temperature sensor, manual reset thermal cut out, fuse block and dust tight control enclosure.

Control transformers

- Units with and without electric heat and electronic controls (DDC or Analog) include a factory supplied, mounted, and wired 24V control transformer. The control transformer is located inside the electric heat enclosure for electronic control applications.

Fan motors

- Fan motors are multi-voltage (120V, 208/240V or 277V, Single Phase) permanent split capacitor (PSC) type.
- Optional (120V, 208/240V, or 277V, Single Phase) ECM (electronically commutated motor) fan motor is available.
- Units equipped with (120V, 208/240V, or 277V, Single Phase) electric heat have fan motor wired with the same line voltage. Units with (208V, three-phase, three-wire) electric heat use 208/240V fan motors. Units with (480V, three-phase, four-wire) heat are equipped with 277V fan motors.
- Quick electrical disconnect switch is available (not available if the unit is equipped with electric heat including the door locking disconnect option).
- Motor fusing is available.

Fan speed control

- All units with PSC motors are equipped with an SCR fan speed controller capable of reducing fan output by as much as 50-55%.
- All units with optional ECM motors include either a VCU or ACU speed controller. The VCU fan speed controller features a digital display that alternates between the RPM of the motor and percentage of flow. The VCU is manually set and adjusted in the field. The ACU fan speed controller communicates with a DDC controller to remotely set and/or adjust the fan speed using either a 0-10 VDC or 2-10 VDC signal. The ACU also provides a manual override capability to field set and/or adjust the fan speed.

Labels

- Unit information adhered to each unit includes model name, unit size, configuration code, airflow (CFM), balancing chart, tagging data, electrical ratings, removal of fan protection packing material information, and all required agency listings.

Controls

- Factory provided and installed pneumatic, analog or direct digital controls are available.
- Units are available with "no controls" for field or factory mounting of field provided controls.

45QC/45RC - VAV CCN controls and 45QD/45RD - Open VAV controls

- The VAV units are furnished with factory installed PICs for integration into either the Carrier Comfort Network (45QC/45RC) or Carrier i-Vu Open (45QD/45RD) Digital Control Systems.
- Each unit with Carrier VAV controls include:
 - Control Enclosure
 - Airflow Sensor

Factory-installed options — 45Q and 45R (cont)



- VAV Controller with integral actuator
- Room Temperature Sensors are **not** included

45RV - VVT® CCN controls and 45RB - Open VVT® controls

- The VVT units are furnished with factory installed PICs for integration into either the Carrier Comfort Network (45RV) or Carrier i-Vu Open (45RB) Digital Control Systems Constant.
- Each unit with Carrier VVT controls include:
 - Control Enclosure
 - Airflow Sensor
 - VAV Controller with integral actuator
 - Room Temperature Sensors are **not** included

45QA/45RA - Analog electronic controls

- The Analog units are furnished standard with Analog controls. Consult the Application Drawings for control package details.
- Each Analog unit has pressure independent controls and includes:
 - Control Enclosure
 - Airflow Sensor
 - Digital Thermostat
 - Damper Actuator and Analog Controller

45QP/45RP - Pneumatic control units

- The Pneumatic units are furnished standard with controls. The standard 45QP/45RP unit includes control sequences that are pressure independent
- Each unit with Pneumatic controls includes:
- Airflow sensor
 - Pneumatic Damper Actuator and Volume Reset Controller
 - Thermostats are **not** included in the standard control packages. Pneumatic thermostats may be ordered in control accessory field.

45QN/45RN - No control units (factory or field mounted)

- The standard no control units are provided with the airflow sensor control enclosure, fan speed controller, transformer to 24 volts, and fan relay.
- 45QN/45RN unit can have field provided controls and accessories mounted and wired at the factory (factory-mounted actuator).

Selection procedure



Refer to the Carrier Air Terminal Builder program for information to determine unit sizing for your needs.

Application data

Airflow range

Carrier fan-powered units are equipped with a four quadrant, twelve point total pressure sensor in the unit inlet to allow pressure-independent control of airflow on the basis of a control signal. The flow range is limited by the sensitivity of the controller employed; the inlet duct conditions; and the size of the selected unit.

In most cases, inlet duct minimum airflow of less than 500 fpm should be avoided to prevent erratic control. A minimum flow less than 500 fpm results in differential pressure signals less than 0.03 in. wg, which cannot be resolved reliably by most control systems. Carrier Comfort Network® (CCN) and i-Vu® Carrier Open controllers will allow a lower minimum cfm.

Maximum inlet flow limits are typically restricted to less than 2500 fpm by duct pressure loss limitations, although acoustical limits may also limit selection above this range.

System pressure

Control of duct pressures is the most effective means of ensuring low sound levels, accurate flow control, and minimum energy use. For each terminal unit, there is a minimum static pressure difference required to assure delivery of the design airflow rate. The pressure difference is measured across the terminal, inlet to discharge and is reported in inches of water (in. wg). The inlet pressure required by any given unit is the rated static pressure plus the pressure requirements of the discharge ducts and outlets. Inlet static pressure is also a determining characteristic for the sound level that can be anticipated downstream from the terminal unit. The minimum inlet static pressure shown in the terminal unit performance tables is the pressure required by a given size terminal unit to push a specified amount of airflow through the unit with the damper wide open. The pressure was measured by tests conducted in accordance with AHRI Standard 880.

Acoustics

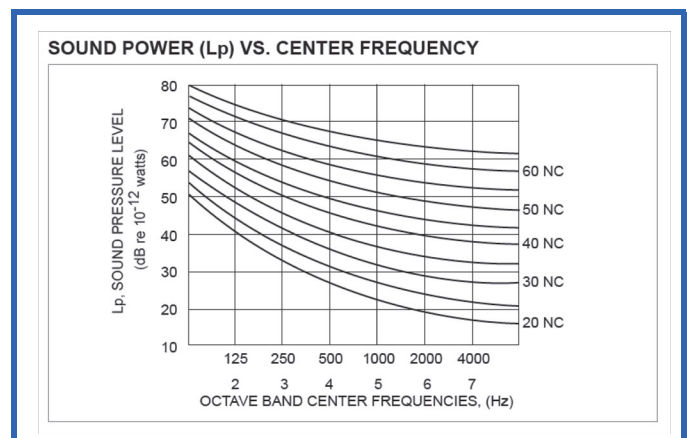
Two types of sound transmission are traceable to air terminal units. “Radiated Sound” escapes through the casing walls and induced air ports of fan powered units, entering a room randomly. “Discharge Sound” travels through the duct work and enters a room via the outlet. The most common method for analyzing these sound levels is by the use of Noise Criteria (NC) curves. The curves cover a range of decibel (dB re 10-12 Watts) levels, per octave band, that are most recognizable to the human ear. These bands are designated 2 through 7. (See “Sound Power (Lp) vs. Center Frequency” Graph, bottom right.)

Equipment performance for VAV terminals is usually rated in terms of sound power levels (Lw). Sound pressure is measured in a special acoustical chamber, and then printed in sound tables in the form of sound power. Each terminal unit size, various static pressure levels, and flow capacities in both radiated (LwRAD) and discharge (LwDIS) are recorded. By taking these ratings and subtracting various attenuation factors, a sound pressure level (Lp) is arrived, which can be compared against the recommended NC values, as shown.

For radiated sound power levels (LwRAD), the readings from the acoustical chamber are measured and various adjustments are then subtracted. NC is determined from Octave Band Sound Power data with allowances for an environmental factor and a combined ceiling/space factor for a typical mineral tile ceiling. The reductions are calculated in accordance with AHRI 885-08 Appendix E, a procedure for estimating occupied space sound levels in the application of air terminals and air outlets. Reductions used to determine Discharge NC levels are different than that of Radiated NC levels. AHRI 885 was modified in 1998 to reflect data obtained in ASHRAE sponsored research.

For discharge sound power levels (LwDIS), NC was determined from octave band sound power data with allowances for environmental factor, 5 ft. of 1 in. lined duct matching the discharge dimension of the terminal, branch division, end reflection assuming 5 ft of 8 in. diameter flexible duct and room absorption based on a 2,500 ft³ room with an observer 5 ft from the sound source. These reductions are calculated in accordance with AHRI 885-08, Appendix E.

End reflection loss accounts for low frequency sound reflecting from a room through a diffuser. The attenuation of frequencies through various sizes, shapes, and lengths of duct is known as duct insertion and is a significant reduction. Branching represents a reduction in sound as the air is divided into separate airstreams.



45M PARALLEL FAN POWERED TERMINALS

45M	C	3	0	OL	4	10	2	4440	00	000	0000	000	E62	05.0	00000	0800040004000.20
45M – Parallel Fan Powered Unit																
Control Type A – Analog B – Open VVT C – VAV CCN D – Open VAV N – No Controls P – Pneumatic V – VVT CCN																
Flow Sensor Type 3 – Four Quadrant Linear																
Liner Type 0 – ½ in. Fiberglass 1 – 1 in. Fiberglass 6 – ½ in. Foil Encapsulated 9 – 1 in. Foil Encapsulated F – ½ in. Cellular																
Casing Style 0 – 22 Gauge, No Access 1 – 20 Gauge, No Access L – Left Hand																
Unit Size 2 5 3 6 4 7																
Inlet Diameter 06 – 6 in. 08 – 8 in. 10 – 10 in. 12 – 12 in. 14 – 14 in. 16 – 16 in.																
Motor Type 1 – 120V PSC 2 – 208-240V PSC 3 – 277V PSC																
Control Codes See Price Pages																
Actuator Style 00 – Standard																
Unit Airflow Max CFM, Min CFM, Fan CFM, ESP																
Heat Accessories 0 – None C – Fuse Block E – Chicago Code Construction K – Door Interlocking Fused Disconnect L – Door Interlocking Non-Fused Disconnect P – Hot Water Coil Vent and Drain S – Discharge Temperature Sensor (SSR)																
Electric Heat Input kW																
Electric Heat 000 – None E1X – 120V-1Ph, X Stages E2X – 208V-1Ph, X Stages E3X – 240V-1Ph, X Stages E4X – 240V-1Ph, X Stages E6X – 208V-3Ph, X Stages E9X – 480V-3Ph, X Stages L1X – 120V-1Ph, SSR L2X – 208V-1Ph, SSR L3X – 240V-1Ph, SSR L4X – 240V-1Ph, SSR L6X – 208V-3Ph, SSR L9X – 480V-3Ph, SSR																
Hot Water Coil 000 – None W1 – Right Hand W2 – Left Hand W3 – Right Hand, Access W4 – Left Hand, Access WX1 – 1 Row WX2 – 2 Row																
Unit Accessories 0 – None A – Motor Disconnect E – Dust Tight Enclosure F – Fan Motor Fuse N – Inlet Attenuator and Filter R – Inlet Filter S – Hanger Bracket T – Inlet Attenuator																
Control Accessories 0 – None 4 – DA Thermostat 5 – RA Thermostat																

LEGEND

CCN — Carrier Comfort Network®
CFM — Cubic Feet per Minute
ESP — External Static Pressure
PSC — Permanent Split Capacitor
SSR — Solid State Relay
VAV — Variable Air Volume
VVT — Variable Volume and Temperature

45J SERIES FAN POWERED TERMINAL UNIT WEIGHTS (lb)

SIZE	UNIT	WITH PNEUMATIC CONTROLS	WITH DDC OR ANALOG CONTROLS	WITH ELECTRIC HEATER	WITH HOT WATER	
					1-Row	2-Row
2	70	74	79	100	89	91
3	70	74	79	100	90	92
4	85	89	94	117	107	110
5	85	89	94	117	109	113
6	100	104	109	135	125	130
7	175	179	184	215	210	218

45M PARALLEL FAN POWERED TERMINAL UNIT WEIGHTS (lb)

SIZE	UNIT	WITH PNEUMATIC CONTROLS	WITH DDC OR ANALOG CONTROLS	WITH ELECTRIC HEATER	WITH HOT WATER	
					1-Row	2-Row
2	114	118	123	144	133	135
3	114	118	123	144	134	136
4	115	119	124	147	137	140
5	122	126	131	154	146	150
6	123	127	132	158	148	153
7	127	131	136	167	162	170

LEGEND

DDC — Direct Digital Controls

NOTES:

Data is based on the following conditions:

1. Unit casing is 22 gage.
2. Unit insulation is 1/2-in. thick, 1 1/2-lb. Tuf-Skin¹.
3. Units rated with standard linear flow sensor.

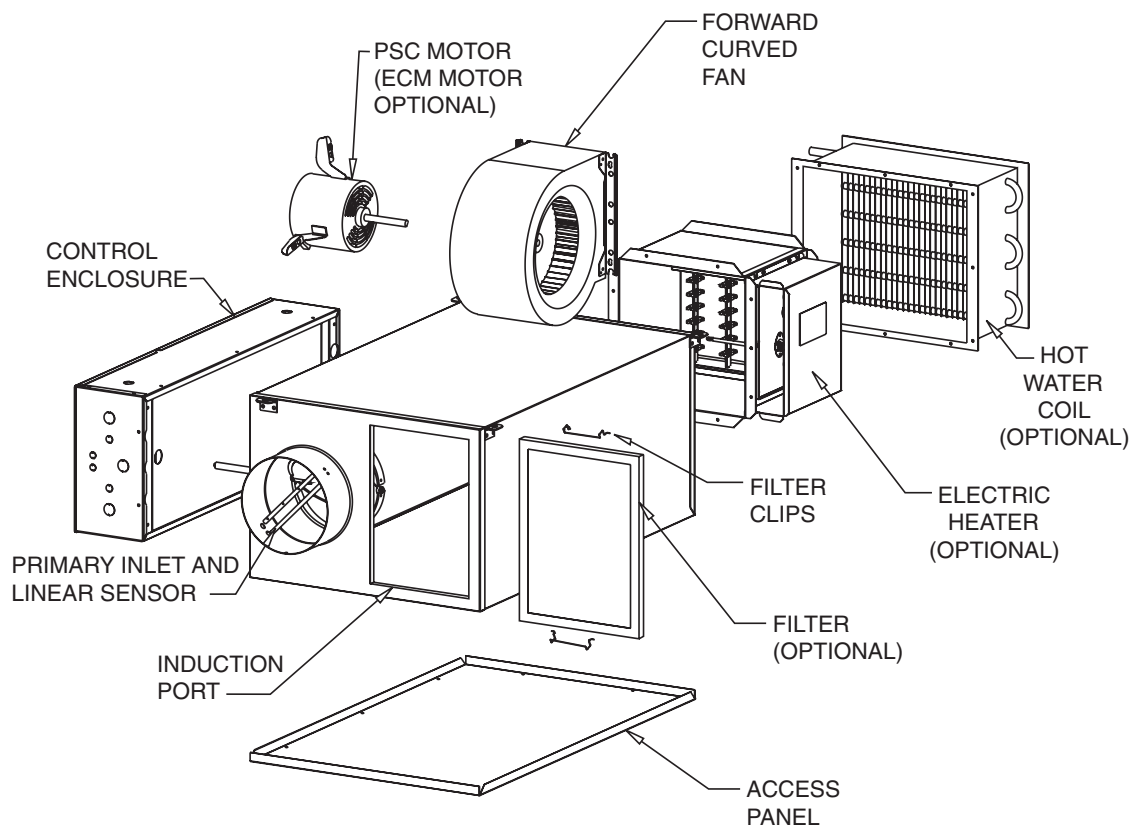
1. Tuf-Skin is a registered trademark of Johns Manville.

45J, 45M OPTIONAL FILTER SIZES AND PART NUMBERS

UNIT MODEL	UNIT SIZE	FILTER SIZE (in.)	FILTER P/N	FILTER KIT P/N
45J	2,3	11x15x1	102649-1115	3503341115
	4,5,6,7*	17x17x1	102649-1717	3503341717
45M	2,3,4	15x15x1	102649-1515	3503341515
	5,6,7	19x17x1	102649-1917	3503341917

*45J size 7 requires two kits per unit (double filters and clips).

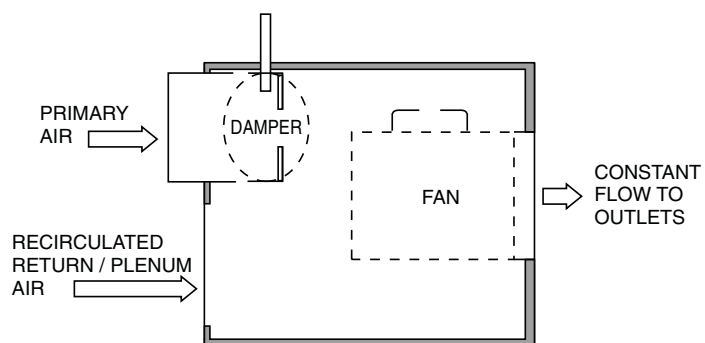
TYPICAL UNIT CONFIGURATION 45J SERIES FAN POWERED TERMINAL UNIT



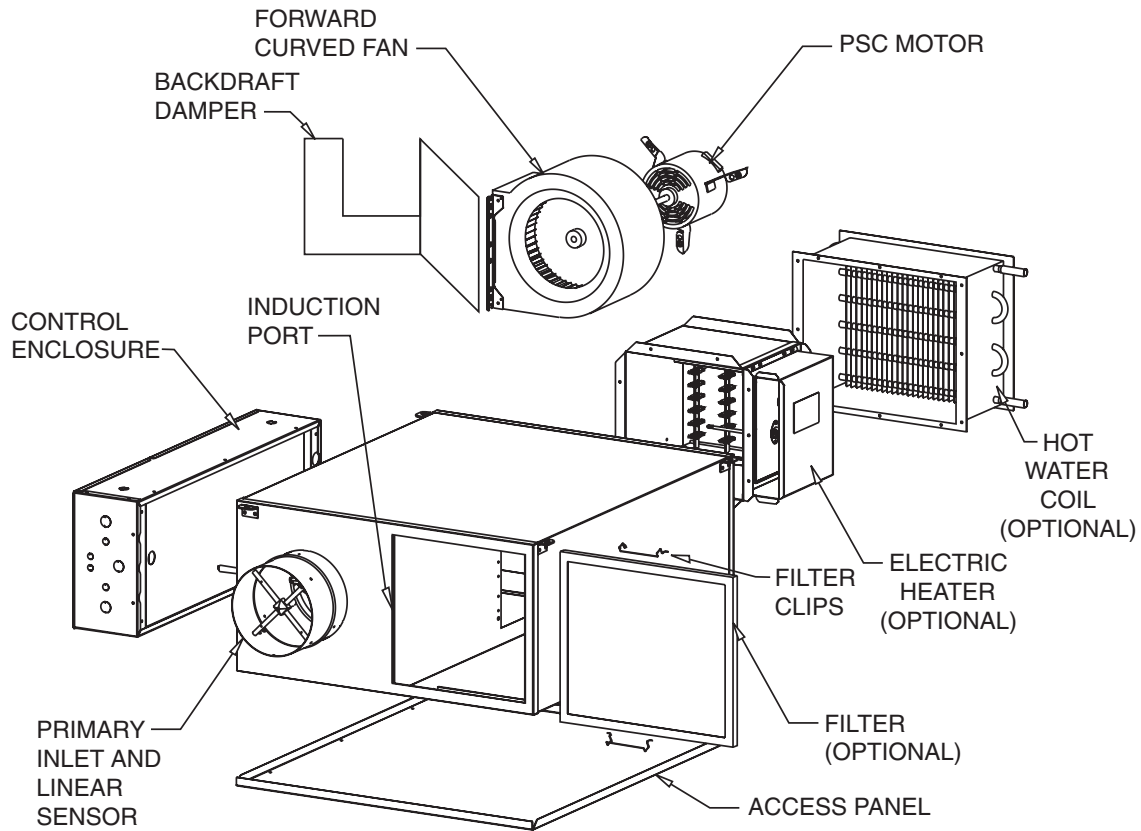
LEGEND

ECM — Electronically Commutated Motor
PSC — Permanent Split Capacitor

45J INTERNAL DETAIL SERIES FLOW UNIT



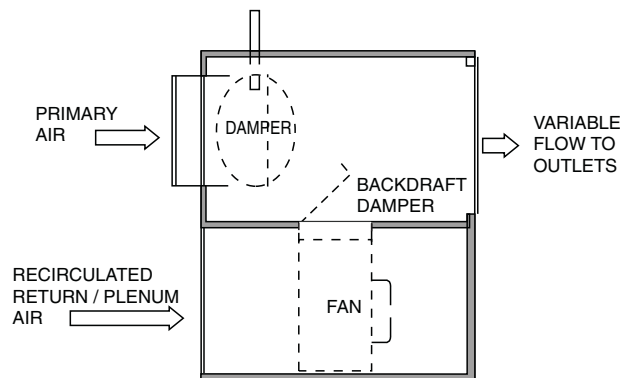
TYPICAL UNIT CONFIGURATION 45M PARALLEL FAN POWERED TERMINAL UNIT



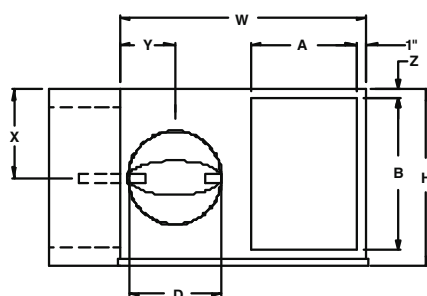
LEGEND

PSC — Permanent Split Capacitor

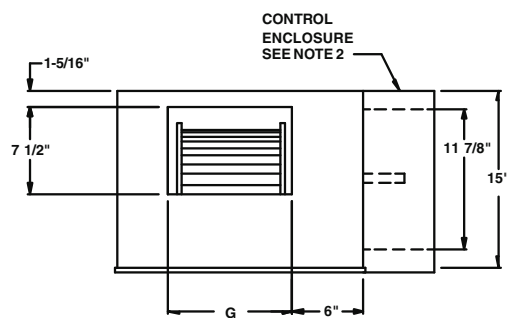
45M INTERNAL DETAIL PARALLEL FLOW UNIT



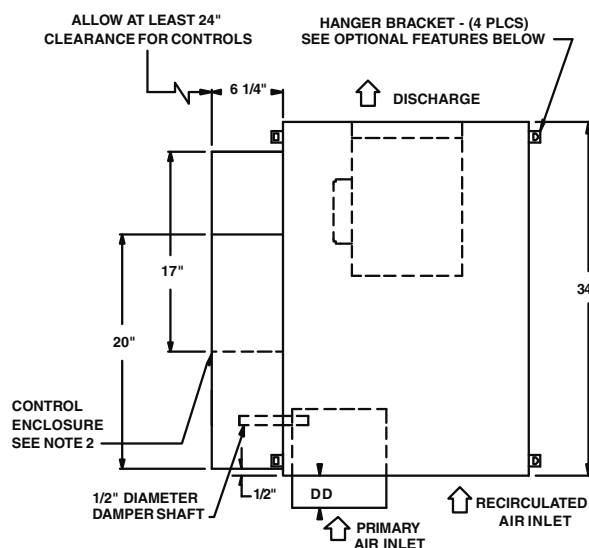
45J SERIES FAN POWERED VAV TERMINALS — SIZES 2-6



INLET VIEW



DISCHARGE VIEW



PLAN VIEW — LEFT HAND BOX
CONTROLS AND SENSORS NOT SHOWN

LEGEND

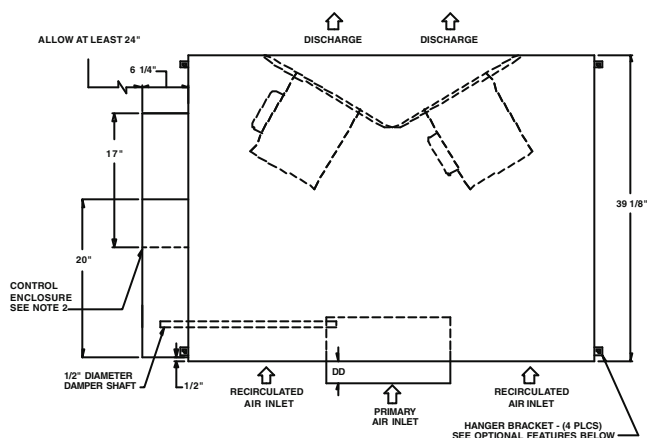
DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-10 DD = 3⁷/₈ in.; 12-14 DD = 5⁷/₈ in.)

NOTES:

1. Dimensions are given in inches.
2. Digital or analog control enclosure: 20 in. x 11⁷/₈ in., Pneumatic enclosure: 17 in. x 15 in.

UNIT SIZE	INLET SIZE	PSC HP	ECM HP	W	H	INDUCED AIR		D	DD	G	X	Y	Z
						A	B						
2	6	1 ¹ / ₁₀	—	21	15	9	13	5 ⁷ / ₈	4 ⁷ / ₈	6 ³ / ₄	7 ¹ / ₂	5 ³ / ₈	1
3	6	1 ¹ / ₄	1 ¹ / ₂	21	15	9	13	5 ⁷ / ₈	4 ⁷ / ₈	9 ¹ / ₄	7 ¹ / ₂	5 ³ / ₈	1
	8	1 ¹ / ₄	1 ¹ / ₂	21	15	9	13	7 ⁷ / ₈	4 ⁷ / ₈	9 ¹ / ₄	7 ¹ / ₂	5 ³ / ₈	1
4	8	1 ¹ / ₄	—	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	7 ⁷ / ₈	4 ⁷ / ₈	11 ⁷ / ₈	8 ⁷ / ₈	5 ³ / ₈	1 ³ / ₈
	10	1 ¹ / ₄	—	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	9 ⁷ / ₈	4 ⁷ / ₈	11 ⁷ / ₈	8 ⁷ / ₈	7 ³ / ₈	1 ³ / ₈
	12	1 ¹ / ₄	—	32 ¹ / ₄	17 ³ / ₄		15	11 ⁷ / ₈	6 ⁷ / ₈	11 ⁷ / ₈	8 ⁷ / ₈	8 ³ / ₈	1 ³ / ₈
5	10	1 ¹ / ₂	—	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	9 ⁷ / ₈	4 ⁷ / ₈	13 ¹ / ₈	8 ⁷ / ₈	7 ³ / ₈	1 ³ / ₈
	12	1 ¹ / ₂	—	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	11 ⁷ / ₈	6 ⁷ / ₈	13 ¹ / ₈	8 ⁷ / ₈	8 ³ / ₈	1 ³ / ₈
6	10	3 ¹ / ₄	1	32 ¹ / ₄	17 ³ / ₄		15	9 ⁷ / ₈	4 ⁷ / ₈	13 ¹ / ₈	8 ⁷ / ₈	7 ³ / ₈	1 ³ / ₈
	12	3 ¹ / ₄	1	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	11 ⁷ / ₈	6 ⁷ / ₈	13 ¹ / ₈	8 ⁷ / ₈	8 ³ / ₈	1 ³ / ₈
	14	3 ¹ / ₄	1	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	13 ⁷ / ₈	6 ⁷ / ₈	13 ¹ / ₈	8 ⁷ / ₈	8 ³ / ₈	1 ³ / ₈

45J SERIES FAN POWERED VAV TERMINALS — SIZE 7



PLAN VIEW — LEFT HAND BOX

CONTROLS AND SENSORS NOT SHOWN

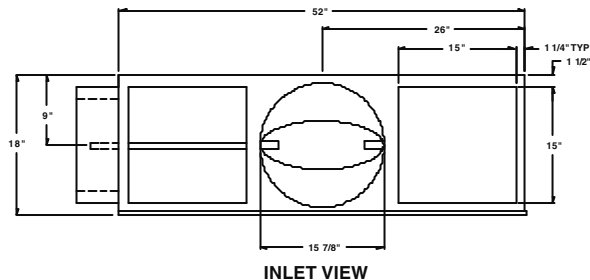
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Size 16 DD = 5 7/8 in.)

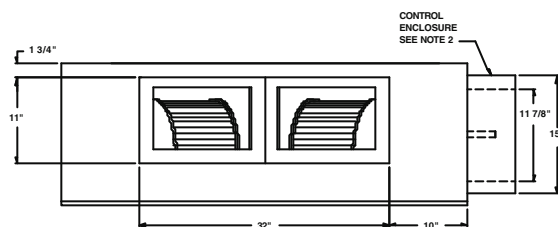
NOTES:

1. Dimensions are given in inches.
2. Digital or analog control enclosure: 20 in. x 11 7/8 in.,
Pneumatic enclosure: 17 in. x 15 in.
3. Discharge outlet dimensions: 32 in. x 11 in.

UNIT SIZE	INLET SIZE	PSC MOTOR HP (Qty)	ECM MOTOR HP (Qty)
7	16	3/4 (2)	1 (2)

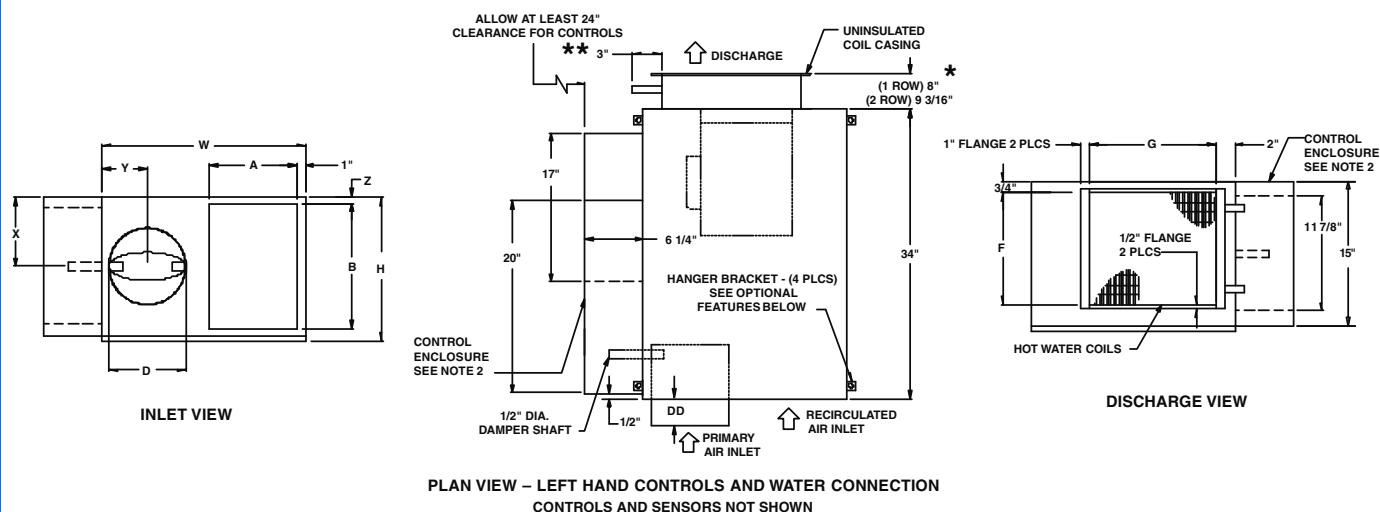


INLET VIEW



DISCHARGE VIEW

45J SERIES FAN POWERED VAV TERMINALS WITH HOT WATER HEAT — SIZES 2-6



LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-10 DD = 3⁷/₈ in.; 12-16 DD = 5⁷/₈ in.)

NOTES:

- Dimensions are given in inches.
 - Digital or analog control enclosure: 20 in. x 11⁷/₈ in., Pneumatic enclosure: 17 in. x 15 in.
 - Reference additional coil detail on drawings:
 - 45J/M-203-2 - 1 and 2 row coils.
 - 45J/M-203-3 - 1 row with access doors.
 - 45J/M-203-4 - 2 row with access doors.
- * 12 in. depth for all 1 and 2 row hot water coils with access doors.
 ** 6¹/₁₆ in. long connection with vent and drain.

UNIT SIZE	INLET SIZE	PSC HP	ECM HP	W	H	INDUCED AIR		D	DD	DISCHARGE		X	Y	Z
						A	B			F	G			
2	6	1 ¹ / ₁₀	—	21	15	9	13	5 ⁷ / ₈	4 ⁷ / ₈	12 ¹ / ₂	15	7 ¹ / ₂	5 ³ / ₈	1
3	6	1 ¹ / ₄	1 ¹ / ₂	21	15	9	13	5 ⁷ / ₈	4 ⁷ / ₈	12 ¹ / ₂	15	7 ¹ / ₂	5 ³ / ₈	1
	8	1 ¹ / ₄	1 ¹ / ₂	21	15	9	13	7 ⁷ / ₈	4 ⁷ / ₈	12 ¹ / ₂	15	7 ¹ / ₂	5 ³ / ₈	1
4	8	1 ¹ / ₄	—	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	7 ⁷ / ₈	4 ⁷ / ₈	12 ¹ / ₂	22	8 ⁷ / ₈	5 ³ / ₈	1 ³ / ₈
	10	1 ¹ / ₄	—	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	9 ⁷ / ₈	4 ⁷ / ₈	12 ¹ / ₂	22	8 ⁷ / ₈	7 ³ / ₈	1 ³ / ₈
	12	1 ¹ / ₄	—	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	11 ⁷ / ₈	6 ⁷ / ₈	12 ¹ / ₂	22	8 ⁷ / ₈	8 ³ / ₈	1 ³ / ₈
5	10	1 ¹ / ₂	—	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	9 ⁷ / ₈	4 ⁷ / ₈	15	22	8 ⁷ / ₈	7 ³ / ₈	1 ³ / ₈
	12	1 ¹ / ₂	—	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	11 ⁷ / ₈	6 ⁷ / ₈	15	22	8 ⁷ / ₈	8 ³ / ₈	1 ³ / ₈
6	10	3 ³ / ₄	1	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	9 ⁷ / ₈	4 ⁷ / ₈	15	24 ¹ / ₂	8 ⁷ / ₈	7 ³ / ₈	1 ³ / ₈
	12	3 ³ / ₄	1	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	11 ⁷ / ₈	6 ⁷ / ₈	15	24 ¹ / ₂	8 ⁷ / ₈	8 ³ / ₈	1 ³ / ₈
	14	3 ³ / ₄	1	32 ¹ / ₄	17 ³ / ₄	14 ³ / ₈	15	13 ⁷ / ₈	6 ⁷ / ₈	15	24 ¹ / ₂	8 ⁷ / ₈	8 ³ / ₈	1 ³ / ₈

Diagram illustrating the rear view of the unit, showing various air inlets, discharges, and control enclosure details.

Top Section:

- Two discharge points labeled "DISCHARGE" with upward arrows.
- Star symbol (*) indicating a requirement: "(1 ROW) 6" (2 ROW) 9 3/16"

Left Side Details:

- Text: "ALLOW AT LEAST 24" CLEARANCE FOR CONTROLS"
- Dimensions: 6 1/4", 17", 20"
- Text: "CONTROL ENCLOSURE SEE NOTE 2"

Bottom Section:

- Text: "1 1/2" DIAMETER DAMPER SHAFT" with an arrow pointing to a shaft.
- Text: "1/2"
- Text: "RECIRCULATED AIR INLET" with an upward arrow.
- Text: "PRIMARY AIR INLET" with an upward arrow.
- Text: "RECIRCULATED AIR INLET" with an upward arrow.
- Text: "HANGER BRACKET - (4 PLCS) SEE OPTIONAL FEATURES BELOW" with an arrow pointing to a bracket.

Right Side:

- Dimension: 39 1/8"

1/2" FLANGE
(2 PLCS)

HOT WATER COIL

CONTROL ENCLOSURE
SEE NOTE 2

3/4"

11 7/8"

15"

34"

9"

1" FLANGE
(2 PLCS)

NOTES:

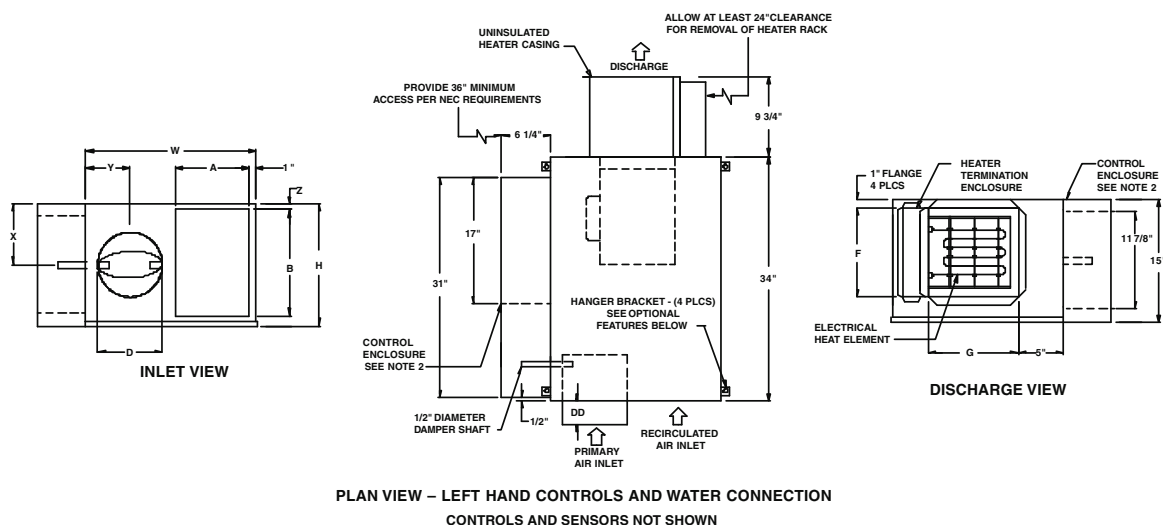
1. Dimensions are given in inches.
2. Digital or analog control enclosure: 20 in. x 17¹/₈ in., Pneumatic enclosure: 17 in. x 15 in.
3. Reference additional coil detail on drawings:
 - a. 45J/M-203-2 - 1 and 2 row coils.
 - b. 45J/M-203-3 - 1 row with access doors.
 - c. 45J/M-203-4 - 2 row with access doors.

* 12 in. depth for all 1 and 2 row hot water coils with access doors.

** 6 1¹/₁₆ in. long connection with vent and drain.

UNIT SIZE	INLET SIZE	PSC MOTOR HP	ECM MOTOR HP
7	16	3/4 (2)	1 (2)

45J SERIES FAN POWERED VAV TERMINALS WITH ELECTRIC HEAT — SIZES 2-6



LEGEND

DD — Linear Averaging Sensor/Inlet
(Inlet Sizes 6-10 DD = $37/8$ in.;
12-16 DD = $57/8$ in.)

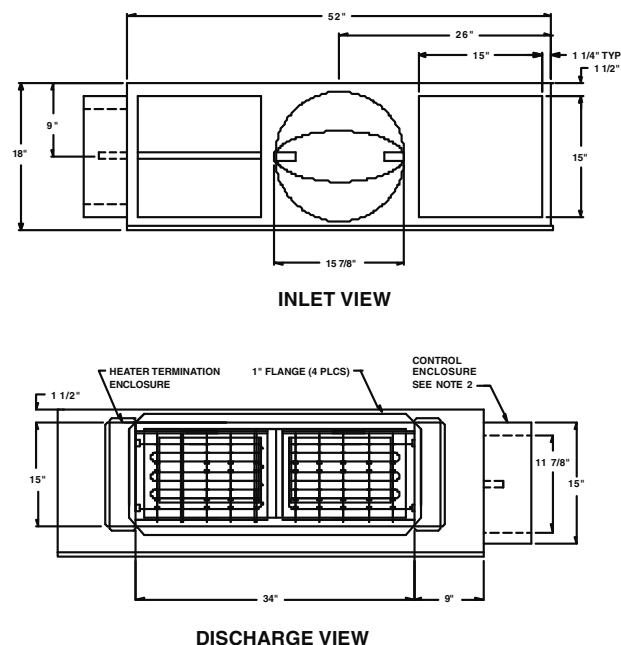
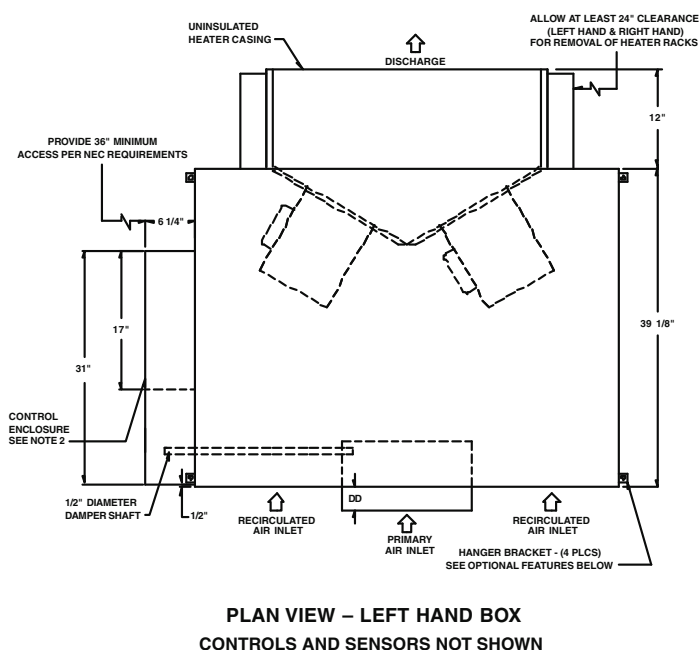
NOTES:

- Dimensions are given in inches.
- Digital or analog control enclosure: 31 in. x $117/8$ in., Pneumatic enclosure: 17 in. x 15 in.

UNIT SIZE	INLET SIZE	PSC HP	ECM HP	W	H	INDUCED AIR		D	DD	DISCHARGE		X	Y	Z
						A	B			F	G			
2	6	$1/10$	—	21	15	9	13	$57/8$	$47/8$	11	11	$71/2$	$53/8$	1
	6	$1/4$	$1/2$	21	15	9	13	$57/8$	$47/8$	11	11	$71/2$	$53/8$	1
3	8	$1/4$	$1/2$	21	15	9	13	$77/8$	$47/8$	11	11	$71/2$	$53/8$	1
	8	$1/4$	—	$321/4$	$173/4$	$143/8$	15	$77/8$	$47/8$	13	$141/2$	$87/8$	$53/8$	$13/8$
4	10	$1/4$	—	$321/4$	$173/4$	$143/8$	15	$97/8$	$47/8$	13	$141/2$	$87/8$	$73/8$	$13/8$
	12	$1/4$	—	$321/4$	$173/4$	$143/8$	15	$117/8$	$67/8$	13	$141/2$	$87/8$	$83/8$	$13/8$
5	10	$1/2$	—	$321/4$	$173/4$	$143/8$	15	$97/8$	$47/8$	13	$141/2$	$87/8$	$73/8$	$13/8$
	12	$1/2$	—	$321/4$	$173/4$	$143/8$	15	$117/8$	$67/8$	13	$141/2$	$87/8$	$83/8$	$13/8$
6	10	$3/4$	1	$321/4$	$173/4$	$143/8$	15	$97/8$	$47/8$	13	$141/2$	$87/8$	$73/8$	$13/8$
	12	$3/4$	1	$321/4$	$173/4$	$143/8$	15	$117/8$	$67/8$	13	$141/2$	$87/8$	$83/8$	$13/8$
	14	$3/4$	1	$321/4$	$173/4$	$143/8$	15	$137/8$	$67/8$	13	$141/2$	$87/8$	$83/8$	$13/8$

Dimensions — 45J,M (cont)

45J SERIES FAN POWERED VAV TERMINALS WITH ELECTRIC HEAT — SIZE 7



LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-10 DD = $3\frac{7}{8}$ in.; 12-16 DD = $5\frac{7}{8}$ in.)

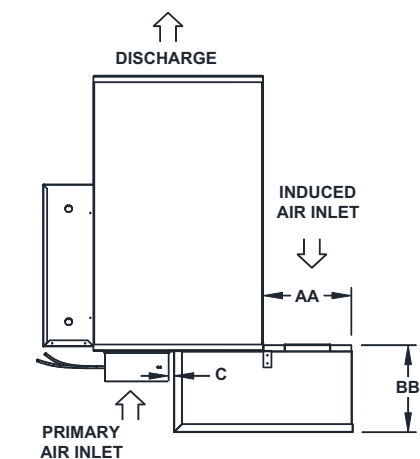
NOTES:

1. Dimensions are given in inches.
2. Discharge outlet dimensions: 34 in. x 15 in.
3. Analog or digital enclosure 31 in. x $11\frac{7}{8}$ in., pneumatic enclosure 17 in. x 15 in.

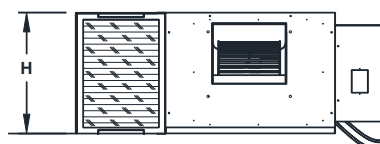
UNIT SIZE	INLET SIZE	PSC MOTOR HP	ECM MOTOR HP
7	16	$\frac{3}{4}$ (2)	1 (2)

45J SERIES FAN POWERED VAV TERMINAL ATTENUATOR — SIZES 2 - 6

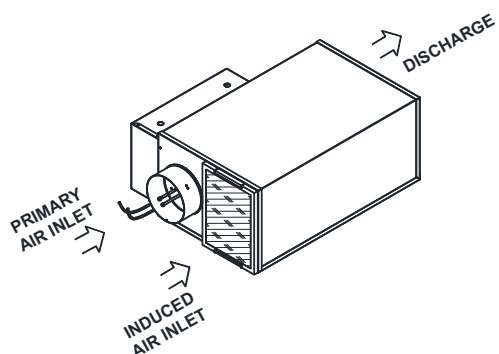
CONSTANT VOLUME INDUCTION FILTER COMPONENTS (SIZES 2 - 6)



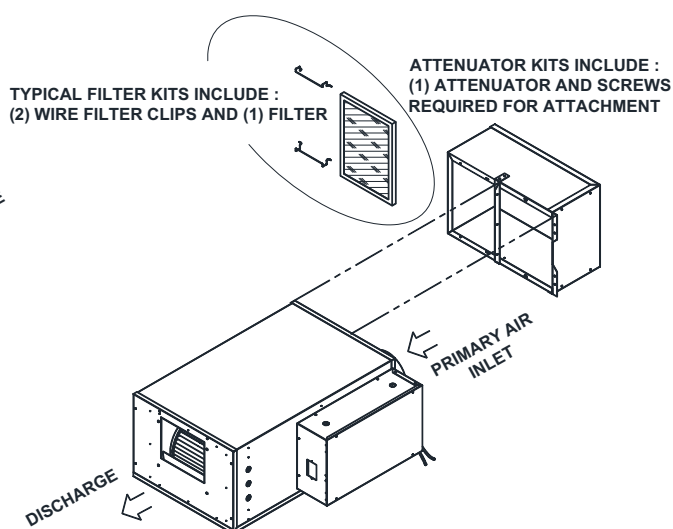
**BASIC UNIT WITH ATTENUATOR KIT
TOP VIEW**



**BASIC UNIT WITH ATTENUATOR AND INDUCTION FILTER
DISCHARGE VIEW**



BASIC UNIT WITH INDUCTION FILTER KIT



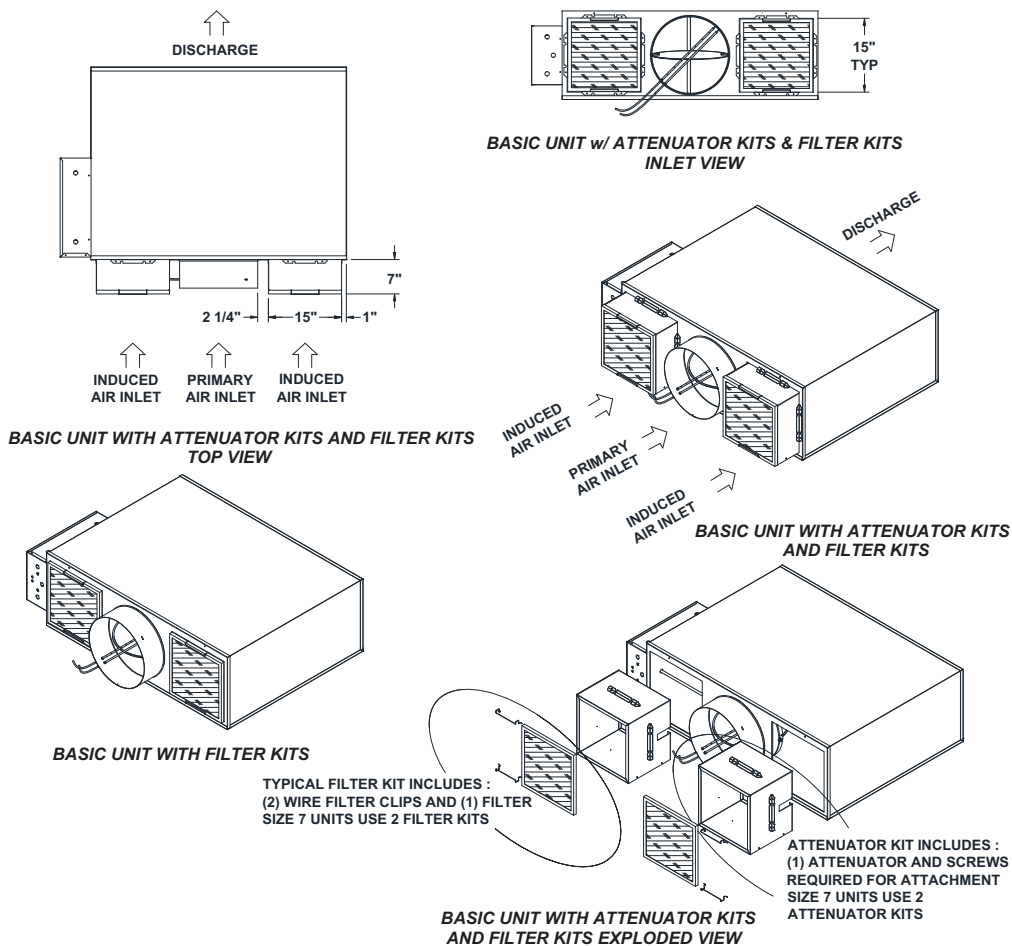
BASIC UNIT WITH ATTENUATOR AND INDUCTION FILTER

45J ATTENUATOR, DIMENSIONAL DETAILS SIZE 2 - 6

UNIT SIZE	INLET SIZE	DIMENSIONS - INCHES			
		H	A	B	C
2	6	15	15	14	4 $\frac{1}{2}$
3	6	15	15	14	3 $\frac{1}{2}$
	8	15	15	14	2 $\frac{1}{2}$
4	8	17 $\frac{1}{2}$	15	14	2 $\frac{1}{2}$
	10	17 $\frac{1}{2}$	15	14	1 $\frac{1}{2}$
5	10	17 $\frac{1}{2}$	19	18	3 $\frac{1}{4}$
	12	17 $\frac{1}{2}$	19	18	2 $\frac{1}{4}$
6	12	17 $\frac{1}{2}$	19	18	2 $\frac{1}{4}$
	14	17 $\frac{1}{2}$	19	18	1 $\frac{1}{4}$

45J SERIES FAN POWERED VAV TERMINAL ATTENUATOR — SIZE 7

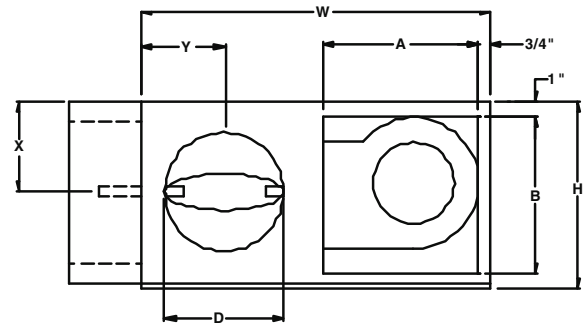
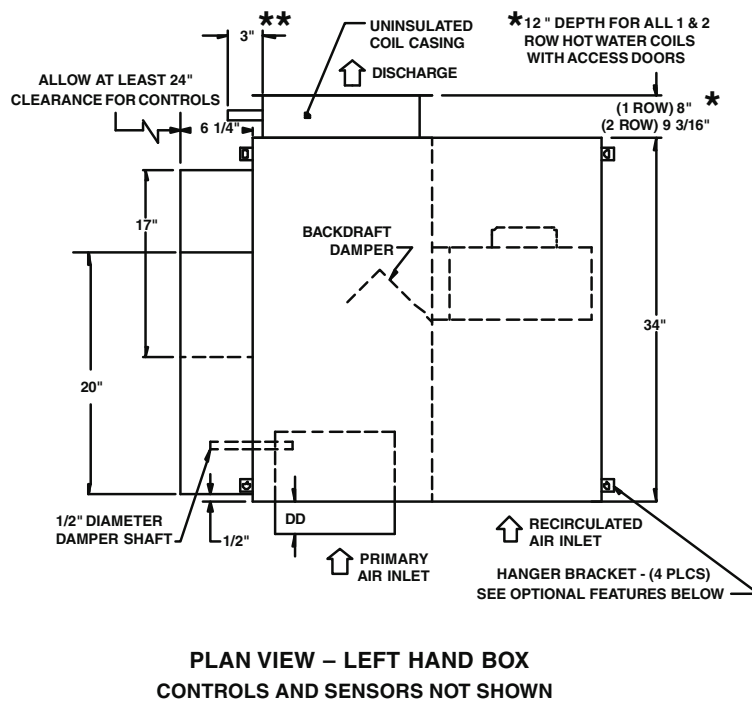
CONSTANT VOLUME INDUCTION FILTER COMPONENTS (SIZE 7)



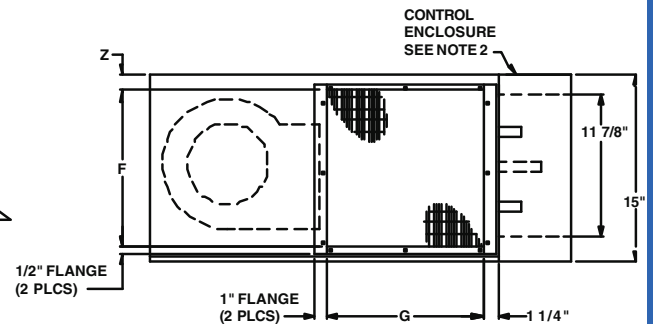
UNIT SIZE	INLET SIZE	LINER DESCRIPTION		ATTENUATOR KIT NUMBER	FILTER KIT NUMBER	FILTER PART NUMBER
7	16	ALL TYPES		NONE	(2) 350334-1717	(2) 102646-1717
		0	1/2 in. dual density fiberglass	(2) 35032707	(2) 350334-1515	(2) 102649-1515
		1	1 in. dual density fiberglass	(2) 35032708	(2) 350334-1515	(2) 102649-1515
		6	1/2 in. foil encapsulated	(2) 35032709	(2) 350334-1515	(2) 102649-1515
		9	1 in. foil encapsulated	(2) 35032727	(2) 350334-1515	(2) 102649-1515
		F	1/2 in. cellular	(2) 35032733	(2) 350334-1515	(2) 102649-1515
		H	1 in. cellular	(2) 35032736	(2) 350334-1515	(2) 102649-1515

Dimensions — 45J,M (cont)

45M PARALLEL FAN POWERED VAV TERMINALS WITH HOT WATER HEAT — SIZES 2-7



INLET VIEW



DISCHARGE VIEW

* 12 in. depth for all 1 and 2 row hot water coils with access doors.

** 6 1/8 in. long connection with vent and drain option.

LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-12 DD = 2 1/2 in.; 14-16 DD = 3 1/2 in.)

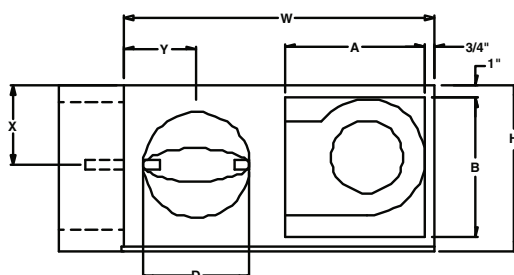
NEC — National Electrical Code

NOTES:

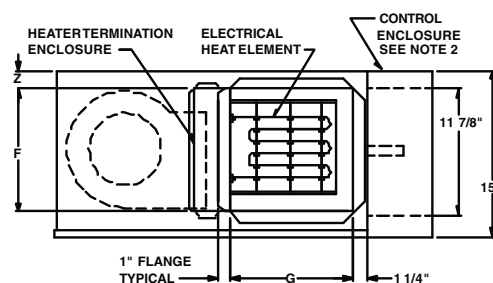
1. Dimensions are given in inches.
2. Digital or analog control enclosure: 20 in. x 11 7/8 in., Pneumatic: 17 in. x 15 in.

UNIT SIZE	INLET SIZE	HP	W	H	RECIRC. AIR		D	DD	DISCHARGE		X	Y	Z
					A	B			F	G			
2	6	1/10	29	15	13	13	5 7/8	4 7/8	12 1/2	15	7 1/2	6 7/8	1 3/4
	8	1/10	29	15	13	13	7 7/8	4 7/8	12 1/2	15	7 1/2	6 7/8	1 3/4
3	8	1/10	29	15	13	13	7 7/8	4 7/8	12 1/2	15	7 1/2	6 7/8	1 3/4
	10	1/10	29	15	13	13	9 7/8	4 7/8	12 1/2	15	7 1/2	6 7/8	1 3/4
4	10	1/4	29	15	13	13	9 7/8	4 7/8	12 1/2	22	7 1/2	6 7/8	1 3/4
	12	1/4	29	15	13	13	11 7/8	6 7/8	12 1/2	22	7 1/2	6 7/8	1 3/4
5	12	1/2	37	17 3/4	17	15 3/4	11 7/8	6 7/8	15	22	8 7/8	9	1 7/8
	14	1/2	37	17 3/4	17	15 3/4	13 7/8	6 7/8	15	22	8 7/8	9	1 7/8
6	14	1/2	37	17 3/4	17	15 3/4	13 7/8	6 7/8	15	24 1/2	8 7/8	9	1 7/8
	16	1/2	37	17 3/4	17	15 3/4	15 7/8	6 7/8	15	24 1/2	8 7/8	9	1 7/8
7	16	3/4	37	17 3/4	17	15 3/4	15 7/8	6 7/8	15	24 1/2	8 7/8	9	1 7/8

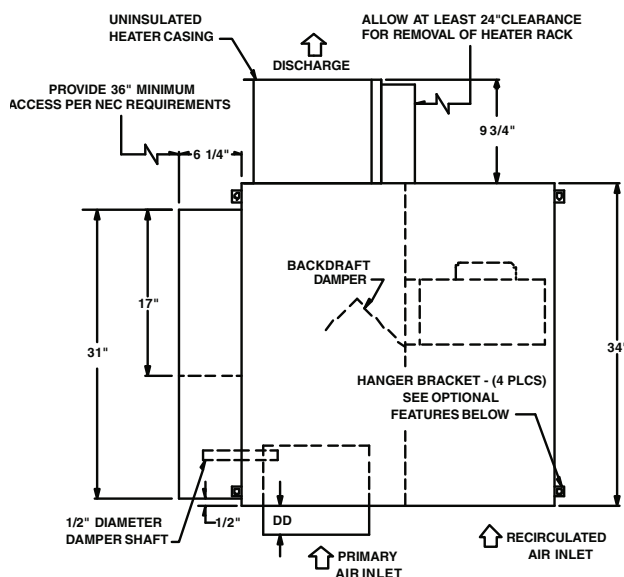
45M PARALLEL FAN POWERED VAV TERMINALS WITH ELECTRIC HEAT — SIZES 2-7



INLET VIEW



DISCHARGE VIEW



PLAN VIEW - LEFT HAND BOX
CONTROLS AND SENSORS NOT SHOWN

LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-12 DD = 2 1/2 in.; 14-16 DD = 3 1/2 in.)

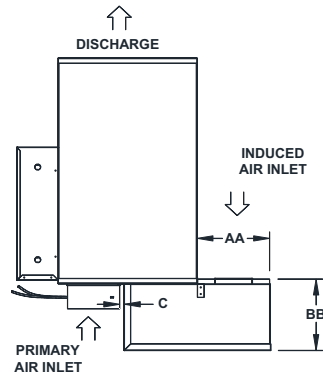
NOTES:

1. Dimensions are given in inches.
2. Digital or analog control enclosure: 31 in. x 11 7/8 in., Pneumatic enclosure: 17 in. x 15 in..

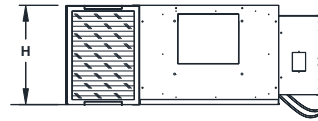
UNIT SIZE	INLET SIZE	HP	W	H	RECIRC. AIR		D	DD	DISCHARGE		X	Y	Z
					A	B			F	G			
2	6	1/10	29	15	13	13	5 7/8	4 7/8	11 1/2	11 1/2	7 1/2	6 7/8	1 3/4
	8	1/10	29	15	13	13	7 7/8	4 7/8	11 1/2	11 1/2	7 1/2	6 7/8	1 3/4
3	8	1/10	29	15	13	13	7 7/8	4 7/8	11 1/2	11 1/2	7 1/2	6 7/8	1 3/4
	10	1/10	29	15	13	13	9 7/8	4 7/8	11 1/2	11 1/2	7 1/2	6 7/8	1 3/4
4	10	1/4	29	15	13	13	9 7/8	4 7/8	11 1/2	11 1/2	7 1/2	6 7/8	1 3/4
	12	1/4	29	15	13	13	11 7/8	6 7/8	11 1/2	11 1/2	7 1/2	6 7/8	1 3/4
5	12	1/4	37	17 3/4	17	15 3/4	11 7/8	6 7/8	14	15 1/2	8 7/8	9	1 7/8
	14	1/2	37	17 3/4	17	15 3/4	13 7/8	6 7/8	14	15 1/2	8 7/8	9	1 7/8
6	14	1/2	37	17 3/4	17	15 3/4	13 7/8	6 7/8	14	15 1/2	8 7/8	9	1 7/8
	16	1/2	37	17 3/4	17	15 3/4	15 7/8	6 7/8	14	15 1/2	8 7/8	9	1 7/8
7	16	3/4	37	17 3/4	17	15 3/4	15 7/8	6 7/8	14	15 1/2	8 7/8	9	1 7/8

45M PARALLEL FAN POWERED VAV TERMINALS ATTENUATOR — SIZES 2-7

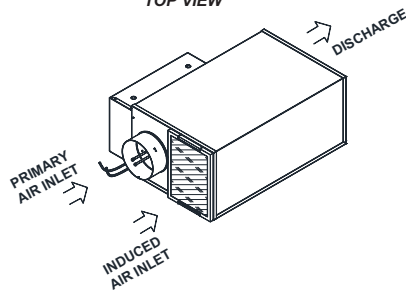
VARIABLE VOLUME INDUCTION FILTER COMPONENTS, SIZES 2 - 7



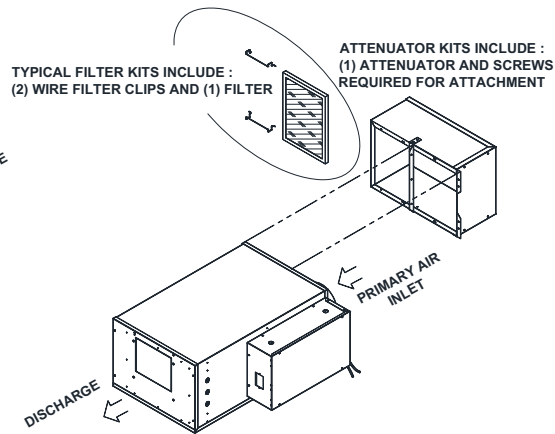
BASIC UNIT WITH ATTENUATOR KIT
TOP VIEW



BASIC UNIT WITH ATTENUATOR AND INDUCTION FILTER
DISCHARGE VIEW



BASIC UNIT WITH INDUCTION FILTER KIT



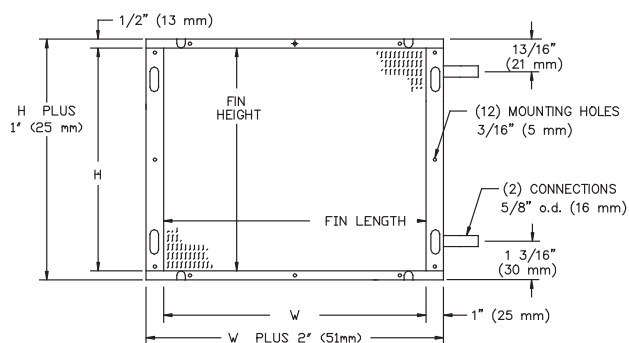
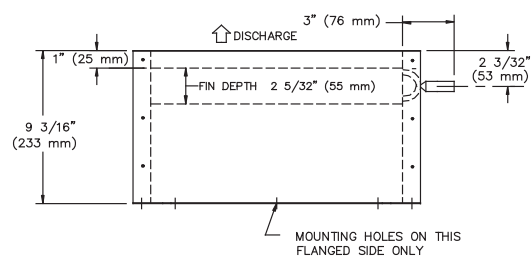
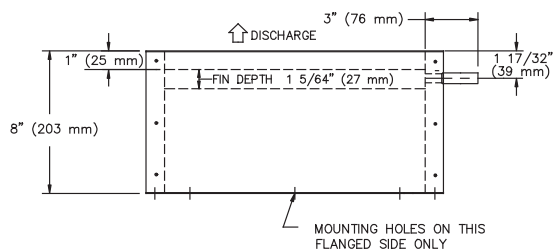
BASIC UNIT WITH ATTENUATOR AND INDUCTION FILTER
EXPLODED VIEW

NOTES:

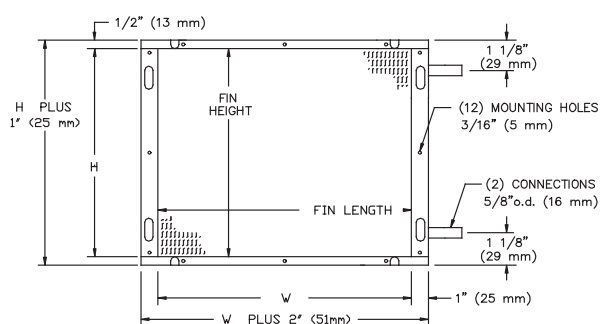
1. Dimensions are given in inches.
2. There is a 12-in. depth for all 1 and 2 row coils with accessories.

UNIT SIZE	INLET SIZE	H	AA	BB	C	ATTENUATOR KIT NUMBER	FILTER KIT NUMBER	FILTER PART NUMBER	LINER DESCRIPTION	*LINER CODE
2	06	15	15	15	4 1/2	35112503*	350334-1115	102649-1115	1/2 IN. DUAL DENSITY FIBERGLASS	0
	08	15	15	15	3 1/2	35112503*	350334-1115	102649-1115		
3	08	15	15	15	3 1/2	35112503*	350334-1115	102649-1115	1 IN. DUAL DENSITY FIBERGLASS	1
	10	15	15	15	2 1/2	35112503*	350334-1115	102649-1115		
4	10	15	15	15	2 1/2	35112503*	350334-1717	102649-1717	1/2 IN. FOIL ENCAPSULATED	6
	12	15	15	15	1 1/2	35112503*	350334-1717	102649-1717		
5	12	17 1/2	19	19	3 1/4	35112504*	350334-1717	102649-1717	1 IN. FOIL ENCAPSULATED	9
	14	17 1/2	19	19	2 1/4	35112504*	350334-1717	102649-1717		
6	14	17 1/2	19	19	2 1/2	35112504*	350334-1717	102649-1717	1/2 IN. CELLULAR	F
	16	17 1/2	19	19	1 1/4	35112504*	350334-1717	102649-1717		
7	16	17 1/2	19	19	1 1/4	35112504*	350334-1717	102649-1717	1 IN. CELLULAR	H

45J/M FAN POWERED VAV TERMINALS HOT WATER HEAT COIL 1 AND 2 ROW - SIZES 2-7



1 ROW HOT WATER COIL



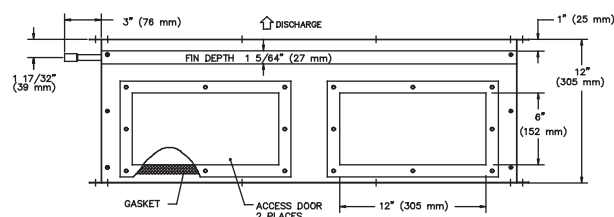
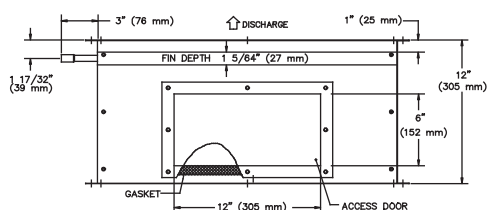
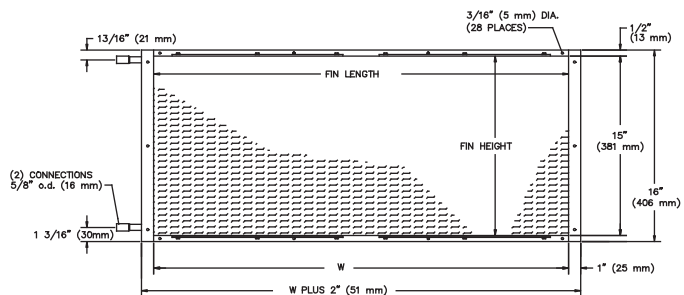
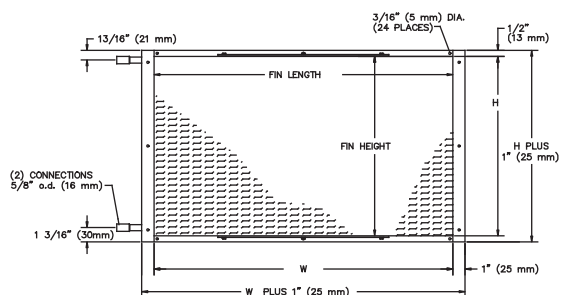
2 ROW HOT WATER COIL

NOTE: Dimensions are given in inches.

MODEL	UNIT SIZE	DIMENSIONS	
		W	H
45J, 1 ROW	2	15	12 1/2
	3	15	12 1/2
	4	22	12 1/2
	5	22	15
	6	24 1/2	15
45M, 1 ROW	7	34	15
	2	15	12 1/2
	3	15	12 1/2
	4	22	12 1/2
	5	22	15
45J, 2 ROW	6	24 1/2	15
	7	24 1/2	15
	2	15	12 1/2
	3	15	12 1/2
	4	22	12 1/2
45M, 2 ROW	5	22	15
	6	24 1/2	15
	7	24 1/2	15
	2	15	12 1/2
	3	15	12 1/2

Dimensions — 45J,M (cont)

45J/M FAN POWERED VAV TERMINALS HOT WATER HEAT COIL 1 ROW WITH ACCESS - SIZES 2-7



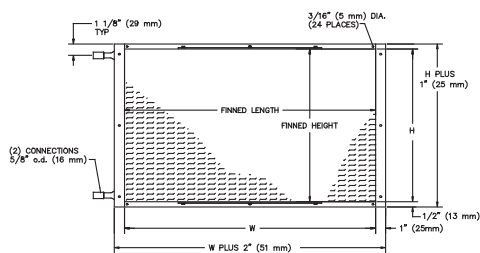
CONSTRUCTION TYPICAL OF UNIT SIZES 2-6

45J/M UNIT SIZE 7

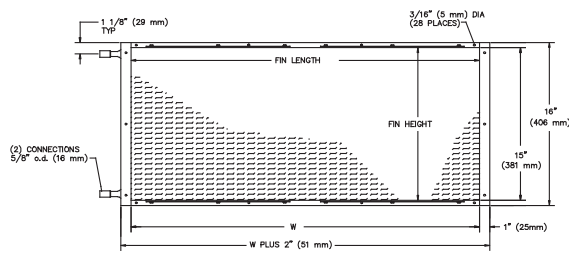
NOTE: Dimensions are given in inches.

MODEL	UNIT SIZE	DIMENSIONS	
		W	H
45J, 1 ROW	2	15	12 1/2
	3	15	12 1/2
	4	22	12 1/2
	5	22	15
	6	24 1/2	15
45M, 1 ROW	7	34	15
	2	15	12 1/2
	3	15	12 1/2
	4	22	12 1/2
	5	22	15
	6	24 1/2	15
	7	24 1/2	15

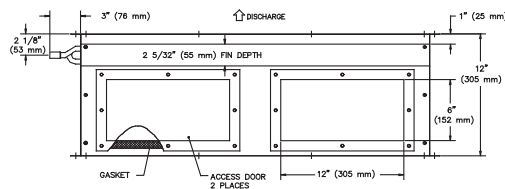
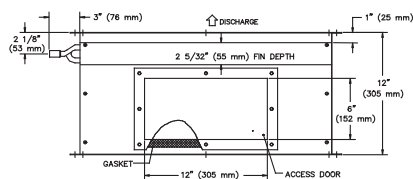
45J/M FAN POWERED VAV TERMINALS HOT WATER HEAT COIL 2 ROW WITH ACCESS - SIZES 2-7



CONSTRUCTION TYPICAL OF UNIT SIZES 2-6



45J/M UNIT SIZE 7



NOTE: Dimensions are given in inches.

MODEL	UNIT SIZE	DIMENSIONS	
		W	H
45J, 2 ROW	2	15	12 1/2
	3	15	12 1/2
	4	22	12 1/2
	5	22	15
	6	24 1/2	15
	7	34	15
45M, 2 ROW	2	15	12 1/2
	3	15	12 1/2
	4	22	12 1/2
	5	22	15
	6	24 1/2	15
	7	24 1/2	15

UNIT CAPACITIES

45J SERIES FAN POWERED TERMINAL UNIT

45J WITH PSC FAN MOTOR									
UNIT SIZE	INLET SIZE (in.)	FAN AIRFLOW (cfm)		PRIMARY AIRFLOW (cfm)		MOTOR HP	MOTOR AMPS		
		Min	Max	Min	Max		120V	208/240V	277V
2	6	100	560	52 or 0	515	1/10	1.8	1	0.7
3	6	300	990	52 or 0	515	1/4	3.6	2	1.5
	8			92 or 0	916				
4	8	550	1440	92 or 0	916	1/4	5	2.8	2.1
	10			143 or 0	1432				
	12			206 or 0	1440				
5	10	1100	2140	143 or 0	1432	1/2	8.3	4.6	3.5
	12			206 or 0	2062				
6	12	1200	2530	206 or 0	2062	3/4	9.5	5.8	4.4
	14			281 or 0	2530				
7	16	2100	3900	367 or 0	3665	(2) 3/4	N/A	13.2	9.9

45J WITH ECM FAN MOTOR									
UNIT SIZE	INLET SIZE (in.)	FAN AIRFLOW (cfm)		PRIMARY AIRFLOW (cfm)		MOTOR HP	MOTOR AMPS		
		Min	Max	Min	Max		120V	208/240V	277V
3	6	165	1100	52 or 0	515	1/2	7.7	5.0	4.1
	8			92 or 0	916				
6	10	385	2550	143 or 0	1432	1	12.8	10.5	6.9
	12			206 or 0	2062				
	14			281 or 0	2550				
7	16	685	4550	367 or 0	3665	(2) 1	N/A	21.0	13.8

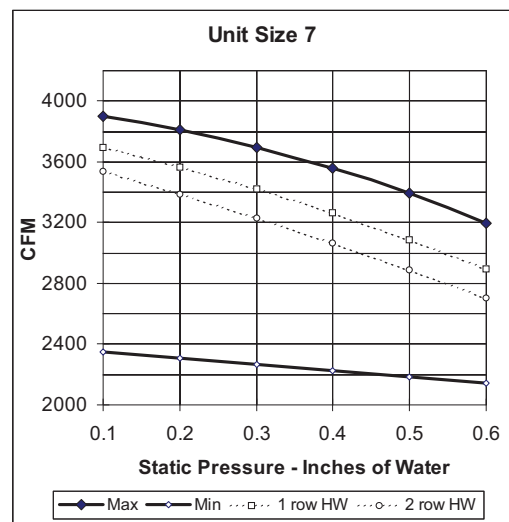
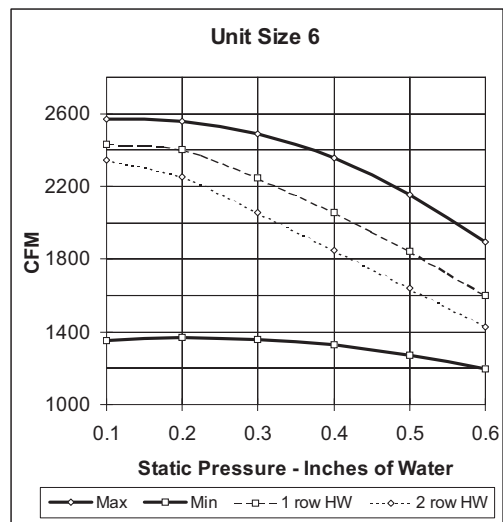
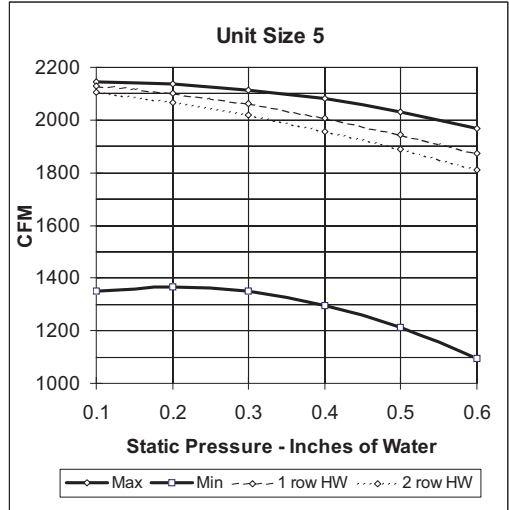
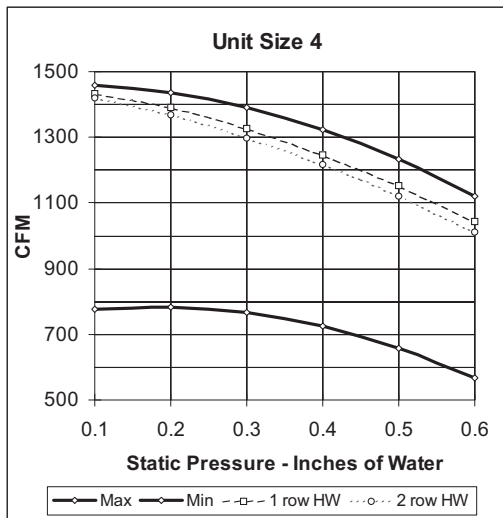
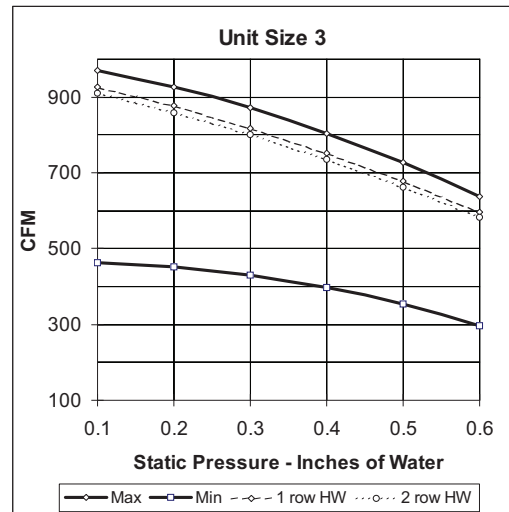
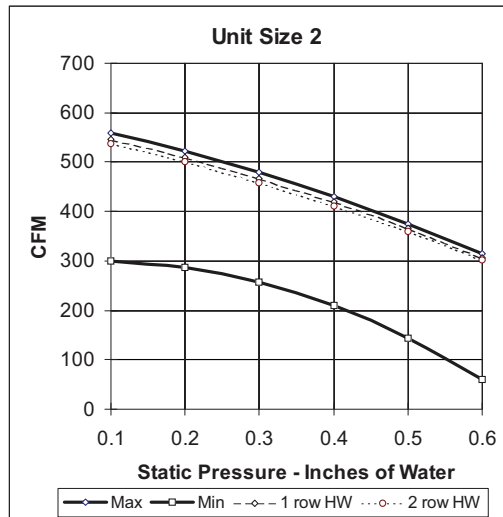
45M PARALLEL FAN POWERED TERMINAL UNIT

45M WITH PSC FAN MOTOR									
UNIT SIZE	INLET SIZE (in.)	FAN AIRFLOW (cfm)		PRIMARY AIRFLOW (cfm)		MOTOR HP	MOTOR AMPS		
		Min	Max	Min	Max		120V	208/240V	277V
2	6	200	400	52 or 0	515	1/10	1.6	0.9	0.7
	8			92 or 0	916	1/10	2		
3	6	300	990	52 or 0	515	1/4	3.6	2	1.5
	8			92 or 0	916				
4	8	550	1440	92 or 0	916	1/4	5	2.8	2.1
	10			143 or 0	1432				
	12			206 or 0	1440				
5	10	1100	2140	143 or 0	1432	1/2	8.3	4.6	3.5
	12			206 or 0	2062				
6	12	1200	2530	206 or 0	2062	3/4	9.5	5.8	4.4
	14			281 or 0	2530				
7	16	2100	3900	367 or 0	3665	(2) 3/4	N/A	13.2	9.9

NOTES:

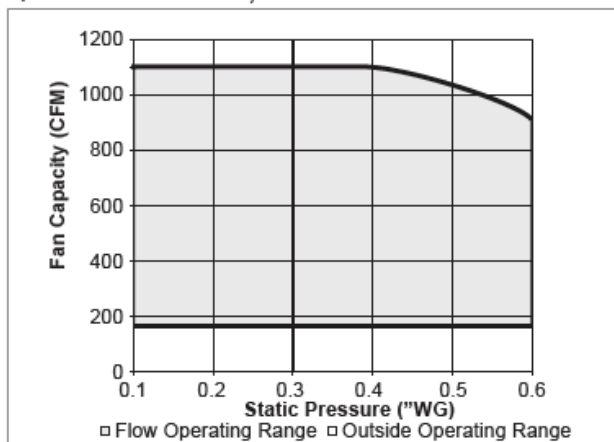
- 45J maximum primary airflow (cfm) is set by the maximum induced airflow, which may vary as a function of downstream pressure. Maximum airflow shown is based on the maximum induced airflow (fan airflow) or 1.00 in. wg differential pressure signal from inlet airflow sensor, whichever is less.
- 45M maximum primary airflow (cfm) is based on 1.00 in. wg differential pressure signal from inlet airflow sensor.
- Minimum recommended primary airflow (cfm) is based on 0.03 in. wg differential pressure of the inlet airflow sensor, or 0 airflow. 0.03 in. wg is equal to 15% to 20% of the nominal flow rating of the terminal. Less than 15% to 20% may result in greater than +5% control of box flow.
- 45M maximum/minimum fan airflow (cfm) is based on 0.25 in. wg external (downstream) static pressure.
- 45J maximum/minimum fan airflow is based on 0.10 in. wg / 0.60 in. wg downstream static pressure, respectively.

45J SERIES FAN POWERED TERMINAL UNIT PSC FAN CURVE

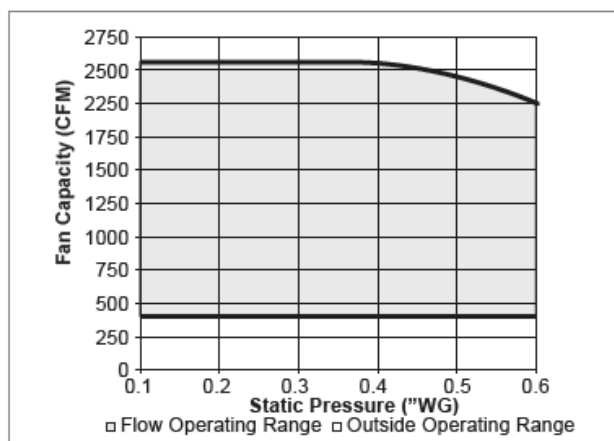


45J SERIES FAN POWERED VAV TERMINAL UNIT ECM FAN CURVE

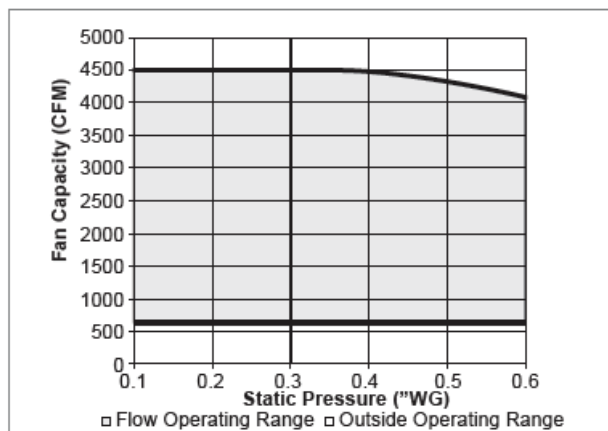
Unit Size 3



Unit Size 6



Unit Size 7



45J SERIES FAN POWERED TERMINAL UNIT

DISCHARGE SOUND POWER DATA

UNIT SIZE	INLET (in.)	FLOW RATE (CFM)		MIN. ΔPs	FAN ONLY							FAN AND PRIMARY AT 0.75 in. ΔPs							FAN AND PRIMARY AT 1.5 in. ΔPs						
					OCTAVE BAND SOUND POWER, L _w					L _p	OCTAVE BAND SOUND POWER, L _w					L _p	OCTAVE BAND SOUND POWER, L _w					L _p			
		PRIMARY	FAN	in. wg	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	6	200	250	0.025	53	54	57	52	47	43	-	53	54	57	52	47	43	-	53	57	57	52	47	43	-
		250	300	0.039	57	58	60	55	51	47	-	57	58	60	55	51	47	-	57	60	60	55	51	47	-
		300	350	0.056	60	60	62	57	53	51	-	60	60	62	57	53	51	-	60	63	62	57	53	51	21
		350	400	0.077	63	63	64	60	56	54	20	63	63	64	60	56	54	20	63	65	64	60	56	54	23
		400	450	0.100	65	65	66	62	58	57	23	65	65	66	62	58	57	23	65	67	67	62	58	57	26
3	8	375	450	0.029	60	56	57	53	53	52	-	60	56	57	53	53	52	-	60	56	57	53	53	52	-
		425	550	0.037	62	60	61	57	57	56	21	62	60	61	57	57	56	21	62	60	61	57	57	56	21
		550	625	0.062	63	62	63	60	59	59	23	63	62	63	60	59	59	23	63	62	63	60	59	59	23
		625	775	0.080	66	66	66	65	63	64	28	66	66	66	65	63	64	28	66	66	66	65	63	64	28
		700	850	0.100	67	68	68	67	65	66	30	67	68	68	67	65	66	30	67	68	68	67	65	66	30
4	10	700	800	0.040	61	63	64	66	63	55	-	61	63	66	68	65	55	-	65	65	66	68	65	57	22
		800	950	0.053	63	64	66	67	64	57	21	63	64	66	69	66	57	21	66	67	66	69	66	59	24
		900	1075	0.067	64	65	68	67	64	59	23	64	65	68	69	66	59	23	68	68	68	69	66	60	25
		1000	1225	0.083	66	67	69	68	65	60	24	66	67	69	70	67	60	24	69	69	69	70	67	60	27
		1100	1350	0.100	67	67	70	68	65	61	25	67	67	70	70	67	61	25	70	70	70	70	67	61	28
5	12	1200	1350	0.056	67	65	66	64	62	62	26	68	65	66	64	62	62	26	70	68	68	64	62	62	26
		1300	1475	0.066	68	67	67	66	64	65	28	70	67	67	66	64	65	28	72	70	69	66	64	65	28
		1400	1600	0.077	70	69	69	69	67	67	30	70	69	69	69	67	67	30	73	72	71	69	67	67	30
		1500	1750	0.088	71	70	70	71	69	69	33	71	70	70	71	69	69	33	74	73	72	71	69	69	33
		1600	2050	0.100	74	74	73	75	73	73	36	74	74	73	75	73	73	36	76	76	73	75	73	73	36
6	14	1275	1400	0.037	67	67	63	61	58	58	24	69	69	63	61	58	58	27	69	69	63	61	58	58	27
		1450	1600	0.048	69	69	66	65	62	62	26	71	71	66	65	62	62	29	71	71	66	65	62	62	29
		1775	1850	0.071	72	71	70	69	66	66	30	74	73	70	69	66	66	31	74	73	70	69	66	66	31
		1950	2100	0.086	74	72	73	73	70	70	33	76	74	73	73	70	70	33	76	74	73	73	70	70	33
		2100	2400	0.100	76	74	76	76	74	73	37	78	76	76	76	74	73	37	78	76	76	76	74	73	37
7	16	2000	2100	0.051	73	71	69	67	65	65	29	73	71	69	67	65	65	29	73	71	69	67	65	65	29
		2200	2450	0.062	75	73	71	69	67	67	31	75	73	71	69	67	67	31	75	73	71	69	67	67	31
		2400	2800	0.073	77	75	73	72	69	69	33	77	75	73	72	69	69	33	77	75	73	72	69	69	33
		2600	3150	0.086	78	76	74	74	70	70	35	78	76	74	74	70	70	35	78	76	74	74	70	70	35
		2800	3600	0.100	79	78	76	76	72	72	37	79	78	76	76	72	72	37	79	78	76	76	72	72	37

LEGEND

AHRI	—	Air-Conditioning, Heating, and Refrigeration Institute
CFM	—	Air Volume (cubic feet per minute)
L _p	—	Room Sound Pressure
L _w	—	Sound Power
Min ΔPs	—	Minimum Static Pressure required to achieve rated airflow
NC	—	Application Data from AHRI 885-08 Appendix E
ΔPs	—	The difference in static pressure from inlet to discharge
—	—	Indicates an NC level less than 20

NOTES:

1. Discharge sound power is the sound emitted from the unit discharge.
2. All sound data is based on tests conducted in accordance with AHRI 880-11 and corrected for end reflection.
3. Sound power levels are in decibels, re: 10⁻¹² watts.
4. AHRI certification points are shown in shaded blocks.

Performance data — 45J,M (cont)



45J SERIES FAN POWERED TERMINAL UNIT RADIATED SOUND POWER DATA

UNIT SIZE	INLET (in.)	FLOW RATE (CFM)		MIN. ΔPs	FAN ONLY							FAN AND PRIMARY AT 0.75 in. ΔPs							FAN AND PRIMARY AT 1.5 in. ΔPs						
					OCTAVE BAND SOUND POWER, L _w						L _p	OCTAVE BAND SOUND POWER, L _w						L _p	OCTAVE BAND SOUND POWER, L _w						L _p
		PRIMARY	FAN	in. wg	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	6	200	250	0.025	59	58	54	45	41	37	29	59	61	56	47	43	39	31	62	63	58	49	45	42	33
		250	300	0.039	61	60	55	47	42	38	30	63	63	58	50	45	41	33	65	66	60	52	47	44	36
		300	350	0.056	63	61	56	50	44	40	31	65	65	59	52	47	43	35	67	68	62	54	49	46	39
		350	400	0.077	64	63	57	52	45	41	33	67	66	60	54	48	45	37	69	70	64	56	51	48	41
		400	450	0.100	65	64	57	54	46	42	34	68	68	62	55	50	46	39	70	71	65	57	52	49	43
3	8	375	450	0.029	54	53	51	48	36	32	25	61	59	55	50	42	39	30	67	67	60	51	46	41	38
		425	550	0.037	58	58	54	50	41	37	29	63	61	57	50	45	41	32	68	69	61	54	48	43	40
		550	625	0.062	61	60	56	52	43	40	31	66	64	59	55	48	45	34	71	72	64	57	51	47	43
		625	775	0.080	66	65	60	55	48	45	36	69	67	62	58	51	49	38	73	74	66	60	54	50	46
		700	850	0.100	69	67	61	57	50	48	38	70	69	63	59	53	51	40	74	75	67	61	55	52	47
4	10	700	800	0.040	63	60	59	54	44	42	34	65	63	60	54	46	42	36	68	65	62	57	49	46	38
		800	950	0.053	65	62	59	55	47	44	35	68	65	62	55	49	44	37	70	68	64	58	51	48	39
		900	1075	0.067	67	64	60	55	49	46	35	69	67	62	57	49	46	38	72	70	65	59	53	50	41
		1000	1225	0.083	68	65	61	56	51	48	36	71	69	63	58	51	48	40	74	72	66	60	54	51	43
		1100	1350	0.100	69	67	61	57	53	49	37	72	70	64	59	53	49	41	75	73	67	61	56	53	45
5	12	1200	1350	0.056	70	67	61	55	48	47	38	74	71	63	58	53	50	43	76	73	65	60	55	51	45
		1300	1475	0.066	71	68	62	57	50	49	38	75	72	64	59	54	51	44	77	74	66	61	56	52	46
		1400	1600	0.077	72	68	63	58	52	51	39	76	73	65	60	55	51	44	77	75	67	61	57	54	47
		1500	1750	0.088	73	69	64	60	54	53	40	77	73	66	60	56	53	45	78	75	68	62	58	55	48
		1600	2050	0.100	75	70	66	62	57	57	42	78	74	66	62	57	57	47	79	76	69	64	60	57	49
6	14	1275	1400	0.037	64	64	58	56	52	48	35	68	67	61	58	55	51	38	69	68	63	59	57	53	39
		1450	1600	0.048	66	66	60	58	55	51	36	70	69	63	58	57	54	40	71	70	65	61	59	55	42
		1775	1850	0.071	68	67	62	61	58	55	37	73	72	65	61	60	57	43	74	74	68	64	61	58	46
		1950	2100	0.086	70	68	64	63	60	58	39	74	73	67	63	60	58	45	76	75	69	65	63	60	48
		2100	2400	0.100	72	69	66	65	63	61	41	76	75	68	65	63	61	47	78	77	70	67	65	61	49
7	16	2000	2100	0.051	69	68	62	58	53	51	38	75	71	66	62	57	54	42	78	74	69	66	60	57	46
		2200	2450	0.062	72	70	64	61	56	54	41	76	73	67	64	59	56	44	79	76	71	67	62	59	48
		2400	2800	0.073	74	72	66	63	58	57	43	78	74	69	65	61	58	46	80	77	72	68	63	60	49
		2600	3150	0.086	76	73	68	65	60	59	45	79	75	70	65	62	59	48	82	78	73	69	65	62	51
		2800	3600	0.100	78	75	70	67	63	62	48	81	75	70	67	63	62	49	83	79	74	70	66	64	52

LEGEND

AHRI	— Air-Conditioning, Heating, and Refrigeration Institute
CFM	— Air Volume (cubic feet per minute)
L _p	— Room Sound Pressure
L _w	— Sound Power
Min ΔPs	— Minimum Static Pressure required to achieve rated airflow
NC	— Application Data from AHRI 885-08 Appendix E
ΔPs	— The difference in static pressure from inlet to discharge
—	— Indicates an NC level less than 20

NOTES:

1. Discharge sound power is the sound emitted from the unit discharge.
2. All sound data is based on tests conducted in accordance with AHRI 880-11 and corrected for end reflection.
3. Sound power levels are in decibels, re: 10⁻¹² watts.
4. AHRI certification points are shown in shaded blocks.

45J/45M DAMPER LEAKAGE

INLET SIZE (in.)	DAMPER LEAKAGE (CFM)		
	1.5 in. wg	3.0 in. wg	6.0 in. wg
6	4	5	7
8	4	5	7
10	4	5	7
12	4	5	7
14	4	6	8
16	5	7	9

NOTE: Damper leakage is measured with the damper fully closed, using an actuator. A precision low flow orifice is used upstream of the unit to measure the leakage rate as a function of the measured upstream static pressure. Leakage testing conducted in accordance with ASHRAE 130-2008.

45J SERIES FAN POWERED TERMINAL UNIT HOT WATER COIL DATA

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM, AND RESULTING MBH							
				300	330	360	390	420	450	480	500
2	1	1.0	0.11	11.4	11.8	12.3	12.6	13.0	13.4	13.7	13.9
		2.0	0.43	12.8	13.4	14.0	14.5	15.0	15.5	15.9	16.2
		3.0	0.94	13.4	14.1	14.7	15.3	15.9	16.4	16.9	17.2
		4.0	1.63	13.8	14.5	15.1	15.7	16.3	16.9	17.4	17.8
		AIR PRESSURE DROP (cfm)		0.02	0.03	0.03	0.03	0.04	0.04	0.05	0.05
	2	1.0	0.24	17.6	18.4	19.2	19.9	20.6	21.2	21.8	22.2
		2.0	0.91	20.3	21.4	22.5	23.5	24.5	25.4	26.3	26.8
		4.0	3.48	22.0	23.3	24.6	25.9	27.1	28.2	29.3	29.9
		6.0	7.63	22.6	24.1	25.5	26.8	28.1	29.3	30.4	31.2
		AIR PRESSURE DROP (cfm)		0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.11

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM, AND RESULTING MBH							
				475	530	360	640	695	750	805	850
3	1	1.0	0.11	0.11	13.6	14.2	14.7	15.1	15.5	15.9	16.3
		2.0	0.43	0.43	15.9	16.6	17.3	17.9	18.5	19.1	19.6
		3.0	0.94	0.94	16.8	17.7	18.4	19.2	19.8	20.5	21.1
		4.0	1.63	1.63	17.3	18.2	19.1	19.9	20.6	21.3	21.9
		AIR PRESSURE DROP (cfm)		0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
	2	1.0	0.24	21.7	22.7	23.6	24.4	25.1	25.7	26.3	26.8
		2.0	0.91	26.1	27.6	29	30.2	31.3	32.4	33.4	34.2
		4.0	3.49	29.1	30.9	32.7	34.3	35.8	37.2	38.5	39.6
		6.0	7.64	30.2	32.3	34.2	35.9	37.6	39.2	40.7	41.8
		AIR PRESSURE DROP (cfm)		0.10	0.12	0.14	0.17	0.19	0.22	0.24	0.27

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM, AND RESULTING MBH							
				800	875	950	1025	1100	1175	1250	1300
4	1	1.00	0.15	19.6	20.2	20.7	21.2	21.6	22.0	22.4	22.6
		2.00	0.55	23.7	24.6	25.4	26.1	26.8	27.4	28.0	28.4
		3.00	1.20	25.5	26.5	27.5	28.3	29.1	29.9	30.6	31.0
		4.00	2.10	26.6	27.6	28.6	29.6	30.5	31.3	32.1	32.6
		AIR PRESSURE DROP (cfm)		0.06	0.07	0.08	0.09	0.10	0.11	0.13	0.13
	2	1.0	0.31	30.1	31.0	31.8	32.6	33.2	33.8	34.4	34.7
		2.0	1.17	38.5	40.1	41.5	42.8	44.0	45.2	46.3	46.9
		4.0	4.43	44.5	46.7	48.7	50.6	52.3	54.0	55.6	56.6
		6.0	9.68	47.0	49.4	51.7	53.8	55.8	57.7	59.5	60.7
		AIR PRESSURE DROP (cfm)		0.13	0.15	0.17	0.19	0.22	0.24	0.27	0.29

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM, AND RESULTING MBH							
				1400	1490	1580	1670	1760	1850	1940	2000
5	1	1.0	0.18	25.2	25.6	26.0	26.3	26.6	27.0	27.2	27.4
		2.0	0.67	31.9	32.6	33.2	33.8	34.4	34.9	35.5	35.8
		3.0	1.47	35.1	35.9	36.7	37.4	38.1	38.8	39.4	39.8
		4.0	2.55	36.9	37.8	38.7	39.5	40.3	41.1	41.8	42.2
		AIR PRESSURE DROP (cfm)		0.11	0.12	0.14	0.15	0.16	0.18	0.19	0.21
	2	1.0	0.38	37.5	38.0	38.6	39.0	39.5	39.9	40.3	40.5
		2.0	1.42	51.6	52.7	53.8	54.8	55.8	56.7	57.5	58.1
		4.0	5.36	62.9	64.7	66.4	68.0	69.5	71.0	72.4	73.3
		6.0	11.69	67.8	69.9	71.9	73.8	75.6	77.3	79.0	80.1
		AIR PRESSURE DROP (cfm)		0.24	0.27	0.29	0.32	0.35	0.38	0.41	0.44

NOTES:

- Hot water capacities are in MBH.
- Data is based upon 180°F entering water with 0% glycol and 65°F entering air.
- Head loss is in feet of water.
- Air Pressure Drop is defined as the minimum static pressure at the maximum CFM with the damper fully open.

- Air temperature rise = 927 x MBH/CFM.
- Water temperature drop = 2.04 x MBH/GPM.
- Coils are not for steam application.
- Tables are based upon a temperature difference of 115°F between entering air and entering water. For other temperature differences, multiply MBH values by correction factors below.

MBH CORRECTION FACTORS

ΔT	50	60	70	80	90	100	115	125	140	150
Factor	0.44	0.52	0.61	0.70	0.79	0.88	1.00	1.07	1.20	1.30

Performance data — 45J,M (cont)



45J SERIES FAN POWERED TERMINAL UNIT HOT WATER COIL DATA (CONT.)

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM, AND RESULTING MBH							
				1400	1515	1630	1745	1860	1975	2090	2200
6	1	1.0	0.19	26.4	27.0	27.5	27.9	28.3	28.7	29.1	29.4
		2.0	0.73	33.6	34.6	35.4	36.2	36.9	37.6	38.3	38.9
		3.0	1.58	37.0	38.1	39.2	40.2	41.1	42.0	42.8	43.5
		4.0	2.75	39.0	40.2	38.7	42.5	43.5	44.5	45.4	46.3
		AIR PRESSURE DROP (cfm)		0.09	0.11	0.12	0.14	0.15	0.17	0.18	0.20
	2	1.0	0.40	38.7	39.4	40.1	40.7	41.2	41.7	42.1	42.5
		2.0	1.52	53.5	55.1	56.5	57.8	59.0	60.2	61.2	62.1
		4.0	5.77	65.5	67.9	70.2	72.3	74.3	76.1	77.9	79.5
		6.0	12.57	70.6	73.5	76.2	78.7	81.1	83.3	85.4	87.4
		AIR PRESSURE DROP (cfm)		0.20	0.23	0.26	0.29	0.32	0.36	0.39	0.43

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM, AND RESULTING MBH							
				2400	2530	2660	2790	2920	3050	3180	3300
7	1	1.0	0.25	34.4	34.7	35.1	35.4	35.7	36.0	36.3	36.5
		2.0	0.93	46.6	47.4	48.1	48.7	49.3	49.9	50.5	50.9
		3.0	2.03	52.8	53.7	54.6	55.5	56.3	57.1	57.8	58.5
		4.0	3.52	56.5	57.6	58.6	59.6	60.6	61.5	62.3	63.1
		AIR PRESSURE DROP (cfm)		0.13	0.15	0.16	0.17	0.19	0.20	0.22	0.23
	2	1.0	0.52	46.7	47.1	47.5	47.8	48.1	48.3	48.6	48.8
		2.0	1.95	70.9	71.9	72.9	73.8	74.7	75.5	76.3	76.9
		4.0	7.34	93.2	95.1	96.9	98.7	100.4	101.9	103.5	104.8
		6.0	15.98	103.5	105.9	108.3	110.5	112.6	114.7	116.6	118.4
		AIR PRESSURE DROP (cfm)		0.29	0.31	0.34	0.37	0.40	0.43	0.46	0.49

NOTES:

- Hot water capacities are in MBH.
- Data is based upon 180°F entering water with 0% glycol and 65°F entering air.
- Head loss is in feet of water.
- Air Pressure Drop is defined as the minimum static pressure at the maximum CFM with the damper fully open.
- Air temperature rise = $927 \times \text{MBH/CFM}$.
- Water temperature drop = $2.04 \times \text{MBH/GPM}$.
- Coils are not for steam application.
- Tables are based upon a temperature difference of 115°F between entering air and entering water. For other temperature differences, multiply MBH values by correction factors below.

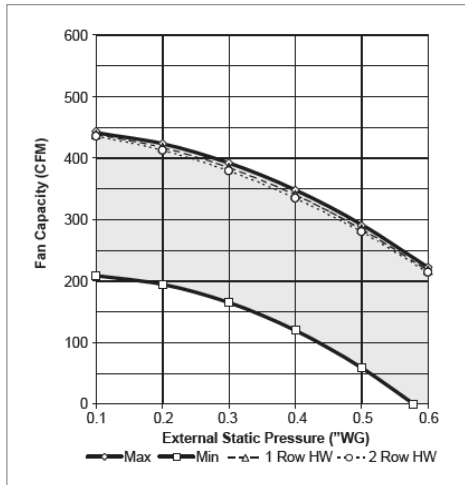
MBH CORRECTION FACTORS

ΔT	50	60	70	80	90	100	115	125	140	150
Factor	0.44	0.52	0.61	0.70	0.79	0.88	1.00	1.07	1.20	1.30

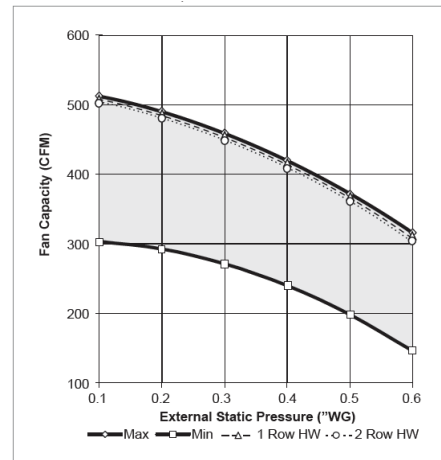
45M PARALLEL FAN POWERED VAV TERMINAL UNIT

PSC FAN CURVE

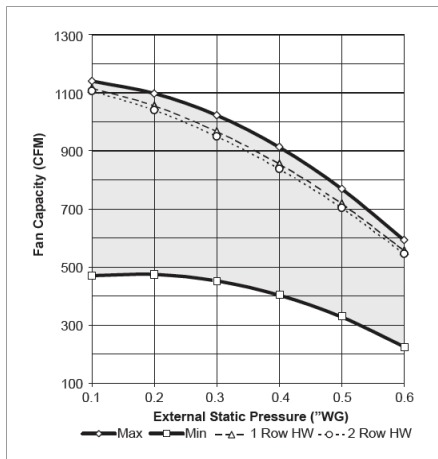
Unit Size 2



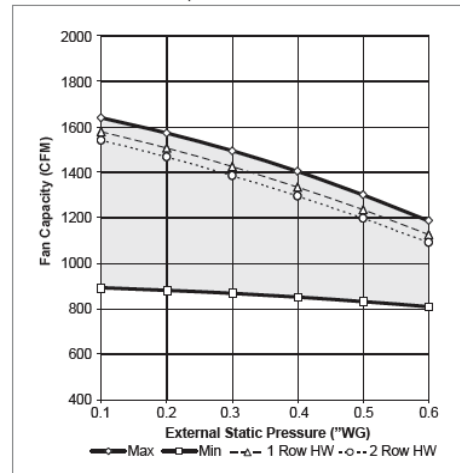
Unit Size 3



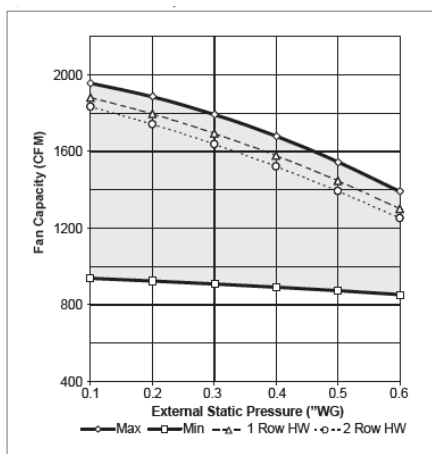
Unit Size 4



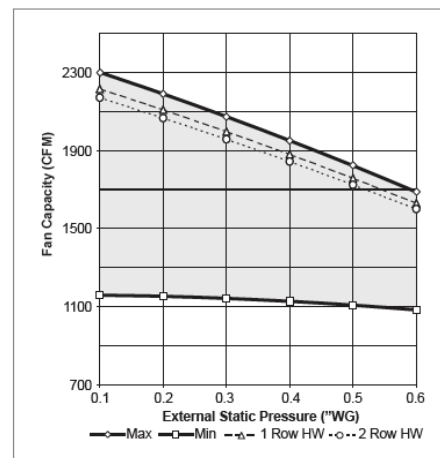
Unit Size 5



Unit Size 6



Unit Size 7



Performance data — 45J,M (cont)



45M PARALLEL FAN POWERED TERMINAL UNIT DISCHARGE SOUND POWER DATA

UNIT SIZE	INLET SIZE	PRIMARY FLOW RATE	MIN. ΔPs	PRIMARY AT 0.5 in. ΔPs							PRIMARY AT 1.5 in. ΔPs						
				Octave Band Sound Power, L _w						L _p	Octave Band Sound Power, L _w						L _p
				2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	6	100	0.013	56	47	44	40	36	31	—	59	54	48	45	43	40	—
		200	0.050	67	58	53	49	44	38	24	70	64	57	54	51	46	28
		300	0.113	74	64	59	55	48	41	28	77	71	63	60	56	50	32
		400	0.200	78	69	62	58	52	44	34	81	75	67	63	59	53	38
		500	0.313	82	72	65	61	54	46	39	85	78	69	66	62	55	43
3	8	180	0.013	54	52	49	44	37	32	—	60	58	56	51	46	43	—
		360	0.053	65	62	56	52	45	38	—	70	68	63	59	53	49	27
		540	0.119	71	67	60	56	49	42	26	77	74	67	64	58	53	34
		700	0.200	75	71	62	59	52	45	30	81	78	70	67	61	55	38
		900	0.331	79	75	65	62	55	47	33	85	81	72	69	64	58	41
4	10	290	0.014	59	55	53	51	42	34	—	65	64	61	60	52	44	23
		580	0.056	67	62	59	56	49	41	20	74	71	67	65	59	52	30
		870	0.125	72	67	62	59	53	46	24	79	75	70	68	62	56	34
		1100	0.200	75	69	64	60	55	48	28	82	78	72	69	64	58	37
		1450	0.348	79	72	66	62	57	51	32	85	81	74	71	67	61	41
5	12	420	0.014	60	54	54	49	43	38	—	66	63	63	60	53	49	20
		840	0.055	68	62	60	55	50	45	—	75	70	69	66	60	56	28
		1260	0.124	73	66	63	58	55	49	25	79	74	73	69	65	60	33
		1600	0.200	76	69	65	60	57	52	28	82	77	75	71	67	62	36
		2100	0.345	79	71	68	62	60	54	32	85	80	77	73	70	65	40
6	14	570	0.015	62	57	53	49	45	39	—	71	67	64	61	56	50	25
		1140	0.059	69	63	60	56	52	47	—	77	73	71	67	63	58	32
		1710	0.133	73	67	64	59	56	51	24	81	77	75	70	67	62	36
		2100	0.200	75	69	66	61	58	53	27	83	79	77	72	69	64	39
		2850	0.368	78	72	69	64	61	57	31	87	82	80	75	72	68	42
7	16	740	0.014	64	60	57	52	49	44	—	72	70	68	64	60	54	28
		1480	0.056	70	66	63	58	55	51	23	78	76	74	70	66	61	35
		2220	0.126	74	69	67	62	59	54	27	82	79	77	74	70	65	39
		2800	0.200	76	71	69	64	61	57	29	84	81	79	76	72	67	41
		3700	0.349	78	73	71	66	64	59	32	86	83	82	78	75	70	44

UNIT SIZE	INLET SIZE	PRIMARY FLOW RATE	MIN. ΔPs	PRIMARY AT 2.0 in. ΔPs							L _p	
				Octave Band Sound Power, L _w								L _p
				2	3	4	5	6	7	NC		
2	6	100	0.013	60	55	50	47	45	42	—		
		200	0.050	71	66	59	56	53	48	29		
		300	0.113	78	72	64	61	58	52	33		
		400	0.200	82	77	68	65	61	55	39		
		500	0.313	86	80	71	68	64	57	44		
3	8	180	0.013	61	60	58	53	48	45	—		
		360	0.053	72	70	65	61	56	52	29		
		540	0.119	78	76	69	66	60	56	36		
		700	0.200	82	79	72	69	63	58	40		
		900	0.331	86	83	74	71	66	60	43		
4	10	290	0.014	67	66	63	62	55	47	26		
		580	0.056	76	73	69	67	61	54	33		
		870	0.125	81	78	72	70	65	59	37		
		1100	0.200	84	80	74	72	67	61	40		
		1450	0.348	87	83	76	74	70	64	43		
5	12	420	0.014	68	65	66	63	56	51	23		
		840	0.055	76	72	72	68	63	59	30		
		1260	0.124	81	76	75	72	67	63	35		
		1600	0.200	84	79	77	73	70	65	39		
		2100	0.345	87	82	79	76	72	68	43		
6	14	570	0.015	73	70	67	63	58	53	29		
		1140	0.059	80	76	74	70	65	61	35		
		1710	0.133	84	80	78	73	69	65	40		
		2100	0.200	86	82	80	75	72	67	42		
		2850	0.368	89	85	83	78	75	71	45		
7	16	740	0.014	74	73	71	67	62	57	31		
		1480	0.056	80	79	77	73	69	64	38		
		2220	0.126	84	82	80	77	73	68	42		
		2800	0.200	86	84	82	79	75	70	44		
		3700	0.349	89	86	85	81	77	73	47		

LEGEND

AHRI	— Air-Conditioning, Heating, and Refrigeration Institute
CFM	— Air Volume (cubic feet per minute)
L _p	— Room Sound Pressure
L _w	— Sound Power
Min ΔPs	— Minimum Static Pressure required to achieve rated airflow
NC	— Application Data from AHRI 885-08 Appendix E
ΔPs	— The difference in static pressure from inlet to discharge
—	— Indicates an NC level less than 20

NOTES:

1. Discharge sound power is the sound emitted from the unit discharge.
2. All sound data is based on tests conducted in accordance with AHRI 880-11 and corrected for end reflection.
3. Sound power levels are in decibels, re: 10⁻¹² watts.
4. AHRI certification points are shown in shaded blocks.

45M PARALLEL FAN POWERED TERMINAL UNIT

RADIATED SOUND POWER DATA

UNIT SIZE	INLET SIZE (in.)	PRIMARY FLOW RATE	MIN Δ Ps	PRIMARY AT 0.5 IN. Δ Ps							PRIMARY AT 1.5 IN. Δ Ps							PRIMARY AT 2.0 IN. Δ Ps						
				Octave Band Sound Power						Lp	Octave Band Sound Power						Lp	Octave Band Sound Power						Lp
				2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	6	100	0.013	42	36	35	29	24	16	-	46	39	40	35	30	23	-	47	40	41	36	32	25	-
		200	0.050	53	46	44	37	31	23	-	57	49	49	42	37	30	23	57	50	50	44	39	32	24
		300	0.113	59	52	49	41	35	27	23	63	55	54	47	42	35	28	64	56	55	48	43	37	30
		400	0.200	63	56	52	44	38	30	27	67	60	57	50	45	38	32	68	60	59	51	46	40	34
		500	0.313	67	59	55	47	41	33	31	70	63	60	52	47	40	35	71	64	62	54	49	42	37
3	8	180	0.013	48	42	42	35	31	26	-	54	50	50	44	39	34	25	56	52	53	47	42	36	27
		360	0.053	56	50	49	41	37	32	23	62	57	57	50	45	40	32	64	59	59	53	47	42	34
		540	0.119	61	54	52	45	41	36	27	67	62	61	54	49	44	36	69	64	63	56	51	46	38
		700	0.200	64	57	55	47	43	38	29	70	64	63	56	51	46	38	72	66	65	58	53	48	41
		900	0.331	67	59	57	49	45	40	32	73	67	65	58	53	48	41	74	69	68	60	55	50	43
4	10	290	0.014	48	43	42	36	31	23	-	57	53	52	46	40	33	26	59	56	55	48	43	35	29
		580	0.056	58	52	50	43	38	32	24	66	62	60	53	48	41	35	69	65	62	55	50	44	38
		870	0.125	64	57	54	47	43	37	29	72	67	64	57	52	46	40	74	70	67	59	55	49	42
		1100	0.200	67	60	57	49	45	40	32	75	70	67	59	55	49	42	77	73	69	62	57	52	45
		1450	0.348	71	64	60	52	48	43	36	79	73	70	62	58	53	47	81	76	72	64	60	55	49
5	12	420	0.014	50	46	46	40	36	31	-	57	53	52	45	42	39	27	59	55	54	47	43	40	29
		840	0.055	59	54	53	47	43	37	27	66	61	59	52	48	44	34	68	63	61	53	50	46	36
		1260	0.124	64	58	57	51	47	40	32	71	65	63	56	52	48	39	73	67	65	57	54	50	40
		1600	0.200	67	61	59	53	49	42	34	74	68	66	58	54	50	41	76	70	67	60	56	52	43
		2100	0.345	70	64	62	56	51	44	37	77	71	68	61	57	52	44	79	73	70	62	59	54	47
6	14	570	0.015	52	49	47	42	39	30	21	59	58	56	51	47	39	31	61	60	59	53	49	42	34
		1140	0.059	59	54	52	46	44	36	26	66	63	61	55	52	45	36	68	66	63	57	54	48	39
		1710	0.133	64	58	55	49	46	40	29	71	67	64	58	55	49	39	73	69	66	60	57	51	42
		2100	0.200	66	59	56	50	48	42	31	73	68	65	59	56	51	41	75	71	68	61	58	53	43
		2850	0.368	69	62	58	52	50	44	34	76	71	67	61	58	54	43	78	73	70	63	60	56	46
7	16	740	0.014	60	59	57	49	46	44	32	66	68	66	60	57	55	42	67	71	69	63	60	58	45
		1480	0.056	68	65	62	55	52	49	37	73	74	72	66	63	60	48	75	76	74	68	65	63	51
		2220	0.126	73	69	65	58	55	52	41	78	77	75	69	66	63	51	79	80	77	72	69	66	54
		2800	0.200	75	71	67	60	57	54	43	81	79	77	71	68	65	53	82	82	79	73	70	68	56
		3700	0.349	78	73	69	62	59	56	46	84	82	79	73	70	67	56	85	84	81	76	73	70	58

LEGEND

AHRI	—	Air-Conditioning, Heating, and Refrigeration Institute
CFM	—	Air Volume (cubic feet per minute)
Lp	—	Room Sound Pressure
Lw	—	Sound Power
Min Δ Ps	—	Minimum Operating Pressure of the Primary Air Value
NC	—	AHRI 880 Test Conditions
Δ Ps	—	The difference in static pressure from inlet to discharge
-	—	Indicates an NC level less than 20

NOTES:

1. Radiated sound power is the sound transmitted through the casing walls.
2. All sound data is based on tests conducted in accordance with AHRI 880-11.
3. Sound power levels are in decibels (dB), re: 10^{-12} watts.
4. AHRI certification points are shown in shaded blocks.

Performance data — 45J,M (cont)



45M PARALLEL FAN POWERED TERMINAL UNIT FAN SOUND POWER LEVELS - FAN ONLY

UNIT SIZE	FLOW RATE	DISCHARGE SOUND POWER							RADIATED SOUND POWER						
		Octave Band Sound Power, L _w							Octave Band Sound Power, L _w						
	CFM	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	190	68	62	57	55	49	43	32	66	55	55	53	49	47	22
	250	69	64	59	57	51	45	34	69	58	57	55	52	50	26
	300	71	65	60	58	52	46	36	71	60	59	57	53	52	24
	330	71	65	60	58	52	47	36	72	62	60	58	54	53	26
	400	72	66	61	59	53	48	38	74	64	61	59	56	55	28
3	300	64	57	53	48	43	35	28	57	48	50	47	42	37	-
	3580	66	59	55	51	46	39	30	61	52	53	50	46	42	-
	400	68	61	57	53	48	42	32	65	56	56	53	49	46	-
	450	69	63	58	55	50	44	34	69	59	58	55	52	50	22
	505	71	65	60	57	52	47	36	72	62	60	58	55	54	27
4	475	63	62	53	49	47	45	32	66	61	60	53	51	49	-
	625	67	65	58	55	52	50	35	69	63	62	58	56	54	22
	775	71	67	61	59	56	55	37	72	64	64	63	60	58	23
	850	73	68	62	61	58	57	38	73	65	64	64	61	60	24
	1050	76	69	66	66	62	61	43	75	66	66	68	65	64	28
5	925	64	60	64	64	57	52	39	70	66	63	60	58	56	23
	1050	68	64	65	65	60	56	41	72	67	64	63	60	59	24
	1175	71	67	66	67	63	60	42	74	68	66	66	63	62	26
	1285	74	69	67	68	65	62	43	75	69	67	68	65	64	28
	1450	77	72	69	69	68	66	45	77	70	69	70	68	67	30
6	980	66	64	63	57	55	52	38	72	64	61	53	52	52	23
	1185	70	67	65	61	59	56	40	74	67	64	59	57	57	26
	1390	73	70	66	64	63	60	42	76	69	67	64	60	60	28
	1545	75	72	67	67	65	62	44	77	70	68	68	62	63	30
	1800	79	75	68	70	69	66	48	78	72	71	73	66	66	32
7	980	67	63	61	56	53	52	36	75	59	62	58	56	55	27
	1260	71	67	64	61	58	57	39	76	63	65	63	60	59	29
	1540	73	71	66	64	61	60	42	77	66	68	67	64	63	30
	1805	75	73	68	67	64	63	45	78	69	70	71	67	66	32
	2100	78	75	70	70	67	66	48	79	72	72	74	69	69	33

LEGEND

AHRI	—	Air-Conditioning, Heating, and Refrigeration Institute
CFM	—	Air Volume (cubic feet per minute)
L _p	—	Room Sound Pressure
L _w	—	Sound Power
Min ΔPs	—	Minimum Operating Pressure of the Primary Air Value
NC	—	AHRI 880 Test Conditions
ΔPs	—	The difference in static pressure from inlet to discharge
-	—	Indicates an NC level less than 20

NOTES:

1. Radiated sound power is the sound transmitted through the casing walls.
2. All sound data is based on tests conducted in accordance with AHRI 880-11.
3. Sound power levels are in decibels (dB), re: 10⁻¹² watts.
4. AHRI certification points are shown in shaded blocks.

45M PARALLEL FAN POWERED TERMINAL UNIT HOT WATER COIL DATA

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				200	225	250	275	300	325	350	375
2	1	1.0	0.11	9.4	10.0	10.5	10.9	11.4	11.7	12.1	12.5
		2.0	0.43	10.4	11.1	11.7	12.3	12.8	13.3	13.8	14.3
		3.0	0.93	10.8	11.5	12.2	12.8	13.4	14.0	14.5	15.0
		4.0	1.63	11.0	11.8	12.5	13.1	13.8	14.3	14.9	15.4
		Air Pressure Drop (cfm)		0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03
	2	1.0	0.24	14.1	15.1	16.0	16.8	17.6	18.3	19.0	19.6
		2.0	0.91	15.7	17.0	18.1	19.2	20.3	21.2	22.2	23.0
		4.0	3.48	16.7	18.1	19.5	20.7	22.0	23.1	24.2	25.3
		6.0	7.62	17.0	18.5	20.0	21.3	22.6	23.8	25.0	26.1
		Air Pressure Drop (cfm)		0.02	0.03	0.04	0.04	0.05	0.05	0.06	0.07

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				300	340	380	420	460	500	540	575
3	1	1.0	0.11	11.4	12.0	12.5	13.0	13.5	13.9	14.3	14.6
		2.0	0.43	12.8	13.6	14.3	15.0	15.6	16.2	16.7	17.2
		3.0	0.94	13.4	14.3	15.1	15.9	16.5	17.2	17.8	18.3
		4.0	1.63	13.8	14.7	15.5	16.3	17.1	17.8	18.4	18.9
		Air Pressure Drop (cfm)		0.02	0.03	0.03	0.04	0.04	0.05	0.06	0.06
	2	1.0	0.24	17.6	18.7	19.7	20.6	21.4	22.2	22.9	23.4
		2.0	0.91	20.3	21.8	23.2	24.5	25.7	26.8	27.9	28.7
		4.0	3.49	22.0	23.8	25.5	27.1	28.5	29.9	31.3	32.4
		6.0	7.63	22.6	24.5	26.4	28.1	29.7	31.2	32.6	33.8
		Air Pressure Drop (cfm)		0.05	0.06	0.07	0.08	0.10	0.11	0.13	0.14

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				475	550	625	700	775	850	925	1000
4	1	1.0	0.14	16.3	17.2	18.1	18.8	19.4	20.0	20.6	21.0
		2.0	0.55	18.9	20.3	21.4	22.5	23.4	24.3	25.1	25.9
		3.0	1.20	20.1	21.5	22.9	24.1	25.2	26.2	27.2	28.0
		4.0	2.10	20.7	22.3	23.7	25.0	26.2	27.3	28.3	29.3
		Air Pressure Drop (cfm)			0.02	0.03	0.04	0.05	0.06	0.06	0.07
	2	1.0	0.31	24.6	26.2	27.5	28.7	29.8	30.7	31.6	32.3
		2.0	1.16	29.6	32.1	34.2	36.2	37.9	39.5	41.0	42.4
		4.0	4.42	33.0	36.1	38.9	41.4	43.8	46.0	48.0	50.0
		6.0	9.66	34.3	37.6	40.7	43.5	46.2	48.6	50.9	53.1
		Air Pressure Drop (cfm)			0.05	0.07	0.08	0.10	0.12	0.14	0.16

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				900	975	1050	1125	1200	1275	1350	1400
5	1	1.0	0.18	22.2	22.7	23.2	23.7	24.1	24.6	24.9	25.2
		2.0	0.67	27.1	28.0	28.8	29.5	30.2	30.9	31.5	31.9
		3.0	1.46	29.3	30.3	31.3	32.2	33.0	33.8	34.6	35.1
		4.0	2.55	30.6	31.7	32.7	33.7	34.6	35.5	36.4	36.9
		Air Pressure Drop (cfm)		0.05	0.06	0.07	0.08	0.09	0.09	0.10	0.11
	2	1.0	0.37	33.1	33.9	34.7	35.4	36.0	36.6	37.2	37.5
		2.0	1.41	43.2	44.7	46.1	47.4	48.7	49.8	50.9	51.6
		4.0	5.34	50.6	52.7	54.8	56.7	58.5	60.2	61.9	62.9
		6.0	11.66	53.6	56.0	58.4	60.6	62.7	64.7	66.6	67.8
		Air Pressure Drop (cfm)		0.11	0.13	0.15	0.17	0.19	0.21	0.23	0.24

NOTES:

- Hot water capacities are in MBH.
- Data is based upon 180°F entering water with 0% Glycol and 65°F entering air.
- Head Loss is in feet of water.
- Air Pressure Drop is defined as the minimum static pressure at the maximum CFM with the damper fully open.
- Air Temperature Rise = 927 x MBH/CFM
- Water Temperature Drop = 2.04x MBH/GPM
- Coils are not for steam application.
- Tables are based upon a temperature difference of 115°F between entering air and entering water. For other temperature differences, multiply MBH values by correction factors below.

MBH CORRECTION FACTORS

ΔT	50	60	70	80	90	100	115	125	140	150
Factor	0.44	0.52	0.61	0.70	0.79	0.88	1.00	1.07	1.20	1.30

Performance data — 45J,M (cont)



45M PARALLEL FAN POWERED TERMINAL UNIT HOT WATER COIL DATA

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				1000	1100	1200	1300	1400	1500	1600	1700
6	1	1.0	0.19	24.0	24.7	25.3	25.9	26.4	26.9	27.3	27.7
		2.0	0.72	29.7	30.8	31.8	32.8	33.6	34.4	35.2	35.9
		3.0	1.58	32.3	33.6	34.8	35.9	37.0	38.0	38.9	39.8
		4.0	2.75	33.7	35.2	36.5	37.8	39.0	40.1	41.1	42.1
		Air Pressure Drop (cfm)		0.05	0.06	0.07	0.08	0.09	0.10	0.12	0.13
	2	1.0	0.40	35.3	36.3	37.2	38.0	38.7	39.3	39.9	40.4
		2.0	1.52	46.8	48.7	50.5	52.1	53.5	54.9	56.2	57.3
		4.0	5.75	55.5	58.2	60.8	63.2	65.5	67.6	69.6	71.5
		6.0	12.54	59.0	62.2	65.2	68.0	70.6	73.1	75.5	77.7
		Air Pressure Drop (cfm)		0.11	0.13	0.16	0.18	0.20	0.23	0.25	0.28

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				1200	1310	1420	1530	1640	1750	1860	1950
7	1	1.0	0.19	25.3	26.0	26.5	27.0	27.5	27.9	28.3	28.7
		2.0	0.72	31.8	32.9	33.8	34.7	35.5	36.2	36.9	37.5
		3.0	1.58	34.8	36.1	37.2	38.3	39.3	40.2	41.1	41.8
		4.0	2.75	36.5	37.9	39.2	40.4	41.5	42.5	43.5	44.3
		Air Pressure Drop (cfm)		0.07	0.08	0.09	0.11	0.12	0.14	0.15	0.16
	2	1.0	0.40	37.2	38.0	38.8	39.5	40.1	40.7	41.2	41.6
		2.0	1.52	50.5	52.2	53.8	55.3	56.6	57.9	59.0	59.9
		4.0	5.76	60.8	63.5	65.9	68.2	70.4	72.4	74.3	75.7
		6.0	12.56	65.2	68.3	71.2	73.9	76.4	78.8	81.1	82.8
		Air Pressure Drop (cfm)		0.16	0.18	0.21	0.23	0.26	0.29	0.32	0.35

NOTES:

- Hot water capacities are in MBH.
- Data is based upon 180°F entering water with 0% Glycol and 65°F entering air.
- Head Loss is in feet of water.
- Air Pressure Drop is defined as the minimum static pressure at the maximum CFM with the damper fully open.
- Air Temperature Rise = $927 \times \text{MBH/CFM}$
- Water Temperature Drop = $2.04 \times \text{MBH/GPM}$
- Coils are not for steam application.
- Tables are based upon a temperature difference of 115°F between entering air and entering water. For other temperature differences, multiply MBH values by correction factors below.

MBH CORRECTION FACTORS

ΔT	50	60	70	80	90	100	115	125	140	150
Factor	0.44	0.52	0.61	0.70	0.79	0.88	1.00	1.07	1.20	1.30

45J ELECTRIC HEAT kW RANGE PER UNIT SIZE

HEATER CODE	DESCRIPTION (VOLTS/PHASE/STEPS)	2		3		4		5		6		7	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E11	120v/1Ph/1S	0.5	5.5	0.5	5.0	0.5	4.5	0.5	4.5	0.5	4.0	N/A	N/A
E12	120v/1Ph/2S	1.0	5.0	1.0	5.0	1.0	4.5	1.0	4.5	1.0	4.0	N/A	N/A
E13	120v/1Ph/3S	1.5	5.0	1.5	5.0	1.5	4.5	1.5	4.5	1.5	4.0	N/A	N/A
E21	208v/1Ph/1S	0.5	5.0	0.5	6.0	0.5	9.0	0.5	9.0	0.5	8.5	1.0	6.5
E22	208v/1Ph/2S	1.0	5.0	1.0	6.0	1.0	9.0	1.0	9.0	1.0	8.5	2.0	6.5
E23	208v/1Ph/3S	1.5	5.0	1.5	6.0	1.5	9.0	1.5	9.0	1.5	8.5	3.0	6.5
E31	240v/1Ph/1S	1.0	5.0	1.0	6.0	1.0	9.0	0.5	9.0	0.5	8.5	1.0	7.5
E32	240v/1Ph/2S	1.5	5.0	1.5	6.0	1.5	9.0	1.0	9.0	1.0	8.5	2.0	7.5
E33	240v/1Ph/3S	2.0	5.0	2.0	6.0	1.5	9.0	1.5	9.0	1.5	8.5	3.0	7.5
E41	277v/1Ph/1S	1.0	5.0	1.0	6.0	1.0	10.0	1.0	11.0	1.0	11.0	1.0	10.0
E42	277v/1Ph/2S	1.5	5.0	1.5	6.0	1.5	10.0	1.5	11.0	1.5	11.0	2.0	10.0
E43	277v/1Ph/3S	2.5	5.0	2.5	6.0	2.0	10.0	2.0	11.0	2.0	11.0	3.0	10.0
E61	208v/3Ph/1S (3-Wire)	1.5	5.0	1.5	6.0	1.5	12.0	1.5	14.0	1.5	13.0	3.0	11.0
E62	208v/3Ph/2S (3-Wire)	1.5	5.0	1.5	6.0	1.5	12.0	1.5	14.0	1.5	13.0	3.0	11.0
E63	208v/3Ph/3S (3-Wire)	1.5	5.0	1.5	6.0	1.5	12.0	1.5	14.0	1.5	13.0	3.0	11.0
E91	480v/3Ph/1S (4-Wire)	2.5	5.0	2.5	6.0	2.0	13.0	2.0	19.0	2.0	23.0	3.0	25.0
E92	480v/3Ph/2S (4-Wire)	2.5	5.0	2.5	6.0	2.0	13.0	2.0	19.0	2.0	23.0	3.0	25.0
E93	480v/3Ph/3S (4-Wire)	2.5	5.0	2.5	6.0	2.0	13.0	2.0	19.0	2.0	23.0	3.0	25.0
L1X	120v/1Ph	0.5	5.0	0.5	5.0	0.5	4.5	0.5	4.5	0.5	4.5	N/A	N/A
L2X	208v/1Ph	0.5	5.0	0.5	6.0	0.5	9.0	0.5	9.0	0.5	8.5	0.5	6.5
L3X	240v/1Ph	1.0	5.0	1.0	6.0	1.0	9.0	0.5	9.0	0.5	8.5	0.5	7.5
L4X	277v/1Ph	1.0	5.0	1.0	6.0	1.0	10.0	1.0	11.0	1.0	11.0	1.0	10.0
L6X	208v/3Ph (3-Wire)	1.5	5.0	1.5	6.0	1.5	10.5	1.5	10.5	1.5	10.5	1.5	10.5
L9X	480v/3Ph (4-Wire)	2.5	5.0	2.5	6.0	2.0	13.0	2.0	19.0	2.0	23.0	3.0	25.0

NOTES:

1. The ASHRAE handbook of fundamentals states that discharge temperatures in excess of 90°F are likely to result in objectionable air temperature stratification in the space. Also, ventilation short-circuiting may occur. ASHRAE Standard 62.1 limits discharge temperatures to 90°F, or increasing the ventilation rate when heating from the ceiling.
2. For safe operation, the electric heater controls are interlocked with the airflow proving switch to allow the heater to energize only after the fan is running.

Performance data — 45J,M (cont)



45M ELECTRIC HEAT kW RANGE PER UNIT SIZE

HEATER CODE	DESCRIPTION (VOLTS/ PHASE/STEPS)	2		3		4		5		6		7	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E11	120v/1Ph/1S	0.5	4.0	0.5	5.5	0.5	5.0	0.5	4.5	0.5	4.5	0.5	4.5
E12	120v/1Ph/2S	1.0	4.0	1.0	5.5	1.0	5.0	1.0	4.5	1.0	4.5	1.0	4.5
E13	120v/1Ph/3S	1.5	4.0	1.5	5.5	1.5	5.0	1.5	4.5	1.5	4.5	1.5	4.5
E21	208v/1Ph/1S	0.5	4.0	0.5	6.0	0.5	6.0	0.5	9.0	0.5	8.5	0.5	8.5
E22	208v/1Ph/2S	1.0	4.0	1.0	6.0	1.0	6.0	1.0	9.0	1.0	8.5	1.0	8.5
E23	208v/1Ph/3S	1.5	4.0	1.5	6.0	1.5	6.0	1.5	9.0	1.5	8.5	1.5	8.5
E31	240v/1Ph/1S	1.0	4.0	1.0	6.0	1.0	6.0	0.5	9.0	0.5	8.5	0.5	8.5
E32	240v/1Ph/2S	1.5	4.0	1.5	6.0	1.5	6.0	1.0	9.0	1.0	8.5	1.0	8.5
E33	240v/1Ph/3S	2.0	4.0	2.0	6.0	1.5	6.0	1.5	9.0	1.5	8.5	1.5	8.5
E41	277v/1Ph/1S	1.0	4.0	1.0	6.0	1.0	6.0	1.0	12.0	1.0	12.0	1.0	12.0
E42	277v/1Ph/2S	1.5	4.0	1.5	6.0	1.5	6.0	1.5	12.0	1.5	12.0	1.5	12.0
E43	277v/1Ph/3S	2.5	4.0	2.5	6.0	2.5	6.0	2.0	12.0	2.0	12.0	2.0	12.0
E61	208v/3Ph/1S (3-Wire)	1.5	4.0	1.5	6.0	1.5	6.0	1.5	12.0	1.5	14.0	1.5	15.0
E62	208v/3Ph/2S (3-Wire)	1.5	4.0	1.5	6.0	1.5	6.0	1.5	12.0	1.5	14.0	1.5	15.0
E63	208v/3Ph/3S (3-Wire)	1.5	4.0	1.5	6.0	1.5	6.0	1.5	12.0	1.5	14.0	1.5	15.0
E91	480v/3Ph/1S (4-Wire)	2.5	4.0	2.5	6.0	2.5	6.0	2.0	12.0	2.0	14.0	2.0	18.0
E92	480v/3Ph/2S (4-Wire)	2.5	4.0	2.5	6.0	2.5	6.0	2.0	12.0	2.0	14.0	2.0	18.0
E93	480v/3Ph/3S (4-Wire)	2.5	4.0	2.5	6.0	2.5	6.0	2.0	12.0	2.0	14.0	2.0	18.0
L1X	120v/1Ph	0.5	4.0	0.5	5.5	0.5	5.5	0.5	4.5	0.5	4.5	0.5	4.5
L2X	208v/1Ph	0.5	4.0	0.5	6.0	0.5	6.0	0.5	9.0	0.5	9.0	0.5	8.5
L3X	240v/1Ph	1.0	4.0	1.0	6.0	1.0	6.0	1.0	9.0	0.5	9.0	0.5	8.5
L4X	277v/1Ph	1.0	4.0	1.0	6.0	1.0	6.0	1.0	12.0	1.0	12.0	1.0	12.0
L6X	208v/3Ph (3-Wire)	1.5	4.0	1.5	6.0	1.5	6.0	1.5	10.5	1.5	10.5	1.5	10.5
L9X	480v/3Ph (4-Wire)	2.5	4.0	2.5	6.0	2.5	6.0	2.5	12.0	2.0	14.0	2.0	18.0

NOTES:

1. The ASHRAE handbook of fundamentals states that discharge temperatures in excess of 90°F are likely to result in objectionable air temperature stratification in the space. Also, ventilation short-circuiting may occur. ASHRAE Standard 62.1 limits discharge temperatures to 90°F, or increasing the ventilation rate when heating from the ceiling.

2. For safe operation, the electric heater controls are interlocked with the air-flow proving switch to allow the heater to energize only after the fan is running.
3. X denotes SSR heater control input.

SSR CONTROL INPUT

POSITION 31	CONTROL INPUT
1+	On/Off
2+	2 Stage
3+	0-10V
4+	4-20mA
5+	Incremental
6+	Binary
7+	Floating

Electrical data — 45J,M



Electric heat selection — Select heater so that power (kW) is a whole number. Rounding to the nearest whole number has negligible impact on discharge temperature and power consumption.

Factors:

A. Specify electric duct heaters using voltage, kW, and number of steps.

B. Required kW is calculated using the following relationship.

$$\text{Btuh kW} = \frac{\text{Btuh}}{3413}$$

$$\text{kW} = \frac{\text{cfm} \times \Delta t}{3160}$$

where:

Btuh = Required heating capacity

CFM = Volume of air controlled during heating (Typical 30-100% of Maximum Cooling Volume)

Δt = Leaving Air Temperature minus the Entering Air Temperature or the Desired Air Temperature Rise across the electric heater.

45K C 3 0 1L 4 10 2 4440 00 000 0000 000 E62 05.0 00000 0800040004000.20

0 – None
4 – DA Thermostat
5 – RA Thermostat
6 – VCU Controller (ECM)
7 – ACU Controller (ECM)
8 – ACU Controller (ECM)

CCN — Carrier Comfort Network®
CFM — Cubic Feet per Minute
ECM — Electronically Commutated Motor
ESP — External Static Pressure
PSC — Permanent Split Capacitor
VAV — Variable Air Volume
VVT — Variable Volume and Temperature

45N QUIET PARALLEL FAN POWERED TERMINALS

45N C 3 0 1L 4 10 2 4742 00 000 0000 000 E62 05.0 00000 0800040004000.20	
45N – Quiet Parallel Fan Powered	
Control Type A – Analog Controls B – Open VVT C – VAV CCN D – Open VAV N – No Controls P – Pneumatic V – VVT CCN	Unit Airflow Max CFM, Min CFM, Fan CFM, ESP
Flow Sensor Type 3 – Four Quadrant Linear	Heat Options 0 – None C – Fuse Block E – Chicago Code Construction F – Manual Reset Cutout G – Manual Reset Cutout K – Door Interlocking Fused Disconnect L – Door Interlocking Non-Fused Disconnect S – Discharge Temperature Sensor (SSR)
Liner Type 0 – ½ in. Fiberglass 1 – 1 in. Fiberglass 2 – Steriliner 4 – Steriwall with ½ in. Fiberglass 6 – ½ in. Foil Encapsulated 9 – 1 in. Foil Encapsulated A – Perforated Doublewall with ½ in. Fiberglass F – ½ in. Cellular H – 1 in. Cellular	Electric Heat Input kW Electric Heat 000 – None E1X – 120V-1Ph, X Stages E2X – 208V-1Ph, X Stages E3X – 240V-1Ph, X Stages E4X – 277V-1Ph, X Stages E6X – 208V-3Ph, X Stages E9X – 480V-3Ph, X Stages L1X – 120V-1Ph, SSR L2X – 208V-1Ph, SSR L3X – 240V-1Ph, SSR L4X – 277V-1Ph, SSR L6X – 208V-3Ph, SSR L9X – 480V-3Ph, SSR
Casing Style 1 – 20 Gauge, No Access L – Left Hand R – Right Hand	Hot Water Coil 000 – None WX1 – 1 Row Coil WX2 – 2 Row Coil W1X – Right Hand, Discharge WX2 – Left Hand, Discharge W6X – Right Hand, Induction Inlet W7X – Left Hand, Induction Inlet
Unit Size 2 5 3 6 4 7	Unit Options 0 – None A – Motor Disconnect E – Dust Tight Enclosure F – Fan Motor Fuse M – MERV 8 Filter P – CAM-LOCS on bottom panel R – Inlet Filter S – Hanger Bracket
Inlet Diameter 06 – 6 in. 08 – 8 in. 10 – 10 in. 12 – 12 in. 14 – 14 in. 16 – 16 in.	Control Options 0 – None 4 – DA Thermostat 5 – RA Thermostat 6 – VCU Controller (ECM) 7 – ACU Controller (ECM) 8 – ACU Controller (ECM) with On/Off
Motor Type 2 – 120V PSC 3 – 208-240V PSC 4 – 277V PSC 5 – 120V ECM 6 – 208V-240V ECM 7 – 277V ECM	
Control Code See Price Pages	
Actuator Style 00 – Standard	

LEGEND

CCN — Carrier Comfort Network®
CFM — Cubic Feet per Minute
ECM — Electronically Commutated Motor
ESP — External Static Pressure
PSC — Permanent Split Capacitor
VAV — Variable Air Volume
VVT — Variable Volume and Temperature

45K QUIET SERIES FAN POWERED TERMINAL UNIT WEIGHTS (lb)

45K SIZE	UNIT WEIGHT	WITH PNEUMATIC CONTROLS	WITH DDC OR ANALOG CONTROLS	WITH ELECTRIC HEAT	WITH HOT WATER	
					1-Row	2-Row
2	185	+4	+9	+30	+9	+12
3	200	+4	+9	+30	+9	+12
4	200	+4	+9	+32	+9	+12
5	225	+4	+9	+32	+12	+17
6	250	+4	+9	+35	+12	+17
7	260	+4	+9	+40	+12	+17

45N QUIET PARALLEL FAN POWERED TERMINAL UNIT WEIGHTS (lb)

45N SIZE	UNIT WEIGHT	WITH PNEUMATIC CONTROLS	WITH DDC OR ANALOG CONTROLS	WITH ELECTRIC HEATER	WITH HOT WATER	
					1-Row	2-Row
2	185	+4	+9	+30	+9	+12
3	200	+4	+9	+30	+9	+12
4	200	+4	+9	+32	+9	+12
5	225	+4	+9	+32	+12	+17
6	250	+4	+9	+35	+12	+17
7	260	+4	+9	+40	+12	+17

LEGEND

DDC — Direct Digital Controls

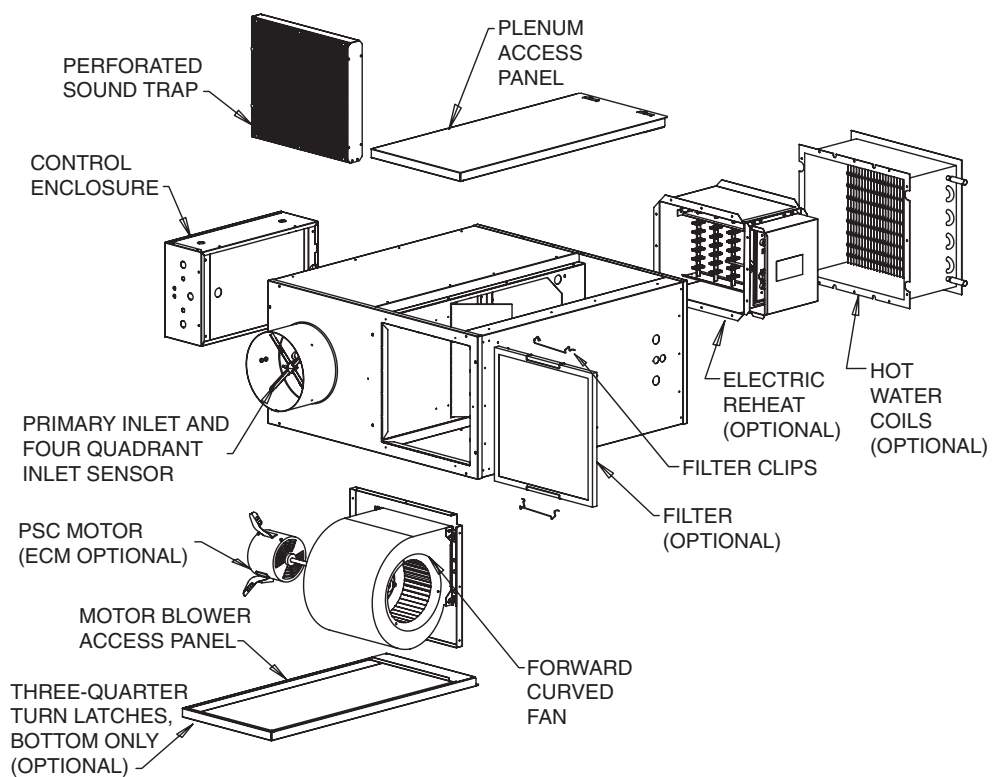
NOTES:

1. All weights shown in pounds (lb).
2. Unit casing is 22 gage.
3. Unit insulation is 1/2-in. thick, 1 1/2 lb. Tuf-Skin.
4. Units rated with standard linear flow sensor.

45K, 45N OPTIONAL FILTER SIZES AND PART NUMBERS

UNIT MODEL	UNIT SIZE	FILTER SIZE (IN.)	FILTER P/N	FILTER KIT P/N
45K	2,3	17x17x1	1026491717	3503341717
	4,5,6,7	22x19x1	1026492219	3503342219
45N	2,3,4	17x17x1	1026491717	3503341717
	5,6,7	22x19x1	1026492219	3503342219

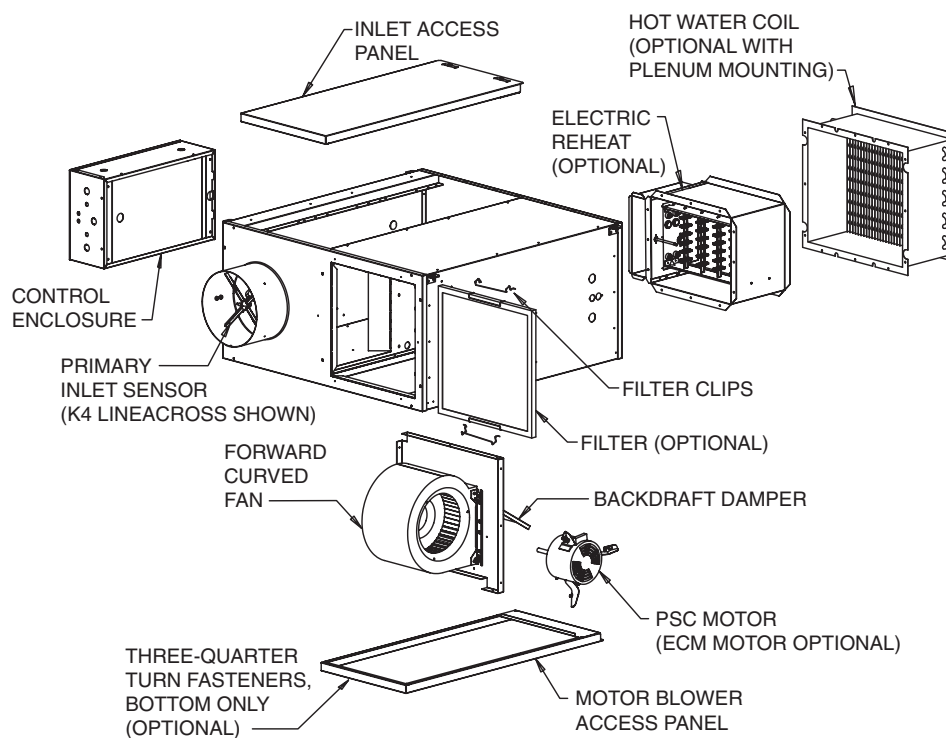
TYPICAL UNIT CONFIGURATION 45K SERIES FAN POWERED TERMINAL UNIT



LEGEND

ECM — Electronically Commutated Motor
PSC — Permanent Split Capacitor

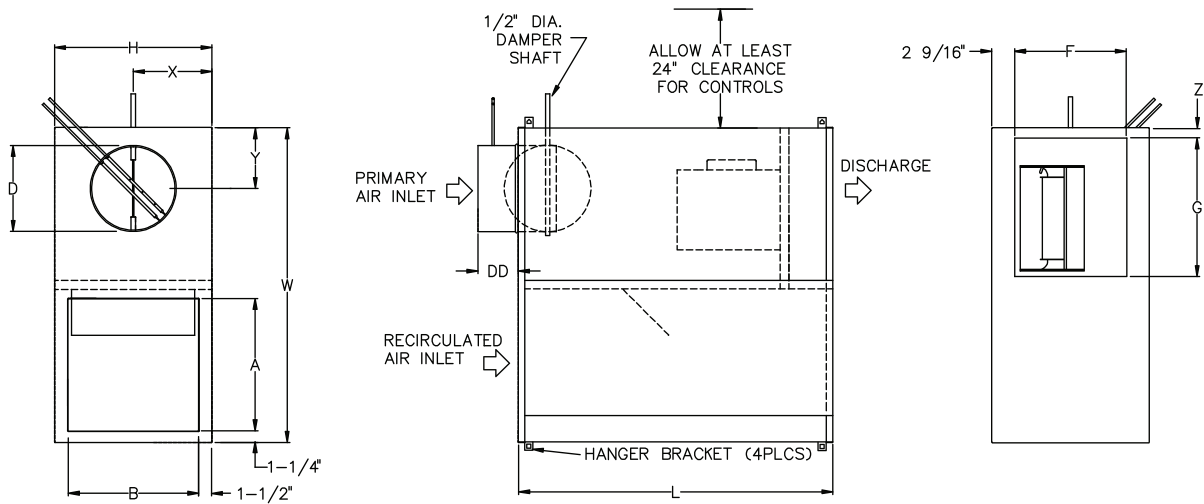
TYPICAL 45N QUIET PARALLEL FAN POWERED TERMINAL UNIT SETUP



LEGEND

ECM — Electronically Commutated Motor
PSC — Permanent Split Capacitor

45K BASE UNIT - CONSTANT VOLUME FAN TERMINAL UNIT, SIZES 2-7



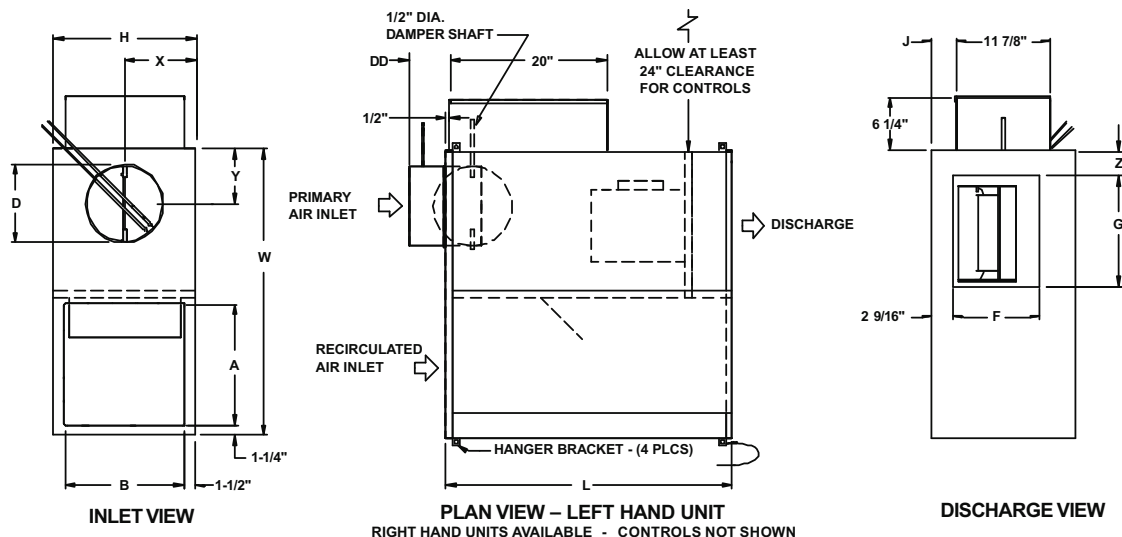
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-10 DD = 37/8 in.; 12-14 DD = 57/8 in.)

NOTE: Dimensions are given in inches.

UNIT SIZE	INLET SIZE	PRI. CFM	FAN CFM	HP	L	W	H	RECIRC. AIR		D	DISCHARGE		X	Y	Z
								A	B		F	G			
2	06	515	530	1/10	39 1/2	36 1/8	18 1/16	15 1/8	15	57/8	11	14	9	6	3 1/8
	08	530	530	1/10	39 1/2	36 1/8	18 1/16	15 1/8	15	57/8	11	14	9	6	3 1/8
3	06	515	1100	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	57/8	11	14	9	6	3 1/8
	08	920	1100	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	77/8	11	14	9	6	3 1/8
	10	1100	1100	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	97/8	11	14	9	7	3 1/8
	12	1100	1100	1/4	42 1/8	46 1/8	18 1/16	15 1/8	15	97/8	11	14	9	7	3 1/8
4	08	920	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	77/8	11	14	10	6	5 1/2
	10	1300	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	97/8	11	14	10	7	5 1/2
	12	1300	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	117/8	11	14	10	8	5 1/2
5	10	1430	1900	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	97/8	15	14	10	7	5 1/2
	12	1900	1900	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	117/8	15	17	10	8	5 1/2
	14	1900	1900	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	137/8	15	17	10	10	5 1/2
6	10	1430	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	97/8	15	17	10	7	5 1/2
	12	2060	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	117/8	15	17	10	8	5 1/2
	14	2600	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	137/8	15	17	10	10	5 1/2
	16	2600	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	157/8	15	17	10	10 1/4	5 1/2
7	10	1430	3000	1	42 1/8	46 1/8	20 1/16	20 1/8	17	97/8	15	17	10	7	5 1/2
	12	2060	3000	1	42 1/8	46 1/8	20 1/16	20 1/8	17	117/8	15	17	10	8	5 1/2
	14	2800	3000	1	42 1/8	46 1/8	20 1/16	20 1/8	17	137/8	15	17	10	10	5 1/2
	16	3660	3000	1	42 1/8	46 1/8	20 1/16	20 1/8	17	157/8	15	17	10	10 1/4	5 1/2

45K WITH ELECTRIC CONTROLS - CONSTANT VOLUME FAN TERMINAL UNIT, SIZES 2-7



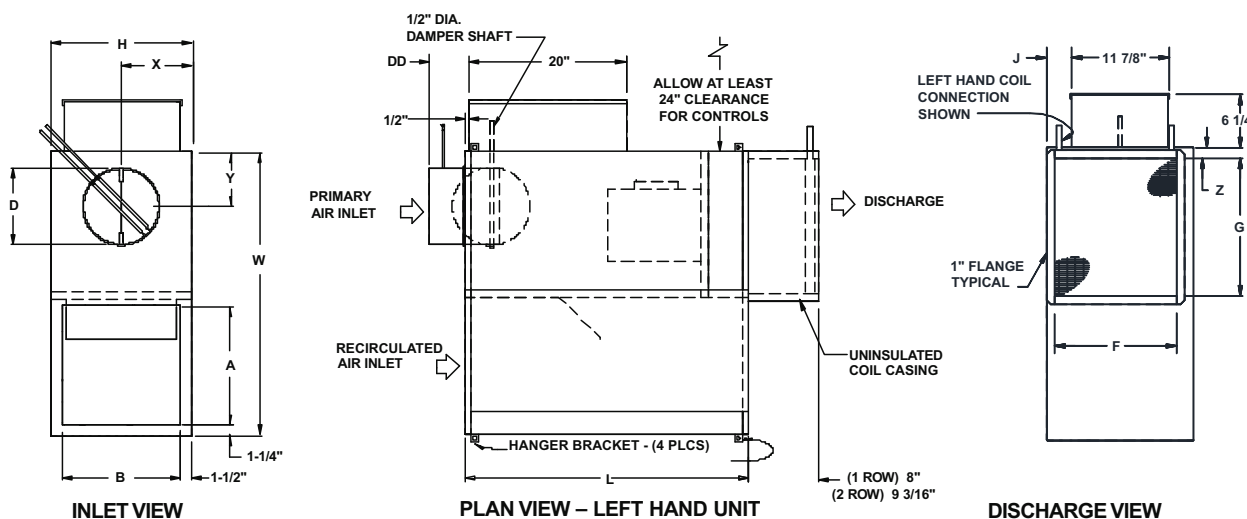
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-10 DD = 47/8 in.; 12-14 DD = 67/8 in.)

NOTE: Dimensions are given in inches..

UNIT SIZE	INLET SIZE	PSC HP	ECM HP	L	W	H	INDUCED AIR		D	DISCHARGE		J	X	Y	Z
							A	B		F	G				
2	06	1/10	—	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	11	14	3 1/8	9	6	2 5/8
	08	1/10	—	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	11	14	3 1/8	9	6	2 5/8
3	06	1/4	1/2	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	11	14	3 1/8	9	6	2 5/8
	08	1/4	1/2	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	11	14	3 1/8	9	6	2 5/8
	10	1/4	1/2	39 1/2	36 1/8	18 1/16	15 1/8	15	9 7/8	11	14	3 1/8	9	7	2 5/8
4	10	1/4	—	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	11	14	4 1/8	10	7	5 5/8
	12	1/4	—	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	11	14	4 1/8	10	8	5 5/8
5	12	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	4 1/8	10	8	4 7/8
	14	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	4 1/8	10	10	4 7/8
6	10	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	15	17	4 1/8	10	10	4 7/8
	12	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	4 1/8	10	10	4 7/8
	14	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	4 1/8	10	10	4 7/8
7	14	1	1	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	4 1/8	10	10	4 7/8
	16	1	1	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	4 1/8	10	10 1/4	4 7/8

45K WITH ELECTRONIC CONTROLS - CONSTANT VOLUME FAN TERMINAL UNIT, SIZES 2-7



LEGEND

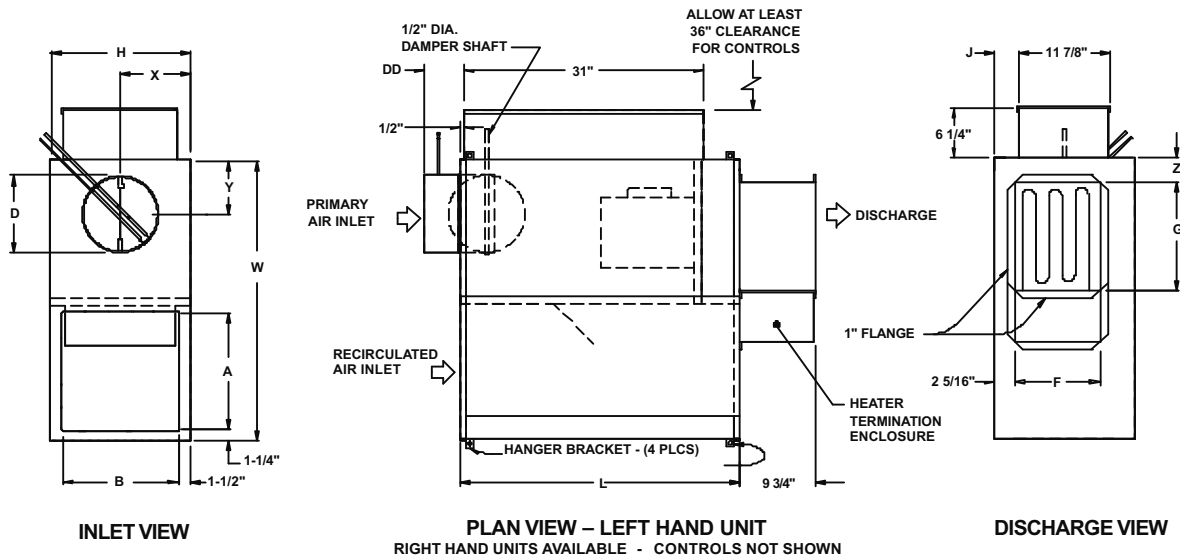
DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = 4⁷/₈-in.; 12-16 DD = 6⁷/₈-in.)

NOTE: Dimensions are given in inches.

UNIT SIZE	INLET SIZE	PSC HP	ECM HP	L	W	H	INDUCED AIR		D	DISCHARGE		J	X	Y	Z
							A	B		F	G				
2	06	1/10	—	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	15 1/8	17	3 1/8	9	6	2
	08	1/10	—	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	15 1/8	17	3 1/8	9	6	2
3	06	1/4	1/2	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	15 1/8	17	3 1/8	9	6	2
	08	1/4	1/2	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	15 1/8	17	3 1/8	9	6	2
	10	1/4	1/2	39 1/2	36 1/8	18 1/16	15 1/8	15	9 7/8	15 1/8	17	3 1/8	9	7	2
4	10	1/4	—	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	15 1/8	17	4 1/8	10	7	3 3/16
	12	1/4	—	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15 1/8	17	4 1/8	10	8	3 3/16
5	12	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	17 5/8	25	4 1/8	10	8	1
	14	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	17 5/8	25	4 1/8	10	10	1
6	10	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	17 5/8	25	4 1/8	10	7	1
	12	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	17 5/8	25	4 1/8	10	8	1
	14	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	17 5/8	25	4 1/8	10	10	1
7	14	1	1	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	17 5/8	25	4 1/8	10	10	1
	16	1	1	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	17 5/8	25	4 1/8	10	10 1/4	1

Dimensions — 45K,N (cont)

45K WITH ELECTRIC HEAT - CONSTANT VOLUME FAN TERMINAL UNIT — SIZES 2-7



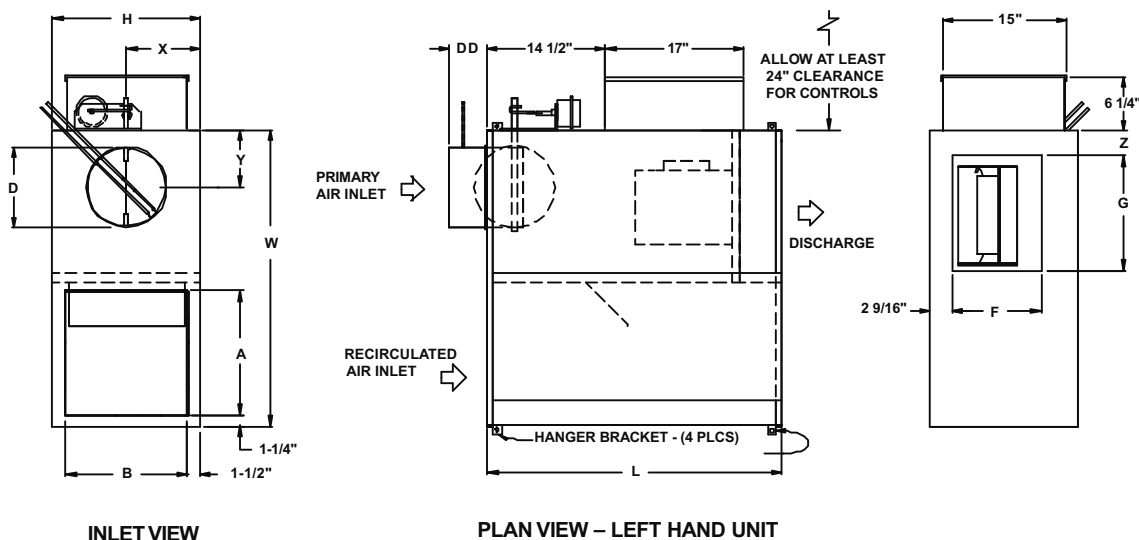
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = 47/8-in.; 12-16 DD = 67/8-in.)

NOTE: Dimensions are given in inches.

UNIT SIZE	INLET SIZE	PSC HP	ECM HP	L	W	H	INDUCED AIR		D	DISCHARGE		J	X	Y	Z
							A	B		F	G				
2	06	1/10	—	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	11 1/2	14 1/2	3 1/8	9	6	1 7/8
	08	1/10	—	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	11 1/2	14 1/2	3 1/8	9	6	1 7/8
3	06	1/4	1/2	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	11 1/2	14 1/2	3 1/8	9	6	1 7/8
	08	1/4	1/2	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	11 1/2	14 1/2	3 1/8	9	6	1 7/8
	10	1/4	1/2	39 1/2	36 1/8	18 1/16	15 1/8	15	9 7/8	11 1/2	14 1/2	3 1/8	9	7	1 7/8
4	10	1/4	—	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	11 1/2	14 1/2	4 1/8	10	7	4 7/8
	12	1/4	—	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	11 1/2	14 1/2	4 1/8	10	8	4 7/8
5	12	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	4 1/8	10	8	4 7/8
	14	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	4 1/8	10	10	4 7/8
6	10	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	15	17	4 1/8	10	7	4 7/8
	12	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	4 1/8	10	8	4 7/8
	14	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	4 1/8	10	10	4 7/8
7	14	1	1	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	4 1/8	10	10	4 7/8
	16	1	1	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	4 1/8	10	10 1/4	4 7/8

45K WITH PNEUMATIC CONTROLS - CONSTANT VOLUME FAN TERMINAL UNIT — SIZES 2-7



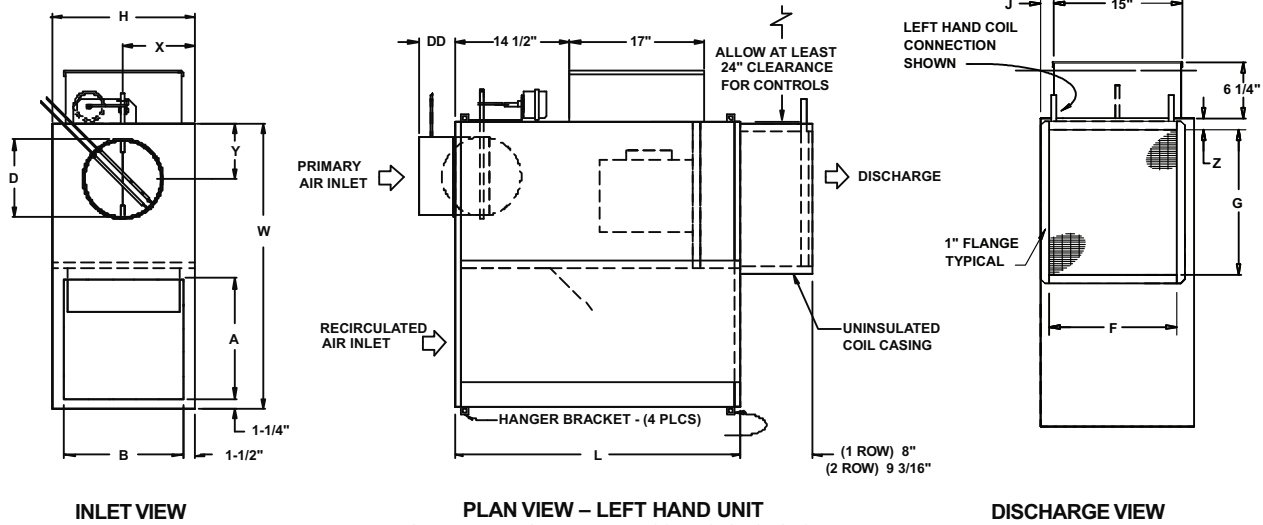
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = 4⁷/₈-in.; 12-16 DD = 6⁷/₈-in.)

NOTE: Dimensions are given in inches.

UNIT SIZE	MAX PRI CFM	MAX FAN CFM	PSC MOTOR HP	INLET SIZE	L	W	H	INDUCED AIR		D	DISCHARGE		J	X	Y	Z
								A	B		F	G				
2	500	550	1/10	06	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	11	14	1 9/16	9	6	2 5/8
	900	550	1/10	08	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	11	14	1 9/16	9	6	2 5/8
3	900	1150	1/4	08	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	11	14	1 9/16	9	6	2 5/8
	1450	1150	1/4	10	39 1/2	36 1/8	18 1/16	15 1/8	15	9 7/8	11	14	1 9/16	9	7	2 5/8
4	1450	1425	1/4	10	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	11	14	2 9/16	10	7	5 7/8
	2100	1425	1/4	12	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	11	14	2 9/16	10	8	5 7/8
5	2100	1900	1/2	12	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	2 9/16	10	8	4 7/8
	2800	1900	1/2	14	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	2 9/16	10	10	4 7/8
6	2800	2700	3/4	14	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	2 9/16	10	10	4 7/8
	3700	2700	3/4	16	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	2 9/16	10	10 1/4	4 7/8
7	3700	3000	1	16	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	2 9/16	10	10 1/4	4 7/8

45K WITH PNEUMATIC CONTROLS AND HOT WATER HEAT - CONSTANT VOLUME FAN TERMINAL UNIT — SIZES 2-7



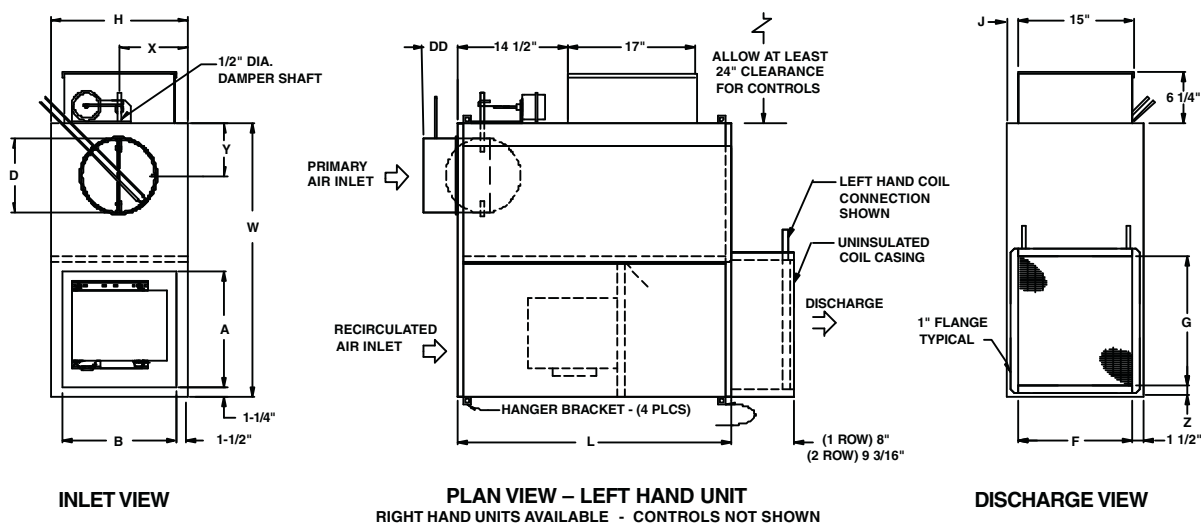
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = 4⁷/₈-in.; 12-16 DD = 6⁷/₈-in.)

NOTE: Dimensions are given in inches.

UNIT SIZE	PRI CFM	MAX FAN CFM		PSC MOTOR HP	INLET SIZE	L	W	H	RECIRC. AIR		D	DISCHARGE		J	X	Y	Z
		1 ROW	2 ROW						A	B		F	G				
2	500	530	525	1/10	06	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	15 1/8	17	1 9/16	9	6	2
	900	530	525	1/10	08	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	15 1/8	17	1 9/16	9	6	2
3	900	1030	900	1/4	08	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	15 1/8	17	1 9/16	9	6	2
	1450	1030	900	1/4	10	39 1/2	36 1/8	18 1/16	15 1/8	15	9 7/8	15 1/8	17	1 9/16	9	7	2
4	1450	1175	950	1/4	10	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	15 1/8	17	2 9/16	10	7	3 3/16
	2100	1175	950	1/4	12	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15 1/8	17	2 9/16	10	8	3 3/16
5	2100	1750	1600	1/2	12	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	17 5/8	25	2 9/16	10	8	1
	2800	1750	1600	1/2	14	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	17 5/8	25	2 9/16	10	10	1
6	2800	2400	2275	3/4	14	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	17 5/8	25	2 9/16	10	10	1
	3700	2400	2275	3/4	16	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	17 5/8	25	2 9/16	10	10 1/4	1
7	3700	2775	2475	1	16	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	17 5/8	25	2 9/16	10	10 1/4	1

**45K WITH PNEUMATIC CONTROLS AND ELECTRIC HEAT -
CONSTANT VOLUME FAN TERMINAL UNIT — SIZES 2-7**



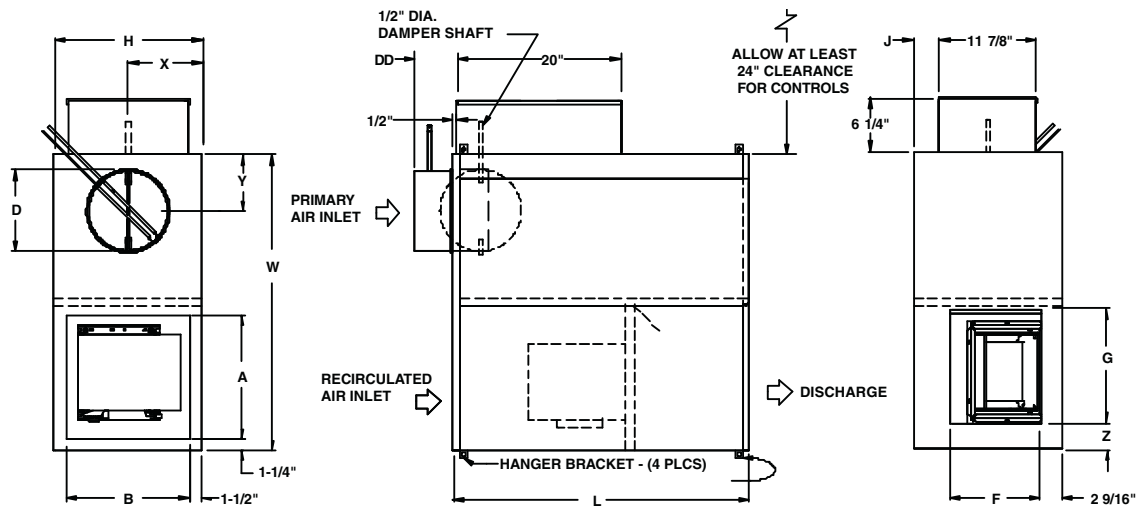
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = 47/8-in.; 12-16 DD = 67/8-in.)

NOTE: Dimensions are given in inches.

UNIT SIZE	MAX PRI CFM	MAX FAN CFM	PSC MOTOR HP	INLET SIZE	L	W	H	INDUCED AIR		D	DISCHARGE		J	X	Y	Z
								A	B		F	G				
2	500	550	1/10	06	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	11 1/2	14 1/2	1 9/16	9	6	1 7/8
	900	550	1/10	08	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	11 1/2	14 1/2	1 9/16	9	6	1 7/8
3	900	1150	1/4	08	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	11 1/2	14 1/2	1 9/16	9	6	1 7/8
	1450	1150	1/4	10	39 1/2	36 1/8	18 1/16	15 1/8	15	9 7/8	11 1/2	14 1/2	1 9/16	9	7	1 7/8
4	1450	1425	1/4	10	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	11 1/2	14 1/2	2 9/16	10	7	4 7/8
	2100	1425	1/4	12	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	11 1/2	14 1/2	2 9/16	10	8	4 7/8
5	2100	1900	1/2	12	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	2 9/16	10	8	4 3/8
	2800	1900	1/2	14	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	2 9/16	10	10	4 3/8
6	2800	2700	3/4	14	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	2 9/16	10	10	4 3/8
	3700	2700	3/4	16	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	2 9/16	10	10 1/4	4 3/8
7	3700	3000	1	16	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	2 9/16	10	10 1/4	4 3/8

45N WITH ELECTRIC CONTROLS - VARIABLE VOLUME FAN TERMINAL UNIT — SIZES 2-7



INLET VIEW

PLAN VIEW — LEFT HAND UNIT
RIGHT HAND UNITS AVAILABLE - CONTROLS NOT SHOWN

DISCHARGE VIEW

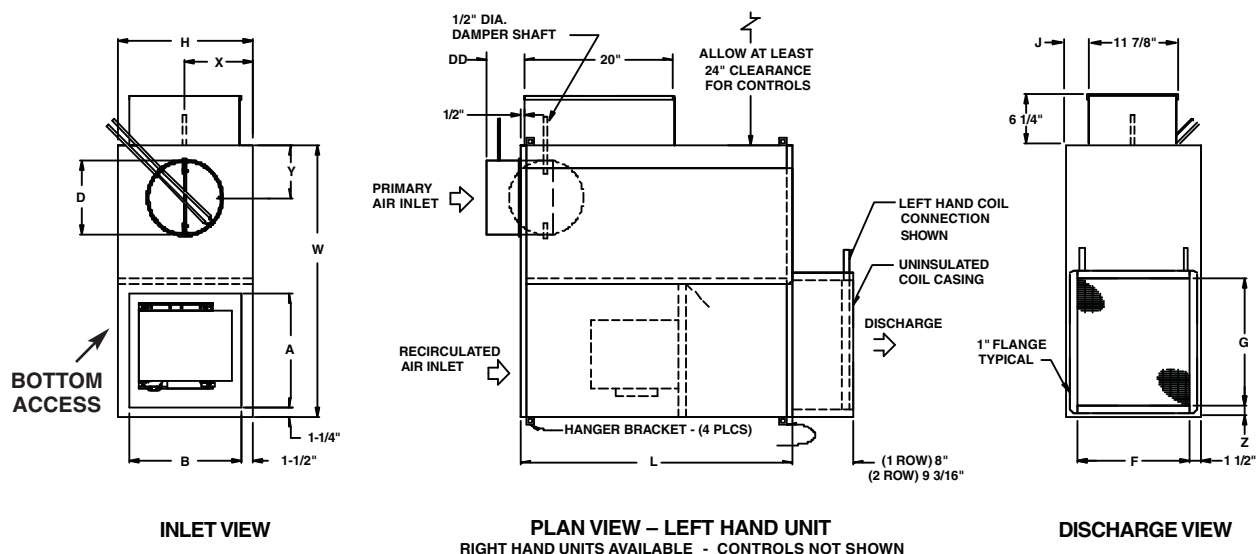
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = 4⁷/₈-in.; 12-16 DD = 6⁷/₈-in.)

NOTE: Dimensions are given in inches

UNIT SIZE	INLET SIZE	PSC HP	ECM HP	L	W	H	INDUCED AIR		D	DISCHARGE		J	X	Y	Z
							A	B		F	G				
2	06	1/4	—	36 1/8	36 1/8	18 1/16	15 1/8	15	5 7/8	11	14	3 1/8	9	6	2 5/8
	08	1/4	—	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	11	14	3 1/8	9	6	2 5/8
3	08	1/4	—	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	11	14	3 1/8	9	6	2 5/8
	10	1/4	—	36 1/8	36 1/8	18 1/16	15 1/8	15	9 7/8	11	14	3 1/8	9	7	2 5/8
4	08	1/4	1/2	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	11	14	3 1/8	9	6	2 5/8
	10	1/4	1/2	36 1/8	36 1/8	18 1/16	15 1/8	15	9 7/8	11	14	3 1/8	9	7	2 5/8
	12	1/4	1/2	36 1/8	36 1/8	18 1/16	15 1/8	15	11 7/8	11	14	3 1/8	9	8	2 5/8
5	12	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	4 1/8	10	8	4 7/8
	14	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	4 1/8	10	10	4 7/8
6	14	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	4 1/8	10	10	4 7/8
	16	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	4 1/8	10	10 1/4	4 7/8
7	12	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	4 1/8	10	8	4 7/8
	14	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	4 1/8	10	10	4 7/8
	16	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	4 1/8	10	10 1/4	4 7/8

45N WITH HOT WATER HEAT ON UNIT DISCHARGE - VARIABLE VOLUME FAN TERMINAL UNIT — SIZES 2-7



LEGEND

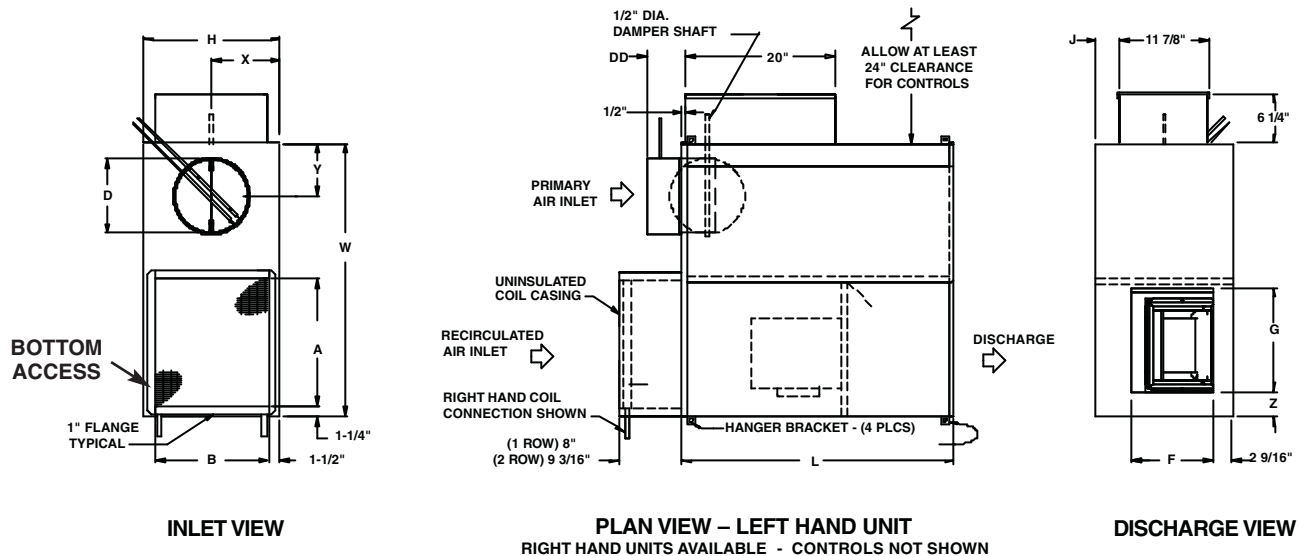
DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = 4⁷/₈-in.; 12-16 DD = 6⁷/₈-in.)

NOTE: Dimensions are given in inches

UNIT SIZE	INLET SIZE	PSC HP	ECM HP	L	W	H	INDUCED AIR		D	DISCHARGE		J	X	Y	Z
							A	B		F	G				
2	06	1/4	—	36 1/8	36 1/8	18 1/16	15 1/8	15	5 7/8	15 1/8	17	3 1/8	9	6	2
	08	1/4	—	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	15 1/8	17	3 1/8	9	6	2
3	08	1/4	—	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	15 1/8	17	3 1/8	9	6	2
	10	1/4	—	36 1/8	36 1/8	18 1/16	15 1/8	15	9 7/8	15 1/8	17	3 1/8	9	7	2
4	08	1/4	1/2	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	15 1/8	17	3 1/8	9	6	2
	10	1/4	1/2	36 1/8	36 1/8	18 1/16	15 1/8	15	9 7/8	15 1/8	17	3 1/8	9	7	2
	12	1/4	1/2	36 1/8	36 1/8	18 1/16	15 1/8	15	11 7/8	15 1/8	17	3 1/8	9	8	2
5	12	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	17 5/8	25	4 1/8	10	8	1
	14	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	17 5/8	25	4 1/8	10	10	1
6	14	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	17 5/8	25	4 1/8	10	10	1
	16	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	17 5/8	25	4 1/8	10	10 1/4	1
7	12	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	17 5/8	25	4 1/8	10	8	1
	14	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	17 5/8	25	4 1/8	10	10	1
	16	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	17 5/8	25	4 1/8	10	10 1/4	1

Dimensions — 45K,N (cont)

45N WITH HOT WATER HEAT ON UNIT INDUCED AIR INLET - VARIABLE VOLUME FAN TERMINAL UNIT — SIZES 2-7



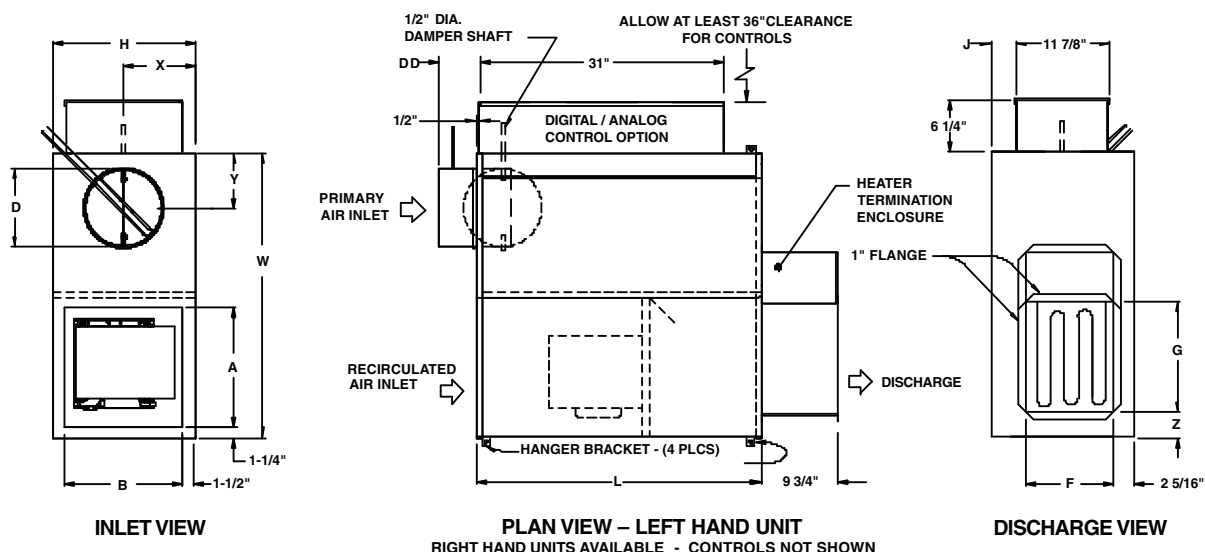
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = 4⁷/₈-in.; 12-16 DD = 6⁷/₈-in.)

NOTE: Dimensions are given in inches

UNIT SIZE	INLET SIZE	PSC HP	ECM HP	L	W	H	INDUCED AIR		D	DISCHARGE		J	X	Y	Z
							A	B		F	G				
2	06	1/4	—	36 1/8	36 1/8	18 1/16	17	15 1/8	5 7/8	11	14	3 1/8	9	6	2 5/8
	08	1/4	—	36 1/8	36 1/8	18 1/16	17	15 1/8	7 7/8	11	14	3 1/8	9	6	2 5/8
3	08	1/4	—	36 1/8	36 1/8	18 1/16	17	15 1/8	7 7/8	11	14	3 1/8	9	6	2 5/8
	10	1/4	—	36 1/8	36 1/8	18 1/16	17	15 1/8	9 7/8	11	14	3 1/8	9	7	2 5/8
4	08	1/4	1/2	36 1/8	36 1/8	18 1/16	17	15 1/8	7 7/8	11	14	3 1/8	9	6	2 5/8
	10	1/4	1/2	36 1/8	36 1/8	18 1/16	17	15 1/8	9 7/8	11	14	3 1/8	9	7	2 5/8
	12	1/4	1/2	36 1/8	36 1/8	18 1/16	17	15 1/8	11 7/8	11	14	3 1/8	9	8	2 5/8
5	12	1/2	—	42 1/8	46 1/8	20 1/16	25	17 5/8	11 7/8	15	17	4 1/8	10	8	4 7/8
	14	1/2	—	42 1/8	46 1/8	20 1/16	25	17 5/8	13 7/8	15	17	4 1/8	10	10	4 7/8
6	14	1/2	—	42 1/8	46 1/8	20 1/16	25	17 5/8	13 7/8	15	17	4 1/8	10	10	4 7/8
	16	1/2	—	42 1/8	46 1/8	20 1/16	25	17 5/8	15 7/8	15	17	4 1/8	10	10 1/4	4 7/8
7	12	3/4	1	42 1/8	46 1/8	20 1/16	25	17 5/8	11 7/8	15	17	4 1/8	10	8	4 7/8
	14	3/4	1	42 1/8	46 1/8	20 1/16	25	17 5/8	13 7/8	15	17	4 1/8	10	10	4 7/8
	16	3/4	1	42 1/8	46 1/8	20 1/16	25	17 5/8	15 7/8	15	17	4 1/8	10	10 1/4	4 7/8

45N WITH ELECTRIC HEAT - VARIABLE VOLUME FAN TERMINAL UNIT — SIZES 2-7



LEGEND

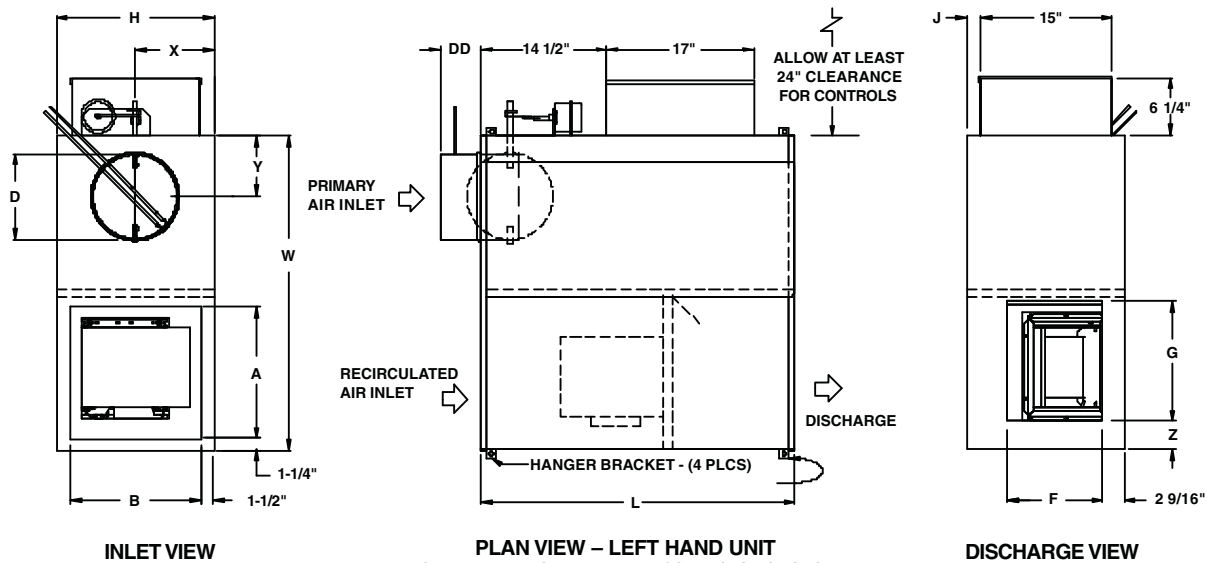
DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = 4⁷/₈-in.; 12-16 DD = 6⁷/₈-in.)

NOTE: Dimensions are given in inches

UNIT SIZE	INLET SIZE	PSC HP	ECM HP	L	W	H	INDUCED AIR		D	DISCHARGE		J	X	Y	Z
							A	B		F	G				
2	06	1/4	—	36 1/8	36 1/8	18 1/16	15 1/8	15	5 7/8	11	14 1/2	3 1/8	9	6	1 7/8
	08	1/4	—	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	11	14 1/2	3 1/8	9	6	1 7/8
3	08	1/4	—	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	11	14 1/2	3 1/8	9	6	1 7/8
	10	1/4	—	36 1/8	36 1/8	18 1/16	15 1/8	15	9 7/8	11	14 1/2	3 1/8	9	7	1 7/8
4	08	1/4	1/2	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	11	14 1/2	3 1/8	9	6	1 7/8
	10	1/4	1/2	36 1/8	36 1/8	18 1/16	15 1/8	15	9 7/8	11	14 1/2	3 1/8	9	7	1 7/8
	12	1/4	1/2	36 1/8	36 1/8	18 1/16	15 1/8	15	11 7/8	11	14 1/2	3 1/8	9	8	1 7/8
5	12	1/2	—	42 1/8	46 1/8	20 1/16	17 5/8	17	11 7/8	15	17	4 1/8	10	8	4 3/8
	14	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	4 1/8	10	10	4 3/8
6	14	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	4 1/8	10	10	4 3/8
	16	1/2	—	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	4 1/8	10	10 1/4	4 3/8
7	12	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	4 1/8	10	8	4 3/8
	14	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	4 1/8	10	10	4 3/8
	16	3/4	1	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	4 1/8	10	10 1/4	4 3/8

Dimensions — 45K,N (cont)

45N WITH PNEUMATIC CONTROLS - VARIABLE VOLUME FAN TERMINAL UNIT — SIZES 2-7



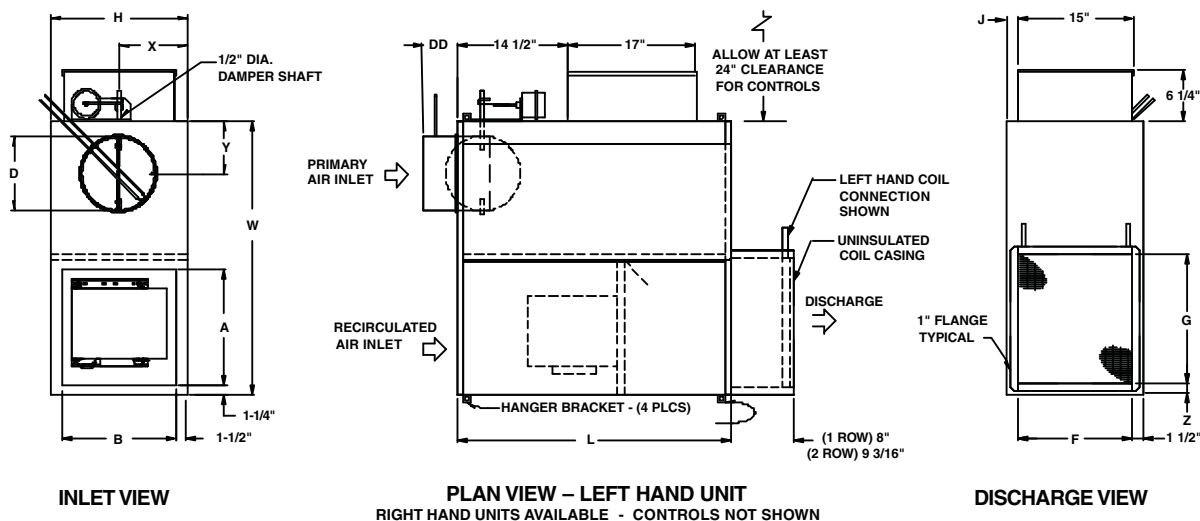
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = 4⁷/₈-in.; 12-16 DD = 6⁷/₈-in.)

NOTE: Dimensions are given in inches

UNIT SIZE	MAX PRIMARY CFM	MAX FAN CFM	PSC MOTOR HP	INLET SIZE	L	W	H	INDUCED AIR		D	DISCHARGE		J	X	Y	Z
								A	B		F	G				
2	500	550	1/4	06	36 1/8	36 1/8	18 1/16	15 1/8	15	5 7/8	11	14	1 9/16	9	6	2 5/8
	900	550	1/4	08	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	11	14	1 9/16	9	6	2 5/8
3	900	870	1/4	08	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	11	14	1 9/16	9	6	2 5/8
	1450	870	1/4	10	36 1/8	36 1/8	18 1/16	15 1/8	15	9 7/8	11	14	1 9/16	9	7	2 5/8
4	1450	960	1/4	10	36 1/8	36 1/8	18 1/16	15 1/8	15	9 7/8	11	14	1 9/16	9	7	2 5/8
	2100	960	1/4	12	36 1/8	36 1/8	18 1/16	15 1/8	15	11 7/8	11	14	1 9/16	9	8	2 5/8
5	2100	1900	1/2	12	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	2 9/16	10	8	4 7/8
	2800	1900	1/2	14	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	2 9/16	10	10	4 7/8
6	2800	1900	1/2	14	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	2 9/16	10	10	4 7/8
	3700	1900	1/2	16	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	2 9/16	10	10 1/4	4 7/8
7	3700	2300	3/4	16	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	2 9/16	10	10 1/4	4 7/8

**45N WITH PNEUMATIC CONTROLS AND HOT WATER HEAT ON UNIT DISCHARGE -
VARIABLE VOLUME FAN TERMINAL UNIT — SIZES 2-7**



LEGEND

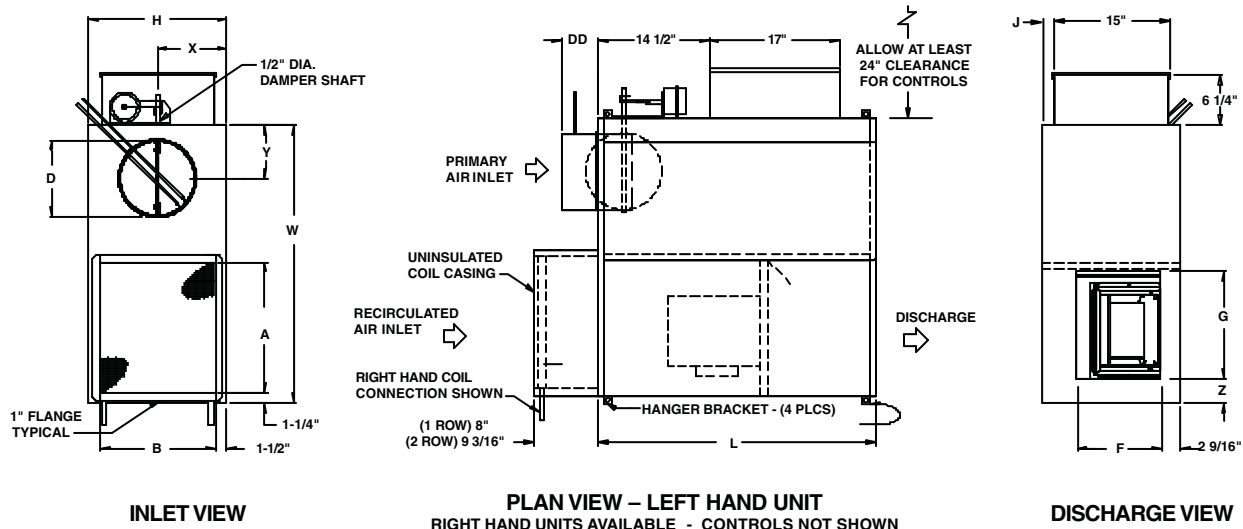
DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = 4⁷/₈-in.; 12-16 DD = 6⁷/₈-in.)

NOTE: Dimensions are given in inches

UNIT SIZE	PRIM. CFM	MAX FAN CFM		PSC MOTOR HP	INLET SIZE	L	W	H	INDUCED AIR		D	DISCHARGE		J	X	Y	Z
		1 ROW	2 ROW						A	B		F	G				
2	500	525	500	1/4	06	36 1/8	36 1/8	18 1/16	15 1/8	15	5 7/8	15 1/8	17	1 9/16	9	6	2
	900	525	500	1/4	08	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	15 1/8	17	1 9/16	9	6	2
3	900	825	800	1/4	08	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	15 1/8	17	1 9/16	9	6	2
	1450	825	800	1/4	10	36 1/8	36 1/8	18 1/16	15 1/8	15	9 7/8	15 1/8	17	1 9/16	9	7	2
4	1450	920	880	1/4	10	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	15 1/8	17	1 9/16	9	7	2
	2100	920	880	1/4	12	36 1/8	36 1/8	18 1/16	15 1/8	15	11 7/8	15 1/8	17	1 9/16	9	8	2
5	2100	1725	1650	1/2	12	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	17 5/8	25	2 9/16	10	8	1
	2800	1725	1650	1/2	14	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	17 5/8	25	2 9/16	10	10	1
6	2800	1775	1625	1/2	14	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	17 5/8	25	2 9/16	10	10	1
	3700	1775	1625	1/2	16	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	17 5/8	25	2 9/16	10	10 1/4	1
7	3700	1950	1700	3/4	16	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	17 5/8	25	2 9/16	10	10 1/4	1

Dimensions — 45K,N (cont)

45N WITH PNEUMATIC CONTROLS AND HOT WATER HEAT ON UNIT INDUCED AIR INLET - VARIABLE VOLUME FAN TERMINAL UNIT — SIZES 2-7



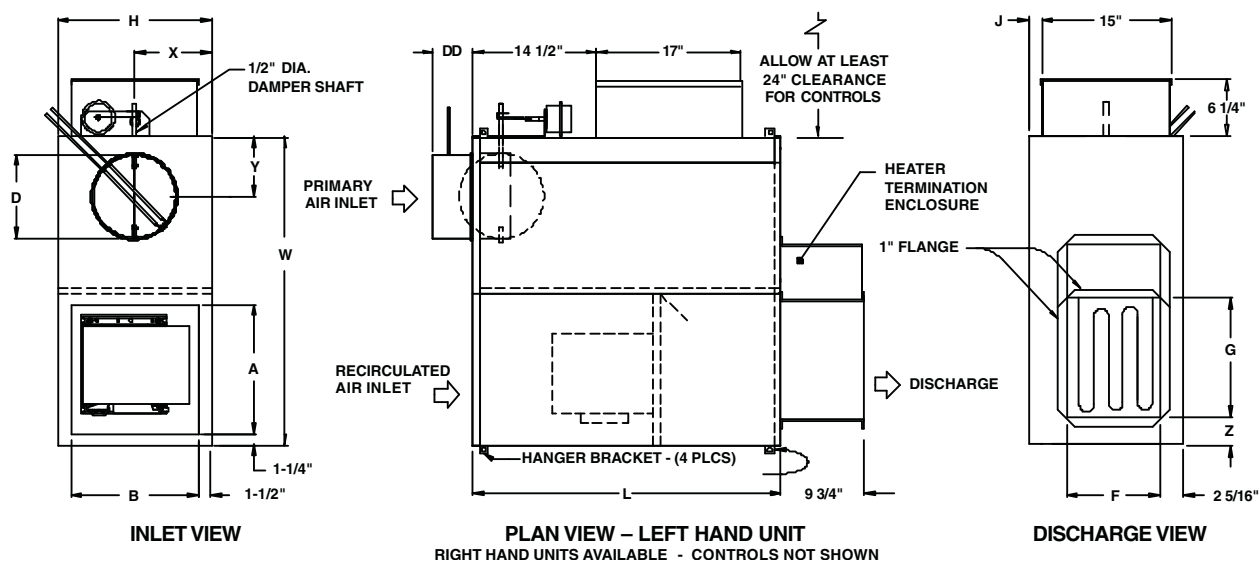
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = 4⁷/₈-in.; 12-16 DD = 6⁷/₈-in.)

NOTE: Dimensions are given in inches

UNIT SIZE	PRIM. CFM	MAX FAN CFM		PSC MOTOR HP	INLET SIZE	L	W	H	INDUCED AIR		D	DISCHARGE		j	X	Y	Z
		1 ROW	2 ROW						A	B		F	G				
2	500	525	500	1/4	06	36 1/8	36 1/8	18 1/16	15 1/8	17	5 7/8	11	14	1 9/16	9	6	2 5/8
	900	525	500	1/4	08	36 1/8	36 1/8	18 1/16	15 1/8	17	7 7/8	11	14	1 9/16	9	6	2 5/8
3	900	825	800	1/4	08	36 1/8	36 1/8	18 1/16	15 1/8	17	7 7/8	11	14	1 9/16	9	6	2 5/8
	1450	825	800	1/4	10	36 1/8	36 1/8	18 1/16	15 1/8	17	9 7/8	11	14	1 9/16	9	7	2 5/8
4	1450	920	880	1/4	10	36 1/8	36 1/8	18 1/16	15 1/8	17	9 7/8	11	14	1 9/16	9	7	2 5/8
	2100	920	880	1/4	12	36 1/8	36 1/8	18 1/16	15 1/8	17	11 7/8	11	14	1 9/16	9	8	2 5/8
5	2100	1725	1650	1/2	12	42 1/8	46 1/8	20 1/16	17 1/8	25	11 7/8	15	17	2 9/16	10	8	4 7/8
	2800	1725	1650	1/2	14	42 1/8	46 1/8	20 1/16	17 1/8	25	13 7/8	15	17	2 9/16	10	10	4 7/8
6	2800	1775	1625	1/2	14	42 1/8	46 1/8	20 1/16	17 1/8	25	13 7/8	15	17	2 9/16	10	10	4 7/8
	3700	1775	1625	1/2	16	42 1/8	46 1/8	20 1/16	17 1/8	25	15 7/8	15	17	2 9/16	10	10 1/4	4 7/8
7	3700	1950	1700	3/4	16	42 1/8	46 1/8	20 1/16	17 1/8	25	15 7/8	15	17	2 9/16	10	10 1/4	4 7/8

45N WITH PNEUMATIC CONTROLS AND ELECTRIC HEAT - VARIABLE VOLUME FAN TERMINAL UNIT — SIZES 2-7



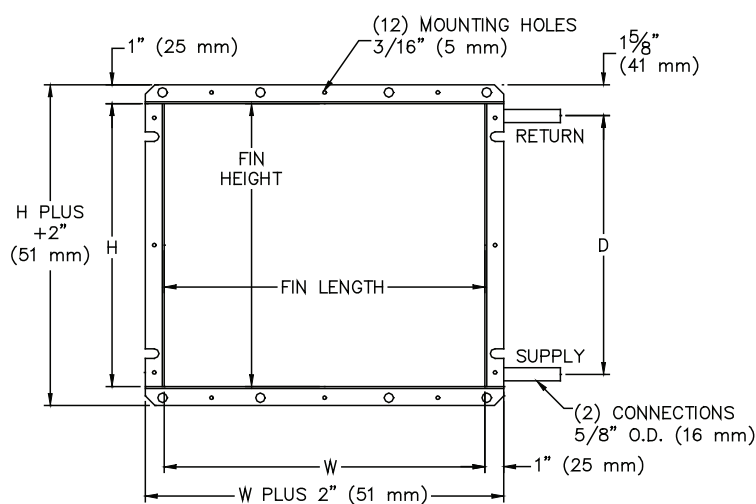
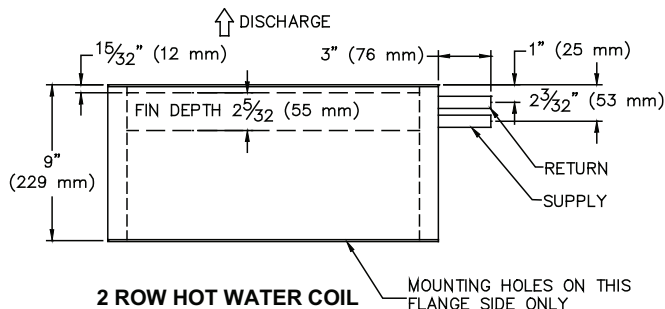
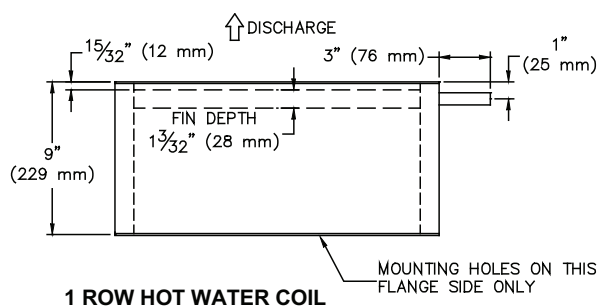
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = 4⁷/₈-in.; 12-16 DD = 6⁷/₈-in.)

NOTE: Dimensions are given in inches

UNIT SIZE	MAX PRIM. CFM	MAX FAN CFM	PSC MOTOR HP	INLET SIZE	L	W	H	INDUCED AIR		D	DISCHARGE		J	X	Y	Z
								A	B		F	G				
2	500	550	1/4	06	36 1/8	36 1/8	18 1/16	15 1/8	15	5 7/8	11 1/2	14 1/2	1 9/16	9	6	2 7/8
	900	550	1/4	08	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	11 1/2	14 1/2	1 9/16	9	6	2 7/8
3	900	870	1/4	08	36 1/8	36 1/8	18 1/16	15 1/8	15	7 7/8	11 1/2	14 1/2	1 9/16	9	6	2 7/8
	1450	870	1/4	10	36 1/8	36 1/8	18 1/16	15 1/8	15	9 7/8	11 1/2	14 1/2	1 9/16	9	7	2 7/8
4	1450	960	1/4	10	36 1/8	36 1/8	18 1/16	15 1/8	15	9 7/8	11 1/2	14 1/2	1 9/16	9	7	2 7/8
	2100	960	1/4	12	36 1/8	36 1/8	18 1/16	15 1/8	15	11 7/8	11 1/2	14 1/2	1 9/16	9	8	2 7/8
5	2100	1900	1/2	12	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	2 9/16	10	8	5 1/2
	2800	1900	1/2	14	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	2 9/16	10	10	5 1/2
6	2800	1900	1/2	14	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	2 9/16	10	10	5 1/2
	3700	1900	1/2	16	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	2 9/16	10	10 1/4	5 1/2
7	3700	2300	3/4	16	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	2 9/16	10	10 1/4	5 1/2

45K/N HOT WATER COILS 1 ROW AND 2 ROW

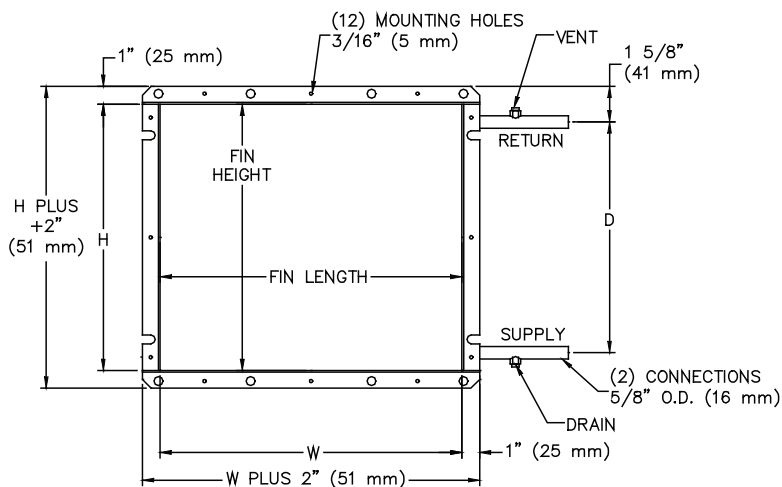
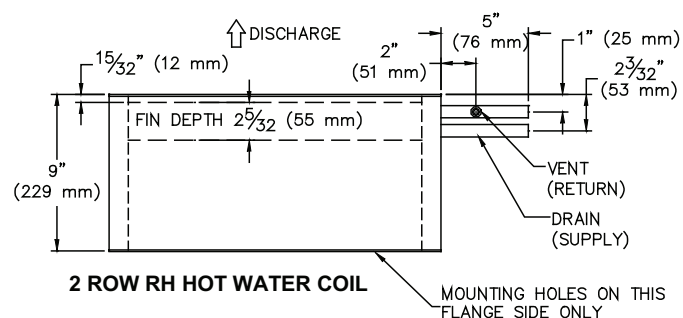
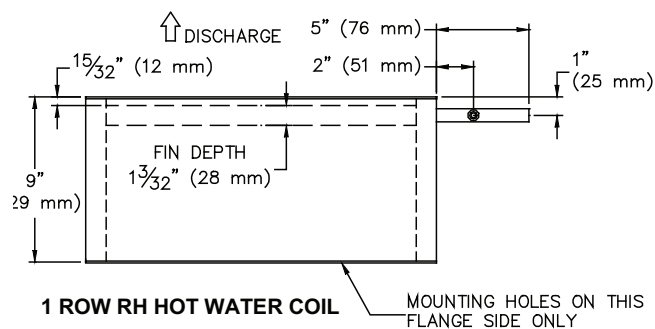


NOTES:

1. Dimensions are given in inches and (mm).
2. Coils are available with a vent and drain.

MODEL	UNIT SIZE	W	H	D
45K/45N, 1 ROW AND 45K/45N, 2 ROW	2	17 (432)	15 $\frac{1}{8}$ (384)	13 $\frac{3}{4}$ (349)
	3			
	4			
	5	25 (635)	17 $\frac{5}{8}$ (448)	16 $\frac{1}{4}$ (413)
	6			
	7			

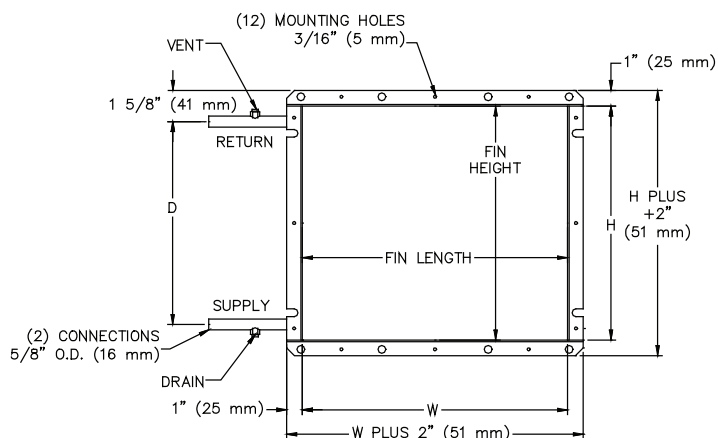
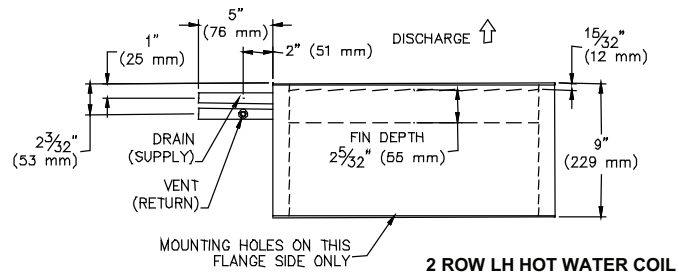
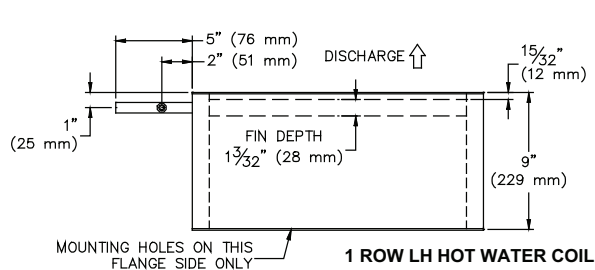
45K/45N HOT WATER COILS 1 ROW AND 2 ROW RH DISCHARGE VENT AND DRAIN



NOTE: Dimensions are given in inches and (mm).

MODEL	UNIT SIZE	W	H	D
45K/45N, 1 ROW AND 45K/45N, 2 ROW	2	17 (432)	15 1/8 (384)	13 3/4 (349)
	3			
	4			
	5	25 (635)	17 5/8 (448)	16 1/4 (413)
	6			
	7			

45K/45N HOT WATER COILS 1 ROW AND 2 ROW LH DISCHARGE VENT AND DRAIN



NOTE: Dimensions are given in inches and (mm).

MODEL	UNIT SIZE	W	H	D
45K/45N, 1 ROW and 45K/45N, 2 ROW	2	17 (432)	15 1/8 (384)	13 3/4 (349)
	3			
	4			
	5	25 (635)	17 5/8 (448)	16 1/4 (413)
	6			
	7			

UNIT CAPACITIES

45K SERIES FAN POWERED TERMINAL UNIT

45K WITH PSC FAN MOTOR

UNIT SIZE	INLET SIZE (in.)	FAN AIRFLOW (cfm)		PRIMARY AIRFLOW (cfm)		MOTOR HP	MOTOR AMPS		
		MIN	MAX	MIN	MAX		120V	208/240V	277V
2	6	50	530	52 or 0	515	1/10	1.4	0.8	0.6
	8			92 or 0	530				
3	6	200	1100	52 or 0	515	1/4	4.3	2.4	1.8
	8			92 or 0	916				
	10			143 or 0	1100				
	12			360 or 0	1100				
4	8	500	1300	92 or 0	916	1/4	4.3	2.4	1.8
	10			143 or 0	1300				
	12			206 or 0	1300				
5	10	800	1900	143 or 0	1432	1/2	8.3	4.4	3.5
	12			206 or 0	1900				
	14			281 or 0	1900				
6	10	1200	2600	143 or 0	1432	3/4	9.5	5.0	4.4
	12			206 or 0	2062				
	14			281 or 0	2600				
	16			367 or 0	2600				
7	10	1250	3000	143 or 0	1432	1	N/A	7.1	5.3
	12			206 or 0	2062				
	14			281 or 0	2806				
	16			367 or 0	3000				

45K WITH ECM FAN MOTOR

UNIT SIZE	INLET SIZE (in.)	FAN AIRFLOW (cfm)		PRIMARY AIRFLOW (cfm)		MOTOR HP	MOTOR AMPS		
		MIN	MAX	MIN	MAX		120V	208/240V	277V
3	6	250	1030	52 or 0	515	1/2	7.7	5.0	4.1
	8			92 or 0	916				
	10			143 or 0	1030				
	12			206 or 0	1030				
6	10	500	2600	143 or 0	1432	1	12.8	10.5	6.9
	12			206 or 0	2000				
	14			281 or 0	2000				
	16			367 or 0	2000				
7	10	600	2500	143 or 0	1432	1	12.8	10.5	6.9
	12			206 or 0	2062				
	14			281 or 0	2500				
	16			367 or 0	2500				

NOTES:

- 45K maximum primary airflow (cfm) is set by the maximum induced airflow, which may vary as a function of downstream pressure. Maximum airflow shown is based on the maximum induced airflow (fan airflow) or 1.00 in. wg differential pressure signal from inlet airflow sensor, whichever is less.
- Minimum recommended primary airflow (cfm) is based on 0.03 in. wg differential pressure of the inlet airflow sensor, or 0 airflow. 0.03 in. wg is equal to 15% to 20% of the nominal flow rating of the terminal. Less than 15% to 20% may result in greater than +5% control of box flow.
- 45K maximum/minimum fan airflow is based on 0.10 in. wg / 0.60 in. wg downstream static pressure, respectively.

Performance data — 45K,N (cont)



45N PARALLEL FAN POWERED TERMINAL UNIT

45N WITH PSC FAN MOTOR

UNIT SIZE	INLET SIZE (in.)	FAN AIRFLOW (cfm)		PRIMARY AIRFLOW (cfm)		MOTOR HP	MOTOR AMPS		
		MIN	MAX	MIN	MAX		120V	208/240V	277V
2	6	150	530	52 or 0	515	1/10	2.6	1.5	1.1
	8			92 or 0	916				
3	6	160	800	52 or 0	515	1/4	3.1	1.7	1.3
	8			92 or 0	916				
	10			143 or 0	1432				
4	6	190	900	52 or 0	515	1/4	3.4	1.9	1.4
	8			92 or 0	916				
	10			143 or 0	1432				
	12			206 or 0	2062				
5	10	480	1700	143 or 0	1432	1/2	7.3	4.1	3.1
	12			206 or 0	2062				
	14			281 or 0	2806				
6	10	500	1700	143 or 0	1432	1/2	7.3	4.1	3.1
	12			206 or 0	2062				
	14			281 or 0	2806				
	16			367 or 0	3665				
7	10	780	2000	143 or 0	1432	3/4	9.5	5.8	4.4
	12			206 or 0	2062				
	14			281 or 0	2806				
	16			367 or 0	3665				

45N WITH ECM FAN MOTOR

UNIT SIZE	INLET SIZE (in.)	FAN AIRFLOW (cfm)		PRIMARY AIRFLOW (cfm)		MOTOR HP	MOTOR AMPS		
		MIN	MAX	MIN	MAX		120V	208/240V	277V
4	6	150	1000	52 or 0	515	1/2	7.7	5.0	4.1
	8			92 or 0	916				
	10			143 or 0	1432				
	12			206 or 0	2062				
7	10	240	1600	143 or 0	1432	1	12.8	10.5	6.9
	12			206 or 0	2062				
	14			281 or 0	2806				
	16			367 or 0	3665				

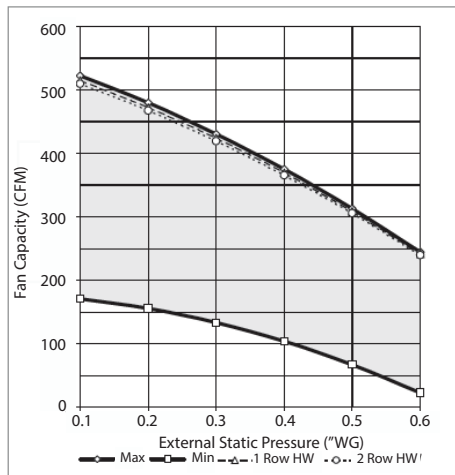
NOTES:

1. 45N maximum primary airflow (cfm) is based on 1.00 in wg differential pressure signal from inlet airflow sensor.

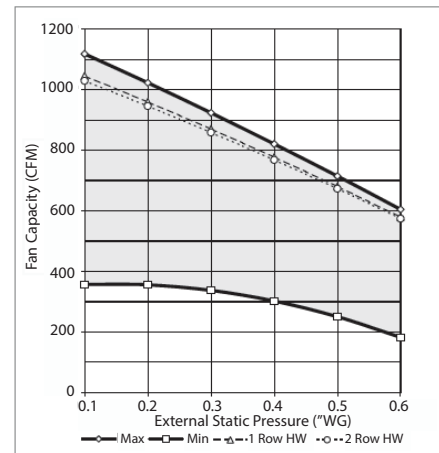
2. Minimum recommended primary airflow (cfm) is based on 0.03 in. wg differential pressure of the inlet airflow sensor, or 0 airflow. 0.03 in. wg is equal to 15% to 20% of the nominal flow rating of the terminal. Less than 15% to 20% may result in greater than +5% control of box flow.

45K SERIES FAN POWERED VAV TERMINAL UNIT PSC FAN CURVE

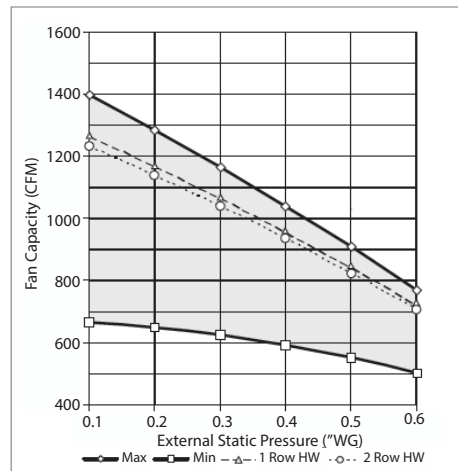
UNIT SIZE 2



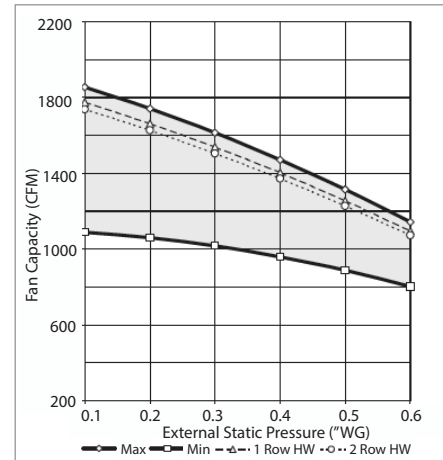
UNIT SIZE 3



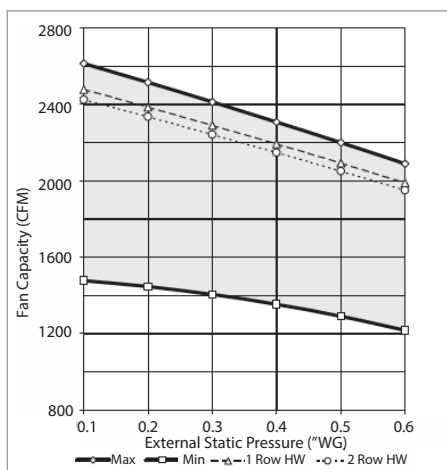
UNIT SIZE 4



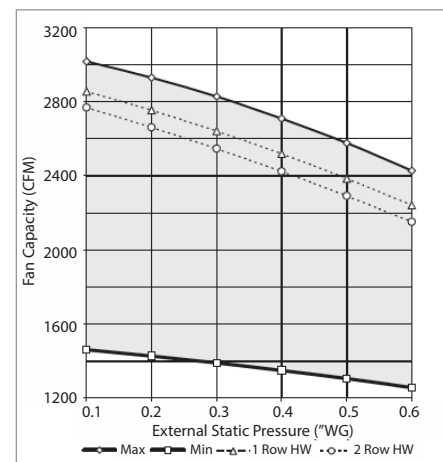
UNIT SIZE 5



UNIT SIZE 6

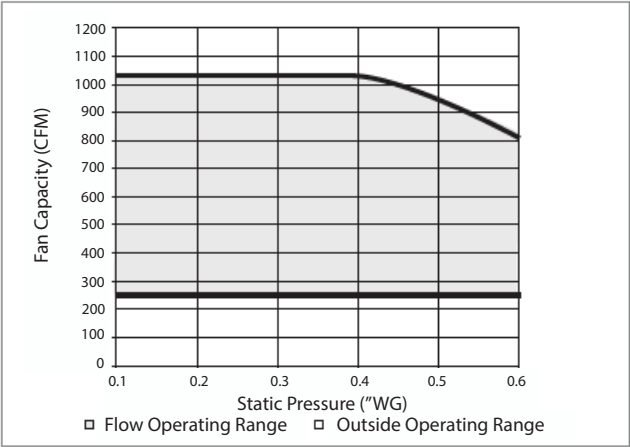


UNIT SIZE 7

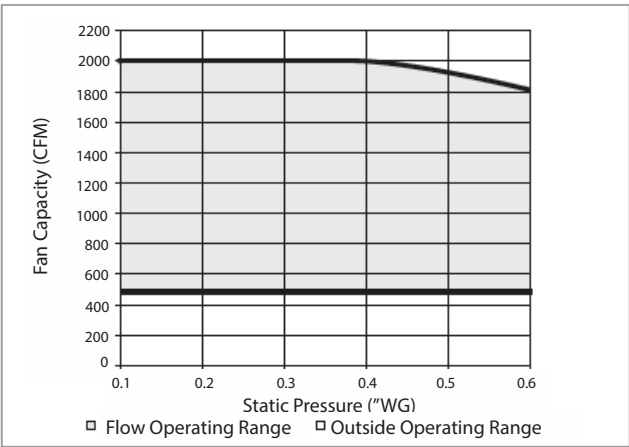


45K SERIES FAN POWERED VAV TERMINAL UNIT ECM FAN CURVE

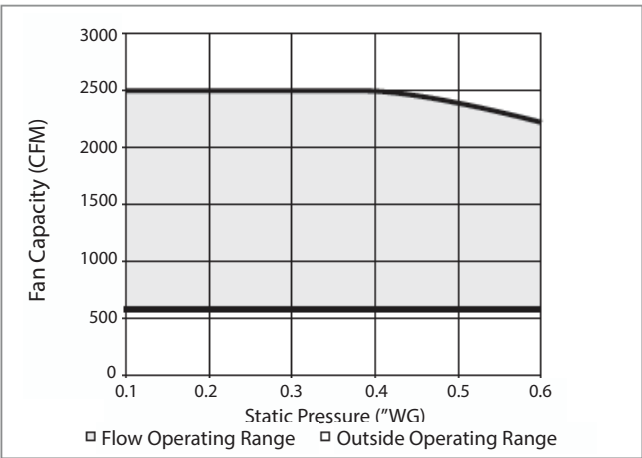
UNIT SIZE 3



UNIT SIZE 6



UNIT SIZE 7



45K SERIES FAN POWERED TERMINAL UNIT DISCHARGE SOUND POWER DATA

UNIT SIZE	INLET SIZE (in.)	PRIMARY AIRFLOW	FAN FLOW RATE	MIN. ΔPs	FAN ONLY							FAN and PRIMARY AT 0.75" ΔPs							FAN and PRIMARY AT1.5" ΔPs						
					Octave Band Sound Power, L _w						L _p	Octave Band Sound Power, L _w						L _p	Octave Band Sound Power, L _w						L _p
					2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	6	150	200	0.014	68	59	54	46	39	39	25	68	59	54	46	39	39	25	68	61	54	46	39	39	25
		250	300	0.039	70	61	55	47	41	42	24	70	63	57	47	41	42	24	70	64	57	47	41	42	24
		300	350	0.056	71	62	56	48	42	43	25	71	65	58	48	42	43	25	71	65	58	48	42	43	25
		350	400	0.077	72	63	56	48	43	44	26	72	65	58	48	43	44	26	72	66	59	48	43	44	26
		400	450	0.100	73	63	56	49	43	45	27	73	66	59	49	43	45	27	73	67	59	49	43	45	27
3	8	450	500	0.041	65	61	58	50	52	51	—	65	63	58	50	52	51	21	65	64	58	50	52	51	22
		500	600	0.051	67	63	61	54	55	55	21	67	63	61	54	55	55	21	67	66	61	54	55	55	24
		550	700	0.062	70	66	64	58	58	58	23	70	66	64	58	58	58	23	70	68	64	58	58	58	25
		625	800	0.080	71	67	66	60	61	61	25	71	67	66	60	61	61	25	71	70	66	60	61	61	27
		700	900	0.100	73	69	68	63	63	63	27	73	69	68	63	63	63	27	73	71	68	63	63	63	29
4	10	650	700	0.035	67	64	62	56	53	53	21	67	67	62	56	53	53	24	69	68	62	56	55	55	26
		800	850	0.053	69	67	65	60	57	57	24	69	69	65	60	57	57	27	71	70	67	60	59	59	28
		900	1000	0.067	71	69	67	63	60	60	27	71	71	67	63	60	60	29	73	72	67	63	60	62	30
		1000	1100	0.083	72	70	69	65	61	62	28	72	72	69	65	61	62	30	74	73	69	65	61	64	32
		1100	1200	0.100	73	71	70	66	63	64	30	73	73	70	66	63	64	32	75	74	70	66	63	66	33
5	12	1000	1100	0.039	71	65	63	58	56	57	22	71	68	63	58	56	57	26	71	70	63	58	56	57	27
		1100	1250	0.047	72	67	64	61	59	60	25	72	70	64	61	59	60	28	72	71	64	61	59	60	29
		1250	1400	0.061	73	69	66	64	62	63	27	73	71	66	64	62	63	29	73	72	66	64	62	63	30
		1400	1600	0.077	75	71	68	67	65	66	30	75	71	68	67	65	66	30	75	73	68	67	65	66	32
		1600	1750	0.100	75	72	69	70	67	68	32	75	72	69	70	67	68	32	75	75	69	70	67	68	33
6	14	1300	1400	0.038	74	70	67	64	62	63	28	76	70	67	64	62	63	28	77	70	67	64	62	63	30
		1650	1750	0.062	75	73	69	69	67	67	31	77	73	69	69	67	67	31	79	73	69	69	67	67	32
		1850	2100	0.078	77	75	71	73	70	71	35	77	75	71	73	70	71	35	80	75	71	73	70	71	35
		2000	2250	0.091	77	76	72	75	71	72	36	79	76	72	75	71	72	36	80	76	72	75	71	72	36
		2100	2400	0.100	78	77	72	76	73	73	37	78	77	72	76	73	73	37	80	77	72	76	73	73	37
7	16	1500	1500	0.029	74	66	63	63	60	61	26	76	69	63	63	60	63	29	77	70	63	63	60	61	29
		1825	1825	0.042	77	71	67	68	65	66	30	79	73	67	68	65	68	33	80	74	67	68	65	66	33
		2150	2150	0.059	81	75	70	71	69	70	34	81	76	70	71	69	72	36	82	77	70	71	69	70	37
		2475	2475	0.078	83	78	73	74	72	73	38	83	78	73	74	72	75	39	83	80	73	74	72	73	40
		2800	2800	0.100	86	81	75	77	75	76	41	86	81	75	77	77	78	42	86	82	77	77	77	76	43

LEGEND

AHRI	—	Air-Conditioning, Heating, and Refrigeration Institute
CFM	—	Air Volume (cubic feet per minute)
L _p	—	Room Sound Pressure
L _w	—	Sound Power
MIN. ΔPs	—	Minimum Static Pressure required to achieve rated airflow
NC	—	Application Data from AHRI 885-08 Appendix E
ΔPs	—	The difference in static pressure from inlet to discharge
—	—	Indicates an NC level less than 20

NOTES:

1. Discharge sound power is the sound emitted from the unit discharge.
2. All sound data is based on tests conducted in accordance with AHRI 880-11 and corrected for end reflection.
3. Sound power levels are in dB, re 10⁻¹² Watts.
4. AHRI certification points are shown in shaded blocks.

Performance data — 45K,N (cont)



45K SERIES FAN POWERED TERMINAL UNIT RADIATED SOUND POWER DATA

UNIT SIZE	INLET SIZE (in.)	PRIMARY AIRFLOW	FAN FLOW RATE	MIN. ΔPs	FAN ONLY							FAN and PRIMARY AT 0.75" ΔPs							FAN and PRIMARY AT1.5" ΔPs						
					Octave Band Sound Power, L _w						L _p	Octave Band Sound Power, L _w						L _p	Octave Band Sound Power, L _w						L _p
					2	3	4	5	6	7		NC	2	3	4	5	6		7	NC	2	3	4	5	
		CFM	CFM	in. wg	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	6	150	200	0.014	55	44	43	39	33	26	-	55	44	43	39	33	26	-	55	44	43	39	36	32	-
		250	300	0.039	61	49	47	44	38	31	23	61	49	47	44	38	31	23	61	51	50	45	42	38	24
		300	350	0.056	63	51	49	45	40	32	26	63	51	49	45	40	32	26	63	54	52	47	44	40	26
		350	400	0.077	65	53	50	47	41	34	28	65	53	50	47	41	34	28	65	55	53	49	46	42	28
		400	450	0.100	67	55	52	48	43	35	31	67	55	52	48	43	35	31	68	57	55	51	47	44	33
3	8	450	500	0.041	58	52	50	46	40	36	25	58	52	50	46	40	36	25	61	56	53	48	43	39	27
		500	600	0.051	60	54	53	49	43	38	27	60	54	53	49	43	38	27	63	58	55	51	45	41	30
		550	700	0.062	62	55	55	51	45	41	29	62	55	55	51	45	41	29	64	59	57	51	47	43	32
		625	800	0.080	63	57	57	53	47	43	31	63	57	57	53	47	43	31	66	61	59	55	49	45	34
		700	900	0.100	65	58	58	55	48	44	33	65	58	58	55	48	44	33	67	62	61	57	50	47	36
4	10	650	700	0.035	62	55	52	49	43	38	27	62	55	52	49	43	40	27	62	58	54	49	46	46	29
		800	850	0.053	62	56	55	49	43	39	29	62	56	55	49	43	41	29	65	60	57	52	48	47	32
		900	1000	0.067	62	56	57	50	44	40	32	62	56	57	50	44	42	32	66	61	60	53	49	48	35
		1000	1100	0.083	62	56	58	50	44	40	33	64	56	58	50	44	42	33	67	62	61	54	50	48	37
		1100	1200	0.100	62	57	59	50	44	41	35	65	59	59	53	46	43	35	69	63	63	55	51	49	38
5	12	1000	1100	0.039	60	52	53	48	40	35	27	60	54	55	50	43	39	29	60	57	56	50	46	44	31
		1100	1250	0.047	63	55	56	51	44	39	30	63	55	56	51	46	42	30	63	59	58	53	48	46	33
		1250	1400	0.061	65	58	58	54	46	42	33	65	58	58	54	46	44	33	65	61	61	54	50	48	36
		1400	1600	0.077	69	61	61	57	50	45	36	69	61	61	57	50	45	36	69	64	63	57	52	50	39
		1600	1750	0.100	71	63	63	60	52	48	39	71	63	63	60	52	48	39	71	66	65	60	54	52	41
6	14	1300	1400	0.038	61	54	55	51	44	39	30	61	56	55	53	46	42	30	61	58	58	53	48	47	33
		1650	1750	0.062	65	58	59	56	49	44	34	65	58	59	56	49	46	34	65	62	62	56	52	50	37
		1850	2100	0.078	69	62	62	60	52	48	38	69	62	62	60	52	48	38	69	65	64	60	55	53	40
		2000	2250	0.091	70	63	64	61	54	49	39	70	63	64	61	54	49	39	70	66	65	61	56	54	41
		2100	2400	0.100	72	64	65	63	55	51	40	72	64	65	63	55	51	40	72	67	65	63	57	55	40
7	16	1500	1500	0.029	68	57	57	54	46	41	33	68	57	57	54	48	46	33	70	59	59	54	48	49	35
		1825	1825	0.042	70	61	60	57	50	46	36	70	61	60	57	52	49	36	72	63	63	59	52	52	38
		2150	2150	0.059	72	64	63	60	54	49	38	74	64	65	62	56	52	40	74	66	66	62	56	54	41
		2475	2475	0.078	74	67	65	62	57	52	41	76	67	67	64	58	54	43	76	69	68	64	59	57	44
		2800	2800	0.100	75	69	67	65	59	55	43	77	71	69	67	61	55	45	78	71	70	67	61	59	46

LEGEND

AHRI	— Air-Conditioning, Heating, and Refrigeration Institute
CFM	— Air Volume (cubic feet per minute)
L _p	— Room Sound Pressure
L _w	— Sound Power
MIN. ΔPs	— Minimum Static Pressure required to achieve rated airflow
NC	— Application Data from AHRI 885-08 Appendix E
ΔPs	— The difference in static pressure from inlet to discharge
-	— Indicates an NC level less than 20

NOTES:

1. Radiated sound power is the sound transmitted through the casing walls.
2. All sound data is based on tests conducted in accordance with AHRI 880-11.
3. Sound power levels are in dB, re 10⁻¹² Watts.
4. AHRI certification points are shown in shaded blocks.

45K/N DAMPER LEAKAGE

INLET SIZE (in.)	DAMPER LEAKAGE (cfm)		
	1.5 in. wg	3.0 in. wg	6.0 in. wg
6	4	5	7
8	4	5	7
10	4	5	7
12	4	5	7
14	4	6	8
16	5	7	9

NOTES:

1. Damper leakage is measured with the damper fully closed using an actuator.
2. A precision low flow orifice is used upstream of the unit to measure the leakage rate as a function of the measured upstream static pressure.
3. Leakage testing conducted in accordance with ASHRAE 130-2008.

45K SERIES FAN POWERED TERMINAL UNITS HOT WATER COIL DATA

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				200	245	290	335	380	425	470	500
2	1	1.0	0.15	10.6	11.8	12.8	13.6	14.4	15.1	15.7	16.1
		2.0	0.56	11.7	13.1	14.4	15.5	16.5	17.4	18.2	18.8
		4.0	1.23	12.1	13.7	15.0	16.2	17.3	18.4	19.3	19.9
		6.0	2.14	12.4	13.9	15.4	16.6	17.8	18.9	19.9	20.5
		Air Pressure Drop		0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03
	2	1.0	0.31	15.2	17.2	18.9	20.4	21.7	22.9	23.9	24.6
		2.0	1.18	16.9	19.4	21.7	23.7	25.5	27.2	28.8	29.8
		4.0	4.51	17.9	20.8	23.4	25.8	28.0	30.1	32.0	33.2
		6.0	9.87	18.3	21.3	24.0	26.6	28.9	31.2	33.3	34.6
		Air Pressure Drop		0.01	0.02	0.03	0.03	0.04	0.05	0.06	0.07

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				380	455	530	605	680	755	830	900
3	1	1.0	0.15	14.4	15.5	16.4	17.2	18.0	18.6	19.2	19.7
		2.0	0.56	16.5	18.0	19.3	20.4	21.4	22.4	23.2	23.9
		3.0	1.23	17.3	19.0	20.4	21.8	22.9	24.0	25.0	25.8
		4.0	2.15	17.8	19.6	21.1	22.5	23.8	24.9	26.0	26.9
		Air Pressure Drop		0.02	0.03	0.03	0.04	0.05	0.06	0.07	0.08
	2	1.0	0.31	21.7	23.6	25.2	26.6	27.7	28.8	29.7	30.5
		2.0	1.19	25.5	28.3	30.7	32.8	34.8	36.5	38.1	39.5
		4.0	4.52	28.0	31.4	34.4	37.2	39.7	42.0	44.2	46.0
		6.0	9.88	28.9	32.6	35.9	38.9	41.7	44.3	46.7	48.8
		Air Pressure Drop		0.04	0.06	0.07	0.09	0.11	0.13	0.15	0.18

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				700	760	820	880	940	1000	1060	1100
4	1	1.0	0.15	18.1	18.6	19.1	19.5	19.9	20.3	20.6	20.8
		2.0	0.56	21.7	22.4	23.1	23.7	24.3	24.9	25.4	25.8
		3.0	1.23	23.2	24.1	24.9	25.6	26.3	27.0	27.6	28.0
		4.0	2.15	24.1	25.0	25.9	26.7	27.5	28.2	28.9	29.3
		Air Pressure Drop		0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.11
	2	1.0	0.32	28.0	28.9	29.6	30.3	30.9	31.5	32.0	32.4
		2.0	1.19	35.3	36.6	37.9	39.1	40.2	41.2	42.2	42.8
		4.0	4.53	40.3	42.2	43.9	45.5	47.1	48.5	49.9	50.8
		6.0	9.91	42.4	44.4	46.4	48.2	49.9	51.6	53.1	54.2
		Air Pressure Drop		0.12	0.13	0.15	0.17	0.19	0.21	0.23	0.25

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				1100	1160	1220	1280	1340	1400	1460	1500
5	1	1.0	0.23	26.6	27.0	27.4	27.8	28.1	28.5	28.8	29.0
		2.0	0.86	33.4	34.0	34.7	35.3	35.9	36.5	37.0	37.4
		3.0	1.89	36.4	37.3	38.0	38.8	39.5	40.2	40.9	41.3
		4.0	3.28	38.2	39.1	40.0	40.8	41.6	42.4	43.2	43.6
		Air Pressure Drop		0.05	0.05	0.05	0.06	0.06	0.07	0.07	0.08
	2	1.0	0.48	38.0	38.6	39.1	39.6	40.1	40.5	40.9	41.2
		2.0	1.80	51.5	52.6	53.7	54.7	55.7	56.7	57.5	58.1
		4.0	6.82	61.8	63.5	65.1	66.7	68.2	69.7	71.1	72.0
		6.0	14.88	66.1	68.0	70.0	71.8	73.6	75.3	77.0	78.0
		Air Pressure Drop		0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17

See Notes and MBH Correction Factors on page 76.

Performance data — 45K,N (cont)



45K SERIES FAN POWERED TERMINAL UNITS (cont) HOT WATER COIL DATA (cont)

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				1500	1600	1700	1800	1900	2000	2100	2200
6	1	1.0	0.23	29.0	29.5	29.9	30.3	30.7	31.1	31.4	31.7
		2.0	0.87	37.4	38.2	39.0	39.8	40.4	41.1	41.7	42.3
		3.0	1.89	41.3	42.4	43.4	44.3	45.2	46.0	46.8	47.5
		4.0	3.29	43.6	44.8	45.9	47.0	48.0	48.9	49.8	50.7
		Air Pressure Drop		0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15
	2	1.0	0.48	41.2	41.8	42.3	42.8	43.3	43.7	44.1	44.5
		2.0	1.81	58.1	59.5	60.7	61.9	63.0	64.0	65.0	65.9
		4.0	6.84	72.0	74.2	76.3	78.2	80.0	81.8	83.5	85.1
		6.0	14.91	78.0	80.6	83.1	85.4	87.7	89.8	91.9	93.8
		Air Pressure Drop		0.17	0.19	0.21	0.23	0.25	0.27	0.30	0.32

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				1500	1645	1790	1935	2080	2225	2370	2500
7	1	1.0	0.23	29.0	29.7	30.3	30.8	31.3	31.8	32.2	32.6
		2.0	0.87	37.4	38.6	39.7	40.7	41.6	42.5	43.3	43.9
		3.0	1.89	41.3	42.8	44.2	45.5	46.6	47.7	48.8	49.6
		4.0	3.29	43.6	45.3	46.9	48.3	49.6	50.9	52.1	53.1
		Air Pressure Drop		0.08	0.09	0.10	0.12	0.14	0.15	0.17	0.19
	2	1.0	0.48	41.2	42.0	42.8	43.5	44.0	44.6	45.0	45.4
		2.0	1.81	58.1	60.1	61.8	63.4	64.8	66.1	67.3	68.4
		4.0	6.85	72.0	75.1	78.0	80.7	83.1	85.5	87.6	89.4
		6.0	14.91	78.0	81.8	85.2	88.4	91.5	94.3	97.0	99.2
		Air Pressure Drop		0.17	0.20	0.23	0.26	0.29	0.33	0.36	0.40

NOTES:

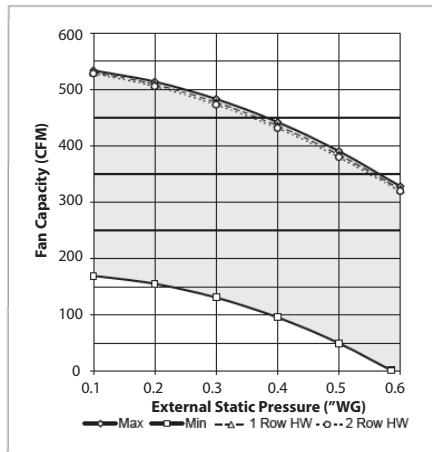
- Hot water capacities are in MBH.
- Data is based upon 180°F entering water with 0% Glycol and 65°F entering air.
- Head Loss is in feet of water.
- Air Pressure Drop is defined as the minimum static pressure at the maximum CFM with the damper fully open.
- Air temperature rise = $927 \times \text{MBH}/\text{CFM}$.
- Water temperature drop = $2.04 \times \text{MBH}/\text{GPM}$.
- Coils are not for steam application.
- Tables are based upon a temperature difference of 115°F between entering air and entering water. For other temperature differences, multiply MBH values by correction factors below.

MBH CORRECTION FACTORS

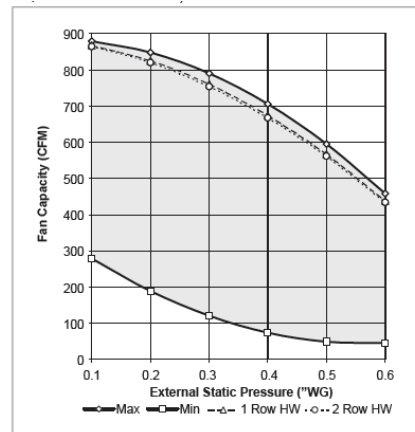
ΔT	50	60	70	80	90	100	115	125	140	150
Factor	0.44	0.52	0.61	0.70	0.79	0.88	1.00	1.07	1.20	1.30

45N PARALLEL FAN POWERED VAV TERMINAL UNIT PSC FAN CURVE

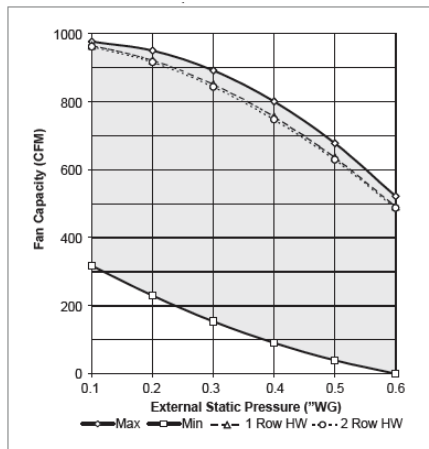
UNIT SIZE 2



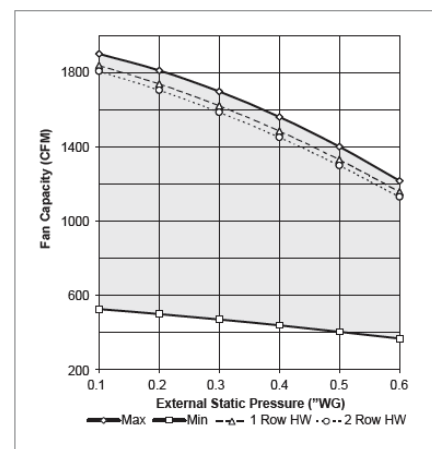
UNIT SIZE 3



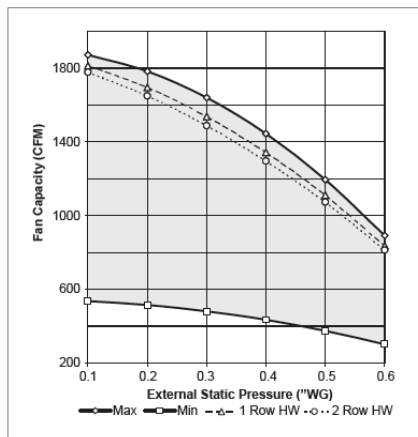
UNIT SIZE 4



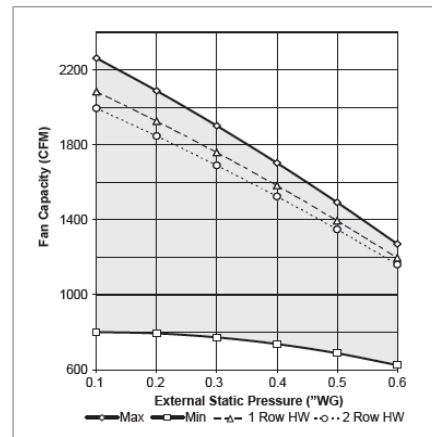
UNIT SIZE 5



UNIT SIZE 6

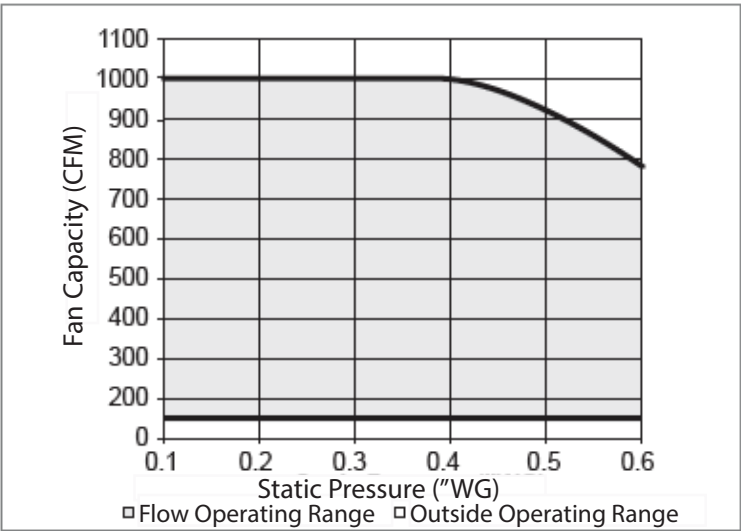


UNIT SIZE 7

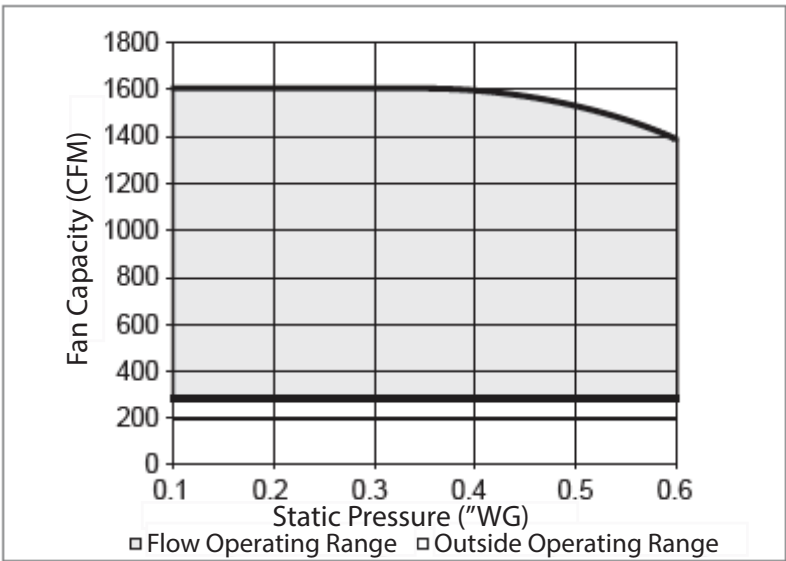


45N SERIES FAN POWERED VAV TERMINAL UNIT
ECM FAN CURVE

UNIT SIZE 4



UNIT SIZE 7



45N PARALLEL FAN POWERED TERMINAL UNITS - DISCHARGE SOUND POWER DATA

UNIT SIZE	INLET	PRI-MARY FLOW RATE	MIN. ΔP_s	PRIMARY AT 0.5" ΔP_s							PRIMARY AT 1.5" ΔP_s							PRIMARY AT 2.0" ΔP_s						
				Octave Band Sound Power, L_w							Octave Band Sound Power, L_w							Octave Band Sound Power, L_w						
				2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	6	CFM	in. wg																					
		100	0.013	36	32	27	23	23	24	-	40	33	28	25	28	32	-	41	33	29	26	29	34	-
		200	0.050	48	45	39	33	30	28	-	52	46	40	35	35	35	-	53	46	40	36	36	37	-
		300	0.113	55	52	46	39	34	30	-	59	53	47	41	39	37	-	60	53	47	42	40	39	-
		400	0.200	60	58	50	43	36	31	-	64	58	52	45	42	39	-	65	59	52	46	43	41	21
3	8	500	0.313	64	62	54	46	39	33	-	68	63	55	48	44	40	25	69	63	56	49	45	42	26
		180	0.013	39	42	40	31	26	23	-	45	46	44	35	31	31	-	47	47	45	36	33	33	-
		360	0.053	51	50	45	38	32	28	-	57	55	49	42	38	35	-	59	56	50	43	39	37	-
		540	0.119	58	55	48	42	36	31	-	64	60	52	46	42	38	20	66	61	53	47	43	40	22
		700	0.200	63	59	50	45	38	33	-	69	63	54	49	44	40	26	71	64	55	50	45	42	28
4	10	900	0.331	67	62	52	47	41	34	-	73	66	56	51	46	42	32	75	67	57	53	48	44	34
		290	0.014	44	42	39	33	26	20	-	48	46	42	37	30	26	-	49	47	43	38	32	27	-
		580	0.056	57	52	46	43	37	30	-	61	56	49	47	41	36	-	62	57	50	48	43	37	-
		870	0.125	65	58	50	48	43	36	-	69	62	53	52	48	42	26	70	63	54	53	49	43	27
		1100	0.200	69	62	52	51	47	40	-	73	66	56	55	52	45	31	74	66	57	56	53	47	33
5	12	1450	0.348	74	66	55	55	51	44	26	78	70	59	59	56	50	38	79	71	60	60	57	51	39
		420	0.014	46	43	43	35	26	20	-	53	49	48	40	32	29	-	55	51	49	41	34	31	-
		840	0.055	55	49	48	43	36	28	-	63	56	53	48	42	37	-	65	57	54	49	44	39	21
		1260	0.124	60	53	51	47	42	33	-	68	59	56	53	48	42	25	70	61	57	54	50	44	28
		1600	0.200	64	55	53	50	45	36	-	71	61	58	55	52	44	29	73	63	59	57	53	47	32
6	14	2100	0.345	67	58	55	53	49	39	-	75	64	60	58	55	48	34	77	66	61	60	57	50	36
		570	0.015	49	42	39	34	27	21	-	56	50	47	41	34	29	-	58	52	49	42	36	32	-
		1140	0.059	58	50	47	43	37	31	-	65	57	54	49	44	39	21	67	59	56	51	46	41	23
		1710	0.133	63	54	51	48	44	36	-	70	62	59	54	50	44	28	72	64	61	56	52	47	30
		2100	0.200	66	56	53	51	47	39	-	73	64	61	57	53	47	31	75	66	63	59	55	49	34
7	16	2850	0.368	70	60	57	54	51	43	21	77	67	64	61	58	51	36	79	69	66	62	60	53	39
		740	0.014	54	49	44	42	34	23	-	61	55	51	47	39	30	-	63	57	53	48	40	32	-
		1480	0.056	64	57	52	51	45	35	-	71	64	59	56	50	42	28	73	65	61	57	51	44	31
		2220	0.126	69	62	56	56	52	42	20	77	68	63	61	57	49	36	79	70	65	63	58	50	38
		2800	0.200	73	65	59	59	55	46	24	80	71	66	64	60	53	40	82	73	68	66	62	54	43
7	16	3700	0.349	77	68	62	63	60	50	30	84	75	69	68	65	57	45	86	76	71	69	66	59	48

LEGEND

AHRI	—	Air-Conditioning, Heating, and Refrigeration Institute
CFM	—	Air Volume (cubic feet per minute)
L_p	—	Room Sound Pressure
L_w	—	Sound Power
MIN ΔP_s	—	Minimum Static Pressure required to achieve rated airflow
NC	—	Application Data from AHRI 885-08 Appendix E
ΔP_s	—	The difference in static pressure from inlet to discharge
-	—	Indicates an NC level less than 20

NOTES:

1. Discharge sound power is the sound emitted from the unit discharge.
2. All sound data is based on tests conducted in accordance with AHRI 880-11 and corrected for end reflection.
3. Sound power levels are in dB, re 10^{-12} Watts.
4. AHRI certification points are shown in shaded blocks.

Performance data — 45K,N (cont)



45N PARALLEL FAN POWERED TERMINAL UNIT - RADIATED SOUND POWER DATA

UNIT SIZE	INLET	PRIM ARY FLOW RATE	MIN. ΔPs	PRIMARY AT 0.5" ΔPs							PRIMARY AT 1.5" ΔPs							PRIMARY AT 2.0" ΔPs						
				Octave Band Sound Power, L _w							Octave Band Sound Power, L _w							Octave Band Sound Power, L _w						
				2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
		CFM	in. wg																					
2	6	0	0.013	35	30	26	23	23	23	-	39	33	30	27	29	31	-	40	34	31	29	31	33	-
		200	0.050	43	39	34	29	27	25	-	48	42	38	34	34	33	-	49	43	39	35	35	35	-
		300	0.113	48	44	39	33	30	27	-	52	47	43	38	36	35	-	54	48	44	39	38	37	-
		400	0.200	51	47	42	36	31	28	-	56	51	46	40	38	36	-	57	51	47	42	40	38	21
		500	0.313	54	50	44	38	33	28	-	59	53	48	42	39	36	22	60	54	49	44	41	38	24
3	8	180	0.013	43	38	32	26	18	15	-	48	43	38	32	25	26	-	49	45	40	33	27	28	-
		360	0.053	51	45	38	33	25	20	-	56	50	44	38	32	30	-	57	52	46	40	34	33	-
		540	0.119	56	49	41	37	30	23	-	61	55	47	42	37	33	23	62	56	49	44	39	36	25
		700	0.200	59	52	43	39	33	25	21	64	57	50	45	40	35	27	65	58	51	46	41	38	28
		900	0.331	62	55	45	42	35	27	25	67	60	52	47	42	37	31	68	61	53	49	44	40	32
4	10	290	0.014	43	37	33	25	19	16	-	48	42	38	30	24	24	-	50	43	39	32	26	26	-
		580	0.056	51	45	41	33	28	24	-	57	51	46	39	33	32	-	58	52	47	40	35	34	21
		870	0.125	56	50	45	38	33	29	-	62	56	50	44	39	37	24	63	57	51	45	40	39	26
		1100	0.200	59	53	48	41	37	31	22	65	59	53	46	42	39	28	66	60	54	48	43	41	30
		1450	0.348	62	57	51	44	40	34	26	68	62	56	50	45	42	32	70	64	57	51	47	44	34
5	12	420	0.014	38	40	36	33	27	20	-	44	45	42	38	33	28	-	46	46	44	39	34	30	-
		840	0.055	49	47	43	39	34	28	-	55	52	49	44	40	36	23	57	54	51	45	41	38	25
		1260	0.124	56	52	47	43	38	32	21	62	57	53	48	43	40	27	63	58	54	49	45	42	29
		1600	0.200	59	54	49	45	40	35	23	66	59	55	50	46	43	30	67	61	57	51	47	45	31
		2100	0.345	64	57	51	47	43	38	27	70	62	58	52	48	46	35	71	64	59	53	50	48	37
6	14	570	0.015	45	39	37	32	26	22	-	53	46	44	37	32	31	-	55	48	46	39	34	34	-
		1140	0.059	54	47	44	39	34	28	-	62	54	51	45	41	38	25	64	56	53	46	42	40	27
		1710	0.133	59	51	48	43	39	32	22	67	58	55	49	45	42	31	69	60	57	50	47	44	34
		2100	0.200	62	53	50	45	41	34	25	70	60	57	51	48	44	34	72	62	59	53	50	46	37
		2850	0.368	66	56	53	48	45	37	30	74	63	60	54	51	47	40	76	65	62	56	53	49	42
7	16	740	0.014	50	45	40	36	31	27	-	58	54	50	47	43	43	24	61	57	52	50	46	47	27
		1480	0.056	58	52	48	44	39	34	22	67	61	57	55	52	50	32	69	64	60	58	55	54	35
		2220	0.126	63	57	52	48	44	38	26	72	66	62	59	57	54	37	74	68	64	62	60	58	40
		2800	0.200	66	59	55	51	47	41	29	75	68	64	62	59	57	41	77	71	67	65	63	61	44
		3700	0.349	69	62	58	54	51	44	34	78	71	67	65	63	59	45	80	74	70	68	66	64	48

LEGEND

AHRI	—	Air-Conditioning, Heating, and Refrigeration Institute
CFM	—	Air Volume (cubic feet per minute)
L _p	—	Room Sound Pressure
L _w	—	Sound Power
MIN ΔPs	—	Minimum Static Pressure required to achieve rated airflow
NC	—	Application Data from AHRI 885-08 Appendix E
ΔPs	—	The difference in static pressure from inlet to discharge
-	—	Indicates an NC level less than 20

NOTES:

1. Radiated sound power is the sound transmitted through the casing walls.
2. All sound data is based on tests conducted in accordance with AHRI 880-11.
3. Sound power levels are in dB, re 10⁻¹² Watts.
4. AHRI certification points are shown in shaded blocks.

45N PARALLEL FAN POWERED TERMINAL UNITS

FAN SOUND POWER LEVELS - FAN ONLY

UNIT SIZE	FLOW RATE	DISCHARGE SOUND POWER							RADIATED SOUND POWER						
		Octave Band						L _P	Octave Band						L _P
		Sound Power, L _w							Sound Power, L _w						
	CFM	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	150	62	56	54	47	40	36	-	47	51	45	37	32	23	-
	240	65	61	58	52	46	43	21	59	59	52	48	42	36	28
	325	67	64	61	55	51	47	22	66	64	57	55	48	43	34
	400	69	66	62	57	53	50	24	71	67	60	60	53	49	38
	500	70	68	64	59	57	53	26	76	70	63	65	57	54	43
3	300	61	60	56	51	50	46	-	50	49	47	38	35	34	20
	450	67	65	61	57	55	52	23	59	58	54	48	43	43	29
	600	71	69	65	60	58	57	28	66	63	59	54	48	49	34
	700	73	71	67	62	60	59	30	70	67	62	58	52	52	38
	910	77	74	70	65	63	63	33	76	72	67	64	57	58	44
4	370	62	63	56	51	47	42	20	59	60	52	46	42	39	29
	550	66	65	60	56	53	49	23	63	62	57	52	48	46	32
	700	69	66	62	58	56	53	24	65	64	60	56	52	50	35
	800	70	67	63	60	58	55	24	67	65	61	59	54	52	36
	1100	74	68	66	64	62	60	26	70	67	65	64	58	58	40
5	500	64	59	55	52	51	46	-	64	60	56	47	45	40	30
	800	69	64	60	58	57	54	21	69	64	60	54	52	48	35
	1100	73	67	64	62	61	60	25	72	67	63	58	56	54	38
	1350	76	69	66	65	64	63	28	74	69	65	61	60	57	41
	1700	78	72	68	68	67	67	69	77	71	67	64	63	62	44
6	750	72	69	65	59	56	54	26	66	67	59	54	48	42	38
	1000	73	70	67	61	58	57	28	68	69	62	58	52	48	40
	1275	74	71	68	63	61	59	29	71	70	65	60	56	52	41
	1700	75	73	70	66	63	62	31	74	71	68	64	60	58	44
	1800	76	73	70	66	64	63	32	74	71	69	64	61	59	45
7	750	67	63	61	58	55	51	20	69	65	59	53	48	43	35
	1060	71	67	64	63	60	57	25	73	69	63	58	53	49	40
	1375	75	70	67	66	64	62	28	76	72	65	62	57	54	44
	1800	78	74	70	70	68	67	32	79	76	68	66	62	59	48
	2000	80	75	71	71	70	68	34	80	77	69	68	63	61	49

LEGEND

AHRI	—	Air-Conditioning, Heating, and Refrigeration Institute
CFM	—	Air Volume (cubic feet per minute)
L _p	—	Room Sound Pressure
L _w	—	Sound Power
NC	—	Application Data from AHRI 885-08 Appendix E
-	—	Indicates an NC level less than 20

NOTES:

1. Radiated sound power is the sound transmitted through the casing walls.
2. Discharge sound power is the sound emitted from the unit discharge.
3. All sound data is based on tests conducted in accordance with AHRI 880-11.
4. Sound power levels are in dB, re 10⁻¹² Watts.
5. AHRI certification points are shown in shaded blocks.

Performance data — 45K,N (cont)



45N PARALLEL FAN POWERED TERMINAL UNITS HOT WATER COIL DATA

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				150	200	250	300	350	400	450	470
2	1	1.0	0.15	9.1	10.6	11.9	13.6	13.9	14.7	15.4	15.7
		2.0	0.56	11.5	11.7	13.3	14.6	15.8	16.9	17.9	18.2
		3.0	1.23	10.2	12.1	13.8	15.3	16.6	17.8	18.9	19.3
		4.0	2.14	10.3	12.4	14.1	15.7	17	18.3	19.5	19.9
	Air Pressure Drop (cfm)		0.00	0.01	0.01	0.02	0.02	0.02	0.03	0.03	
	2	1.0	0.31	12.6	15.2	17.4	19.2	20.8	22.2	23.5	23.9
		2.0	1.18	13.8	16.9	19.7	22.1	24.3	26.3	28.1	28.8
		4.0	4.51	14.4	17.9	21.1	23.9	26.5	28.9	31.2	32.0
		6.0	9.86	14.6	18.3	21.6	24.6	27.4	30.0	32.4	33.3
Air Pressure Drop (cfm)		0.01	0.01	0.02	0.03	0.04	0.05	0.06	0.06		

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				200	275	350	425	500	575	650	720
3	1	1.0	0.15	10.6	12.5	13.9	15.1	16.1	16.9	17.7	18.3
		2.0	0.56	13.1	14.0	15.8	17.4	18.8	20.0	21.0	21.9
		3.0	1.23	12.1	14.6	16.6	18.4	19.9	21.2	22.5	23.5
		4.0	2.14	12.4	14.9	17.0	18.9	20.5	22.0	23.3	24.4
	Air Pressure Drop (cfm)		0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.06	
	2	1.0	0.31	15.2	18.3	20.8	22.9	24.6	26.0	27.3	28.3
		2.0	1.18	16.9	21.0	27.2	24.3	29.8	32.0	34.0	35.7
		4.0	4.51	17.9	22.5	26.5	30.1	33.2	36.1	38.7	41.0
		6.0	9.87	18.3	23.1	27.4	31.2	34.6	37.7	40.6	43.1
Air Pressure Drop		0.01	0.02	0.04	0.05	0.07	0.08	0.10	0.12		

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				200	290	380	470	560	650	740	800
4	1	1.0	0.15	10.6	12.8	14.4	15.7	16.8	17.7	18.5	18.9
		2.0	0.56	13.1	14.4	16.5	18.2	19.7	21.0	22.2	22.9
		3.0	1.23	12.1	15.0	17.3	19.3	21.0	22.5	23.8	24.6
		4.0	2.14	12.4	15.4	17.8	19.9	21.7	23.3	24.7	25.6
	Air Pressure Drop (cfm)			0.01	0.01	0.02	0.03	0.04	0.05	0.06	0.07
	2	1.0	0.31	15.2	18.9	21.7	23.9	25.8	27.3	28.6	29.4
		2.0	1.18	16.9	21.7	28.8	25.5	31.6	34.0	36.2	37.5
		4.0	4.51	17.9	23.4	28.0	32.0	35.6	38.7	41.6	43.3
		6.0	9.87	18.3	24.0	28.9	33.3	37.1	40.6	43.8	45.7
Air Pressure Drop (cfm)			0.01	0.03	0.04	0.06	0.08	0.1	0.13	0.15	

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				600	730	860	990	1120	1250	1380	1500
5	1	1.0	0.23	21.6	23.2	24.6	25.7	26.7	27.6	28.4	29.0
		2.0	0.86	26.6	28.1	30.2	32.0	33.6	35.0	36.3	37.4
		3.0	1.88	27.5	30.2	32.7	34.8	36.7	38.4	40.0	41.3
		4.0	3.27	28.4	31.4	34.1	36.4	38.5	40.4	42.2	43.6
	Air Pressure Drop (cfm)		0.02	0.02	0.03	0.04	0.05	0.06	0.07	0.08	
	2	1.0	0.47	30.7	33.2	35.2	36.8	38.2	39.4	40.4	41.2
		2.0	1.79	38.4	42.5	46.1	49.2	51.8	54.2	56.3	58.1
		4.0	6.80	43.5	49.1	54.0	58.4	62.3	65.9	69.2	72.0
		6.0	14.83	45.6	51.7	57.2	62.2	66.7	70.9	74.7	78.0
Air Pressure Drop (cfm)		0.04	0.05	0.07	0.08	0.10	0.12	0.15	0.17		

NOTES:

- Hot water coil capacities are in MBH.
- Data is based upon 180°F entering water with 0% Glycol and 65°F entering air.
- Head Loss is in feet of water.
- Air Pressure Drop is defined as the minimum static pressure at the maximum CFM with the damper fully open.
- Air temperature rise = 927 x MBH/cfm.
- Water temperature drop = 2.04 x MBH/gpm.
- Coils are not for steam application.
- Tables are based upon a temperature difference of 115°F between entering air and entering water. For other temperature differences, multiply MBH values by factors below.

MBH CORRECTION FACTORS

ΔT	50	60	70	80	90	100	115	125	140	150
Factor	0.44	0.52	0.61	0.70	0.79	0.88	1.00	1.07	1.20	1.30

45N PARALLEL FAN POWERED TERMINAL UNIT HOT WATER COIL DATA

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				700	820	940	1060	1180	1300	1420	1525
6	1	1.0	0.23	22.9	24.2	25.3	26.3	27.1	27.9	28.6	29.1
		2.0	0.86	28.4	29.6	31.3	32.9	34.3	35.5	36.7	37.6
		3.0	1.88	29.6	32.0	34.0	35.9	37.5	39.1	40.5	41.6
		4.0	3.28	30.8	33.3	35.5	37.6	39.4	41.1	42.7	43.9
		Air Pressure Drop (cfm)		0.02	0.03	0.04	0.04	0.05	0.06	0.07	0.08
	2	1.0	0.48	32.7	34.6	36.2	37.6	38.8	39.8	40.7	41.3
		2.0	1.79	41.6	45.1	48.0	50.6	53.0	55.1	57.0	58.5
		4.0	6.80	47.9	52.6	56.8	60.6	64.0	67.2	70.2	72.6
		6.0	14.84	50.4	55.6	60.3	64.7	68.7	72.4	75.9	78.7
		Air Pressure Drop (cfm)		0.05	0.06	0.08	0.09	0.11	0.13	0.15	0.17

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIRFLOW, CFM AND RESULTING MBH							
				800	940	1080	1220	1360	1500	1640	1750
7	1	1.0	0.23	24.0	25.3	26.4	27.4	28.2	29.0	29.6	30.1
		2.0	0.86	30.0	31.3	33.1	34.7	36.1	37.4	38.5	39.4
		3.0	1.88	31.6	34.0	36.1	38.0	39.8	41.3	42.8	43.8
		4.0	3.28	32.9	35.5	37.9	40.0	41.9	43.6	45.3	46.4
		Air Pressure Drop (cfm)		0.03	0.04	0.04	0.05	0.07	0.08	0.09	0.10
	2	1.0	0.48	34.3	36.2	37.8	39.1	40.2	41.2	42.0	42.6
		2.0	1.80	44.5	48.0	51.1	53.7	56.0	58.1	60.0	61.3
		4.0	6.81	51.8	56.8	61.2	65.1	68.7	72.0	75.0	77.2
		6.0	14.85	54.7	60.3	65.4	70.0	74.2	78.0	81.6	84.3
		Air Pressure Drop (cfm)		0.06	0.08	0.10	0.12	0.14	0.17	0.20	0.22

NOTES:

- Hot water coil capacities are in MBH.
- Data is based upon 180°F entering water with 0% Glycol and 65°F entering air.
- Head Loss is in feet of water.
- Air Pressure Drop is defined as the minimum static pressure at the maximum CFM with the damper fully open.
- Air temperature rise = 927 x MBH/cfm.
- Water temperature drop = 2.04 x MBH/gpm.
- Coils are not for steam application.
- Tables are based upon a temperature difference of 115°F between entering air and entering water. For other temperature differences, multiply MBH values by factors below.

MBH CORRECTION FACTORS

ΔT	50	60	70	80	90	100	115	125	140	150
Factor	0.44	0.52	0.61	0.70	0.79	0.88	1.00	1.07	1.20	1.30

Performance data — 45K,N (cont)



45K ELECTRIC HEAT kW RANGE PER UNIT SIZE

HEATER CODE	DESCRIPTION (VOLTS/ PHASE/STEPS)	2		3		4		5		6		7	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E11	120v/1Ph/1S	0.5	5.0	0.5	5.0	0.5	5.0	0.5	4.5	0.5	4.5	0.5	3.5
E12	120v/1Ph/2S	1.0	5.0	1.0	5.0	1.0	5.0	1.0	4.5	1.0	4.5	1.0	3.5
E13	120v/1Ph/3S	1.5	5.0	1.5	5.0	1.5	5.0	1.5	4.5	1.5	4.5	1.5	3.5
E21	208v/1Ph/1S	0.5	5.0	0.5	8.0	0.5	9.0	0.5	9.0	0.5	8.5	0.5	8.5
E22	208v/1Ph/2S	1.0	5.0	1.0	8.0	1.0	9.0	1.0	9.0	1.0	8.5	1.0	8.5
E23	208v/1Ph/3S	1.5	5.0	1.5	8.0	1.5	9.0	1.5	9.0	1.5	8.5	1.5	8.5
E31	240v/1Ph/1S	1.0	5.0	1.0	8.0	1.0	10.0	0.5	10.0	0.5	10.0	0.5	9.0
E32	240v/1Ph/2S	1.5	5.0	1.5	8.0	1.5	10.0	1.0	10.0	1.0	10.0	1.0	9.0
E33	240v/1Ph/3S	2.0	5.0	2.0	8.0	2.0	10.0	1.5	10.0	1.5	10.0	1.5	9.0
E41	277v/1Ph/1S	1.0	5.0	1.0	8.0	1.0	12.0	0.5	12.0	0.5	12.0	0.5	11.0
E42	277v/1Ph/2S	1.5	5.0	1.5	8.0	1.5	12.0	1.0	12.0	1.0	12.0	1.0	11.0
E43	277v/1Ph/3S	2.5	5.0	2.5	8.0	2.5	12.0	1.5	12.0	1.5	12.0	1.5	11.0
E61	208v/3Ph/1S (3-Wire)	1.5	5.0	1.5	8.0	1.5	14.0	1.5	14.0	1.5	14.0	1.5	14.0
E62	208v/3Ph/2S (3-Wire)	1.5	5.0	1.5	8.0	1.5	14.0	1.5	14.0	1.5	14.0	1.5	14.0
E63	208v/3Ph/3S (3-Wire)	1.5	5.0	1.5	8.0	1.5	14.0	1.5	14.0	1.5	14.0	1.5	14.0
E91	480v/3Ph/1S (4-Wire)	2.5	5.0	2.5	8.0	2.5	14.0	1.5	20.0	1.5	25.0	1.5	25.0
E92	480v/3Ph/2S (4-Wire)	2.5	5.0	2.5	8.0	2.5	14.0	1.5	20.0	1.5	25.0	1.5	25.0
E93	480v/3Ph/3S (4-Wire)	2.5	5.0	2.5	8.0	2.5	14.0	1.5	20.0	1.5	25.0	1.5	25.0
L1X	120v/1Ph	0.5	5.0	0.5	5.0	0.5	5.0	0.5	4.5	0.5	4.5	N/A	N/A
L2X	208v/1Ph	0.5	5.0	0.5	8.0	0.5	9.0	0.5	9.0	0.5	8.5	0.5	8.5
L3X	240v/1Ph	1.0	5.0	1.0	8.0	1.0	10.0	0.5	10.0	0.5	10.0	0.5	9.0
L4X	277v/1Ph	1.0	5.0	1.0	8.0	1.0	12.0	0.5	12.0	0.5	12.0	0.5	11.0
L6X	208v/3Ph (3-Wire)	1.5	5.0	1.5	8.0	1.5	10.5	1.5	10.5	1.5	10.5	1.5	10.5
L9X	480v/3Ph (4-Wire)	2.5	5.0	2.5	8.0	2.5	14.0	1.5	20.0	1.5	25.0	1.5	25.0

NOTES:

1. The ASHRAE handbook of fundamentals states that discharge temperatures in excess of 90°F are likely to result in objectionable air temperature stratification in the space. Also, ventilation short circuiting may occur. ASHRAE Standard 62.1 limits discharge temperatures to 90°F or increasing the ventilation rate when heating from the ceiling.
2. For safe operation, the electric heater controls are interlocked with the air-flow proving switch to allow the heater to energize only after the fan is running.
3. X denotes SSR heater control input.

45N ELECTRIC HEAT kW RANGE PER UNIT SIZE

HEATER CODE	DESCRIPTION (VOLTS/ PHASE/STEPS)	2		3		4		5		6		7	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E11	120v/1Ph/1S	0.5	5.0	0.5	5.0	0.5	5.0	0.5	4.5	0.5	4.5	0.5	3.5
E12	120v/1Ph/2S	1.0	5.0	1.0	5.0	1.0	5.0	1.0	4.5	1.0	4.5	1.0	3.5
E13	120v/1Ph/3S	1.5	5.0	1.5	5.0	1.5	5.0	1.5	4.5	1.5	4.5	1.5	3.5
E21	208v/1Ph/1S	0.5	5.0	0.5	8.0	0.5	9.0	0.5	9.0	0.5	8.5	0.5	8.5
E22	208v/1Ph/2S	1.0	5.0	1.0	8.0	1.0	9.0	1.0	9.0	1.0	8.5	1.0	8.5
E23	208v/1Ph/3S	1.5	5.0	1.5	8.0	1.5	9.0	1.5	9.0	1.5	8.5	1.5	8.5
E31	240v/1Ph/1S	1.0	5.0	1.0	8.0	1.0	10.0	0.5	10.0	0.5	10.0	0.5	9.0
E32	240v/1Ph/2S	1.5	5.0	1.5	8.0	1.5	10.0	1.0	10.0	1.0	10.0	1.0	9.0
E33	240v/1Ph/3S	2.0	5.0	2.0	8.0	2.0	10.0	1.5	10.0	1.5	10.0	1.5	9.0
E41	277v/1Ph/1S	1.0	5.0	1.0	8.0	1.0	12.0	0.5	12.0	0.5	12.0	0.5	11.0
E42	277v/1Ph/2S	1.5	5.0	1.5	8.0	1.5	12.0	1.0	12.0	1.0	12.0	1.0	11.0
E43	277v/1Ph/3S	2.5	5.0	2.5	8.0	2.5	12.0	1.5	12.0	1.5	12.0	1.5	11.0
E61	208v/3Ph/1S (3-Wire)	1.5	5.0	1.5	8.0	1.5	14.0	1.5	14.0	1.5	14.0	1.5	14.0
E62	208v/3Ph/2S (3-Wire)	1.5	5.0	1.5	8.0	1.5	14.0	1.5	14.0	1.5	14.0	1.5	14.0
E63	208v/3Ph/3S (3-Wire)	1.5	5.0	1.5	8.0	1.5	14.0	1.5	14.0	1.5	14.0	1.5	14.0
E91	480v/3Ph/1S (4-Wire)	2.5	5.0	2.5	8.0	2.5	14.0	1.5	20.0	1.5	25.0	1.5	25.0
E92	480v/3Ph/2S (4-Wire)	2.5	5.0	2.5	8.0	2.5	14.0	1.5	20.0	1.5	25.0	1.5	25.0
E93	480v/3Ph/3S (4-Wire)	2.5	5.0	2.5	8.0	2.5	14.0	1.5	20.0	1.5	25.0	1.5	25.0
L1X	120v/1Ph	0.5	5.0	0.5	5.0	0.5	5.0	0.5	4.5	0.5	4.5	N/A	N/A
L2X	208v/1Ph	0.5	5.0	0.5	8.0	0.5	9.0	0.5	9.0	0.5	8.5	0.5	8.5
L3X	240v/1Ph	1.0	5.0	1.0	8.0	1.0	10.0	0.5	10.0	0.5	10.0	0.5	9.0
L4X	277v/1Ph	1.0	5.0	1.0	8.0	1.0	12.0	0.5	12.0	0.5	12.0	0.5	11.0
L6X	208v/3Ph (3-Wire)	1.5	5.0	1.5	8.0	1.5	10.5	1.5	10.5	1.5	10.5	1.5	10.5
L9X	480v/3Ph (4-Wire)	2.5	5.0	2.5	8.0	2.5	14.0	1.5	20.0	1.5	25.0	1.5	25.0

NOTES:

1. The ASHRAE handbook of fundamentals states that discharge temperatures in excess of 90°F are likely to result in objectionable air temperature stratification in the space. Also, ventilation short circuiting may occur. ASHRAE Standard 62.1 limits discharge temperatures to 90°F or increasing the ventilation rate when heating from the ceiling.

- For safe operation, the electric heater controls are interlocked with the air-flow proving switch to allow the heater to energize only after the fan is running.
- X denotes SSR heater control input.

SSR CONTROL INPUT

POSITION 31	CONTROL INPUT
1†	On/Off
2†	2 Stage
3†	0-10V
4†	4-20mA
5†	Incremental
6†	Binary
7†	Floating

Electrical data — 45K,N



Electric heat selection – Select heater so that power (kW) is a whole number. Rounding to the nearest whole number has negligible impact on the discharge temperature and power consumption.

Factors:

A. Specify electric duct heaters using voltage, kW, and number of steps.

B. Required kW is calculated using the following relationship.

$$\text{kW} = \frac{\text{Btuh}}{3413}$$

$$\text{kW} = \frac{\text{CFM} \times \Delta T}{3160}$$

Where:

Btuh = Required Heating Capacity

CFM = Volume of air controlled During Heating (Typically 30-100% of Maximum Cooling Volume)

ΔT = Leaving Air Temperature minus the entering air temperature or the desired air temperature rise across the electric heater.

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Model number nomenclature — 45Q,R (cont)



45R — Parallel Fan Powered 45R C 3 0 1L 4 10 2 4782 00 000 0000 000 E62 05.0 00000 0800040004000.20

45R — Parallel Fan Powered

Control Type

A — Analog
B — Open VVT
C — VAV CCN
D — Open VAV
N — No Controls
P — Pneumatic
V — VVT CCN

Flow Sensor Type

3 — Four Quadrant Linear

Liner Type

0 — ½ in. Fiberglass
4 — Steriwall with ½ in. Fiberglass
6 — ½ in. Foil Encapsulated
A — Perforated Doublewall with ½ in. Fiberglass
F — ½ in. Cellular

Casing Style

1 — 20 Gauge, No Access
L — Left Hand
R — Right Hand

Unit Size

2
4

Inlet Diameter

06 — 6 in. Round
08 — 8 in. Round
10 — 10 in. Round
12 — 13 ½ in. x 8 in. Rectangular

Motor Type

1 — 120V PSC
2 — 208-240V PSC
3 — 277V PSC
4 — 120V ECM
5 — 208/240V ECM
6 — 277V PSC

Control Code

See Price Pages

Actuator Style

00 — Standard

Unit Airflow

Max CFM, Min CFM, Fan CFM, ESP

Heat Accessories

0 — None
C — Fuse Block
F — Manual Reset Cutout
G — Dust Tight Construction
K — Door Interlocking Fused Disconnect
L — Door Interlocking Non-Fused Disconnect

Electric Heat

Input kW

Electric Heat

000 — None
E1X — 120V-1Ph, X Stages
E2X — 208V-1Ph, X Stages
E3X — 240V-1Ph, X Stages
E4X — 240V-1Ph, X Stages
E6X — 208V-3Ph, X Stages
E9X — 480V-3Ph, X Stages
L1X — 120V-1Ph, SSR
L2X — 208V-1Ph, SSR
L3X — 240V-1Ph, SSR
L4X — 240V-1Ph, SSR
L6X — 208V-3Ph, SSR
L9X — 480V-3Ph, SSR

Hot Water Coil

000 — None
WX1 — 1 Row
WX2 — 2 Row
W6X — Right Hand, Induction Inlet
W7X — Left Hand, Induction Inlet

Unit Options

0 — None
A — Motor Disconnect
F — Fan Motor Fuse
M — MERV 8 Filter
R — Inlet Filter
S — Hanger Bracket

Control Options

0 — None
4 — DA Thermostat
5 — RA Thermostat
6 — VCU Controller (ECM)
7 — ACU Controller (ECM)
8 — ACU Controller (ECM)

UNIT WEIGHTS

45Q SIZE	UNIT ONLY (lb)	WITH PNEUMATIC CONTROLS (lb)	WITH DDC OR ANALOG CONTROLS (lb)	WITH ELECTRIC HEAT (lb)	WITH HOT WATER (1 ROW/2 ROW) (lb)
3	75	+4	+9	+30	+10/+12
4	120	+4	+9	+35	+12/+14
5	100	+4	+9	+35	+12/+14

45Q DOAS BOX SIZE	UNIT WITH COOLING COILS (lb)			WITH DDC OR ANALOG CONTROLS (lb)	WITH ELECTRIC HEAT (lb)	WITH HOT WATER (1 ROW/2 ROW) (lb)
	2-ROW	4-ROW	6-ROW			
3	97	106	120	+9	+30	+10/+12
5	100	145	160	+9	+35	+12/+14

45R SIZE	UNIT ONLY (lb)	WITH PNEUMATIC CONTROLS (lb)	WITH DDC OR ANALOG CONTROLS (lb)	WITH ELECTRIC HEAT (lb)	WITH HOT WATER (1 ROW/2 ROW) (lb)
2	91	+4	+9	+25	+8/+10
4	106	+4	+9	+25	+8/+10

LEGEND

DDC — Direct Digital Controls
DOAS — Dedicated Outdoor Air System

NOTES:

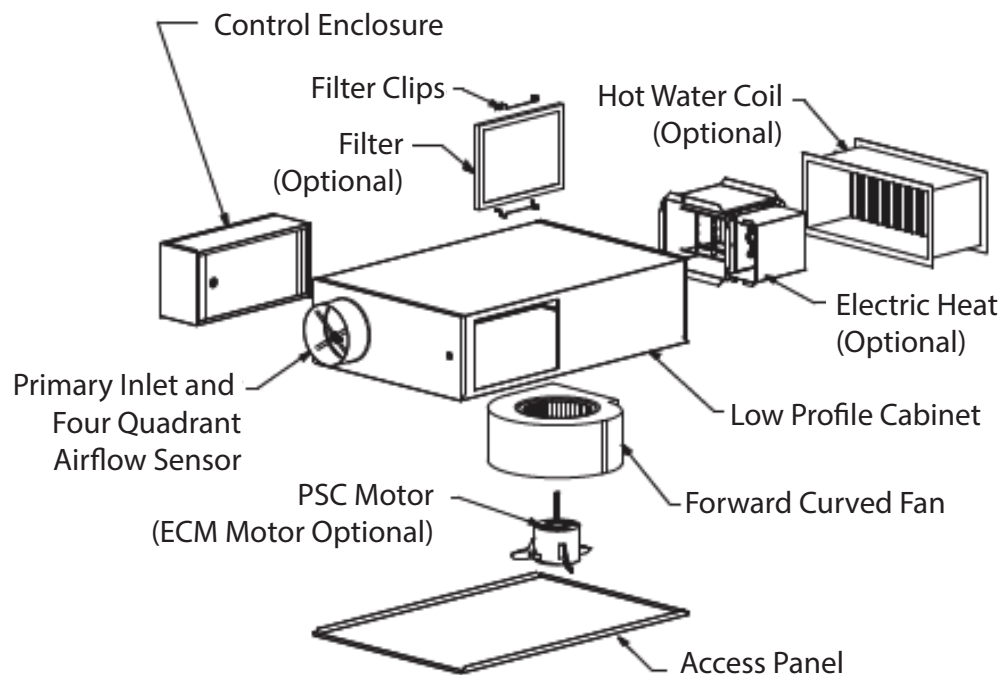
- Unit casing is 22 gage.
- Unit insulation is 1/2 in. thick, 1 1/2 lb Tuf-Skin.
- Units rated with standard linear flow sensor.

45Q, 45R OPTIONAL FILTER SIZES AND PART NUMBERS

UNIT MODEL	UNIT SIZE	FILTER SIZE (in.)	FILTER P/N	FILTER KIT P/N
45Q	3	11X18X1	1026491118	3503341118
	4*	11X15X1	1026491115	3503341115
	5	19X17X1	1026491917	3503341917
45R	2, 4	18X10X1	1026491810	3503341810

*45Q size 4 requires two kits per unit (double filters and clips).

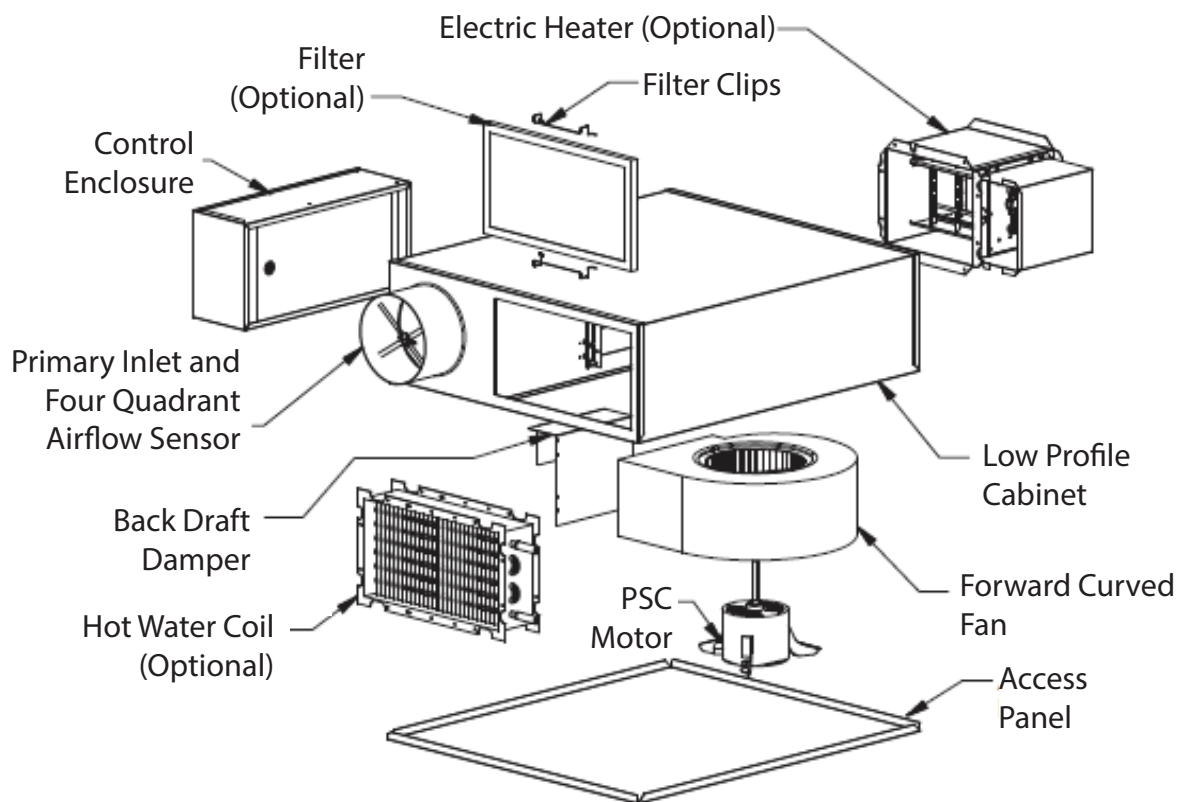
TYPICAL UNIT CONFIGURATION 45Q SERIES FAN POWERED TERMINAL UNIT



LEGEND

ECM — Electronically Commutated Motor
PSC — Permanent Split Capacitor

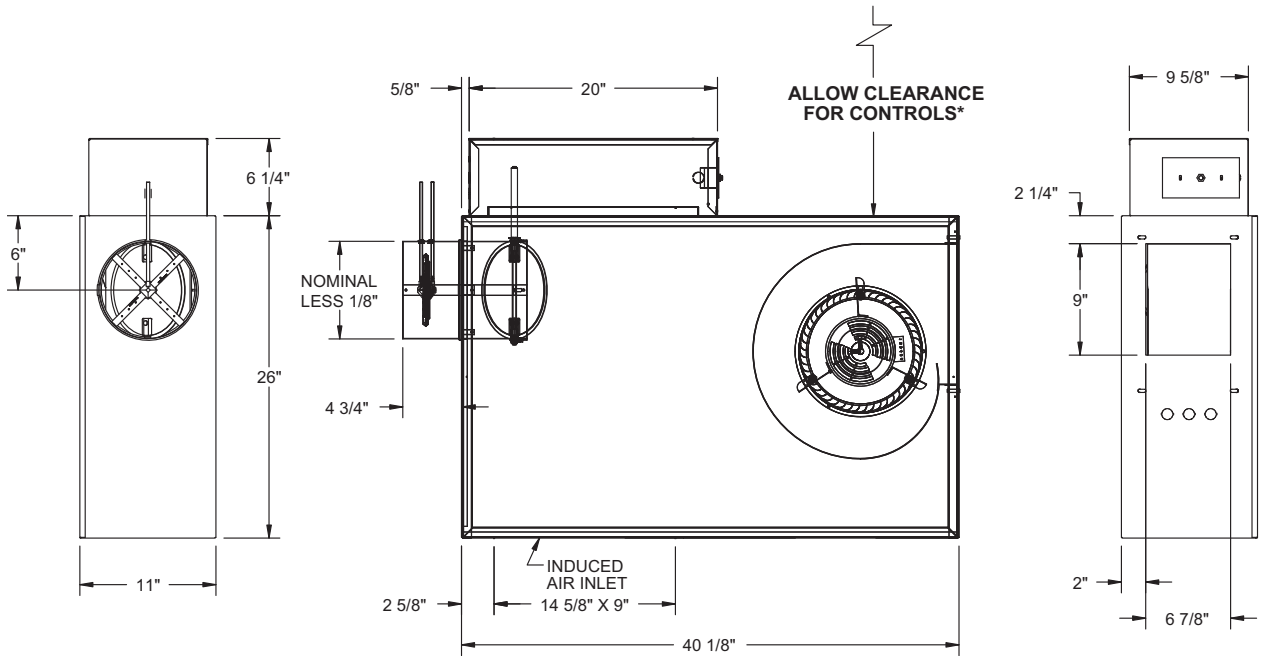
TYPICAL UNIT CONFIGURATION 45R PARALLEL FAN POWERED TERMINAL UNIT



LEGEND

PSC — Permanent Split Capacitor

45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRONIC CONTROLS, SIZE 3



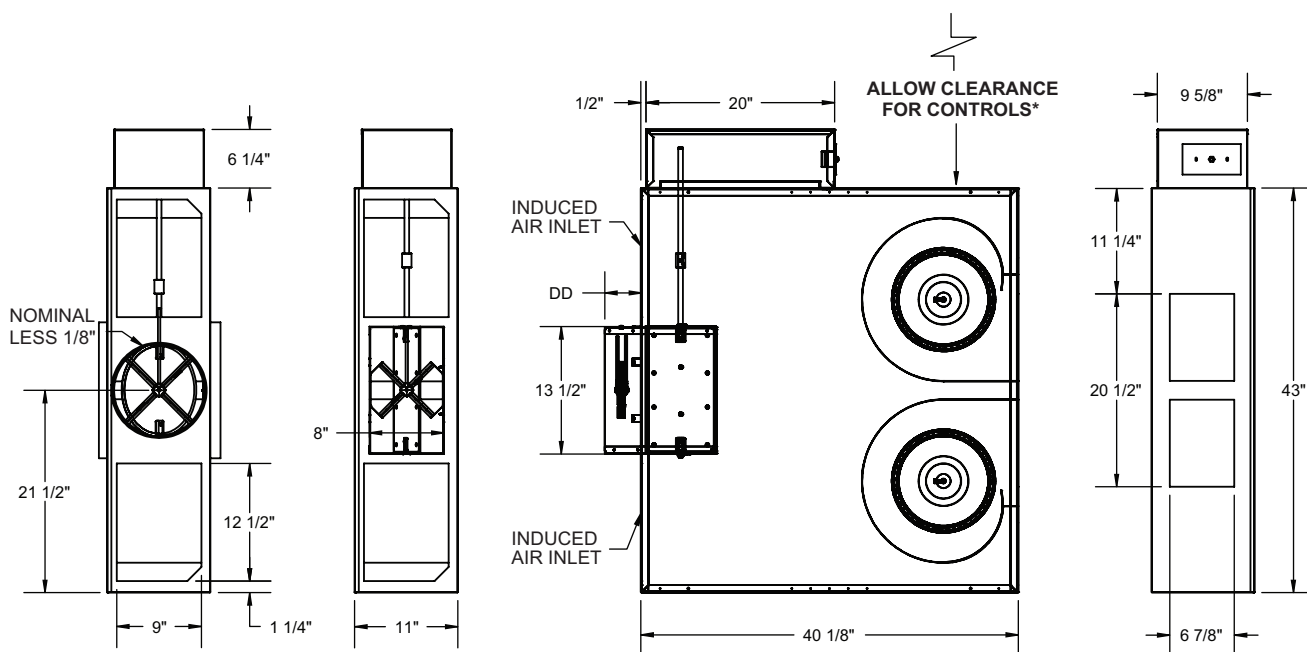
INLET VIEW

PLAN VIEW - LEFT HAND UNIT

DISCHARGE VIEW

*Check NEC for unit clearance requirements.

**45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRONIC CONTROLS, SIZE 4**



Inlet Size	DD
10"	4 7/8"
8"x14"	3 7/8"

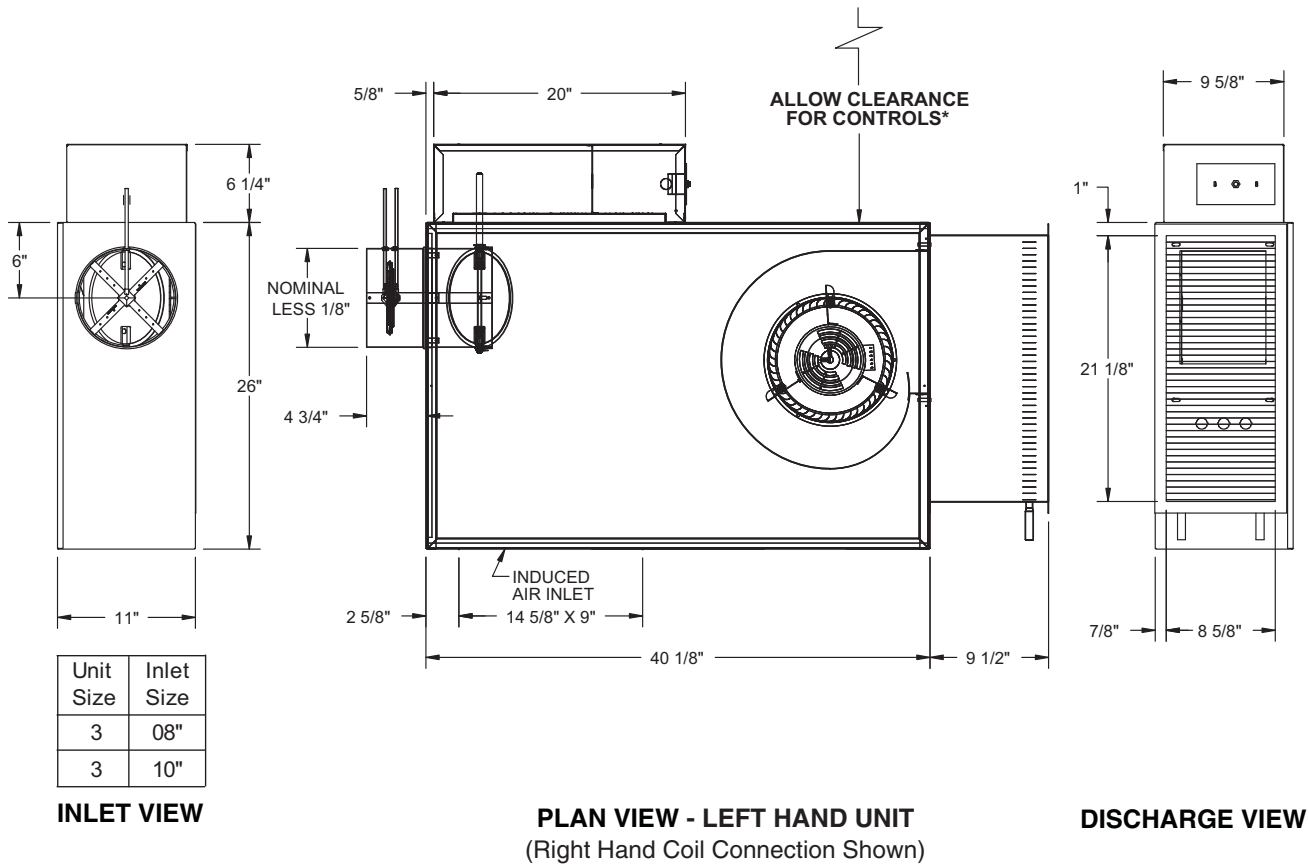
INLET VIEW

PLAN VIEW - LEFT HAND UNIT

DISCHARGE VIEW

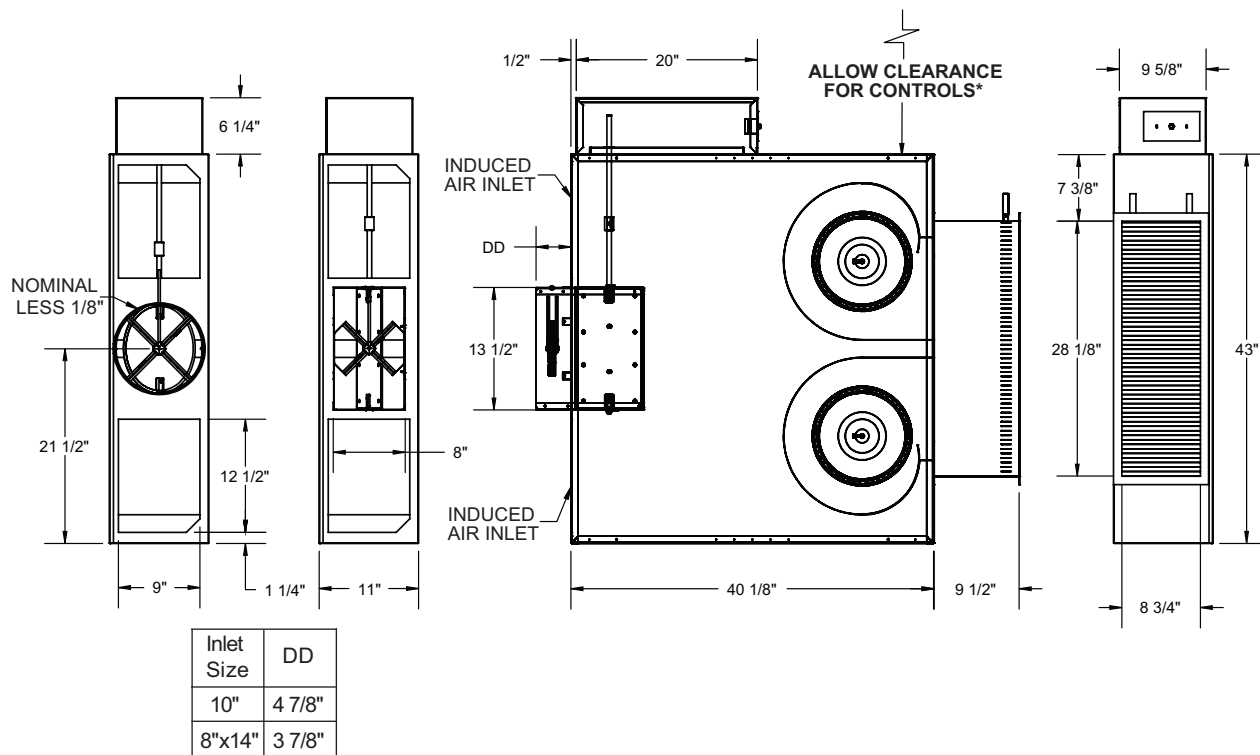
*Check NEC for unit clearance requirements.

45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 3



*Check NEC for unit clearance requirements.

**45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 4**



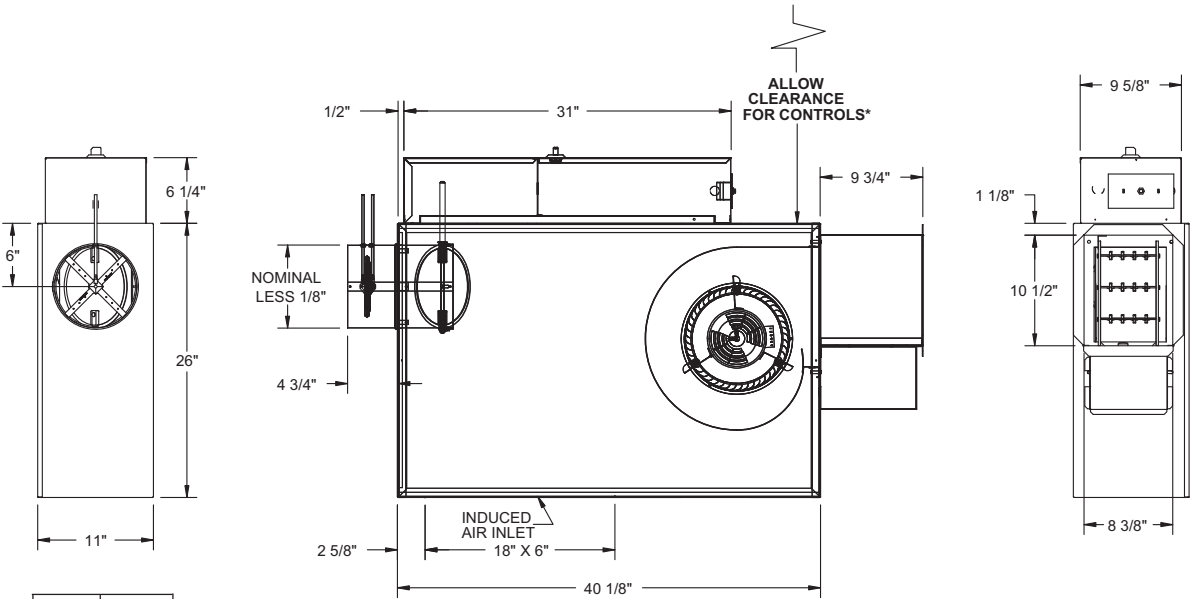
INLET VIEW

PLAN VIEW - LEFT HAND UNIT
(Left Hand Coil Connection Shown)

DISCHARGE VIEW

*Check NEC for unit clearance requirements.

45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 3



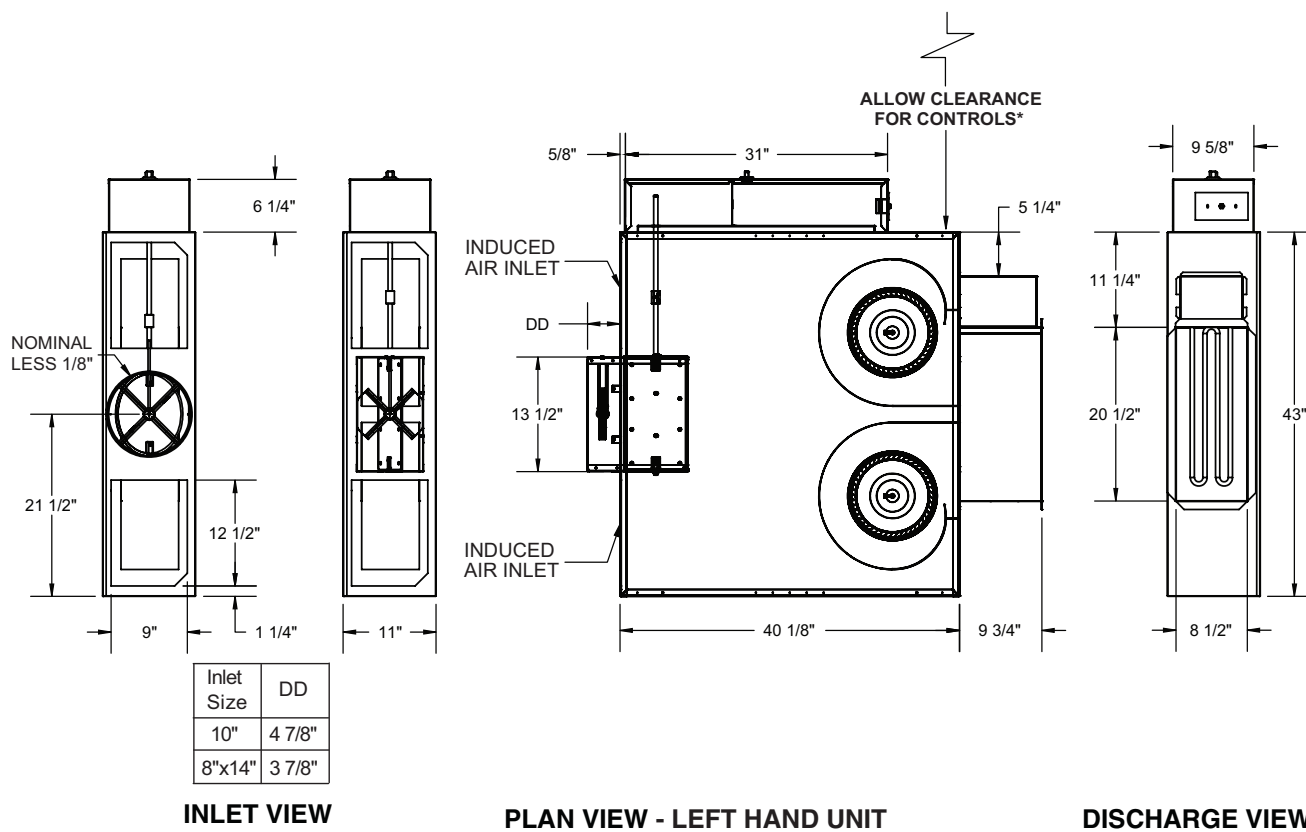
INLET VIEW

PLAN VIEW - LEFT HAND UNIT

DISCHARGE VIEW

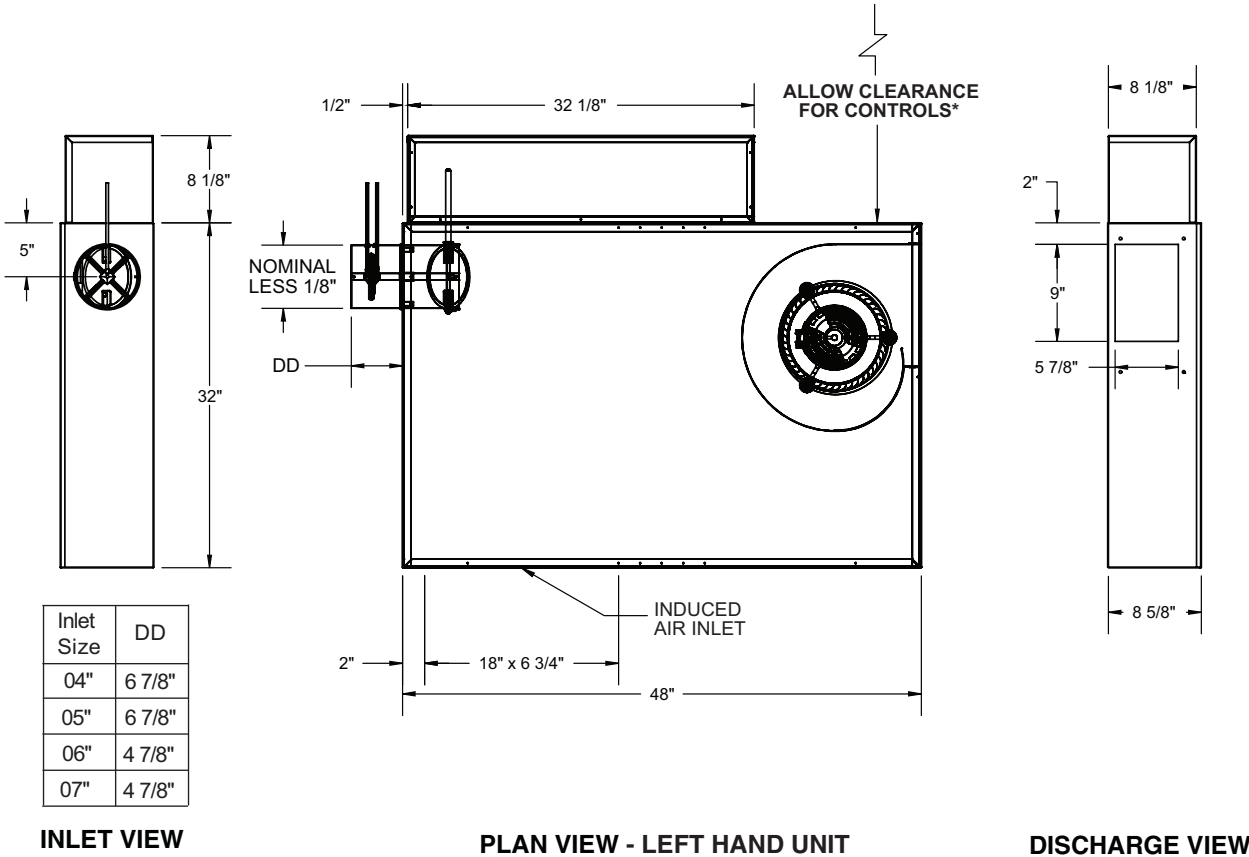
*Check NEC for unit clearance requirements.

**45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 4**



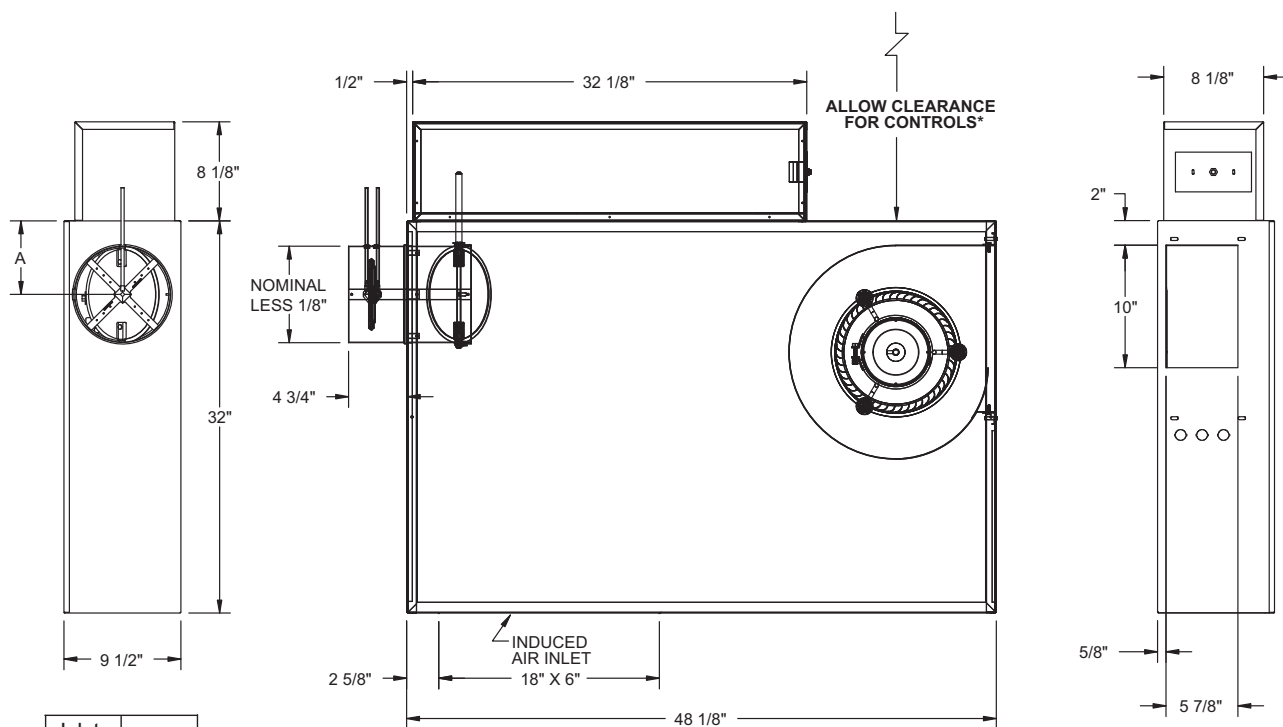
*Check NEC for unit clearance requirements.

45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRONIC CONTROLS, SIZE 1



*Check NEC for unit clearance requirements.

**45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRONIC CONTROLS, SIZE 2**



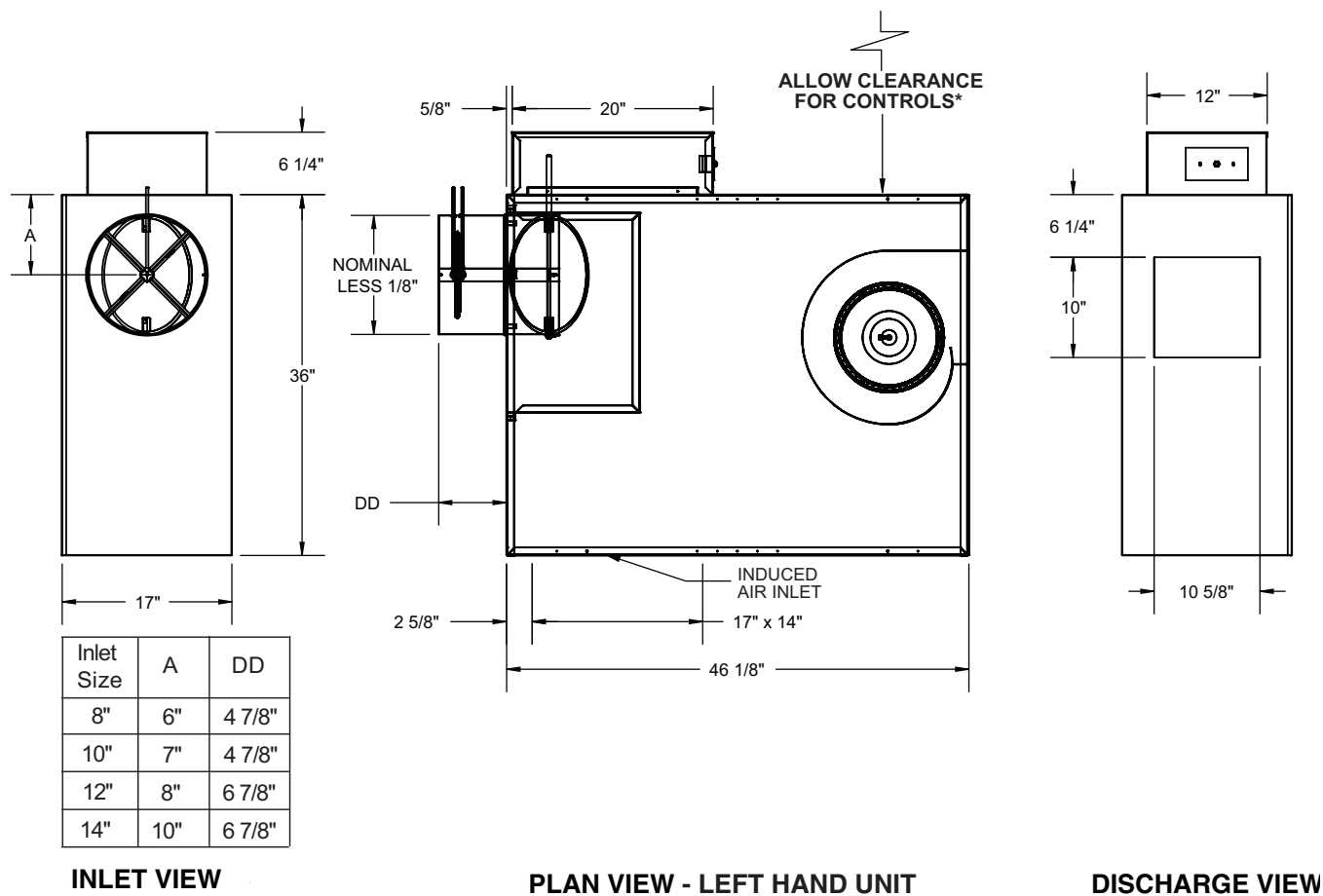
INLET VIEW

PLAN VIEW - LEFT HAND UNIT

DISCHARGE VIEW

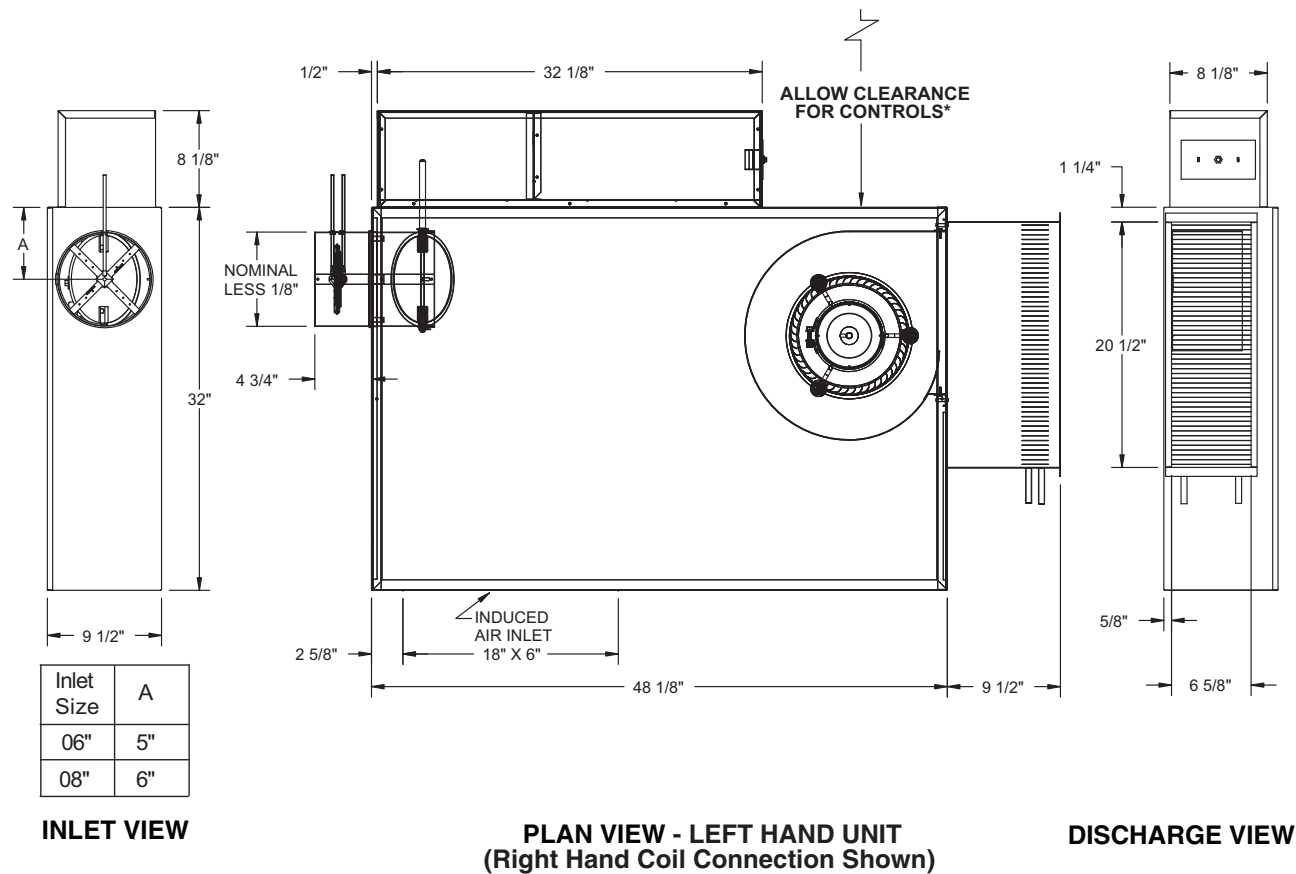
*Check NEC for unit clearance requirements.

45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRONIC CONTROLS, SIZE 5



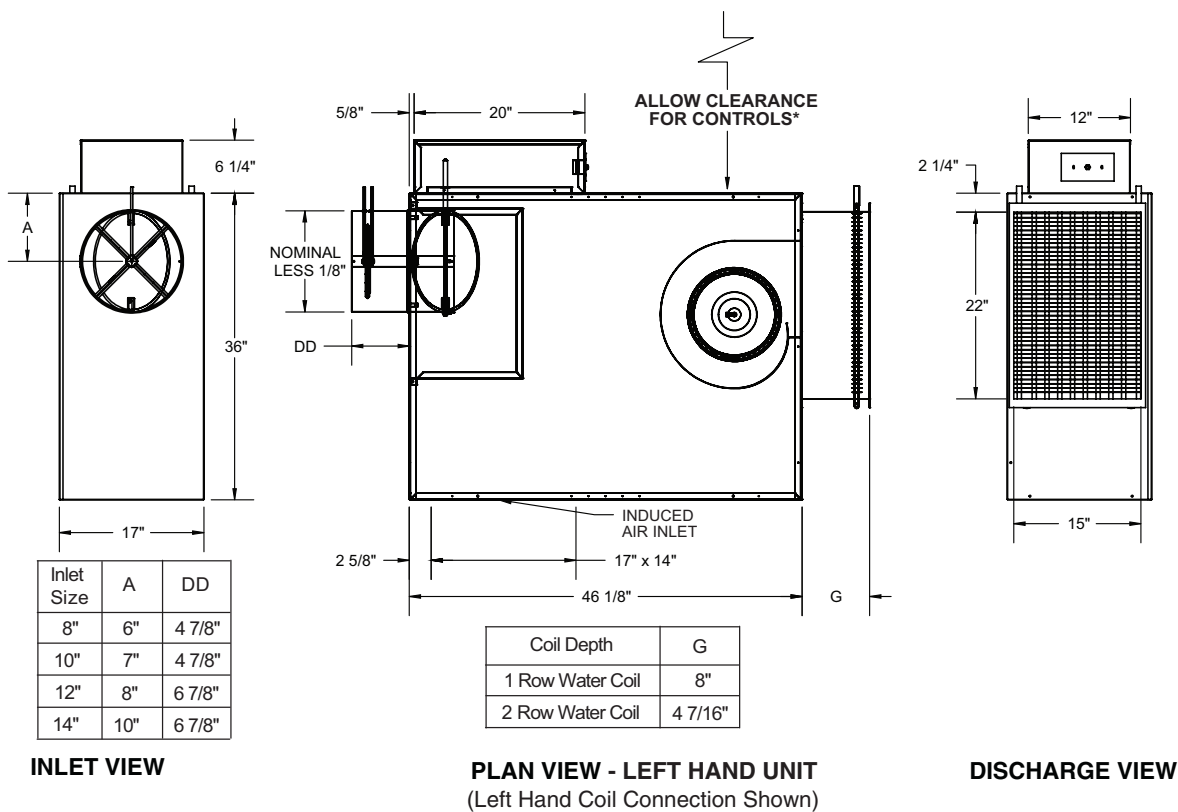
*Check NEC for unit clearance requirements.

45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 2



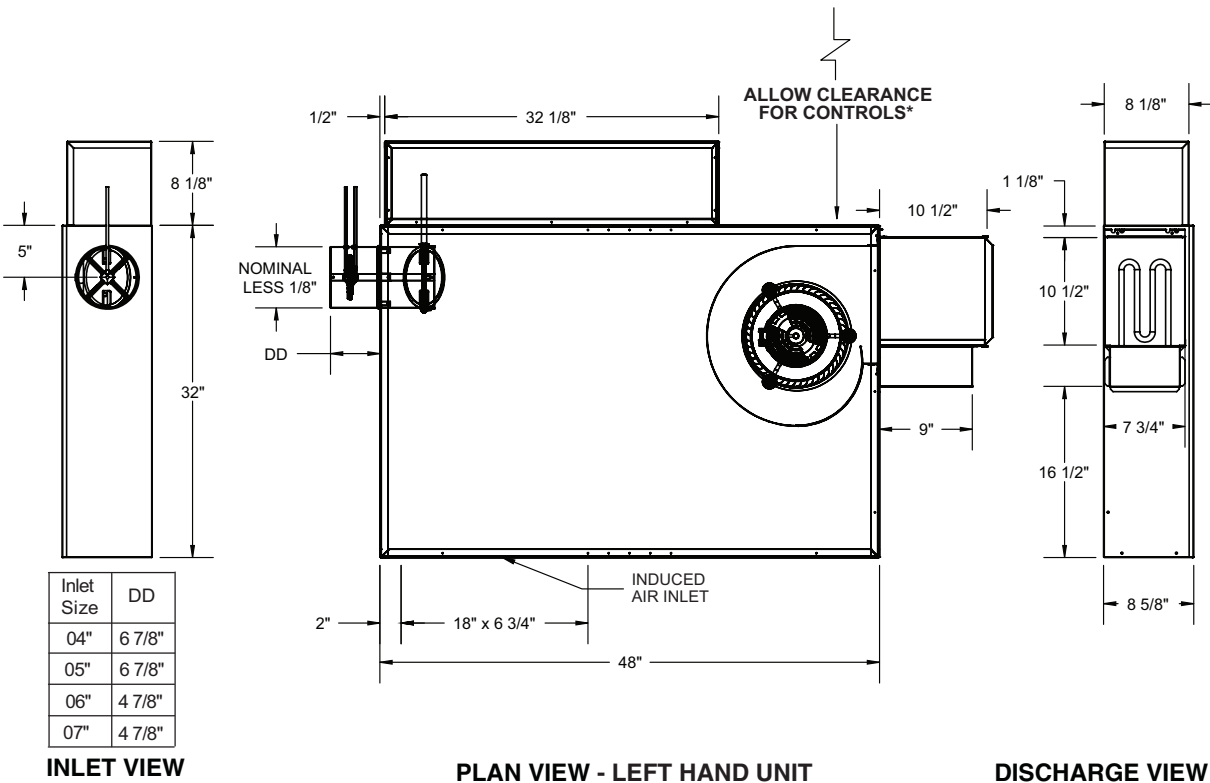
*Check NEC for unit clearance requirements.

**45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 5**



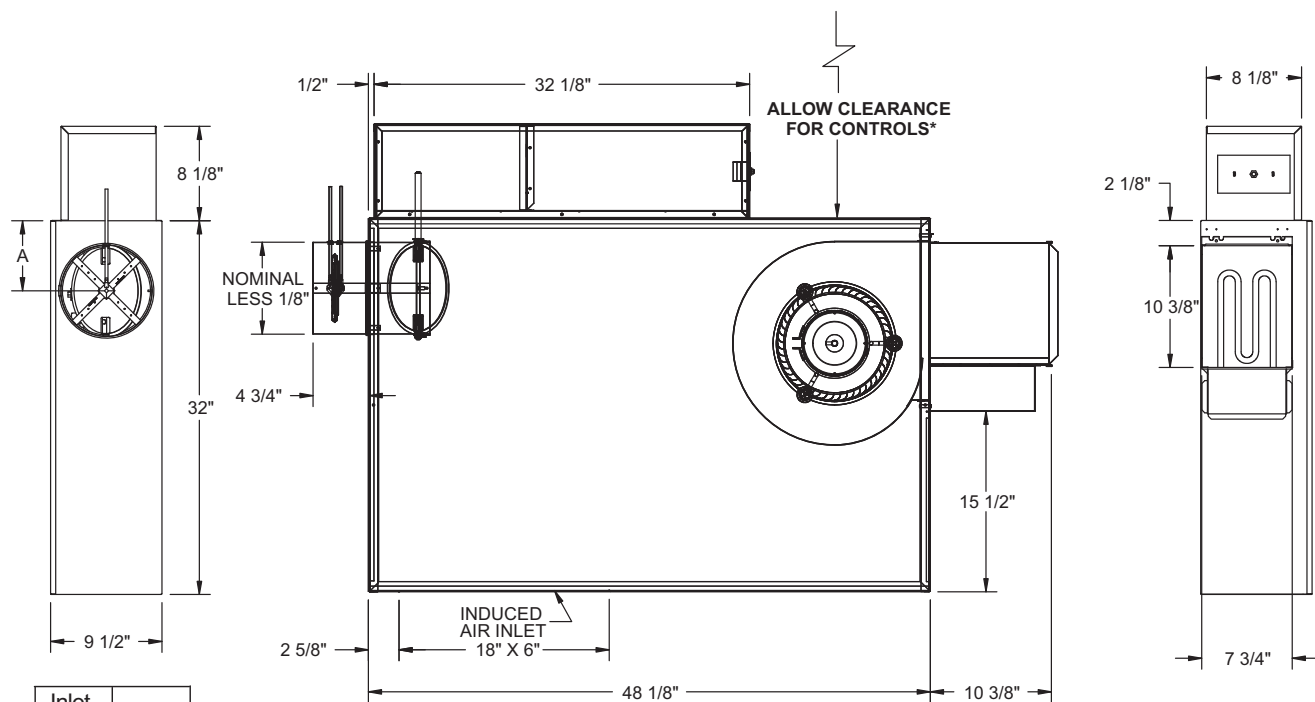
*Check NEC for unit clearance requirements.

45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 1



*Check NEC for unit clearance requirements.

**45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 2**



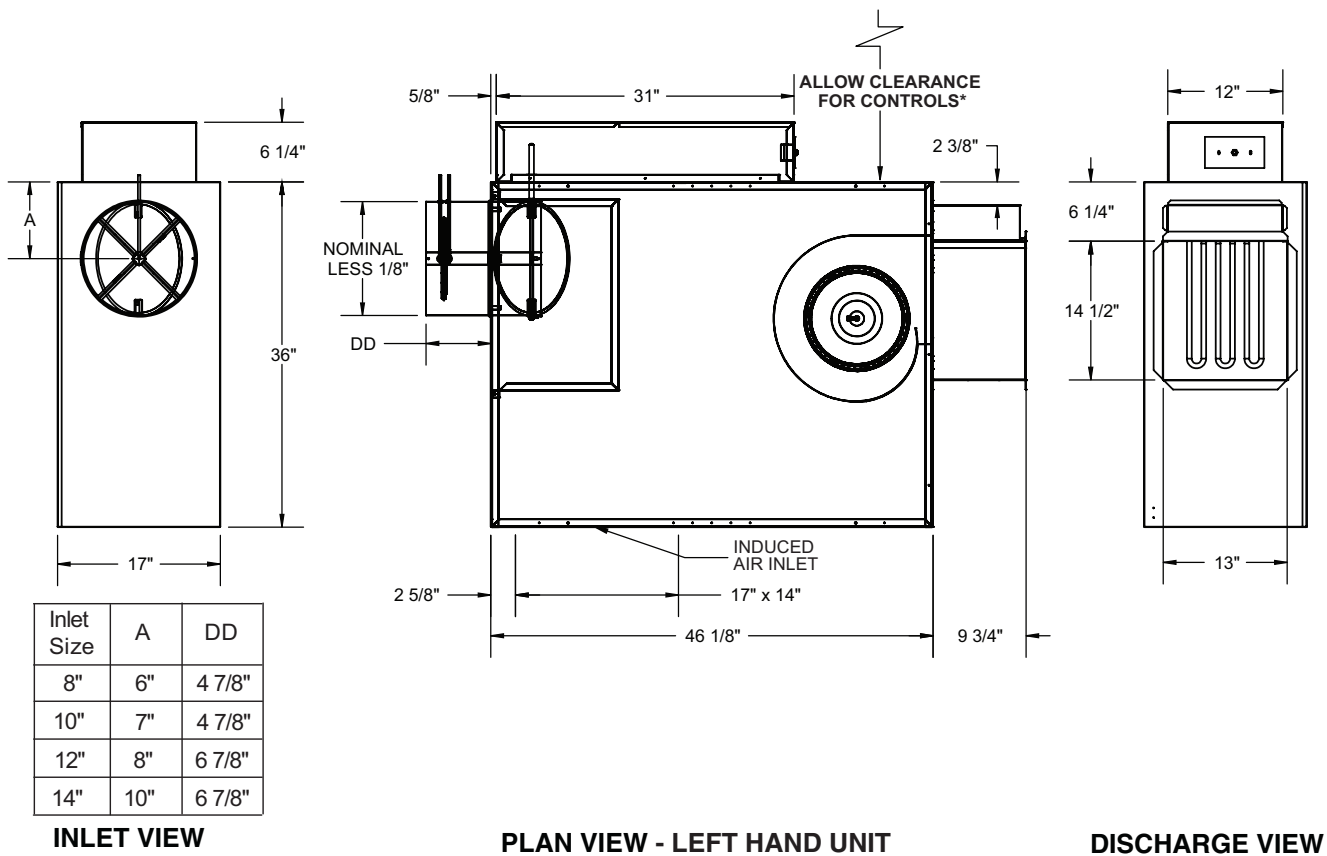
INLET VIEW

PLAN VIEW - LEFT HAND UNIT

DISCHARGE VIEW

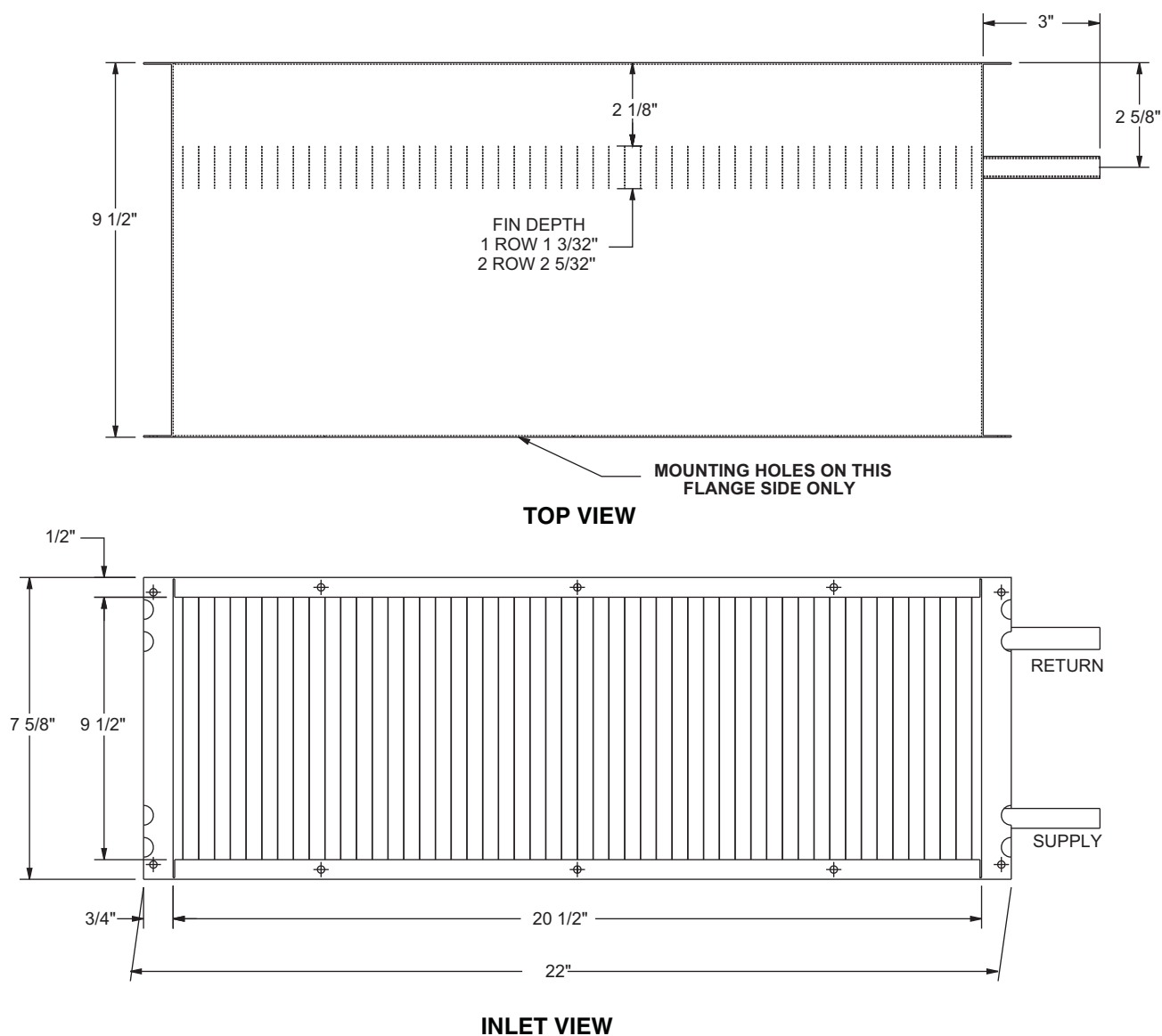
*Check NEC for unit clearance requirements.

45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 5



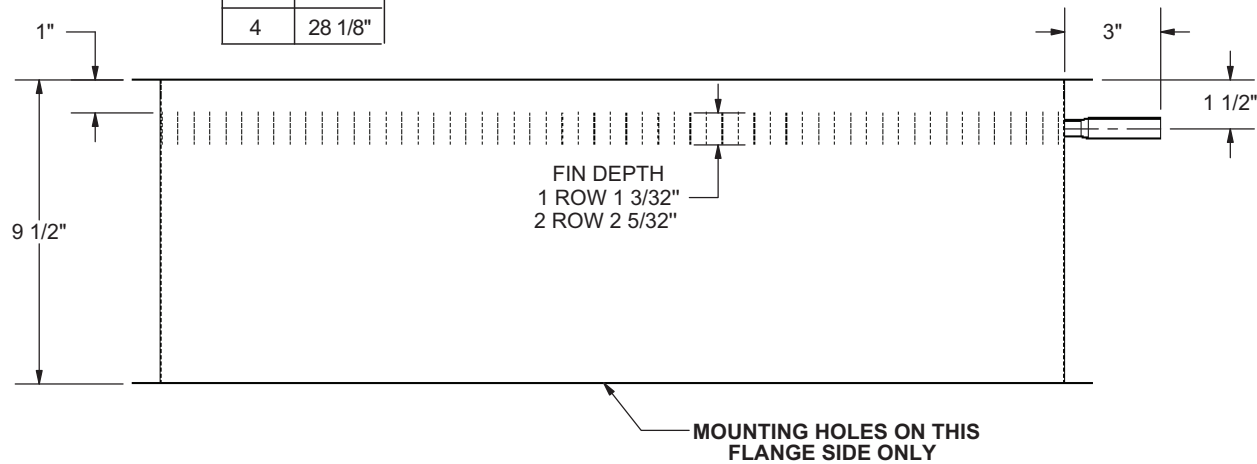
*Check NEC for unit clearance requirements.

**45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT,
HOT WATER COILS 1 AND 2 ROW, SIZES 1 AND 2**

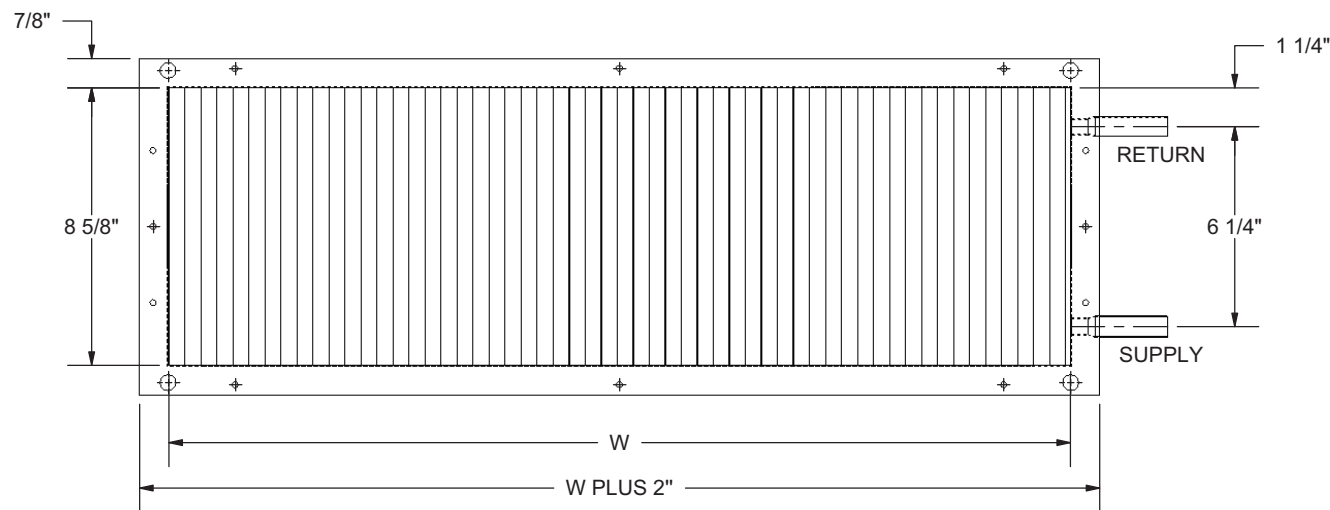


45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT,
HOT WATER COILS 1 AND 2 ROW, SIZES 3 AND 4

Unit Size	W
3	21 1/8"
4	28 1/8"



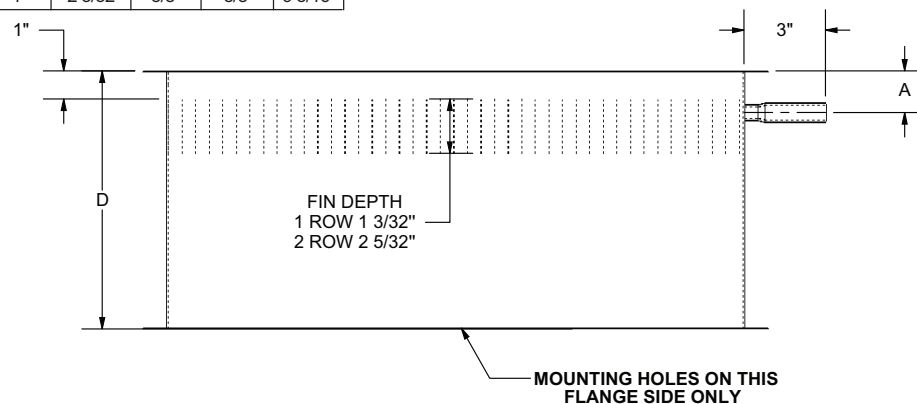
TOP VIEW



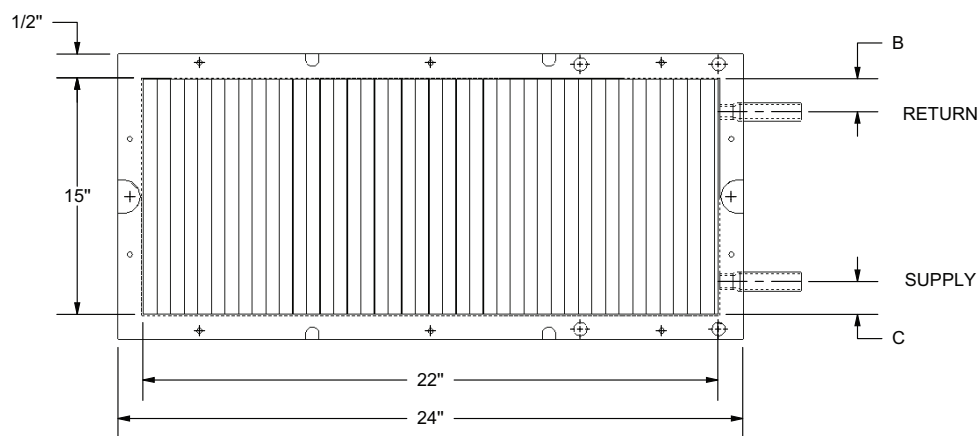
INLET VIEW

**45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT,
HOT WATER COILS 1 AND 2 ROW, SIZE 5**

Model	Unit Size	Number of Rows	A	B	C	D
45Q	5	2	1 17/32"	5/16"	11/16"	8"
		4	2 3/32"	5/8"	5/8"	9 3/16"

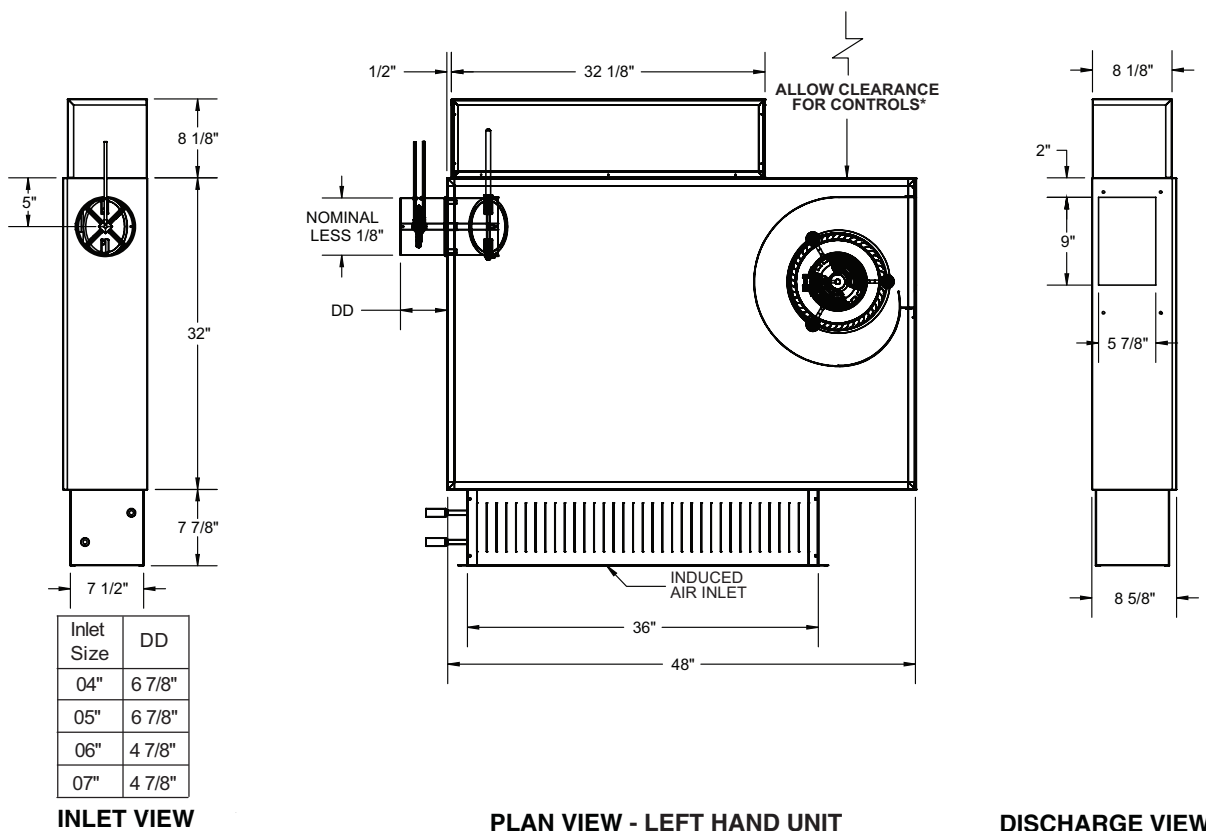


TOP VIEW



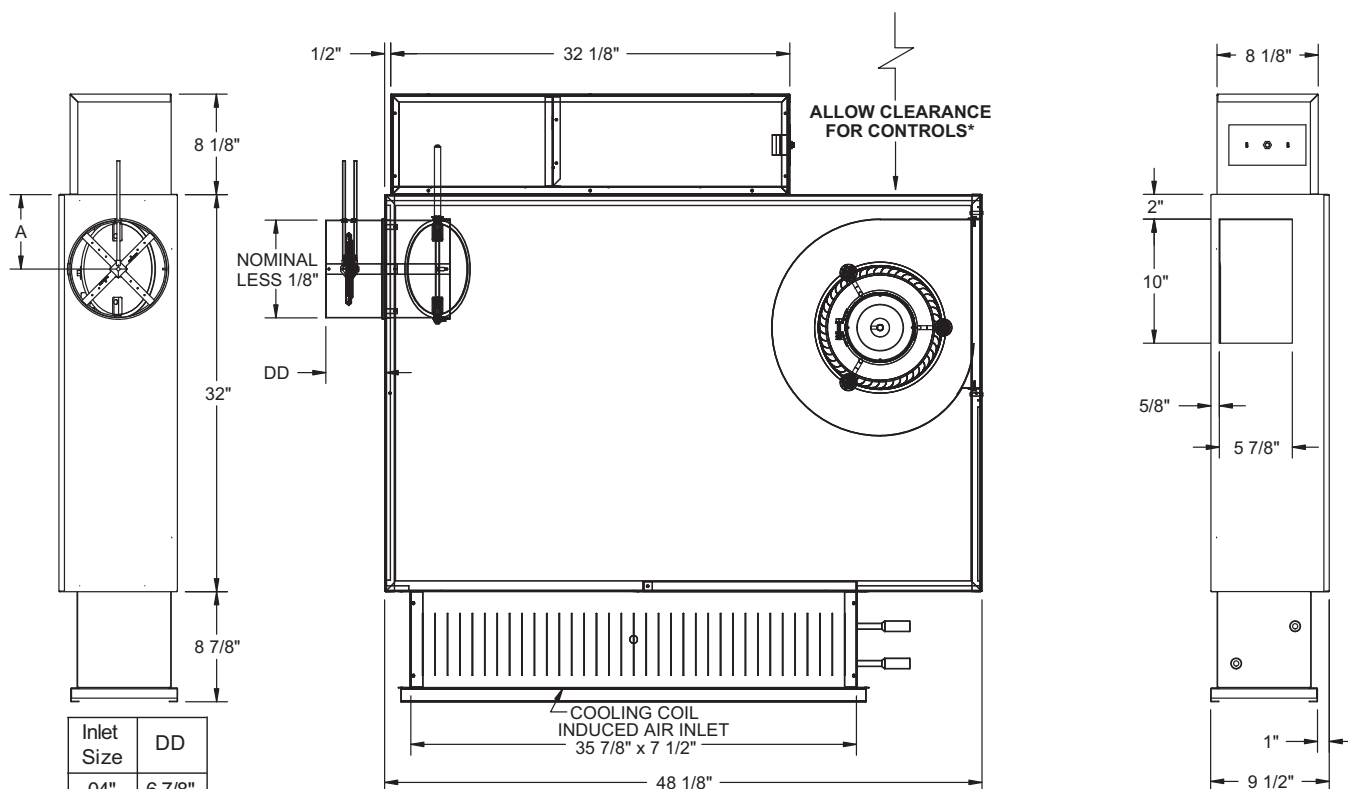
INLET VIEW

45Q DOAS LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY WITH ELECTRONIC CONTROLS, SIZE 1



*Check NEC for unit clearance requirements.

**45Q DOAS LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRONIC CONTROLS, SIZE 2**



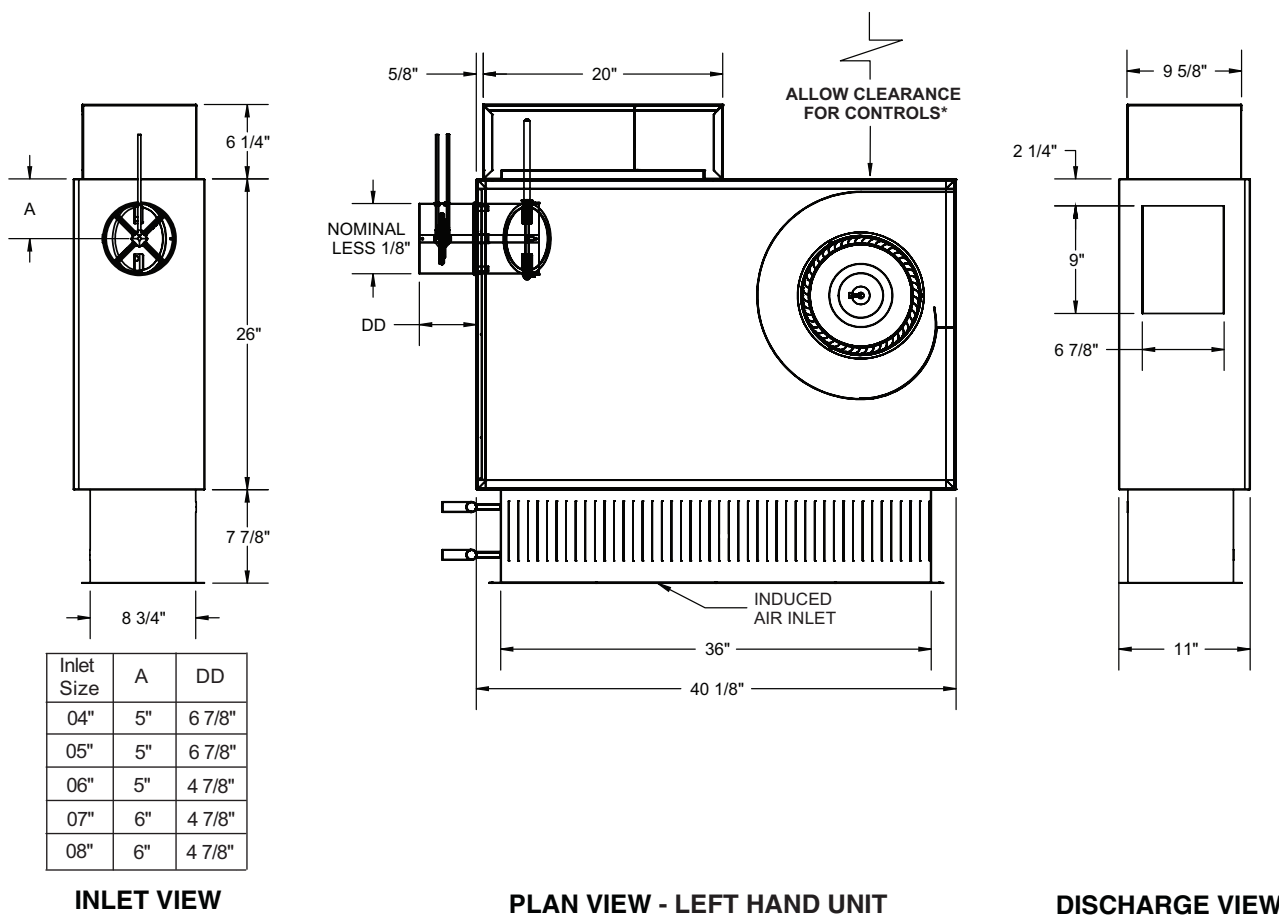
INLET VIEW

PLAN VIEW - LEFT HAND UNIT

DISCHARGE VIEW

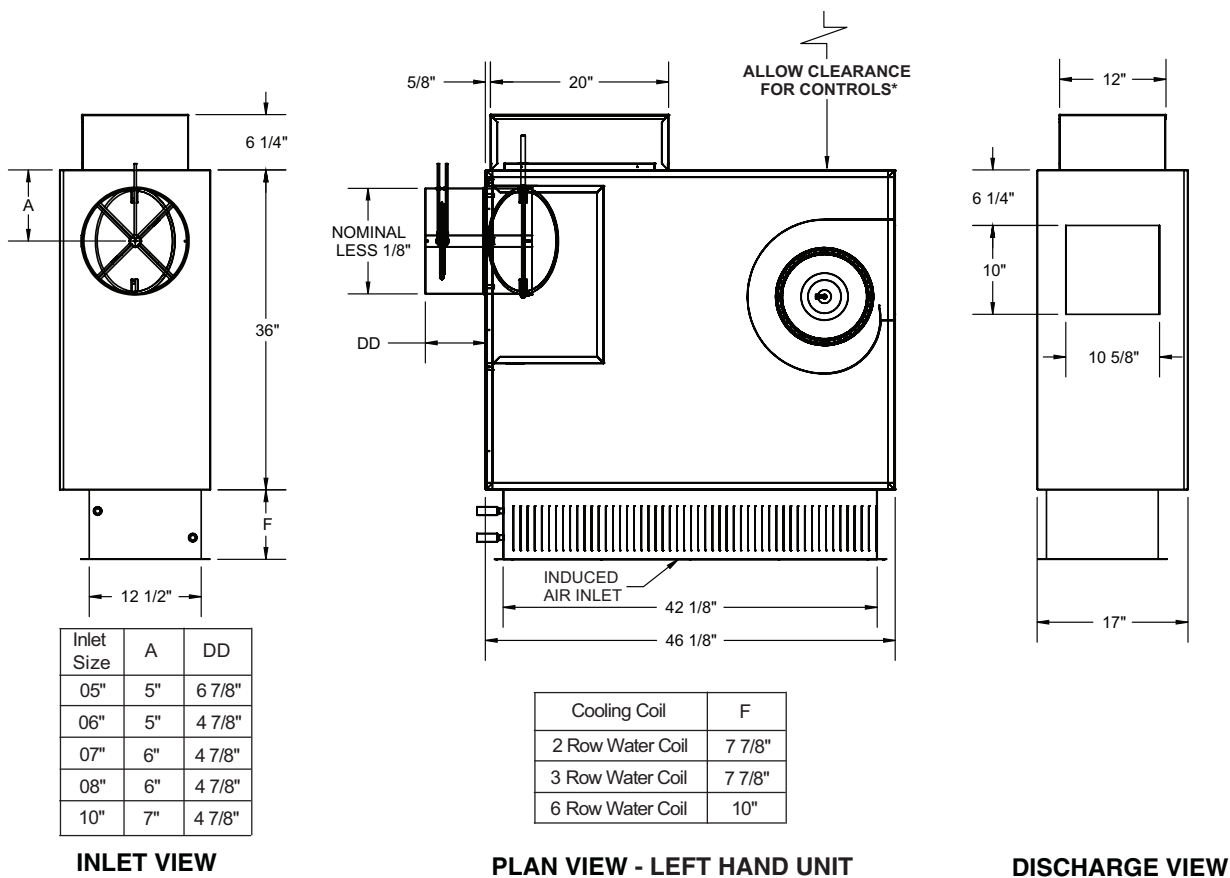
*Check NEC for unit clearance requirements.

45Q DOAS LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY WITH ELECTRONIC CONTROLS, SIZE 3



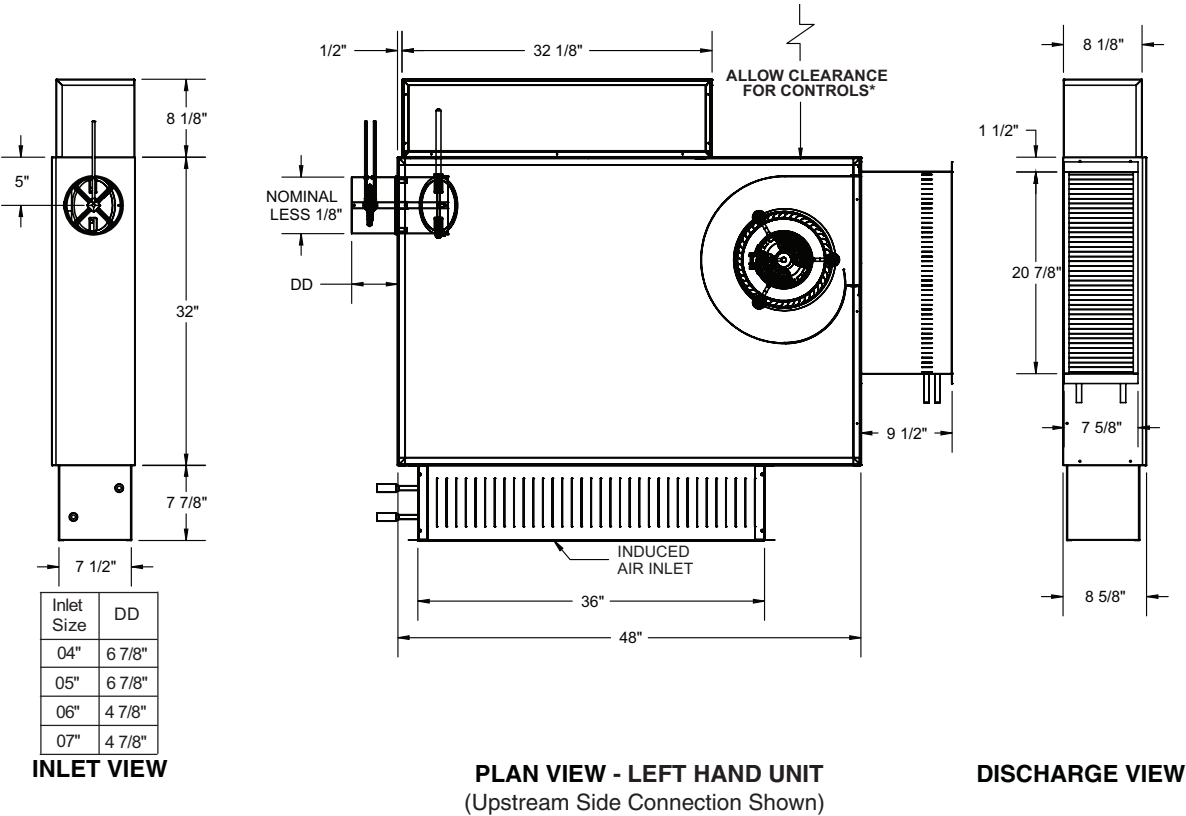
*Check NEC for unit clearance requirements.

**45Q DOAS LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRONIC CONTROLS, SIZE 5**



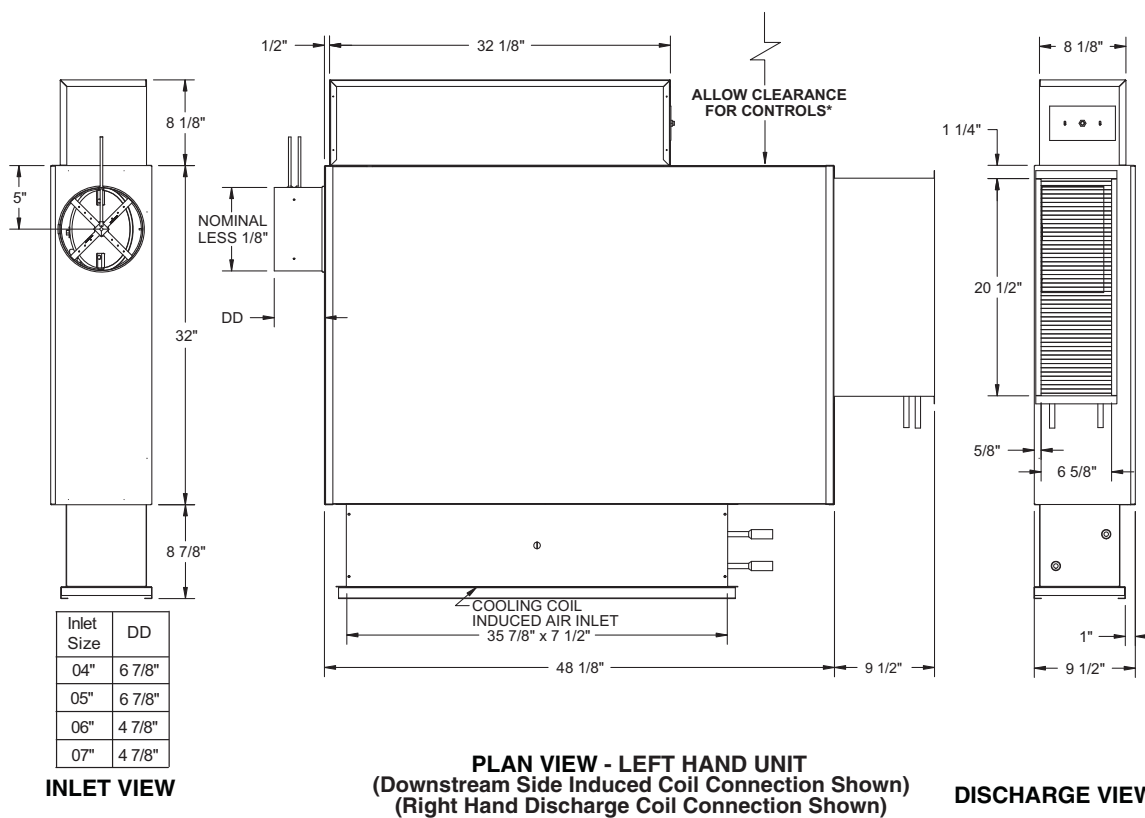
*Check NEC for unit clearance requirements.

45Q DOAS LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 1



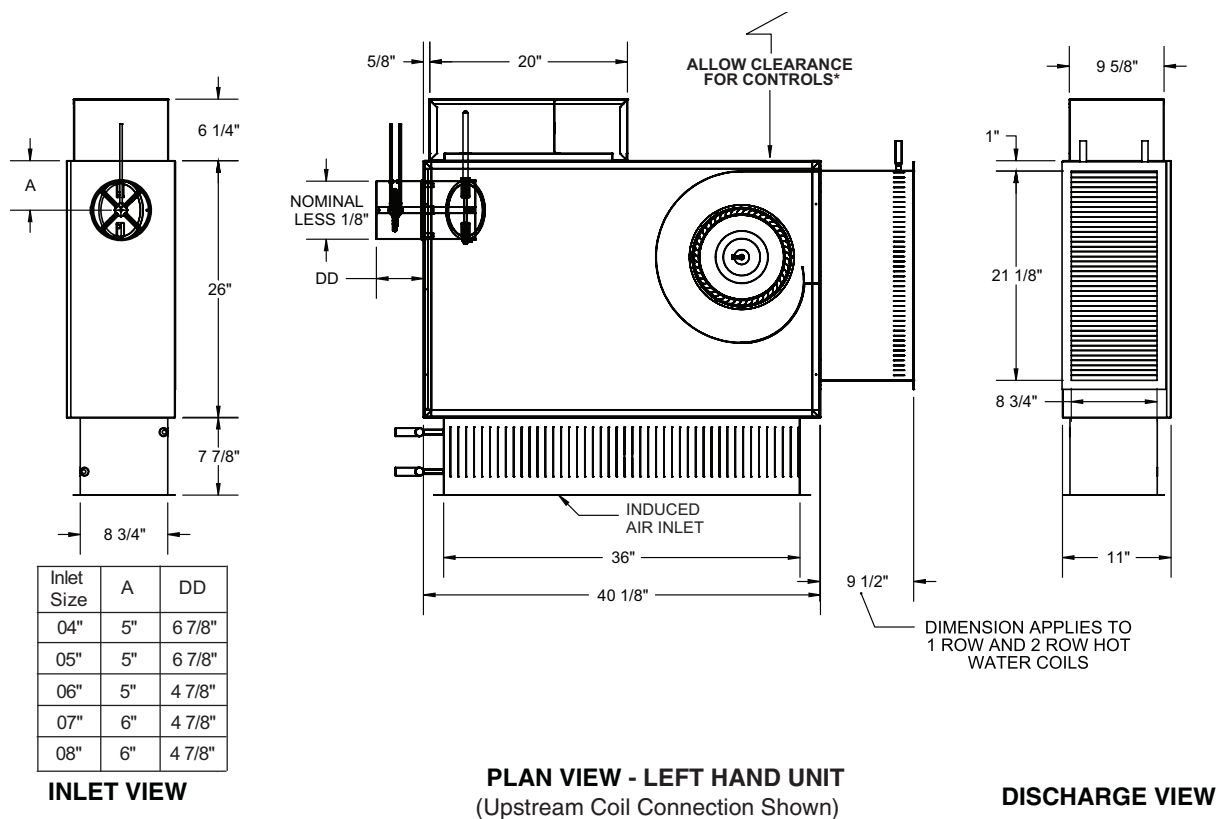
*Check NEC for unit clearance requirements.

**45Q DOAS LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 2**



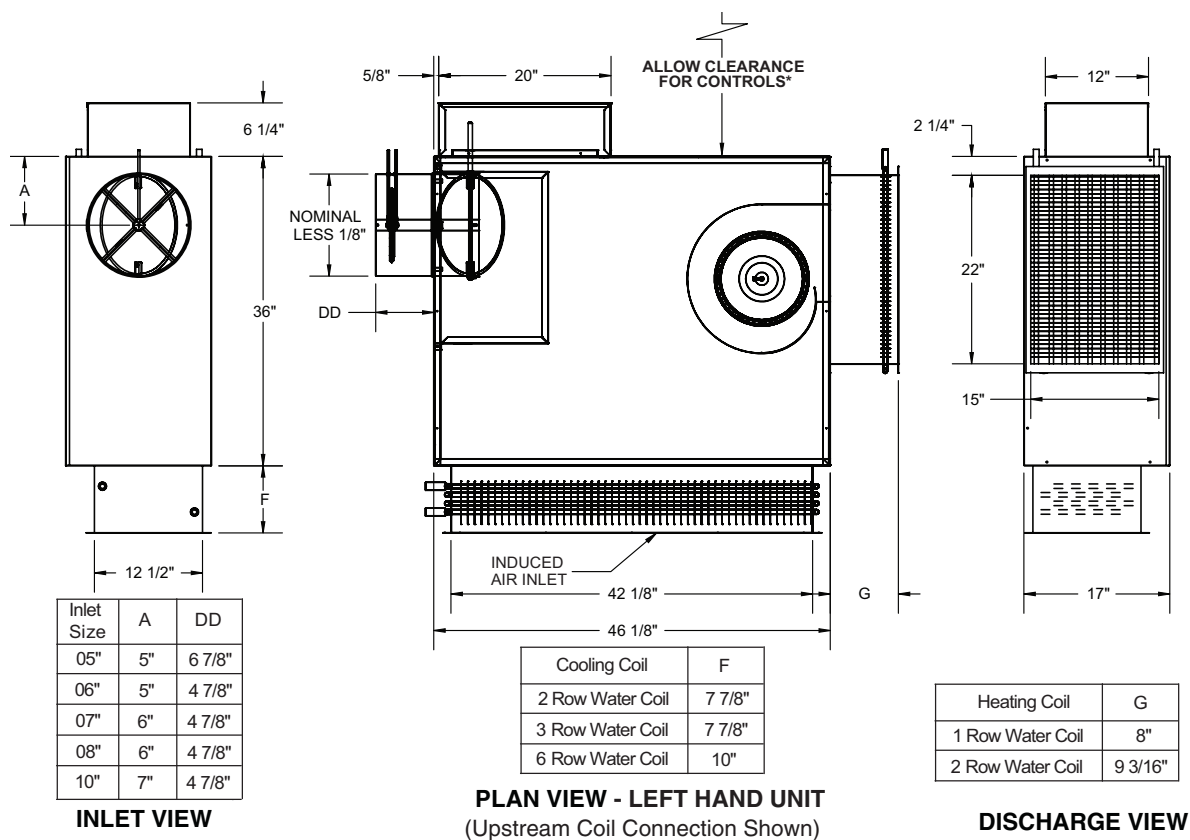
*Check NEC for unit clearance requirements.

**45Q DOAS LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 3**



*Check NEC for unit clearance requirements.

**45Q DOAS LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 5**



*Check NEC for unit clearance requirements.

Technical drawing of the 1000 Series Electric Baseboard Heater, showing front, side, and detail views with dimensions.

Front View Dimensions:

- Overall Width: 48"
- Overall Height: 32"
- Top Panel Width: 32 1/8"
- Top Panel Height: 8 1/8"
- Base Panel Width: 36"
- Base Panel Height: 7 7/8"
- Base Panel Depth: 7 1/2"
- Control Knob Diameter: 5"
- Control Knob Mounting: NOMINAL LESS 1/8"
- Control Knob Mounting Depth: DD

Side View Dimensions:

- Overall Depth: 8 5/8"
- Top Panel Depth: 8 1/8"
- Top Panel Height: 1 1/8"
- Top Panel Width: 10 1/2"
- Top Panel Mounting: 9"
- Top Panel Mounting Depth: 16 1/2"
- Top Panel Mounting Width: 7 3/4"
- Top Panel Mounting Height: 10 1/2"

Detail View Dimensions:

- Induced Air Inlet: 36"
- Induced Air Inlet Height: 7 3/4"
- Induced Air Inlet Mounting: 10 1/2"
- Induced Air Inlet Mounting Depth: 16 1/2"
- Induced Air Inlet Mounting Width: 7 3/4"
- Induced Air Inlet Mounting Height: 10 1/2"

Labels:

- ALLOW CLEARANCE FOR CONTROLS*
- INDUCED AIR INLET

Table:

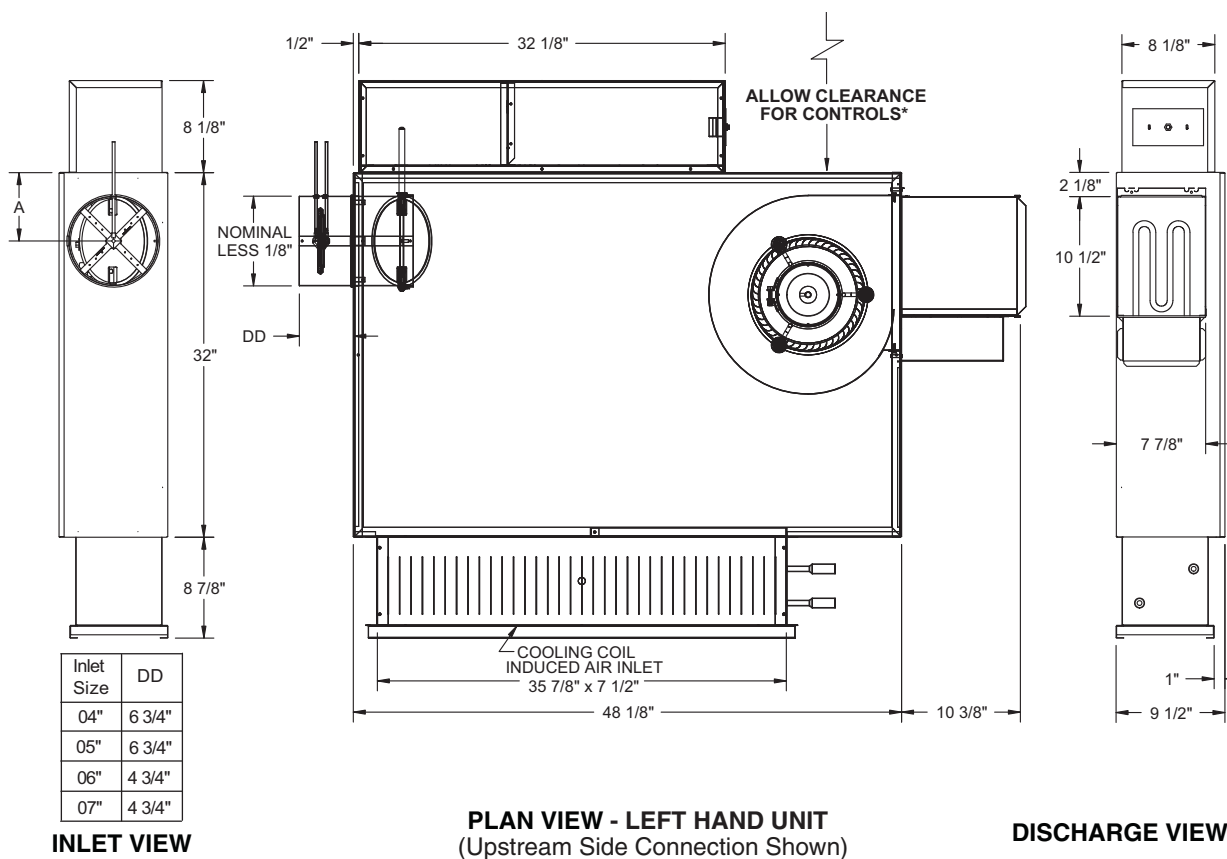
Inlet Size	DD

PLAN VIEW - LEFT HAND UNIT
(Upstream Side Connection Shown)

DISCHARGE VIEW

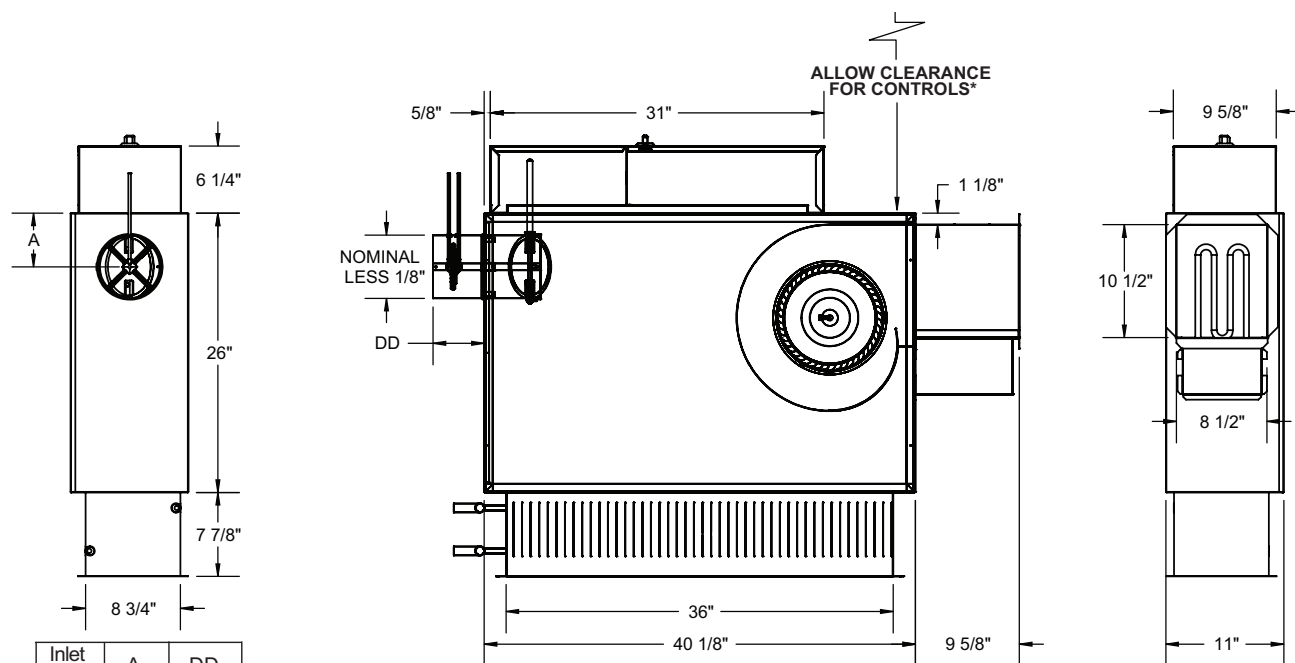
*Check NEC for unit clearance requirements.

**45Q DOAS LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 2**



*Check NEC for unit clearance requirements.

45Q DOAS LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 3



Inlet Size	A	DD
04"	5"	6 7/8"
05"	5"	6 7/8"
06"	5"	4 7/8"
07"	6"	4 7/8"
08"	6"	4 7/8"

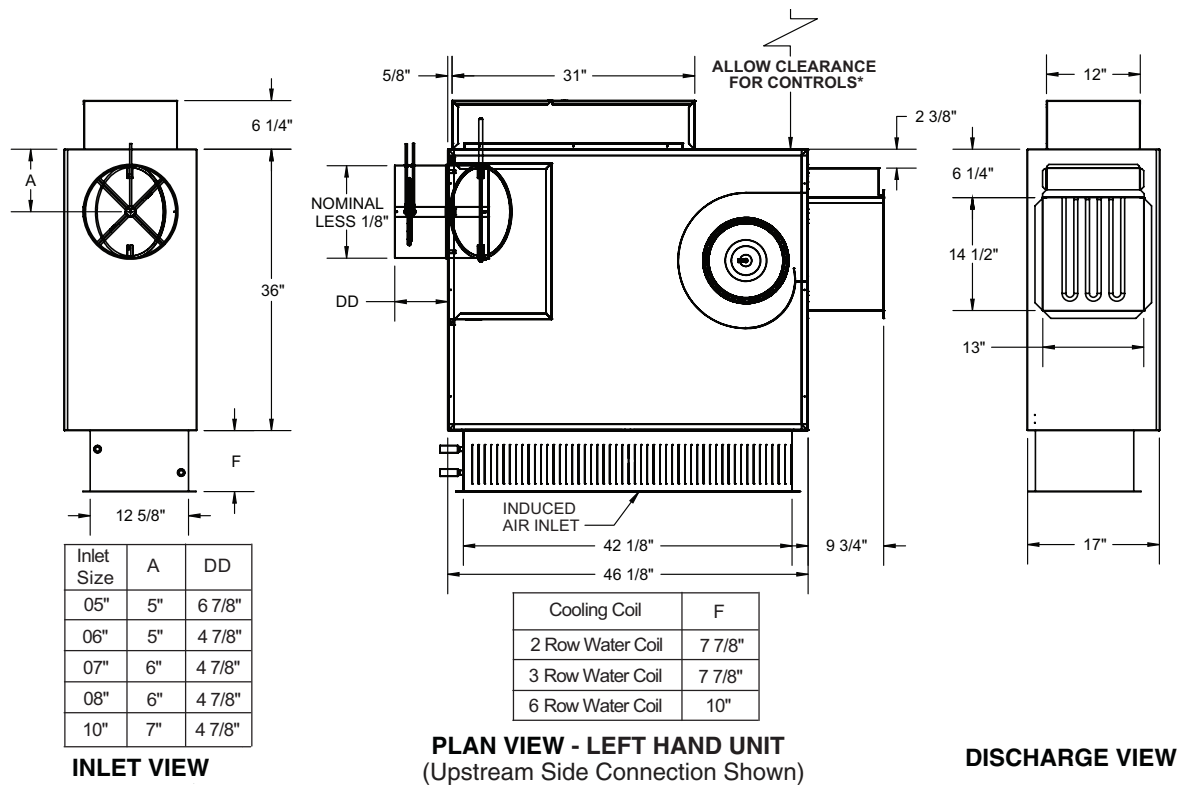
INLET VIEW

PLAN VIEW - LEFT HAND UNIT
(Upstream Side Connection Shown)

DISCHARGE VIEW

*Check NEC for unit clearance requirements.

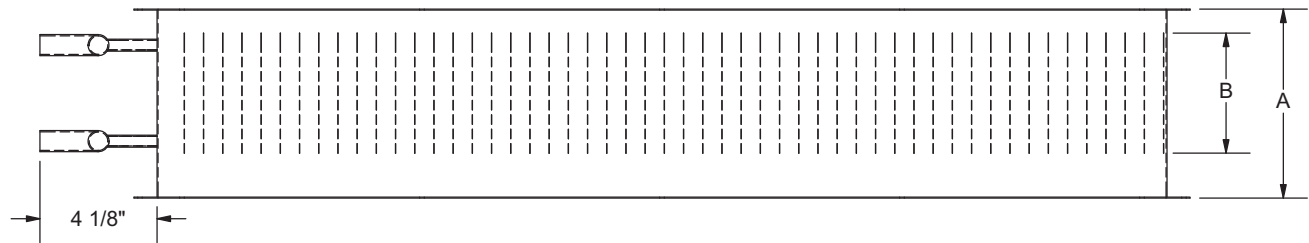
**45Q DOAS LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 5**



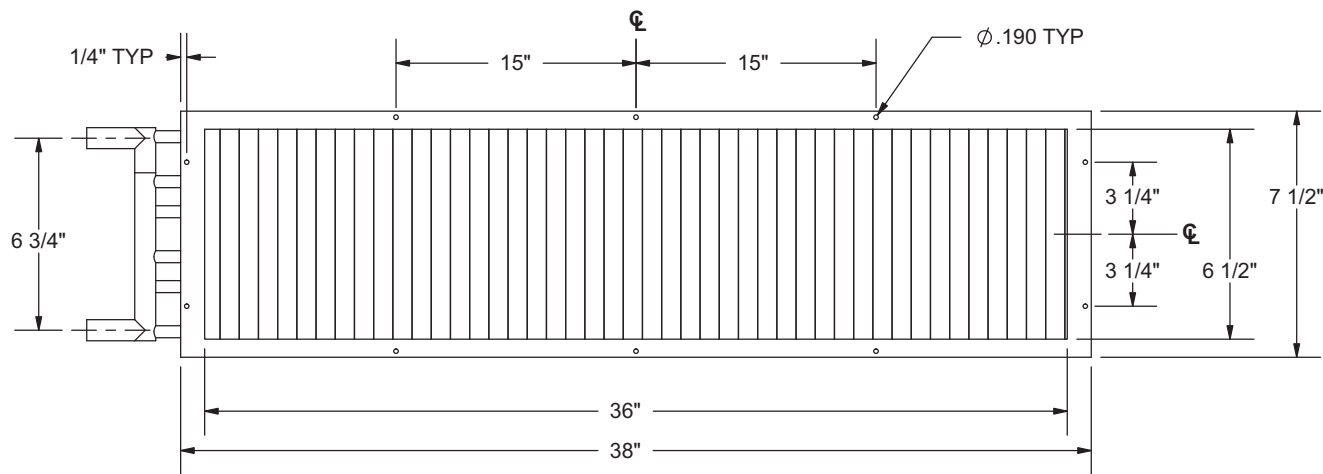
*Check NEC for unit clearance requirements.

45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT
DOAS SENSIBLE COOLING COIL: 2 ROW, 4 ROW, AND 6 ROW, UNIT SIZES 1 AND 2

Model	Number of Rows	A	B
45Q	2	7 7/8"	2 1/8"
	4	7 7/8"	4 3/8"
	6	10"	6 1/2"



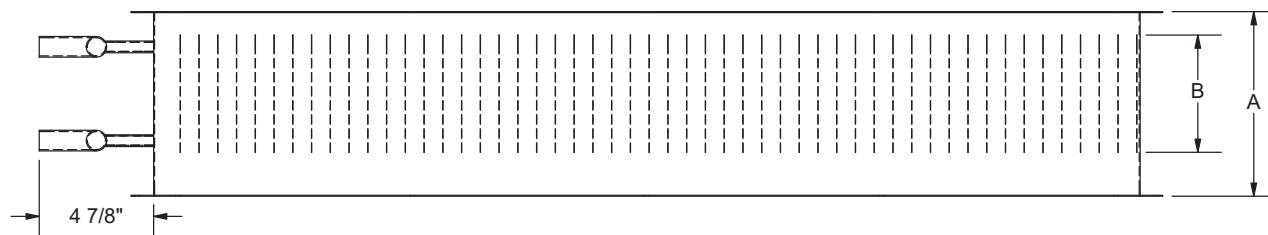
TOP VIEW



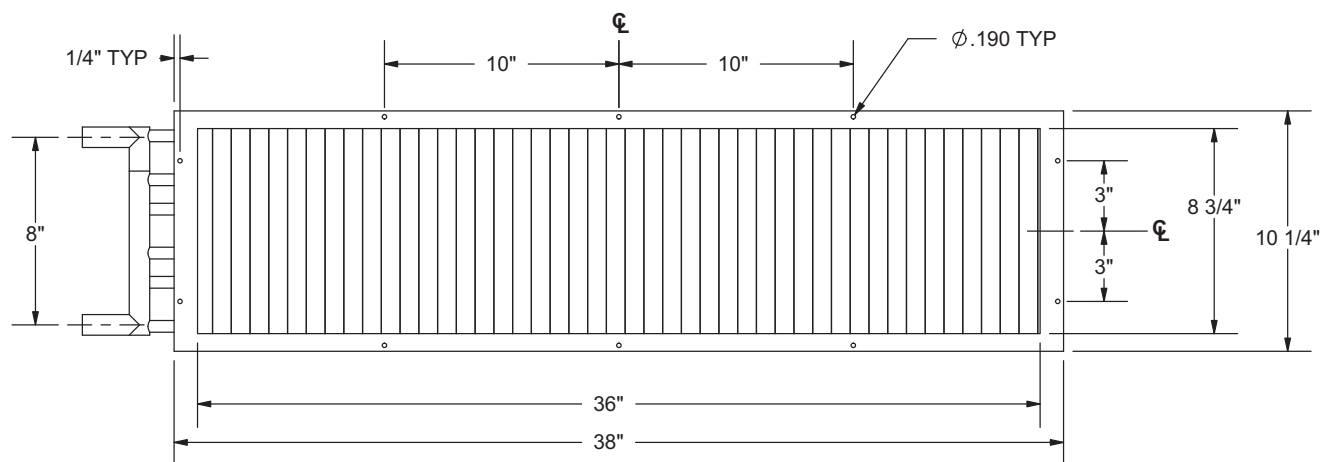
INLET VIEW

**45Q LOW PROFILE CONSTANT VOLUME FAN TERMINAL UNIT,
DOAS SENSIBLE COOLING COIL: 2 ROW, 4 ROW, AND 6 ROW, UNIT SIZE 3**

Model	Number of Rows	A	B
45Q	2	7 7/8"	2 1/8"
	4	7 7/8"	4 3/8"
	6	10"	6 1/2"



TOP VIEW

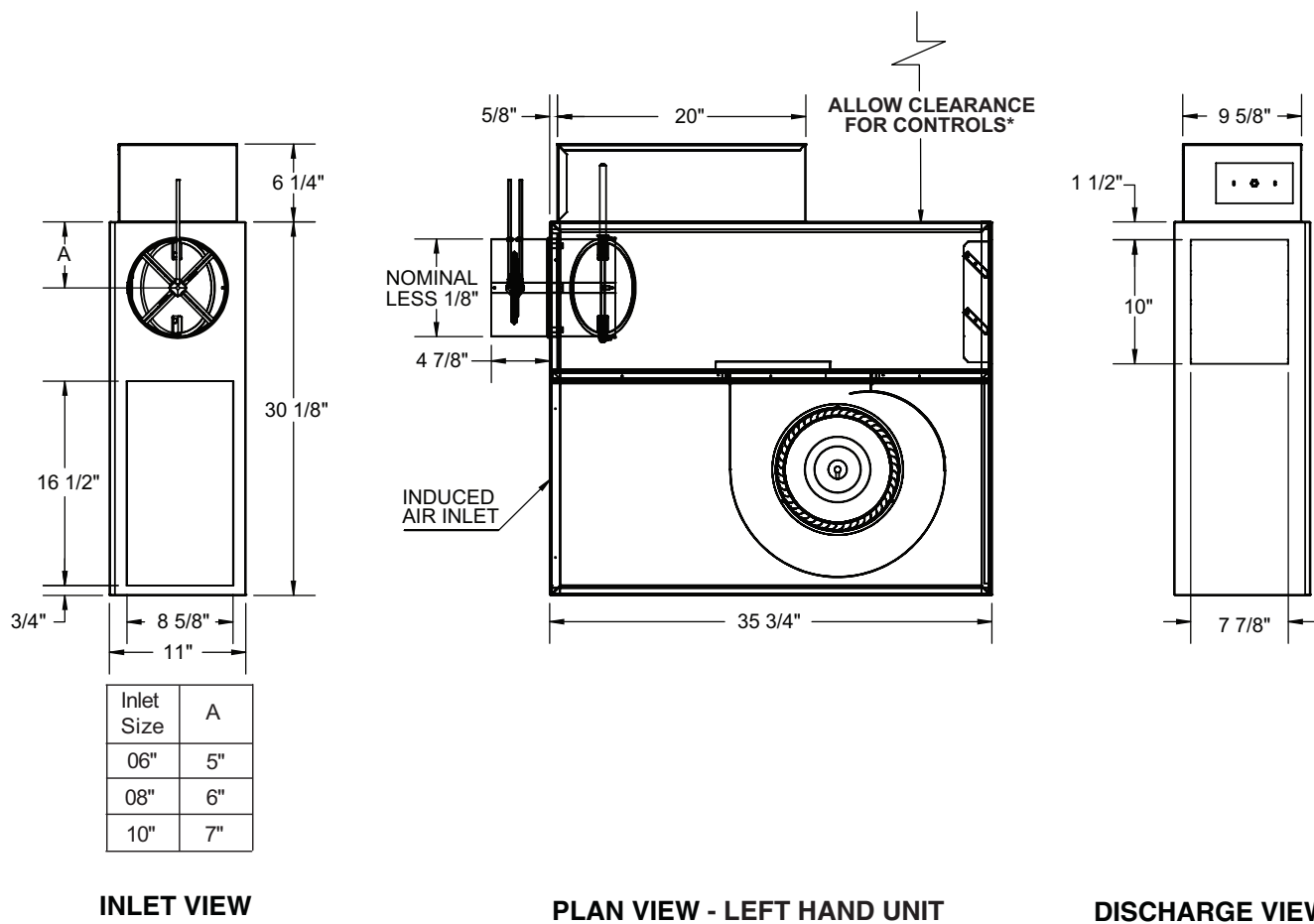


INLET VIEW

Model	Number of Rows	A	B
45Q	2	7 7/8"	2 1/8"
	4	7 7/8"	4 3/8"
	6	10"	6 1/2"

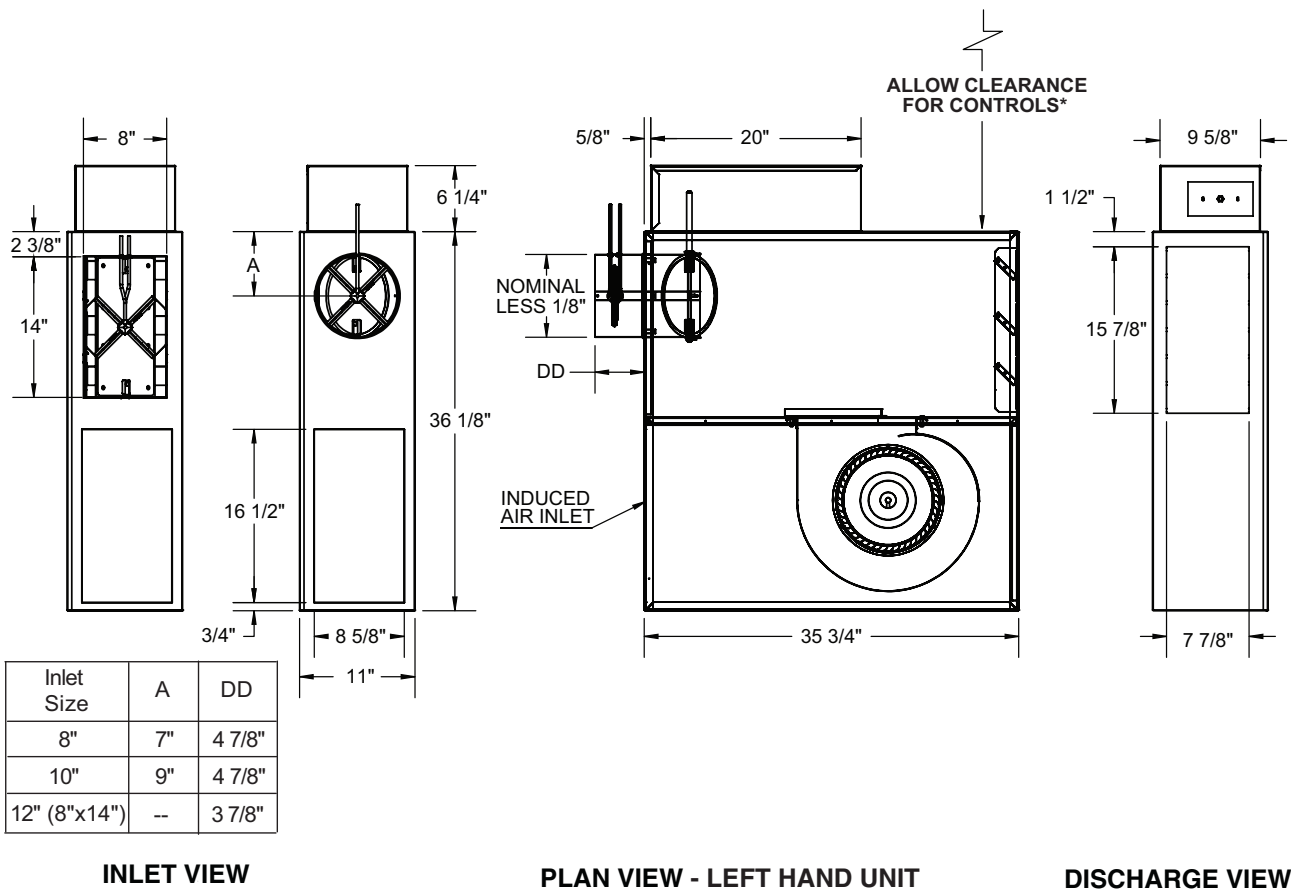


**45R LOW PROFILE VARIABLE VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRONIC CONTROLS, SIZE 2**



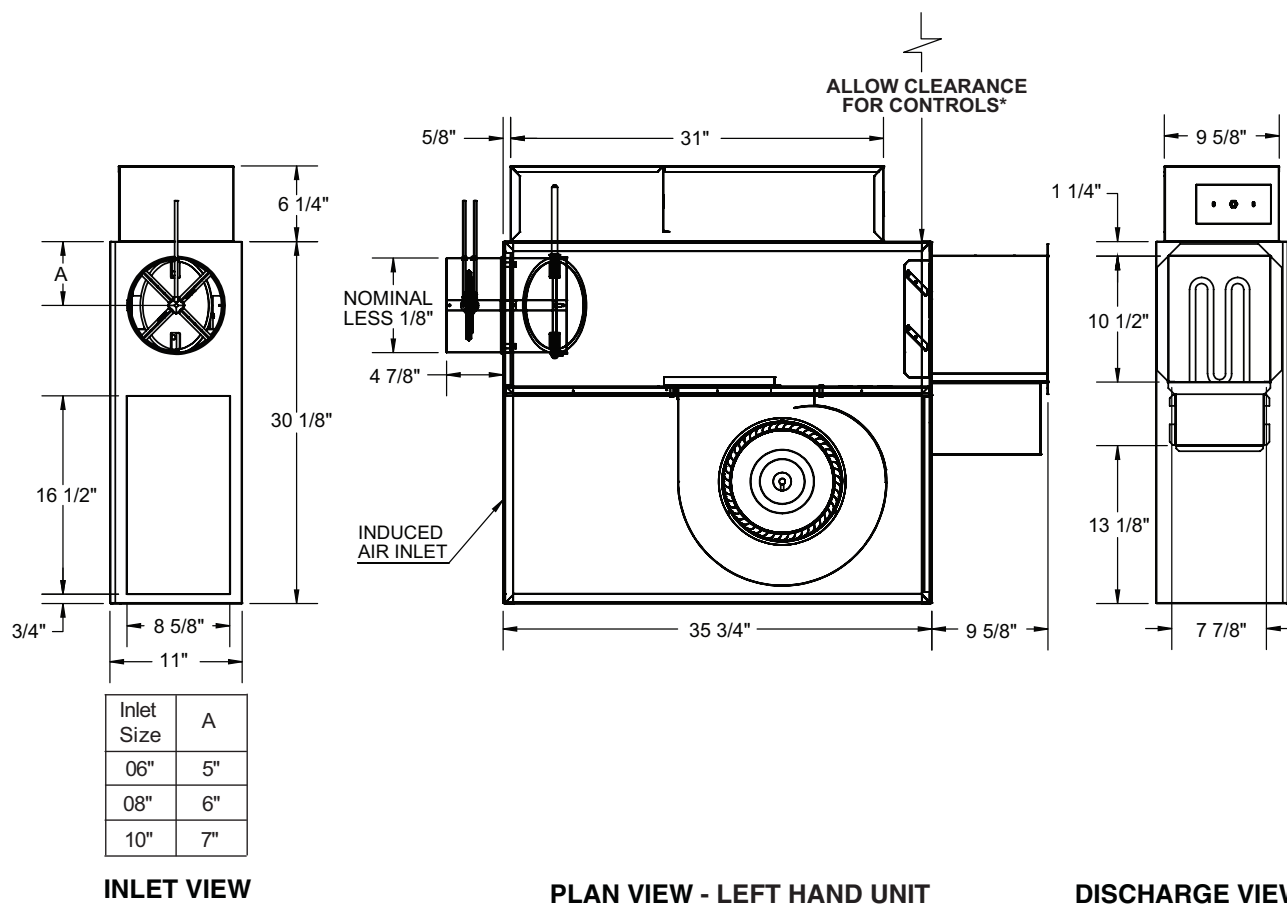
*Check NEC for unit clearance requirements.

45R LOW PROFILE VARIABLE VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRONIC CONTROLS, SIZE 4



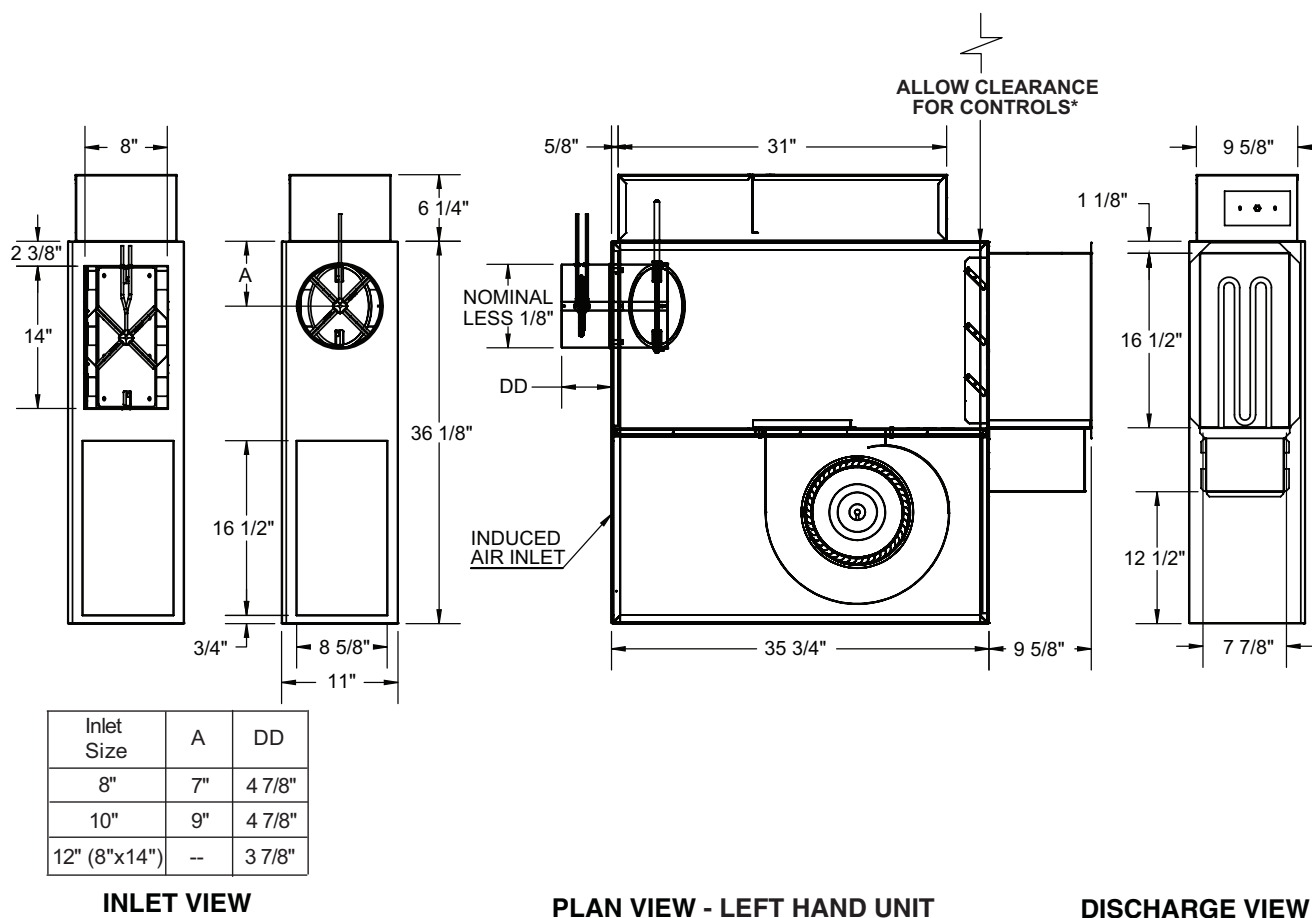
*Check NEC for unit clearance requirements.

**45R LOW PROFILE VARIABLE VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 2**



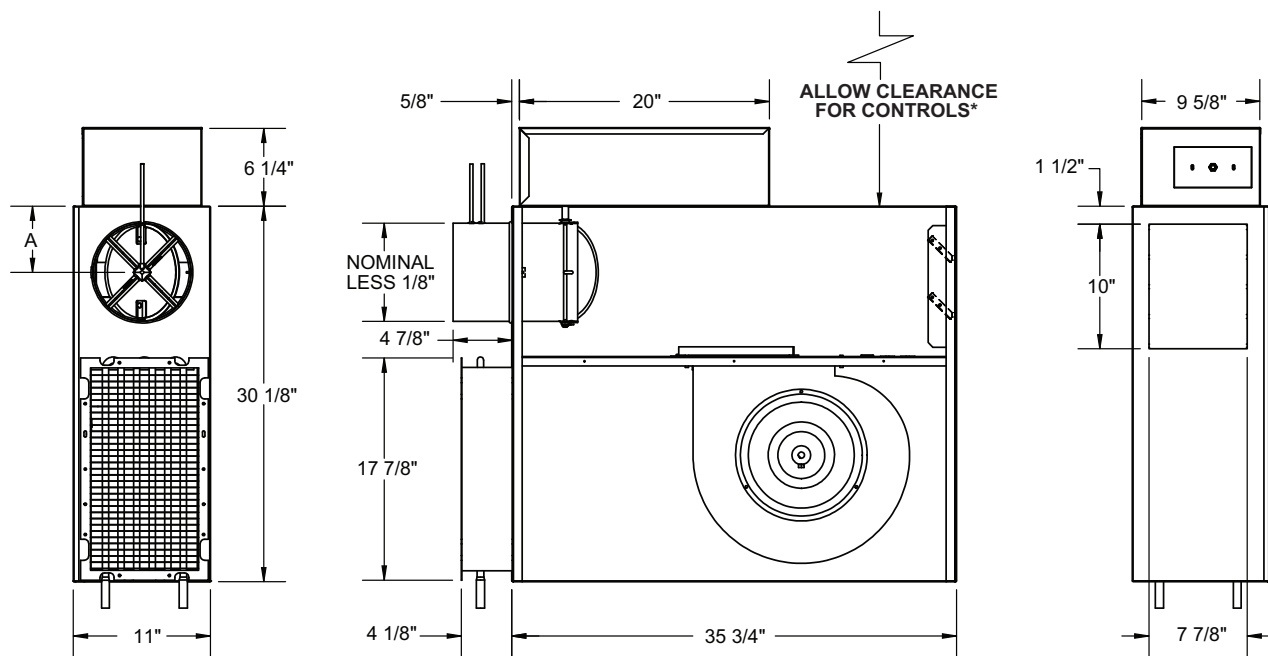
*Check NEC for unit clearance requirements.

45R LOW PROFILE VARIABLE VOLUME FAN TERMINAL UNIT, COOLING ONLY WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 4



*Check NEC for unit clearance requirements.

**45R LOW PROFILE VARIABLE VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 2**



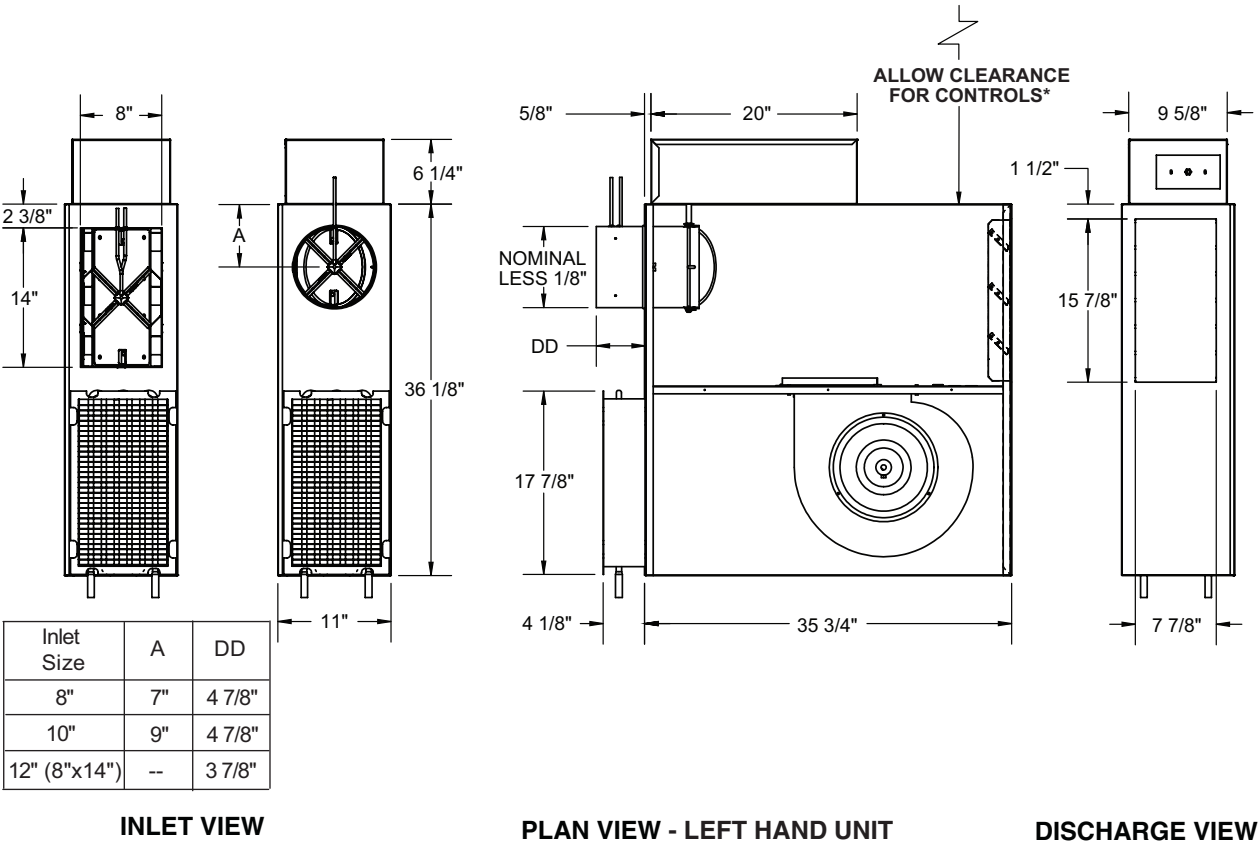
INLET VIEW

PLAN VIEW - LEFT HAND UNIT

DISCHARGE VIEW

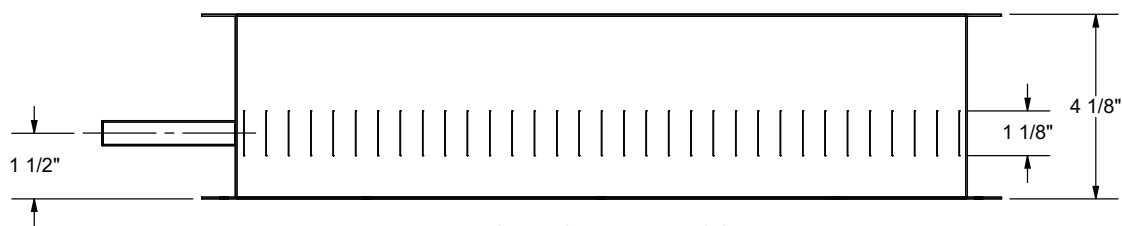
*Check NEC for unit clearance requirements.

45R LOW PROFILE VARIABLE VOLUME FAN TERMINAL UNIT, COOLING ONLY
WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 4

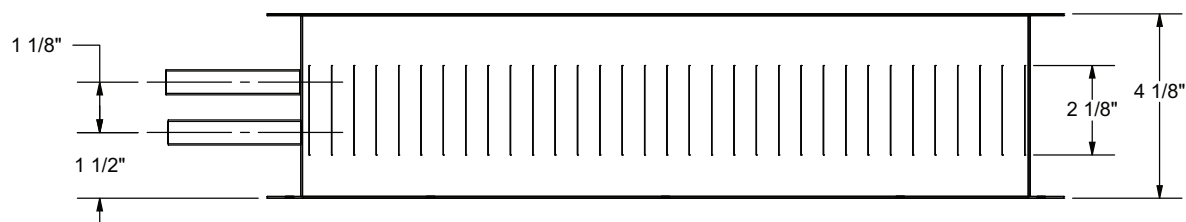


*Check NEC for unit clearance requirements.

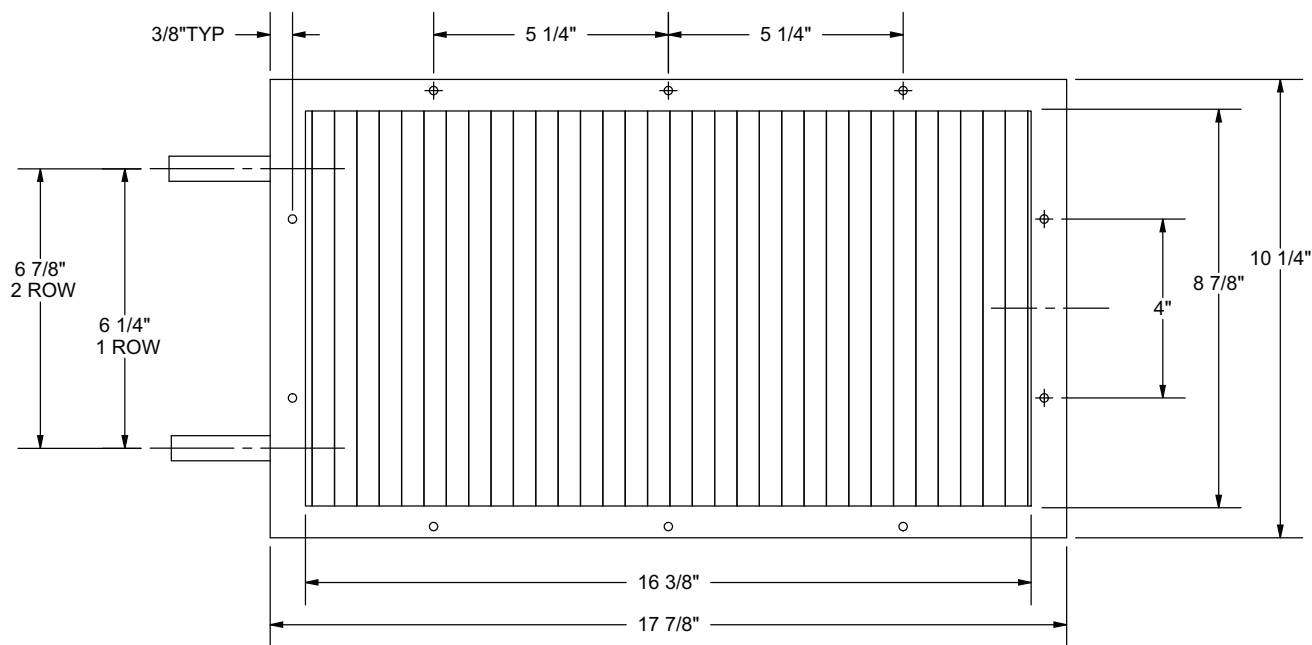
**45R LOW PROFILE VARIABLE VOLUME FAN TERMINAL UNIT,
HOT WATER COILS 1 AND 2 ROW, SIZES 2 AND 4**



**1 ROW HOT WATER COIL
TOP VIEW**



**2 ROW HOT WATER COIL
TOP VIEW**



INLET VIEW

45Q SERIES FAN POWERED TERMINAL UNITS WITH PSC FAN MOTOR

UNIT SIZE	INLET SIZE (in.)	FAN AIRFLOW		PRIMARY AIRFLOW		MOTOR HP	MOTOR AMPS		
		MIN	MAX	MIN #	MAX		120V	208/240V	277V
3	8	460	1075	92 or 0	916	1/4	5.8	2.6	2.2
	10			143 or 0	1075				
4	10	805	1650	143 or 0	1432	(2) 1/6	6.9	3.7	2.7
	13.5 X 8			206 or 0	1650				
5	10	840	1970	143 or 0	1432	1/2	8.4	4.2	3.7
	12			206 or 0	1970				
	14			281 or 0	1970				

45Q SERIES FAN POWERED TERMINAL UNITS WITH ECM FAN MOTOR

UNIT SIZE	INLET SIZE (in.)	FAN AIRFLOW		PRIMARY AIRFLOW		MOTOR HP	MOTOR AMPS		
		MIN	MAX	MIN #	MAX		120V	208/240V	277V
3	6	170	1100	52 or 0	515	1/3	5.0	3.3	2.6
	8			92 or 0	916				
	10			143 or 0	1100				
4	10	285	1900	143 or 0	1432	(2) 1/3	10.0	6.6	5.2
	13.5 x 8			206 or 0	1900				
5	8	265	1745	92 or 0	916	1/2	7.7	5.0	4.1
	10			143 or 0	1432				
	12			206 or 0	1745				
	14			281 or 0	1745				

45Q SERIES FAN POWERED TERMINAL UNITS WITH ECM FAN MOTOR AND DOAS BOX

UNIT SIZE	INLET SIZE (in.)	FAN AIRFLOW		PRIMARY AIRFLOW		MOTOR HP	MOTOR AMPS		
		MIN	MAX	MIN #	MAX		120V	208/240V	277V
3	6	150	1000	52 or 0	515	1/3	5.0	3.3	2.6
	8			92 or 0	916				
5	6	250	1625	52 or 0	515	1/2	7.7	5.0	4.1
	8			92 or 0	916				
	10			143 or 0	1432				

NOTES:

- 45Q maximum primary airflow (CFM) is set by the maximum induced airflow, which may vary as a function of downstream pressure. Maximum airflow shown is based on the maximum induced airflow (fan airflow) or 1.00 in. wg differential pressure signal from inlet airflow sensor, whichever is less.
- Minimum recommended airflow (CFM) is based on 0.03 in. wg differential pressure of the inlet airflow sensor, or 0 airflow. 0.03 in. wg is equal to 15%

to 20% of the nominal flow rating of the terminal. Less than 15% to 20% may result in greater than +5% control of box flow.

- 45Q maximum/minimum fan airflow is based on 0.10 in. wg / 0.60 in. wg downstream static pressure, respectively.

45R PARALLEL FAN POWERED TERMINAL UNIT WITH PSC FAN MOTOR

UNIT SIZE	INLET SIZE (in.)	FAN AIRFLOW		PRIMARY AIRFLOW		MOTOR HP	MOTOR AMPS		
		MIN	MAX	MIN #	MAX		120V	208/240V	277V
2	6	350	665	52 or 0	515	1/6	3.7	1.5	1.4
	8			92 or 0	916				
	10			143 or 0	1432				
4	8	420	855	92 or 0	916	1/4	5.6	2.5	2.0
	10			143 or 0	1432				
	13.5 x 8			206 or 0	2062				

45R PARALLEL FAN POWERED TERMINAL UNIT WITH PSC FAN MOTOR

UNIT SIZE	INLET SIZE (in.)	FAN AIRFLOW		PRIMARY AIRFLOW		MOTOR HP	MOTOR AMPS		
		MIN	MAX	MIN #	MAX		120V	208/240V	277V
2	6	350	665	52 or 0	515	1/6	3.7	1.5	1.4
	8			92 or 0	916				
	10			143 or 0	1432				
4	8	420	855	92 or 0	916	1/4	5.6	2.5	2.0
	10			143 or 0	1432				
	13.5 x 8			206 or 0	2062				

NOTES:

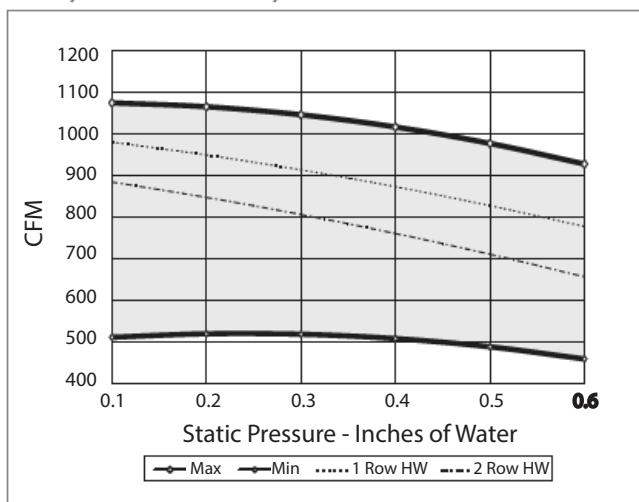
1. 45Q maximum primary airflow (CFM) is based on 1.00 in. wg differential pressure signal from inlet airflow sensor.
2. Minimum recommended airflow (CFM) is based on 0.03 in. wg differential pressure of the inlet airflow sensor, or 0 airflow. 0.03 in. wg is equal to 15%

to 20% of the nominal flow rating of the terminal. Less than 15% to 20% may result in greater than +5% control of box flow.

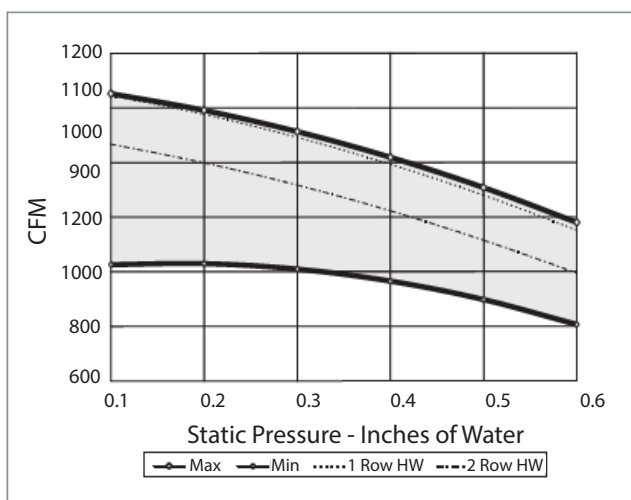
3. 45R maximum/minimum fan airflow is based on 0.25 in. wg external (down-stream) static pressure, respectively.

45Q SERIES FAN POWERED VAV TERMINAL UNIT PSC FAN CURVE

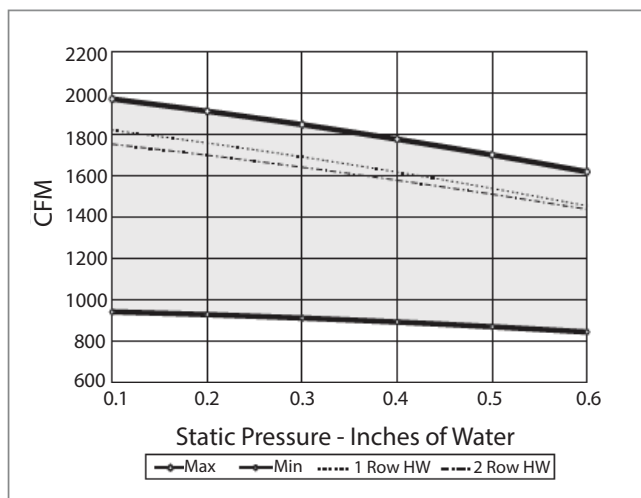
Unit Size 3



Unit Size 4

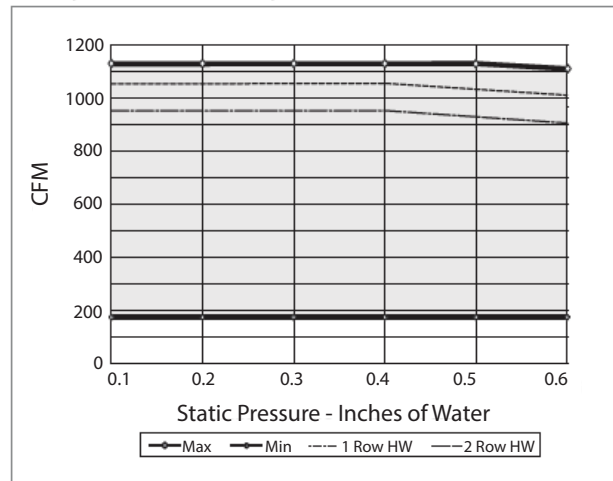


Unit Size 5

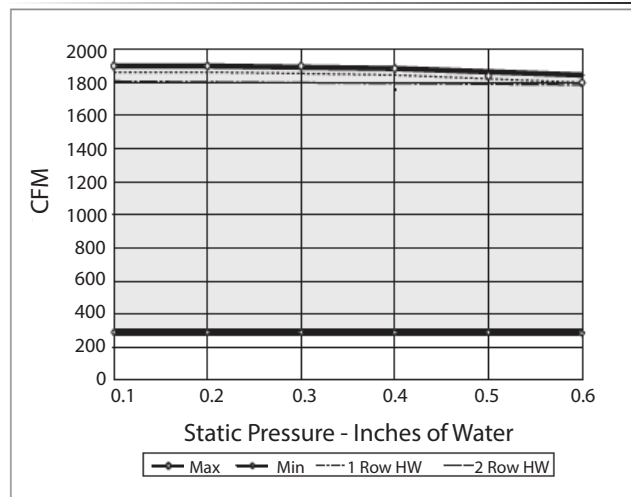


45Q SERIES FAN POWERED VAV TERMINAL UNIT ECM FAN CURVE

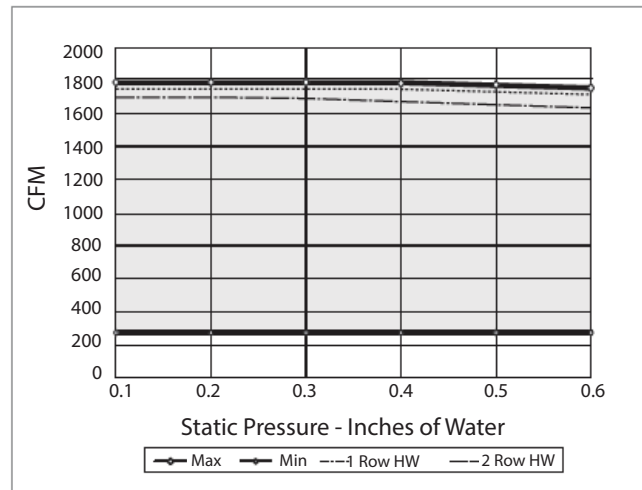
Unit Size 3



Unit Size 4

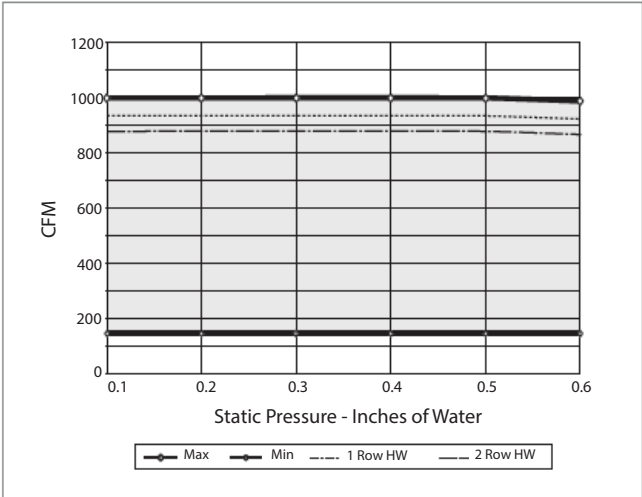


Unit Size 5

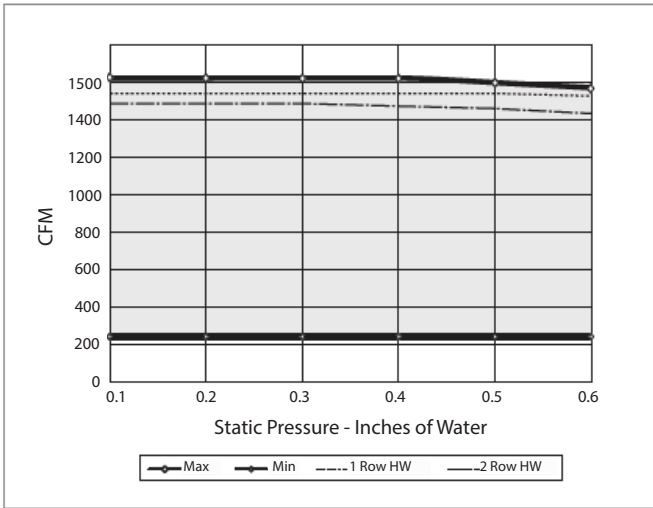


45Q-DOAS SERIES FAN POWERED VAV TERMINAL UNIT
ECM FAN CURVE

Unit Size 3



Unit Size 5



45Q SERIES FAN POWERED TERMINAL UNIT

DISCHARGE SOUND POWER DATA

UNIT SIZE	INLET SIZE (in.)	PRIMARY FLOW RATE	FAN FLOW RATE	MIN ΔPs	FAN ONLY							FAN + PRIMARY AT 0.75 in. ΔPs							FAN + PRIMARY AT 1.5 in. ΔPs																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
		CFM	CFM	IN. WG	OCTAVE BAND SOUND POWER, L _w						L _p NC	OCTAVE BAND SOUND POWER, L _w						L _p NC	OCTAVE BAND SOUND POWER, L _w						L _p NC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
					2	3	4	5	6	7		2	3	4	5	6	7		2	3	4	5	6	7		2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6

LEGEND

AHRI — Air-Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
Lp — Room Sound Pressure
Lw — Sound Power
Min ΔP_s — Minimum Static Pressure Required to Achieve Rated Airflow
NC — Application Data from AHRI 885-08 Appendix E
 ΔP_s — The Difference in Static Pressure from Inlet to Discharge

NOTES:

1. Radiated sound power is the sound transmitted through the casing walls.
2. All sound data is based on tests conducted in accordance with AHRI 880-11.
3. Sound power levels are in decibels (dB), re: 10⁻¹² watts.
4. AHRI certification points are shown in shaded blocks.

45Q SERIES FAN POWERED TERMINAL UNIT

RADIATED SOUND POWER DATA

UNIT SIZE	INLET SIZE (in.)	PRIMARY FLOW RATE	FAN FLOW RATE	MIN ΔPs	FAN ONLY							FAN + PRIMARY AT 0.75 in. ΔPs							FAN + PRIMARY AT 1.5 in. ΔPs						
					CFM	CFM	IN. WG	OCTAVE BAND SOUND POWER, L _w					L _p NC	OCTAVE BAND SOUND POWER, L _w					L _p NC	OCTAVE BAND SOUND POWER, L _w					L _p NC
								2	3	4	5	6		7	2	3	4	5		6	7	2	3	4	
3	8	400	550	0.033	64	52	54	51	41	29	29	64	52	54	51	41	33	29	64	54	54	51	43	38	29
		450	650	0.041	65	54	55	52	44	34	30	65	54	55	52	44	36	30	65	54	55	52	44	39	30
		525	750	0.056	67	56	56	54	46	37	31	67	56	56	54	46	37	31	67	58	58	54	46	41	33
		600	850	0.073	68	58	57	55	48	40	32	68	58	57	55	48	40	32	68	60	59	55	48	43	34
		700	1000	0.100	69	60	58	56	51	44	34	69	60	58	56	51	44	34	69	62	60	56	51	46	35
4	8x14	925	1025	0.044	68	61	59	56	48	37	34	68	65	59	58	50	41	36	73	69	64	61	53	46	41
		1050	1150	0.056	69	62	60	57	49	39	35	69	67	60	60	52	43	37	74	71	65	62	54	48	42
		1150	1250	0.067	70	63	61	58	51	41	36	70	68	63	61	53	44	39	75	72	66	63	55	49	44
		1250	1350	0.080	71	64	61	59	52	42	37	71	69	64	62	54	45	40	76	73	68	64	56	50	45
		1400	1500	0.100	73	65	62	60	53	44	38	73	70	65	63	55	47	41	77	74	69	66	58	52	46
5	12	800	900	0.025	62	55	50	45	38	30	24	62	57	52	45	47	46	26	62	61	56	51	52	54	31
		1000	1100	0.039	63	56	52	48	41	33	27	63	58	52	48	48	47	28	63	62	58	53	53	55	33
		1200	1300	0.056	65	58	54	50	43	37	29	65	60	54	50	49	48	29	65	63	59	54	54	56	34
		1400	1500	0.076	66	59	56	51	46	39	31	66	61	56	51	50	49	31	66	64	60	55	54	57	35
		1600	1700	0.100	68	60	57	53	48	42	32	68	62	57	53	51	50	32	68	65	61	56	55	58	36

LEGEND

AHRI — Air-Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
Lp — Room Sound Pressure
Lw — Sound Power
Min ΔP_s — Minimum Static Pressure Required to Achieve Rated Airflow
NC — Application Data from AHRI 885-08 Appendix E
 ΔP_s — The Difference in Static Pressure from Inlet to Discharge

1. Radiated sound power is the sound transmitted through the casing walls.
2. All sound data is based on tests conducted in accordance with AHRI 880-11.
3. Sound power levels are in decibels (dB), re: 10⁻¹² watts.
4. AHRI certification points are shown in shaded blocks.

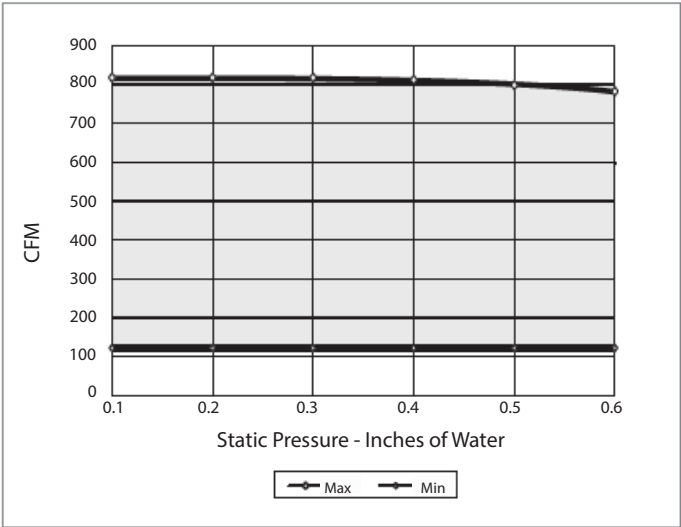
45Q/45R DAMPER LEAKAGE

INLET SIZE	DAMPER LEAKAGE (CFM)		
	1.5 IN. WG	3.0 IN. WG	6.0 IN. WG
6	4	5	7
8	4	5	7
10	4	5	7
12	4	5	7
14	4	6	8

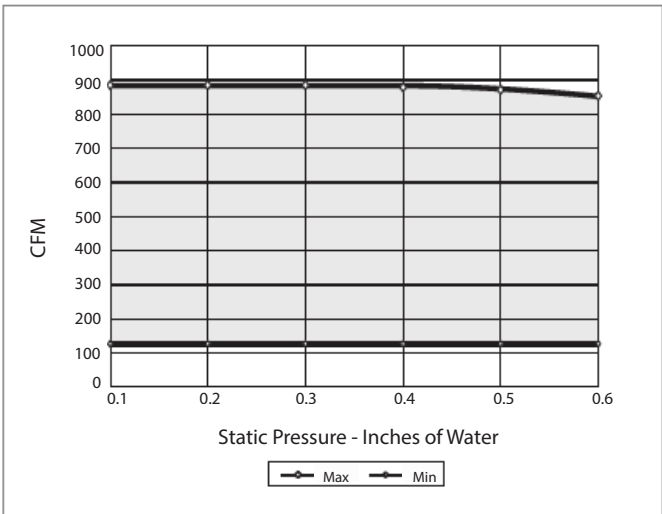
NOTE: Damper leakage is measured with the damper fully closed using an actuator. A precision low flow orifice is used upstream of the unit to measure the leakage rate as a function of the measured upstream static pressure. Leakage testing conducted in accordance with ASHRAE 130-2008

45R PARALLEL FAN POWERED VAV TERMINAL UNIT
PSC FAN CURVE

Unit Size 2

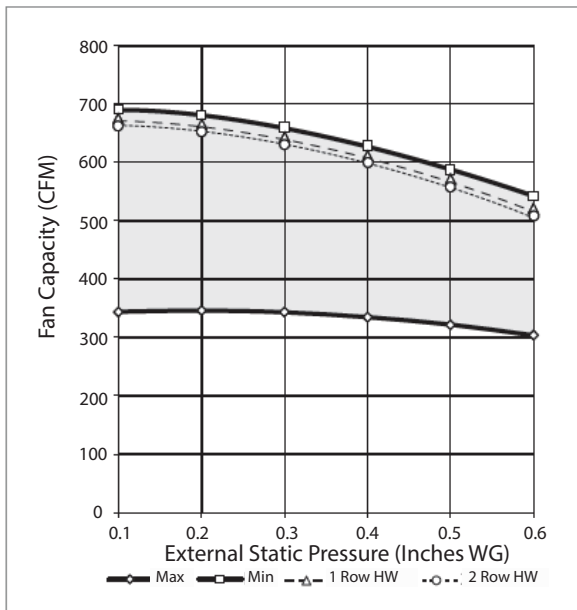


Unit Size 4

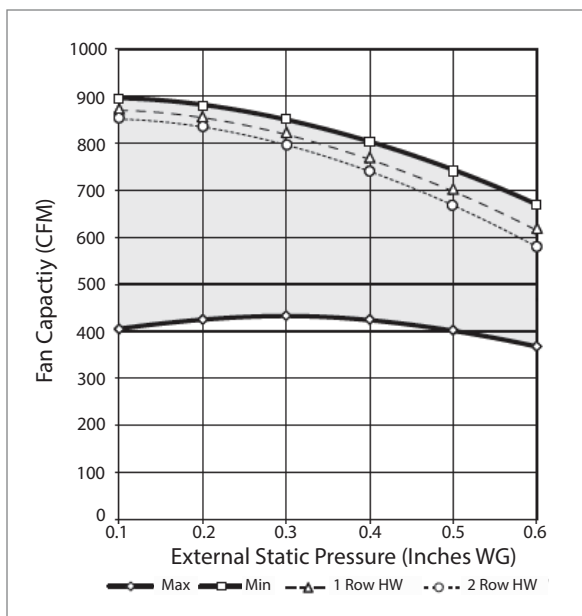


45R SERIES FAN POWERED VAV TERMINAL UNIT ECM FAN CURVE

Unit Size 2



Unit Size 4



Performance data — 45Q,R (cont)



45R PARALLEL FAN POWERED TERMINAL UNIT DISCHARGE SOUND POWER DATA

UNIT SIZE	INLET SIZE (In.)	PRIMARY FLOW RATE	MIN ΔPs	PRIMARY AT 0.5 in. ΔPs							PRIMARY AT 1.5 in. ΔPs							PRIMARY AT 2.0 in. ΔPs						
				OCTAVE BAND SOUND POWER, L _w							OCTAVE BAND SOUND POWER, L _w							OCTAVE BAND SOUND POWER, L _w						
		CFM	IN. WG	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	8	250	0.018	55	46	49	43	36	26	—	63	55	55	49	41	33	—	65	57	57	50	42	34	21
		400	0.046	61	54	53	47	43	34	—	68	62	59	53	47	40	21	70	65	61	54	48	42	24
		550	0.086	64	59	55	50	47	39	—	72	67	62	56	51	45	26	74	70	64	57	52	47	29
		700	0.140	67	62	57	52	50	43	20	75	71	64	58	54	49	31	77	73	66	59	56	50	33
		920	0.242	71	67	60	55	54	47	24	78	75	66	60	58	53	34	80	78	68	62	59	55	37
4	8x14	800	0.198	63	57	53	47	44	34	—	71	66	63	56	54	45	23	73	68	65	59	56	48	25
		1025	0.324	66	60	56	51	48	39	—	74	69	66	60	58	50	27	76	71	68	62	60	53	30
		1275	0.502	69	63	59	54	52	43	—	77	72	69	63	61	54	30	79	74	71	65	64	57	33
		1575	0.766	72	66	62	57	55	47	23	80	75	71	66	65	58	34	82	77	74	68	67	60	37
		1800	1.000	74	68	63	59	57	49	26	81	77	73	68	67	60	36	83	79	76	70	69	63	39

LEGEND

AHRI	—	Air-Conditioning, Heating, and Refrigeration Institute
CFM	—	Air Volume (cubic feet per minute)
L _p	—	Room Sound Pressure
L _w	—	Sound Power
Min ΔPs	—	Minimum Static Pressure Required to Achieve Rated Airflow
NC	—	Application Data from AHRI 885-08 Appendix E
ΔPs	—	The Difference in Static Pressure from Inlet to Discharge
—	—	Indicates an NC level less than 20

NOTES:

1. Radiated sound power is the sound transmitted through the casing walls.
2. All sound data is based on tests conducted in accordance with AHRI 880-11.
3. Sound power levels are in decibels (dB), re: 10⁻¹² watts.
4. AHRI certification points are shown in shaded blocks.

45R PARALLEL FAN POWERED TERMINAL UNIT RADIATED SOUND POWER DATA

UNIT SIZE	INLET SIZE (In.)	PRIMARY FLOW RATE	MIN ΔPs	PRIMARY AT 0.5 in. ΔPs							PRIMARY AT 1.5 in. ΔPs							PRIMARY AT 2.0 in. ΔPs						
				OCTAVE BAND SOUND POWER, L _w							OCTAVE BAND SOUND POWER, L _w							OCTAVE BAND SOUND POWER, L _w						
		CFM	IN. WG	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	8	250	0.018	52	48	42	36	31	27	—	57	54	46	39	35	33	22	58	55	47	40	36	34	24
		400	0.046	58	54	49	43	39	34	23	63	59	53	47	43	40	29	64	61	53	47	44	41	31
		550	0.086	62	57	53	48	44	38	28	67	63	57	52	48	44	33	69	65	58	52	49	46	35
		700	0.140	66	60	57	52	48	42	31	71	66	60	55	52	48	37	72	67	61	56	53	49	38
		920	0.242	69	63	60	56	52	46	36	74	69	64	60	56	52	40	76	71	65	60	57	53	42
4	8x14	800	0.198	56	55	50	42	36	31	24	65	64	57	48	41	38	34	68	66	59	49	43	40	37
		1025	0.324	58	57	53	46	40	34	27	68	66	60	51	45	42	36	70	68	62	53	47	44	39
		1275	0.502	62	58	55	49	43	38	30	70	68	63	55	49	45	38	72	70	65	56	50	47	41
		1575	0.766	62	60	58	52	47	41	33	72	69	65	58	52	48	41	74	71	67	59	53	50	43
		1800	1.000	64	61	60	54	49	43	35	73	70	67	59	54	51	43	75	72	69	61	55	52	45

LEGEND

AHRI	—	Air-Conditioning, Heating, and Refrigeration Institute
CFM	—	Air Volume (cubic feet per minute)
L _p	—	Room Sound Pressure
L _w	—	Sound Power
Min ΔPs	—	Minimum Static Pressure Required to Achieve Rated Airflow
NC	—	Application Data from AHRI 885-08 Appendix E
ΔPs	—	The Difference in Static Pressure from Inlet to Discharge
—	—	Indicates an NC level less than 20

NOTES:

1. Radiated sound power is the sound transmitted through the casing walls.
2. All sound data is based on tests conducted in accordance with AHRI 880-11.
3. Sound power levels are in decibels (dB), re: 10⁻¹² watts.
4. AHRI certification points are shown in shaded blocks.

45R PARALLEL FAN POWERED TERMINAL UNIT FAN SOUND POWER LEVELS - FAN ONLY

UNIT SIZE	FLOW RATE	DISCHARGE SOUND POWER							RADIATED SOUND POWER						
		OCTAVE BAND SOUND POWER, L _w							OCTAVE BAND SOUND POWER, L _w						
		2	3	4	5	6	7	L _p NC	2	3	4	5	6	7	L _p NC
2	250	56	51	50	46	40	29	24	53	51	50	45	36	24	25
	375	63	57	54	52	45	38	29	59	57	55	51	42	31	30
	450	66	60	56	54	48	42	31	62	59	58	53	45	35	32
	525	68	62	58	56	50	46	33	65	61	59	55	48	37	35
	600	70	64	60	58	52	49	35	67	63	61	57	50	40	36
4	460	61	56	57	52	44	40	31	61	57	57	52	45	34	32
	525	63	58	59	54	47	43	34	62	60	59	55	48	37	34
	600	65	60	61	57	49	47	36	64	62	61	57	51	40	37
	725	68	64	64	60	53	52	40	66	66	64	61	55	45	40
	800	70	65	66	62	55	55	42	67	67	66	63	57	48	41

LEGEND

CFM	—	Air Volume (cubic feet per minute)
L _p	—	Room Sound Pressure
L _w	—	Sound Power
NC	—	Application Data from AHRI 885-08 Appendix E

NOTES:

1. Radiated sound power is the sound transmitted through the casing walls.
2. Discharge sound power is the sound emitted from the unit discharge.
3. All sound data is based on tests conducted in accordance with AHRI 880-11.
4. Sound power levels are in decibels (dB), re: 10⁻¹² watts.
5. AHRI certification points are shown in shaded blocks.

45Q ELECTRIC HEAT kW RANGE PER UNIT SIZE

HEATER CODE	DESCRIPTION (VOLTS/PHASE/STEPS)	3		4		5	
		MIN	MAX	MIN	MAX	MIN	MAX
E11	120v/1Ph/1S	0.5	4.0	0.5	4.0	0.5	4.5
E12	120v/1Ph/2S	1.0	4.0	1.0	4.0	1.0	4.5
E13	120v/1Ph/3S	1.5	4.0	1.5	4.0	1.5	4.5
E21	208v/1Ph/1S	0.5	8.0	0.5	8.0	0.5	9.0
E22	208v/1Ph/2S	1.0	8.0	1.0	8.0	1.0	9.0
E23	208v/1Ph/3S	1.5	8.0	1.5	8.0	1.5	9.0
E31	240v/1Ph/1S	1.0	9.0	0.5	10.0	1.0	10.0
E32	240v/1Ph/2S	1.5	9.0	1.0	10.0	1.5	10.0
E33	240v/1Ph/3S	2.0	9.0	1.5	10.0	2.0	10.0
E41	277v/1Ph/1S	1.0	9.0	0.5	12.0	0.5	12.0
E42	277v/1Ph/2S	1.5	9.0	1.0	12.0	1.0	12.0
E43	277v/1Ph/3S	2.5	9.0	1.5	12.0	1.5	12.0
E61	208v/3Ph/1S (3-Wire)	1.5	9.0	1.5	14.0	1.5	14.0
E62	208v/3Ph/2S (3-Wire)	1.5	9.0	1.5	14.0	1.5	14.0
E63	208v/3Ph/3S (3-Wire)	1.5	9.0	1.5	14.0	1.5	14.0
E91	480v/3Ph/1S (4-Wire)	2.5	9.0	2.5	14.0	2.5	17.5
E92	480v/3Ph/2S (4-Wire)	2.5	9.0	2.5	14.0	2.5	17.5
E93	480v/3Ph/3S (4-Wire)	2.5	9.0	2.5	14.0	2.5	17.5
L1X	120v/1Ph	0.5	4.0	0.5	4.0	0.5	4.0
L2X	208v/1Ph	0.5	8.0	0.5	8.0	0.5	9.0
L3X	240v/1Ph	1.0	9.0	1.0	10.0	1.0	10.0
L4X	277v/1Ph	1.0	9.0	1.0	12.0	1.0	12.0
L6X	208v/3Ph (3-Wire)	1.5	9.0	1.5	10.5	1.5	10.5
L9X	480v/3Ph (4-Wire)	2.5	9.0	2.5	14.0	2.5	14.0

NOTES:

1. The ASHRAE handbook of fundamentals states that discharge temperatures in excess of 90°F are likely to result in objectionable air temperature stratification in the space. Also, ventilation short circuiting may occur. ASHRAE Standard 62.1 limits discharge temperatures to 90°F or increasing the ventilation rate when heating from the ceiling.

2. For safe operation, the electric heater controls are interlocked with the airflow proving switch to allow the heater to energize only after the fan is running.

3. "X" denotes SSR heater control input.

Performance data — 45Q,R (cont)



45N ELECTRIC HEAT kW RANGE PER UNIT SIZE

HEATER CODE	DESCRIPTION (VOLTS/PHASE/STEPS)	3		4	
		MIN	MAX	MIN	MAX
E11	120v/1Ph/1S	0.5	4.0	0.5	4.0
E12	120v/1Ph/2S	1.0	4.0	1.0	4.0
E13	120v/1Ph/3S	1.5	4.0	1.5	4.0
E21	208v/1Ph/1S	0.5	6.0	0.5	9.0
E22	208v/1Ph/2S	1.0	6.0	1.0	9.0
E23	208v/1Ph/3S	1.5	6.0	1.5	9.0
E31	240v/1Ph/1S	1.0	6.0	1.0	10.0
E32	240v/1Ph/2S	1.5	6.0	1.5	10.0
E33	240v/1Ph/3S	2.0	6.0	2.0	10.0
E41	277v/1Ph/1S	1.0	6.0	1.0	12.0
E42	277v/1Ph/2S	1.5	6.0	1.5	12.0
E43	277v/1Ph/3S	2.5	6.0	2.5	12.0
E61	208v/3Ph/1S (3-Wire)	1.5	6.0	1.5	14.0
E62	208v/3Ph/2S (3-Wire)	1.5	6.0	1.5	14.0
E63	208v/3Ph/3S (3-Wire)	1.5	6.0	1.5	14.0
E91	480v/3Ph/1S (4-Wire)	2.5	6.0	2.5	14.0
E92	480v/3Ph/2S (4-Wire)	2.5	6.0	2.5	14.0
E93	480v/3Ph/3S (4-Wire)	2.5	6.0	2.5	14.0
L1X	120v/1Ph	0.5	4.0	0.5	4.0
L2X	208v/1Ph	0.5	6.0	0.5	9.0
L3X	240v/1Ph	1.0	6.0	1.0	10.0
L4X	277v/1Ph	1.0	6.0	1.0	12.0
L6X	208v/3Ph (3-Wire)	1.5	6.0	1.5	10.5
L9X	480v/3Ph (4-Wire)	2.5	6.0	2.5	14.0

NOTES:

1. The ASHRAE handbook of fundamentals states that discharge temperatures in excess of 90°F are likely to result in objectionable air temperature stratification in the space. Also, ventilation short circuiting may occur. ASHRAE Standard 62.1 limits discharge temperatures to 90°F or increasing the ventilation rate when heating from the ceiling.
2. For safe operation, the electric heater controls are interlocked with the airflow proving switch to allow the heater to energize only after the fan is running.
3. "X" denotes SSR heater control input.

SSR CONTROL INPUT

POSITION 31	CONTROL INPUT
1+	On/Off
2+	2 Stage
3+	0-10V
4+	4-20mA
5+	Incremental
6+	Binary
7+	Floating

Electrical data — 45Q,R



Electric heat selection — Select heater so that power (kW) is a whole number. Rounding to the nearest whole number has negligible impact on the discharge temperature and power consumption.

Factors:

Specific electric duct heaters using voltage, kW, and number of steps.

The required kW is calculated using the following relationship.

$$\text{kW} = \frac{\text{Btuh}}{3413}$$

$$\text{kW} = \frac{\text{cfm} \times \Delta t}{3160}$$

Where:

Btuh = Required Heating Capacity

CFM = Volume of air controlled during heating (Typically 30-100% of Maximum Cooling Volume)

Δt = Leaving Air Temperature minus the entering air temperature or the desired air temperature rise across the electric heater.

Series Variable Air Volume Terminal Units Fan-Powered

HVAC Guide Specifications

Size Range: **90 to 3300 nominal cfm**

Carrier Model Number (45J Units):

45JA (Analog Electronic Control)

45JC (Carrier Comfort Network® (CCN) Variable Air Volume (VAV) Electronic Control)

45JD (BACnet¹ VAV Electronic Controls)

45JN (No Control or DDC by Others)

45JP (Pneumatic Control)

Part 1 — General

1.01 SYSTEM DESCRIPTION:

- A. Fan-powered terminal unit shall be completely factory assembled and wired, with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing.
- B. Primary airflow controller shall compensate for central system pressure fluctuations. When room temperature requires maximum heating, the (direct digital electronic) (analog electronic) (pneumatic) pressure independent velocity controller maintains the minimum primary airflow setting by modulating the damper. The induction fan shall run and the staged electric heating coil (HOT WATER COIL), if supplied, shall be energized (ACTIVATED). As room temperature begins to rise, the heating coil shall be deenergized (DEACTIVATED). As the room temperature calls for maximum cooling, the velocity controller shall maintain the maximum primary airflow setting. To prevent the fan/motor from running in the backward direction, the unit induced air fan shall be field wired so that it is electrically or pneumatically interlocked with the central system fan.

1.02 QUALITY ASSURANCE:

- A. Insulation shall meet NFPA-90A requirements for flame spread and smoke generation and UL 181 requirements for anti-erosion, corrosion and fungus properties.
- B. Hot water coils, when specified, shall be tested for leakage at 250 psig with the coil submerged in water.
- C. Electric heating coils, when specified, shall be UL or ETL listed and designed to comply with UL Standard 1995.
- D. The terminal unit shall be ETL listed as a complete assembly. All electrical components shall be UL listed and installed in accordance with the National Electric Code (NEC). All electrical components shall be mounted in sheet metal control enclosures. Electrical connections shall be single point.
- E. Sound power levels shall be AHRI certified in accordance with the requirements of AHRI 880-11.

Part 2 — Products

2.01 EQUIPMENT:

A. General:

Factory assembled, externally powered, horizontal fan powered terminal unit with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing. Unit shall be complete with a damper assembly, flow sensor, externally mounted volume controller, collars for duct connection and all required features. Control box shall be clearly marked with an identification label that lists such information as nominal cfm, maximum and minimum airflow limits, coil type and coil hand, where applicable.

B. Unit Cabinet:

Constructed of 22-gage (20 gage optional) galvanized steel with round or rectangular inlet collar and rectangular discharge with slip and drive connection. All primary air inlet collars shall accommodate standard flex duct sizes.

C. Insulation:

1. Standard casing shall be lined with 1/2-in. thick, 1 1/2 lb dual density fiberglass insulation that meets UL 181 and NFPA 90A. Insulation shall be attached to the unit casing by adhesive and weld pins.
2. Optional Insulation:
 - a. 1-in. Thick Insulation:

Unit casing shall be lined with dual density, 1-in. thick, 1 1/2 lb density fiberglass insulation that meets UL 181 and NFPA 90A.
 - b. Cellular Insulation:

Unit casing shall be lined with 1/2-in. thick, 1 1/2 lb density, smooth surface, polyolefin, closed-cell foam insulation for fiber free application. Cellular insulation meets UL 181 and NFPA 90A and does not support mold or bacteria growth. Insulation shall be attached to the unit casing by adhesive and weld pins.

D. Damper Assembly:

The primary air damper assembly shall be constructed of heavy gage galvanized steel with solid shaft rotating in Delrin² bearings. Damper shaft shall be marked on the end to indicate damper position. Damper blades shall incorporate a flexible gasket for tight airflow shutoff and operate over a full 90 degrees.

E. Fan(s):

Fan shall be of the forward curve, centrifugal type. The fan motor shall be single speed, multi-voltage (120, 208/240, 277), 60 cycle, single phase, energy efficient design, permanently lubricated, using permanent split capacitor for starting and be specifically designed for use with an SCR fan-speed

1. BACnet is a registered trademark of ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers).

2. Delrin is a registered trademark of DuPont.

controller. Motor must have thermal overload protection. The fan motor shaft shall be connected directly to the fan and the entire fan assembly shall be isolated from the unit casing to prevent transmission of vibration.

F. Electrical Requirements:

Units shall have a single connection for power, and operate on 120,208/240 or 277 VAC (standard) single phase, 60 Hz power as shown on the equipment schedule. Units with three-phase electric heat shall be factory wired for single point performance (including 208/240v 3-wire or 480v 4-wire). When specified and coordinated, units shall be wired and shipped with proportionally connected phasing.

G. Controls:

1. Units shall have pressure-independent pneumatic, electronic, or communicating controls, as specified, capable of maintaining required airflow set points $\pm 5\%$ of the unit's capacity at any inlet pressure up to 6-in. wg. The controllers shall be capable of resetting between factory or field-set maximum and minimum (>350 fpm inlet duct velocity) set points to satisfy the room thermostat demand.
2. The unit shall be equipped with an amplified flow probe in the unit inlet. Air flow for the pressure independent controller (supplied by others) shall be determined with a factory supplied 12 point total pressure, center averaging cross flow sensor, having a magnification resulting in no greater than 2625 fpm at 1-in. developed signal.

H. Special Features:

1. Hot Water Heating Coil:

Coil shall be mounted in a minimum 20 Ga. Galvanized steel casing with slip and drive discharge connections, and factory mounted on the base unit as shown on the equipment drawings. Coils shall have:

- a. Aluminum fins (10 ft/in.) bonded to the copper tubes by mechanical expansion.
- b. Number of coil rows and circuits shall be selected to provide performance as required by the plans.
- c. Up to 2 rows as shown on the equipment drawings or designed on the equipment schedule. Right or left-hand fittings with

sweat connection sizes as indicated on equipment drawings.

2. Electric Heating Coil:

- a. Electric coils shall be supplied by the terminal unit manufacturer and shall be UL listed. Construct coil casing with minimum of 20 gage zinc coated steel. Elements shall be nickel chrome and supported by ceramic insulators. The integral control panel shall be housed in a NEMA 1 enclosure, with hinged access door to all controls and safety devices.
- b. Electric coils shall contain a primary automatic reset thermal cutout and differential pressure airflow switch for proof of airflow.
 - 1) Designed for the capacity, electrical characteristics and steps of control, as shown on the equipment schedule.
 - 2) Open coil construction with 80% nickel, 20% chromium wire supported in free-floating ceramic bushings. Coil frame shall be constructed of corrosion resistant steel.
 - 3) Factory wired and include all limit switches.
 - 4) Electric coils shall include fused or non-fused door interlocking disconnect switch, AC Solid State relays for silent operation, fuse block, dust tight enclosure construction, all mounted and/or wired within the control enclosure.
 - 5) An SSR (solid-state relay) proportional control of electric heat shall meet the requirements of ASHRAE Standard 62, Addenda N.
 - 6) An SSR proportional electronic controlled electric heater with control of the leaving air temperature limiting the unit discharge temperature to a set value.

3. ECM Fan Motor:

The fan motor shall be [120, 208/240, or 277 volt, single-phase] ECM (electronically commutated motor) fan motors including either a VCU or ACU speed controller. The VCU fan speed control is manually field set and is field adjustable with digital display alternating between RPM and percentage full flow. The ACU control provides a means to remotely set and/or adjust the fan speed.

Parallel Variable Air Volume Terminal Units Fan-Powered

HVAC Guide Specifications

Size Range: **90 to 3700 Nominal cfm**

Carrier Model Number (45M Units):

45MA (Analog Electronic Control)

45MC (Carrier Comfort Network® [CCN] Variable Air Volume [VAV] Electronic Control)

45MD (BACnet¹ VAV Electronic Controls)

45MN (No Control or DDC by Others)

45MP (Pneumatic Control)

45MV (CCN Variable Volume and Temperature [VVT®])

45MB (BACnet VVT Electronic Controls)

Part 1 — General

1.01 SYSTEM DESCRIPTION:

- A. Fan-powered terminal unit shall be completely factory assembled and wired, with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing.
- B. Primary airflow controller shall compensate for central system pressure fluctuations. When room temperature requires maximum heating, the (direct digital electronic) (analog electronic) (pneumatic) pressure independent velocity controller (PIC) shall maintain the minimum primary airflow setting by modulating the damper. The induction fan shall run and the staged electric heating coil (hot water coil), if supplied, shall be energized (activated). As room temperature begins to rise, the heating coil shall be deenergized (deactivated). As room temperature calls for maximum cooling, the velocity controller shall maintain the maximum primary airflow setting. Unit shall contain a back-draft damper to prevent loss of primary air when the fan is not operating.

1.02 QUALITY ASSURANCE:

- A. Insulation shall meet NFPA-90 requirements for flame spread and smoke generation and UL 181 requirements for anti-erosion, corrosion, and fungus properties.
- B. Hot water coils, when specified shall be tested for leakage at 250 psig with the coil submerged in water.
- C. Electric heating coils, when specified, shall be UL or ETL listed and designed to comply with UL Standard 1995.
- D. The terminal unit shall be ETL listed as a complete assembly. All electrical components shall be UL listed and installed in accordance with the National Electric Code (NEC). All electrical components shall be mounted in sheet metal control enclosures. Electrical connections shall be single point.
- E. Sound power levels shall be AHRI certified in accordance with the requirements of AHRI 880-11.

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Part 2 — Products

2.01 EQUIPMENT:

A. General:

Factory assembled, externally powered, horizontal fan powered terminal unit with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing. Unit shall be complete with a damper assembly flow sensor, externally mounted volume controller, collars for duct connection and all required features. Control box shall be clearly marked with an identification label that lists such information as nominal cfm, maximum and minimum airflow limits, coil type and coil hand, where applicable.

B. Unit Cabinet:

Constructed of 22-gage (20 gage optional) galvanized steel with round or rectangular inlet collar and rectangular discharge with slip and drive connection. All primary air inlet collars shall accommodate standard flex duct sizes.

C. Insulation:

1. Standard casing shall be lined with 1/2-in. thick, 1 1/2 lb dual density fiberglass insulation that meets UL 181 and NFPA 90A. Insulation shall be attached to the unit casing by adhesive and weld pins.
2. Optional Insulation:
 - a. 1-in. Thick Insulation:

Unit casing shall be lined with dual density fiberglass insulation that meets UL 181 and NFPA 90.
 - b. Cellular Insulation:

Unit casing shall be lined with 1/2-in. thick, 1 1/2 lb. density, smooth surface, polyolefin, closed-cell foam insulation for fiber free application. Cellular insulation meets UL 181 and NFPA 90A and does not support mold or bacteria growth. Insulation shall be attached to the unit casing by adhesive and weld pins.

D. Damper Assembly:

The control air damper assembly shall be constructed of heavy gage galvanized steel with solid shaft rotating in Delrin² bearings. Damper shaft shall be marked on the end to indicate damper position. Damper blade shall incorporate a flexible gasket for tight airflow shutoff and operate over a full 90 degrees.

E. Fan(s):

Fan shall be of the forward curve, centrifugal type. The fan motor shall be single speed, multi-voltage (120, 208/240, 277), 60 cycle, single phase, energy efficient design, permanently lubricated,

2. Delrin is a registered trademark of DuPont.

using permanent split capacitor for starting and be specifically designed for use with an SCR (fan speed controller). Motor must have thermal overload protection. The fan motor shaft shall be connected directly to the fan and the entire fan assembly shall be isolated from the unit casing to prevent transmission of vibration.

F. Electrical Requirements:

Units shall have a single connection for power, and operate on 120,208/240 or 277 VAC (standard) single-phase, 60 Hz power as shown on the equipment schedule. Units with three-phase electric heat shall be factory wired for single point performance (including 208/240v 3-wire or 480v 4-wire). When specified and coordinated, units shall be wired and shipped with proportionally connected phasing.

G. Controls:

1. Units shall have pressure-independent pneumatic, electronic, or communicating controls, as specified, capable of maintaining required airflow set points $\pm 5\%$ of the unit's capacity at any inlet pressure up to 6-in. wg. The controllers shall be capable of resetting between factory or field-set maximum and minimum (>350 fpm inlet duct velocity) set points to satisfy the room thermostat demand.
2. The unit shall be equipped with an amplified flow probe located in the unit inlet. Air flow for the pressure independent controller (supplied by others) shall be determined with a factory supplied 12 point total pressure, center averaging cross flow sensor, having a magnification resulting in no greater than 2625 fpm at 1-in. developed signal.

H. Special Features:

1. Hot Water Heating Coil:

Coil shall be mounted in a minimum 20 Ga. Galvanized steel casing with slip and drive discharge connections, and factory mounted on the base unit as shown on the equipment drawings. Coils shall have:

- a. Aluminum fins (10 ft/in.) bonded to the copper tubes by mechanical expansion.

- b. Number of coil rows and circuits shall be selected to provide performance as required by the plans.
- c. Up to 2 rows, as shown on equipment drawings, or designed on the equipment schedule. Right or left-hand fittings with sweat connection sizes as indicated on equipment drawings.

2. Electric Heating Coil:

Electric coils shall be supplied by the terminal unit manufacturer and shall be UL listed. Construct coil casing with a minimum of 20-gage zinc coated steel. Elements shall be nickel chrome and supported by ceramic insulators. The integral control panel shall be housed in a NEMA 1 enclosure, with an access door to all controls and safety devices. Electric coils shall contain a primary automatic reset thermal cut-out and differential pressure airflow switch for proof of airflow. Heaters shall be:

- a. Designed for the capacity, electrical characteristics, and steps of control, as shown on the equipment schedule.
- b. Open coil construction with 80% nickel, 20% chromium wire supported in free-floating ceramic bushings. Coil frame shall be constructed of corrosion resistant steel.
- c. Factory wired and include all limit switches.
- d. Electric coils shall include fused or nonfused door interlocking disconnect switch, AC Solid State relays for silent operation, fuse block, dust tight enclosure construction, all mounted and/or wired within the control enclosure.
- e. An SSR (solid-state relay) proportional control of electric heat shall meet the requirements of ASHRAE Standard 62, Addenda N.
- f. An SSR proportional electronic controlled electric heater with control of the leaving air temperature limiting the unit discharge temperature to a set value.

Series Variable Air Volume (VAV) Terminal Units Fan-Powered

HVAC Guide Specifications

Size Range: **90 to 3100 Nominal Cfm**

Carrier Model Number (45K Units):

45KA (Analog Electronic Control)

45KC (Carrier Comfort Network® (CCN) VAV Electronic Control)

45KD (BACnet¹ VAV Electronic Controls)

45KN (No Control or DDC by Others)

45KP (Pneumatic Control)

Part 1 — General

1.01 SYSTEM DESCRIPTION:

- A. Fan powered terminal shall be completely factory assembled and wired, with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing.
- B. Primary airflow controller shall compensate for central system pressure fluctuations. When room temperature requires maximum heating, the (Direct Digital Electronic) (Analog Electronic) (Pneumatic) pressure independent velocity controller shall maintain the minimum primary airflow setting by modulating the damper. The induction fan shall run and the staged electric heating coil (Hot Water Coil), if supplied, shall be energized (Activated). As room temperature begins to rise, the heating coil shall be deenergized (Deactivated). As room temperature calls for maximum cooling, the velocity controller shall maintain the maximum primary airflow setting. To prevent the fan/motor from running in the backward direction, the unit induced air fan shall be field wired so that it is electrically or pneumatically interlocked with the central system fan.

1.02 QUALITY ASSURANCE:

- A. Insulation shall meet NFPA 90A requirements for flame spread and smoke generation and UL 181 requirements for anti-erosion, corrosion and fungus properties.
- B. Hot water coils, when specified, shall be tested for leakage at 250 psig with the coil submerged in water.
- C. Electric heating coils, when specified, shall be UL or ETL listed and designed to comply with UL Standard 1995.
- D. The terminal unit shall be ETL listed as a complete assembly. All electrical components shall be UL listed and installed in accordance with the National Electric Code. All electrical components shall be mounted in sheet metal control enclosures. Electrical connections shall be single point.
- E. Sound power levels shall be AHRI certified in accordance with the requirements of AHRI 880-11.

Part 2 — Products

2.01 Equipment

A. General:

Factory assembled, externally powered, horizontal fan powered terminal unit with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing. Unit shall be complete with a damper assembly, flow sensor, externally mounted volume controller, collars for duct connection and all required features. Control box shall be clearly marked with an identification label that lists such information as nominal cfm, maximum and minimum airflow limits, coil type and coil hand, where applicable.

B. Unit Cabinet:

Constructed of 22-gage (20 gage optional) galvanized steel with round or rectangular inlet collar and rectangular discharge with slip and drive connection. All primary air inlet collars shall accommodate standard flex duct sizes.

C. Insulation:

1. Standard casing shall be lined with 1/2-in. thick, 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A. Insulation shall be attached to the unit casing by adhesive and weld pins.

2. Optional Insulation:

a. 1-in. Thick Insulation:

Unit casing shall be lined with dual density, 1-in. thick, 1 1/2 lb. density fiberglass insulation that meets UL 181 and NFPA 90A.

b. Cellular Insulation:

Unit casing shall be lined with 1/2-in. or 1-in. thick, 1 1/2 lb. density, smooth surface, polyolefin, closed-cell foam insulation for fiber free application. Cellular insulation meets UL 181 and NFPA 90A and does not support mold or bacteria growth. Insulation shall be attached to the unit casing by adhesive and weld pins.

c. Steriliner Insulation:

Unit casing shall be lined with 13/16-in. thick, 4 lb. density, rigid board insulation with nylon reinforced foil covering insulation fibers that meets UL 181 and NFPA 90A. Liner shall be attached to unit casing by adhesive and weld pins with full-seam-length Z-strips to enclose and seal the insulation cut edges.

d. STERILWALL INSULATION:

Unit casing shall be lined with 1/2-in. thick, 1 1/2 lb. density insulation, meeting UL 181 and NFPA 90A, enclosed between the unit casing and a non-perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.

e. Perforated Double Wall:

Unit casing shall be lined with 1/2-in., 1 1/2 lb. dual density fiberglass insulation that meets

1. BACnet is a registered trademark of ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers).

UL 181 and NFPA 90A, enclosed between the unit casing and a perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.

D. Damper Assembly:

The control air damper assembly shall be constructed of heavy gauge galvanized steel with solid shaft rotating in Delrin¹ bearings. Damper shaft shall be marked on end to indicate damper position. Damper blade shall incorporate a flexible gasket for tight airflow shutoff and operate over a full 90 degrees.

E. Fan(s):

Fan shall be of the forward curve, centrifugal type. The fan motor shall be single speed, multi-voltage (120, 208/240, 277), 60 cycle, single phase, energy efficient design, permanently lubricated, using permanent split capacitor for starting and be specifically designed for use with an SCR fan speed-controller. Motor must have thermal overload protection. The fan motor shaft shall be connected directly to the fan and the entire fan assembly shall be isolated from the unit casing to prevent transmission of vibration.

F. Electrical Requirements:

Units shall have a single connection for power, and operate on 120, 208/240 or 277 VAC (standard) single phase, 60 Hz power as shown on the equipment schedule. Units with three-phase electric heat shall be factory wired for single point performance (including 208/240v 3-wire or 480v 4-wire). When specified and coordinated, units shall be wired and shipped with proportionally connected phasing.

G. Controls:

1. Units shall have pressure-independent pneumatic, electronic, or communicating controls, as specified, capable of maintaining required airflow set points $\pm 5\%$ of the unit's capacity at any inlet pressure up to 6-in. wg. The controllers shall be capable of resetting between factory or field-set maximum and minimum (>350 fpm inlet duct velocity) set points to satisfy the room thermostat demand.
2. The unit shall be equipped with an amplified flow probe located in the unit inlet. Air flow for the pressure independent controller (supplied by others) shall be determined with a factory supplied 12 point total pressure, center averaging cross flow sensor, having a magnification resulting in no greater than 2625 fpm at 1-in. developed signal.

H. Special Features:

1. Hot Water Heating Coil:

Coil shall be mounted in a minimum 20 Ga. Galvanized steel casing with slip and drive dis-

charge connections, and factory mounted on the base unit as shown on the equipment drawings. Coils shall have:

- a. Aluminum fins (10 ft/in.) bonded to the copper tubes by mechanical expansion.
- b. Number of coil rows and circuits shall be selected to provide performance as required by the plans.
- c. Up to 2 rows as shown on equipment drawings or designed on the equipment schedule. Right or left-hand fittings with sweat connection sizes as indicated on equipment drawings.

2. Electric Heating Coil:

Electric coils shall be supplied by the terminal unit manufacturer and shall be UL listed. Construct coil casing with minimum of 20-gage zinc coated steel. Elements shall be nickel chrome and supported by ceramic isolators. The integral control panel shall be housed in a NEMA 1 enclosure, with access door to all controls and safety devices. Electric coils shall contain a primary automatic reset thermal cutout and differential pressure airflow switch for proof of airflow. Heaters shall be:

- a. Designed for the capacity, electrical characteristics and steps of control as shown on the equipment schedule.
- b. Open coil construction with 80% nickel, 20% chromium wire supported in free-floating ceramic bushings. Coil frame shall be constructed of corrosion resistant steel.
- c. Factory wired and include all limit switches.
- d. Electric coils shall include fused or non-fused door interlocking disconnect switch, AC Solid State relays for silent operation, fuse block, dust tight enclosure construction, all mounted and/or wired within the control enclosure.
- e. An SSR (solid-state relay) proportional control of electric heat shall meet requirements of ASHRAE Standard 62, Addenda N.
- f. An SSR proportional electronic controlled electric heater with control of the leaving air temperature limiting the unit discharge temperature to a set value.

3. ECM Fan Motor:

The fan motor shall be [120, 208/240, or 277 volt, single-phase] ECM (electronically commutated motor) fan motors including either a VCU or ACU speed controller. The VCU fan speed control is manually field set and is field adjustable with digital display alternating between RPM and percentage full flow. The ACU control provides a means to remotely set and/or adjust the fan speed.

1. Delrin is a registered trademark of DuPont.

Parallel Variable Air Volume Terminal Units Fan-Powered

HVAC Guide Specifications

Size Range: **90 to 3300 Nominal cfm**

Carrier Model Number (45N Units):

45NA (Analog Electronic Control)

45NC (Carrier Comfort Network® (CCN) VAV Electronic Control)

45ND (BACnet¹ VAV)

45NN (No Control or DDC by Others)

45NP (Pneumatic Control)

45NV (CCN Variable Volume and Temperature [VVT®])

45NB (BACnet VVT Electronic Controls)

Part 1 — General

1.01 SYSTEM DESCRIPTION:

- A. Fan powered terminal unit shall be completely factory assembled and wired, with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing.
- B. Primary airflow controller shall compensate for central system pressure fluctuations. When room temperature requires maximum heating, the (Direct Digital Electronic) (Analog Electronic) (Pneumatic) pressure independent velocity controller shall maintain the minimum primary airflow setting by modulating the damper. The induction fan shall run and the staged electric heating coil (Hot Water Coil), if supplied, shall be energized (Activated). As room temperature begins to rise, the heating coil shall be deenergized (Deactivated). As room temperature calls for maximum cooling, the velocity controller shall maintain the maximum primary airflow setting. Unit shall contain a back-draft damper to prevent loss of primary air when the fan is not operating.

1.02 QUALITY ASSURANCE

- A. Insulation shall meet NFPA 90A requirements for flame spread and smoke generation and UL 181 requirements for anti-erosion, corrosion and fungus properties.
- B. Hot water coils, when specified, shall be tested for leakage at 250 psig with the coil submerged in water.
- C. Electric heating coils, when specified shall be UL or ETL listed and designed to comply with UL Standard 1995.
- D. The terminal unit shall be ETL listed as a complete assembly. All electrical components shall be UL listed and installed in accordance with the National Electric Code. All electrical components shall be mounted in sheet metal control enclosures. Electrical connections shall be single point.
- E. Sound power levels shall be AHRI certified in accordance with the requirements of AHRI 880-11.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory assembled, externally powered, horizontal fan powered terminal unit with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing. Unit shall be complete with a damper assembly, flow sensor, externally mounted volume controller, collars for duct connection and all required features. Control box shall be clearly marked with an identification label that lists such information as nominal cfm, maximum and minimum airflow limits, coil type and coil hand, where applicable.

B. Unit Cabinet:

Constructed of 22-gage (20 gage optional) galvanized steel with round or rectangular inlet collar and rectangular discharge with slip and drive connection. All primary air inlet collars shall accommodate standard flex duct sizes.

C. Insulation:

1. Standard casing shall be lined with 1/2-in. thick, 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A. Insulation shall be attached to the unit casing by adhesive and weld pins.
2. Optional Insulation:
 - a. 1-in. Thick Insulation: Unit casing shall be lined with dual density, 1-in. thick, 1 1/2 lb. density fiberglass insulation that meets UL 181 and NFPA 90A.
 - b. Cellular Insulation: Unit casing shall be lined with 1/2-in. or 1-in. thick, 1 1/2 lb. density, smooth surface, polyolefin, closed-cell foam insulation for fiber free application. Cellular insulation meets UL 181 and NFPA 90A and does not support mold or bacteria growth. Insulation shall be attached to the unit casing by adhesive and weld pins.
 - c. Steriliner Insulation: Unit casing shall be lined with 13/16-in. thick, 4 lb. density, rigid board insulation with nylon reinforced foil covering insulation fibers that meets UL 181 and NFPA 90A. Liner shall be attached to unit casing by adhesive and weld pins with full-seam-length Z-strips to enclose and seal the insulation cut edges.
 - d. Sterilwall Insulation: Unit casing shall be lined with 1/2-in. thick, 1 1/2 lb. density insulation, meeting UL 181 and NFPA 90A, enclosed between the unit casing and a non-perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.
 - e. Perforated Double Wall: Unit casing shall be lined with 1/2-in., 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A, enclosed between the unit

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casing and a perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.

D. Damper Assembly:

The control air damper assembly shall be constructed of heavy gauge galvanized steel with solid shaft rotating in Delrin¹ bearings. Damper shaft shall be marked on the end to indicate damper position. Damper blade shall incorporate a flexible gasket for tight airflow shutoff and operate over a full 90 degrees.

E. Fan(s):

Fan shall be of the forward curve, centrifugal type. The fan motor shall be single speed, multi-voltage (120, 208/240, 277), 60 cycle, single phase, energy efficient design, permanently lubricated, using permanent split capacitor for starting and be specifically designed for use with an SCR fan speed-controller. Motor must have thermal overload protection. The fan motor shaft shall be connected directly to the fan and the entire fan assembly shall be isolated from the unit casing to prevent transmission of vibration.

F. Electrical Requirements:

Units shall have a single connection for power, and operate on 120,208/240 or 277 VAC (standard) single phase, 60 Hz power as shown on the equipment schedule. Units with three-phase electric heat shall be factory wired for single point performance (including 208/240v 3-wire or 480v 4-wire). When specified and coordinated, units shall be wired and shipped with proportionally connected phasing.

G. Controls:

1. Units shall have pressure-independent pneumatic, electronic, or communicating controls, as specified, capable of maintaining required airflow set points $\pm 5\%$ of the unit's capacity at any inlet pressure up to 6-in. wg. The controllers shall be capable of resetting between factory or field-set maximum and minimum (>350 fpm inlet duct velocity) set points to satisfy the room thermostat demand.
2. The unit shall be equipped with an amplified flow probe located in the unit inlet. Air flow for the pressure independent controller (supplied by others) shall be determined with a factory supplied 12 point total pressure, center averaging cross flow sensor, having a magnification resulting in no greater than 2625 fpm at 1-in. developed signal.

H. Special Features:

1. Hot Water Heating Coil:

Coil shall be mounted in a minimum 20 Ga. Galvanized steel casing with slip and drive

discharge connections, and factory mounted on the base unit as shown on the equipment drawings. Coils shall have:

- a. Aluminum fins (10 ft/in.) bonded to the copper tubes by mechanical expansion.
- b. Number of coil rows and circuits shall be selected to provide performance as required by the plans.
- c. Up to 2 rows as shown on equipment drawings or designed on the equipment schedule. Right or left-hand fittings with sweat connection sizes as indicated on equipment drawings.

2. Electric Heating Coil:

Electric coils shall be supplied by the terminal unit manufacturer and shall be UL listed. Construct coil casing with minimum of 20-gage zinc coated steel. Elements shall be nickel chrome and supported by ceramic isolators. The integral control panel shall be housed in a NEMA 1 enclosure, with access door to all controls and safety devices. Electric coils shall contain a primary automatic reset thermal cutout and differential pressure airflow switch for proof of airflow. Heaters shall be:

- a. Designed for the capacity, electrical characteristics and steps of control as shown on the equipment schedule.
- b. Open coil construction with 80% nickel, 20% chromium wire supported in free-floating ceramic bushings. Coil frame shall be constructed of corrosion resistant steel.
- c. Factory wired and include all limit switches.
- d. Electric coils shall include fused or non-fused door interlocking disconnect switch, AC Solid State relays for silent operation, fuse block, dust tight enclosure construction, all mounted and/or wired within the control enclosure.
- e. An SSR (solid-state relay) proportional control of electric heat shall meet requirements of ASHRAE Standard 62, Addenda N.
- f. An SSR proportional electronic controlled electric heater with control of the leaving air temperature limiting the unit discharge temperature to a set value.

3. ECM Fan Motor:

The fan motor shall be [120, 208/240, or 277 volt, single-phase] ECM (electronically commutated motor) fan motors including either a VCU or ACU speed controller. The VCU fan speed control is manually field set and is field adjustable with digital display alternating between RPM and percentage full flow. The ACU control provides a means to remotely set and/or adjust the fan speed.

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Series Low Profile Fan Powered Terminal Unit

HVAC Guide Specifications

Size Range: **90 to 1970 Nominal cfm**

Carrier Model Number (45Q Units):

45QA (Analog Electronic Control)

45QC (Carrier Comfort Network® (CCN) VAV Electronic Control)

45QD (BACnet¹ VAV)

45QN (No Control or DDC by Others)

45QP (Pneumatic Control)

Part 1 — General

1.01 SYSTEM DESCRIPTION:

- A. Fan powered terminal unit shall be completely factory assembled and wired, with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing.
- B. Primary airflow controller shall compensate for central system pressure fluctuations. When room temperature requires maximum heating, the Direct Digital pressure independent velocity controller shall maintain the minimum primary airflow setting by modulating the damper. The induction fan shall run and the staged electric heating coil (Hot Water Coil), if supplied, shall be energized (Activated). As room temperature begins to rise, the heating coil shall be deenergized (Deactivated). As room temperature calls for cooling, the velocity controller shall maintain the cooling primary airflow setting. To prevent the fan/motor from running in the backward direction, the unit induced air fan shall be field wired so that it is electrically or pneumatically interlocked with the central system fan.

1.02 QUALITY ASSURANCE

- A. Insulation shall meet NFPA 90A requirements for flame spread and smoke generation and UL 181 requirements for anti-erosion, corrosion and fungus properties.
- B. Hot water coils, when specified, shall be tested for leakage at 250 psig with the coil submerged in water.
- C. Electric heating coils, when specified shall be UL or ETL listed and designed to comply with UL Standard 1995.
- D. The terminal unit shall be ETL listed as a complete assembly. All electrical components shall be UL listed and installed in accordance with the National Electric Code. All electrical components shall be mounted in sheet metal control enclosures. Electrical connections shall be single point.
- E. Sound power levels shall be AHRI certified in accordance with the requirements of AHRI 880-11.

1. BACnet is a registered trademark of ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers).

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory assembled, externally powered, horizontal fan powered terminal unit with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing. Unit shall be complete with a damper assembly, flow sensor, externally mounted volume controller, collars for duct connection and all required features. Control box shall be clearly marked with an identification label that lists such information as nominal cfm, maximum and minimum airflow limits, coil type and coil hand, where applicable.

B. Unit Cabinet:

Constructed of 22-gage (20 gage optional) galvanized steel with round or rectangular inlet collar and rectangular discharge with slip and drive connection. All primary air inlet collars shall accommodate standard flex duct sizes.

C. Insulation:

1. Standard casing shall be lined with 1/2-in. thick, 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A. Insulation shall be attached to the unit casing by adhesive and weld pins.
2. Optional Insulation:
 - a. 1-in. Thick Insulation: Unit casing shall be lined with dual density, 1-in. thick, 1 1/2 lb. density fiberglass insulation that meets UL 181 and NFPA 90A.
 - b. Cellular Insulation: Unit casing shall be lined with 1/2-in. or 1-in. thick, 1 1/2 lb. density, smooth surface, polyolefin, closed-cell foam insulation for fiber free application. Cellular insulation meets UL 181 and NFPA 90A and does not support mold or bacteria growth. Insulation shall be attached to the unit casing by adhesive and weld pins.
 - c. Sterilwall Insulation: Unit casing shall be lined with 1/2-in. thick, 1 1/2 lb. density insulation, meeting UL 181 and NFPA 90A, enclosed between the unit casing and a non-perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.
 - d. Perforated Double Wall: Unit casing shall be lined with 1/2-in., 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A, enclosed between the unit casing and a perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.

D. Damper Assembly:

The control air damper assembly shall be constructed of heavy gauge galvanized steel with solid

shaft rotating in Delrin¹ bearings. Damper shaft shall be marked on the end to indicate damper position. Damper blade shall incorporate a flexible gasket for tight airflow shutoff and operate over a full 90 degrees.

E. Fan(s):

Fan shall be of the forward curve, centrifugal type. The fan motor shall be single speed, multi-voltage (120, 208/240, 277), 60 cycle, single phase, energy efficient design, permanently lubricated, using permanent split capacitor for starting and be specifically designed for use with an SCR fan speed-controller. Motor must have thermal overload protection. The fan motor shaft shall be connected directly to the fan and the entire fan assembly shall be isolated from the unit casing to prevent transmission of vibration. The fan assembly shall be attached to the unit using lance/tab construction for ease of removal.

F. Electrical Requirements:

Units shall have a single connection for power, and operate on 120, 208/240 or 277 VAC (standard) single phase, 60 Hz power as shown on the equipment schedule. Units with three-phase electric heat shall be factory wired for single point performance (including 208/240v 3-wire or 480v 4-wire). When specified and coordinated, units shall be wired and shipped with proportionally connected phasing.

G. Controls:

1. Units shall have pressure-independent pneumatic, electronic, or communicating controls, as specified, capable of maintaining required airflow set points $\pm 5\%$ of the unit's capacity at any inlet pressure up to 6-in. wg. The controllers shall be capable of resetting between factory or field-set maximum and minimum (>350 fpm inlet duct velocity) set points to satisfy the room thermostat demand.
2. The unit shall be equipped with an amplified flow probe located in the unit inlet. Air flow for the pressure independent controller (supplied by others) shall be determined with a factory supplied 12 point total pressure, center averaging cross flow sensor, having a magnification resulting in no greater than 2625 fpm at 1-in. developed signal.

H. Special Features:

1. Hot Water Heating Coil:

Coil shall be mounted in a minimum 20 Ga. Galvanized steel casing with slip and drive discharge connections, and factory mounted on the base unit as shown on the equipment drawings. Coils shall have:

- a. Aluminum fins (10 ft/in.) bonded to the copper tubes by mechanical expansion.

- b. Number of coil rows and circuits shall be selected to provide performance as required by the plans.

- c. Up to 2 rows as shown on equipment drawings or designed on the equipment schedule. Right or left-hand fittings with sweat connection sizes as indicated on equipment drawings.

2. Electric Heating Coil:

Electric coils shall be supplied by the terminal unit manufacturer and shall be UL listed. Construct coil casing with minimum of 20-gage zinc coated steel. Elements shall be nickel chrome and supported by ceramic isolators. The integral control panel shall be housed in a NEMA 1 enclosure, with access door to all controls and safety devices. Electric coils shall contain a primary automatic reset thermal cutout and differential pressure airflow switch for proof of airflow. Heaters shall be:

- a. Designed for the capacity, electrical characteristics and steps of control as shown on the equipment schedule.
- b. Open coil construction with 80% nickel, 20% chromium wire supported in free-floating ceramic bushings. Coil frame shall be constructed of corrosion resistant steel.
- c. Factory wired and include all limit switches.
- d. Electric coils shall include fused or non-fused door interlocking disconnect switch, AC Solid State relays for silent operation, fuse block, dust tight enclosure construction, all mounted and/or wired within the control.
- e. An SSR (solid-state relay) proportional control of electric heat shall meet requirements of ASHRAE Standard 62, Addenda N.
- f. An SSR proportional electronic controlled electric heater with control of the leaving air temperature limiting the unit discharge temperature to a set value.

3. ECM Fan Motor:

- a. The fan motor shall be [120, 208/240, or 277 Volt, single-phase] ECM (electronically commutated motor) including either a VCU or ACU speed controller. The VCU fan speed control is manually field set and is field adjustable with digital display alternating between RPM and percentage full flow. The ACU speed controller communicates with a DDC controller to provide a means to remotely set and/or adjust the fan speed. ACU fan speed controller must provide a manual override option to set the fan. The fan motor shaft shall be connected directly to the fan and the entire fan assembly shall be isolated from the unit casing to prevent transmission of vibration. The fan assembly shall be attached to the unit utilizing lance/tab construction for ease of removal.

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Parallel Low Profile Fan Powered Terminal Unit

HVAC Guide Specifications

Size Range: **90 to 2060 Nominal cfm**

Carrier Model Number (45R Units):

45RA (Analog Electronic Control)

45RC (Carrier Comfort Network® (CCN) VAV Electronic Control)

45RD (BACnet¹ VAV)

45RN (No Control or DDC by Others)

45RP (Pneumatic Control)

45RV (CCN Variable Volume and Temperature [VVT®])

45RB (BACnet VVT Electronic Controls)

Part 1 — General

1.01 SYSTEM DESCRIPTION:

- A. Fan powered terminal unit shall be completely factory assembled and wired, with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing.
- B. Primary airflow controller shall compensate for central system pressure fluctuations. When room temperature requires maximum heating, the Direct Digital pressure independent velocity controller shall maintain the minimum primary airflow setting by modulating the damper. The induction fan shall run and the staged electric heating coil (Hot Water Coil), if supplied, shall be energized (Activated). As room temperature begins to rise, the heating coil shall be deenergized (Deactivated). As room temperature calls for cooling, the velocity controller shall maintain the cooling primary airflow setting. To prevent the fan/motor from running in the backward direction, the unit induced air fan shall be field wired so that it is electrically or pneumatically interlocked with the central system fan.

1.02 QUALITY ASSURANCE

- A. Insulation shall meet NFPA 90A requirements for flame spread and smoke generation and UL 181 requirements for anti-erosion, corrosion and fungus properties.
- B. Hot water coils, when specified, shall be tested for leakage at 250 psig with the coil submerged in water.
- C. Electric heating coils, when specified shall be UL or ETL listed and designed to comply with UL Standard 1995.
- D. The terminal unit shall be ETL listed as a complete assembly. All electrical components shall be UL listed and installed in accordance with the National Electric Code. All electrical components shall be mounted in sheet metal control enclosures. Electrical connections shall be single point.

- E. Sound power levels shall be AHRI certified in accordance with the requirements of AHRI 880-11.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory assembled, externally powered, horizontal fan powered terminal unit with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing. Unit shall be complete with a damper assembly, flow sensor, externally mounted volume controller, collars for duct connection and all required features. Control box shall be clearly marked with an identification label that lists such information as nominal cfm, maximum and minimum airflow limits, coil type and coil hand, where applicable.

B. Unit Cabinet:

Constructed of 22-gage (20 gage optional) galvanized steel with round or rectangular inlet collar and rectangular discharge with slip and drive connection. All primary air inlet collars shall accommodate standard flex duct sizes.

C. Insulation:

1. Standard casing shall be lined with 1/2-in. thick, 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A. Insulation shall be attached to the unit casing by adhesive and weld pins.
2. Optional Insulation:
 - a. 1-in. Thick Insulation: Unit casing shall be lined with dual density, 1-in. thick, 1 1/2 lb. density fiberglass insulation that meets UL181 and NFPA-90A.
 - b. Cellular Insulation: Unit casing shall be lined with 1/2-in. or 1-in. thick, 1 1/2 lb. density, smooth surface, polyolefin, closed-cell foam insulation for fiber free application. Cellular insulation meets UL 181 and NFPA 90A and does not support mold or bacteria growth. Insulation shall be attached to the unit casing by adhesive and weld pins.
 - c. Steriliner Insulation: Unit casing shall be lined with 13/16-in. thick, 4 lb. density, rigid board insulation with nylon reinforced foil covering insulation fibers that meets UL 181 and NFPA 90A. Liner shall be attached to unit casing by adhesive and weld pins with full-seam-length Z-strips to enclose and seal the insulation cut edges.
 - d. Steriwall Insulation: Unit casing shall be lined with 1/2-in. thick, 1 1/2 lb. density insulation, meeting UL181 and NFPA-90A, enclosed between the unit casing and a non-perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.

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- e. Perforated Double Wall: Unit casing shall be lined with $\frac{1}{2}$ -in., 1 $\frac{1}{2}$ lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A, enclosed between the unit casing and a perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.

D. Damper Assembly:

The control air damper assembly shall be constructed of heavy gauge galvanized steel with solid shaft rotating in Delrin¹ bearings. Damper shaft shall be marked on the end to indicate damper position. Damper blade shall incorporate flexible gasket for tight airflow shutoff and operate over a full 90 degrees.

E. Fan(s):

Fan shall be of the forward curve, centrifugal type. The fan motor shall be single speed, multi-voltage (120, 208/240, 277), 60 cycle, single phase, energy efficient design, permanently lubricated, using permanent split capacitor for starting and be specifically designed for use with an SCR fan speed-controller. Motor must have thermal overload protection. The fan motor shaft shall be connected directly to the fan and the entire fan assembly shall be isolated from the unit casing to prevent transmission of vibration.

F. Electrical Requirements:

Units shall have a single connection for power, and operate on 120, 208/240 or 277 VAC (standard) single phase, 60 Hz power as shown on the equipment schedule. Units with three-phase electric heat shall be factory wired for single point performance (including 208/240v 3-wire or 480v 4-wire). When specified and coordinated, units shall be wired and shipped with proportionally connected phasing.

G. Controls:

1. Units shall have pressure-independent pneumatic, electronic, or communicating controls, as specified, capable of maintaining required airflow set points $\pm 5\%$ of the unit's capacity at any inlet pressure up to 6-in. wg. The controllers shall be capable of resetting between factory or field-set maximum and minimum (>350 fpm inlet duct velocity) set points to satisfy the room thermostat demand.
2. The unit shall be equipped with an amplified flow probe located in the unit inlet. Air flow for the pressure independent controller (supplied by others) shall be determined with a factory supplied 12 point total pressure, center

averaging cross flow sensor, having a magnification resulting in no greater than 2625 fpm at 1-in. developed signal.

H. Special Features:

1. Hot Water Heating Coil:

Coil shall be mounted in a minimum 20 Ga. Galvanized steel casing with slip and drive discharge connections, and factory mounted on the base unit as shown on the equipment drawings. Coils shall have:

- a. Aluminum fins (10 ft/in.) bonded to the copper tubes by mechanical expansion.
- b. Number of coil rows and circuits shall be selected to provide performance as required by the plans.
- c. Up to 2 rows as shown on equipment drawings or designed on the equipment schedule. Right or left-hand fittings with sweat connection sizes as indicated on equipment drawings.

2. Electric Heating Coil:

Electric coils shall be supplied by the terminal unit manufacturer and shall be UL listed. Construct coil casing with minimum of 20-gage zinc coated steel. Elements shall be nickel chrome and supported by ceramic isolators. The integral control panel shall be housed in a NEMA 1 enclosure, with access door to all controls and safety devices. Electric coils shall contain a primary automatic reset thermal cutout and differential pressure airflow switch for proof of airflow. Heaters shall be:

- a. Designed for the capacity, electrical characteristics and steps of control as shown on the equipment schedule.
- b. Open coil construction with 80% nickel, 20% chromium wire supported in free-floating ceramic bushings. Coil frame shall be constructed of corrosion resistant steel.
- c. Factory wired and include all limit switches.
- d. Electric coils shall include fused or non-fused door interlocking disconnect switch, AC solid-state relays for silent operation, fuse block, dust tight enclosure construction, all mounted and/or wired within the control.
- e. An SSR (solid-state relay) proportional control of electric heat shall meet requirements of ASHRAE Standard 62, Addenda N.
- f. An SSR proportional electronic controlled electric heater with control of the leaving air temperature limiting the unit discharge temperature to a set value.

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Guide specifications — 45R units (cont)

3. ECM Fan Motor:

- a. Fan motor shall be [120, 208/240, or 277 Volt, single-phase] ECM (electronically commutated motor) including either a (VCU), (ACU) speed controller. VCU fan speed control is manually field set and is field adjustable with digital display alternating between RPM and percentage full flow. The ACU speed controller communicates with a DDC controller to provide a means

to remotely set and/or adjust fan speed. ACU fan speed controller must provide manual override option to set fan. The fan motor shaft shall be connected directly to fan and entire fan assembly shall be isolated from unit casing to prevent transmission of vibration. Fan assembly shall be attached to unit using lance/tab construction for ease of removal.