

## Mechanical Specifications

### GENERAL DESCRIPTION—VERTICAL CLASSIC FAN COIL UNITS

**FHC** – Vertical Hideaway

**FVC** – Vertical Sloped Top Cabinet

**FXC** – Vertical Cabinet

## PART 1 – GENERAL

### 1.1 SUMMARY

A. This section includes fan coil units and accessories.

### 1.2 SYSTEM DESCRIPTION

A. Vertical Fan Coil Units, 2-pipe, 4-pipe, or 2-pipe with electric heat, concealed or exposed cabinets that are floor mounted.

### 1.3 QUALITY ASSURANCE

A. Coils shall be tested in accordance with AHRI Standard 440-2008. Each coil shall be factory tested for leakage at 300 psig air pressure with coil submerged in water.

B. Base or “standard” units shall be ETL listed.

### 1.4 DELIVERY, STORAGE AND HANDLING

A. Unit shall be handled and stored in accordance with the manufacturer’s instructions.

## PART 2 – PRODUCTS

### 2.1 MANUFACTURER

A. Basis of design shall be fan coils by International Environment Corporation.

### 2.2 CONFIGURATION

A. General:

1. Factory assembled vertical fan coil units complete with coil, fan, motor, drain pan, and all required wiring, piping and controls.
2. Cabinet shall be made of heavy gauge galvanized steel.
3. The interior surfaces in the airstream shall be lined with [1/2” thick standard fiberglass] [1/2” thick Premium IAQ fiberglass] [1/2” foil faced] [1/4” closed cell] insulation. Insulation and adhesive shall meet NFPA-90A requirements for flame spread and smoke generation.
4. Adhesive shall be certified according to the GREENGUARD Indoor Air Quality (IAQ) Certification for Low Emitting Products. Reference Standard: GGPS.001 GREENGUARD IAQ Standard for Building Materials, Finishes, and Furnishings. Reference Standard: GGPS.002 GREENGUARD Children & Schools<sup>SM</sup> Standard.
5. Units shall have a decoupled interior drain pan and fan deck. The fan deck shall be constructed of 18-gauge [galvanized] [stainless] steel extending the entire width of the coil.
6. [Painted galvanized, interior drain pans shall be externally coated] [Stainless steel pans shall be externally coated] with 2-part closed cell foam insulation.
7. Units shall have [non-woven synthetic throwaway] [permanent] [pleated MERV 8] [pleated MERV 13] filter.

B. FHC Floor Hideaway Units:

1. Units shall be supplied with a duct collar for supply duct connection.
2. Units shall be configured for [top supply] [front supply] as indicated on the plans.

C. FXC, FVC Floor Exposed Units:

1. Cabinet shall be painted with an [Arctic White] [color determined by Architect] powder-coat finish.
2. Front panel shall be fastened with tamper proof quarter-turn fasteners.

3. Cabinet shall be free standing with [two access doors] [one access door] [no access doors].
4. Top panel shall be supplied with a [stamped] [double deflection, aluminum finish] [double deflection, steel construction, painted to match cabinet] supply grille.
5. Top panel on the FVC unit shall slope down from back to front at an angle of 25 degrees.
6. Stamped grille on FVC case top shall be [forward stamped] [reverse stamped] and shall provide discharge into the room at a nominal [60 degrees] [30 degrees] from the vertical.

## 2.3 CERTIFICATION

### A. Safety:

Units shall be listed by ETL indicating the units comply with the minimum requirements of the U.S. and Canadian national product safety standard, ANSI/UL Standard 1995, and with CAN/CSA C22.2 No. 236.

### B. Capacities:

Coil capacities are tested in accordance with AHRI Standard 440-2008.

## 2.4 MATERIALS

### A. Coils:

All coils shall have 3/8" copper tubes, [manual] [automatic] air vent(s), and [aluminum] [copper] fins, 12 fins per inch spacing. Coil fins shall be mechanically bonded to copper tubes. Copper tubes must comply with ASTM B-75. Fin thickness shall be 0.0045" and tube thickness shall be 0.014". All coils shall be leak tested with air at 300 psig under water.

### B. Valves:

1. For installation in a 2-pipe system, unit shall be equipped with:
  - a. 3-row or 4-row coil as indicated on the plans
  - b. 2 manual ball valves for service
  - c. 1 motorized control valve, 300 psig service, [25 psid close-off paddle-type] [150 psid ball-type] with quick-release actuator
2. For installation in a 4-pipe system, unit shall be equipped with:
  - a. 3/1, 3/2 or 4/1 row-split coil, as indicated on the plans
  - b. 4 manual ball valves for service
  - c. 2 motorized control valves, 300 psig service, [25 psid close-off paddle-type] [150 psid ball-type] with quick-release actuator

### C. Fans:

1. Fans shall be direct-drive, double-width fan wheels with forward-curved blades.
2. Blower wheels shall be statically and dynamically balanced.
3. Scrolls and fan wheels shall be constructed of galvanized steel.
4. Shall be easily removable.

### D. Fan Speed and Temperature Control:

1. Three speed (high, medium, low) control, [wall-mounted, off-on-auto] [unit-mounted, constant-fan] (auto / manual changeover) thermostat as indicated on the plans.

### E. Motors:

1. Motors shall be 3-speed, single phase, 60 Hz permanent split capacitor type for [115] [208] [230] [277] volts, permanently lubricated, with ball bearings.
  1. Alternate: Motors shall be multi-speed, single phase, 60 Hz constant-torque brushless DC motors with means for field adjustment of each speed, for [115] [208] [230] [277] volts, permanently lubricated, with ball bearings. Shall be North American manufactured in an ISO 9001 facility, controlled by an integrated module (separate control module shall not be acceptable), and capable of accepting proportional control signals without additional electrical components.
  2. Motors shall be connected with quick connect electrical plugs.
  3. Motors shall have internal thermal overload protection with automatic reset.

### F. Controls and Safeties:

1. Controls:

a. [Unit shall be furnished with a 3-speed, 4-position fan switch] [unit-mounted]  
[on a wall plate for field installation.] [Reference Fan Coil Unit Controls section.]

2. Safeties:

a. Unit fan motor shall be equipped with integral motor protection.

G. Operating Characteristics:

1. A 2-pipe system shall be capable of providing heating or cooling as determined by the operating mode of the central water supply system.

2. A 4-pipe system shall be capable of providing heating and cooling on demand.

H. Options and Accessories:

1. Service switch with lock-out & tag-out features shall be factory installed.

2. Units shall be equipped with 24V controls.

3. Units shall be equipped with 24V controls and high level condensate switch.