# HORIZONTAL LOW PROFILE FAN COIL UNITS • IN ROOM – 40H SERIES

1. General

 Furnish and install Engineered Comfort Model 40H Series Low Profile Horizontal Fan Coil Units where indicated on the plans and in the specifications.

2. Constriction

a. All units shall be Direct Drive – Blow Through configuration and completely factory assembled, tested and shipped as one piece. All units shall be capable of meeting or exceeding the scheduled capacities for cooling, heating and air delivery. All unit dimensions, for each model and size, shall be considered maximums. Units shall be UL or ETL, listed in compliance with UL/ANSI Standard, and be certified as complying with the latest edition of AHRI Standard 440 and meets the requirements of NFPA 90A and UL 181.

b. All unit chassis shall be fabricated of heavy gauge galvanized steel panels able to meet 125 hour salt spray test per ASTM B-117. 18 ga. (1.31) galvanized steel channel frame. All panels shall be insulated with 1/2" (13) thick closed cell Fiber-free/foam and rated for air velocity of 6000 FPM Insulation must meet all requirements of ASTM C1071 (including C665), UL 181 for erosion, and carry a 25/50 rating for flame spread/smoke developed per ASTM E-84, UL 723 and NFPA 90A.

c. Unit cabinet shall have side and bottom full size access panels (if applicable) on 40H for ease of maintenance and service and motor blower removal. Access panels shall be attached to casing with screws.

Optional

* Aluminum foil-faced insulation (steri-liner), meets ASTM Standards C-665 and C-1136 for biological growth in insulation. All exposed edges shall be sealed to prevent any fibers from reaching the air stream.
* Close cell fiber-free liner. Insulation shall conform to UL 181 for erosion and NFPA 90A for fire, smoke and melting, and comply with a 25/50 Flame Spread and Smoke Developed Index per ASTM E-84 or UL 723. Additionally, insulation shall comply with Antimicrobial Performance Rating of 0, no observed growth, per ASTM G-21.

d. Unit shall be blow through type with fan dynamically balanced, forwardly curved; DWDI centrifugal type constructed of 18 (1.31) gauge zinc coated galvanized steel for corrosion resistance. The fan assembly shall be removable for servicing the motor and blower at, or away from the unit.

5. Motor

Motor shall be direct drive, isolated from blower and fan housing in two locations with rubber isolators to eliminate any motor vibration being transmitted to the fan housing and duct. Motors shall be high efficiency, permanently lubricated sleeve bearing. Motor wires shall be brought into external hinged door starter- control enclosure to facilitate wiring and service. Motors shall of the Permanent Split Capacitor type with UL and CSA listed automatic reset thermal overload protection and three separate horsepower taps.

6. Sound

Units shall have discharge and radiated sound power levels published and tested in accordance with AHRI Standard 880.

7. Coils

All water coils shall be AHRI 410 certified and tagged with an AHRI 410 label. All coils shall be pressure tested under water at 1.5 times the working pressure classification indicated in the Contract Documents, but the test pressure in no case shall be less than 300 psig. Coils shall have 1/2" (13) O.D. seamless copper tubes, and collared and corrugated aluminum fins. Tube wall thickness of 0.016 to be standard. Coil frames shall be constructed of minimum G-90 galvanized steel. Water velocity in the tubes shall not exceed eight (8) feet per second and the coil face velocity shall not exceed 500 fpm.

* For 4 pipe system a separate heating coil shall be furnished in the reheat position as standard.
* Optional
* For 4 pipe system, a separate heating coil shall be furnished in the preheat position.
* Coil tube wall thickness shall be 0.025 in
* All coils without piping packages shall be provided with a manual air vent fitting to reduce potential air locks within coil.
* All coils shall be provided with an auto air vent fitting to allow for coil venting.

8. Primary condensate drain pans shall be heavy gauge galvanized steel, and extend under the entire cooling coil. Drain pans shall be of one-piece construction, have at least 1" (25) height side and be positively sloped for condensate removal.

The drain pan shall be externally insulated with minimum 3/8" thick fire retardant, closed cell foam insulation. The insulation shall carry no more than a 25/50 Flame Spread and Smoke Developed Rating per ASTM E-84 and UL 723 and an Antimicrobial Performance Rating of "0", no observed growth, per ASTM G-21.

Optional

* Provide a primary drain pan constructed entirely of heavy gauge stainless steel for superior corrosion resistance. Stainless steel drain pans shall be externally insulated and meet or exceed the requirements stated above.
* Provide a secondary drain connection on the primary drain pan for condensate overflow.
* Provide a condensate overflow switch in the primary drain pan for condensate overflow.

9. Standard units can be ordered without filters (40HF excluded).

Optional Filter:

* Unit to be furnished with a minimum 1" (25) nominal glass fiber throwaway filter. Filters shall be tight fitting to prevent air bypass.
* Provide unit with 1" (25) or 2" (51) pleated filters rated at 25-30% efficiency and MERV 8 based on ASHRAE 52.2

10. Electrical

Units shall be furnished with a hinged door starter-control enclosure and wired single point power connection. All power and control wiring shall conform to National Electric Code Standards. Within the control enclosure it shall include all required devices, including but not limited to, service switch, relay, control power transformers and control packages, low voltage remote shutdown relays, etc.

Optional

* 4" x 4" (102 x 102) junction box or controls enclosure (field remote mountable).

11. Electric heat

a. Furnish an electric resistance heating assembly as an integral part of the fan coil unit, with the heating capacity, voltage and kilowatts scheduled. The heater assembly shall be designed and rated for installation on the fan coil unit without the use of duct extensions or transitions, and be located in the unit as to not expose the fan assembly to excessive leaving air temperatures that could affect motor performance.

b. The heater and unit assembly shall be listed for zero clearance and meet all NEC requirements, and be ETL listed with the unit as an assembly in compliance with UL/ANSI Standard. A NEMA 1 enclosure with hinges shall be placed at the side of the fan coil to provide easy access. All motor wiring and heater terminates in the enclosure for single point electrical connection.

c. All heating elements shall be open coil type high grade Class A 80/20 nickel/chrome wire mounted in ceramic insulators and located in an insulated heavy gauge galvanized steel housing. All elements shall terminate in a machine staked stainless steel terminal secured with stainless steel hardware for corrosion resistance. The element support brackets shall be spaced no greater than 3-1/2" (90) on center. All internal wiring shall be rated for 221°F (105°C) minimum. All heaters shall include over temperature protection consisting of an automatic reset primary thermal limit and back up secondary thermal limit. All heaters shall be single stage unless noted otherwise on the plans. All units with electric heat shall be provided with an incoming line power distribution block, designated to accept single point power wiring capable of carrying 125% of the calculated load current.

d. Automatic reset thermal cutouts and an airflow switch shall be furnished for heater protection. A Class 2 transformer shall be provided for low voltage control. The airflow switch shall prove adequate fan airflow before the electric heater can be energized. All devices shall be serviceable through the hinged enclosure and without removing heating element from the unit.

Optional

* Toggle or Door Interlocking Disconnect Switch.
* Power circuit fusing.
* Quiet Type Contactors.
* Dust Tight Control Enclosure.

12. Piping – Valve Packages.

Optional

* Provide a factory assembled valve piping package (ships loose).