

Project: Windermere Manor Project, Oakville, Ontario

July 10, 2012

Contractor: , ,
Engineer: , ,
Representative: ,

Mechanical Specifications

General Specifications

Division 15 - Mechanical - Integrated Piping System

Integrated Piping System - Terminal Fan Coil Units - IPS Terminal units shall be suitable for application in service/domestic hot water and cold water systems. Both hot water and cold water domestic systems shall be connected to the IPS Terminal Unit for heating and cooling. Return piping design shall be direct; isolated from the mechanical system chilled water in accordance with local codes, which would include a double wall, stainless steel heat exchanger or local code approved isolation of refrigerant from the domestic water supply. IPS Terminal units shall include onboard control board with built in daily purge cycle on both heating and cooling valves in accordance with EPA guidelines LCR (lead and copper rule); all components shall meet ANSI standards limits for TAC (Total Allowable Concentration) and SPAC (Single Point Allowable Concentration) for lead.

Furnish and install Williams Model ER Vertical Stack High-Rise Direct Drive Fan Coil Units where indicated on the plans and in the specifications. Units shall be 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 ETL listed and also in compliance with UL/ANSI Standard 1995 (USA) CSA C22.2#236 (CA) and be certified as complying with the latest edition of AHRI Standard 430.

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Furnish and install Williams Model AH Horizontal Belt Drive Fan Coil Units where indicated on the plans and in the specifications. Units shall be 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 ETL listed and also in compliance with UL/ANSI Standard 1995 (USA) CSA C22.2#236 (CA) and be certified as complying with the latest edition of AHRI Standard 430.

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Furnish and install Williams Model HH High Capacity Horizontal Direct Drive Fan Coil Units where indicated on the plans and in the specifications. Units shall be 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 ETL listed and also in compliance with UL/ANSI Standard 1995 (USA) CSA C22.2#236 (CA) and be certified as complying with the latest edition of AHRI Standard 430.

Cabinet Construction

All unit chassis shall be fabricated of heavy gauge galvanized steel for structural stability and product durability.

All exterior panels shall be insulated with 1/2" thick fiberglass with a maximum k value of .24 (BTU • in) / (hr • ft² • °F) and rated for a maximum air velocity of 3600 f.p.m. Insulation shall conform to UL 181 for erosion and NFPA 90A for flame spread (25) and smoke developed (50) rating per ASTM E-84 and UL 723.

For ducted applications all
ER

units shall have a minimum 1" duct collar on the discharge.

All exposed portions of the fan coil units shall have exterior panels fabricated of galvanealed steel and finished with a 385° baked-on tough, epoxy powder-coated finish and subjected to 500 hour salt spray test in accordance with ASTM B117.

All unit chassis shall be fabricated of heavy gauge galvanized steel for structural stability and product durability.

All exterior panels shall be insulated with 1/2" thick fiberglass with a maximum k value of .24 (BTU • in) / (hr • ft² • °F) and rated for a maximum air velocity of 3600 f.p.m. Insulation shall conform to UL 181 for erosion and NFPA 90A for flame spread (25) and smoke developed (50) rating per ASTM E-84 and UL 723.

For ducted applications all AH units shall have a minimum 1" duct collar on the discharge.

All exposed portions of the fan coil units shall have exterior panels fabricated of galvanealed steel and finished with a 385° baked-on tough, epoxy powder-coated finish and subjected to 500 hour salt spray test in accordance with ASTM B117.

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Coil / Drain Pan

Coils are made from 1/2" O.D. copper tubing with a 0.016" wall thickness, tubes are staggered for maximum heat transfer. Fins are high-efficiency aluminum, .0045" thick double-sine with rippled edges spaced at 12-fins-per-inch All hydronic coils are manufactured with either a manual or automatic air vent.

Coils are 100% underwater pressure-tested at 350 PSIG with a 300 PSIG working pressure.

All
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drain pans are constructed of 18-gauge galvanized steel with welded seams, powder-coated epoxy with 1/4" closed cell insulation.. This helps eliminate rust or corrosion and assure sweat-proof operation under adverse dew-point conditions. .

Coils are made from 1/2" O.D. copper tubing with a 0.016" wall thickness, tubes are staggered for maximum heat transfer. Fins are high-efficiency aluminum, .0045" thick double-sine with rippled edges spaced at 10-fins-per-inch All hydronic coils are manufactured with either a manual or automatic air vent.

Coils are 100% underwater pressure-tested at 350 PSIG with a 300 PSIG working pressure.

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Motor

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unit motors are provided with wiring to a junction box for single-point field connection. These motors are direct drive equipped with quick-connect plug, permanent split capacitor, thermal overload protection, and oversized bearings. Stators are epoxy-dipped for better motor cooling and increased electrical protection.

IPS Controls

Basic Unit Controls:

- a. Relay Control Board assembly with the following functions:
 - i. 24 volt control transformer
 - ii. Purge timer for both hot and cold water supply
 - iii. Fan relays, pump relays, and damper relay
 - iv. Connection points for an overflow sensor
 - v. Freeze protection and alarm interrupt with LED Flash
- b. 24 volt wall-mounted fan coil thermostat:
 - i. Mode switch
 - ii. Fan on-auto switch
 - iii. Cooling set point adjustment
 - iv. Heating set point adjustment
 - v. Temperature sensor
 - vi. Degree F or C indication

All Belt Drive units have factory installed motors on heavy-duty steel mounts. Mounts designed to maintain precise alignment and simplify belt adjustment. Midpoint is set to meet the specified CFM and total static pressure. Belt Drive motors are open drip-proof, ball bearing, single speed, rated at continuous duty, ambient, with reversible rotation.

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Blower

All
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units have double-width, double-inlet, forward curved blade and centrifugal wheels that are statically and dynamically balanced and generously sized for low-outlet velocities and quiet operation. Blower scrolls and wheels are galvanized for rust-free operation. Motor / Blower assemblies are designed for easy removal using quick-connects to allow adequate servicing of the unit.

All AH units have double-width, double-inlet, forward curved blade and centrifugal wheels that are statically and dynamically balanced and generously sized for low-outlet velocities and quiet operation. Blower scrolls and wheels are galvanized for rust-free operation.

All Belt Drive blowers are permanently lubricated ball bearing construction to ensure long-service life. Class 1 blowers can handle up to 3.5 inches of total static pressure. Fitted drives are adjustable V-belt type, with variable pitch-drive sheaves and pulleys are cast iron and keyed to motor shafts.

Motor / Blower assemblies are designed for easy removal using quick-connects to allow adequate servicing of the unit.

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