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| Project Information |
| Project Name: |  |
| Submitting Contractor: |  |
| Engineer: |  |
| Manufacturer’s Rep: |  |

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**Mechanical Specifications**

**GENERAL DESCRIPTION – VERTICAL CABINET UNIT HEATER**

**GHY** – Vertical Hideaway Unit Heater

**GSY** – Vertical Sloped Top Cabinet Unit Heater

**GXY** – Vertical Cabinet Unit Heater

**PART 1 – GENERAL**

1.1 SUMMARY

A. This section includes cabinet unit heaters and accessories.

1.2 SYSTEM DESCRIPTION

A. [Vertical Hideaway Unit Heater] [Vertical Sloped Top Cabinet Unit Heater] [Vertical Flat Top Cabinet Unit Heater]

B. Unit shall be [2-pipe Hydronic Heat Only] [Total Electric Heat Only]

C. [Floor mount concealed] [Floor mount exposed] [Wall mounted concealed] [Wall mount exposed] cabinet

1.3 QUALITY ASSURANCE

A. IEC is a member of AHRI and certifies equipment where applicable.

B. [Each hydronic coil shall be factory tested for leakage at [350] [400] [450] psig air pressure with coil submerged in water.] [IEC performs hydronic coil testing for leakage air pressure with coil submerged in water where applicable.]

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

C. IEC certified as an ISO 9001:2015 quality management system and ISO14001:2015 environmental management system organization.

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 cabinet heaters by International Environmental Corporation.

2.2 CONFIGURATION

A. General:

1. [Factory assembled vertical cabinet unit heaters complete with [coil] [electric heat], fan, motor and all required wiring, piping and controls.]

2. [Cabinet shall be made of [18][16][14] 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] [1/2˝ 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 & SchoolsSM Standard.

5. [No drain pan provided] [Auxiliary drain pan provided]

6. The chassis shall be constructed of 18-gauge galvanized steel.

7. Units shall have [non-woven synthetic throwaway] [framed permanent washable non-metallic] [pleated MERV 8] filter.

8. Units shall be supplied with [no] [1”] [2.5”] leveling legs

B. GHY Floor Hideaway Heater Units:

1. Units shall be supplied with a 1” duct collar for supply duct connection.

2. 16 gauge wall panel, painted with specified color, shall be furnished for [top discharge] [front discharge].

3. [Floor mounted units shall be configured for [top supply] [front supply] and front return as indicated on the plans.] [Wall mounted units shall be configured for [top supply] [front supply] [front return] [bottom return] as indicated on the plans.]

4. [Wall panel shall be fastened with [hex-style] [Torx® tamper proof] quarter-turn fasteners.]

C. GXY Floor Exposed Units:

1. [Top panel shall be supplied with a [stamped] [double deflection, aluminum finish] [double deflection, steel construction, painted to match cabinet] supply grille.]

2. [16] [14] gauge [fully insulated] front panel with supply grille shall be stamped, painted to match cabinet.

3. Cabinet shall include [two access doors] [one access door] [no access doors].

4. Cabinet shall be painted with an [Arctic White] [Polar White] [Flat Black] [Ermine Gray] [Champagne Beige] [Toffee Brown] [color determined by Architect] powder-coat finish.

5. Front panel shall be fastened with [hex-style] [Torx® tamper proof] quarter-turn fasteners.

6. Top panel on the GXY unit shall be flat.

7. [Floor mounted units shall be configured for [top supply] [front supply] and front return as indicated on the plans.] [Wall mounted units shall be configured for [top supply] [front supply] [front return] [bottom return] as indicated on the plans.]

8. [Cabinet shall have [1”] [1.75”] [2”] [3”] [4”] [5”] [6”] [7”] [8”] [9”] [10”] [11”] [12”] [13”] [14”] [1/2” closed cell insulated] rear cabinet extension.]

9. [Cabinet shall have [1”] [2”] [3”] [4”] [5”] [6”] [7”] [8”] [9”] [10”] [11”] [12] [No] left cabinet extension.]

10. [Cabinet shall have [1”] [2”] [3”] [4”] [5”] [6”] [7”] [8”] [9”] [10”] [11”] [12] [No] right cabinet extension.]

12. [Cabinet shall have [1”] [2”] [3”] [4”] [5”] [6”] cabinet height extension.]

D. GSY Floor Exposed Units:

1. [Top panel shall be supplied with a [stamped] [double deflection, aluminum finish] [double deflection, steel construction, painted to match cabinet] supply grille.]

2. [16] [14] gauge [fully insulated] front panel with supply grille shall be stamped, painted to match cabinet.

3. Cabinet shall include [two access doors] [one access door] [no access doors].

4. Cabinet shall be painted with an [Arctic White] [Polar White] [Flat Black] [Ermine Gray] [Champagne Beige] [Toffee Brown] [color determined by Architect] powder-coat finish.

5. Front panel shall be fastened with [hex-style] [Torx® tamper proof] quarter-turn fasteners.

6. Top panel on the GSY unit shall slope down from back to front at an angle of 25 degrees.

7. [Floor mounted units shall be configured for [top supply] [front supply] and front return as indicated on the plans.] [Wall hung units shall be configured for [top supply] [front supply] [front return] [bottom return] as indicated on the plans.]

8. [Cabinet shall have [1”] [1.75”] [2”] [3”] [4”] [5”] [6”] [7”] [8”] [9”] [10”] [11”] [12”] [13”] [14”] [1/2” closed cell insulated] rear cabinet extension.]

9. [Cabinet shall have [1”] [2”] [3”] [4”] [5”] [6”] [7”] [8”] [9”] [10”] [11”] [12] [No] left cabinet extension.]

10. [Cabinet shall have [1”] [2”] [3”] [4”] [5”] [6”] [7”] [8”] [9”] [10”] [11”] [12] [No] right cabinet extension.]

11. [Cabinet shall have [1”] [2”] [3”] [4”] [5”] [6”] cabinet height extension.]

2.3 CERTIFICATION

A. Safety Agency:

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.

2.4 MATERIALS

A. Heat Exchanger:

1. Coils

a. All coils shall have ½” copper tubes, [manual] [automatic] air vent(s), and [aluminum fins, galvanized end sheets] [aluminum fins, galvanized end sheet and anti-corrosion epoxy coating] [aluminum fins, stainless steel end sheets], 10 fins per inch spacing. Coil fins shall be mechanically bonded to copper tubes.

b. Copper tubes must comply with ASTM B-75.

c. Fin thickness shall be 0.0045˝

d. Tube thickness shall be 0.016˝

e. Coil rows shall be as indicated on the drawings.

f. [Coil drain]

1. Electric Heat

a. Unit shall be equipped with electric heat shield and nichrome wire strip electric heaters for total electric heat as specified on the equipment schedule.

b. Heaters shall be protected by an automatic reset safety cutout switch and a fusible link.

c. Heater capacity shall be as specified on the equipment schedule.

d. Heaters shall be single phase [120] [208] [240] [277] [220] volts as specified

B. Valves:

1. For installation in a 2-pipe system, unit shall be equipped with:

A. Valve size shall be [1/2”] [3/4”], as shown on the drawings.

B. 2 manual ball valves for service

C. 1 motorized control valve, 300 psig service:

a. Primary - [25 psid close-off paddle-type] [150 psid normally closed ball-type] [150 psid normally open ball-type] [35 psid floating] [35 psid proportional] with quick-release actuator.

2. Valve package shall be equipped with specialty devices as indicated on the drawings.

 A. Coil connections – [unions at the coil] [standard factory arrangement]

B. Flow Controls

a. Primary - [Return fixed flow control shall be specified on the equipment schedule.] [Circuit setter pressure ports] [Circuit setter P-T ports] [Not supplied]

C. Hoses - [24” braided stainless hoses manufactured of EPDM with integral internal Kevlar fabric reinforcement. Hoses shall be rated to fire and smoke standard per ASTM E 84-00 and (NFPA 255, ANSI/UL 723 & UBC 8-1).] [Not supplied]

D. Service Fittings

a. Primary - [Supply P-T port] [Return P-T port] [Supply and Return P-T port] [Pressure port] [Not supplied]

E. Strainer

 a. Primary - [Y- Strainer] [Y-Strainer with blowdown] [Not supplied]

F. Balance Valve

 a. Primary - [Return line only] [3-way bypass] [Not supplied]

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. Motors:

1. Motors shall be 3-speed, single phase, [60] [50] Hz constant-torque ECM motors with means for [potentiometer field adjustment of each speed] [4 speed solid state potentiometer field adjustment], for [115] [208] [230] [277] [220] volts, permanently lubricated ball bearings.

2. Motors shall be connected with quick connect electrical plugs.

3. Motors shall have internal thermal overload protection with automatic reset.

E. Controls and Safeties:

1. Controls Voltage:

a. Unit shall be equipped with [24VAC] [line voltage] control.

2. Control Package shall be equipped with specialty devices listed below:

a. [Thermostat]

i. 24VAC [digital thermostat] [Wi-Fi] [7-day programmable] [BACnet] [Thermostat control by others]

ii. Line voltage manual thermostat

b. [3-speed, 4-position fan switch on a wall plate for field installation.]

F. Operating Characteristics:

1. [A 2-pipe system shall be capable of providing heating only system] [Electric heat only system]

G. Electrical Requirements

1. Standard unit shall operate on [115] [208] [230] [277] volts, single phase, [60] [50] Hz electrical power.

I. Options and Accessories:

1. [Service switch with lock-out & tag-out features shall be factory installed. Circuit shall be [non-fused] [fused].] [No Service Switch furnished.]

2. [[24] [120-240] VAC bipolar ionizer] [No bipolar ionizer supplied.]

3. [Factory installed outside air damper shall be [motorized] [controlled manually].] [Outside air damper not supplied.]

4. [Outside air wall box shall be furnished for field installation.] [Outside air wall box not supplied.]

5. [Finished back panel, painted to match unit, with [hex-style] [Torx® tamper proof] quarter-turn fasteners.]

6. [[Floor][Wall] Mount finishing trim kit, painted to match cabinet]

7. [Plastic Auxiliary drain pan for coil drain].

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