

SECTION 23 08 00

HEATING, VENTILATION & AIR CONDITIONING

PART 1 - GENERAL

1.01 CONDITIONS

- A. Furnish all labor, materials, equipment and services to complete the work as shown on the Drawings or as specified. Refer to the General Conditions, Supplemental General Conditions, Electrical, and other Sections as they apply.

1.02 RELATED SECTIONS

- A. Section 22 00 00 – Mechanical - General

1.03 SCOPE

- A. Furnish all HVAC systems complete in every respect and ready to operate. Furnish all miscellaneous items and accessories required for such installation, whether or not each such item or accessory is shown on the Drawings or mentioned in these Specifications.
- B. The work shall consist of but is not limited to the following items:
1. Exhaust fans
 2. Sheet metal duct work
 3. Diffusers and grilles
 4. Upflow gas furnace
 5. Vent hoods
 6. Condensing unit

1.04 SUBMITTALS

- A. Submit shop drawings for:
1. Exhaust fans
 2. Diffusers and grilles
 3. Upflow gas furnace
 4. Vent hoods
 5. Condensing unit

PART 2 - PRODUCTS

2.01 UPFLOW GAS FIRED FURNACE

- A. Furnish an upflow gas fired warm air furnace. Heating capacity shall not be less than indicated on the plans and shall be capable of use with a coil for a split-system air conditioner system.
- B. Blower and Blower Motor. Blower shall be centrifugal type, statically and dynamically balanced. Motor shall have factory-lubricated bearings.

- C. Casing shall be of 22 gauge steel with baked enamel finish.
- D. Heat exchanger shall be Stratosteel and sectional in design.
- E. Burners shall be of aluminum-steel alloy and tapered for even gas distribution. Ignition shall be accomplished by means of a constantly burning pilot light.
- F. Controls shall include gas valve, which regulates gas flow, filters pilot gas, provides 100% pilot safety shut-off; pre-wired indoor fan relay with transformer; printed circuit control center on heating furnaces; low-voltage heating thermostat.

2.02 EXHAUST FANS

- A. Exhaust fans shall bear AMCA or PFMA certified seal and be of minimum sizes and capacities as shown on the drawings. Include disconnects, integral mounted. Furnish with variable pitch drives unless otherwise directed. Fans shall be spun type with automatic backdraft dampers.
- B. Furnish with factory curbs.
- C. Approved equals shall include Greenhack, Penn, Cook or Exit-Air.

2.03 SPLIT SYSTEM COIL AND CONDENSING UNIT

- A. Split system coil and condensing unit shall be equal to units shown in the Mechanical Equipment Schedule.

2.04 PRE-FABRICATED ROOF CURBS

- A. All roof top equipment shall be furnished with pre-fabricated roof curbs.

PART 3 - EXECUTION

3.01 DUCTWORK

- A. Ductwork shall be galvanized fabricated and installed in accordance with the latest publication of SMACNA standards, for low pressure ductwork.
- B. Duct sizes shown on the drawings are actual sizes required and do not include allowance for internal insulation. Rectangular duct for units must be increased in size from that shown on the drawings to allow for insulation.
- C. Air foil turning vanes shall be installed in all abrupt elbows. Connection to diffusers, grille and register faces shall be made absolutely air tight.
- D. Furnish flexible connections between all duct work and fans or fan coil units. Connections shall be flame proof and waterproof 16 ounce canvas of not less than 4" in length and secured in an airtight manner.

3.02 DIFFUSERS

- A. Diffusers, grilles and registers are scheduled on the drawings. Center all diffusers to coordinate with reflected ceilings, lighting, speakers, etc. All wall mounted outlets shall be prime coated. All ceiling mounted outlets and returns shall be natural aluminum satin finished; air testing in accordance with SMACNA standards.
- B. Furnish opposed blade volume controls to provide control of the air flow for all supply and return diffusers and registers. Operation shall be from face of the grille with a removable key.
- C. Door grilles shall be slight tight core and vision proof from any angle. Grilles shall be prime coated unless otherwise shown on the drawings. Center the door fixed panel.
- D. Diffusers, grilles and registers as manufactured by Titus, Barber Coleman, Kruger, Carnes or Grillmaster.
- E. Contractor to balance the airflow as indicated on the drawings in accordance with ASHRAE Standards.

3.03 INSULATION

- A. Rectangular duct work, both supply and return, shall be insulated with 1" thick 2 pound density duct liner with vinyl sprayed surface to the air side. The liner shall be installed in accordance with duct liner standards of SMACNA. Return duct insulated only if indicated on the plans.
- B. Round duct work shall be insulated with 2" thick fiberglass insulation with fire resistive vapor barrier jacket.
- C. Insulate kitchen exhaust duct with 2" thick fiberglass with fire resistive vapor barrier jacket.

3.04 FLUES

- A. All gas flues shall be double wall type B with 6" clearance between roofing material and flue. Flues shall terminate above roof with rain cap, roof jack and counter flashing, in compliance with the gas code.

END OF SECTION