

SECTION 15890

DUCTWORK

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Metal ductwork.
- B. Casing and plenums.
- C. Duct cleaning.

1.2 REFERENCES

- A. ASTM A90: Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.
- B. ASTM A366: Steel, Sheet, Carbon, Cold Rolled, Commercial Quality.
- C. NFPA 90A: Installation of Air Conditioning and Ventilating Systems.
- D. SMACNA: HVAC Air Duct Leakage Test Manual.
- E. SMACNA: HVAC Duct Construction Standards: metal and Flexible.
- F. UL 181: Factory-Made Air Ducts and Connectors.

1.3 PERFORMANCE REQUIREMENTS: No variation of duct configuration or sizes permitted except by written permission. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts.

1.4 PROJECT RECORD DOCUMENTS: Submit under provisions of Section 01700. Record actual locations of ducts and duct fittings. Record changes in fitting location and type. Show additional fittings used.

1.5 QUALITY ASSURANCE: Perform Work in accordance with SMACNA - HVAC Duct Construction Standards - Metal and Flexible.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing the work of this section with minimum three years documented experience.

1.7 REGULATORY REQUIREMENTS: Construction ductwork to NFPA 90A standards.

1.8 ENVIRONMENTAL REQUIREMENTS: Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers. Maintain temperature during and after installation of duct sealants.

PART 2 - PRODUCTS

2.1 DUCTWORK FABRICATION

- A. Fabricate and support in accordance with SMACNA HVAC Dust Construction Standards - Metal and Flexible, and as indicated. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.
- B. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows are used, provide air foil turning vanes. Where acoustical lining is indicated, provide turning vanes of perforated metal with glass fiber insulation.
- C. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Install in accordance with manufacturer's instructions.
- B. Install and seal ducts in accordance with SMACNA HVAC Duct Construction Standards Metal and Flexible. Seal all duct joints of all supply, return and exhaust ducts with tape applied in two layers with full strength adhesion. Fully saturate tape in adhesive and allow first layer to become tack free before applying second layer.
- C. Duct sizes are inside dimensions.
- D. Provide openings in ductwork where required to accommodate thermometers and controllers. Provide pilot tube openings where required for testing of systems, complete with metal can with spring device or screw to ensure against air leakage. Where openings are provided in insulated ductwork, install insulation material inside a metal ring.
- E. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
- F. Use crimp joints with or without bead for joining round duct sizes 8 inches and smaller with crimp in direction of air flow.

- G. Use double nuts and lock washers on threaded rod supports.
- H. Connect flexible ducts to metal ducts with draw bands.
- I. Set plenum doors 6 to 12 inches above floor. Arrange door swings so that fan static pressure holds door in closed position.
- J. During construction provide temporary closure of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

END OF SECTION