Division 233100
HVAC Ducts and Casings
DESIGN GUIDE

1 General

1.1 Reserved for future.

2 Materials

2.1 General

A. Galvanized Steel Duct: Provide for supply, return and general exhaust ductwork

B. Steel Ducts: Allowed for grease exhaust above ceilings and some industrial-high heat applications.

C. Aluminum Ducts: Provide where ducts have moisture and condensate potential such as showers or dishwashers.

D. Stainless Steel Ducts: Provide where ducts have moisture and condensate potential such as showers or dishwashers. Provide for systems with lab exhaust unless corrosion effluents are very dilute. Provide for exposed grease waste exhaust ductwork located below kitchen ceilings.

E. Specialty-provide specialty materials for perchloric acid, hydrofluoric acid and other applications not compatible with the above materials.

3 Execution

3.1 General

A. Fabricate, install, and support in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, the International Mechanical Code, and as indicated. Provide duct material, gauges, reinforcing, and sealing for pressure classification.

B. Materials to suit application. Accessories such as dampers shall be compatible with materials.

C. Pressure classification

1. All ductwork without air terminal units shall be constructed to a minimum 2” (+/) pressure class.

2. All exhaust or supply ductwork with air terminal units shall be constructed to a minimum 6” pressure class.

3. Material handling such as dust collection and grease exhaust shall be constructed to pressure class associated with equipment.

D. Seal ducts to meet or exceed requirements of the Washington State Energy Code.

E. 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.

F. No more than six feet of flexible duct shall be used in one run. No angles greater than forty-five degrees (45º) shall be done with flexible duct. Adhere to all SMACNA and manufacturer's installation instructions. Connect flexible ducts to metal ducts with duct sealer and secured over sheet metal collar with ½ **inch** wide positive locking strap

G. No ductwork shall be exposed to the elements without approval from the Mechanical HVAC Manager (MHM)

H. No fiberglass or fiberboard shall be used.

I. All supply and return air duct joints shall be sealed with an approved duct sealant.

J. In remodeling projects, the Contractor shall be responsible for cleaning and repair of all the existing ductwork associated with the project.

K. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

L. Pressure test ductwork in accordance with the Washington State Energy Code. Leakage shall not exceed the lower of the following items:

1. Amount allowed by the Washington State Energy Code
2. No more than 6% of fan capacity on systems that operate at 3” TSP or less. Leakage rates may be determined by differential between airflow measured at air outlets and air measured at fan in the duct traverse.
3. No more than 3% of fan capacity on systems that operate greater than 3”. Leakage rates shall be determined with an air pressure test with leakage measured with a calibrated orifice meter.

M. Grease waste ductwork shall meet all requirements of the International mechanical code including sloping, cleanouts and shafts.

N. Provide drains in outside air ductwork where potential for rain and snow intrusion exists and for kitchen exhaust washdown as required by code.

4 Appendix

4.1 Reserved for future