
Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 23 05 00 – Common Work Result for HVAC

1.2 REFERENCES

- .1 Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)
 - .1 SMACNA - HVAC Duct Construction Standards - Metal and Flexible, 2005.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for air duct accessories and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Indicate:
 - .1 Flexible connections.
 - .2 Duct access doors.
 - .3 Guide vanes.
 - .4 Instrument test ports.

1.4 MATERIAL/PRODUCT REPLACEMENT

- .1 Where materials or products are specified by their trademark, consult the Instructions to Bidders document for the procedures to follow regarding the request for approval for materials or product replacement.
- .2 Material/Product Replacement
 - .1 Providing material/equipment maintenance required in accordance with Section 01 78 00 – Closeout Submittals.
 - .2 Provide a list of spare parts recommended by each manufacturer, a list of suppliers where one can obtain spare parts, and a list of special tools necessary to adjust, repair and replacement of these parts, and add them in the maintenance manual.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

- .3 Storage and Handling Requirements:
 - .1 Store materials off ground, ideally indoors or in a clean, dry, well ventilated area and in accordance with manufacturer's recommendations.
 - .2 Store and protect air duct accessories from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

2.1 GENERAL

- .1 Manufacture in accordance with SMACNA - HVAC Duct Construction Standards.

2.2 FLEXIBLE CONNECTIONS

- .1 Flanges: elements in galvanized steel sheet to which the flexible connections are connected via dual stapled type .
- .2 Flexible connections
 - .1 Neoprene coated glass fabric, fireproof, self-extinguishing, can withstand temperatures ranging from -40 degrees Celsius to 90 degrees Celsius, with a density of 1.3 kg / m2.
 - .2 Maximum length 150 mm.
- .3 Flanges and flexible connections manufactured and assembled in the factory.

2.3 ACCESS DOORS IN DUCTS

- .1 Non-Insulated Ducts: sandwich construction of same material as duct, one sheet metal thickness heavier, minimum 0.6 mm thick complete with sheet metal angle frame.
- .2 Insulated Ducts: sandwich construction of same material as duct, one sheet metal thickness heavier, minimum 0.6 mm thick complete with sheet metal angle frame and 25 mm thick rigid glass fibre insulation.
- .3 Access door for low pressure ducts.
 - .1 Same material as that of the ventilation ducts.
 - .2 Thickness of 0.9 mm and frame of 1.2 mm thick.
- .4 Access door for high pressure pipes.
 - .1 Same material as that of the ventilation ducts.
 - .2 3 mm thickness and frame of 3 mm thick.
- .5 Gaskets: neoprene.
- .6 Hardware:
 - .1 Up to 300 x 300 mm: two sash locks complete with safety chain.
 - .2 301 to 450 mm: four sash locks complete with safety chain.
 - .3 451 to 1000 mm: piano hinge and minimum two sash locks.
 - .4 Doors over 1000 mm: piano hinge and two handles operable from both sides.

- .5 Hold open devices.

2.4 INSTRUMENT TEST

- .1 1.6 mm thick steel zinc plated after manufacture.
- .2 Cam lock handles with neoprene expansion plug and handle chain.
- .3 28 mm minimum inside diameter. Length to suit insulation thickness.
- .4 Neoprene mounting gasket.
- .5 Maximum operating pressure of 275 kPa and a maximum temperature of 85 degrees Celsius.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for air duct accessories installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

- .1 Flexible Connections:
 - .1 Install in following locations:
 - .1 Inlets and outlets to supply air units and fans.
 - .2 Inlets and outlets of exhaust and return air fans.
 - .3 As indicated.
 - .2 Length of connection: 150 mm.
 - .3 Allow movement of 100 mm (4") for high pressure fans, and 50 mm (2") for the low pressure fans.
 - .4 Install in accordance with recommendations of SMACNA.
 - .5 When fan is running:
 - .1 Ducting on sides of flexible connection to be in alignment.
 - .2 Ensure slack material in flexible connection.
- .2 Access Doors and Viewing Panels:
 - .1 Size:
 - .1 600 x 600 mm for access doors.

-
- .2 Construction
 - .1 Single wall of the same material used for duct construction having a 0.9 mm (20 gauge) thickness and a frame of 1.2 mm 18 gauge thickness.
 - .2 Built with metallic angles of 25 mm (1 inch).
 - .3 Insulation equivalent to the duct insulation see Section 23 07 13 – Duct Insulation.
 - .3 Locations:
 - .1 Where required to allow access to discharge registers of the exhaust smoke and fire dampers.
 - .2 Where required to allow access to the airflow adjustment registers.
 - .3 Where required to allow access to devices requiring a periodic maintenance.
 - .4 Where required according to the code requirements.
 - .5 Where required to allow access to the heating batteries, ionization detectors, humidifiers nozzles.
 - .6 Upstream of all square elbows having guide vanes.
 - .7 Other designated places and on the details and types of discharge connections required for special installations.
 - .8 Upon extraction systems fumes and cooking vapors, installed on top or on the side of the ducts at every 3.6 m (12 ') and on the concave side of all elbows.
 - .9 Install all doors required to allow adequate cleaning of ducts.
 - .3 Instrument Test Ports:
 - .1 General:
 - .1 Install in accordance with recommendations of SMACNA and in accordance with manufacturer's instructions.
 - .2 Locate to permit easy manipulation of instruments.
 - .3 Install insulation port extensions as required.
 - .4 Locations:
 - .1 For traverse readings:
 - .1 Ducted inlets to roof and wall exhausters.
 - .2 Inlets and outlets of other fan systems.
 - .3 Main and sub-main ducts.
 - .4 And as indicated.
 - .2 For temperature readings:
 - .1 At outside air intakes.
 - .2 In mixed air applications in locations as approved by Departmental Representative.
 - .3 At inlet and outlet of coils.
 - .4 Downstream of junctions of two converging air streams of different temperatures.

.5 And as indicated.

.4 Guide Vanes:

.1 Install in accordance with recommendations of SMACNA and as indicated.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for reuse recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION