

PART 1 - GENERAL

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| <u>1.1 REFERENCES</u> | .1 | Canada Green Building Council (CaGBC)
.1 LEED Canada 2009 for Design and Construction, LEED Canada 2009 for Design and Construction Leadership in Energy and Environmental Design Green Building Rating System Reference Guide. |
| | .2 | Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)
.1 SMACNA - HVAC Duct Construction Standards - Metal and Flexible, 2005. |
| <u>1.2 ACTION AND INFORMATIONAL SUBMITTALS</u> | .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 Turning vanes.
.4 Instrument test ports.
.5 Bench top extraction arms. |
| | .3 | Sustainable Design Submittals:
.1 LEED Canada submittals: in accordance with Section 01 35 21 - LEED Requirements.
.2 Construction Waste Management:
.1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
.2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75% of construction wastes were recycled or salvaged.
.3 Recycled Content:
.1 Submit listing of recycled content products used, including details of required percentages or recycled content |
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1.2 ACTION AND
INFORMATIONAL
SUBMITTALS
(Cont'd)

- .3 Sustainable Design Submittals: (Cont'd)
 - .3 Recycled Content: (Cont'd)
 - .1 (Cont'd)
materials and products, showing their costs and percentages of post-consumer and post-industrial content, and total cost of materials for project.
 - .4 Regional Materials: submit evidence that project incorporates required percentage 30 % of regional materials and products, showing their cost, distance from project to furthest site of extraction or manufacture, and total cost of materials for project.

1.3 DELIVERY,
STORAGE AND
HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and 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 indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect air duct accessories from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
 - .4 Develop Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 35 21 - LEED Requirements.
 - .5 Packaging Waste Management: remove for reuse or return of pallets, crates, padding, banding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
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PART 2 - PRODUCTS

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| <u>2.1 GENERAL</u> | .1 | Manufacture in accordance with SMACNA - HVAC Duct Construction Standards. |
| <u>2.2 FLEXIBLE CONNECTIONS</u> | .1 | Frame: galvanized sheet metal frame 0.5 mm thick with fabric clenched by means of double locked seams. |
| | .2 | Material: <ul style="list-style-type: none">.1 Fire resistant, self extinguishing, neoprene coated glass fabric, temperature rated at minus 40 degrees C to plus 90 degrees C, density of 1.3 kg/m². |
| <u>2.3 ACCESS DOORS IN DUCTS</u> | .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 | Gaskets: neoprene or foam rubber. |
| | .4 | Hardware: <ul style="list-style-type: none">.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..6 300 x 300 mm glass viewing panels. |
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2.4 TURNING VANES .1 Factory or shop fabricated single thickness with trailing edge, to recommendations of SMACNA and as indicated.

2.5 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.

2.6 BENCH TOP
EXTRACTION ARMS .1 Anodized aluminum tubing with polypropylene joints designed to provide 360° movement and flexibility for user.
.2 Arms to be complete with wall mount to permit entry of exhaust dust from ceiling.
.3 Arm to be complete with locking elbows to ensure arms can be bixed in place to suit operator requirements.
.4 Standard of Acceptance: Neederman Model FX100 with 100 mm dia. tubing.

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.

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- 3.1 EXAMINATION .1 (Cont'd)
- (Cont'd)
- .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 Minimum distance between metal parts when system in operation: 75 mm.
- .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 person size entry.
- .2 300 x 300 mm for servicing entry.
- .3 200 x 200 mm for viewing.
- .4 As indicated.
- .2 Locations:
- .1 Fire and smoke dampers.
- .2 Control dampers.
- .3 Devices requiring maintenance.
- .4 Required by code.
- .5 Reheat coils.
- .6 Elsewhere as indicated.
- .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.
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- 3.2 INSTALLATION (Cont'd) .3 Instrument Test Ports: (Cont'd)
- .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 Turning Vanes:
- .1 Install in accordance with recommendations of SMACNA and as indicated.
- .5 Bench Top Extraction Arms:
- .1 Mount extraction arms as shown on drawings. Connect ductwork as shown.
- 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 and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.