

PART 1 - GENERAL

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| <u>1.1 REFERENCES</u> | .1 | American National Standard Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
.1 ANSI/ASHRAE 52.2-12, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particulate Size (ANSI approved). |
| | .2 | 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. |
| | .3 | Canadian General Standards Board (CGSB)
.1 CAN/CGSB-115.10-M90, Disposable Air Filters for the Removal of Particulate Matter from Ventilating Systems.
.2 CAN/CGSB-115.14-M91, High Efficiency Cartridge Type Supported Air Filters for the Removal of Particulate Matter from Ventilating Systems.
.3 CAN/CGSB-115.15-M91, High Efficiency Rigid Type Air Filters for Removal of Particulate Matter from Ventilating Systems.
.4 CAN/CGSB-115.18-M85, Filter, Air, Extended Area Panel Type, Medium Efficiency.
.5 CAN/CGSB-115.20-95, Polarized Media Air Filter. |
| | .4 | Underwriters' Laboratories of Canada (ULC)
.1 ULC -S111-07, Standard Method of Fire Tests for Air Filter Units. |
| <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 HVAC filters and include product |
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1.2 ACTION AND
INFORMATIONAL
SUBMITTALS
(Cont'd)

- .2 Product Data: (Cont'd)
 - .1 (Cont'd)
characteristics, performance criteria,
physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by
professional engineer registered or licensed
in the Province of Newfoundland and Labrador.
- .4 Certificates: submit certificates signed by
manufacturer certifying that materials comply
with specified performance characteristics and
physical properties.
- .5 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
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 MAINTENANCE
MATERIAL SUBMITTALS

- .1 Extra Materials:
 - .1 Provide maintenance materials in
accordance with Section 01 78 00 - Closeout
Submittals.
 - .2 Furnish list of individual
manufacturer's recommended spare parts for

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| 1.3 MAINTENANCE
MATERIAL SUBMITTALS
(Cont'd) | .1 (Cont'd)
.2 (Cont'd)
equipment such as frames and filters,
addresses of suppliers, list of specialized
tools necessary for adjusting, repairing or
replacing for inclusion in operating manual.
.3 Spare filters: in addition to filters
installed immediately prior to acceptance by
Departmental Representative, supply 1 complete
set of filters for each. |
| 1.4 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 HVAC filters 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. |

PART 2 - PRODUCTS

2.1 GENERAL

- .1 Media: suitable for air at 100% RH and air temperatures between -40 and 50 degrees C.
- .2 Number of units, size and thickness of panels, overall dimensions of filter bank, configuration and capacities: as indicated on drawings.
- .3 Pressure drop when clean and dirty, sizes and thickness: as indicated on drawings.

2.2 ACCESSORIES

- .1 Holding frames: permanent channel section construction of same material as casing, 1.6 mm thick, except where specified.
- .2 Seals: to ensure leakproof operation.
- .3 Blank-off plates: as required, to fit all openings and of same material as holding frames.
- .4 Access and servicing: through doors/panels on each side.

2.3 FIBROUS GLASS
PANEL FILTERS

- .1 Disposable fibrous glass media: to CAN/CGSB-115.10 with adhesive.
 - .2 Holding frame: 1.2 mm minimum thick galvanized steel with 3 mm diameter hinged wire mesh screen.
 - .3 Performance: minimum average synthetic dust weight arrestance 70% to ANSI/ASHRAE 52.2.
 - .4 Fire rated: to ULC -S111.
 - .5 Nominal thickness: 50 mm.
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- 2.4 CARTRIDGE TYPE .1 Media: deep pleated, disposable, high
FILTERS, 80-85% efficiency, to CAN/CGSB-115.14.
EFFICIENCY .2 Holding frame: galvanized steel with bracing.
.3 Media support: welded wire grid.
.4 Performance: average atmospheric dust spot
efficiency 80-85% to ANSI/ASHRAE 52.2.
.5 Fire rated: to ULC -S111.
- 2.5 CARTRIDGE TYPE .1 Media: disposable, high efficiency, to
FILTERS 95% CAN/CGSB-115.15.
EFFICIENCY .2 Holding frame: galvanized steel with bracing.
.3 Media support: welded wire grid.
.4 Performance: average atmospheric dust spot
efficiency 95% to ANSI/ASHRAE 52.2.
.5 Fire rated: to ULC-S111.
- 2.6 FILTER GAUGES .1 Housing: die cast aluminum case and bezel,
- DIAL TYPE with acrylic cover. Exterior finish coated to
withstand 168 hour salt spray corrosion test.
Diaphragm actuated, direct reading.
.2 Accuracy: $\pm 2\%$ of full scale ($\pm 3\%$ on 0-125 PA,
and $\pm 4\%$ on 0-60PA), throughout range at
21.1°C.
.3 Pressure Limits: 500 mm Hg to 100 kPa.
.4 Overpressure: Relief plug opens at
approximately (1.72 kPa), standard.
.5 Temperature Limits: 6.67 to 60°C.
.6 Size: 101.6 mm diameter dial face.
.7 Mounting Orientation: Diaphragm in vertical
position.
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- 2.6 FILTER GAUGES .8 Process Connections: 1 - 1/8 female NPT
- DIAL TYPE duplicate high and low pressure taps one pair
(Cont'd) side and one pair back.
- .9 Standard accessories: tow 1/8 NPT plugs for
duplicate pressure taps, two 1/8 NPT pipe
thread to rubber tubing adapaters and three
flush mounting adapters with screws.
- .10 Range: 0-250 Pa.

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 filter 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 Install in accordance with manufacturer's
GENERAL recommendations and with adequate space for
access, maintenance and replacement.

- 3.3 REPLACEMENT .1 Replace media with new upon acceptance.
MEDIA
- .2 Filter media new and clean, as indicated by
pressure gauge, at time of acceptance.

- 3.4 FILTER GAUGES .1 Install type as indicated across each filter bank (pre-filter and final filter) in approved and easy readable location.
- .2 Mark each filter gauge with value of pressure drop for clean condition and manufacturer's recommended replacement (dirty) value.

- 3.5 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.