

PART 1 - GENERAL

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| <u>1.1 SUMMARY</u> | .1 | The section includes materials and installation for fan coil units. |
| <u>1.2 REFERENCES</u> | .1 | Health Canada/Workplace Hazardous Materials Information System (WHMIS) |
| | .1 | Material Safety Data Sheets (MSDS). |
| | .2 | Canadian Standard Association (CSA) |
| | .1 | CSA C22.2 No 46, Electric Air-Heaters |
| <u>1.3 SUBMITTALS</u> | .1 | Product Data: |
| | .1 | Submit manufacturer's printed product literature, specifications and datasheet in accordance with Section 01 33 00 - Submittal Procedures and 26 05 00 – Common work results for electrical. Include product characteristics, performance criteria, and limitations. |
| | .1 | Submit two (2) copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures and 26 05 00 – Common work results for electrical. |
| | .2 | Product data to include: |
| | .1 | Filters, fan accessibility. |
| | .2 | Anchoring of cabinet. |
| | .3 | Physical size. |
| | .4 | Thermostat, transformer, controls where integral. |
| | .5 | Finish. |
| | .6 | kW rating, voltage, phase. |
| | .7 | Cabinet material thicknesses. |
| | .2 | Shop Drawings: |

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures and 26 05 00 - Common work results for electrical.

.3 Quality assurance submittals: submit following in accordance with Section 01 33 00 - Submittal Procedures and 26 05 00 - Common work results for electrical.

.1 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.2 Instructions: submit manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

.1 Health and Safety:

.1 Conform to construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Packaging, shipping, handling and unloading:

.1 Deliver, store and handle in accordance with manufacturer's written instructions and Section 01 61 00 - Common Product Requirements.

.2 Waste Management and Disposal:

.1 Construction/Demolition Waste Management and Disposal: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

.2 Divert unused metal and wiring materials from landfill to metal recycling facility approved by the Department's Designated Representative.

PART 2 - PRODUCTS

2.1 SUSTAINABLE REQUIREMENTS

.1 Materials and products in accordance with Section 01 47 15 - Sustainable Requirements: Construction.

2.2 FAN COIL UNITS

- .1 Wall cabinet type: steel, 1.6 mm thick, front panel mounting. Front inlet/outlet. Phosphate coated envelop with 2 coats of baked enamel, beige or to the architect choice, rear panel with holes pierced in advance for fixing on wall and/or built-in.
- .2 Heating elements: with insulating mineral powder, stainless steel sheathed with corrosion protected welded fins covering full length of element.
- .3 Floor recessed convector: 1,6mm-thick phosphate envelop and coated with 2 coats of baked enamel, with flange resting on the finished floor; heating elements: stainless steel sheathed with corrosion protection and with continuous welded helical fins mounted on removable section for maintenance; stainless steel grill to be recessed in the floor and designed for easy removal.

2.3 CONTROL DEVICES

- .1 According to indications, provide built-in or wall thermostats.
- .2 Built-in thermostats: double-pole, with screws and tamper-proof cover, transducer and auxiliary relay.
- .3 Electronic wall thermostat according to specifications

2.4 MANUFACTURERS

- .1 Reputable manufacturers: Ouellet Canada, Dimplex/Chromalox, Stelpro Design.

PART 3 - EXECUTION3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheets.

3.2 INSTALLATION

- .1 Mount units as directed.
- .2 Make power and control connections.
- .3 Place floor recessed convector at least 150mm from the wall. Install 350mm convector between joists and build a frame

(according to specifications) around convectors of larger size. The convectors' flange shall rest on the finished floor and be fixed with wood screws.

3.3 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 00 - Common Work Results - Electrical.
- .2 Verification requirements in accordance with Section 01 47 17 - Sustainable Requirements: Contractor's Verification, include:
 - .1 Materials and resources.
 - .2 Storage and collection of recyclables.
 - .3 Construction waste management.
 - .4 Resource reuse.
 - .5 Recycled content.
 - .6 Local/regional materials.
 - .7 Low-emitting materials.

3.4 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

PART 1 - GENERAL

<u>1.1 SUMMARY</u>	.1	This section covers electric air-heaters, control/regulation devices and associated installation methods.
<u>1.2 EARTHQUAKE-RESISTANT FIXING</u>	.1	Provide and install all necessary material for an earthquake-resistant fixing as described in section 26 10 00.
<u>1.3 REFERENCES</u>	.1	Canadian Standards Association (CSA International) .1 CSA C22.2 No.46-M1988, Electric Air-Heaters.
<u>1.3 PRODUCT DATA</u>	.1	Submit product data in accordance with Section 01 33 00 - Submittal Procedures and Section 26 05 00 - Common work results for electrical.
	.2	Submit product data sheets for unit heaters. Include: .1 Product characteristics. .2 Performance criteria. .3 Mounting methods. .4 Physical size. .5 kW rating, voltage, phase. .6 Cabinet material thickness. .7 Limitations. .8 Color and finish.
	.3	Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 81 01 - Hazardous Materials. WHMIS shall be acceptable to Labour Canada, and Health Canada.
	.4	Manufacturer's Instructions: Provide to indicate special handling criteria, installation sequence, cleaning procedures.
<u>1.5 CLOSEOUT SUBMITTALS</u>	.1	Provide operation and maintenance data for unit heaters for incorporation into manual specified in Section 01 78 00 - Closeout Submittals and 26 05 00 - Common work results for electrical.
<u>1.6 WASTE MANAGEMENT AND DISPOSAL</u>	.1	Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal, and with Waste Reduction Work plan.

- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.
- .4 Divert unused metal and wiring materials from landfill to metal recycling facility approved by the Department's Designated Representative.
- .5 When new prescribed unit heaters are intended to replace existing unit heaters: collect, package and store existing unit heaters for either reuse or recycle and return to recycler in accordance with Waste Management Plan.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- .1 Acceptable manufacturers: Ouellet Canada, Dimplex/Chromalox, Stelpro Design.

2.2 UNIT HEATERS

- .1 Unit heaters with adjustable louvers finished to match cabinet and according to specifications.
- .2 Fan type unit heaters with built-in high-heat limit protection and fan-delay switches.
- .3 Fan motor permanently lubricated ball bearing, installed on a flexible support and with a built-in fan motor thermal overload protection. Stipulate sleeve bearing type motor in the case of compact unit heaters.
- .4 Hangers: as indicated.
- .5 Heating elements: mineral powder insulated stainless steel sheathed elements with continuous helical brazed fins.
- .6 Cabinet: 1.6 mm thick steel, phosphate treated, finished with 2 coats baked enamel in beige color, fitted with 4 brackets for rod or wall mounting.

2.3 CONTROLS

- .1 According to specifications, provide remote-controlled or built-in thermostats
- .2 Wall mounted thermostats: electronic according to specifications
- .3 Built in thermostat and support controls.

PART 3 - EXECUTION3.1 INSTALLATION

- .1 Suspend unit heaters from ceiling or mount on wall as indicated.
- .2 Install thermostats in locations indicated.
- .3 Make power and control connections.
- .4 For a heating system to operate efficiently while promoting energy savings, it is important that the thermostats are mounted at appropriate locations. Since these devices are sensitive to the temperature of the wall where they are installed and the ambient air temperature, they should not be mounted where indicated as follows: an outside wall, a wall directly exposed to sunlight, near a door or a window near a source of internal heat.

3.2 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 00 - Common Work Results - Electrical.
- .2 Test high-heat limit protection when air movement is obstructed.
- .3 Test fan delay switch to assure dissipation of heat after element shut down.
- .4 Test unit cut-off when fan motor overload protection has kicked-in.
- .5 Ensure heaters and controls operate correctly.