

PART 1 **GENERAL**

1.1 **SUMMARY**

- .1 Section Includes:
 - .1 Materials and installation procedures for electric heating and cooling controls.

1.2 **RELATED SECTIONS:**

- .1 Section 01 33 00 – Submittal Procedures.
- .2 Section 01 35 29.06 – Health and Safety Requirements.
- .3 Section 01 91 13 – General Commissioning (Cx) Requirements.

1.3 **REFERENCES**

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.4 **SUBMITTALS**

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet in accordance with Section 01 33 00 – Submittal Procedures. Include product characteristics, performance criteria, and limitations.
 - .1 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 – Submittal Procedures.
 - .2 Quality assurance submittals: submit following in accordance with Section 01 33 00 – Submittal Procedures.
 - .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.

1.5 **QUALITY ASSURANCE**

- .1 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.06 – Health and Safety Requirements.

1.6 **DELIVERY, STORAGE, AND HANDLING**

- .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle in accordance with Section 01 61 00 – Common Product Requirements.

- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Waste Management and Disposal:
 - .1 Construction/Demolition Waste Management and Disposal: separate waste materials for reuse and recycling in accordance with Section 02 41 13 Selective Site Demolition

PART 2 PRODUCTS

2.1 THERMOSTAT (LINE VOLTAGE COOLING)

- .1 Line voltage, wall-mounted thermostat, for cooling with:
 - .1 Full load rating: 6 A at 120 V.
 - .2 Temperature setting range: 5 °C to 30 °C.
 - .3 Thermometer range: 5 °C to 30 °C.
 - .4 Markings in 5 degree increments.
 - .5 Differential temperature fixed at 1.1 °C.

2.2 THERMOSTAT (LOW VOLTAGE)

- .1 Low voltage wall thermostat:
 - .1 For use on 24 V circuit at 1.5 A capacity.
 - .2 With heat anticipator adjustable 0.1 to 1.2 A.
 - .3 Temperature setting range: 10°C to 35°C.
 - .4 Without sub-base.

2.3 THERMOSTAT GUARDS

- .1 Thermostat guards: lockable, clear opaque plastic cast metal. Slots for air circulation to thermostat.

2.4 TEMPERATURE SENSORS

- .1 Temperature sensors supplied, installed and wired by Division 25. Component of EMCS System. Electrical Division to provide box and conduit to ceiling space only.

2.5 ELECTRIC HEATING RELAYS

- .1 Low voltage solid state electric heating relays installed in ventilated enclosure, recess mounted, complete with power supply. Complete assembly to be CSA approved.
- .2 Heating relays, c/w integral heat sink, over voltage protection and status LED.
- .3 Relay to have veiled conductor connections. No exposed terminals permitted.

PART 3 **EXECUTION**

3.1 **MANUFACTURER'S INSTRUCTIONS**

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

3.2 **INSTALLATION**

- .1 Install control devices.
- .2 On outside wall, mount thermostats on bracket or insulated pad 25 mm from exterior wall.
- .3 Install remote sensing device and capillary tube in metallic conduit. Conduit enclosing capillary tube must not touch heater or heating cable.

3.3 **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.

END OF SECTION