

DIVISION 32 – EXTERIOR IMPROVEMENTS

32 17 43 26 PAVEMENT SNOW MELTING SYSTEMS (ELECTRIC)

PART 1 - GENERAL

1.01 GENERAL

- A. WSU requires that all new buildings, entrance plazas and accessibility remodels be designed to include snow melt systems, unless the exterior walkways are covered.
 - 1. All new building main and ADA-accessible horizontal entrances and ramps shall be protected with snow melt along the full entrance length, a minimum of 72 inches wide.
 - 2. All stair sections shall include at least one section protected with snow melt, a minimum of 88 inches wide.
- B. The preferred method for snow melt is to utilize heat transfer from WSU steam system to Hydronic Uponor plastic pipe system.
 - 1. Where central steam for heat exchange is not available, provisions shall be made to provide a glycol-treated system, preferably heated natural gas.
- C. Electric snowmelt shall only be considered where central steam heat and natural gas are not available, and requires prior approval by WSU Engineering Services.

1.02 DESIGN CONSIDERATIONS

- A. Breaker sizing shall be sufficient for a heater start up temperature of -20 degrees F.
- B. Heaters shall operate at designated voltage without use of transformers. Power supply surge suppression shall be provided for systems operating above 300 volts.
- C. Design and installation of electric snow melting systems shall require manufacturer's shop drawings.
- D. Minimum 10-year manufacturer's warranty on heating cable and control system.

PART 2 - PRODUCTS

2.01 ELECTRIC HEATER CABLE

- A. Preferred Manufacturer:
 - 1. "ElectroMelt EM2-XR" manufactured by RayChem Corporation (or approved equivalent). Heating cable shall consist of two 14 gauge nickel

DIVISION 32 – EXTERIOR IMPROVEMENTS

32 17 43 26 PAVEMENT SNOW MELTING SYSTEMS (ELECTRIC)

coated copper bus wires embedded in parallel in a self-regulating polymer core.

- B. Power output shall vary in response to temperature all along its length, allowing the heating cable to be crossed over itself without overheating, to be cut to length in the field, and to have no heater to cold lead connections buried in the pavement.
- C. The heating cable shall be of parallel circuit construction to allow the cable to be spliced if it is inadvertently cut during or after construction, and to be powered from both ends if it becomes advantageous to divide a circuit.

2.02 JUNCTION BOXES

- A. Outdoor Junction Boxes serving snow melt mats shall be OZ type "YR", Outside Flanged Recessed Cover Boxes, for flush mounting.
 - 1. The boxes shall be cast iron with plain cover for vertical installation and checkered cover for walkway installation.
 - 2. Boxes shall have a hot dip galvanized finish.
 - 3. Boxes shall be provided with a neoprene gasket and stainless steel cover screws.
 - 4. Boxes shall be UL listed as rain tight.

2.03 CONTROLS & MONITORING

- A. Monitoring and Control shall be performed by the WSU Building Automation System (BAS) system, where available. Where not available, the following methods of control are acceptable:
 - 1. Manual control shall consist of a switch with a 24 hour timer.
 - 2. Ambient Sensing Control shall consist of a 15-140 degrees F adjustable bulb and capillary thermostat in NEMA 4X enclosure with the stainless steel sensing bulb mounted in ambient air.
 - 3. Automatic Snow Sensing Control shall consist of a snow detector which senses both temperature and the presence of moisture.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. System installation shall conform to the manufacturer's published installation instructions, shop drawings, and recommendations.
- B. Concrete pavement shall be reinforced with rebar or wire mesh and the reinforcement supported such that the location of the reinforcing and the

DIVISION 32 – EXTERIOR IMPROVEMENTS
32 17 43 26 PAVEMENT SNOW MELTING SYSTEMS (ELECTRIC)

- attached heating cable is not disturbed during the concrete placement. The rebar shall be placed at the heating-cable depth wherever possible. In all cases reinforcement shall be placed in conformance with structural requirements.
- C. The heating cable shall be protected from the point where it leaves the pavement to the junction box in a 1-inch rigid metal conduit. Install only one cable per conduit.
 - D. Heaters shall be attached to steel reinforcement using stainless steel tie wire or cable ties.
 - E. The heater shall be meggered in accordance with the manufacturer's specifications and recommendations:
 - 1. After installation but before pavement is installed, and
 - 2. Directly after pavement is installed.
 - 3. Minimum insulation resistance is 20 megohms regardless of heater length.

END OF SECTION