HEATING CABLES AND MATS

Scope

Provide heating cables and mats to protect outdoor piping and tanks from damage due to cold weather. When required, provide heating cables and mats to prevent ice buildup on and damage to concrete slabs, roofs, gutters, and downspouts.

Provide self-regulating heat tracing products manufactured by Raychem Corporation, Process Division, Menlo Park, California or Thermon Corp, 100 Thermon Dr., P.O. Box 609, San Marcos, TX, 78667-0609.

Equipment Requirements

Provide Raychem model "Autosense M-Wire" or comparable Thermon model for protection of critical water lines (such as exposed chilled water pipes serving a computer room A/C unit).

Provide Raychem model "BTV" or comparable Thermon model for protection of non-critical hot and cold water lines (such as exposed chilled water lines to a local air conditioning unit serving a general occupied zone).

Provide Raychem model "XTV" or comparable Thermon model for steam service.

Provide Raychem model “ElectroMelt” or comparable Thermon model for concrete snow-melting and de-icing applications.

Provide Raychem model “IceStop” or comparable Thermon model for roof and gutter snow-melting and de-icing applications.

Get written approval from University Project Manager if the necessary product cannot be provided by Raychem or Thermon.

Sizing Requirements

Use the Raychem application software such as “TraceCalc” etc. or comparable Thermon application software to size and determine the heating cable wattage density and trace ratio (wraps per linear foot). For applications not covered by software, use the approved method as outlined in Raychem’s or Thermon’s applicable design guide publication.

Monitoring and Control Requirements

When available, the Building Automation/Direct Digital Control (BAS/DDC) System shall provide all control and monitoring functions. If BAS/DDC is not available, get direction from the University Project Manager. Contact University Project Manager to determine if heat trace system monitoring is necessary or desirable. Monitoring functions shall be accomplished

through current sensing switches (CSS) that monitor each electrical feed phase. When providing systems with an integral monitoring conductor, contact University Project Manager for monitoring conductor connections.

Installation Requirements

Heating cables and mats shall be installed according to the manufacturer's instructions. All installations shall comply with the NEC and particularly articles 426 and 427 of the 1999 and 2002 NEC, which apply to this equipment. Per article 426-28 and 427-22, the system shall be protected by a 30mA trip ground fault protection of equipment device.

The contractor shall test the heating cables and mats in accordance with this Design Guideline, DG Section 16950 and manufacturer's recommendations before energizing or installing any insulation or covering. Contractor shall provide the University Project Manager with test reports before job closeout

Insulation Resistance (Megohmmeter) Testing for Heat Trace Cables

A. Refer to manufacturer's Design, Installation, and Maintenance Guide.

B. Perform megohmmeter test at 2500v dc.

   i. Measure the resistance between the heating cable bus wires and the grounding braid.

   ii. If the heating cable is installed on a metal/conductive surface, apply megohmmeter between the grounding braid and the surface.

   iii. Apply the voltage for one full minute.

   iv. All insulation resistance values should be greater than 1000 megohms.

   v. Resistance reading should stabilize.

   vi. If any of the above conditions cannot be met contact the Project Manager.

C. Perform megohmmeter testing prior to installation and after installation of heating cables, but prior to power connections.