

Ramping Up the System With a Meltdown

Keeping up with technology and the NEC pays off for three Illinois-based companies. The proof is in the design of this snow melting system.

Edited by Marleen Canniff, Senior Associate Editor

Winter's almost here, and snow has already started to fall across some Northern states. But when snow and freezing rain put a glazed finish on roadways, driveways, and ramps, accidents are sure to follow. That's why Teng and Associates, Chicago, with the help of Delta-Therm, a manufacturer of electric heating systems based in Wauconda, Ill., designed a snow melting system for a large parking garage in Des Plaines, Ill.

When designing a snow melting system, keeping up with the latest technology and paying attention to the bottom line are important. So when the 1999 National Electrical Code (NEC) made a change to no longer require all snow melting and deicing cables to be ground fault protected, Teng and Associates decided to design three ramps using mineral insulated (MI) cables to melt away the snow and ice. Sec. 426-28 states: "Ground-fault protection of equipment shall be provided for fixed outdoor electric deicing and snow-melting equipment, except for equipment that employs mineral-insulated, metal-sheathed cable embedded in a noncombustible medium." MI cable is

When designing a snow melting system, keeping up with the latest technology and paying attention to the bottom line are important.

the only cable available for snow melting and deicing that is exempt from ground fault protection when embedded in a noncombustible medium, such as concrete or asphalt.

Delta-Therm supplied 57 MI cable assemblies (14,730 linear ft) for the three ramps leading to and



While installing ramp No. 3, the contractor spaced the cable tighter than designed and ran out of cable before fully covering the area to be heated. Delta-Therm supplied an extra cable, and a spare circuit in the contactor panel accommodated the extra load.

from the parking garage. The National Fire Protection Agency recognizes the fire resistance characteristics of MI cables, which automatically halts current flowing through this cable once they begin to overheat. Because installing ground fault interrupters (GFIs) for this system is redundant, the NEC exemption significantly reduces the costs for a large installation.

"Eliminating 60 GFIs—starting at \$300 per device for three ramps—trimmed the final bill by as much as \$18,000," says Siva K. Haran, P.E., LC, with WMA Consulting Engineers, Ltd., and former Project Manager and Senior Electrical Engineer at Teng & Associates. "This also eliminated the nuisance tripping common to GFIs, relieving the City of Des Plaines of having to locate and reset the device if it goes off line in foul weather."

Overall, the system is cost conscious while not compromising safety.

EC&M