# Specification: ICE PREVENTION ELECTRIC HEAT TRACE SYSTEMS

# 16855-ELECTRIC HEAT TRACE SYSTEMS

# PART 1-GENERAL

## Work Included

### Furnish and install a complete UL Listed heat tracing system to prevent roof eaves, valleys, gutters, and downspouts from being clogged with ice and snow, including heaters, components, controls and accessories.

## Design

### The heater shall deliver a nominal 9-10 watts per linear foot in ice.

### Circuit breaker sizing shall be based on a start up heater temperature of 20°F.

### Service voltage: As indicated by branch circuits provided for heat tracing on project drawings.

## Related Work Specified Elsewhere

###  National Electrical Code (NEC)

### Underwriter’s Laboratories (UL)

### IEEE-515: “Recommended Practice for Electrical Resistance Heat Tracing”

### National Electrical Manufacturers Association (NEMA)

## Submittals

### Catalog Sheets

### System design calculations

### General Wiring Schematics

### Installation and maintenance check list

### Operation and Maintenance Manuals

# PART 2 - PRODUCT

## 2.1 Heater Cable

### Heater cable shall be self regulating with a radiation cross-linked heating core extruded continuously over two parallel bus wires. The heating cable shall vary power output inversely with temperature such that power output decreases as cable exposure temperature increases.

### Heater construction shall include a radiation cross linked inner jacket thermally bonded to the heating core, a polyolefin dielectric jacket, tinned copper braid and UV stabilized, modified polyolefin outer jacket.

### Heater, components, and connection system selection shall be consistent with manufacturer’s published recommendations.

### Acceptable Manufacturers: Nelson Heat Trace or approved equal.

## 2.2 Controls and Monitoring

### A. The system shall be controlled with an automatic sensor that will energize the system when the ambient air temperature drops below 40°F and the presence of moisture is detected.

### B. Ground fault protection is required through the use of GFEPD panel breakers or a control that features ground fault circuit protection.

### D. Acceptable Manufacturers: Nelson, ETI, or approved equal.

# PART 3 - EXECUTION

## 3.1 Heater cable shall be installed and attached in straight runs in gutters and downspouts as recommended by the manufacturer. Cable shall be looped in center downspouts to avoid the use of tees per IEEE-515 and UL recommendations.

 3.2 Where required, heating cable shall be installed on roof surfaces in a configuration that is consistent with manufacturers’ recommendations for the roofing material.

## 3.3 Heater circuits shall have 30mA ground fault protection.

## 3.4 The heater shall be meggered at 500-2,500 VDC (1) before and after installation of thermal insulation. Minimum insulation resistance is 20 megohms regardless of heater length.

# END OF SPECIFICATION