0.0 SPECIFIER: PLEASE SELECT ONE FOR THE TITLES BELOW

A. SECTION 16855: Heating Cables
B. SECTION 15773: Electric Heating Cables, Mats, Modules and Panels
C. SECTION 15770: Floor Heating and Snow Melting Equipment

1.0 NEXANS INTEGRATED SNOW MELTING SYSTEM

A. Provide a complete, integrated system, comprised of heating cable(s), sensor(s) and control panel(s) as Integrated and provided by:

NEXANS
Distributed by Orbit Radiant Heating
1507 West Park Avenue
Perkasie, PA 18944
(800) 522-3986

1.1 WORK INCLUDED

A. Furnish and install heating cables with factory-installed cold junctions as described in this section and shown on the Drawings

B. Furnish and install one Control System as described in this document, to operate from a _____ [insert 120, 208-240 Volt], Single Phase.

C. Furnish and install remote moisture and temperature sensors as described in this document

1.2 HEATING CABLE

A. Furnish heating cable with the following properties:

1. Single conductor, series resistance type.
2. Integral full-length foil shield and copper ground conductor
3. Insulated by type XLPE cross-linked polyethylene.
4. Surrounded with an extruded PVC outer jacket
5. Precut to correct length with 10-gage cold junction conductors manually crimped to the resistance wire at the factory. Field crimping of lead wire is not acceptable.
6. Sized to produce a maximum of 15.2 Watts/ft, (max.55.0 watts sq. ft.) when energized.
7. Wire insulation to be tested and documented before shipment with a 500-megohm meter; insulation resistance less than 10 megohm shall be rejected
8. UL listed
9. Designed to meet current NEC regulations when properly installed.
10. Warranty of 10 years minimum.
11. Twin conductor and self-regulating cable is not acceptable

B. Provide factory-assembled cables with heating lengths and cold-lead lengths shown on the Drawings.

1. Cable shall be Series TXLP produced by Nexans Kabel Norway alternates are not acceptable.

2. **DESIGN PARAMETERS FOR SNOW MELTING**

	RESIDENTIAL	LIGHT COMMERCIAL	HEAVY COMMERCIAL & CIVIL
	DRIVEWAYS	LANDINGS & STEPS	ROAD WAYS
	STEPS	PARKING LOTS	BRIDGES
SURFACE	DECKS	SIDEWALKS, RAMPS	WALKWAYS, RAMPS
ASPHALT	32.5 WATTS SQ. FT.	32.5 WATTS SQ. FT.	32.5 WATTS SQ. FT.
CONCRETE/PAVERS	32-36 WATTS SQ. FT.	37-45 WATTS SQ. FT.	50-55 WATTS SQ. FT.
ROOF	18-22 WATTS SQ. FT.	23-26 WATTS SQ. FT.	28 WATTS SQ. FT.

1.3 CONTROL SYSTEM

A. Standard UL Listed Orbit RSM Series Control Enclosures shall consist of a NEMA 1 panel, designed for indoor surface or recessed mounting, including:

1. Power Control by means of Magnetic Contactors, rated at 50 Amperes Resistive Load, Single Phase.
   a. Optional 100 Amp (2 Contactor) or 200 Amp (4 Contactor) Panel
   b. Contactors pre-mounted and pre-wired in the enclosure.
   c. 4 Hour Manual Timer
   d. “Heat On” Indicator Light
   e. Pre-mounted and pre-wired Terminal Connections.
   f. UL Listed Orbit Supplied Control Sensor

B. Custom UL Listed Control Enclosure shall consist of a NEMA 12 panel, designed for indoor surface mounting, including:

1. Primary power disconnect switch (circuit breaker) in accordance with NEC recommendations.
2. Power Control by means of Magnetic Contactors, rated at 50 Amperes Resistive Load, Single Phase.
   a. Contactors pre-mounted and pre-wired in the enclosure, or
   b. Contactors may be remotely mounted inside NEMA rated enclosures, when NEC required GFI protection is provided by Orbit Mfg. in lieu of the Electrical Contractor. (See part C below.)
3. Control circuit transformer, where required
4. Pilots lights, indicating: Main Power On, Each Circuit On and Control System On
5. ‘Touch Safe’, labeled termination points for control power, remote control connections and cable power connections.
6. The control enclosure shall bear a UL label

B. Control of the system will be achieved by the use of one or more remote mounted sensors which will collectively sense the outdoor temperature and the presence of falling or drifting snow.
   1. The system shall be capable of responding to the inputs from more that one sensor, so that the system will not shut down when snow has melted in a sunny area but remains in a shaded area.
   2. The controller will remain energized for an adjustable duration following the end of snow fall, so that slush and ice formation are prevented or removed
   3. The controller shall feature a device to permit Manual Over-ride to deal with unusual situations. The manual feature shall self disconnect after approximately 40 hours to prevent system run-away.
   4. The control device shall be UL listed/approved.

C. Compliance with NEC
The NEC requires, in §426.28, that ALL ELECTRIC SNOW MELTING systems be protected by Ground Fault detection circuit interrupters.

**This can normally be supplied by the electrical installation contractor, in order to prevent a double 'mark-up' for the end-user.*

As another approach, the ground fault protection can be purchased with the system, as an integral part of the control manufacturer's equipment. Depending upon your choice, select either:

1a. *The installation contractor shall provide required ground fault protection for the heating cables*

OR

1b. *The required Ground fault protection for the heating cables shall be provided as an integral part of the control system*

1.4 INSTALLATION

A. Inspect the cable and controls upon receipt of shipment, noting any damage and ensuring that the materials received match the order and shipping documents. Compare the labels and the electrical resistance of the heating cables with the shipping documents.

B. Ensure that electrical terminations in the control panel(s) have not been loosened by vibration during shipment.

C. Place cables in the slab and position sensors as described in the manufacturer's instructions and drawings. Perform electrical resistance testing before, during and after the 'pour', per manufacturer's instructions.

D. Perform electrical installation as shown on manufacturer's Drawings

1.5 TESTING

A. Refer to manufacturer's literature for requirements for testing, recording, and documenting resistance and insulation-to-ground readings.

B. Take test readings before, during, and after installation.

C. If problems are found, consult the manufacturer.

D. If problems cannot be corrected, notify Owner's Representative before proceeding with the pour.

E. Keep testing records for inspection by the Engineer, and for subsequent submittal to the manufacturer to ensure validation of the warranty

1.6 GUARANTEE

A. The Electrical Contractor shall verify and record resistance and insulation-to-ground readings of the system upon receipt and before startup

B. If readings show electrical faults following receipt testing, then cable installation Contractor shall replace the cable at no cost to the Owner or the manufacturer.

1.7 DOCUMENTATION AND TRAINING

A. Manufacturer shall present the Owner with equipment start-up and operational documentation to ensure proper operation and to meet specified design standards

ELECTRIC ICE MELTING CABLE SCHEDULE (Sample)

AREA TAG	SQ FT.	CABLE MODEL	QTY	WATTS/EA.	VOLTAGE	CONTROL	PHASE	NOTES