

# ElectroMelt System

Snow-Melting and Anti-Icing System  
for Concrete Pavement

**Raychem**

## ElectroMelt® System Snow-Melting and Anti-Icing System for Concrete Pavement



SYSTEM LISTED  
8772  
De-Icing and Snow-  
Melting Equipment



CERTIFIED

*All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their particular application. Tyco Thermal Controls makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use. Tyco Thermal Controls' only obligations are those in the Tyco Thermal Controls Standard Terms and Conditions of Sale for this product, and in no case will Tyco Thermal Controls or its distributors be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use, or misuse of the product. Specifications are subject to change without notice. In addition, Tyco Thermal Controls reserves the right to make changes—without notification to Buyer—to processing or materials that do not affect compliance with any applicable specification.*

*Tyco, Raychem and ElectroMelt are registered trademarks of Tyco Thermal Controls LLC or its affiliates.*

### Worldwide Corporate Headquarters

Tyco Thermal Controls  
2415 Bay Road  
Redwood City, CA 94063-3032  
Tel: (800) 545-6258  
Tel: (650) 216-1526  
Fax: (800) 527-5703  
Fax: (650) 474-7711

### Canada

250 West St.  
Trenton, Ontario  
Canada K8V 5S2  
Tel: (800) 545-6258  
Fax: (800) 527-5703  
Tel: (613) 392-6571  
Fax: (613) 392-0437

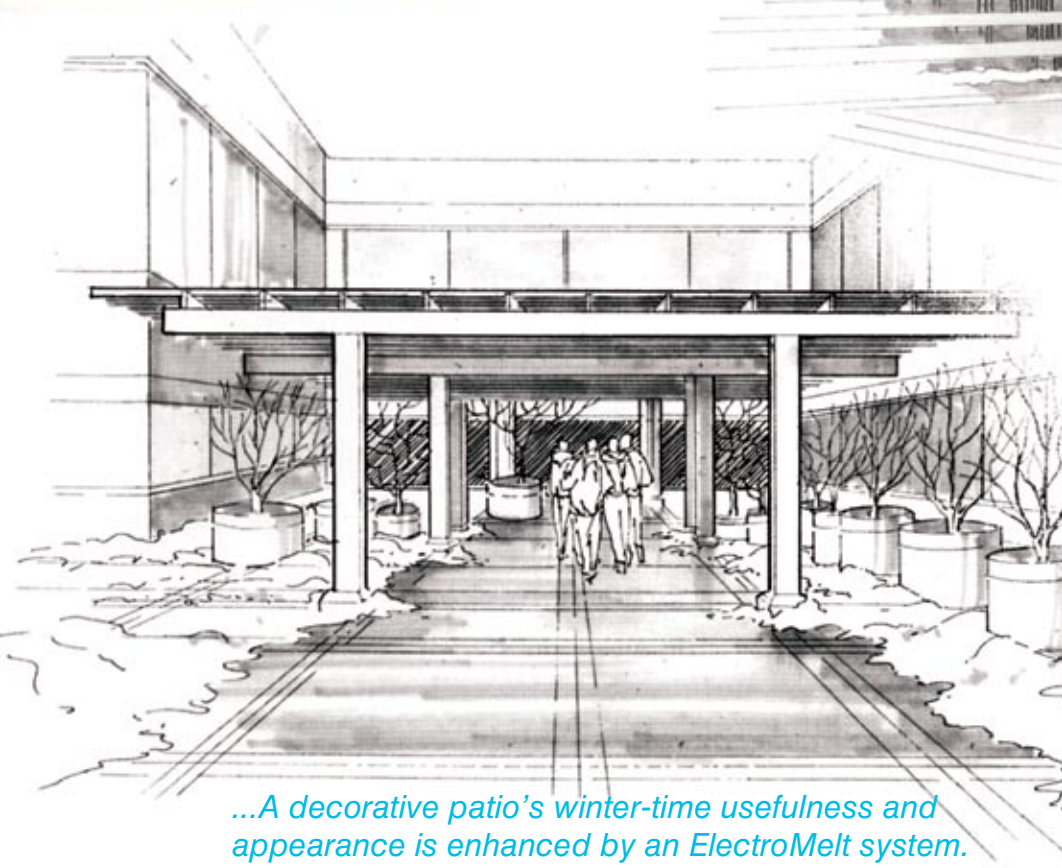
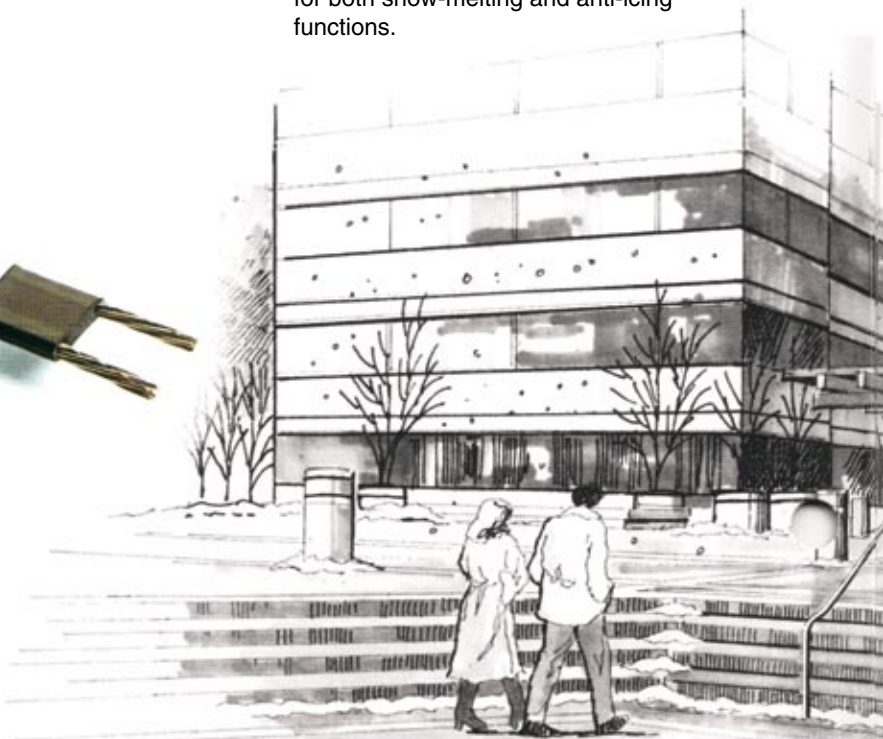
Self regulating. Reliable.  
Easily designed and installed.

# ElectroMelt System

*... the clear choice for keeping concrete pavement clear of snow and ice.*

Keeping concrete pavement free of snow and ice is good policy and makes good business sense. For owners. For tenants. For customers.

Raychem's ElectroMelt system is a genuinely unique approach to the task-one that combines new levels of reliability and energy efficiency with simplified design and installation. And an ElectroMelt system is effective for both snow-melting and anti-icing functions.



*...Clear sidewalks help avoid expensive soiling or damage to flooring in shops and professional offices caused by tracked-in sand, salt, and cinders.*

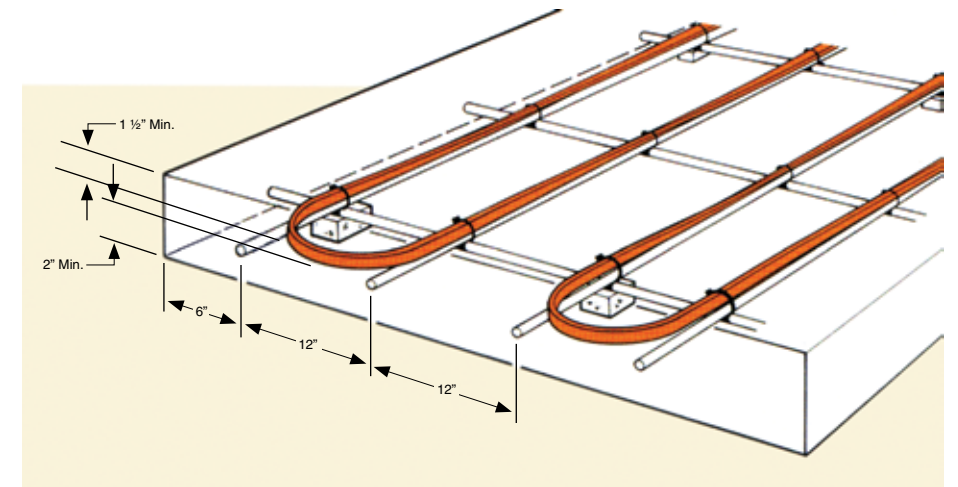
*... Parking garage ramps clear of snow and ice eliminate the potential for lost business, delays, and vehicle damage that typically accompanies winter conditions.*

*...A decorative patio's winter-time usefulness and appearance is enhanced by an ElectroMelt system.*

### 3 Now calculate heating cable requirements.

With the typical 12-inch on-center installation, one foot of heating cable is needed for each square foot of heated pavement.

A 400 ft<sup>2</sup> area specified for 12-inch spacing, for example, would require a cable length of 400 feet, plus the extra cable needed for the components and electrical hookup.



### 4 Determine voltage and circuit breaker needs.

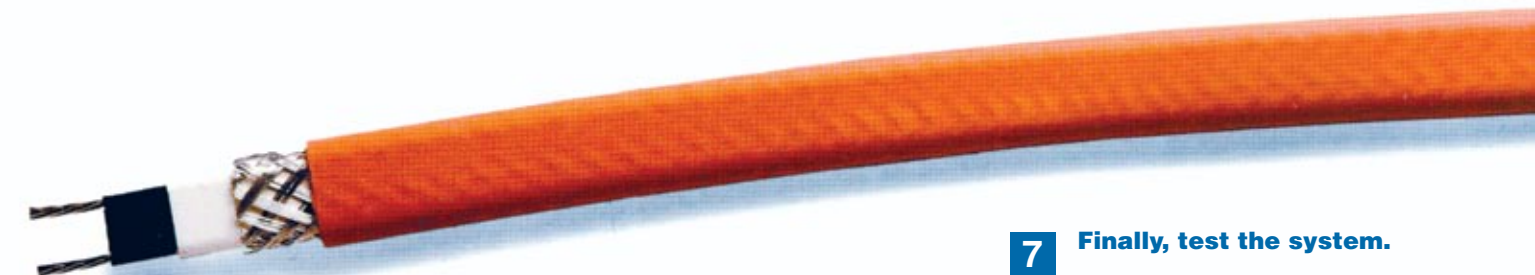
Standard design information is provided for heating cable operation at 208 Vac. Higher voltages-to 277 Vac-result in slightly higher surface temperature.

Sizing of circuit breakers for start-up at 0°F should be based on the table to the right.

**Maximum Heating Cable Circuit Length in Feet**

Circuit Breaker	Heating Cable Operating Voltage			
	208 V	220 V	240 V	277 V
50 amp	245	250	265	300
40 amp	200	200	210	240
30 amp	145	150	160	180
20 amp	100	100	110	120
15 amp	75	75	80	90

See *ElectroMelt System Design Guide (H53393)* for overcurrent protection device selection.



### 5 Use the ElectroMelt System Design Guide for a product guide specification.

### 6 For installation, refer to the ElectroMelt Installation and Operation Manual (H53392) and the component installation instructions.

### 7 Finally, test the system.

ElectroMelt heating cable must be tested for insulation resistance with a 2500 Vdc Megger during installation and annually thereafter. Refer to the ElectroMelt Installation and Operation Manual for proper testing procedure.

# ElectroMelt System

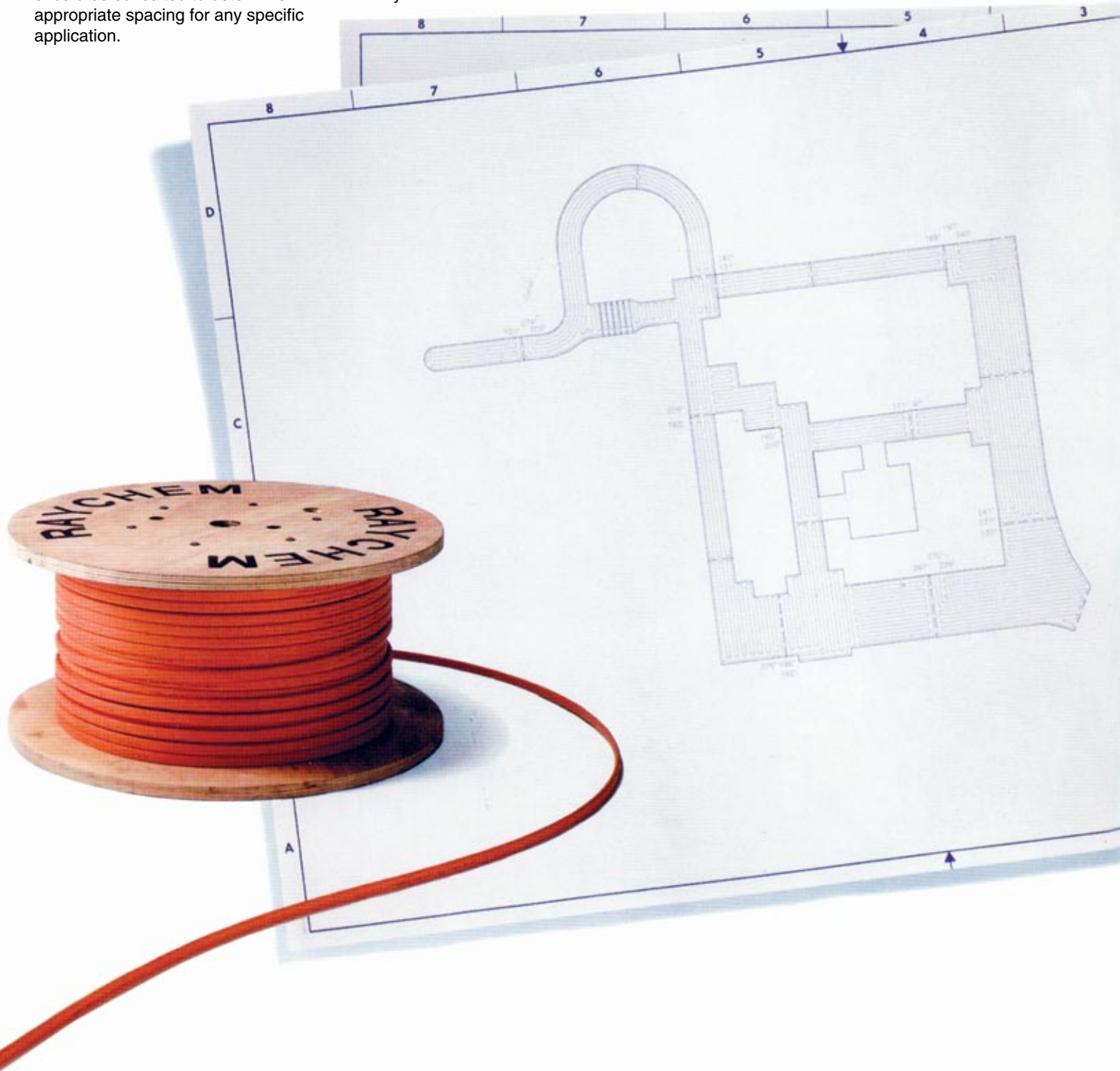
Seven easy steps to a reliable ElectroMelt system.

## 1 Begin by determining required spacing.

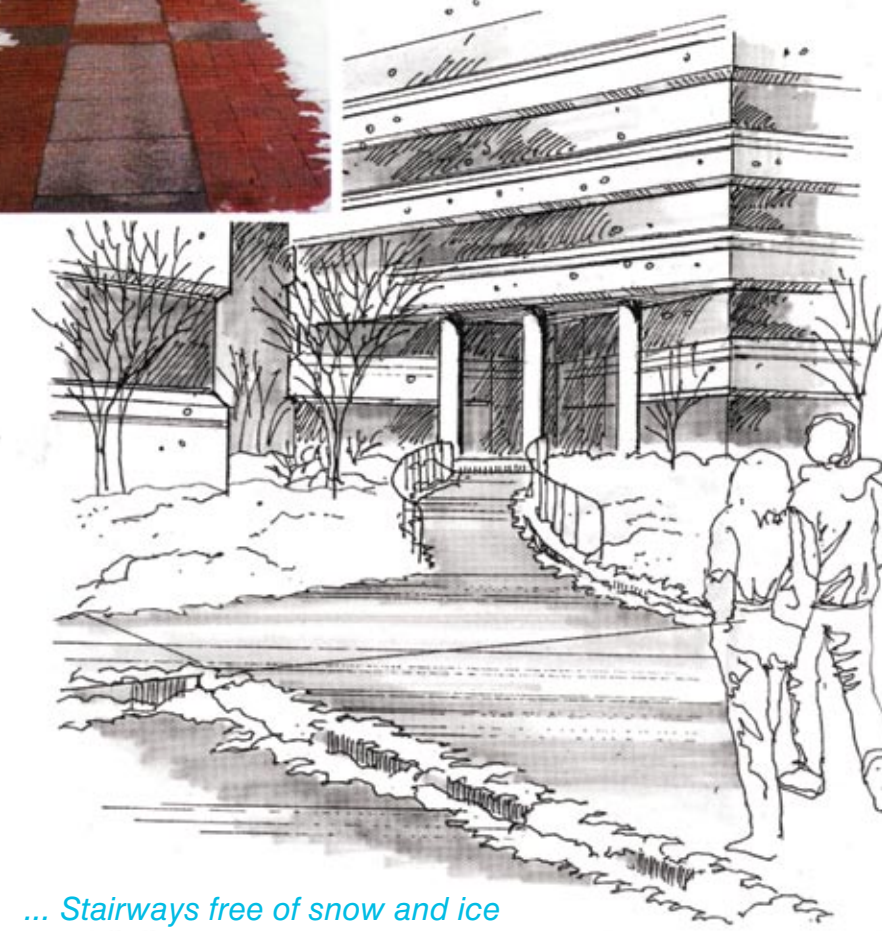
In most applications, ElectroMelt EM2-XR heating cable is installed on 12-inch centers. However, because snowfall and icing conditions vary significantly on a geographic basis, the ElectroMelt Design Guide (H53393) should be consulted to determine appropriate spacing for any specific application.

## 2 Next-create a drawing showing placement of the heating cable and components.

With a drawing, indicate the ElectroMelt heating cable and components needed. Refer to the ElectroMelt Design Guide (H53393) for a sample heating system layout.



An ElectroMelt system is the most advanced and dependable method available of reducing the hazards, inconvenience, expense and problems associated with concrete areas covered with snow or ice. It's the ideal solution in applications ranging from department store entryways to helicopter landing pads, from outside stairways to parking garage ramps.



... Stairways free of snow and ice contribute to safety and convenience.



# ElectroMelt System

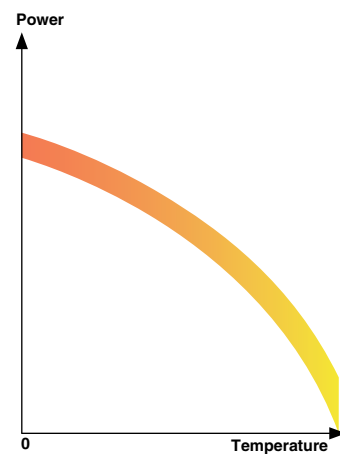
## Self-regulating ElectroMelt heating cable applies Raychem's expertise in polymer technology.

The heart of the ElectroMelt system is its unique EM2-XR heating cable. Developed by Raychem, it represents the latest in self-regulating heater technology- a technology invented by Raychem in 1971 and proven successful by more than 350 million feet of heating cable installed worldwide.

EM2-XR heating cable incorporates Raychem's expertise in conductive polymers and radiation chemistry. It is UL-listed and CSA-certified and uses a blend of polymers and conductive carbon extruded between parallel copper bus wires. To guard against mechanical damage and corrosion, the core and bus wires are encased in a modified polyolefin jacket which, in turn, is sheathed by a tinned copper shield. A tough, 70-mil outer jacket provides a final layer of protection.

Buried in concrete, the heating cable is sensitive to local temperatures: as they drop, electrical resistance decreases. As a result, current flow between the conductors increases and more heat is generated. Conversely, resistance increases as temperatures rise, reducing heat output.

Occurring automatically and independently at each point in the heating cable, self-regulation ensures heat generation only when it's needed, only where it's needed. The benefits are distinct and measurable. In long term reliability. Simplified design. Easy on-site installation and repair. And high energy efficiency.



Self-regulating characteristic of ElectroMelt heating cables.

### More reliable-with no possibility of overheating, a major cause of failure in constant-wattage systems.

The self-regulation technology employed in ElectroMelt heating cable provides unequalled system dependability.

Heat generation at any point in the heating cable is a function of the surrounding temperature. So even if it is overlapped in the concrete, there is no possibility of overheating. And no over-limit thermostats are ever needed.

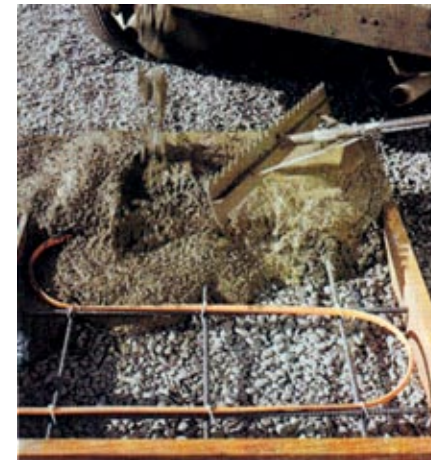
ElectroMelt systems have no complex joints that are susceptible to damage during expansion or shifting of concrete sections. And, of course, the problems associated with fluid-distribution heating systems-uneven heating, corrosion, leaking, or even freezing of sections-area voided.



### Easier and less costly to install. Simply "place it, fasten it, and then pour?"

ElectroMelt heating cable is conveniently cut to length at the job site and typically laid in a serpentine pattern using 12-inch spacing. There's no need for pre-engineered lengths or customized shapes and sizes. No costly delays for reordering will occur should last-minute design changes arise. And there's no waste.

Complex concrete pours, such as those required by snow-melting mats, are not necessary. Neither are large and expensive heating facilities, such as those used in fluid-based systems.



Flexible and rugged, ElectroMelt heating cable employs a tough "electric-orange" colored outer jacket to ensure maximum protection, high visibility, and proper care by workers during installation, site preparation, and subsequent pouring of the concrete.



With an ElectroMelt system, the concrete completely encases the heating cable, ensuring good heat transfer.

### Easier to repair, too.

Should damage occur to an ElectroMelt heating cable- severance by a concrete saw, for example- the circuit can be quickly repaired. Simply repair the heating cable at the damaged point, apply power, and full performance is restored.

With an ElectroMelt system, the heating cable is buried within the concrete. But all terminations remain fully accessible in external junction boxes.

### ElectroMelt is an energy saver as well.

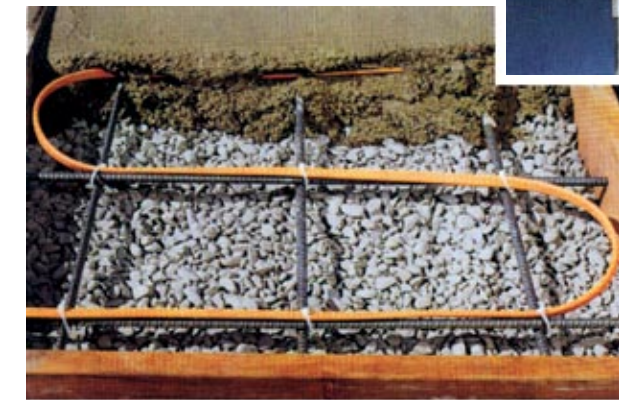
The unique self-regulating properties of an ElectroMelt system mean that it uses only the minimum electrical energy required to maintain proper temperature at each point along the length of the heating cable.

### The ElectroMelt system... in a class of its own.

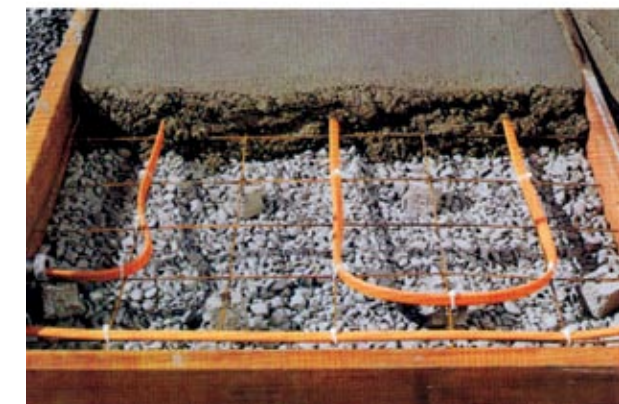
Reliability. Simplified design. Easy installation and repair. High energy efficiency. These and other advantages clearly separate the self-regulating ElectroMelt system from alternative snow-melting and anti-icing approaches. And they make ElectroMelt systems the smart choice, the logical choice.



All ElectroMelt system terminations are made in the field in easily accessed junction boxes.



Installation is easy. Simply tie the heating cable to the rebar or mesh...



...and place the concrete in a single pour.