



Raychem

COMMERCIAL HEAT TRACING PRODUCTS AND SERVICES

 @pentairTBS

THERMAL BUILDING SOLUTIONS

WWW.PENTAIRTHERMAL.COM



BUILDING & INFRASTRUCTURE SOLUTIONS

We provide quality solutions for winter safety, comfort and performance to building and infrastructure design, construction, operation and maintenance professionals. From pipe freeze protection to maintaining fluid temperatures and melting snow, detecting leaks or heating floors, you can rely on Pentair Thermal Building Solutions' solutions & services for greater safety, comfort and performance.

THE HEART OF OUR SOLUTIONS

As the inventor of self-regulating heat tracing, our Raychem brand is recognized for technical leadership in the industries we serve. Raychem cable delivers the appropriate amount of heat exactly when and where it is needed, adjusting the output produced in response to ambient and process conditions, making it ideal for heat management systems. Since inventing the technology, Pentair Thermal Building Solutions has sold over one billion feet of Raychem brand self-regulating cable. In addition to a self-regulating product set addressing a full range of temperature needs, we also offer other types of heating cables, control and monitoring solutions, and a full range of services related to our products.

The Raychem brand mineral insulated heating cables and wiring have led the industry for more than 75 years. Able to withstand extreme, harsh environments, Raychem cables provide the most reliable heat-tracing solution for high-temperature applications.

The Raychem line of products offers the industry's most complete range of dedicated heat-tracing control and monitoring systems, from simple thermostats to advanced networked systems, with easy-to-use interface technologies that put information and programming at your fingertips.

The Tracer Turnkey Solutions Team is widely regarded as the premiere provider of turnkey heat-tracing solutions. With our full suite of services, from design to installation, we are capable of handling heat-tracing projects of any size and scope. By focusing on safety and utilizing time-tested methods and solutions, Pentair Thermal Building Solutions's heat-tracing designs and installations are timely, thorough, and cost-effective.

Rely on Pentair Thermal Building Solutions's solutions & services for greater safety, comfort and performance for your buildings and infrastructure projects.

Raychem



Heat Tracing



Roof & Gutter
De-Icing



Snow Melting



Floor Heating



Fire and
Performance
Wiring



Leak Detection



Turnkey
Solutions

COMMERCIAL HEAT-TRACING OFFERING

This brochure highlights our heat tracing products and services for the commercial construction industry. Our commercial heating products are used in the following applications:

- Pipe Freeze Protection & Flow Maintenance
- Roof & Gutter De-Icing
- Surface Snow Melting & Anti-Icing
- Freezer Frost Heave Prevention
- Floor Heating
- Hot Water Temperature Maintenance



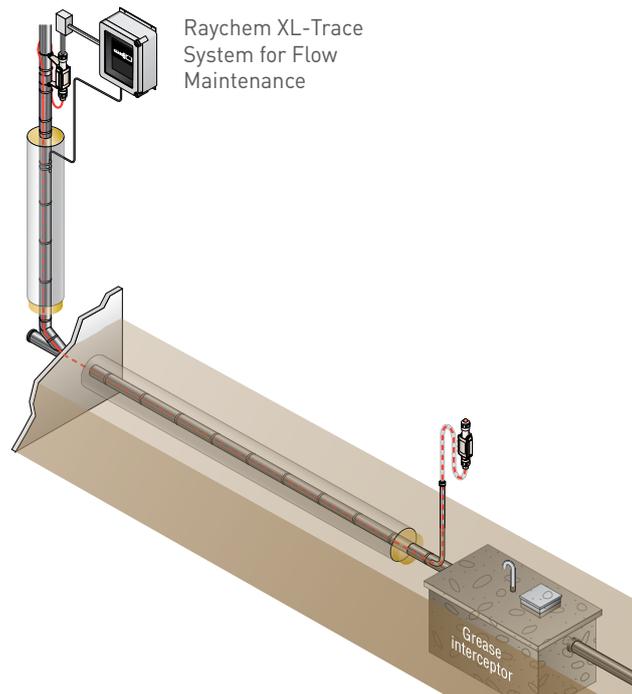
APPLICATIONS



Raychem XL-Trace System

PIPE FREEZE PROTECTION AND FLOW MAINTENANCE

In cold locations, thermal insulation alone cannot keep water pipes from freezing, nor can it keep grease disposal and fuel lines free flowing. The Raychem XL-Trace self-regulating heating cable system prevents general water pipes and fire sprinkler lines from freezing and provides flow maintenance for grease and fuel lines.



The energy-efficient XL-Trace heating cable keeps total operating costs down by adjusting power output in response to ambient temperatures. Easy to install, the XL-Trace cable can be cut to length on site and overlapped at valves, flanges, and pumps.

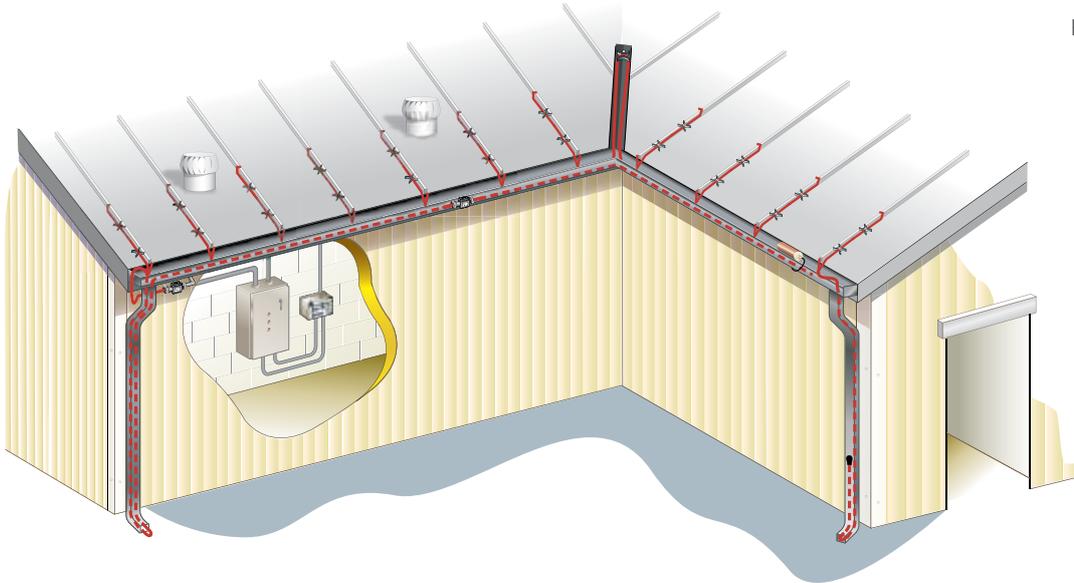


ROOF & GUTTER DE-ICING

Roofs and gutters can be severely damaged by ice buildup. Heavy icicles can fall and cause serious injury. Standing water can leak through to interior walls and furnishings. The Raychem IceStop system helps you avoid these problems.



Raychem IceStop System

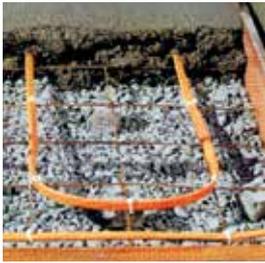


Raychem IceStop System for Roof & Gutter De-Icing

The IceStop self-regulating heating cable can be cut to length for easy installation in plastic, copper, steel, or aluminum gutters, and on flat or pitched roofs, valleys and overhangs. The low operating temperature of the heating cable also makes it safe for use on modern membrane roofs.



APPLICATIONS



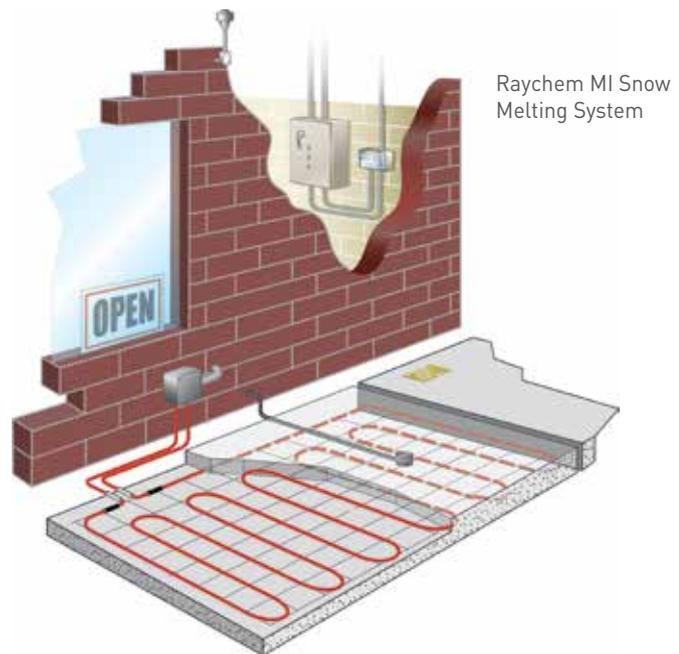
Raychem ElectroMelt System



Raychem MI System

SURFACE SNOW MELTING & ANTI-ICING

In winter, snow and ice can accumulate on outdoor concrete and asphalt surfaces used by people and vehicles. Proven, reliable and efficient, Raychem MI and Raychem ElectroMelt snow melting systems keep sidewalks, stairways, driveways, parking garage ramps, loading docks, store entryways, and other areas free of snow and ice during even the worst weather conditions.



Raychem MI Snow Melting System

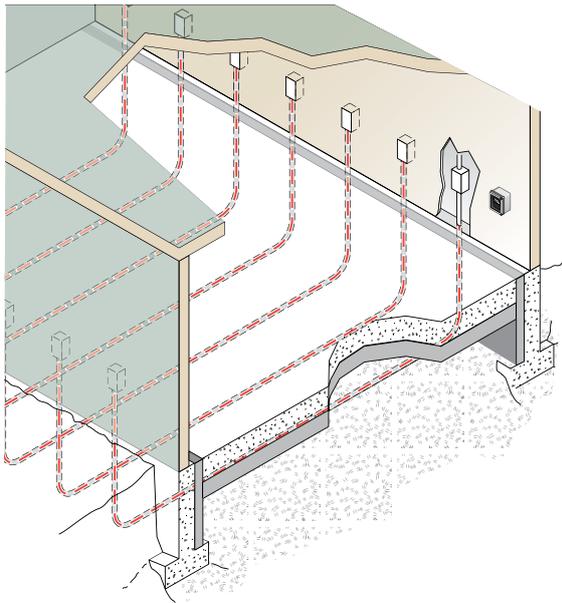
The Raychem ElectroMelt system incorporates a rugged cut-to-length self-regulating heating cable that automatically adjusts power output in response to concrete temperature.

The Raychem MI system incorporates a rugged copper mineral insulated constant wattage heating cable that is protected by a high density polyethylene outer jacket.

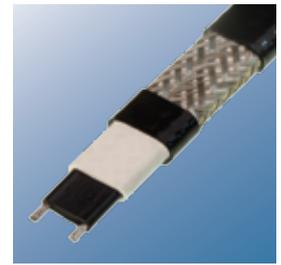


FREEZER FROST HEAVE PREVENTION

Subfreezing temperatures inside cold rooms and freezers cause heat to be lost from the soil under the floor, even when it is well insulated.



Raychem RaySol or
Raychem MI System
for Freezer Frost Heave
Prevention



Raychem RaySol System

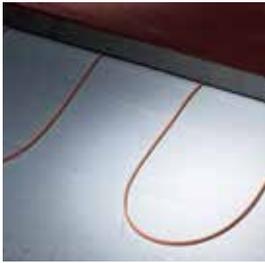


Raychem MI System

As the soil freezes, capillary action draws water into the frozen areas where the water forms a concentrated ice mass. As the ice mass grows, it heaves the freezer floor and columns, causing damage. Installing Raychem RaySol or Raychem MI heating cables in the subfloor under the freezer-floor insulation can prevent this problem.



APPLICATIONS



Raychem RaySol System



Raychem MI System



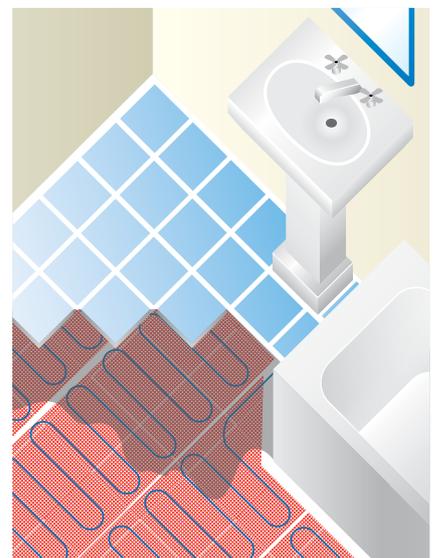
QuickNet Floor Heating System

FLOOR HEATING

Floor heating is becoming increasingly desirable in office buildings, hotels, garages and homes. Pentair Thermal Building Solutions offer solutions for the following floor heating applications:

- Heat-loss replacement as a heat source to prevent the floor over a cold space from cooling below room temperature
- Comfort floor heating as a supplemental heat source
- Radiant space heating as a primary heat source

Pentair Thermal Building Solutions offers multiple solutions for each of these applications, including Raychem RaySol, Raychem MI, and the Raychem QuickNet floor heating system.



Raychem QuickNet System for Comfort Floor Heating



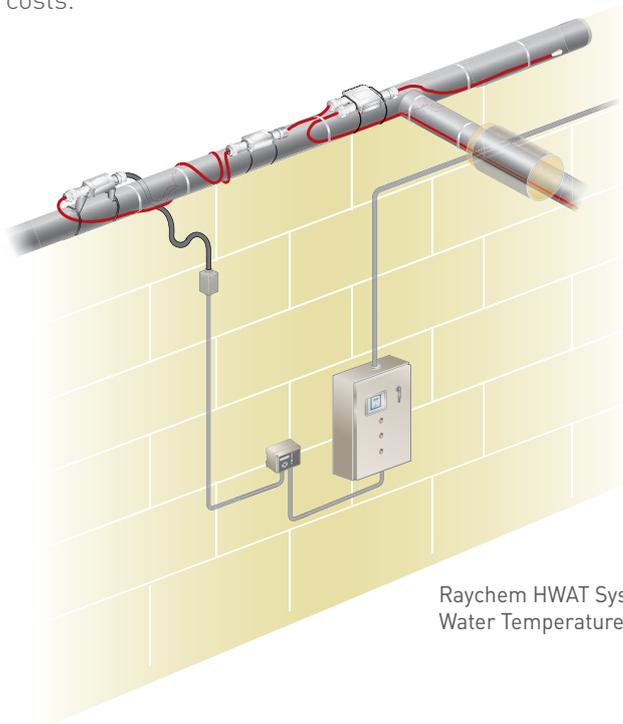
HOT WATER TEMPERATURE MAINTENANCE

Recirculation systems in large commercial buildings can lead to high energy costs and wasted water. The Raychem HWAT system is a simple, reliable alternative to recirculation. Attached to hot-water supply pipes, HWAT heating cables compensate for heat loss and maintain hot water temperature throughout the building.

Engineered for direct installation on hot-water supply pipes to maintain water temperature, HWAT heating cables eliminate the need for return piping valves, or pumps. This lowers installation cost and takes up less building space. The HWAT system's energy savings, water savings and minimal maintenance requirements significantly reduces building operating costs.



Raychem HWAT System



Raychem HWAT System for Hot Water Temperature Maintenance



For HWAT design assistance, please refer to the Hot Water Temperature Maintenance Product Selection and Design Guide (H57538)



COMMERCIAL HEATING PRODUCTS

RAYCHEM SELF-REGULATING HEATING CABLES

Raychem

Raychem self-regulating heating cables consist of two parallel conductors embedded in a conductive polymer heating core. The core is radiation-cross linked to ensure long-term reliability. The self-regulating heating cable automatically adjusts power output to compensate for temperature changes. As the temperature drops, the number of electrical paths through the core increases and more heat is produced. Conversely, as the temperature rises, the core has fewer electrical paths and less heat is produced.



XL-Trace

Pipe Freeze Protection and Flow Maintenance



ElectroMelt

Surface Snow Melting and Anti-Icing



IceStop

Roof and Gutter De-Icing



RaySol

Floor Heating, Heat-Loss Replacement and Freezer Frost Heave Prevention



HWAT

Hot Water Temperature Maintenance

RAYCHEM CONNECTION KITS AND ACCESSORIES

Raychem power, splice tee and end seal kits and accessories are vital parts of the heat-tracing system.

RayClic-PC Power Connection



GMK-RC Roof Clip



RayClic-LE Lighted End Seal



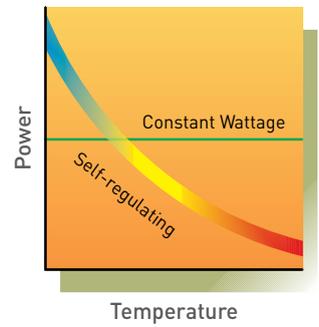
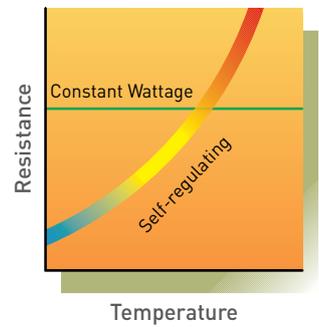
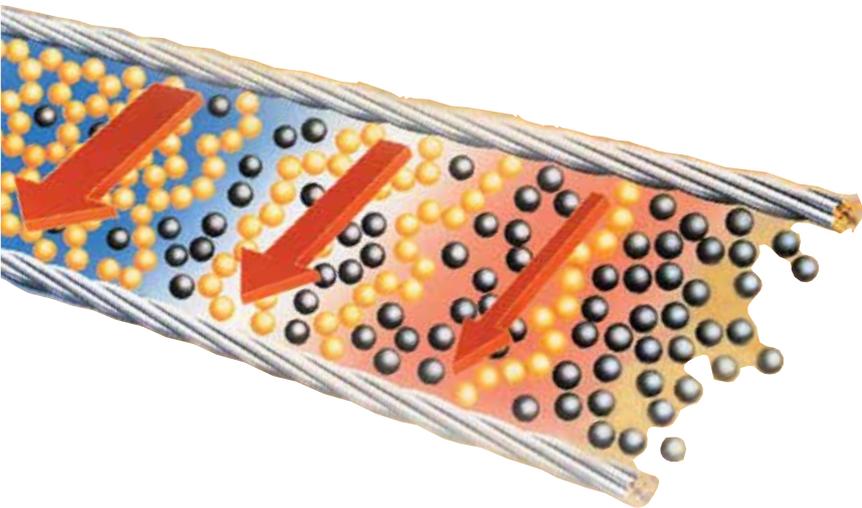
GMK-RAKE Hanger Bracket

RAYCHEM FLOOR HEATING MAT



QuickNet
Comfort Floor Heating

RAYCHEM SELF-REGULATING HEATING CABLES



How self-regulation works in Raychem conductive-polymer heaters:

| | | |
|---|---|--|
| | | |
| <p>At low temperature, there are many conducting paths, resulting in high output and rapid heat-up. Heat is generated only when it is needed and precisely where it is</p> | <p>At moderate temperature, there are fewer conducting paths because the heating cable efficiently adjusts by decreasing output, eliminating any possibility of overheating.</p> | <p>At high temperature, there are few conducting paths and output is correspondingly lower, conserving energy during operation.</p> |

RAYCHEM MINERAL INSULATED HEATING CABLES

RAYCHEM

Raychem mineral insulated heating cables consist of a single or dual conductor surrounded by magnesium oxide insulation, a solid copper sheath, and an extruded high density polyethylene jacket. The mineral insulated series-type technology provides a reliable and constant heat source that is ideal for surface snow melting, anti-icing, floor heating, and freezer frost heave prevention.



COPPER MI HEATING CABLES



Roof and Gutter De-Icing, and Floor Heating

HDPE JACKETED COPPER MI HEATING CABLES



Roof and Gutter De-Icing, Surface Snow Melting, Anti-Icing, Freezer Frost Heave Prevention, and Floor Heating

ALLOY 825 MI HEATING CABLES



Surface Snow Melting, Anti-Icing, and Floor Heating

THERMOSTATS

Our thermostats provide simple on/off control for pipe freeze protection, flow maintenance applications, and floor heating.



ELECTRONIC CONTROLLERS AND SENSORS

Our microprocessor-based controllers provide accurate control and feedback for critical heat-tracing applications, including freeze protection for sprinkler piping systems.

ETI® snow controllers automatically energize snow melting, and roof and gutter de-icing systems when both precipitation and low temperature are detected.



POWER DISTRIBUTION

Raychem dedicated power-distribution panels reduce costly field wiring and controller costs. Available for heat tracing, surface snow melting, anti-icing, and roof and gutter de-icing applications.



WEB SERVICES AND SOFTWARE

VISIT WWW.PENTAIRTHERMAL.COM

All the tools and information you need to design, select, and purchase a complete system for any commercial heating application. Use our Web-based Design Wizards. Download, print, browse product information, or submit a question.

ON-LINE TECHNICAL SUPPORT

On our interactive frequently asked questions and answers (FAQ) page, you'll find questions broken down by markets and product lines. If your question does not appear, simply submit a new question. A Pentair Thermal Building Solutions technical expert will answer your question and post it to the web site.



DESIGN TOOLS



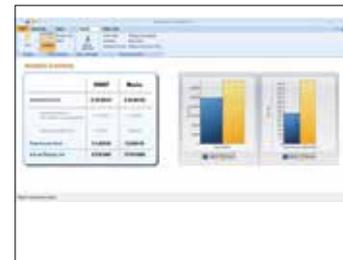
XL-ERATE

XL-ERATE is an on-line commercial pipe freeze protection and flow maintenance design tool. The program generates a complete Raychem XL-Trace bill of material and can also facilitate a quotation if desired.



SnoCalc

SnoCalc is an on-line surface snow melting design tool that selects the appropriate heating cables, connection kits and accessories. Your design information, from cable selection to circuit length, cable power and more, are all displayed and available for download. The program also selects a control solution and even allows you to submit a request for quote online.



SaveWatt

SaveWatt is a modeling tool that compares the installed, operational, energy and life cycle costs between a Raychem HWAT hot water temperature maintenance system and a hot water recirculation system. Contact your local Pentair Thermal Representative for a comparison of your project or for a demonstration of the features of this software program.

ACS-30 Program Integrator

The ACS-30 Program Integrator is a utility used on Microsoft Windows PCs that allows the user to easily set up circuit databases—providing invaluable help for commissioning the heating cable control system.



**PENTAIR THERMAL
BUILDING SOLUTIONS
NORTH AMERICAN OP-
ERATIONS**



BEFORE YOU BUY, WEIGH THE FACTS:

Greater selection

Offering the most complete product line of proven heating technologies to better satisfy your unique needs.

More innovation

As a world leader in heating cable technologies, design optimization, construction, and control and monitoring systems, we invented many of today's industry standards.

More manufacturing experience

Quality-driven manufacturing processes, combined with years of manufacturing self-regulating and mineral-insulated cables gives you products proven to be the most reliable.

**FOR PROVEN HEATING
SOLUTIONS, LOOK TO
THE LEADER.**

Visit our web site at
www.pentairthermal.com or
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