



CONNECT AND PROTECT

Commercial Heat Tracing Solutions

Products and Services



RAYCHEM

NVENT

At nVent, we believe that safer systems ensure a more secure world. We connect and protect our customers with inventive electrical solutions. We provide quality solutions for 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 nVent RAYCHEM solutions and services for greater safety, comfort and performance.

THE HEART OF OUR SOLUTIONS

nVent RAYCHEM heat trace systems offer superior reliability with the highest lifetime value at lower installed cost and lower cost of ownership. Over 1.8B feet of premium safety, performance, and comfort systems installed worldwide are protecting people, buildings, infrastructure and industry. As the inventor of self-regulating heat tracing in 1972, our nVent RAYCHEM solutions and services are recognized for technical leadership in the industries we serve. Our cables deliver the right amount of heat exactly when and where it is needed. As the temperature drops, more heat is produced. Conversely, as the temperature rises, less heat is produced. However, there are many more benefits:

- The smart cables can be overlapped without any risk of overheating.
- The heating cables can be cut to length 'in the field'. This means additional flexibility when plans do not correspond to the "real life" situation on site.

50+ years of time-tested quality, high power retention, reliability and proven performance minimizes downtime and damage while ensuring ease of use, lower installed cost, lower cost of ownership, and worry-free operation.

In addition to this product family that addresses a full range of temperature needs, we also offer other types of heating cables, control and monitoring solutions, and a full range of heating product services.

Our mineral insulated heating cables and wiring have led the industry for more than 80 years. Able to withstand extreme, harsh environments, our cables provide the most reliable heat tracing solution for high-temperature applications.

HOW SELF-REGULATION WORKS IN OUR CONDUCTIVE-POLYMER HEATERS

At higher temperatures, the polymer expands, reducing the number of electrical paths thereby reducing the power output of the cable. At low temperatures, there are many conductive paths, allowing higher level of current to flow between the bus wires. Producing the 'right amount of heat' saves you money with no wasted energy.



Tested and Qualified

nVent RAYCHEM heating systems are tested to the most stringent industry standards to ensure maximum reliability and performance for our customers.

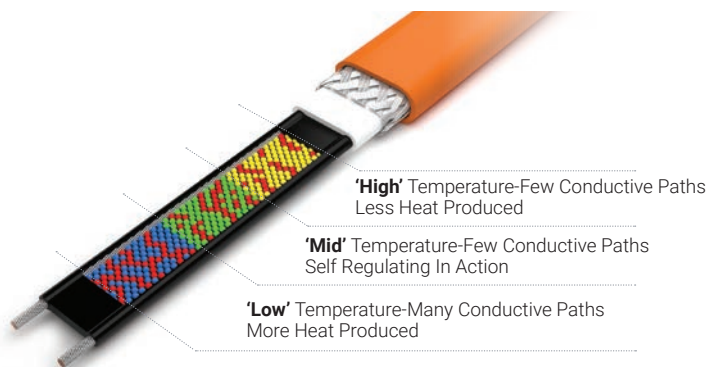


Robust Construction

Long service life assured advanced through modified polyolefin or fluoropolymer insulation and jacket materials.

Highest Lifetime Value

Our extensive scientific testing and field history prove that when properly installed and maintained, nVent RAYCHEM self-regulating cables are expected to work for many decades. Our proven 20+ and 30+ year service life ratings are backed by our industry-leading 10 year warranty.



In 1972, the heat tracing division of the RAYCHEM Corporation (now a part of nVent) patented and produced the first commercially successful electric self-regulating heat tracing cable. The technology was celebrated as the 200th induction into IEEE's historic Milestones Program in 2019. nVent is the proud producer of the world's #1 conductive polymer self-regulating heat tracing cable.



RAYCHEM



NUHEAT

Maximize Building Safety, Comfort and Performance with nVent Solutions

SAFETY

- Pipe Freeze Protection
- Sprinkler Freeze Protection
- Roof & Gutter De-Icing
- Surface Snow Melting
- Hot Water Temperature Maintenance

COMFORT

- Floor Heating

PERFORMANCE

- Grease Waste Flow Maintenance
- Freezer Frost Heave Prevention
- Hot Water Temperature Maintenance
- Water & Fuel Leak Detection

SUSTAINABILITY AND ELECTRIFICATION VALUE PROPOSITIONS



Energy Efficiency

Our solutions improve energy efficiency for our customers.



Customer Productivity

Our solutions reduce labor cost in design and installation, improve utilization and reduce total cost of ownership.



Safety

Our solutions improve end-user safety and help our customers enhance the safety of their operations.



Resiliency and Protection

Our solutions add resiliency to critical systems by helping keep them safe from natural and manmade disruptions.



Lifespan and Serviceability

Our solutions extend the lifespan of our customers' systems, reducing waste and lowering cost.



Eco-Friendly

We support customers sustainability goals by developing environmentally friendly products and solutions.

BEST PRODUCT SELECTION, DESIGN TOOLS AND PROJECT SERVICES EXPERTS

nVent RAYCHEM offers the widest range of heat tracing products for safety, comfort, and performance applications for commercial construction. To compliment this, we offer a full suite of intuitive designer tools to make it easy to create optimal heat trace designs for your specific applications (see page 26).

Most importantly, we are the heat trace experts and the leading full-service integrator for heat management systems. Our Project Services team partners with you to address all types of projects, from buildings to complex infrastructure, to optimize solutions that enhance safety, comfort and performance.



Customer Productivity

Our solutions reduce labor cost in design and installation, improve utilization and reduce total cost of ownership.



Pipe Freeze Protection



Grease Waste Flow Maintenance



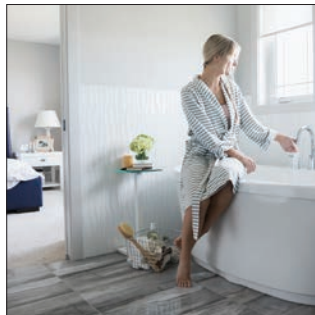
Roof & Gutter De-Icing



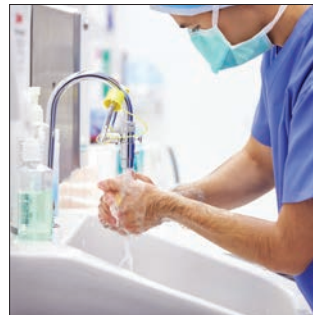
Surface Snow Melting



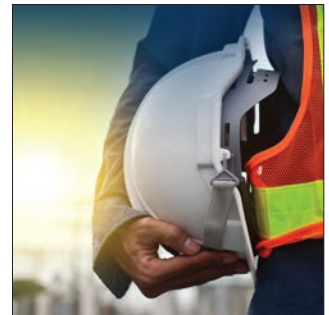
Freezer Frost Heave Prevention



Floor Heating



Hot Water Temperature Maintenance



Project Services



It's More Than a Cable!

nVent provides a wide variety of control and monitoring products, from simple mechanical thermostats and signal lights to sophisticated digital controllers and control and monitoring systems designed specifically for use with our heat tracing products.

- **Control:** varying the heating cable output to achieve the desired temperature
- **Monitoring:** providing feedback on the status of the heat-traced system
- **Power Distribution:** designed to handle larger loads for heat trace cables and are customized for your engineering requirements

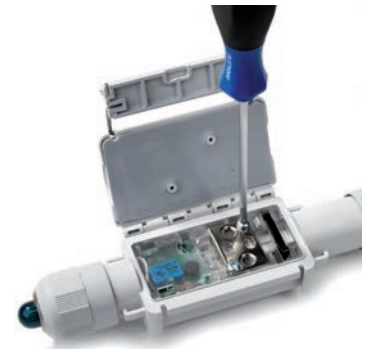
The combination of utilizing nVent RAYCHEM self-regulating heating cable and **smart control and connection systems** allows for dynamic management of the heating cable's power output dependent on parameters such as ambient temperature and moisture. These will help you comply with today's building regulations on energy savings.



Energy Efficiency

Our solutions improve energy efficiency for our customers.

nVent's broad portfolio of applications across diverse verticals offers easy-to-design and easy-to-install nVent RAYCHEM systems at lower installed cost and lower



cost of ownership. A complete nVent RAYCHEM system can result in energy savings and reduced installation time by up to 80%!

CUSTOMER SERVICE AND TECHNICAL SUPPORT TEAMS

Our customers are able to benefit from expert pre-and post-sale support from specification, to design, to system management, to maintenance. We offer tools and services that aim to simplify the professional's life. Not only do we offer the high quality products, we also support them with best-in-class services.



Lifespan and Serviceability

Our solutions extend the lifespan of our customers' systems, reducing waste and lowering cost.



Eco-Friendly

We support customers sustainability goals by developing environmentally friendly products and solutions.

- Customer service agents to answer your questions
- Fast order handling and shipment
- Free documentation service
- "On demand" technical advice
- Designs and quotations
- Direct support to specifiers and installers

- Training support upon request
- Complete after-sale service
- For non-standard applications, our team of experts can assist you in finding the right heating solution



If you need project support, please call us at **1-800-545-6258**.

Commercial Heating Products

SELF-REGULATING HEATING CABLES

nVent RAYCHEM self-regulating heating cables consist of two parallel conductors embedded in a conductive polymer heating core. Our world-class scientists have developed unique polymer formulations to optimize performance characteristics for each application. All cores are then radiation-cross linked to ensure long-term reliability. The self-regulating heating cable automatically adjusts power output to compensate for temperature changes. Producing the ‘right amount of heat’ saves you money with no wasted energy. Released in 2021, the next generation **nVent RAYCHEM XL-Trace Edge** heating cable delivers longer circuit lengths and industry-leading operating and exposure temperatures - setting it apart from the competition.

SELF-REGULATING HEATING CABLES

| | | | | |
|---|---|---|--|---|
|  |  |  |  |  |
| XL-Trace Edge | IceStop | ElectroMelt | RaySol | HWAT |
| Pipe Freeze Protection and Flow Maintenance | Roof and Gutter De-Icing | Surface Snow Melting and Anti-Icing | Heat-Loss Replacement and Freezer Frost Heave Prevention | Hot Water Temperature Maintenance |

CONNECTION KITS AND ACCESSORIES

nVent RAYCHEM power, splice, tee, end seal kits, and accessories are vital parts of the heat tracing system. The nVent RAYCHEM RayClic connection kits have been designed and configured to be fully compatible with our nVent RAYCHEM XL-Trace Edge, IceStop and HWAT heating cables, and cuts installation time by 80%. Traditional nVent RAYCHEM FTC heat shrinkable connection kits for XL-Trace Edge, IceStop, HWAT, WFP and RaySol heating cables are also available.

RayClic-PC Power Connection



RayClic-LE Lighted End Seal



GMK-RC Roof Clip



Customer Productivity

Our solutions reduce labor cost in design and installation, improve utilization and reduce total cost of ownership.

GM-RAKE Hanger Bracket



MINERAL INSULATED HEATING CABLES

nVent RAYCHEM mineral insulated heating cables consist of a single or dual solid heating conductor surrounded by magnesium oxide insulation, a solid copper sheath, and an extruded LSZH jacket. This heavy duty commercial grade 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 & Gutter De-Icing, Heat Loss Replacement

LSZH JACKETED COPPER MI HEATING CABLES



Roof & Gutter De-Icing, Surface Snow Melting, Anti-Icing, Freezer Frost Heave Prevention

ALLOY 825 MI HEATING CABLES



Surface Snow Melting, Anti-Icing (stainless steel sheath is ideal for use in asphalt applications)



Eco-Friendly

We support customers sustainability goals by developing environmentally friendly products and solutions.

Protect Pipes



Unprotected pipes



XL-Trace Edge System

Water lines and fire protection lines can freeze and burst when exposed to cold temperatures. Our systems help you prevent this.

PIPE FREEZE PROTECTION OF WATER LINES

nVent RAYCHEM pipe freeze protection systems are flexible and easy to attach to the exterior of the pipe to keep pipes from freezing, bursting, and causing water damage. XL-Trace Edge systems can add a precise level of heat to prevent water pipes from freezing.



PIPE FREEZE PROTECTION OF FIRE PROTECTION LINES

XL-Trace Edge fire sprinkler freeze protection systems can freeze protect above ground and buried supply pipes, fire standpipes, branch lines and branch lines containing sprinklers when run in areas subject to freezing. XL-Trace Edge is c UL us Listed for use on fire suppression systems under CSA 22.2 No 130-16 for Canada and IEEE 515.1-2005 for the US.



Safety

Our solutions improve end-user safety and help our customers enhance the safety of their operations.

Protect Pipes

Flow in grease waste and fuel oil lines is hindered when pipes get below the temperature at which the viscosity inhibits fluid flow. According to the EPA, 800 to 17,000 pounds of grease are discharged into the sanitary sewer system per restaurant per year. Approximately 74,000 sanitary sewers overflow each year. Of these, 50% are attributed to Fats, Oils, and Grease (FOG) blockages. Our systems help maintain the temperatures needed to keep contents flowing.

(SOURCE: EPA NATIONAL PRETREATMENT PROGRAM 40 CFR 403).



Unprotected pipes

GREASE WASTE FLOW MAINTENANCE

XL-Trace Edge grease waste flow maintenance systems are designed to maintain a 110°F (43°C) fluid temperature to keep the Fat, Oil, Grease mixture (FOG) in suspension from the kitchen to the grease interceptor. By maintaining flow in even the most demanding commercial kitchens, this system can reduce prohibited discharges to municipal sewers and costs associated with maintenance and down-time.



XL-Trace Edge
(CT) System

FUEL OIL MAINTENANCE

XL-Trace Edge fuel oil flow maintenance systems can maintain #2 fuel oil lines above the temperature at which the viscosity inhibits fluid flow.



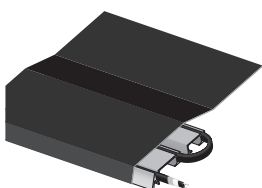
Lifespan and Serviceability

Our solutions extend the lifespan of our customers' systems, reducing waste and lowering cost.

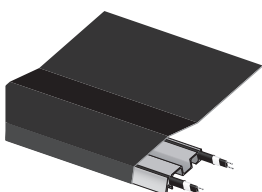
Protect Roofs, Gutters & Windows



Unprotected
roof and gutters



RIM System



RIM2 System



IceStop System



Safety

Our solutions improve end-user safety and help our customers enhance the safety of their operations.

Ice dams can form on roofs, in gutters, and downspouts preventing water from properly draining which can result in water damage. Heavy icicles can fall and cause serious injury. Standing water can leak through to interior walls and furnishings. Our systems help you protect roofs, gutters, and downspouts.

ROOF & GUTTER DE-ICING – RIM

nVent RAYCHEM's Roof Ice Melt (RIM) system is the premier, highest performing, aesthetically elegant roof & gutter de-icing solution ideal for new construction or renovation of residential or commercial buildings. The system consists of metallic panels that embed self-regulating heat tracing cable to provide high power output. RIM system with 3 runs of cable is ideal for heavy snow load areas. RIM2 system with 2 runs of cable is ideal for light to moderate snow load areas.



ROOF & GUTTER DE-ICING – ICESTOP

nVent RAYCHEM IceStop is an advanced, high performing, specified roof & gutter de-icing solution ideal for commercial buildings in light to heavy snow load areas. It 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.



Protect Roofs, Gutters & Windows



Ice dams can also form on and around roof drains preventing water from properly draining which can result in water damage. Window condensation can result in a build up of mold/mildew, causing health hazards and potential damage to the delicate artifacts, like those found in libraries and museums. Our systems help you protect roof drains and windows.

RIM DRAINTRACE

nVent RAYCHEM RIM-DrainTrace (RIM-DT) is a complete solution to trace roof drains. It includes IceStop heating cable, connection kits and pre-cut RIM panels for a fast, reliable, and elegant system to keep your roof drain free of snow and ice.



Resiliency and Protection

Our solutions add resiliency to critical systems by helping keep them safe from natural and manmade disruptions.



RIM-DrainTrace

WINDOW MULLION HEATING

nVent RAYCHEM Window Mullion Heating (WMH) is a complete heating solution designed to be installed in window frames. The system utilizes high wattage self-regulating cable installed in an engineered aluminum tray assembly offering efficient, high performance heat that keeps your windows free of frost and moisture.



Window Mullion Heating

Protect Surfaces



Safety

Our solutions improve end-user safety and help our customers enhance the safety of their operations.

When snow and ice accumulates on outdoor concrete and asphalt surfaces, they can become slippery, unusable, and unsafe for people and vehicles.

Proven, reliable, and efficient, our 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.

SURFACE SNOW MELTING – ELECTROMELT

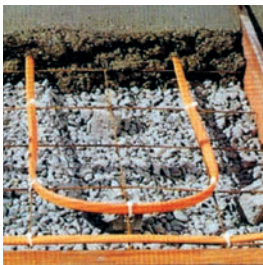
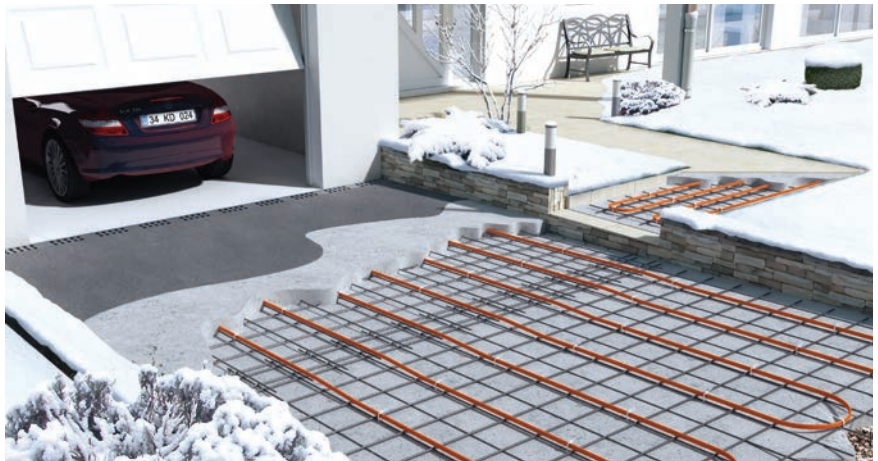
nVent RAYCHEM ElectroMelt system for concrete surfaces incorporates a rugged cut-to-length self-regulating heating cable that reduces heat output automatically as the pavement warms. It is ideal as an off-the-shelf solution and for smaller areas.



Unprotected surfaces



ElectroMelt System



ElectroMelt System



MI System

SURFACE SNOW MELTING – MI

nVent RAYCHEM MI system for concrete, asphalt, and pavers, incorporates a rugged copper mineral insulated cable protected by a low smoke zero halogen (LSZH) outer jacket that provides constant power output. It offers higher voltages, high output, and 3-phase power, making it ideal for large areas.



MI System



Protect Surfaces

When snow and ice accumulates on paved or suspended surfaces, like stairs, walkways and catwalks, they become unsafe for people. Safety becomes even more of a concern when these unsafe conditions affect critical access areas such as evacuation routes, ADA accessibility, and so on. Our systems help you protect surfaces.

PEDESTAL MOUNTED HEATING

nVent RAYCHEM Pedestal Mounted Paver Heating (PMPH) system is a complete snow melting solution designed to be installed under the pedestal mounted pavers. The system utilizes high wattage self-regulating cable installed in an engineered aluminum tray assembly offering efficient, high performance snow melting that keeps your pedestal mounted pavers free of snow and ice.



SUSPENSION MOUNTED HEATING

nVent RAYCHEM Suspension Mounted Heating (SMH) system is a complete snow melting solution designed to be installed under suspended metal surfaces such as stairs, walkways and catwalks. The system utilizes high wattage self-regulating cable installed in an engineered aluminum tray assembly offering efficient, high performance snow melting that keeps your suspended surfaces free of snow and ice.



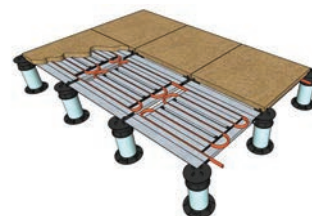
Contact us at
1-800-545-6258

Our Project Services team can assist you with cable layout design for your requirements.

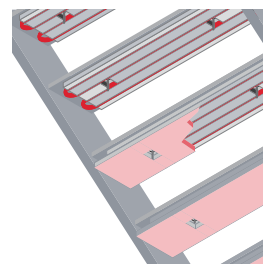


Safety

Our solutions improve end-user safety and help our customers enhance the safety of their operations.



Pedestal Mounted Heating



Suspension Mounted Heating

Protect Freezers



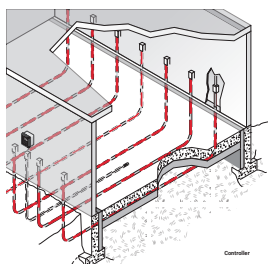
Lifespan and Serviceability

Our solutions extend the lifespan of our customers' systems, reducing waste and lowering cost.

Inside cold rooms and freezers, subfreezing temperatures cause heat to be lost from the soil under the floor. 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 and business interruption. Our freezer frost heave prevention systems can prevent this problem.

FREEZER FROST HEAVE PREVENTION – RAYSOL

nVent RAYCHEM RaySol cut-to-length self-regulating heating cables provide long circuit lengths, higher heat output, making it ideal to prevent heaving in soil under freezers, refrigerated warehouses, and cold rooms. RaySol is ideal for both large and small areas.



Freezer frost heave example



RaySol System



FREEZER FROST HEAVE PREVENTION – MI

nVent RAYCHEM MI LSZH jacketed copper sheathed heating cables provide higher voltages, high output, 3-phase power, small profile, and are durable enough to be embedded in concrete, making it ideal in preventing heaving in soil under freezers, refrigerated warehouses, and cold rooms. MI is ideal for larger areas.



MI System



Replace Heat Loss

Floors over non-heated areas such as garages, or loading docks lose heat through the floor insulation over a cold space. Our heat loss solutions can prevent this problem.

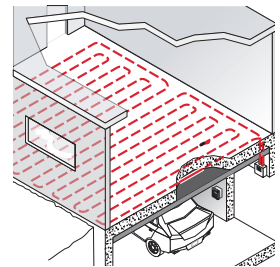
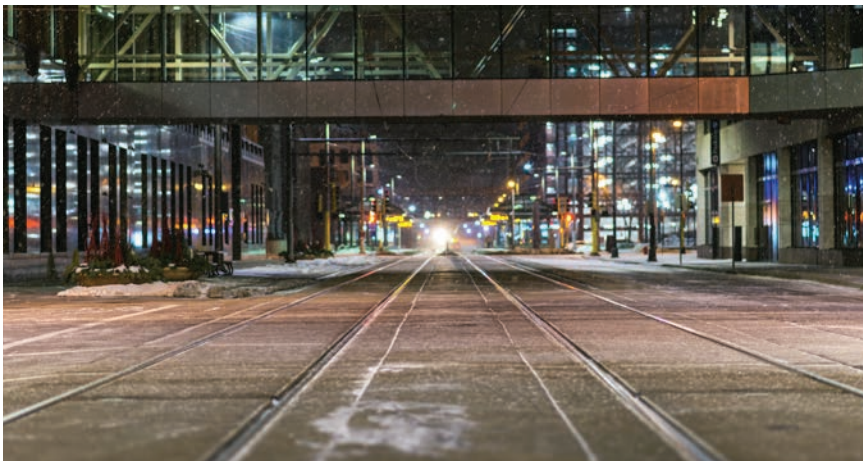


Customer Productivity

Our solutions reduce labor cost in design and installation, improve utilization and reduce total cost of ownership.

HEAT LOSS REPLACEMENT – RAYSOL

RaySol cut-to-length self-regulating heating cables provide long circuit lengths, higher output, and are durable enough to be embedded in concrete, making it ideal to eliminate the chill felt from the heat lost through floors over non-heated areas such as skywalks, cantilevered roofs, garages, or loading docks. Also works as a radiant space heating solution. RaySol is ideal for smaller areas.



Heat loss replacement example



RaySol System

HEAT LOSS REPLACEMENT – MI

MI LSZH jacketed copper sheathed heating cables provide higher voltages, high output, 3-phase power, small profile, and are durable enough to be embedded in concrete, making it ideal to eliminate the chill felt from the heat lost through floors over non-heated areas such as skywalks, cantilevered roofs, garages, or loading docks. Also works as a radiant space heating solution. MI is ideal for larger areas.



MI System

Smart Alternative for Hot Water

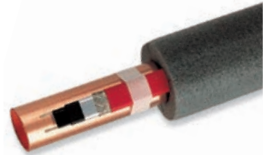


Customer Productivity

Our solutions reduce labor cost in design and installation, improve utilization and reduce total cost of ownership.



HWAT P1 100-120V



HWAT System

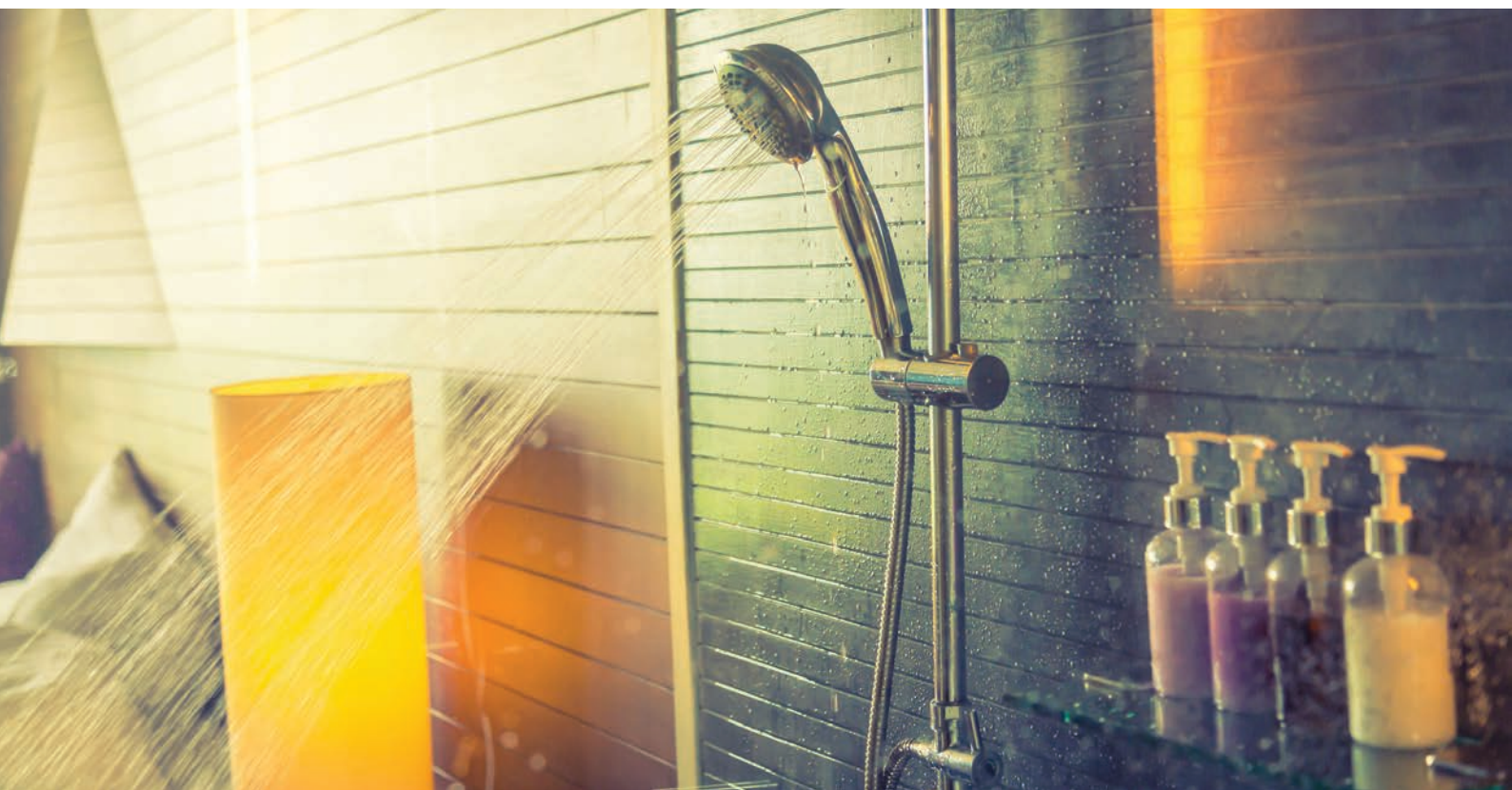


HWAT-ECO-GF

HOT WATER TEMPERATURE MAINTENANCE – HWAT

Conventional recirculation systems in large commercial buildings are often complex and can lead to high energy costs and wasted water. nVent RAYCHEM Hot Water Temperature Maintenance (HWAT) systems are a smart alternative to conventional recirculation system for meeting modern Green energy and plumbing code that **save water, energy and improve water quality**. If used in concert with conventional designs, it can optimize the overall efficiency of the system.

HWAT systems consist of an electronic controller, self-regulating electric heating cables, pipe insulation and easy-to-install connection kits. The heating cables are attached to hot water supply pipes to compensate for heat loss and maintains water temperature to point of use, thus eliminating the need for return piping, balancing valves and associated equipment.



Smart Alternative for Hot Water



HWAT R2 208-277V

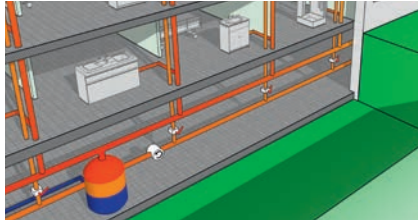
While our HWAT R2 208-277V solutions have been offering the benefits of Hot Water Temperature Maintenance immediate hot water at the tap, reduced water waste, and space and cost savings in mixed use high-rise buildings, schools and hotels for quite some time, our new HWAT 120V system now offers the added value of a more residential / multi-family building-friendly "behind-the-meter" application.

When **submetering** is required by code, a conventional design would typically require a water heater installation for every unit in the building or a complex circulation system. A HWAT 120V system, along with a central water heating unit, delivers a more economical solution that enables efficient and inexpensive metering and billing for each individual unit's hot water usage without complex system design and installations.

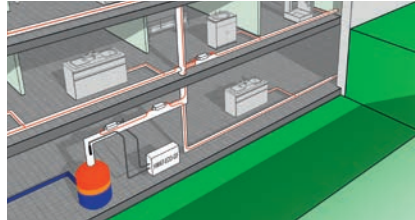
Additionally, our high quality HWAT systems **improve water quality** by meeting ASHRAE 188 Guidelines. ASHRAE Addendum B to ASHRAE Guideline 12-2020 declares that the use of electric heat trace systems, such as HWAT are approved as a legionella control measure. Addendum B specifically states:

"Alternate heat sources, such as self-regulating electric heat trace, can be used alone or as a supplement to recirculation to maintain hot water consistently at or above 120°F (49°C) throughout the building hot-water system, including water in the pipes returning to the water heater".

HWAT systems are eligible for LEED points for both Energy Savings and Innovation in Design. When properly installed and maintained, HWAT heating cable solutions have a service life in excess of 40 years.



Traditional Recirculation System



Single-Pipe-System



Safety

Our solutions improve end-user safety and help our customers enhance the safety of their operations.



For HWAT design assistance, please refer to the Hot Water Temperature Maintenance Product Selection and Design Guide (H57538). Find your local nVent RAYCHEM representative at <https://www.nVent.com/RAYCHEM/nvent-raychem-where-buy>.



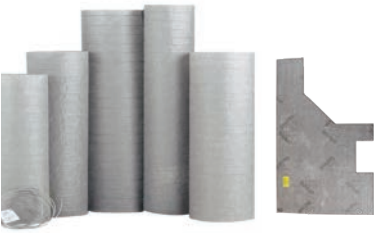
The Comfort You Deserve



FLOOR HEATING SYSTEMS

nVent NUHEAT electric floor heating systems are room-specific heating solutions that can function as supplementary comfort heating or as the sole heat source for an interior space. Ideal for both new construction and renovation projects, these easy-to-install systems can be used under tile, stone, laminate, engineered wood, and luxury vinyl floors. All nVent NUHEAT heating systems are UL-approved for wet and dry interior environments and are covered by a 25-year product warranty (excludes thermostats, which are covered by a 3-year product warranty).

nVent NUHEAT offers the broadest range of 120 V and 240 V electric floor heating system types, allowing contractors to choose the best system for the job at hand.



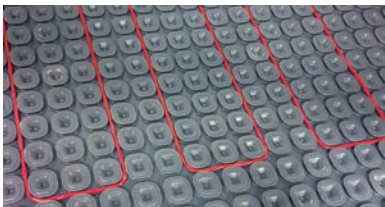
NVENT NUHEAT MATS

nVent NUHEAT Mats are pre-built like an electric blanket. No competing system is thinner, easier, or quicker to install. **Standard Mats** are available in over 70 different sizes of squares and rectangles configured for 12 W/ft². **Custom Mats** are made-to-measure, offering a precise fit to any space, no matter how complex its shape at either 12 W/ft² or 15 W/ft². After design approval, a Custom Mat is made in as little as 3 days in our Redwood City, California production facility and can be shipped directly to the job site.



NVENT NUHEAT CABLE

Offering the ultimate in installation flexibility, nVent NUHEAT Cable can be installed using Cable Guides (included) or with nVent NUHEAT Membrane (sold separately). The ultra-thin cold lead joint and cable termination joint fit easily into nVent NUHEAT Membrane without any modification. Our premium grade floor heating cable is UL-approved for installations producing 10 W/ft², 12 W/ft², or 15 W/ft², offering outstanding unrivalled installation flexibility without affecting warranty coverage.



NVENT NUHEAT MEMBRANE

nVent NUHEAT Membrane is a tile underlayment that offers uncoupling, waterproofing, vapor management, and easy-to-use heating cable guide features. Available in standard and Peel & Stick formats, nVent NUHEAT Membrane can replace a second layer of plywood or concrete backer board and reduces the risk of tile cracks caused by movement in the flooring assembly. Standard nVent NUHEAT Membrane is rated "extra heavy" on the Robinson Floor Test. nVent NUHEAT Peel & Stick Membrane achieves a "moderate" rating, while offering 40% faster installation times. Combined with nVent NUHEAT Cable, this system offers flexible spacing and variable watt density of 10 W/ft², 12 W/ft², or 15 W/ft² with full warranty coverage.



NVENT NUHEAT MESH SYSTEM

nVent NUHEAT Mesh consists of nVent NUHEAT Cable embedded into an adhesive-backed fiberglass mesh as is configured for an output of 12 W/ft². This modifiable solution is ideal for use in square and rectangular areas. Simply unroll across the heated area, cut the mesh, turn, and roll back; repeating until coverage is complete.



nVent NUHEAT Systems installed by an nVent NUHEAT Certified PRO qualify for the industry leading 25-year Total Care Warranty, covering not just the heating products but the entire installation. See [NUHEAT.com](https://www.nvent.com/NUHEAT) for more information.



nVent NUHEAT Thermostats



nVent NUHEAT Floor Heating Thermostats can be used with 120 V or 240 V heating systems, include Class A GFCI protection, and are covered by a 3-year warranty.

NVENT NUHEAT SIGNATURE

- Wifi-enabled
- iOS® and Android® apps
- Works with Amazon Alexa®, the Google Assistant®, IFTTT®, and more (go to [NUHEAT.com/connected-home](https://www.nuheat.com/connected-home) for more information)
- Open API for custom integrations
- Displays live local weather forecast
- Includes all of the functions of the nVent NUHEAT Home thermostat



NVENT NUHEAT HOME

- 3.5" color touchscreen
- 7-day programmability
- Energy use monitor



NVENT NUHEAT ELEMENT

- Manual temperature control
- Easy to use



NVENT NUHEAT CERTIFIED PRO PROGRAM

- nVent NUHEAT Certified PRO installers (CPROs) have exclusive rights to offer the 25-Year Total Care Warranty, covering the complete installation (floor coverings, labor, and repairs)
- CPROs can be listed on the NUHEAT.com "Find An Installer" locator
- CPROs gain access to exclusive offers, loyalty benefits, and industry-leading education
- Go to [NUHEAT.com/certified-pro](https://www.nuheat.com/certified-pro) for more information



Customer Productivity

Our solutions reduce labor cost in design and installation, improve utilization and reduce total cost of ownership.



Project Services

The nVent Project Services team of experts partner with you to address all types of projects, from **buildings** to complex **infrastructure**, to ensure optimized solutions to enhance safety, comfort and performance. For **consulting engineers**, you can rely on our extensive capabilities to ensure every heating system is designed to perform and incorporates best practices from our expertise in all building types. For **contractors**, you can count on nVent to provide best-in-class deliverables to reduce risk and maximize your installation productivity.



PROPOSALS & ESTIMATES

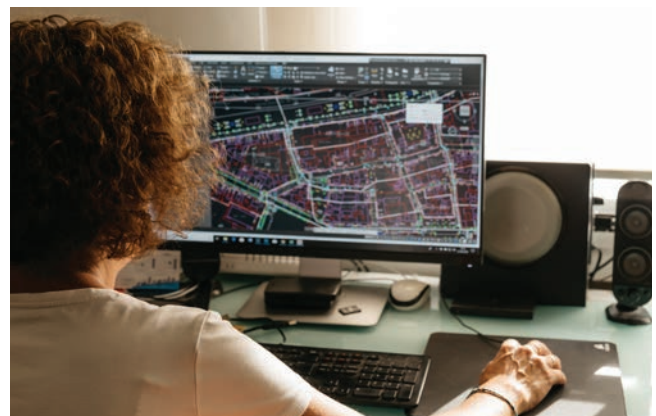
- Consultative project services ensure unmatched velocity
- Support architects, engineers, and contractors to develop Electric Heat Trace (EHT) scope, review EHT applications, and outline required engineering deliverables
- Provide detailed proposals for requested Scope of Work including Engineering, Products, Construction, and/or Field Support Services
- Energy Efficiency: Our solutions improve energy efficiency for our customers

PROJECT MANAGEMENT

- Manage heat trace projects for design, supply and/or installation services
- Manage materials—procurement, buy-outs, deliveries on site
- Resiliency and Protection: Our solutions add resiliency to critical systems by helping keep them safe from natural and manmade disruptions
- Customer Productivity: Our solutions reduce labor cost in design and installation, improve utilization and reduce total cost of ownership

ENGINEERING & DESIGN

- Expert design, engineering and on-site Service Teams are available to connect and protect projects of any size, anywhere on earth.
- Create custom layout drawings for EHT applications
- On-site field engineering and design for heat trace applications
- Design custom heat trace systems with optimized performance



Beyond front end assistance of proposals, engineering and design, the Project Services team can be there every step of the way through construction and installation, to commissioning and post installation services.



CONSTRUCTION / INSTALLATION

- Installation of heat trace products
- Installation of power distribution and control wiring
- On-site supervision of installation

FIELD SUPPORT SERVICES

- Commissioning & Start-up Assistance
- Troubleshooting & Repair
- Audits
- Training
- After market technical or field support as needed



CHOOSE PROJECT SERVICES TO...

- Provide CUSTOM SOLUTIONS to meet your needs
- Help you REDUCE RISK
- Be the SINGLE POINT OF CONTACT for your project needs
- Optimize the right system for your building or infrastructure.
- Customer Productivity: Our solutions reduce labor cost in design and installation, improve utilization and reduce total cost of ownership

Visit our web site at nVent.com/RAYCHEM
or contact us at **1-800-545-6258**

Control & Monitoring Products

ADVANCED CONTROLLERS & POWER DISTRIBUTION

ADVANCED CONTROLLERS

Our microprocessor-based controllers provide accurate control and feedback for critical heat tracing applications. The nVent RAYCHEM HWAT-ECO-GF is a single point controller for HWAT applications and the nVent RAYCHEM C910 and 460 single point controllers are designed for heat tracing applications including pipe freeze protection, grease waste and fuel oil flow maintenance and heat loss replacement. The 465 single point controller is designed and approved specifically for fire sprinkler pipe freeze prevention. The nVent RAYCHEM ACS-30 is a multi-point control platform that controls and manages all applications.

ACS-30



C910-485



460



465



HWAT-ECO-GF



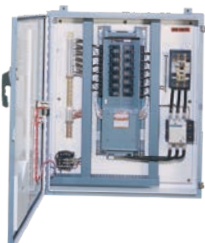
Energy Efficiency

Our solutions improve energy efficiency for our customers.

POWER DISTRIBUTION

nVent RAYCHEM HTPG and SMPG 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. The HECS control system is specifically designed to work with RIM roof ice melt systems and can utilize multiple sensors to provide zone control for better energy efficiency.

HTPG



SMPG



HECS



Customer Productivity

Our solutions reduce labor cost in design and installation, improve utilization and reduce total cost of ownership.

Control & Monitoring Products

SNOW CONTROLLERS & THERMOSTATS

SNOW CONTROLLERS AND SENSORS

ETI® snow controllers automatically energize snow melting, and roof and gutter de-icing systems when both precipitation and low temperature are detected. The controllers work with the aerial, pavement-mounted, and gutter snow sensors.

PD-PRO



GF-PRO



APS-4C



Snow Owl



SIT-6E



GIT-1



ELECTRONIC AND MECHANICAL THERMOSTATS

The nVent RAYCHEM EC-TS and ECW-GF are ambient or line sensing thermostats and provide accurate temperature control for pipe freeze protection and flow maintenance applications. They can control a single heat tracing circuit or as a pilot control of a contactor switching multiple heat tracing circuits.

Our mechanical thermostats, like the nVent RAYCHEM AMC-F5 or AMC-1A, provide simple on/off control for pipe freeze protection applications. They can control a single heat tracing circuit or as a pilot control of a contactor switching multiple heat tracing circuits.

EC-TS



ECW-GF



AMC-F5



AMC-1A



Safety

Our solutions improve end-user safety and help our customers enhance the safety of their operations.

Controller Application Matrix

| Pipe Freeze Prevention and General Applications | | | | | | | | | | | | |
|---|--------------------------------|--------|--------|--------|-------|--------|---------|---------|----------|--------|----------|-------------|
| | | AMC-F5 | AMC-1A | AMC-1B | EC-TS | ECW-GF | 460 | 465 | C910-485 | ACS-30 | HTPG | HWAT-ECO-GF |
| Application | Pipe Freeze Protection | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | |
| | Pipe Flow Maintenance | | | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | | |
| | Fire Mains, Sprinkler Lines | | | | | | | ✓ | ✓ | ✓ | | |
| | Roof & Gutter - IceStop | | | | ✓ | ✓ | ✓ | | | ✓ | Optional | |
| | Roof & Gutter - RIM | | | | | | ✓ | | | | Optional | |
| | Surface Snow Melting | | | | | | | | | ✓ | Optional | |
| | Freezer Frost Heave Prevention | | | | | ✓ | ✓ | | ✓ | ✓ | ✓ | |
| | Heat Loss Replacement | | | | | ✓ | ✓ | | ✓ | ✓ | ✓ | |
| | Domestic Hot Water | | | | | | | | | ✓ | | ✓ |
| # of Circuits | 120 V | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 5+ | 54 | 1 |
| | 208 V | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 5+ | 26 | 1 |
| | 240 V | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 5+ | 20 | 1 |
| | 277 V | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 5+ | 26 | 1 |
| | 480 V | | | | | | | | | 5+ | | |
| | Minimum Setpoint | 40°F | 15°F | 25°F | 30°F | 32°F | 32°F | 32°F | 0°F | | | 105°F |
| | Maximum Setpoint | 40°F | 140°F | 325°F | 110°F | 200°F | 176°F | 105°F | 200°F | | | 140°F |
| | Power Distribution | | | | | | | | | | ✓ | |
| | Max Amps/Circuit | 22 | 22 | 22 | 30 | 30 | 24 A | 24 A | 30 | 30 | 50 | 24 |
| | 30 mA GFPD | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | NEMA Rating | 4X | 4X | 4X | 4X | 4X | 12 | 12 | 4X | 4 | 12,4,4x | 12 |
| | Hold On Timer (hours) | | | | | | | | | | Optional | |
| Controls Based On | Ambient Temp | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | Line Temp | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| | Moisture | | | | | | | | | ✓ | ✓ | |
| | Proportional (PASC) | | | | | | ✓ | ✓ | ✓ | ✓ | Optional | |
| | Sensor Length (feet) | 2.5 | 0 | 9 | 25 | 25 | 3 - 328 | 3 - 328 | 0-4500 | 0-4500 | Optional | 1-328 |
| Additional Sensor Input Req'd | RTD | | | | | | | | ✓ | ✓ | | |
| | Snow Owl | | | | | | | | | | Optional | |
| | GIT-1 | | | | | | | | | | Optional | |
| | SIT-6E | | | | | | | | | | Optional | |
| | External | | | | | | | | ✓ | ✓ | ✓ | ✓ |
| | Max # Sensors | | | | 1 | 1 | 2 | 2 | 2 | 5+ | 1 | 2 |
| | Optional Remote Control | | | | | ✓ | | | | | | |
| BMS Tie-In | Contacts | | | | | ✓ | | | ✓ | ✓ | Optional | ✓ |
| | AC relay | | | | | | | | ✓ | | | |
| | Smart | | | | | | | | ✓ | ✓ | | |
| Alarms | High Voltage | | | | | | | | ✓ | ✓ | | |
| | Low Voltage (Loss of Power) | | | | | ✓ | | | ✓ | ✓ | | ✓ |
| | Low Temp | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| | High Temp | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| | GF Monitoring | | | | | | ✓ | ✓ | ✓ | ✓ | | ✓ |
| | GF Trip | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | Optional | ✓ |
| | Hi Amp Draw | | | | | | | | ✓ | | | |
| | Low Amp Draw | | | | | | | | ✓ | | | ✓ |
| | Sensor Failure | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| | Auto-Cycle | | | | | | ✓ | ✓ | ✓ | ✓ | Optional | |

Controller Application Matrix

| Roof & Gutter De-Icing, Surface and Snow Melting Applications | | | | | | | | | | |
|---|--------------------------------|-------|--------|--------|----------|----------|--------|----------|--------|--------|
| | | LCD-8 | PD-PRO | GF-PRO | APS-3C | APS-4C | SC-40* | SMPG | ASD | HECS |
| Application | Pipe Freeze Protection | | | | | | | | | |
| | Pipe Flow Maintenance | | | | | | | | | |
| | Fire Mains, Sprinkler Lines | | | | | | | | | |
| | Roof & Gutter - IceStop | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| | Roof & Gutter - RIM | | | | | | | | ✓ | ✓ |
| | Surface Snow Melting | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| | Freezer Frost Heave Prevention | | | | | | | | | |
| | Heat Loss Replacement | | | | | | | | | |
| | Domestic Hot Water | | | | | | | | | |
| # of Circuits | 120 V | 1 | 1 | 1 | 1 | | | | 4 or 8 | 18 |
| | 208 V | 1 | 1 | 1 | 1 | 1 | 1 | 18 | 4 or 8 | 18 |
| | 240 V | 1 | 1 | 1 | 1 | 1 | 1 | | 4 or 8 | 18 |
| | 277 V | | 1 | 1 | | 3 | 3 | 18 | 4 or 8 | 18 |
| | 480 V | | | | | 1 | 1 | 9 | 4 or 8 | 18 |
| | Minimum Setpoint | 38°F | 38°F | 38°F | 38°F | 38°F | | | -150°F | -150°F |
| | Maximum Setpoint | 38°F | 38°F | 38°F | 38°F | 38°F | | | 150°F | 150°F |
| | Power Distribution | | | | | | | ✓ | | ✓ |
| | Max Amps/Circuit | 16 | 30 | 30 | 24 | 40 | 40 | 50 | 30 | 40 |
| | 30 mA GFPD | | | ✓ | | ✓ | ✓ | ✓ | | ✓ |
| | NEMA Rating | 3R | 4X | 4X | 3R | 3R | 3R | 12,4 | 4X | 12,4 |
| | Hold On Timer (hours) | 0-5 | 0-8 | 0-8 | 0-10 | 0-10 | 0-10 | 0-10 | | |
| | Ambient Temp | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Line Temp | | | | | | | | | |
| | Moisture | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| Controls Based On | Proportional (PASC) | | | | | | | | | |
| | Sensor Length (feet) | | | | | | | | 15 | 15 |
| | RTD | | | | | | | | ✓ | ✓ |
| | Snow Owl | | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| | GIT-1 | | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| Additional Sensor Input Req'd | SIT-6E | | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| | External | | | | Optional | Optional | APS-4C | Optional | | |
| | Max # Sensors | | 2 | 2 | 6 | 6 | | 6 | 1 | 2 |
| | Optional Remote Control | | RCU-3 | RCU-4 | RCU-3 | RCU-4 | | RCU-3 | | |
| | | | | | | | | | | |
| BMS Tie-In | Contacts | | | | | | | | | |
| | AC relay | | | | | | | | | |
| | Smart | | | | | | | | | |
| Alarms | High Voltage | | | | | | | | | |
| | Low Voltage (Loss of Power) | | | | | | | | | |
| | Low Temp | | | | | | | | | |
| | High Temp | | | | | | | | | |
| | GF Monitoring | | | | | | | | | |
| | GF Trip | | | ✓ | | ✓ | ✓ | Optional | | ✓ |
| | Hi Amp Draw | | | | | | | | | |
| | Low Amp Draw | | | | | | | | | |
| | Sensor Failure | | | | | | | ✓ | | |
| | Auto-Cycle | | | | | | | | | |

*SC-40 requires APS-4C

Designer's Toolbox

VISIT [NVENT.COM/RAYCHEM](http://nVent.com/RAYCHEM)

Our website provides all the latest tools and information you need to design, select, and purchase a complete system for any commercial heating application. Browse and find the most up-to-date product brochures, data sheets, design guides and installation instructions.

Use our web-based design programs to help with your projects.

Visit our web site at
nVent.com/RAYCHEM
or contact us at
1-800-545-6258.

DESIGN TOOLS



TraceCalc Pro for Buildings

The TraceCalc Pro for Buildings tool lets you create a design project that can contain multiple applications, multiple circuits, and multiple pipe segments with different design parameters on a single circuit.

- Easily create a design calculating temperature, circuit lengths, power and much more
- Generate summary and BOM quickly
- Save your projects for future use
- [Start Designing with TraceCalc Pro Now](#)



Roof & Gutter Calculator

The Roof & Gutter Calculator is an on-line, easy-to-use design tool that lets users enter design parameters for a roof & gutter de-icing project.

Once users enter parameters, the system generates a complete bill of material with the appropriate heating cables, circuit lengths, power requirements, connection kits and accessories—which can be used to request a quote online.

- [Start Designing with the Roof & Gutter Calculator Now](#)



SnoCalc

SnoCalc is an on-line, easy-to-use design tool that lets users enter design parameters for a surface snow melting project.

Once users enter parameters, the system generates a complete bill of material with the appropriate heating cables, circuit lengths, power requirements, connection kits and accessories—which can be used to request a quote online.

- [Start Designing with SnoCalc Now](#)

Find us in

MasterSpec®
Powered by Deltek Specpoint®



Specifications/CAD Drawings

Download the latest nVent RAYCHEM specifications and detail drawings on our partner portals:

- [MasterSpec](#)
- [CADdetails](#)

bimobject®

BIM Design & Modeling Tools BIM Families

nVent RAYCHEM provides a suite of BIM families to help designers incorporate heat tracing systems into their BIM designs.

- [Find us on BimObjects](#)



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.

- [Download the ACS-30 Program Integrator Now](#)

nVent Solutions Provide Protection



BUILDINGS

nVent RAYCHEM heat trace systems offer superior reliability with the highest lifetime value at lower installed cost and lower cost of ownership. 50+ years of time-tested quality, reliability and proven performance minimizes downtime and damage while ensuring ease of use, lower installed cost, lower cost of ownership, and worry-free operation. Burst pipes, damage to gutters and downspouts, hazardous snow-covered and slippery parking spaces, driveways and footpaths all become things of the past. Your gain? A safe living and working environment and lower maintenance costs.

PEOPLE

Our systems prevent ice from forming and keep paths free from ice and snow and make them safely accessible, therefore the risks of material damage and physical harm are kept to an absolute minimum.

BUDGETS

No accidents ultimately means a serious reduction in your financial risks (through claims for damages, higher insurance premiums, etc.). Thanks to the efficient operation of the cables and intelligent control, you also save a great deal of energy.

BEFORE YOU SPECIFY OR BUY, WEIGH THE FACTS

nVent offers the most complete line of heating technologies and services. Whether you need **products, design tools, or project assistance from our Project Services experts**, rely on the proven heating solutions leader for optimized systems to enhance the safety, comfort, and performance of your building or infrastructure projects.



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thermal.info@nVent.com

Our powerful portfolio of brands:

CADDY ERICO HOFFMAN RAYCHEM SCHROFF TRACER



nVent.com/RAYCHEM