



The Patented Summit Ice Melt System 2025 Product Catalog v.1.0

From This . . .



To This . . .



Thermodynamics analyzed. Applied.™

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A Bit About Our Past. . .

Summit Ice Melt Systems was founded by Brian Casey of Tahoe City, California, after many years of hands-on experience with ice dams, roofing, roofing manufacturing, and various ice melt systems.

The harsh environment and heavy snow in the High Sierras is the ideal location to put ice melt systems to the test. Building regulations require engineering roofs to support up to 545 lbs. per square foot snow load. A local ski area logged over 800" of snowfall in three of the past ten winters. This is the snowiest county in the lower 49 states, and big ice dams form as a result.

Casey teamed up with world recognized experts in efficient heat transfer in frost and freeze protection to engineer roof ice melt systems that are distinctly different, effective, and truly energy efficient.

Summit has developed a full line of ice melt systems that can be tailored to meet your specific needs. Since Summit can handle the big ice dams, think of what an effective job it will do for you. Call Summit today for a custom designed solution to your ice dam problems.



24" thick ice dams are not uncommon at Tahoe



Over 800" of snow falls in one season



Why Choose Summit?

Unparalleled experience - We put the science behind our ice melt systems.

- Unique, innovative ice melt systems with patented features ONLY available from Summit
- Advanced, engineered designs do the job with much less energy required
- Summit's background includes 45 years of heavy roof snow and ice dam experience, and more than 170 years combined experience between our design and sales team
- Proven in the harshest winter conditions to provide safety and convenience
- Precision in-house manufacturing—accurate to 0.004"—assures top quality fit and finish that provides unmatched energy efficiency
- Fast becoming the preferred choice among architects, contractors, and property owners
- Handsome, architectural roof ice solutions that look beautiful all year around
- Successful installations from Maine to Washington State and Canada, on residences, ski areas, condominiums, commercial, and public works projects.



Summit Ice Melt Systems PRO
Tames the Toughest Conditions

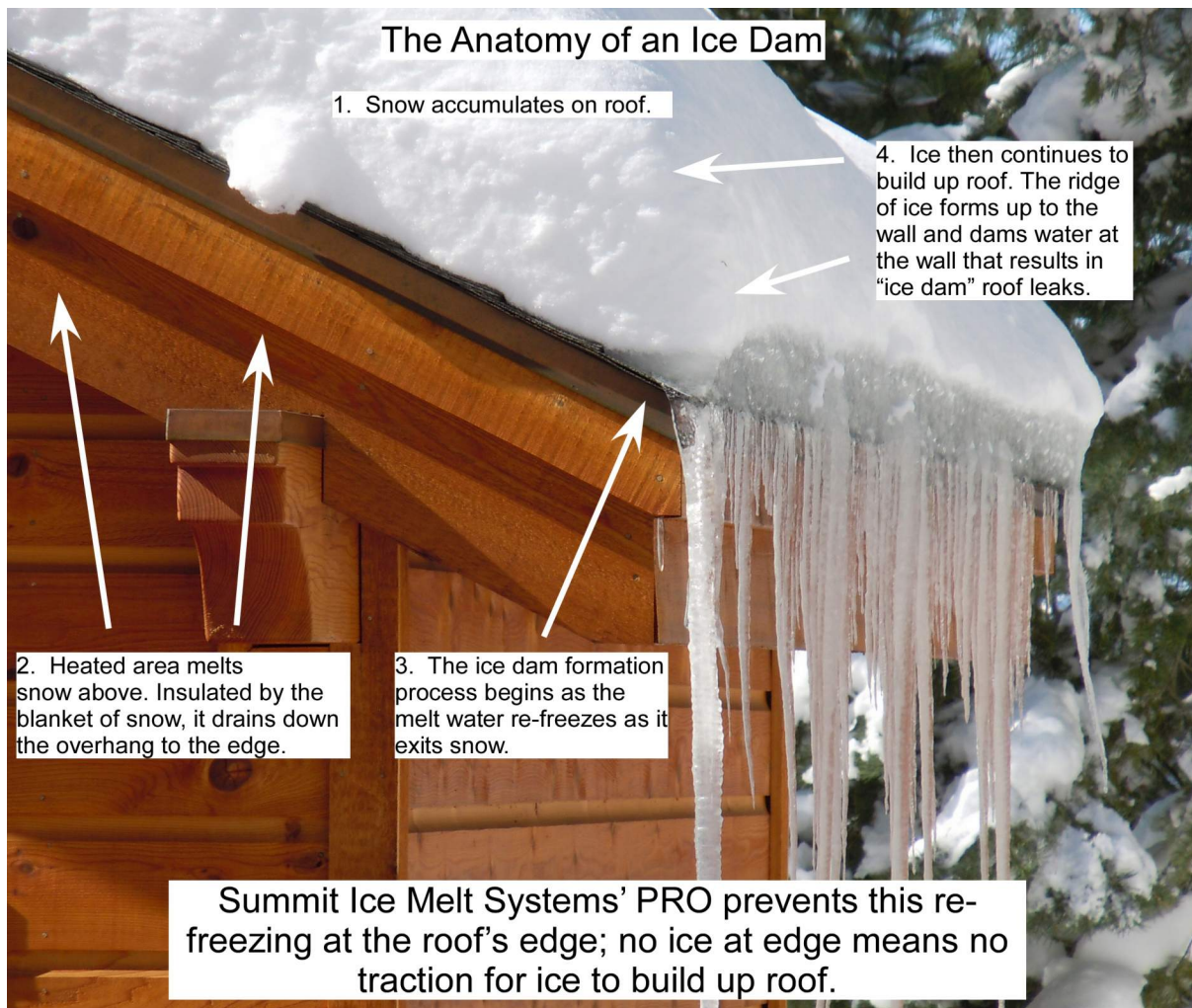


What is an ice dam?

An ice dam is a ridge of ice that forms along a roof's edge when three simple conditions coexist:

1. Snow accumulates on a roof.
2. Solar gain and interior building heat melt the snow. The melt water runs down the roofing surface under the insulating blanket of snow.
3. Sub-freezing outdoor temperatures cause the melt water to re-freeze at the roof's edge, thus causing the ice dam and icicle formations.

Without Summit Ice Melt Systems the ice continues to grow and build up the roof.



Ice Dams and Icicles Pose Significant Threats!

- When left unabated, ice dams will continue to grow up to the building's wall line. A pool of standing water develops behind the dam above the wall line. **It can then leak** into the interior and **cause water damage, dry rot, and mold.**
- **One cubic foot of ice weighs 57.2 lbs.,** which is more than 5 times heavier than even the wettest snow. **Ice formations stress buildings** and overhangs, and **damage roofing** and underlying structures.
- Ice formations and icicles eventually and **unpredictably fall off** roofs and damage decks, railings, vehicles, propane tanks, and break windows. Worse yet, **falling ice can cause personal injuries and death.**

Fully developed ice dam formations:



How Does Our Ice Melt System Work?

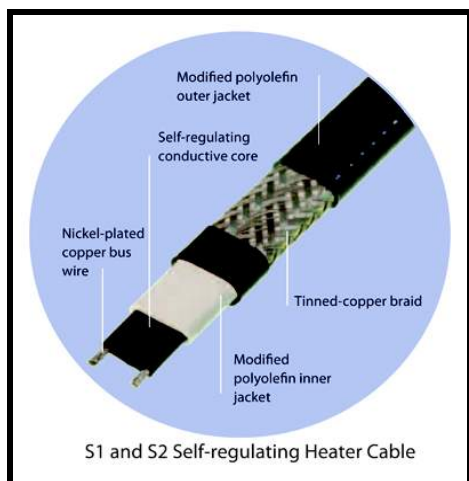
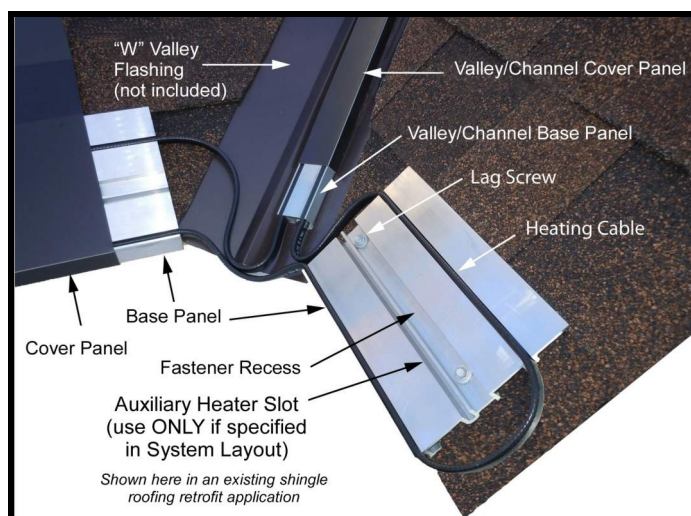
Our patented ice melt systems prevent ice dams and icicle formations on roofs by heating along the entire roof's edge. They do this with an advanced, engineered assembly of highly conductive aluminum cores, self-regulating heater cables, and protective covers.

Step by step details:

What distinguishes Summit begins at the heart of the system: the Base Panel. It is a heavy, precision engineered element made from a highly conductive aluminum alloy.

Every feature of the Base Panel is designed to maximize efficient heat transfer to the melt surfaces, and minimize heat loss downward through the roof deck.

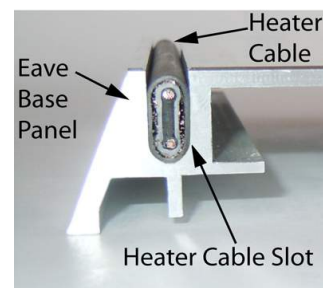
The first step of the installation is to attach the Base Panel onto the roof. Summit has systems that may be used on new roofs, or may be easily installed onto many existing roofs without invasive roofing removal.

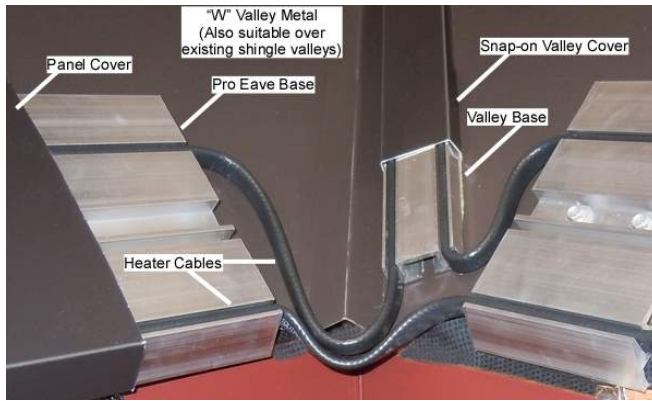


The next step is inserting our UL Listed High-Performance self-regulating heater cable. These state-of-the-art cables deliver heat safely throughout the system.

The self-regulating cable's technology automatically adjusts heat output as needed. They will deliver heat only when and where it is needed, and will never over-heat.

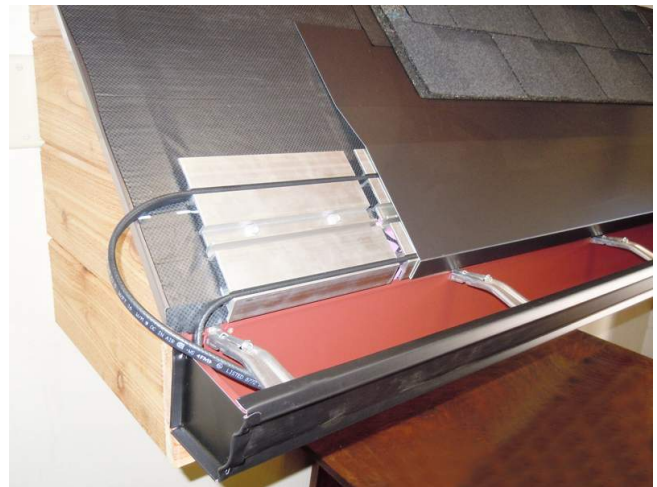
The heater cables are pressed into thick-walled, snug-fitting slots in the Base Panel which conduct the heat to the heavy top and drip edge surfaces. Solid mass means better heat conduction.





Valley areas are particularly prone to ice dams and leaks. **Valley Channel** is the perfect complement to all of Summit's ice melt systems. Its fastener-free attachment and matching snap-on cover provide the versatility and protection needed to safeguard against ice dam leaks and ice formations in valleys.

Gutters and downspouts are also protected by Summit Ice Melt Systems. The heater cables extend from the eave and valley areas, and allow gutters and downspouts to safely and reliably transport meltwater to the intended location.



Summit Ice Melt Systems' 4CDC 4- Zone Controllers are often the preferred method of controlling smaller ice melt systems.

They have a user-friendly digital readout to control and monitor the system operation. Manual, Automatic, and System Off modes may be selected.

The 4CDC makes easy work out of pre-season testing and can also be programmed with a low-temperature cutoff.

For larger applications, use our 8CDC (8-circuit) or 12CDC (12 circuit) controllers. They are the same format as the 4CDC but minimize the current inrush by including a timer delay to stagger starting times.

The Summit Advantage

Why choose Summit? We make a patented product engineered by analyzing the thermodynamics and applying it to our roof ice melt systems.

What is Thermodynamics? It is the science of energy conversion, in this case heat conversion and heat transfer.

Optimizing heat transfer is key to an energy-efficient ice melt system. It's actually much simpler than it sounds.

Here are the FOUR RULES of Thermodynamics as applied to roof ice melt systems:

1. **Minimize heat lost downward** to the roof deck due to surface contact.
2. **Maximize heat transfer** from the heater cables **to the top** melting surface.
3. **Maximize heat transfer** from the heater cables **to the drip edge**.
4. **Eliminate air gaps** in the heat transfer paths. Air is an insulator and the enemy of efficient heat transfer.



Avoid dangerous ice formations with Summit Ice Melt Systems

See How Summit's Ice Melt Systems Strictly Follow the 4 RULES:

The **PRO roof ice melt system** has twelve unique features focusing on **energy-efficiency**.

All of these features add up to better energy efficiency. The end result: PRO's circuit lengths extend 50% further than the competition.

No product delivers the high-performance of the PRO with its low energy consumption.

Select the patent-pending PRO32 for roof slopes down to 2/12.



PRO Roof Ice Melt System



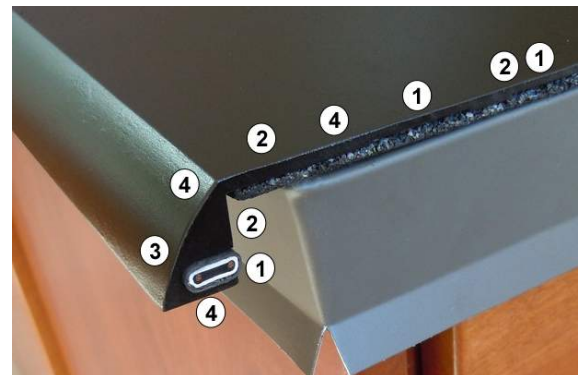
LT Roof Ice Melt System

The **LT roof ice melt system** is a powerhouse for moderate snow zones. Its unmatched melt surface ratios and minimized roof deck surface contact deliver heat where you need it.

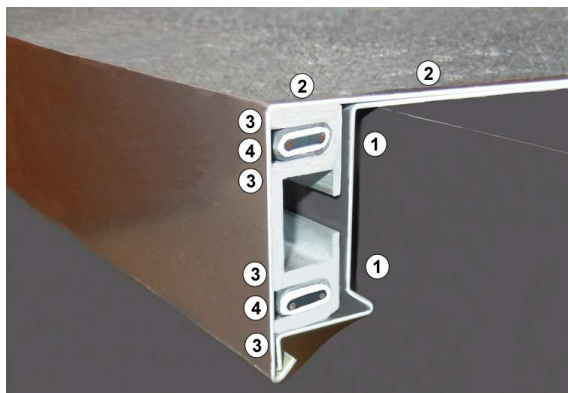
All these features enable LT's electrical circuits to extend 60% further than the competition.

HotSlot is a heavy, one-piece extrusion draws heat directly from the heater cable and efficiently delivers it to the drip edge and top melt surface.

The cable is inserted after the Base Panel is installed, allowing easy installation and cable inspection.



HotSlot Roof Ice Melt System



LowSlope Roof Ice Melt System

The **LowSlope** ice melt system focuses heat on the drip edge and top surfaces. The versatile, low profile and fascia-side heating elements allow it to be used on flat roofs.

The unique stand-off at the bottom of the Base Panel eliminates heat-losing contact with the fascia, and drives all the heat up from the drip edge to the top melt surface.

See Summit Ice Melt Systems in Action



Before Summit



With Summit's PRO



Valley Channel at Work



**Heated Standing Seam:
New York Thruway Rest Areas**



LowSlope Under Metal Roofing



Before PRO



**After PRO and
Heated Gutter**



PRO to Right. Inset Shows Adjacent
Unheated Roof Up Close



HotSlot Installed Along Eave

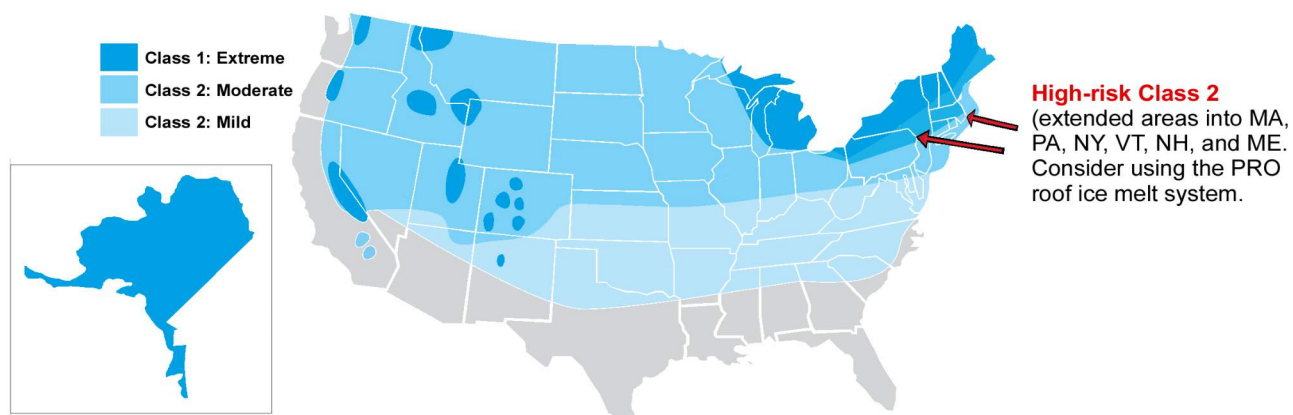


PRO on 19,000 SF home

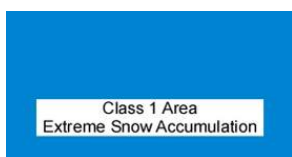


HotSlot on Right Eave, Upstate NY

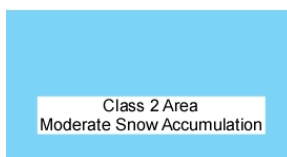
Snow Area Classifications & Roof Ice Dam Potential



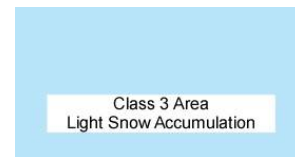
Each area of the U. S. has assigned a general Snow Area Class. We use this as the starting point to design your ice melt system. Our full spectrum of offerings will protect your property in extreme, moderate, and mild snowfall areas. See in which snow classification your project is located and we'll determine which Summit solution is best for you.



- Annual snowfall greater than 100"
- Greater than 15" snow on roof most of the winter
- New England Resort Areas, High-risk Class 2 New England
- Mountain areas, El. 6,000'+: High Sierras, Cascades, Colorado Rockies, Utah, Sun Valley, Big Sky, Jackson Hole Ski Areas
- Mountain areas: B.C., Northern Idaho, Northern Montana Ski Areas
- Canadian Rockies
- Lake Effect Snow Areas: Northern Michigan, Northern Ohio
- Upstate New York



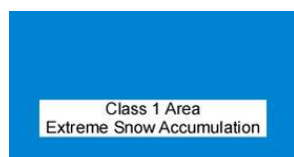
- Annual snowfall less than 100"
- Typical snow accumulations of 6" to 15" on roof for most of the winter
- Typical areas: Upper Midwest to East Coast, Western U.S., high plains and high deserts, Eastern Wyoming and Eastern Colorado to Wisconsin, Illinois to Massachusetts



- Annual snowfall less than 30"
- Typical snow accumulations of up to 6" on roof for most of the winter
- Typical areas: New Mexico to Middle East Coast

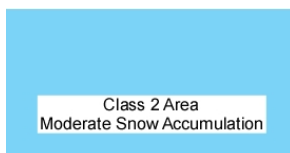
Site Analysis and Recommendations

We start with your snowfall classification, then do an analysis of the design and orientation of your roof. We evaluate other environmental factors (exposure, winds, known history, etc.) Lastly, we input the existing or proposed roofing materials factor to determine what the ideal Summit Ice Melt System is right for you.



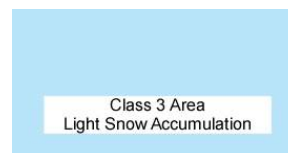
Class 1 Area Product Recommendations

- PRO Roof Ice Melt System with 24 watts/foot high-efficiency output
- Valley Channel Panels with 24 watts/foot high-efficiency output
- S1 and S2 high-performance self-regulating 12 watt/foot heater cables for gutters and downspouts
- LowSlope System with 24 watts/foot high-efficiency output for roof slopes below 2/12



Class 2 Area Product Recommendations

- PRO Roof Ice Melt System With 24 watts/foot high-efficiency output for high-risk Class 2 areas (see map on previous page)
- LT Roof Ice Melt System with 12 watts/foot high-efficiency output
- HotSlot Roof Ice Melt System with 12 watts/foot high-efficiency output when cost is a consideration
- Valley/Channel Panels with 12 or 24 watts/foot high-efficiency output
- S1 and S2 Performance self-regulating 12 watt/foot heater cables for gutters and downspouts
- LowSlope System with 24 watts/foot high-efficiency output for roof slopes below 2/12



Class 3 Area Product Recommendations

- HotSlot Roof Ice Melt System with 12 watts/foot high-efficiency output
- S1 and S2 12 watt/foot High-performance self-regulating heater cables
- EverClear 812 and 822 8 watt/foot Self-regulating heater cables for roofs, gutters, and downspouts

Product Line Summary

At Summit, we know one size does not fit all. That's why we have developed the most complete line of roof ice melt systems available. We take into consideration many factors to design the right system for you, including the roof's design and orientation, roofing materials, and environmental influences specific to your area.



PRO Roof Ice Melt System

The **PRO** Roof Ice Melt System for Class 1 and high-risk Class 2 areas: the most demanding environments. Perfect for new and existing roofing, **2/12 slope and steeper**, use PRO when you want the very best protection. Easiest installation and significant operational savings over the competitors.

The **LT** roof ice melt system is a high- performance system for Class 2 areas with moderate ice and snow. Its innovative profile maximizes efficient heat transfer using much less energy than ever before.



LT Roof Ice Melt System



HotSlot

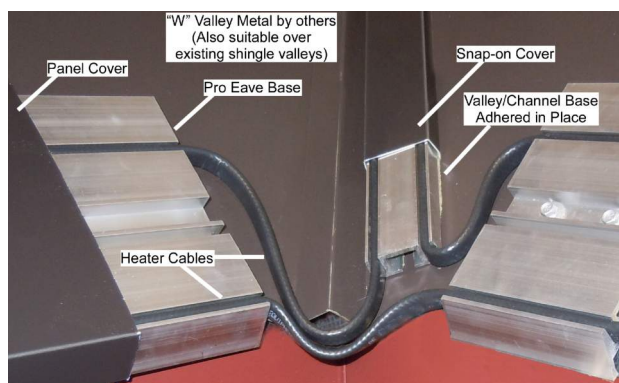
When materials and installation costs are closely considered, the **HotSlot** is indisputably the least expensive way to protect your property with an energy-efficient, highly conductive aluminum extrusion ice melt system. It is suited for Class 2 and Class 3 snow areas, and is a handsome and more effective method to prevent ice dams and eliminate those unsightly exposed heater cables on roofs.

The **LowSlope** ice melt system is extremely versatile. It may be used in Class 1 and 2 snow areas. It is perfect for many low-sloped roof and metal roofing applications. The heating system runs along the fascia—below the roof plane—so as not to impede water drainage on lower slope roofs.



LowSlope

The **Valley Channel** ice melt system is the perfect match for all of Summit's ice melt systems, and performs well in all Class 1, 2 and 3 snow areas. Its heavy Base Panel is adhered to the roof with no penetrations. Color-matched or copper snap-on covers provide high-performance protection and an attractive solution for preventing ice dams in valley areas.



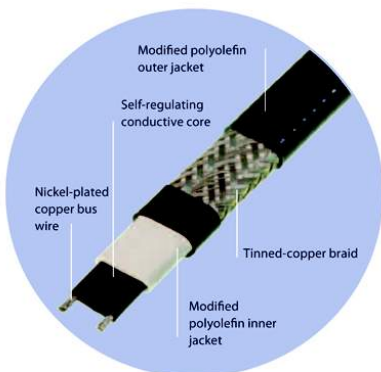
**Heated Standing Seam
Metal Roofing**

Summit's **Heated Standing Seam** is a smart upgrade for anyone considering using metal roofing. Now commonplace along the eaves of composition and synthetic roofing materials, the HSS system eliminates the dangers of ice dams and leaks. The batten seam smartly houses the heating element, and interlocks with the adjacent panel.

Select Summit Ice Melt Systems' ambient temperature sensing **digital controllers** for set-and-forget operation. When temps drop below freezing the controller automatically triggers the ice melt system operation. When outdoor temperatures raise above freezing and ice dams stop forming, the controller automatically shuts down the entire system.



4CDC ALL-Contactor Controller



S1 and S2 Self-regulating Heater Cable

At the heart of our ice melt system are our S1 and S2 UL approved, high-performance, industrial grade, self-regulating heater cables. Extend the eave ice melt system's heater cable to provide safe, convenient melt water disposal along gutters and downspouts. Use **S1/S2** (12 watt/foot) or **EverClear 812/822** (8 watt/foot) in Class 3 snow zones in an exposed, zig-zag fashion.

The PRO Roof Ice Melt System

Select the **PRO** Roof Ice Melt System when you want the greatest protection for your most demanding projects. It is our top-of-the-line ice melt system that's been proven in the toughest, snowiest, and coldest environments in America.

Like all members of the Summit family, every feature of the PRO has been engineered to maximize energy-efficient heat transfer to the melting surfaces, while minimizing heat loss via contact with the roof deck surface.



PRO Roof Ice Melt System

The high-performance, UL rated, self-regulating heating system includes a massive, highly conductive aluminum core to distribute heat only where and when it is needed. The attractive, metallic cover completes the low-profile, high-performance system. **PRO's patented features are available only from Summit.**

Specifications:

Performance

- Our commercial quality ice melt system for minimizing ice dam and icicle formations in Class 1 and Class 2 snow areas on roofs expecting more than 15" snow accumulations and annual snowfalls of greater than 100" (mountain resort areas, lake effect snow areas, etc.)
- Use our PRO-32: Suitable for roof slopes from 2/12 to 3/12 (Patent-pending)

Warranty

- Fifty (50) year warranty on the Base Panel
- Fifty (50) year warranty on the Cover
- Forty (40) year warranty on the Cover paint finish
- Ten (10) year warranty on the heater cable
- See warranty for complete details

Power Output

- 24 watts/foot upgradeable to 36 watts/foot

Self-Regulating Heat Cable Provided:

- UL Listed, CSA Certified, and FM Approved
- 2 runs per panel
- Model S1 for 110V system
- Model S2 for 208V, 240V, and 277V systems

Cover Materials

- Real 20 oz. copper
- Aluminum (high-grade Kynar-500 finish)

Aluminum Cover Color Selection

- 12 standard colors
- 10+ custom colors and metallics

Panel Lengths

- Standard is 5', available up to 10'

Supplied Components

- Base Panels
- Base Panel lag screws
- Industrial quality S1 and S2 self-regulating heater cables (2 LF of 12 watt/foot cable per foot of panel)
- Cover Panels
- Panel Splice Covers

Accessories

- S1 or S2 Self-regulating heater cable for leads, gutters, and downspouts
- 4-, 8-, and 12-CDC ALL-Contactor 30A circuit digital ambient temperature controllers
- Power connection and splice kits
- Custom, high-efficiency UL distribution panels for up to 18 circuits with 10" touchscreen, ethernet connectivity
- Expert layout and design assistance

The LT Roof Ice Melt System

The LT is designed to minimize ice dams and icicles across roof eaves where ice formations begin.

It is well suited for ice dam and icicle prevention in Class 2 and 3 areas with accumulations up to 15" on the roof and less than 100" of annual snowfall in moderate to light snow load areas.



LT Roof Ice Melt System

The LT has superior top and drip surface-to-roof contact area ratios, making it a true stand-out in the industry. It is so efficient its circuits extend 60% further than the competition.

Specifications:

Performance

- For minimizing ice dam and icicle formations in Class 2 and 3 moderate to light snow load areas and roofs with up to 15" snow accumulations and annual snowfalls of less than 100"
- 50% of the heater output of PRO
- Suitable for roof slopes 2/12 and greater

Warranty

- Fifty (50) year warranty on the Base Panel
- Fifty (50) year warranty on the Cover
- Forty (40) year warranty on the Cover paint finish
- Ten (10) year warranty on the heater cable
- See warranty for complete details

Power Output

- 12 watts/foot

Self-Regulating Heat Cable Provided

- UL Listed, CSA Certified, and FM Approved
- 1 run per panel
- S1 for 110V systems
- Model S2 for 208V, 240V, and 277V systems

Cover Materials

- Real 20 oz. copper
- Aluminum (high-grade Kynar-500 finish)

Aluminum Cover Color Selection

- 12 standard colors
- 10+ custom colors and metallics

Panel Lengths

- Standard is 5', available up to 10'

Supplied Components

- Base Panel
- Industrial quality S1 and S2 self-regulating heater cables (1 LF 12 watt/foot cable per foot of panel)
- Cover Panels
- Panel Splice Covers

Accessories

- S1 or S2 Self-regulating heater cable for leads, gutters, and downspouts
- 4-, 8-, and 12-CDC ALL-Contactor 30A circuit digital ambient temperature controllers
- Power connection and splice kits
- Custom, high-efficiency UL distribution panels for up to 18 circuits with 10" touchscreen, ethernet connectivity
- Expert layout and design assistance

The HotSlot Roof Ice Melt System

The **HotSlot** Roof Ice Melt System is at the top of its class for energy efficiency and lowest in-place cost. It provides affordable protection for projects on a limited budget. Its one-piece, one-size-fits-all profile is ideal for virtually all existing composition shingle and most metal roofs in Class 2 and 3 areas. Its commercial quality, factory baked-on finish provides years of excellent weather and UV resistance.



HotSlot

Regardless of roof slope or fascia angles, HotSlot's smart design simplifies everything.

It fits around most existing gutters and its heating cable can be extended into gutters and downspouts. The heavy, highly conductive aluminum alloy eliminates the waviness ("oil-canning") common with competing lightweight sheet metal systems. There are no unsightly fascia fasteners and the heater cable and slot are completely hidden from view. All these features ensure a rich, elegant, architectural finish.

The UL-rated heating system uses self-regulating heater cable technology that distributes heat only where and when it is needed. The hidden slot in the massive drip edge adheres to the NEC's Section 426 allowing cable insertion, inspection, and replacement in the unlikely event of damage or failure. HotSlot's engineered profile strictly follows the 4 Rules of Thermodynamics, ensuring the most energy-efficient design and bang for the buck possible.

HotSlot: the workhorse that provides the economy and performance you need. Protecting your property with an advanced roof ice melt system has never been easier or more affordable.

Specifications:

Performance

- For minimizing eave ice formations in Class 2 and 3 snow load areas
- 50% of the heater output of PRO
- Suitable for composition shingle and metal roofs
- Slopes 1/12 and greater

Warranty

- Ten (10) year warranty on the HotSlot Panel
- Ten (10) year warranty on the heater cable
- See warranty for complete details

Power Output

- 12 watts/foot

Self-Regulating Heat Cable Provided:

- UL listed, CSA Certified, and FM Approved
- 1 run per panel
- Model S1 for 110V systems
- Model S2 for 208V, 240V, and 277V systems

Panel Finish

- High-grade factory baked-on paint finish
- Dark Bronze finish or Medium Bronze finish

Panel Lengths

- Standard is 8'
- System is available in 4' increments

Supplied Components

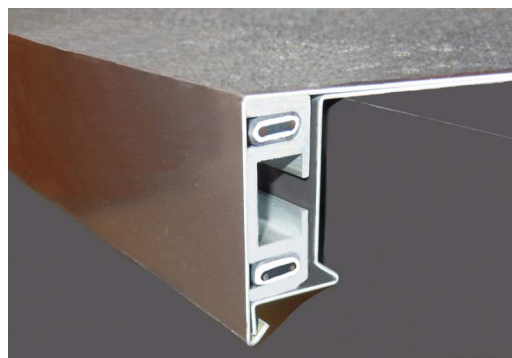
- HotSlot Panel pre-bored with 0.22" holes at 22.5" O.C., 5 holes per 8' length
- Industrial quality self-regulating heater cable (1 LF of S1 or S2 12 watt/foot cable per foot of panel)
- Matching pre-painted ultra low-profile waterproof screws with T-25 Torx drive

Accessories

- S1 or S2 self-regulating heater cable for leads, gutters, and downspouts
- 4-, 8-, and 12-CDC ALL-Contactor 30A circuit digital ambient temperature controllers
- Power connection and splice kits
- Custom, High-Efficiency UL distribution panels for up to 18 circuits with 10" touchscreen, ethernet connectivity

LowSlope Roof Ice Melt System

The unique **LowSlope** Roof Ice Melt System is a very versatile profile designed for ice dam and icicle prevention on roof applications down to flat slopes. It is ideal for stopping icicles and ice dam formations on all flat roofs, including built-up roofs, EPDM, PVC, APP and SBS roofing, and flat and sloped metal roofing. It may also be customized to fit any plumb or square fascia with different roof slopes to accommodate special needs. An extended drip edge may be custom integrated into the cover panel to further push water away from the fascia, which may also be used as the cleat for standing seam metal roofing.



LowSlope

Our exclusive design isolates the roof ice melt heating system from the fascia. This maximizes heat to the drip edge and top melting surface, minimizes heat loss, and provides a very effective, energy-efficient roof edge ice melt solution. The extended edge drip keeps runoff away from the fascia, and making it easy to integrate a heated gutter system to safely carry the melt water through the downspouts.

Installation is easy. The integrated base panel and heavy extrusion are first attached to the roof. Heater cables are then installed in the base. The Cover Panel interlocks with the base panel and has a finished painted surface or is pure copper. The system is then counterflashed by the roofing materials.

Specifications:

Performance

- For minimizing ice dams and icicle formations on flat roofs of metal, APP, SBS, EPDM, PVC, tar and gravel, etc., even low-pitched composition shingle roofing.
- May be used on any slope where the heating element is desired on the fascia, not on the roof plane.
- The LowSlope enables gutter and downspout systems to safely carry away melt water.

Warranty

- Fifty (50) year warranty on the Base Panel
- Fifty (50) year warranty on the Cover
- Forty (40) year warranty on the Cover paint finish
- Ten (10) year warranty on the heater cable
- See warranty for complete details

Power Output

- 24 watts/foot

Self-Regulating Heat Cable Provided:

- UL Listed, CSA Certified, and FM Approved
- 2 runs per panel
- Model S1 for 110V systems
- Model S2 for 208V, 240V, and 277V systems

Cover Materials

- Real copper
- Aluminum (high grade Kynar-500 finish)

Aluminum Cover Color Selection

- 12 standard colors
- 10+ custom colors and metallics

Panel Lengths

- 5' and 10' available on larger projects, 5' increments

Supplied Components

- Base Panel
- Industrial quality self-regulating heater cables (2 LF S1 or S2 12 watt/foot cable per foot of panel)
- Cover Panels

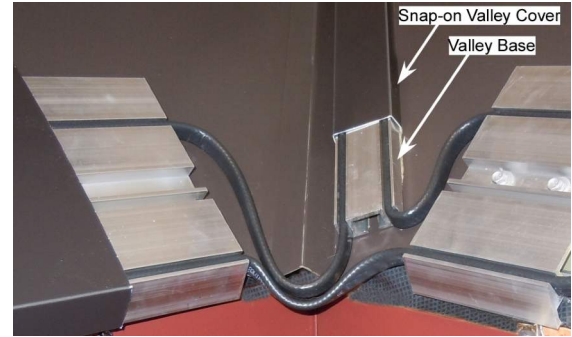
Accessories

- S1 or S2 Self-regulating heater cable for leads, gutters, and downspouts
- 4-, 8-, and 12-CDC ALL-Contactor 30A circuit digital ambient temperature controllers
- Power connection and splice kits
- Custom, high-efficiency UL distribution panels for up to 18 circuits with 10" touchscreen, ethernet connectivity
- Expert layout and design assistance

Valley Channel Ice Melt System

Valley areas are particularly prone to ice dam build ups and subsequent leaking. The robust design of the **Valley Channel** Roof Ice Melt System efficiently conducts heat from the heater cables to the ice and snow and provides a reliable drainage path for meltwater.

Valley Channel has a heavy aluminum Base Panel with two tight-clearance slots into which the self-regulating heater cables are inserted.



The Base Panel is installed onto metal or shingled valleys, and is embedded in a special adhesive so no roof penetrations are required. Heater cable is traced along the eave ice melt system and up and down the valleys. The matching snap-on Valley Cover Panel provides an attractive, protective finish.

Valley Channel is the perfect complement to the PRO, LT, and HotSlot roof ice melt systems and provides the protection needed to safeguard against ice dam leaks and ice formations in valleys.

Specifications:

Performance

- Valley Channel performs in Class 1, 2, and 3 areas
- Matches perfectly with all of Summit's eave ice melt systems
- When positioned in a vertical orientation, the Valley Channel provides a continuous heated melt path between upper and lower roofs, along dormer walls, etc.

Warranty

- Fifty (50) year warranty on the Base Panel
- Fifty (50) year warranty on the Cover
- Forty (40) year warranty on the Cover paint finish
- Ten (10) year warranty on the heater cable
- See warranty for complete details

Power Output

- 24 watts/foot

Self-Regulating Heat Cable Provided:

- UL Listed, CSA Certified, and FM Approved
- 2 runs per panel
- Model S1 for 110V systems
- Model S2 for 208V, 240V, and 277V systems

Cover Materials

- Real 20 oz. copper
- Aluminum (high grade Kynar-500 finish)

Aluminum Cover Color Selection

- 12 standard colors
- 10+ custom colors and metallics

Panel Lengths

- Standard is 5', available up to 10'

Supplied Components

- Base Panel
- Industrial quality self-regulating heater cables (1 LF 12 watt/foot cable per foot of panel)
- Snap-on Cover Panels
- Expert layout and design assistance

Accessories

- S1 or S2 Self-regulating heater cable for leads, gutters, and downspouts
- 4-, 8-, and 12-CDC ALL-Contactor 30A circuit digital ambient temperature controllers
- Power connection and splice kits
- Custom, high-efficiency UL distribution panels for up to 18 circuits with 10" touchscreen, ethernet connectivity
- Expert layout and design assistance

The Heated Standing Seam

Roof Ice Melt System

Summit Ice Melt Systems' **Heated Standing Seam** is the first and only bona fide metal roofing system designed to minimize ice dams and icicles across roof eaves where ice formations begin.

Metal roofing along roof eave edges has become very fashionable, especially among upper-end residential and commercial projects. The intended purpose of using metal edging is to help prevent roof damage and ice formations, and as an architectural statement for contemporary design.



Typical unheated metal edging creates an entirely new set of problems. Shingle roofing often still gets torn off above the wall line causing leaks. Ice dams form and dangerous masses of ice fall off the roof unpredictably. And worse, ice dam leaks occur at the busy transition between the metal edging and the primary roofing materials.

Summit's Heated Standing Seam is unique. Its sleek batten profile cleverly houses the heating system. No longer does one have to use exposed heat tape cable to mitigate ice issues along metal roofing.

Specifications

Performance

- For minimizing ice damage, ice dams and icicle formations along roof edges
- America's only true heated standing seam metal roofing with a waterproof seam interlock
- A complete metal roofing system, including Drip Eave Trim, "Z" Closure, Gable, and transition flashings
- Suitable for roof slopes 3/12 and greater

Power Output

- Varies on profile and panel length desired.

Cover Materials

- Real copper
- Aluminum (high grade Kynar-500 finish)

Warranty

- Fifty (50) year warranty on the Base Panel
- Forty (40) year warranty on the Kynar-500 paint finish
- Ten (10) year warranty on the heater cable
- See warranty for complete details

Self-Regulating Heat Cable Provided:

- UL Listed, CSA Certified, and FM Approved
- 2 runs per batten
- Model S1 for 110V systems
- Model S2 for 208V, 240V, and 277V systems

Aluminum Cover Color Selection

- 12 standard colors
- 10+ custom colors and metallics

Panel Lengths

- Available up to 5' lengths

Supplied Components

- Extended Drip Eave Trim, Gable Trim, "Z" Closure flashing, Vertical and Horizontal Base Panels
- Industrial quality self-regulating heater cables (2 LF S1 or S2 12 watt/foot cables per lineal foot of panel)
- Batten-style standing seam roofing panels with integrated fastener strip along male rib

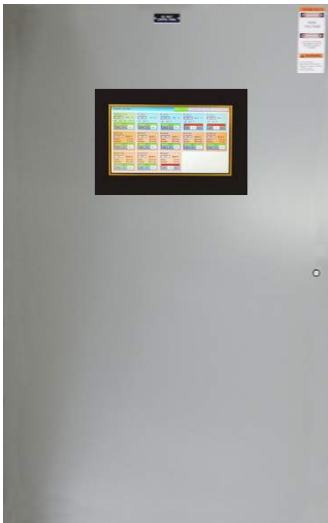
Accessories

- S1 or S2 self-regulating heater cable for leads, gutters, and downspouts
- 4-, 8-, and 12-CDC ALL-Contactor 30A circuit digital ambient temperature controllers
- Power connection and splice kits
- Custom, high-efficiency UL distribution panels for up to 18 circuits with 10" touchscreen, ethernet connectivity
- Expert layout and design assistance

Controllers Overview

Summit Ice Melt Systems carries a selection of manual and automated controllers to efficiently operate Summit's ice melt systems. Our in-house panel shop ensures quality and safety at every step of production.

A popular favorite for smaller projects is our 4CDC All-Contactor Digital Controller. It is an advanced digital controller that uses a thermistor that senses ambient temperatures. When the outdoor temperature drops below the heater-on set point the system is automatically energized. When the outdoor temperature warms again, the system shuts off. Medium-sized systems may require the 8CDC or 12CDC controllers. They incorporate timer delay relays and handle up to 8- or 12- 30A circuits (3,600 lineal feet of our S2 heater cable at 240V with the 12CDC).



The APOGEE™

Summit Ice Melt Systems' PLC Controlled Ultra High-Efficiency Control System

For the finest controller available for large residential, commercial, and industrial needs, select Summit's APOGEE. These UL approved distribution panels handle 1 or 3 phase inputs (single phase output), at 120V, 208V, 240V, 277V or 480Vac systems with up to 20 branch circuits.

It has everything you would expect from the world's top ice melt system controller: 10" TFT Touchscreen control, ethernet connectivity for central control from local or remote locations, multiple ambient temperature sensing zones, iPad and smart phone remote control options. See page 25-26 for more details.



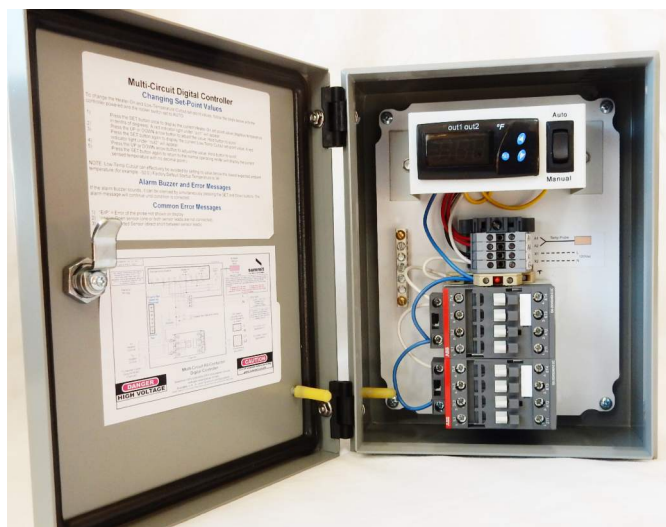
Summit's Ultra-HECS 18 Circuit Control System

Ultra-HECS Control System

Large residential, commercial and industrial concerns will utilize our more economical ultra-high efficiency control systems. These UL approved distribution panels handle 1 or 3 phase inputs (single phase output), at 120V, 208V, 240V, 277V or 480Vac systems with up to 20 branch circuits.

The 4-, 8-, and 12-CDC Digital Controller Features

- Summit Ice Melt Systems' CDC controllers are the perfect match to any residential or small commercial Summit Ice Melt System installation. They provide ambient temperature sensing with digitally controlled operation for up to twelve 30A heater circuits.
- The digital readout provides a very user-friendly interface, and allows variations in programming to meet local conditions.
- Set the controller to "Auto" mode and the system energizes the heaters when the temperature drops below a pre-set, field-adjustable temperature setting.
- Set the controller to "Manual" mode for testing or manual operation.



4 CDC Controller

- The 8- and 12- CDC controllers utilize a timer delay relay that stagger startup times and minimize the impact of startup inrush.
- The controllers can be programmed for low-temperature cutout that saves energy by shutting down the system at low temperatures when ice dams formation suspends.
- The indicator light lets you know when the system is energized.
- The ambient temperature sensor is mounted outdoors in an area typical of the coldest conditions, usually on the north exposure of the building. A built-in alarm notifies the operator if there is an error with the probe or shorted or open sensor leads.
- The controllers disengage BOTH bus wires of each circuit for greatest safety.
- The controllers are engineered by our Certified UL 508A panel building shop to ensure top performance and safety.
- The controllers provide On/Off/Manual operation of our 12 watt/foot S1 and S2 (120V to 277V) and 8 watt/foot EverClear 812 and 822 (120V to 277V self-regulating heater cables. Each branch circuit must be protected by a ground fault protection device per the NEC. A 120V protected circuit is required to energize the controller. NEMA 4/12 (exterior installation) enclosures are standard.



Summit Ice Melt Systems' APOGEE™ PLC Controlled Ultra High-Efficiency Control System



APOGEE General Information

Summit's APOGEE™ Ultra High-Efficiency Control System is UL Listed and is completely re-designed to utilize the most modern technology available and provide the most reliable performance ever. APOGEE bring to the ice melt systems the convenience of a 10" full color TFT LCD touchscreen control interface, Hot Spot wireless and ethernet connectivity, combined with the reliability and performance of programmable logic control. The system is designed to be operated at the enclosure or remotely over ethernet and Wireless Hot Spot with a logical, user-friendly interface.

APOGEE is specifically designed to combine the patented energy efficiency of the PRO™ and LT™ Roof Ice Melt Systems with multiple sensors to dramatically reduce energy consumption. At the onset of snow accumulation the building manager engages the heating system by turning on the main and branch circuit breakers.

Temperature sensors measure the outside air temperature and only permit the Summit panel controllers to power the heating cable when the ambient temperature nears freezing (e.g., 34°F). APOGEE then maintains the roofing panels above freezing (e.g., 40°F) so that snow melt will not re-freeze and form icicles and ice dams at the eaves. Summit's systems use self-regulating heating cables as the source of heat and are designed to handle most worst-case winter storm conditions.

True Energy-Efficiency

Summit's patented PRO Roof Ice Melt System already uses 1/3 less electricity than any other Class 1 heavy snow area system and Apogee further enhances heating efficiency by allowing a greater number of precise control points and parameters to be used, enabling Apogee's PLC logic to modulate power to the heaters and keep energy consumption to a minimum.

If a simple ambient temperature sensing controller were used, the heating systems' Cover Panel temperature would range from 40 during extreme winter conditions (10-15°F, snowing, windy) to 70°F during milder winter conditions (25-32°F, calm, sunny). Figures B and C show the relative energy consumption for an ambient on/off controlled system versus the APOGEE for two winter days. APOGEE reduces Summit's energy consumption by 40-60% during mild winter days and by 10-40% during colder and stormy winter days. For the average winter, energy savings should average around 35%.

APOGEE Controller Overview

Summit's APOGEE control system uses input from multiple ambient temperature sensing RTDs in series with multiple surface temperature sensing RTDs, controllers, and Programmable Logic Control (PLC) to provide the ultimate in energy-efficient roof ice melt system performance.

The ambient temperature sensing controllers allow Summit's roof ice melt panels to be powered only when the ambient temperature is between the Heater-On set point and the Low-Temperature Cutout set point, which are both adjustable.

When this condition is met APOGEE will allow the surface temperature sensing controllers to adjust the power level to Summit's roof ice melt system panels to maximize efficiency, and keep them at the desired, adjustable temperature set point. As temperatures drop and winds increase, the controller increases the heating cable output. When the temperature goes out of range we build in hysteresis/deadband to avoid chattering for quieter operation.

EXAMPLES OF STEADY STATE POWER VERSUS AMBIENT CONDITIONS:	
Weather Conditions	Percent of Steady State of Power
27-30°F, Light Winds	20-25%
27-30°F, Strong Winds	35-50%
20-25°F, Light Winds	40-60%
20-25°F, Strong Winds	50-70%
10-15°F, Light Winds	60-90%
10-15°F, Strong Winds	100%

Figure A: Energy Loads for Various Weather Conditions

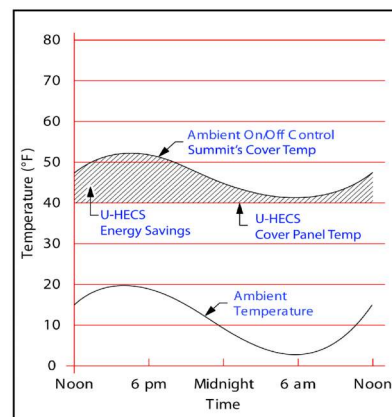


Figure B: Extreme Winter Day



APOGEE™ Ultra High-Efficiency Control System

Low Ambient Temperature Operations


Snow melt at the roof/snow interface depends on roof snow depth, ambient temperature, roof design, interior heat, building insulation, and solar gain. However, there are low ambient temperature conditions when no snowmelting simply cannot occur. In many cases temperatures below 10°F range will create “no snowmelting” conditions. APOGEE includes a control panel mounted solid state controller and an eave soffit mounted RTD temperature sensor that will detect these low ambient temperatures and de-energize the heating system to save energy. The Low-Temp Cutout (LT Cutout) set point is easily field-adjustable.

The temperature at which APOGEE turns on the heaters can be set and adjusted at the control panel or remotely (we recommend 36-40°F). In addition, the LT Cutout feature can be set at the control panel or remotely (we recommend 10°F to start) and can then be adjusted up or down based on the local winter conditions for the building. For example, if 10°F is the proper LT Cutout set point and the winter had 150 hours below 10°F, up to 10% energy savings can be realized when compared to a control system without the LT Cutout feature. Figure D demonstrates how the LT Cutout would typically operate without the LT Cutout feature operating.

Summary

When compared with standard ambient-only temperature control, APOGEE can provide up to 50% energy savings for a typical winter, particularly in heavy snow load Class 1 areas. In addition, up to 10% more energy savings can be realized when using the LT Cutout feature.

Specifications

- *  UL Listed by Certified UL-508A Shop designed, constructed, Tested, and approved
- * 10" TFT LCD Color touchscreen control at the enclosure, or remotely over ethernet or wireless Hot Spot
- * Remote access and control app for iPad, iPhone (3G or better), or iPad Touch
- * PLC computer controlled for the utmost reliability and convenience, and designed to control multiple zones of all roof and gutter circuits
- * Includes controller and power distribution
- * Power distribution includes distribution blocks and modular, mounted branch circuit breakers and 30mA ground fault (EPD) breakers
- * Integrated timers to delay operation for interval activation between circuits to manage inrush current load
- * Utilizes solid-state relays for quiet and efficient operation
- * Accommodates 1-phase or 3-phase incoming power
- * Operates on 208V, 240V, or 277 Vac
- * Ambient controller sensor displays ambient temperature and Heater-On set point
- * Multiple separate control zones available
- * Up to 18 branch circuits with ground fault protection
- * NEMA 4 enclosure
- * PROUDLY built in the USA



PROUDLY BUILT
IN THE U.S.A.

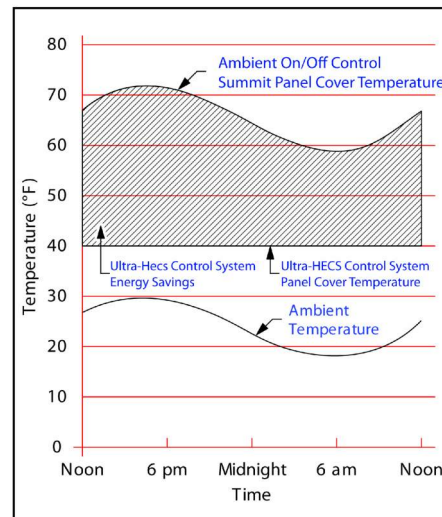


Figure C: Mild Winter Day

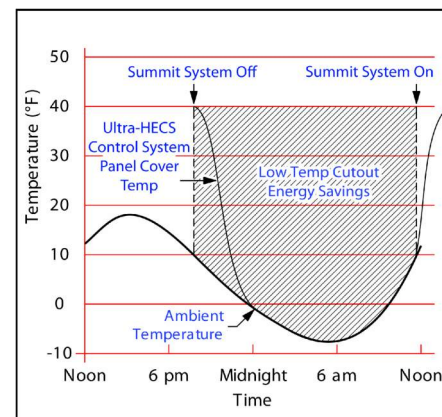


Figure D: Low Temperature Cutout Operation

S1/S2 High-Performance Self-regulating Heater Cable

Features, Specifications, Testing, and Circuit Lengths

Features

Summit's high-performance S1 and S2 12 watt/foot self-regulating heating cables are at the heart of Summit's Ice Melt Systems. They are comprised of two parallel nickel-plated bus wires in a cross-linked polymer core, a tinned copper braid, and a polyolefin outer jacket.

The remarkable technology of S1 and S2 heating cables enables them to automatically adjust their power output to compensate for temperature variations, eliminating any worry about overheating due to routing or overlapping of the cable on itself.

S1 and S2 heating cables safely and efficiently provide the required power in Summit's roof ice melt systems to effectively eliminate ice dams and icicle formations.

Since the cables automatically adjust their power output to compensate for temperature variations, they can be safely installed in gutters and downspouts made from a variety of custom and standard materials.

The S1 and S2 heating cables can be cut-to-length during installation which offers added flexibility to handle any unexpected changes at the jobsite.

S1/S2 Heater Cable Specifications

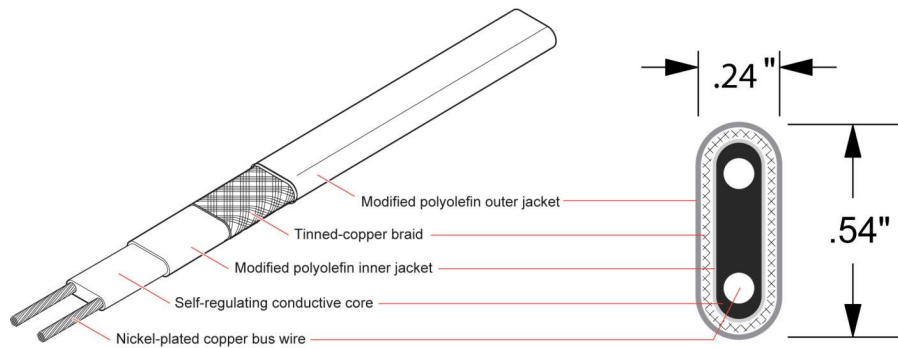
Bus Wires	.16 AWG, Nickel-Plated
Heating Core	Radiation Cross-linked Polyolefin
Primary Dielectric Insulation	Radiation Cross-linked Polyolefin
Metallic Braid	14 AWG (equivalent size) tinned copper
Outer Jacket	Polyolefin
Minimum Bend Radius	1-1/4"
Cable Dimension	24" x .54"
Supply Voltage	120V (S1) or 208-277V (S2)

Model Number	Operating Voltage	Design Load (amps/foot) @ 0°	Start-up Temp	Circuit Breaker Size			
				15A	20A	30A	40A
S1	120 Vac		20° F.	100	135	175	175
		0.155	0° F.	80	105	155	175
S2	208 Vac		20° F.	185	245	350	350
		0.083	0° F.	145	190	290	350
S2	240 Vac		20° F.	190	250	350	350
		0.080	0° F.	150	200	295	350
S2	277 Vac		20° F.	195	255	350	350
		0.077	0° F.	155	205	310	350

S1/S2 Heater Cables Meet or Exceed the Following Tests

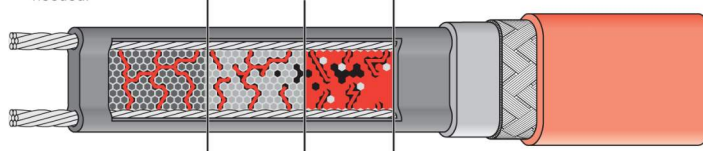
Abrasion Resistance	UL 1588 (8.3); IEEE 515.1 (4.3.4)
Cold Bend	IEEE 515.1 (4.2.10)
Deformation	IEEE 515.1 (4.2.8)
Dielectric Withstand	IEEE 515.1 (4.2.1)
Resistance to Impact	UL 1588 (8.2)
Resistance to Cutting	IEEE 515.1 (4.3.3)
Resistance to Crushing	UL 1588 (8.1)
Temperature	UL 1588 (9.1-9.3)
UV and Condensation	IEEE 515.1 (4.3.2)
Vertical Flame	UL 1588 (8.5)

S1 and S2 High-Performance Self-regulating Heater Cable Construction, Technology, and Approvals



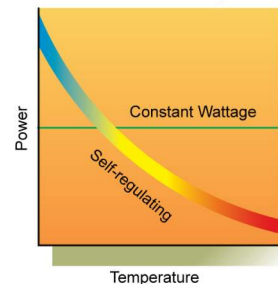
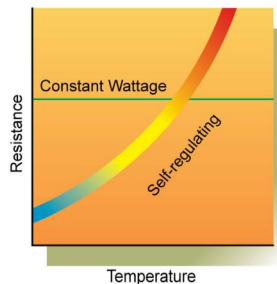
At low temperature, there are many conducting paths resulting in high output and rapid heatup. Heat is generated only when it is needed precisely where it is needed.

At high temperature, there are few conducting paths and output is correspondingly lower, conserving energy during operation.



At moderate temperature, there are fewer conducting paths because the heating cable efficiently adjusts by decreasing output, eliminating any possibility of overheating.

The following graphs illustrate the response of self-regulating heating cables to changes in temperature. As the temperature rises, electrical resistance increases, and our heaters reduce their output.



Self-regulating heating cable technology

Approvals



De-Icing
and Snow-Melting
Equipment
(KOBQ)

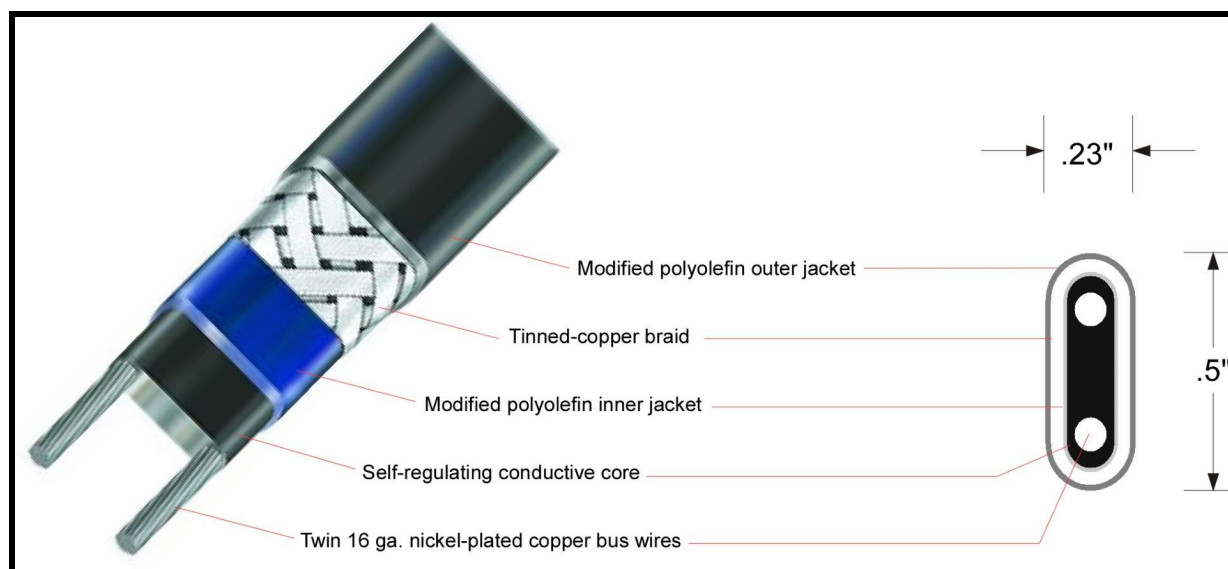


Certified
Specifically for
snow melting
under Section 2B



WARNING: Self-regulating heater cables **MUST** be protected with a ground fault protection device per local codes and the NEC (National Electric Code) and CSA Group.

EverClear 8 watt/foot Self-regulating Heater Cable Construction and Description



EverClear Construction

Summit's EverClear 812 and 822 8 watt/foot self-regulating heating cables are much like Summit's S1 and S2 cables but at a reduced power level and a more affordable price. They are comprised of two parallel nickel-coated bus wires in a cross-linked polymer core, a tinned copper braid and a polyolefin outer jacket.

The remarkable technology of EverClear heating cables enables them to automatically adjust their power output to compensate for temperature variations, eliminating any worry about overheating due to routing or overlapping of the cable on itself.

EverClear heating cables are a safe and efficient means to deliver heat to create a melt path in zig-zag exposed cable applications.

Since the cables automatically adjust their power output to compensate for temperature variations, they can be safely installed in gutters and downspouts made from a variety of standard and custom materials.

EverClear heating cables can be cut-to-length during installation which offers added flexibility to handle any unexpected changes at the jobsite.

Summit Ice Melt System's *EverClear* self-regulating heater cable provides safe, convenient, and reliable freeze protection in a wide variety of professionally installed residential and commercial **floor heating, water pipe, and roof and gutter de-icing** applications in non-hazardous areas.

EverClear Features, Specifications, Circuit Lengths, and Approvals

- Nominal 8 Watt/foot output for robust heat when needed.
- Supply voltages of 120V (EC-812) and 208-277V (EC-822) available
- Long cable circuits: up to 215' (120V) and 420' (208-277V) at 0° startup temp
- Provides a continuous melt path along roof eaves, valleys, gutters, and downspouts
- Energy-efficient, self-regulating heater cables distribute heat evenly and automatically reduces heat output and energy consumption when less heat is required.
- Power connection kits, splice and tee kits, and end seals for quick and simple installations
- Cut to the exact length needed-no wasted cable.
- For use on most every roofing, including shakes, shingles, composition, metal, PVC, single-ply, and EPDM roofing.
- Can be overlapped without overheating
- For use on metal and plastic pipes, potable and non-potable, sanitary and storm pipes, fire sprinkler pipes
- Flexible, durable Polyolefin outer jacket long life and ease of installation

EverClear Heater Cable Specifications:

Bus Wires	16 AWG, Nickel-plated Copper
Heating Core	Radiation Cross-Linked Polyolefin
Primary Dielectric Insulation	Radiation Cross-Linked Polyolefin
Metallic Braid	16 AWG (Equivalent size) Tinned Copper
Outer Jacket	Polyolefin
Minimum Bending Radius	1-1/8"
Supply Voltage	120V (EC-812) 208-277V (EC-822)

EverClear™ 8 Watt Roof and Gutter De-icing Heater Cable Maximum Circuit Lengths in Feet

Model Number	Operating Voltage	Start-up Temp	Length/Circuit Breaker Size			
			15A	20A	30A	40A*
EC-812	120 Vac	40° F.	135'	180'	215'	215'
		0° F.	110'	145'	215'	215'
EC-822	208-277 Vac	40° F.	270'	330'	420'	420'
		0° F.	200'	265'	395'	420'

Approvals



CSA Group approved in U.S.A. and Canada for use on **pipes, roofs and gutters, and floor warming**. Follow IEEE 515.1 for Commercial Heating Device Installation Type A, B, C, or D including on insulated surfaces, outdoor exposed areas, installation with embedded trace heating and installation with trace heater inside conduit or piping.

How to Get Your Roof Ice Melt System

Overview:

Getting your roof ice melt system from mere concept to complete ice protection reality is easy! Summit's systems can be easily installed onto most new and existing roofs without the significant expense of removing and installing new roofing.

Procedure:

1. Client: Gather preliminary information for your roof ice melt system

For new construction and existing roofs:

- Site plan locating walkways, decks, driveways, sensitive locations
- Roof plan and building elevations (including any gutter and downspout locations)
- Building specifications or details that would affect the installation or operation of a roof ice melt system
- Voltage(s) available for powering the roof ice melt system

For Existing Roofs:

- Complete and submit Jobsite Data Form. Including photos can be extremely helpful.

2. Summit: Design roof ice melt system

- Review and incorporate drawings, details and specs as appropriate for the project
- Integrate the mechanical and electrical layouts and provide a proposal with:
 - Suggested power feed locations
 - Roof ice melt System Layout with estimated circuit amp loads and circuit breaker sizing
 - Suggested controller and temperature sensor locations

3. Summit: Provide Installation Support Services

- System installation and operation guides and training
- Control panel schematics
- System Layout
- Electrical testing procedures and logs to be completed by installer



Quick Quote Form

Name:	
Business Name:	
Email:	
I am a(n) <input type="checkbox"/> Architect <input type="checkbox"/> Contractor <input type="checkbox"/> Homeowner <input type="checkbox"/> Other:	
Mail Street Address:	
Mail City, State, Zip	
Ph: Home:()	Mobile:() Work:()
Job Name:	
Job Site Address:	
Job City, State, ZIP:	
Project Type: <input type="checkbox"/> New Roof <input type="checkbox"/> Existing	Color:
Roof Type: <input type="checkbox"/> Composition/Asphalt Shingle <input type="checkbox"/> Shake <input type="checkbox"/> Tile <input type="checkbox"/> Metal <input type="checkbox"/> Flat <input type="checkbox"/> Other:	
Annual Snowfall:	Max Roof Snow pack:
Project Time line: 1-30 31-90 90+ Days	Supply Voltage: <input type="checkbox"/> 208-277Vac (std.) <input type="checkbox"/> 120Vac <input type="checkbox"/> Either
System Preferred: <input type="checkbox"/> PRO <input type="checkbox"/> LT <input type="checkbox"/> HotSlot <input type="checkbox"/> Valley <input type="checkbox"/> LowSlope <input type="checkbox"/> Standing Seam <input type="checkbox"/> ZigZag <input type="checkbox"/> Don't Know	
Control System: <input type="checkbox"/> Automatic Digital Ambient Temp <input type="checkbox"/> Manual	
Lineal Feet Eaves:	Lineal Feet Gutters:
Lineal Feet Valleys:	Lineal Feet Downspouts: Quantity:
Project Notes:	

Ice Melt System Information	
System: <input type="checkbox"/> PRO <input type="checkbox"/> LT <input type="checkbox"/> HotSlot <input type="checkbox"/> Valley <input type="checkbox"/> LowSlope <input type="checkbox"/> Standing Seam	
Cover Material: <input type="checkbox"/> Aluminum <input type="checkbox"/> Copper	
Color:	
Voltage Available:	
Notes:	
Roofing Information	
<input type="checkbox"/> New roof <input type="checkbox"/> Existing roof	
Type of roofing:	Color:
Slope:	Height above ground:

This image shows a full page of blank graph paper. The grid consists of thin, light gray horizontal and vertical lines that intersect to form a uniform pattern of small squares across the entire page. There are no margins, text, or other markings present.

Jobsite Data Form



Summit Ice Melt Systems

PO Box 6928, Tahoe City, CA 96145
Ph: 530-583-8888 Fax: 530-583-7777

Email to info@summiticemelt.com

Job Name: _____ Date: _____

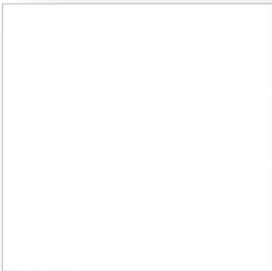
A full-page view of a blank sheet of graph paper. The grid consists of thin, light gray horizontal and vertical lines forming small squares across the entire page. There are no margins, text, or other markings present.

Check List Indicate the following:

By: _____

- ✓ Length of roof eave to be heated
- ✓ Length of valleys to be heated
- ✓ Gutter and downspout locations, lengths
- ✓ North orientation
- ✓ Power source junction box
- ✓ Controller sensor
- ✓ Main Service panel

Color Chart



Stone White



Almond



Sierra Tan



Mansard Brown



Sausalito Gray



Slate Gray



Charcoal Gray



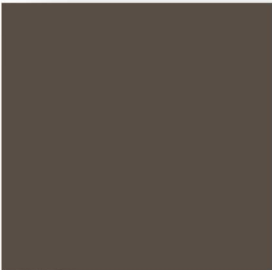
Dark Bronze



Hemlock Green



Forest Green



Medium Bronze



Matte Black

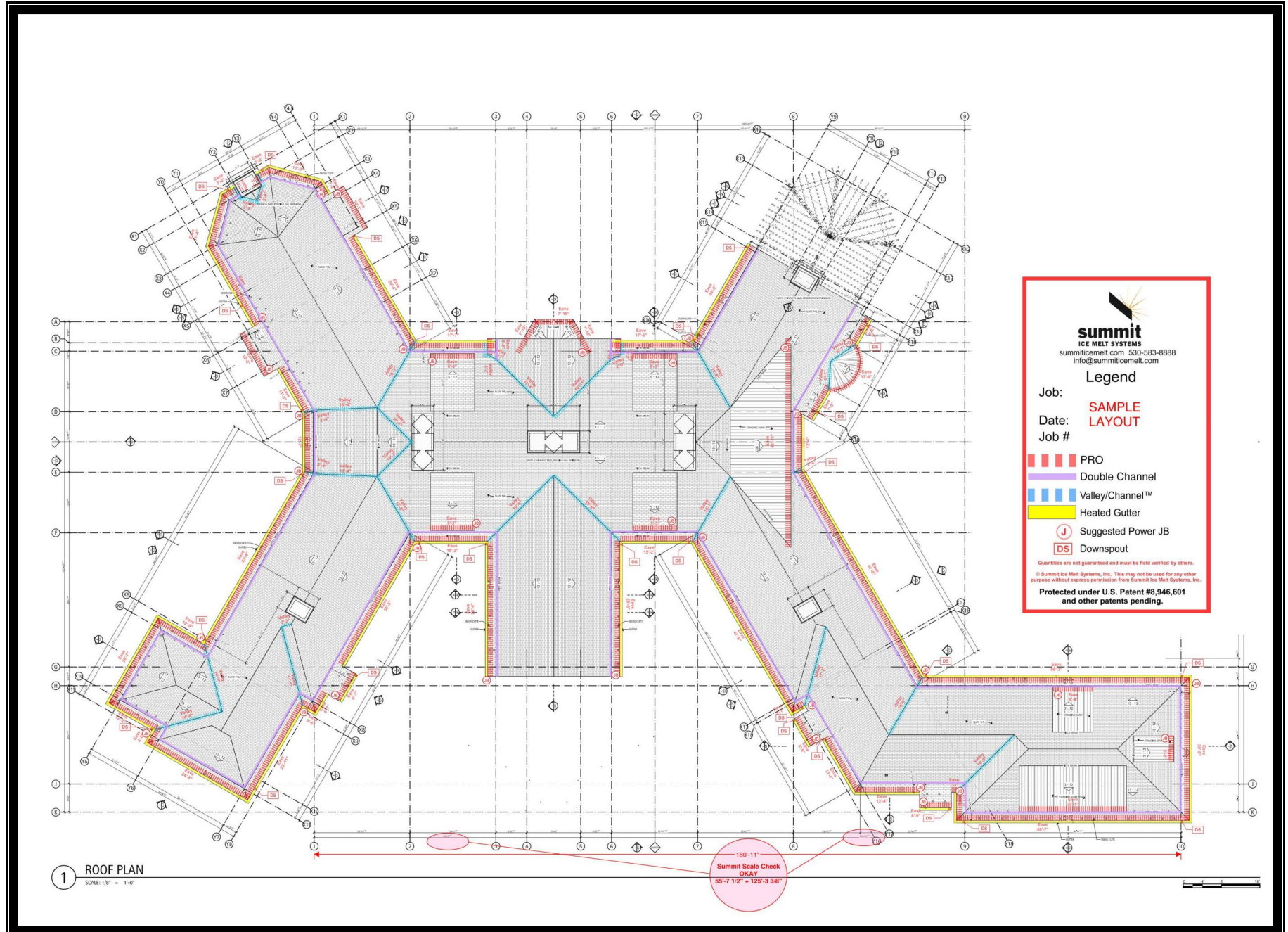
Also stocking Real 20 Oz. Copper.

**Naturally Ageing
Real Copper**

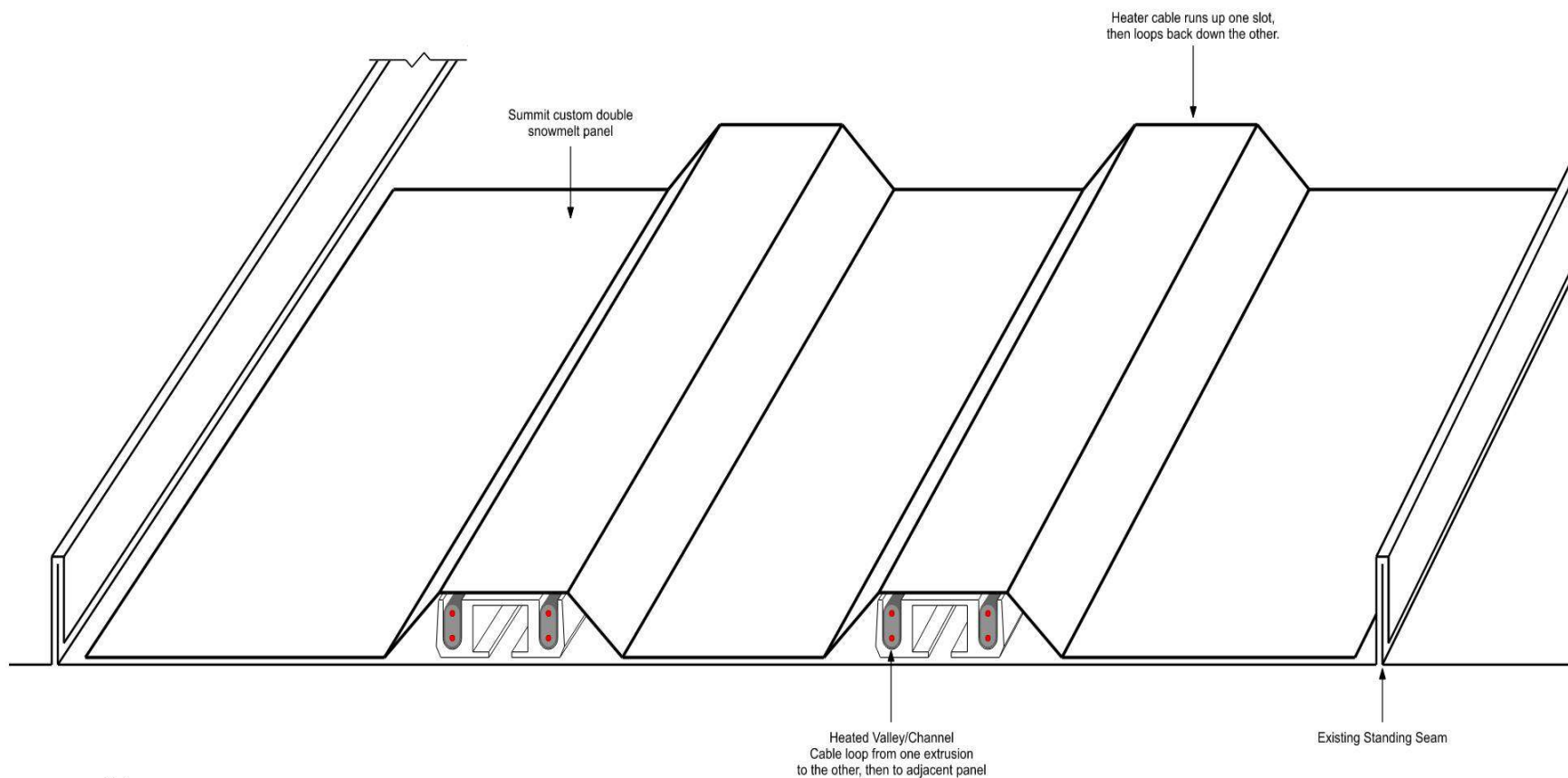


Metallics and additional colors are available upon request. Colors shown are as close to actual as allowed by computer rendering.
Contact your local sales rep for actual samples.

Sample System Layo



Sample drawing. [Click here to visit our downloads page.](#)



- Notes:
1. Width and length of heater panel per customer dimensions.
 2. Mechanically attach and/or use appropriate adhesive on Snowmelt Panel.
 3. Snow retention devices (by others) are recommended.

Rev	Date	Description	By
A	26-Aug-2020	Initial release	SL



Summit Ice Melt Systems, Inc.
Thermodynamics Analyzed. Applied.

Protected under U.S. Patents #8,946,601, #10,604,937, #10,072,422, and other patents pending.
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summiticemelt.com
 Phone: 530-583-8888

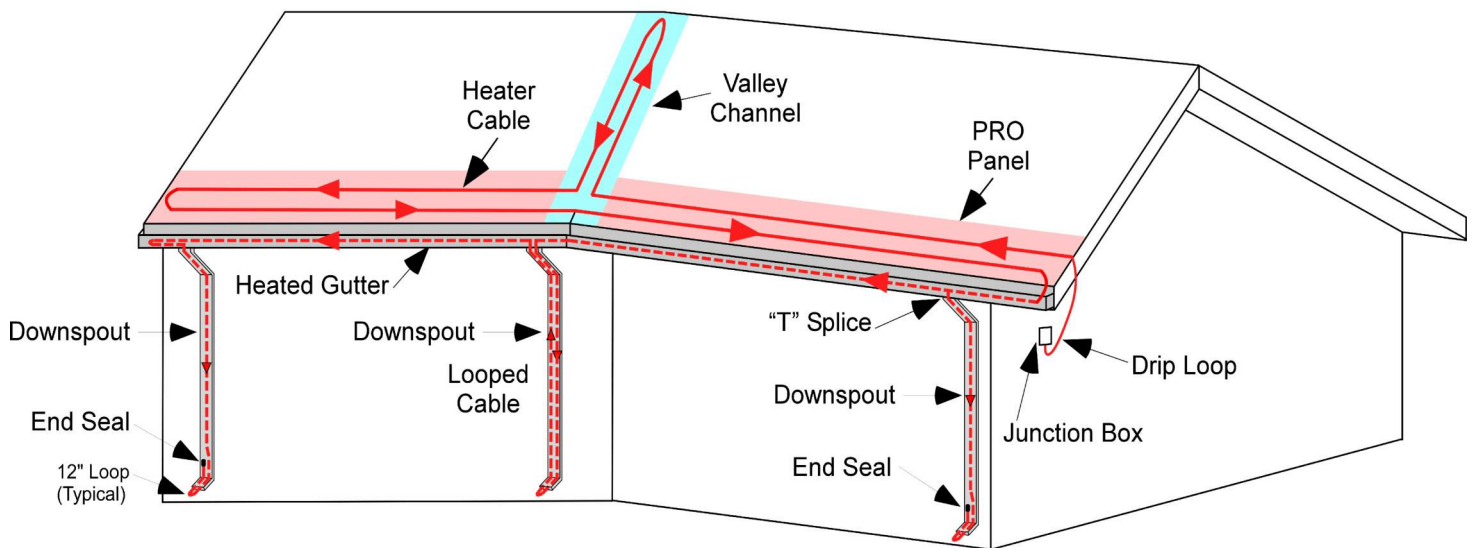
Title		
Double Snowmelt Panel Standing Seam Roof		
Scale	Dwg #	Date
None	757-2	Aug 26, 2020

The PRO Roof Ice Melt System *QuickStart Instructions*

This is a brief overview of the PRO installation and is not intended to be a substitute for complete instructions. Contact Summit Ice Melt Systems for the current PRO Installation and Operation Guide.

1. System Layout:

Determine layout of system and heater cable. Locate junction box and termination End Seal. For the most efficient layout the Junction Box will be on the opposite end from the downspout, but other routing options are possible. Be sure to add Heater Cable for optional Gutters and Downspouts. Summit Ice Melt Systems will assist in the layout if requested.



2. Check components:

Familiarize yourself with the components. Check all parts and confirm voltage of cable with order. Do first round testing of cable at arrival.

3. Roof Preparation:

Existing shingles: Loosen lap of the third course of shingles. Install Valley Channel onto "W" valley metal or "woven" shingled valleys. Trim back shingles to the drip edge if they are damaged or sagging.

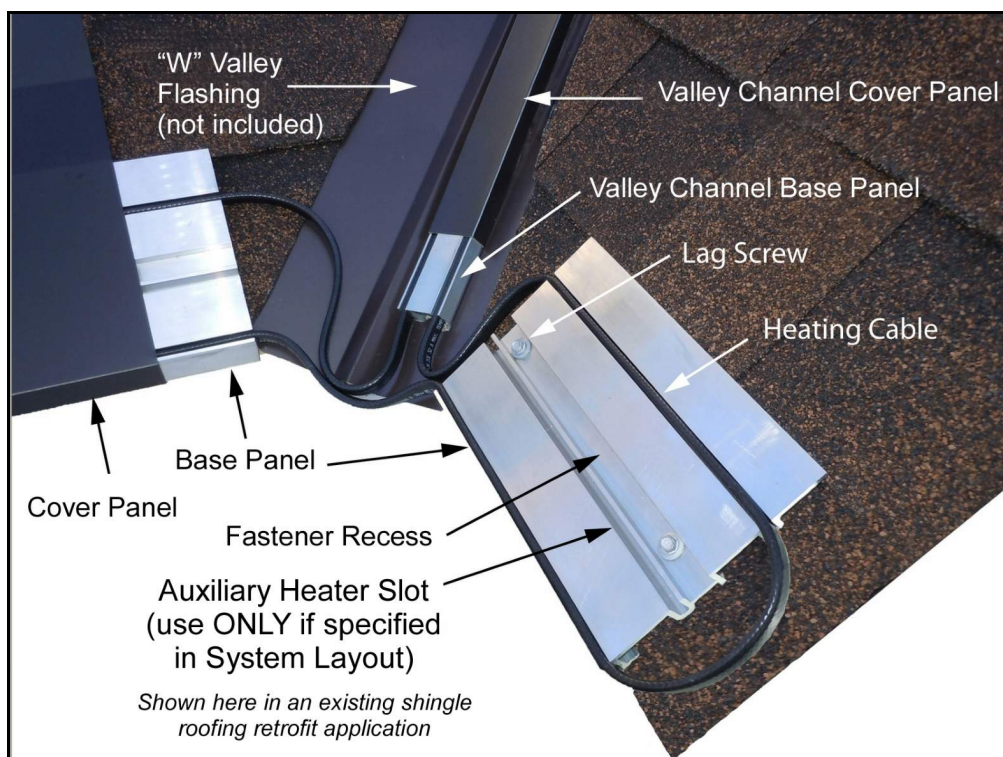
New Shingles: Install ice and water shield type membrane and "W" valley metal. Install PRO Base Panel and Valley Channel over membrane and valley metal.

Existing Metal: If roof system permits, cut roofing panels 10" back from the fascia. Install PRO Base Panel and Valley Channel over membrane and valley metal. Additional prep or alternate system may be required for standing seam and other metal systems.

New Metal: Install ice and water shield type membrane and "W" Valley metal. Install PRO Base Panel over membrane and valley metal.

4. PRO Base Panel Installation:

Install PRO Base Panel along the roof's edge. Leave a 2" space between Base Panel and gable or wall ends of roof, and 1/2" gap between Base Panels. Attach with screws through pre-drilled holes for fast installation. Miter cuts and sizing may be done with a carbide-tipped circular saw. De-burr after all cuts.



5. **Valley Channel Base Panel Installation:** Do not penetrate valley with fasteners. Clean valley area and embed Valley Base Panel into adhesive. Leave a 1/2" space between Base Panels and place less than 2" from the bottom of the valley to prevent re-freezing. Let set overnight.

6. **PRO Base Panel Heater Cable Installation:** Start at Junction Box with a Power Connection Kit. Create a Drip Loop to prevent water from entering Junction Box. Place the Heater Cable to the upper or lower slot in the PRO Base Panel. Do not use the Auxiliary Slot unless directed. Press the Heater Cable into the Base Panels until fully seated.

Valley Channel Base Panel Heater Cable Installation: At valleys, route the Heater Cable up one side of the Valley Channel Base Panel to the top then return back down the valley in the adjacent slot. Ensure there is a loop of Heater Cable that extends past the bottom edge of the Valley Metal to prevent re-freezing.

Continue Heater Cable installation to the far end of the PRO Base Panels. Loop the cable and carefully insert it into the appropriate slot and return to the starting point.

7. **Gutters and Downspouts Heater Cable Installation:**

Gutters and downspouts must be heated. If they are used, continue the Heater Cable from the PRO Base Panel into the gutter. For downspouts, Heater Cable can be looped down and back, a "T" Splice Kit can be used or, if it is at the end of the gutter, terminate the cable at the bottom of the downspout. Create a Drip Loop by zip tying End Seal to cable and looping out of the bottom of the downspout.

8. **Test and connect:** Cable testing should be performed three times.
 - A. When the cable arrives at the site
 - B. After the cable is inserted into the Base Panels and gutters
 - C. After Cover Panels are installed, prior to commissioning

The PRO roof ice melt system **MUST** be protected with a ground fault protection device per local codes and the NEC (National Electric Code) or CSA (Canadian Standards Association) as applicable.

9. **Operation:**

Turn on system before a storm begins. Remember it is much easier and more energy-efficient to prevent ice from freezing than it is to melt it after it has formed. Our UL Rated Heater Cables are self-regulating and will never overheat. Heat is generated only when it is needed, and precisely where it is needed.

GUIDE SPECIFICATIONS

DIVISION 23 8300 Roof Ice Melt System

ROOF ICE AND SNOW MELTING SYSTEM GUIDELINES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This section includes but is not limited to furnishing and installing a complete roof de-icing system of engineered extruded base panels, cover panels, UL Listed heater cables, connection kits and electronic controllers.

1.02. RELATED REQUIREMENTS

- A. Section 02 58 00 - Snow Control
- B. Section 07 20 00 - Thermal Protection
- C. Section 07 30 00 - Steep Slope Roofing
- D. Section 07 40 00 - Roofing and Siding Panels
- E. Section 07 50 00 - Membrane Roofing
- F. Section 07 60 00 - Flashing and Sheet Metal
- G. Section 07 71 23 - Manufactured Gutters and Downspouts
- H. Section 25 12 16 - Direct-Protocol Integration Network Gateways
- I. Section 25 51 00 - Integrated Automation Control of Facility Equipment
- J. Section 26 00 00 - Electrical

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Pre-installation Meeting: Conduct a pre-installation meeting **SELECT:** << one week; at least one week; _____ ; or None - N/A>> prior to the start of the work in this section; require attendance by all affected installers.
- B. Sequencing: Ensure that the electrical testing and connections are coordinated with the roof installation in an orderly and expeditious manner.

1.2 SYSTEM DESCRIPTION

- A. The system shall consist of all equipment and materials for a complete roof de-icing system installation specifically designed for keeping water paths clear and to avoid ice dams on roof eaves, gutters, and downspouts, with ambient temperature sensing controllers, integrated ground-fault circuit protection, and Building Management communication capabilities.
- B. See Manufacturer's current Installation and Operations Guide and System Layout for detailed information.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures

- B. Product Data: Submit Manufacturer's Data Sheets for all eave, valley, gutter, and controller components
- C. Shop Drawings: Submit System Layout drawings showing the following:
 - 1. Heating system zones
 - 2. Locations of controllers
 - 3. Eave panel layout
 - 4. Valley Channel panel layout
 - 5. System Layout with sensors, junction box, and controller probe locations
 - 6. Distribution panel location and drawings
- D. Installation Guide: Submit Manufacturer's written Installation and Operation Guide for system.
- E. Field Quality Control Submittals: Complete testing and record readings in Installation Log.
- F. Project Field Documents: Record actual installation locations of junction boxes, branch circuits with cable meter (footage) readings (start and end counts)
- G. Operation and Maintenance Data: Include Manufacturer's descriptive literature, operating instructions of system and controls, installation instructions, maintenance and repair data, and parts listings.
- H. Warranty: Submit Installation Log demonstrating satisfactory testing results to Manufacturer, Project Architect, General Contractor, and Owner. Submit copy of Manufacturer's standard warranty for system.
- I. Maintenance Data:
 - 1. Include repair methods and parts list of components
 - 2. See Section 01 6000 - Product Requirements for additional provisions.

1.05 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Company specializing in roof ice melt systems specified in this section, with not less than Five (5) years of experience in high-efficiency systems.
- B. Installer qualifications: System installer shall have a complete understanding of product and product literature from manufacturer prior to installation. Electrical connections and testing shall be conducted by a licensed electrician.
- C. Regulatory Requirements and Approvals: Systems heating cable and connection kits to be Listed and Classified by UL (Underwriter's Laboratories) for roof and gutter deicing.
- D. Copies of Documents at Project Site: Maintain at the Project Site a copy of each referenced document that prescribes execution requirements, including Installation Log with recorded readings to date.

1.06 STORAGE AND HANDLING

- A. Deliver, store, and handle to prevent deterioration due to moisture, temperature changes, or other causes.
- B. Delivery and Acceptance Requirements: Deliver products to site in original, unopened containers or packages with legible and intact manufacturer's labels identifying the following:

1. Product and Manufacturer
 2. Length/Quantity
 3. Lot Number
 4. Installation and Operation Guide
- C. Storage and Handling Requirements
1. Store the materials in clean, dry indoor locations off the ground with a temperature range of 0° F. and 100° F.
 2. Protect the heating cable from mechanical damage.
 3. Do not allow components with strippable film to be exposed to sunlight or excessive heat before installation.

1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Provide warranty as follows:
1. 50-year warranty on Panel Covers
 2. 50-year warranty on aluminum Base Panels
 3. 40-year warranty on Kynar-500 finished Panel Covers
 4. ***SELECT:*** <<2-year; 10-year; or ____ year>>>manufacturer's warranty for heating cable system>>.

PART 2 PRODUCTS

2.1 MANUFACTURERS AND PRODUCTS

- A. Manufacturer:
1. Manufacturer shall have no less than five years' experience with manufacturing of roof ice melt systems.
 2. Manufacturer must manufacture component to ISO 9000 requirements, and all sheet metal products must be manufactured in-house to within 0.25° angle and 0.004" dimensional tolerances.
 3. Acceptable Manufacturer: Summit Ice Melt Systems, Inc. www.summiticemelt.com
info@summiticemelt.com 530-583-8888
 4. Substitutions: Not Permitted

2.2 PRODUCTS, GENERAL

- A. Single-Source Responsibility: Furnish complete heat tracing system for roof and gutter de-icing from single manufacturer.
- B. All components shall be made in the United States of America, including cable, aluminum extrusions and covers, and controllers.
- C. The complete system (heating cable, metal panels, connection kits, and controllers) shall be for roof and gutter de-icing. No parts of the system may be substituted or exchanged.

2.3. PRODUCT SELECTION

- A. Determine the roof edge ice melt system Product Line using Summit's Snow Classification Map. **SELECT APPROPRIATE COMPONENTS:**
 - 1. **PRO®** Roof Ice Melt System [**Class 1 (Heavy) and 2 (Moderate) snow areas**] with full Class 1 performance using 24 watts per lineal foot of eave.
 - 2. **LT®** Roof Ice Melt System [**Class 2 (Moderate) and 3 (Light) snow areas**] with full Class 2 performance using 12 watts per lineal foot of eave extrusion. (No sheet metal only cable covers permitted)
 - 3. **HotSlot®** Roof Ice Melt System [**for Class 2 (Moderate) and 3 (Light) snow areas**] with Class 3 performance using 12 watts per lineal foot of eave (No sheet metal only cable covers permitted)
 - 4. **Valley Channel®** Roof Ice Melt System [All areas]
 - 5. **LowSlope®** Roof Ice Melt System [All areas: for low-pitch and certain metal roofs] for all areas with slopes as low as 1/8" per 12" run, using 24 watts per lineal foot of eave
 - 6. **Heated Standing Seam** [All areas]
- B. **SELECT: S1 (120 Vac) or S2 (208-277 Vac)** Self-regulating heater cable for roof systems, gutters, and downspouts.
 - 1. UL and CSA approved self-regulating heater cable 12 watts per foot nominal output
 - 2. Two Bus Wires: 14 AWG, Nickel-plated Maximum
 - 3. Heating Core: Radiation Cross-linked Polyolefin.
 - 4. Primary Dielectric Insulation: Radiation Cross-linked Polyolefin
 - 5. Metallic Braid: 16 AWG (equivalent size) tinned copper
 - 6. Outer Jacket: Polyolefin
 - 7. Minimum Bend Radius: 1.125"
 - 8. The outer jacket of heating cable shall have the following markings:
 - a. Heating cable Model Number
 - b. Agency Listings
 - c. Meter Mark
 - d. Lot/Batch ID

9. Supply Voltage: **SELECT:** <<120Vac (S1 cable); 208Vac (S2 cable); S2: 240Vac (S2 cable); 277Vac (S2 cable)>>
- C. Listings
1. Manufacturer shall provide UL and CSA certificates for roof and gutter deicing applications.
- D. Assembly
1. Factory designed for outdoor applications
 2. Provide Manufacturer's S1 (120Vac) or S2 (208-277Vac) self-regulating heater cable with 12 watts per foot nominal output.
 3. Provide all manufacturer's accessories as required: power connection kits, splice kits, protective gutter and downspout straps.
- E. Controls
1. Provide fully automatic microprocessor based control system
 2. Sensing to be based upon Ambient Temperature Sensing Probe and/or Moisture Sensing Input
 3. Field adjustable set point for system trigger and low-temperature shutoff
 4. Control to be: **SELECT** <<*a., b., or c.*>>
 - a. **Local Zone SELECT:** <<**4-** (up to 4 30A circuits), **8-** (up to 8 30A circuits), **or 12-** (up to 12 30A circuits) **CDC** All-Contactor Controller (Small projects)
 - I. Supply ambient temperature sensing controller with field adjustable startup and low-temperature cutout settings, and Manual, Automatic, and Off toggle switching.
 - ii. Digital controller interface displaying status, ambient temperature, and mode
 - iii. Model 4CDC (with 4 – 30A Circuits/1,200 LF S2), 8CDC (with 8 – 30A circuits/2,400LF S2), 12CDC (with 12 – 30A circuits/3,600LF S2)
 - iv. Utilize ALL-Contactor shutoff protection for all bus wires
 - v. Enclosure **SELECT:** <<NEMA 1 enclosure for interior installations; NEMA 4 enclosure for exterior installations>>.
 - vi. Size up to a larger controller as needed
 - b. Ultra-HECS Central Distribution and Control Panel for large residential, commercial, or industrial projects
 - I. Contains up to 18 branch circuits and integrated protective breakers as required.
 - ii. Digital controller interface displaying status, ambient temperature, and mode. Ambient temperature sensing controller sensing multiple zones as required.
 - iii. Enclosure **SELECT:** <<NEMA 1 enclosure for interior installations; NEMA 4 enclosure for exterior installations>>.

- iv. Multiple branch circuits and integrated breakers as needed
- v. Field adjustable set point for system heater-on and low-temperature cutout

c. APOGEE PLC Controller

- I. Computerized system using PLC Programmable Logic Control
- ii. 10" TFT LCD color touchscreen and custom zone programming interface
- iii. Ethernet connectivity and wireless hotspot ready
- iv. Interface with I-Pad, local or remote location control
- v. Multiple zones for sensing temperatures in at least 8 locations
- vi. Digital controller interface displaying status, ambient temperature, and mode. Ambient temperature sensing controller sensing multiple zones.
- vii. Enclosure **SELECT**: <<NEMA 1 enclosure for interior installations; NEMA 4 enclosure for exterior installations>>.
- viii. Field adjustable set point for system heater-on and low-temperature cutout
- ix. Contains up to 18 branch circuits and integrated protective breakers as required.

F. Accessories

- 1. Provide manufacturer's 18 ga. stainless steel protective downspout straps with UV resistant zip ties for downspout, spacing double gutter tracing, and protecting cables.

G. Electrical Characteristics

- 1. **PRO** Roof Ice Melt System (24 watts/foot) Note: 12 watt or 36 watt per foot systems are not acceptable.
- 2. **LT** Roof Ice Melt System (12 watts/foot)
- 3. **HotSlot** Roof Ice Melt System (12 watts/foot)
- 4. **Valley Channel** Roof Ice Melt System (24 watts/foot)
- 5. **LowSlope** Roof Ice Melt System (24 watts/foot)
- 6. **Heated Standing Seam** (to be determined)
- 7. **S1** (120Vac) and **S2** (208-277Vac) 12 watts/foot nominal output heater cable

H. Metals/Finishes **SELECT <<1. Or 2.>>**

- 1. Aluminum Panel Covers: Select .040" thick (18 ga.) aluminum with Kynar-500 paint finish from manufacturer's standard color selection. Color to be **SELECT**: <<COLOR FROM STANDARD COLOR CHART>> and shall have strippable film cover to protect painted finishes. Film shall be removed at installation.
- 2. Real Copper
 - I. Copper shall be 20 oz. per foot (nominal 0.027" thick)

- ii. Installer is responsible for isolating dissimilar metals (e.g., copper and aluminum) where metal contact is made.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine roofing and/or roof deck for proper installation, cleanliness, or condition that may hinder proper installation of ice melt system.
 - 1. Notify Contractor in writing of items needing correction.
 - 2. Do not install ice melt system until faulty conditions are corrected.

3.2 INSTALLERS

- A. Licensed Contractor with a minimum of two years successful certified experience installing projects utilizing roof edge ice melt systems equal to systems specified in this section.

3.3 INSTALLATION

- A. Interface with Other Work: Coordinate installation of ice melt system with appropriate sections in Division 07 for roofing material and appropriate sections of Division 26 Electrical.
- B. Verify heater voltage matches System Layout and project's voltage requirements. Perform testing of heater cable and record megohmmeter testing results in Installation Log per section 3.3.
- C. Comply with the manufacturer's recommendations in the S1 and S2 heating cable, connection kits and splice kits Installation and Operation Guide and manuals.
- D. Install ice melt system, including Eave and Valley Base Panels, and self-regulating heater cables per the drawings and Manufacturer's Installation and Operation Guide. Prior to installation of cover panels, perform and record megohmmeter testing results in manufacturer's log form in the Installation and Operation Guide. Make any necessary corrections before proceeding with the installation. Have Project Supervisor compare installed system to manufacturer's System Layout documentation and approve component and heater cable installation.
- E. On new construction, apply a strip of waterproof membrane along the top edge of the eave cover panels to ensure weather tight installation. Locate strip low enough to weatherproof adjacent roofing fasteners, and high enough to not be visible when roofing is installed.
- F. Ensure all circuits are protected with 30mA GFCI breakers as required by NEC.

3.3 FIELD QUALITY CONTROL

- A. Heater cable handling and testing as directed by System Manufacturer in Installation Guide:
 - 1. **Heater cable testing and document the readings in Installation Log is required at three phases:**
 - a. **Phase 1:** At time of materials delivery. Compare and retain cable tag details.
 - b. **Phase 2:** After cable is installed in system but prior to covering with Cover Panels
 - c. **Phase 3:** Before commissioning and powering up system.
 - d. Do not proceed with project if unsatisfactory test results are given. Follow the procedures in the Troubleshooting section of Installation and Operation Guide until requirements are met.
 - e. Provide the completed Installation Log to the Owner/Contractor and to Summit Ice Melt Systems within 30 days of completion.
 - 2. Heater Cable Testing Criteria
 - a. The heater cable must be tested at 500Vac and 1000Vac megohmmeter.
 - b. Minimum acceptable insulation resistance readings shall be 20 megohms or greater.
 - c. IEEE 515.1 recommends that the test voltage for polymer insulated heating cables be 2500Vdc.
 - 3. Heater Cable Handling
 - a. Do not pull cable over sharp edges.
 - b. Do not use excessive pulling force.
 - c. Do not kink or crush the heating cable.
 - d. Do not walk on heater cable.
 - e. Protect heater cable from sharp edges, such as sheet metal covers, with electrical tape or better.
- B. Install per Manufacturer's most recent edition of the Installation and Operation Guide and follow System Layout specific to this project. In no case exceed the maximum cable length allowed per circuit as found in the specifications.
- C. Ensure that only Manufacturer's components are use on project.
- D. Ensure that all circuits are protected with 30mA ground-fault equipment protection device GFEPDs.
- E. Ensure all work is performed in accordance with the National Electrical Code (NEC), agency certifications, and national and local laws.

3.4 DEMONSTRATION

- A. Test system and operate in presence of Architect, Contractor, and Owner's Representative to be certain system functions in accordance with design intent.
- B. Provide adequate demonstration and training to Owner in operation and maintenance of system.

END OF SECTION

Notes:



WARNING: Please consult Summit Ice Melt Systems' Installation and Operation Guides for more information and safety guidelines. All electrical wiring, including GFCI (Ground Fault Circuit Interrupters) must be installed in accordance with the National Electrical Code and local codes by a qualified installer. When utilizing a torch or heat gun, verify that the area is not hazardous at the time of installation.



WARNING: Summit's ice melt systems **MUST** be protected with a ground fault protection device per local codes and the NEC (National Electric Code) and/or CSA (Canadian Standards Association) as applicable.



WARNING: To minimize the danger of fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of Summit Ice Melt Systems, agency certifications, and national electrical codes, ground-fault equipment protection must be used on each heating cable branch circuit. Arcing may not be stopped by conventional circuit protection.



WARNING: Shock and fire hazard. Damaged heating cable or components can cause electrical shock, arcing, and fire. Do not attempt to energize damaged heating cable or components. Replace them immediately using a new length of heating cable and the appropriate accessory.



WARNING: DO NOT use 5mA GFCI breakers, as they will likely cause nuisance tripping and cause the heating system to malfunction.



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