

SnoTrace™ RGS™
Snow and Ice Melting for Roof and Gutters
INSTALLATION PROCEDURES

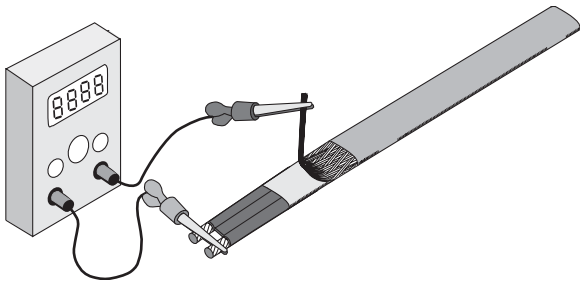


The Heat Tracing Specialists®

Refer to the “SnoTrace RGS Cable Testing Report” for required recording of test data and circuit information.

A. Upon Receiving Cable . . .

1. Upon receiving heating cable, check to make sure the proper type and output have been received. All cables are printed on the outer jacket with part number, voltage rating and watt output.
2. Visually inspect cable for any damage incurred during shipment. The heating cable should be tested to ensure electrical integrity with at least a 500 Vdc megohmmeter (megger) between the heating cable bus wires and the heating cable metallic braid. IEEE 515.1 recommends that the test voltage for polymer insulated heating cables be 2500 Vdc. Minimum resistance should be 20 megohms. *(Record 1 on Report Form.)*



Connect the positive lead of the megger to the cable bus wires and the negative lead to the metallic braid.

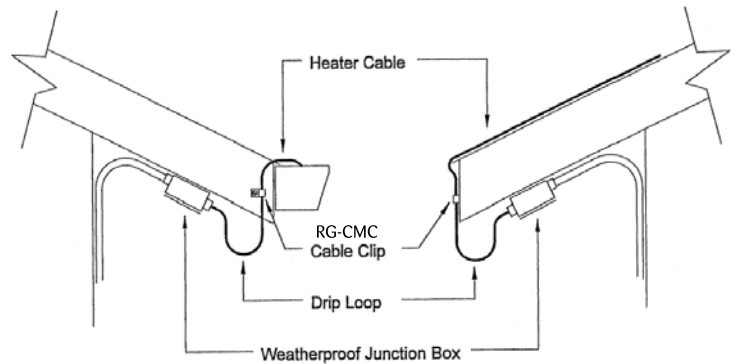


CAUTION: DO NOT connect power to heating cable while it is on reel or in shipping carton.

B. Installation of Cable . . .

1. Snow melting cable systems must be installed in accordance with Article 426 of the National Electrical Code as well as any applicable local codes. Review the requirements prior to installation.
2. The layout of heating cable on roof and gutters will be dependant on roof material, roof pitch, amount of roof overhang, gutter layout or gutter width. The amount of cable required can be calculated using the Roof and Gutter Design Guide.
3. Gutters and downspouts should be free from debris. All sharp edges that may come in contact with the heating cable should be flattened, smoothed or otherwise protected to prevent possibility of damage to cable.

4. Begin installation at power connection point. Junction box (supplied by contractor) shall be NEMA 4, UL Listed weatherproof and should be located and mounted in sheltered area.



5. Form a drip loop with the heating cable as it leaves the junction box. Cable should be anchored with a RG-CMC cable clip as close as possible to the junction box, after the drip loop.
6. Once the installation is complete, recheck the heating cable with at least a 500 Vdc megohmmeter (megger) between the heating cable bus wires and the heating cable metallic braid. IEEE 515.1 recommends that the test voltage for polymer insulated heating cables be 2500 Vdc. Minimum resistance should be 20 megohms. *(Record 2 on Report Form.)*
7. To prevent accumulation of moisture inside of the junction box, use the RGS-CFK heater cable circuit fabrication kit that includes a strain relief fitting and moisture barrier grommet.
8. Refer to the Circuit Fabrication Kit instructions for details on making proper heater cable end terminations.
9. If junction box will be mounted to vertical wall or underside of sloped roof overhang, locate heating cable termination kit on lower side of junction box.
10. **ELECTRIC HEAT TRACING CAUTION LABELS** must be installed on circuit breaker panels, contactor panels and junction boxes.
11. Before putting the system into operation, make sure the heating cables have been tested and that the documentation has been completed for each heat tracing circuit. This will ensure that the system has been installed per manufacturer’s recommendations. *(Record 3 on Report Form.)*



The National Electric Code Article 426.28, requires ground-fault protection be provided for branch circuits supplying electric heat tracing on fixed outdoor electric de-icing and snow-melting equipment.

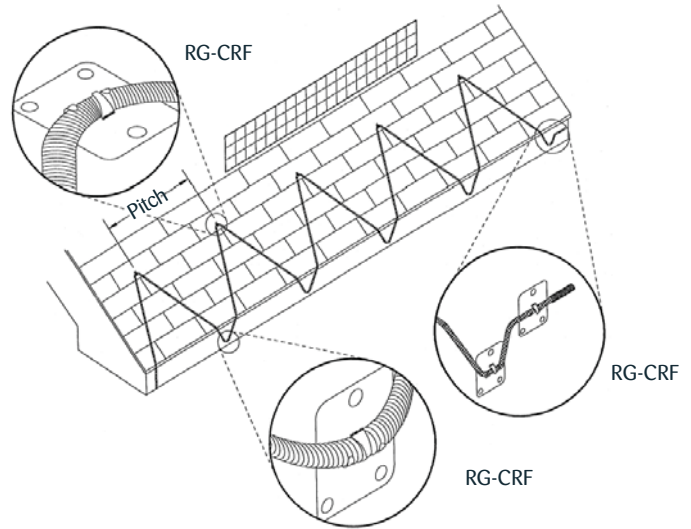


The Heat Tracing Specialists®

SnoTrace™ RGS™

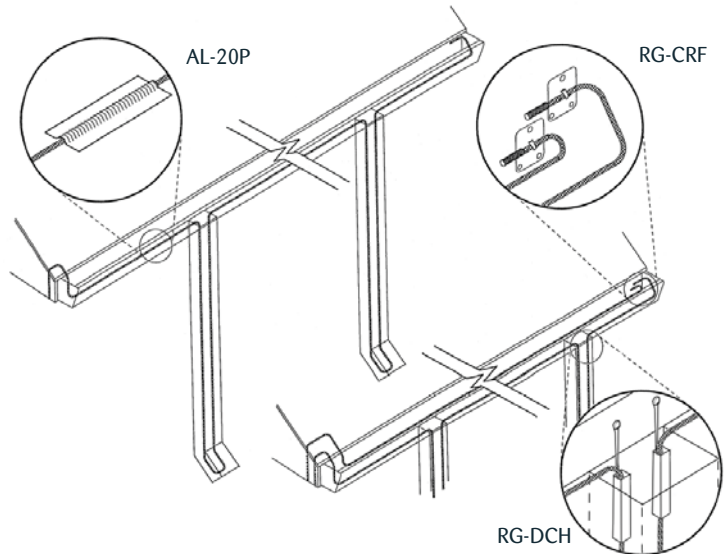
C. Heating Cable Layout - Roof Overhang Only . . .

1. Refer to the RGS Design Guide to determine appropriate heating cable lengths required, as well as spacing pitch required for various overhang distances and roof types.
2. The attachment clips should be anchored to the roof/fascia with fasteners or adhesive suited for the roof and the weather. A waterproofing sealant should be used wherever screws penetrate the roof or fascia.
3. Where large roof areas will be present above the heating cable a snow fence should be installed to prevent damage to the cable from sliding snow and ice.



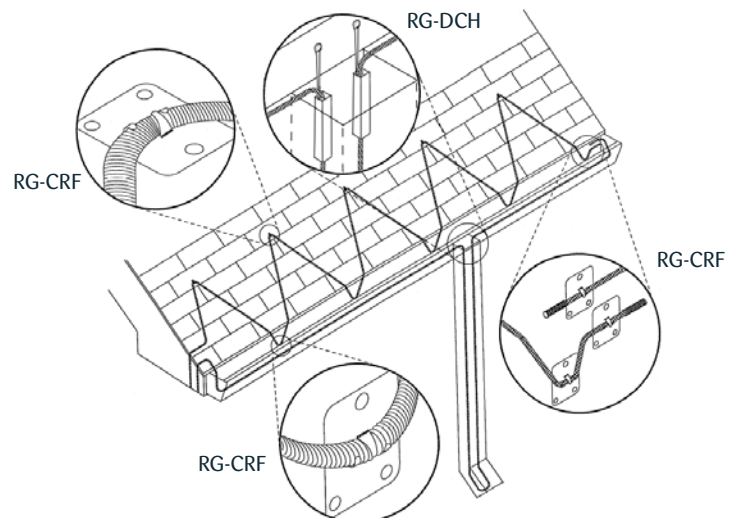
D. Heating Cable Layout - Gutter and Downspouts Only . . .

1. Refer to the RGS Design Guide to determine appropriate heating cable lengths required for gutters and downspouts.
2. The attachment clips should be anchored to the fascia/gutter edge with fasteners or adhesive suited for the roof and the weather. A waterproofing sealant should be used wherever screws penetrate the gutter or fascia.
3. Heating cable should be attached to the bottom of the gutter with aluminum tape. Be sure the bottom surface of the gutter is clean to promote maximum adhesion of the tape. Heating cable in the downspouts should not extend past the downspout opening to prevent vandalism.
4. Protect heating cable from sharp edges of gutter and downspouts.



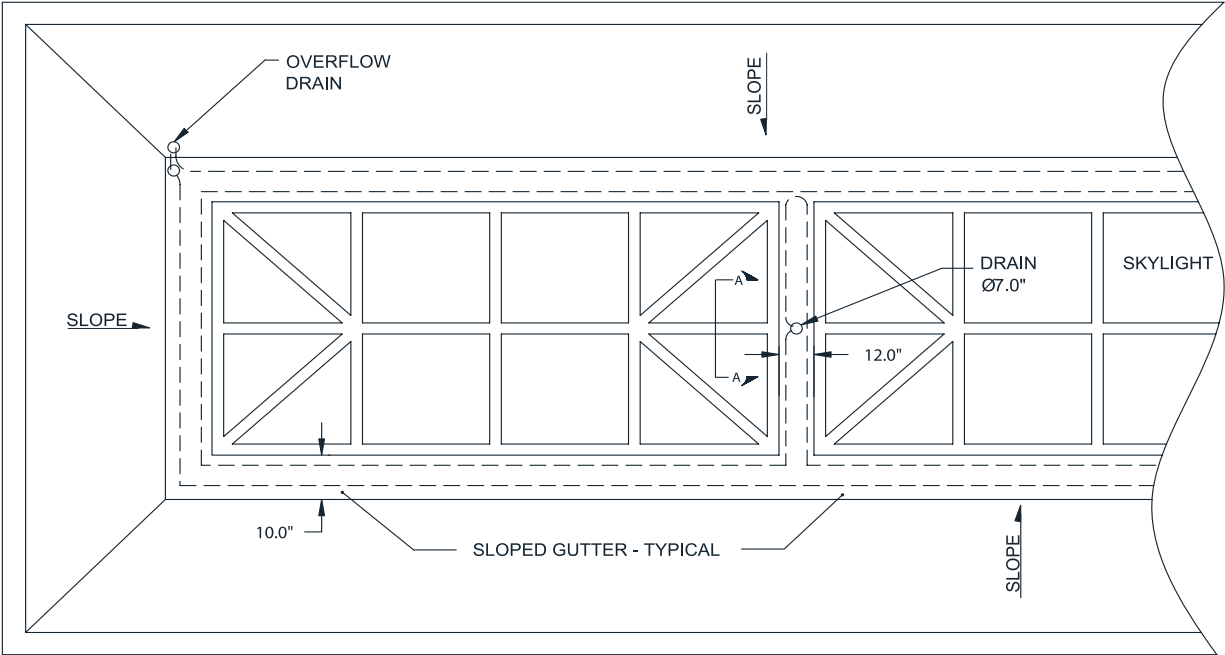
E. Heating Cable Layout - Roof Overhang Plus Gutter and Downspouts . . .

1. Refer to the RGS Design Guide to determine appropriate heating cable lengths required.
2. The attachment methods outlined in sections C and D would apply to installing heating cable on both roof overhang and gutter/downspout areas.



The Heat Tracing Specialists®

INSTALLATION PROCEDURES



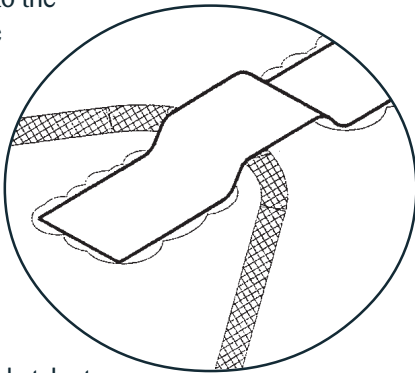
NOTE:
Provide one pass of Heater Cable
Per 6" Gutter width.

ROOF PLAN VIEW
(Typical)

Alternate Roof Types...

SnoTrace RGS on Membrane Type Roofs

Due to the design of membrane type roofs, the methods typically used to secure electric heating cable to the roof may not be suitable. The best alternative is to construct "loops" approximately 2" x 10" from the same material as the membrane and attach these loops to the roof at the points where the cable will pass and require anchoring, using the same adhesive as used on the roof. Typically these anchors will be required every two feet along the length of the cable or wherever the cable changes direction. The sketch at right shows a typical loop with heating cable passing through it. Allow sufficient room in the loop for the cable to pass without binding.



The location of the cable and loops should be coordinated between the roofing and electrical contractors in accordance with design layout provided by the engineer and project manager. Using the loop method for attaching the heating cable to the roof will eliminate the need to penetrate the roof membrane with fasteners.

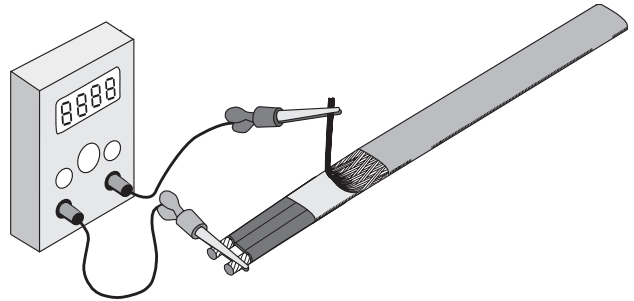
SnoTrace RGS on Copper Type Roofs

The standard RGS mounting clips and tape are not compatible with copper roofing and copper gutters. The best alternative is to use a plastic cable mounting plate along with a cable tie wrap. The materials in the mounting plates, adhesives and tie wraps should be rated for outdoor use. These should be placed in the same spacing as used on the RG-CRF and RG-CMC clips for roof use. In gutters, the cable attachments should be no more than two feet apart. These types of mounts are not carried by Thermon, but are available from suppliers of general conduit attachment items.

Please contact Thermon for additional information and design assistance for other roof types.

SnoTrace™ RGS™ Cable Testing Report

1. Refer to Thermon RGS Installation Procedures, FORM CPD1020, for general installation procedures, requirements and guidelines.
2. Upon receiving heating cable, check the cable to make sure the proper type and output have been received. All cables are printed on the outer jacket with part number, voltage rating and watt output.
3. Visually inspect cable for any damage incurred during shipment. The heating cable should be tested to ensure electrical integrity with at least a 500 Vdc megohmmeter (megger) between the heating cable bus wires and the heating cable metallic braid. IEEE 515.1 recommends that the test voltage for polymer insulated heating cables be 2500 Vdc. Minimum resistance should be 20 megohms. **(Record 1 on Report Form.)**
 - A. Connect the positive lead of the megger to the cable bus wires.
 - B. Connect the negative lead of the megger to the metallic braid.
 - C. Energize the megger and record the reading. Readings between 20 megohms and infinity are acceptable. Readings below 20 megohms may mean the electrical insulation has been damaged. Recheck the heating cable for physical damage between the braid and the heating element; small cuts or scuffmarks on the outer jacket will not affect the megger reading unless there was actual penetration through the braid and dielectric insulation jacket.
4. After installation is complete, visually inspect cable for any damage incurred during installation. Recheck the heating cable with at least a 500 Vdc megohmmeter (megger) between the heating cable bus wires and the heating cable metallic braid. IEEE 515.1 recommends that the test voltage for polymer insulated heating cables be 2500 Vdc. Minimum resistance should be 20 megohms. **(Record 2 on Report Form.)**
5. Once power supply is completed, record the panel and circuit breaker information. Ensure all junction boxes, temperature controllers, cable glands, etc. are properly secured. Set the temperature controller (if applicable) to the manual setting and apply rated voltage to the heat tracing circuit(s) for 10 minutes. Record the ambient temperature, measure and record the circuit(s) voltage and current. **(Record 3 on Report Form.)**



NOTE: To ensure the heating cable warranty is maintained through installation, the testing outlined on this sheet must be completed on the installed heating cables, and the test results recorded and mailed/faxed to:

Thermon Customer Service
100 Thermon Drive
San Marcos, Texas 78666
Fax: 512-754-2420



The Heat Tracing Specialists®

SnoTrace™ RGS™ Cable Testing Report

Customer: _____

Contractor: _____

Address: _____

Address: _____

Phone No: _____

Phone No. _____

Project Reference: _____

Record 1: Prior to Installation

Cable Type: _____

Heater Length: _____

Heater Number: _____

Insulation Resistance M Ohms: _____

Tested By: _____

Date: _____

Witnessed By: _____

Date: _____

Record 2: After Installation

Insulation Resistance M Ohms: _____

Tested By: _____

Date: _____

Witnessed By: _____

Date: _____

Record 3: Final Commissioning

Panel Number: _____

Breaker Number: _____

Volts: _____

Ambient Temperature (deg. F): _____

Recorded Amps: _____

Tested By: _____

Date: _____

Witnessed By: _____

Date: _____

Other Products . . .

Thermon offers additional cut-to-length cables or complete turn-key systems for the following applications:

- Hot Water Temperature Maintenance
- Pipe Heating
- Freezer Floor Frost Heave Prevention
- Rail and Rail Switch Heating
- Tank and Hopper Heating
- Instrument Heating Systems
- Control and Monitoring Systems