



## ROOF AND GUTTER CABLE APPLICATIONS

### Installation Instructions

**WARNING:** Constant Watt & Self Regulating Cable must be installed by a qualified electrical contractor. All assembly, installation, and testing instructions must be followed. Improper installation can result in property damage, serious injury, or death due to electric shock. Please call LMI at 1-800-909-4564 with any installation or operating questions.

**Roof and Gutter:** The purpose and function of Roof and Gutter heating cable is to create an open drainage path for any water that would otherwise be stopped (by either ice or snow) from draining properly. It is not meant to melt all accumulated snow or ice.

### **PRECAUTIONS:**

Do not bend cable tighter than 3" inside diameter of bend or loop.

Do not twist, kink, or spiral the cable.

Test the cable before installation with a 500 volt insulation resistance tester and a multimeter.

All related components and controls should be properly rated for the specified location classification. (See cut sheets for breaker size.)

**All systems must be grounded in accordance with the prevailing electrical code.**



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## Cable Testing

Unpack the cables and test for insulation resistance (IR). Insulation resistance should read greater than 10 meg-ohms. (Slightly less is acceptable for humid conditions.) To test IR, connect one lead to a conductor wire and the other to the braid. Test in accordance with the meter manufacturers instructions. Record the readings.

## Cable Storage

All cables should be stored in a cool, dry location.

Cables should be protected from damage. It is recommended to test all cables removed from storage and to record the readings.

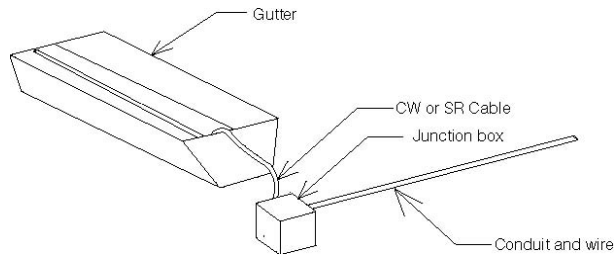
## Preparing the Site

1. Be sure of ample branch circuit capacity to accommodate these additional circuits. The size of the branch circuit breaker should be 25% greater than the heater ampere load. To determine load or breaker size, find the circuit cable length and start-up temperature, (40 degrees F is recommended) then refer to the appropriate product cut sheet for circuit breaker size.
2. Be sure there is sufficient main panel-board capacity to accommodate this additional load. (Normally, capacity for summer air conditioner load can handle this alternate winter load.)

## Conduit and Circuit Wire

LMI Manufacturing snow melt cables require a permanently wired and grounded conduit system to feed the cable heaters for proper, safe performance. Use only UL Listed (CSA Certified) weatherproof junction boxes.

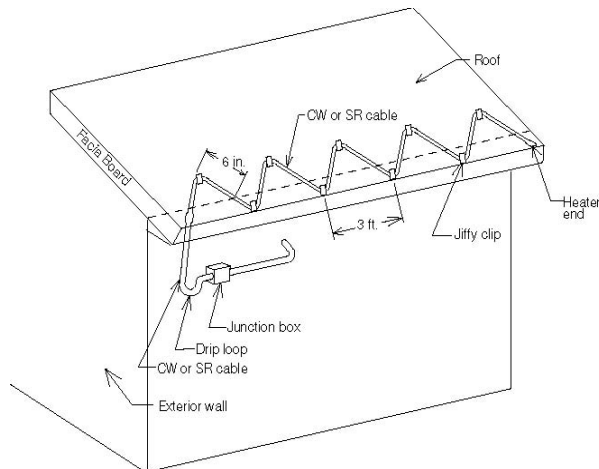
1. Determine circuit length and load. On CW cable heated zone lengths are 24 or 40 inches. One partial zone on each end of the cable is inoperative when the cable is terminated.
2. Verify that adequate breaker capacity is available. Consult cut sheet for breaker sizing.
3. Install conduit and wire to a point within one foot of the start of the heated cable. Attach junction box to the end of the conduit. (Figure 1)



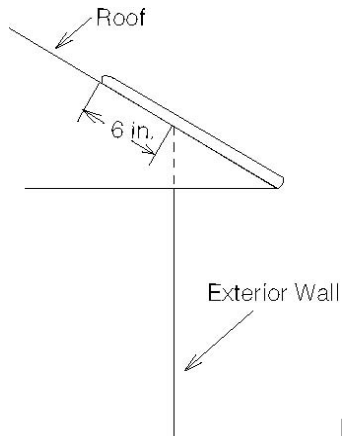
**Figure 1**

## Installation

1. Test cable before installation as described on page 1.
2. Uncap conduit and swab if necessary to make sure it is dry. Assemble the power termination per PCK instruction sheet.
3. Attach cable to roof as shown in Figure 2 (eave only or Figure 3 (eave and gutter). The junction box should be located as aesthetically as possible.



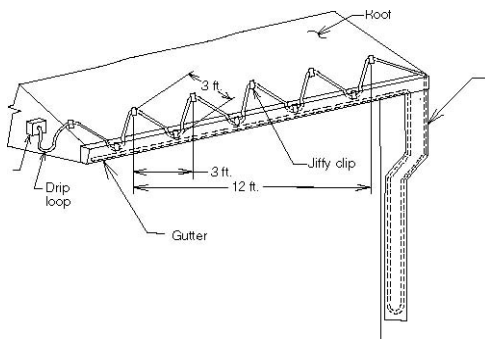
**Figure 2 (Eave Only)**



**Detail "A"**

Cable loop should be 6" up the roof beyond the projected exterior wall line. Angle of installation is approximately 60 degrees. See Detail "A".

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**Figure 3 (eave and gutter)**

4. Terminate the end of the cable per power connection kit instructions.

## Permanent Attachment of Cable Heater to Eaves, Gutters and Downspouts

### Eaves only

Snow Melt Cables should be permanently attached to the roof to insure retaining its position during severe weather. The bottom of the heater loops should meet the edge of the eave. (Detail "A")

1. There are many ways to fasten cable to roof eaves. After determining the roof material, refer to the chart below. If the roofing material is not listed, consult the roofing manufacturer for proper attachment. (Figure 4)

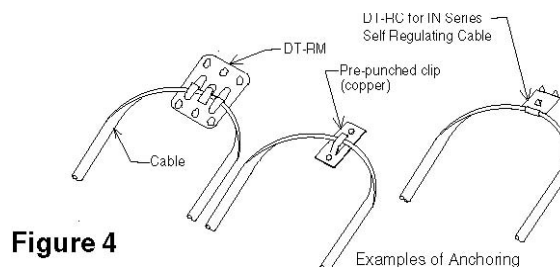
Roof Material	Clip	Fastening Method
Asphalt shingle	DT-RC	Press tabs thru shingle
Asphalt shingle	DT-OR	Screw into shingle
Asphalt shingle	DT-RM	Adhere to shingle *
Metal roof	DT-RM	Adhere to roof *
Metal roof	DT-JC	Solder to roof *
Slate	DT-RM	Adhere to roof *
Ceramic tile	DT-RM	Adhere to roof *

"Rubber membrane Roofing" - per roofing manufacturer.

\* Use adhesives compatible with aluminum and roofing material. Adhesive must be ultraviolet (UV) protected and water resistant.

\*\* Solder must be compatible with metal clip (DT-JC) and metal roof.

NOTE: If the clips are fastened to the sub-roof with screws, the screw entry points must be waterproofed.



2. To minimize piercing or cementing the roofing, install stainless steel, copper or copper plated wire ropes. Firmly anchor ropes at end walls. Lace each heater loop at the apex of each triangle, top and bottom. Tie, clip or tape the heater and wire rope

together to insure minimum or no movement of the heater cable. Anchor the wire rope every 4 feet to minimize movement of the heater cable. (Figure 5)

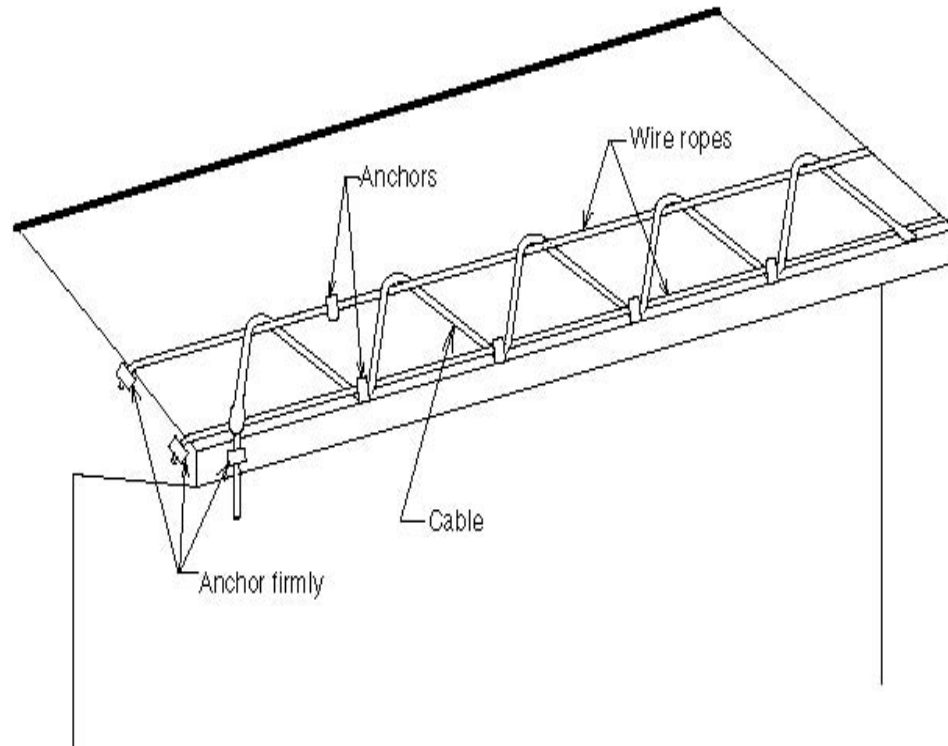
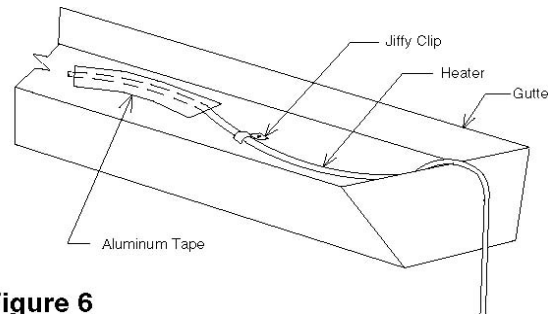


Figure 4

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## Gutters and Downspouts

1. Cable heater passes in gutters and downspouts should also be anchored a minimum of every 4 feet to prevent moving and flexing. Use mini-clips, jiffy clips or equivalent. Apply T-AL2 tape over cable for best results. (Figure 6.)



**Figure 6**

When there are two passes of the cable heater in a gutter, they should be spaced at least 2 inches apart.

2. For downspouts, loop cable down the spout. Clip cable at the bottom of the downspout with a DT-OR. (Note that CR series cable must be looped in downspout, as it is not listed to be spliced.)
3. The bottom of the heater cable should remain within the downspout. If exposed, it must be protected.
4. Verify that any cable that extends over a gutter or roof is anchored to insure that the heater cable will not be cut or worn through by the top edge of the gutter and to prevent chafing or abrading of the cable.

## Final Test

Test all cables for insulation resistance as described on page 1 (Cable Testing).

Turn on cable and record current (amperes) readings.

Also record outdoor temperature and cable lengths.

## Control

LMI recommends automatic controls be used to control the system with a monitor light indicating system status. Switches and timers are also available.

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## Caution Labels

Two caution labels are included in each connection kit:  
Post one on the breaker panel.  
Post one on the control switch or the junction box.

## Maintenance

Annually check heater system for loose or damaged cable. Repair or replace clips as necessary.  
Assure that the gutters and

## Tools Required

500 VDC insulation resistance tester  
Digital multimeter  
Adjustable wrench  
Flat head screwdriver  
Fish tape  
Fastening system (as required)  
-Nylon cable ties  
-Jiffy clips  
-Pre-punched stainless steel strap  
-Metal ties  
-Wire rope (stainless steel or copper)

## General Accessories

T-AL200	-Aluminum tape, 2"
T-AL400	-Aluminum tape, 4"
T-SSS	-Pre-punched stainless steel strap
DT-JC-25	-Jiffy clips
A19ANC-1C	-Control thermostat
DTC120-G	-Automatic Snow Sensing System
DT-RC	- Clips
DT-RM	- Clips
DT-OR	- Clips

## Technical Support

Consult LMI Manufacturing Group, LLC for field repair instructions. If you have any questions or comments about these instructions or your installation please call LMI at 1-866-770-9416.