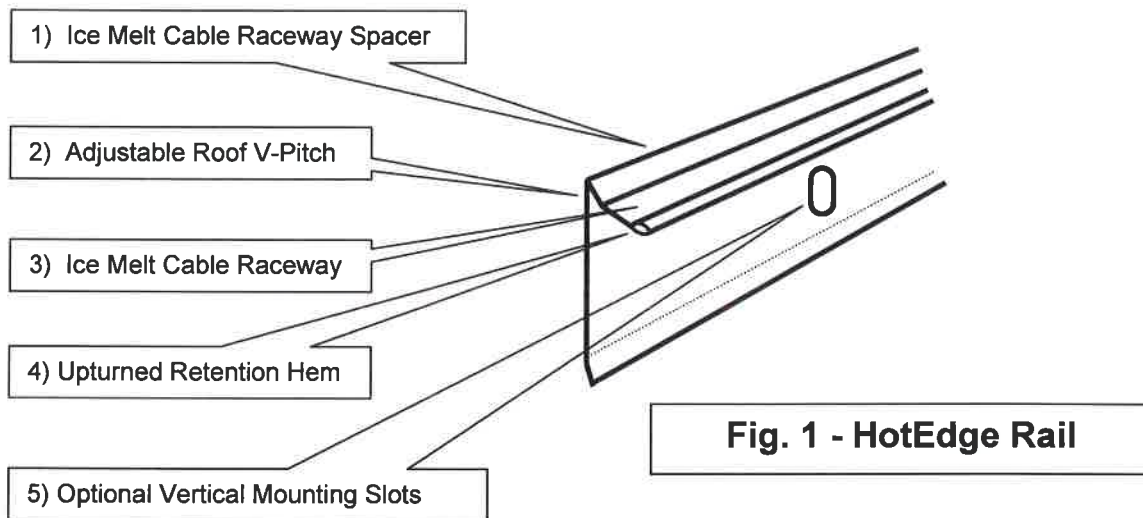


HotEdge Rail - Installation Instructions

Roof Edge Ice Melt Cable Retention System

Hot Edge, Inc.

www.HotEdge.com



The HotEdge Ice Melt System

The HotEdge Rail creates a three-sided raceway that holds a single run of self-regulating ice melt cable firmly against the bottom of the metal drip edge of most structures. This patent pending open raceway design conforms to the NEC (National Electrical Code) Article 426 and provides access for insertion, inspection and replacement. The heat generated by the ice melt cable is directly conducted to the metal drip edge. This helps prevent icicles and ice dams from forming in this critical area.

Some roofs will require the addition of a metal drip edge or a metal slip sheet (snow slide) that can be heated. **Warning: In all cases, a metal drip edge must be present for the HotEdge Ice Melt System to operate safely and successfully.**

The ice melt cable manufacturer's installation instructions are provided with the cable. These procedures must be followed. Installation personnel must be skilled in the art and be aware of the dangers inherent in this type of construction work. This product is designed to be part of a complete roof structure. Only experienced professional contractors should install this product.

Completely read and understand these documents before starting the project.

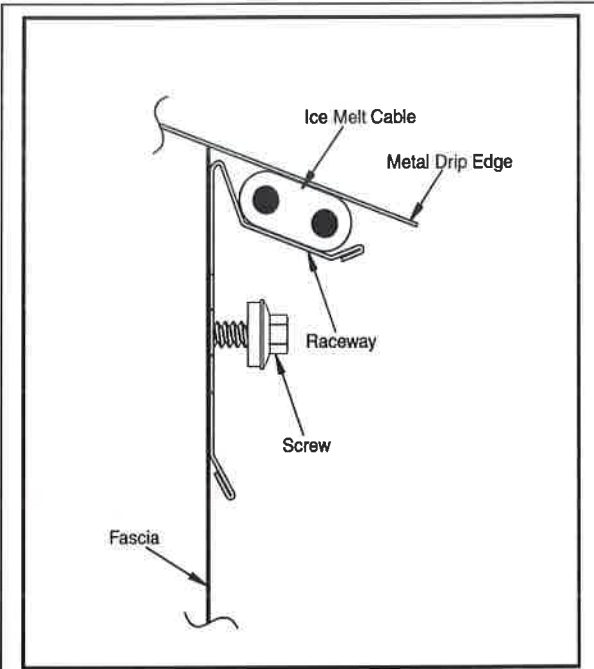


Fig. 2 - Mounting the HotEdge Rail Raceway & Ice Melt Cable

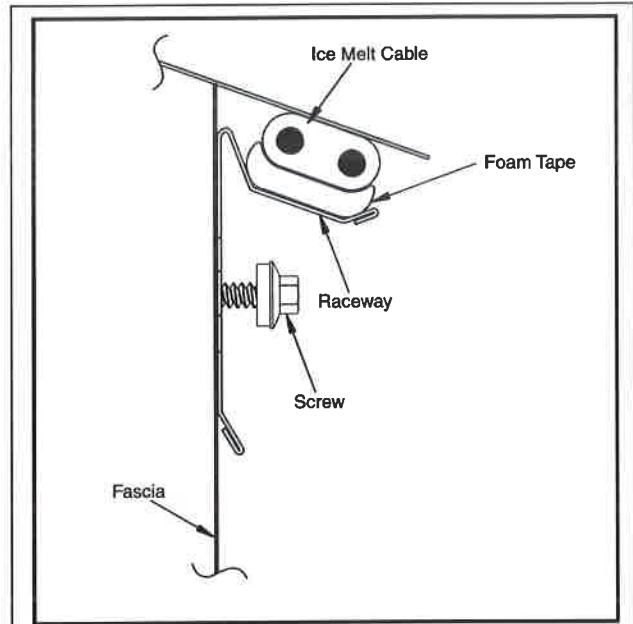


Fig. 3 - Foam Tape Option - Mounting the HotEdge Raceway & Ice Melt Cable

The HotEdge Ice Melt Cable System is also available with a self-adhesive foam tape that can be applied to the HotEdge Raceway, which may improve the transfer of heat from the ice melt cable to the metal drip edge.

Some roof drip edges are wavy (exhibit oil canning) and are not straight. The foam tape can eliminate any air gap, insuring constant contact of the ice melt cable with the bottom of the metal drip edge.

The foam tape is installed in the HotEdge Rail before it is mounted. Then the HotEdge Ice Melt Cable System installation instructions are followed to complete installation of the system.

Overview

The overall objective is to keep the snow melt in a liquid state until it is drained away from the structure's foundation. A heated gutter and downspout system is required for most applications.

It is necessary to minimize any air gap between the Ice Melt Cable Rail, the ice melt cable and the bottom of the drip edge. The "storm window effect" of any air gap in this critical area dramatically decreases the amount of heat that is transferred from the self-regulating ice melt cable to the metal drip edge and metal fascia.

Installation Instructions

- 1) Preparation and Pitch Adjustment for Each Metal Drip Edge
- 2) Job Site Installation of the HotEdge Rail
- 3) Ice Melt Cable Insertion
- 4) Electrical Connections
- 5) Self-regulating Heating Cable Supplied with System
- 6) Safety Agency Certifications
- 7) System Test by the Electrical Contractor

1) Preparation and Pitch Adjustment for Each Metal Drip Edge

The HotEdge Rail can be placed in a standard sheet metal bending brake to adjust the angle of each HotEdge Rail to the pitch of the metal drip edge. Pinching the patent pending V-bend in the brake will change the angle of the HotEdge Raceway to match the angle of the bottom of the roof drip edge.

It is recommended that the estimator visit the job site with a sample of the standard HotEdge Rail product to see if additional bending adjustments need to be made. The pitch of the individual metal drip edges on a given structure may vary, so careful angle measurements are important during this phase.

Caution: Do not over bend the V-Pitch adjustment. A spring like force is required to retain the ice melt cable under the metal drip edge. (See Fig. 2)

Without the cable in place, the final bend of the V-Pitch should place the Upturned Retention Hem in light contact with the underside of the metal drip edge. There should be about a 1/10 inch gap between the bottom of the metal drip edge and the top of the Ice Melt Cable Raceway Spacer. This spacing provides a spring-like force to retain the ice melt cable in the Raceway. This also insures a tight contact for maximum heat transfer. (See Fig.1 & Fig 2)

2) Job Site Installation of the HotEdge Rail

Important

The entry and exit points of the ice melt cable from the HotEdge Rail raceway require a slight downward bend of the Ice Melt Cable Raceway (Fig. 1, #3) to prevent the sharp cut edge from damaging the ice melt cable. The raceway can be cut to size at the job site, but the cut end needs to be de-burred with a file or similar tool.

Position Hot Edge Rail raceway firmly against the fascia and slide the Hot Edge Rail upward to the bottom of the metal drip edge. The top of the Upturned Retention Hem (Fig.1, #4) should touch the bottom of the metal drip edge and allows the mounting of the Rail without the ice melt cable at this time. Standard locking sheet metal clamp pliers can be used to hold the Rail in place during attachment screw placement.



Fig. 4 - Locking Sheet Metal Clamp Pliers

Preliminary Mounting of the Rail

Loosely drive two or three sheet metal screws, on two foot centers, into the center portion of the HotEdge Rail stick. The optional mounting slots configuration makes this job easier.

HotEdge Rails can be overlapped or butted together. The screws at each end of the Rail are not driven into the HotEdge Rail at this time. The ice melt cable is inserted in the next step (3).

The screws are industry standard #9 or #10 self-tapping, drill point sheet metal roof construction screw with a metal and rubber washer about one to two inches long. These screws must be made from a metal compatible with the HotEdge Rail raceway metal material and the metal roof drip edge and metal fascia. Never allow dissimilar metals like steel or aluminum to contact copper. The HotEdge Rail is available in copper for copper roof edges or a painted metal alloy for steel or aluminum metal drip edges.

The HotEdge must be mounted to a metal drip edge to be safe and effective.

Composite shingled roofs may require the installation of a metal drip edge or a metal slip sheet (snow slide) that can be heated.

3) Ice Melt Cable Insertion

Warning: Low cost, constant current ice melt cable must not be used. Only safety agency Listed, self regulating ice and snow melt cable for structures that are provided with the system can be used. Consult with a licensed electrical contractor for system layout, junction box placement, maximum cable run lengths and power feed requirements as defined by the National Electrical Code (NEC), local building codes and the ice melt cable manufacturer.

Ice melt cable splices are not permitted in the HotEdge Raceway. Individual home runs to an electrical junction box are highly recommended. The use of ice melt cable splices should be minimized as they have been shown to be unreliable. Splices make troubleshooting and repair difficult and expensive. The expense of the extra footage of cable is an important investment.

Three extra feet of ice melt cable must be provided at each electrical junction box to allow the licensed electrical contractor to provide a drip loop and a power connection. At the end of the run, an extra one foot of cable is required for the installation of the end sealing device. If this extra cable is not provided, the entire run of ice melt cable will need to be replaced. Cable is easy to cut but it does not stretch.

The ice melt cable is inserted into the horizontal slot between the top of the HotEdge Raceway and the bottom of the metal drip edge.

The locking sheet metal clamp pliers (Fig. 4) are used to squeeze the ice melt cable between the top of the Ice Melt Cable Raceway and the bottom of the roof drip edge for a tight fit before the final mounting screws are driven into the Rail. It is necessary to eliminate any air gap between the ice melt cable and the bottom of the drip edge. The “storm window effect” of any air gap in this critical area dramatically decreases the amount of heat that is transferred from the ice melt cable to the metal drip edge.

Move along the Rail with two or more locking sheet metal clamp pliers and drive additional screws, on two foot centers, into the balance of the HotEdge Rail for the final positioning. Additional screws may be added if required for a tight fit.

Ensure the ice melt cable is pushed back past the Upturned Retention Hem into the Ice Melt Cable Raceway. Also insure the ice melt cable is not behind the vertical surface of the HotEdge Raceway. Screw penetration of the ice melt cable must be avoided. Since ice melt cable splices are not permitted in the HotEdge Raceway, the entire cable run will need to be replaced if it is penetrated with a screw.

There should be a small horizontal gap between the bottom of the metal roof drip edge and the Upturned Retention Hem to comply with electrical building codes that require ice melt cable to be “Exposed” for roof and structure ice melting. This is a good inspection slot to make sure the ice melt cable is correctly positioned.

4) Electrical Connections

Only a licensed electrical contractor should power up the system. The electrical connections and end seals require an experienced contractor. Details of the electrical installation in this document are brief and do not cover the many variables encountered in the field. More information is available in the ice melt cable manufacturer's installation instructions provided with the ice melt cable.

EPD ground fault breakers with 30 ma trip points must be used, as per Article 426.28 of the NEC.

At low temperatures, the start up current of self regulating ice melt cable can be quite large. Consult the ice melt cable manufacturer's maximum cable length data charts for additional information.

In all cases, the Listed ice melt cable manufacturer's instructions over-ride the HotEdge Installation Instructions.

Warning

Low cost, constant current ice melt cable must not be used. Only safety agency Listed, self regulating ice and snow melt cable for structures can be used.

The ice melt cable must be exposed as per Article 426 of the NEC.

Consult with a licensed electrical contractor for system layout, junction box placement, maximum cable run lengths and power feed requirements as defined by the National Electrical Code (NEC), local building codes and the ice melt cable manufacturer.

5) Self-regulating Heating Cable Supplied with System

The HotEdge Rail is supplied with one of the following Listed (KOBQ) De-Icing and Snow-Melting Equipment Heating Cable and accessories (designed for roof and gutter de-icing and snow melt) indicated below and with the installation instructions provided by the heating cable manufacturer.

Products from Tyco Thermal Controls LLC (Raychem)

UL File KOBQ.E74811, De-icing and Snow-melting Equipment

CSA Class 2872-01, File 021133_C_000 HEATERS-Cable and Cable Sets

Raychem® IceStop® Roof & Gutter De-Icing Systems

GM-1X Heating cables (120VAC, 10 watts per foot)

GM-2X Heating cables (240VAC, 12 watts per foot and 277VAC, 12 watts per foot)

FTC-P Power Connection & End Seal Kit

FTC-HST Splice/Tee Connection Kit

GMK-RC Roof Clips

GM-RAKE Hanger Bracket

Raychem® WinterGard Wet Roof & Gutter De-Icing Systems

H612 Heating cables (120VAC, 6 watts per foot)

H622 Heating cables (208-277VAC, 6 watts per foot)

H900 Power Connection & End Seal Kit

H910 Splice/Tee & End Seal Kit

H913 & H914 Roof Clip Kits

H915 Hanger Bracket Kit

H908 120VAC Plug-in Power Connection Kit

Products from Chromalox Inc. (Thermwire-Melt)

UL File KOBQ.E137658 De-icing and Snow-melting Equipment

CSA Class 2872-01, File 056305_0_000 HEATERS-Cable and Cable Sets

SRF 5-1RG Roof and Gutter De-Icing Cable (120VAC, 6 watts per foot)

SRF 5-2RG Roof and Gutter De-Icing Cable (240VAC, 6 watts per foot)

RG-PK-1 Power Connection and End Seal Kit

RG-SK-1 Splice Kit

RG-EK-1 End Seal Kit

RCK-1 Roof Clip Kit

RDK-1 Downspout Hanger Kit

Products from Thermon Manufacturing Co.

UL File KOBQ.E163149 De-icing and Snow-melting Equipment

CSA Class 2872-01, File 079539_C_000 HEATERS-Cable and Cable Sets

RGS-1 Roof and Gutter De-Icing Cable (120VAC, 10 watts per foot)

RGS-2 Roof and Gutter De-Icing Cable (240VAC, 10 watts per foot)

PTK1A & RGS-CFK Power Connection and End Seal Kit

RGS-SFK Splice/Tee Kit

ETK1 End Seal Kit

7) System Test by the Electrical Contractor

Insulation Resistance (Megohmmeter) Test

The insulation resistance test is critical to ensure the safety and reliability of the heating cable system. This test should be performed as part of the installation of the system. It is also useful for troubleshooting an installed system. This test is required for warranty coverage from some cable manufacturers. See details in the ice melt cable manufacturer's installation instructions.

A large peak amp reading at cold start-up may indicate a current draw issue. Some systems may require time delay relays to spread out this peak load.

Individual home runs are recommended for troubleshooting, repair and replacement of the ice melt cable.

Copyright © 2011 Hot Edge, INC. All rights reserved.

No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission from Hot Edge, INC.

All copyright, confidential information, patents, design rights and all other intellectual property rights of whatsoever nature contained herein are and shall remain the sole and exclusive property of Hot Edge, INC.

The information furnished herein is believed to be accurate and reliable.

However, no responsibility is assumed by Hot Edge, INC. for its use, or for any infringements of patents or other rights of third parties resulting from its use.

Hot Edge, INC. hereby disclaims any liability for: user's failure to inspect, maintain, and take reasonable care of this equipment; injuries or damage resulting from use or application of this product contrary to instructions and specifications contained herein. Hot Edge, INC.'s liability shall be limited to repair or replacement of equipment shown to be defective.