

°STELPRO

SCRG CONSTANT WATTAGE ROOF AND GUTTER
DE-ICING CABLE

OWNER'S MANUAL



INS-SCRG_0519

THANK YOU FOR YOUR PURCHASE!
NEED ASSISTANCE? CONTACT °STELPRO'S CUSTOMER SERVICE.

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IMPORTANT INSTRUCTIONS

Improper installation, use, operation or maintenance of this product may result in injury or death from electric shock or fire. It may also result in property damage from ice dams. Read and follow the instructions in this manual. If you have questions, contact °STELPRO for assistance. Give this manual to anyone who will be using this cable, including future users/homeowners.

To reduce the risk of ice dam formation or injury or death from electric shock or fire, follow all electrical requirements for using this product. See the *Electrical requirements* on page 6 for details.

The SCRG-CONTROL accessory (controller for SCRG series cables with moisture and ambient temperature sensors) is recommended for controlling these roof and gutter de-icing cables.

°STELPRO recommends you not use an extension cord with this cable.

If you are unsure whether your electrical receptacle meets these requirements, contact your local electrical inspector or a licensed electrician.

1. **Avoid overheating the cable.** For example: Do not allow the heated portion of an operating cable to touch, cross over or overlap itself or another de-icing cable. Do not operate the cable in warm weather (above 10°C [50°F]). Do not install the cable where it might be warmed by sources of heat, such as an exhaust vent or chimney.
2. **Do not alter or modify the cable in any way.** For example: Do not cut or splice the cable, or paint or expose it to chemicals, such as glue, caulk or adhesive.
3. **Keep all combustible materials away from the cable,** such as leaves, pine needles, seeds or windblown trash. Do not attach the cable to a combustible material, such as any wooden parts of the eave.
4. **If using gutter guards, ensure that there is at least ½ in. (12.7 mm) clearance between the gutter guard and cables.**
5. **Do not use a cable that is damaged or has deteriorated.** Dispose of it. Signs of damage include cuts, brittleness, charring, cracking, discoloured surface or bare wires.
6. **Use this product only as intended and described in this manual.**
7. **To prevent creases, make sure the minimum bending radius is 1 in. (25.4 mm).**

SAVE THESE INSTRUCTIONS

GENERAL INFORMATION

PURPOSE OF THIS PRODUCT

This de-icing cable is designed to prevent ice buildups, known as ice dams, from forming on roofs and in gutters and downspouts. When properly installed and operated, this product creates a path for melted snow or ice (melt water) to drain from the roof to the ground. Do not install this product to remove ice dams that have already formed or clear the roof of ice and snow.

Do not use this de-icing cable for any other purposes, such as to melt snow on sidewalks or protect pipes from freezing. °STELPRO offers other products designed for these purposes. See your local dealer or contact °STELPRO.

Improved ventilation (cooling) of the space underneath the roof surface, if possible, can also reduce the likelihood of ice dam formation. To avoid ice dams, the entire roof surface should be kept at the same temperature as the outside air. Consult a professional roofer for expert advice on roof venting. Refer to the *Appendix on page 25*.

WHO SHOULD INSTALL THE CABLE

Although the installation of the cable does not require special skills, you may wish to hire a professional for a variety of reasons. For example, if you are uncertain about any of the *Electrical requirements on page 6*, or if you are not comfortable working on a ladder or roof, consider hiring a professional, such as a licensed electrician.

Visit www.°STELPRO.com for more information.

WHEN TO INSTALL THE CABLE

The de-icing cable should be installed when:

1. There is no ice or snow on the roof.

Do not use this cable to melt snow and ice that has already formed on your roof or in your gutters or downspouts, as you would not be able to attach the cable properly with the clips. Additionally, this cable was not designed to melt snow; rather, it simply provides a path for snow or ice that has already melted (melt water) to flow to the ground.

To solve ice dam problems when snow and ice are on the roof, contact a professional roofer for expert advice.

To prevent future ice dams, you can install the de-icing cable once the ice and snow have melted and before the next winter season.

2. The temperature makes it possible to lift the shingle tabs.

In general, the temperature should be between 0°C and 27°C (32°F and 80°F). Below 0°C (32°F), shingles are brittle and may break off when lifted to install the cable clips. Above 27°C (80°F), shingles may be warm and tear when lifted to install the cable clips.

DETERMINING WHAT AREAS NEED CABLE

In general, the cable should be installed on roof areas where ice dams are likely to form. Depending on sun exposure, prevailing wind direction and roof shape, the susceptible area may be the entire roof edge, or it may be specific areas, such as underneath skylights, in roof valleys or around dormers. Ice dams can be identified at points where snow has melted on an upper roof surface, but the area below is still snow and/or ice covered. Icicles are also a sign of ice dams.

Cable should also be installed in any nearby gutters, downspouts and/or valleys so that a clear path is provided for melt water to drain.

If your previous ice dam problems have only included ice forming in the gutter and there are no ice dam problems on the roof, install the cable in the gutter and downspouts only. See *Planning on page 8* for details on the proper layout of the cable and the *Appendix on page 25* for more information about ice dam formation and prevention.

REQUIREMENTS

WARNING: Use of this kit on any other type of roof, gutter or downspout increases the risk of ice dam formation or injury or death from electric shock or fire.

ROOF, GUTTER AND DOWNSPOUT REQUIREMENTS

This kit is only designed for use on:

- Inclined roofs. An inclined roof is one where the water is expected to flow off the roof edge.
- Roofs with non-combustible tab shingles (such as asphalt shingles) that meet national building codes.
- Metal or plastic gutters/downspouts.

Do not use this kit on any other type of roof, gutter and downspout, including:

- Roofs with wooden shingles.
- Rubber or rubber membrane roofs.
- Composite (tar and gravel) roofs.
- Wooden gutters or downspouts.
- Flat roofs.

SCRG cable cannot be used on slate, stone, metal and ceramic roofs. These types of roofs require special consideration. Visit [www.°STELPRO.com](http://www.STELPRO.com) for more information.

If you are unsure if your roof, gutters, and downspouts meet these requirements, call a professional roofing contractor.

ELECTRICAL REQUIREMENTS

There are several requirements for the electrical system that supplies power to this de-icing cable. Check with your local electrical inspector or a licensed electrician if you are unsure about the requirements listed below or what you may need to do to meet all applicable electrical codes and ordinances.

This cable must be plugged into a 120-volt A/C outdoor receptacle that:

1. **Is grounded.** This cable is equipped with a three-prong plug that has a grounding prong. To reduce the risk of fire and electric shock, this cable must be grounded. To this end, the plug must be plugged into an outlet that is properly installed and grounded in accordance with all local electrical codes and ordinances.

Do not modify the plug provided with the cable. If it does not fit the outlet, have a proper outlet installed by a licensed electrician.

2. **Is ground-fault protected.** A ground-fault protected receptacle reduces the risk of fire or electric shock by stopping the flow of electricity (current) when it senses that current is flowing through something other than the cable (for example, a person or downspout). This unintended current:

- can be caused by a damaged cable,
- may not be large enough to trip a circuit breaker,
- may cause the cable to overheat, which can result in a fire, and
- may result in electrocution due to exposed electrical parts.

One type of ground-fault protection is a ground-fault circuit interrupter (GFCI). Some, but not all, outdoor receptacles are equipped with a GFCI.

If you are not sure if your receptacle has ground-fault protection, check with your local electrical inspector or a licensed electrician.

3. **Is on a circuit that has an appropriate current (amp) rating.** Do not use this cable on a circuit whose circuit breaker or fuse is rated at more than 20 amps. Limiting the circuit to a maximum of 20 amps will reduce the risk of fire and electric shock if the cable becomes damaged.
4. While a 20-amp circuit is the maximum allowed, you also need to check that the circuit can supply enough current without being overloaded. Overloading a circuit can lead to a tripped breaker or a blown fuse. To avoid overloading the circuit, do not use more than 80% of the circuit's rated capacity (for example, do not load a 20-amp circuit with more than 16 amps, and do not load a 15-amp circuit with more than 12 amps). See *Table T1* below for the current needed for your cable length. If you do not have a circuit with an appropriate rating, contact a licensed electrician.

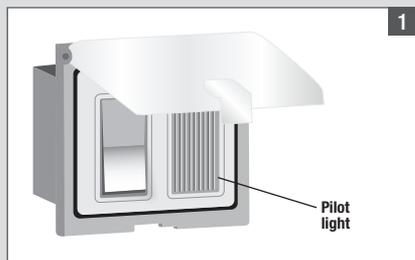
CURRENT NEEDED FOR DE-ICING CABLES

T1

°STELPRO PRODUCT	CURRENT NEEDED (AMPS)
SCRG1W0150L0030	1.3
SCRG1W0300L0060	2.5
SCRG1W0400L0080	3.3
SCRG1W0500L0100	4.2
SCRG1W0600L0120	5.0
SCRG1W0800L0160	6.7
SCRG1W1000L0200	8.3
SCRG1W1200L0240	10.0

- Has an on/off switch that has an indicator light (pilot light).** The indicator light should be wired to light up when your cable is powered (see *Figure 1*). This will help you minimize energy consumption and help ensure the cable is not powered in warm weather. Turning on the cable in warm weather can cause it to overheat and may increase the risk of fire or electric shock.
- Is protected from the weather.** The connection between the plug and receptacle must be protected from rain, snow or other elements. You may use either:

 - a receptacle in a location that is protected from the elements. Sometimes an eave can provide adequate protection.
 - a receptacle that has a weatherproof enclosure, similar to that shown below. This type of enclosure is sometimes called an “in-use receptacle cover.”
- Is within 6 ft (1.82 m) of the cable starting point on the roof.** (See *Planning on page 8*.) The cable’s power cord is 6 ft (1.82 m) long, and the remainder of the cable is heated.
- Choosing a receptacle that is within 6 ft (1.82 m) of the start point will ensure that the heated portion of the cable is entirely on the roof. This will also avoid contact by persons or equipment (such as yard tools) that can move or damage the cable.
- The use of a properly located receptacle will also eliminate the need for an extension cord. °STELPRO recommends you not use an extension cord with this cable, as this may increase the risk of fire or electric shock.
- Remember, there may be different or additional requirements related to local or national codes and ordinances. Check with your local electrical inspector or a licensed electrician if you are unsure about these codes and ordinances.



ON/OFF SWITCH WITH INDICATOR AND IN-USE RECEPTACLE COVER

PLANNING

Before laying out and attaching the cable to your roof, it is important to plan how the cable will be arranged.

To prevent ice dams, the cable pattern must be arranged so that it routes melt water to flow from “warm areas” of the roof through the “cold areas” and down to the ground. A “warm area” of your roof is one where snow and ice on the roof thaws because of heat loss through inadequate roof venting or insufficient ceiling insulation. “Cold areas” of your roof are areas where ice typically builds up, such as the roof surfaces above overhangs and in gutters. (See the *Appendix on page 25* for more information on warm and cold areas.)

IN GENERAL, YOU NEED TO INSTALL THE CABLES IN THE FOLLOWING AREAS:

On roof areas, including:

- along the roofline
- in valleys
- in problem areas, such as skylights and dormers (if needed)

In nearby gutters and downspouts

WARNING: To avoid overheating the cable and increasing the risk of fire or electric shock, do not allow any part of a cable to pass through the inside of any area of a building, including an attic. For example, do not install the cable in a downspout that has a section that passes through a building. In addition, do not install cable where it might be warmed by sources of heat, such as an exhaust vent or chimney. Keep the cable at least 12 in. (30 cm) from these sources of heat.

This section will also describe how to treat separate areas with multiple cables and handle cable shortage or excess.

1

CHOOSE A STARTING POINT

The cable starting point must not be near any entrance areas, sidewalks, etc. to avoid contact by persons or equipment (such as yard tools) that can move or damage the cable. You may also want to avoid having the cable power cord routed in front of windows or high-visibility areas of your home. For more information on selecting a location for an electrical outlet, see *Electrical requirements on page 6*.

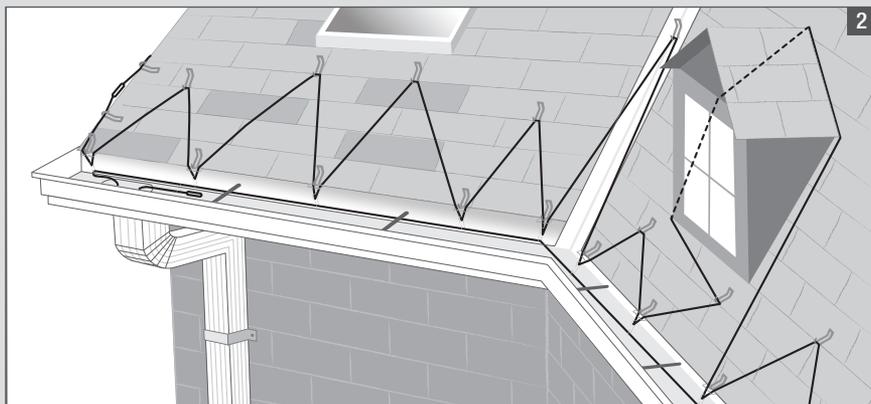
If an electrical outlet already exists in an appropriate location near the eave, then that defines your starting point. Otherwise, select an appropriate starting point and have an electrical outlet installed.

2

PLAN THE PATTERN FOR YOUR ROOF

Methods for arranging the cable pattern for different parts of the roof are provided on the following pages. The cable does not have to be installed in all of these sections – only in the sections that have been susceptible to ice dams in the past (see *Determining what areas need cable on page 5*). You may or may not need to install cable along the roofline or near skylights or dormers. However, always install cable in valleys that are a part of any problem area on your roof.

TIP: *Figure 2* shows a typical pattern along the roofline and in gutters and downspouts. If you'll be working directly on the roof during the installation, you may want to mark the cable pattern with chalk before attaching the cable. If working from a ladder, you will probably want to lay out the pattern as you attach the cable with the clips. Making a drawing of your roof and planned pattern on paper may be helpful.



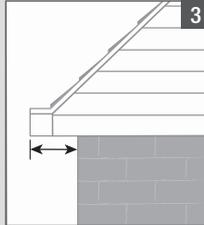
TYPICAL PATTERN ALONG ROOFLINE AND IN GUTTERS AND DOWNSPOUTS

Pattern for the roofline

Cable laid along the roofline is arranged in a triangular pattern (see Figure 4). The cable must extend above the overhang into the warm section of the roof. To determine the height of the triangles, measure the depth of the overhang (see Figure 3).

The triangle heights are measured by the number of shingle rows from the roof edge (based on the standard 5 1/2 in. [14 cm] tab shingles). Using Table T2, determine the height of each triangle. Using this method, the triangles will extend at least one shingle row (5 1/2 in. [14 cm]) into the warm roof area.

The base of each triangle is always 15 in. (38 cm) wide. If you have non-standard shingles (not 5 1/2 in. [14 cm] wide), contact °STELPRO for assistance.



OVERHANG MEASUREMENT

TRIANGLE HEIGHTS FOR VARIOUS OVERHANGS

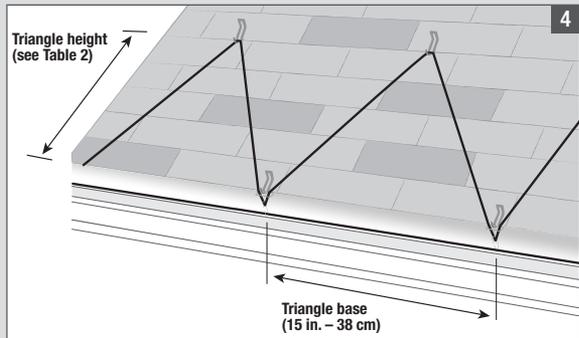
T2

OVERHANG (IN.)	TRIANGLE HEIGHT (SHINGLE ROWS)
12 or less	3
12 - 18	4
18 - 24	5
24 - 30	6
30 - 36	7
36 - 42	8
42 - 48	9
48 - 54	10
54 - 60	11
60 - 66	12
66 - 72	13

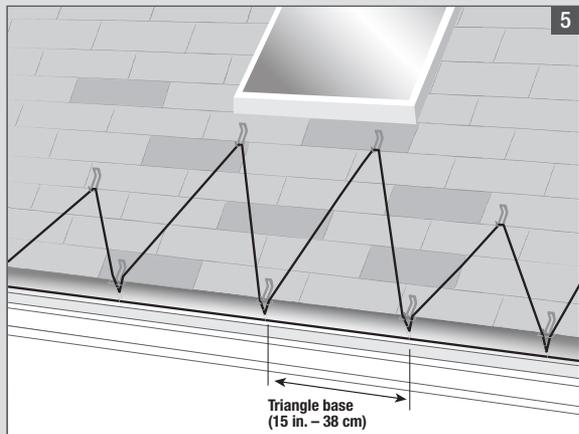
Pattern for skylights

Problem skylight areas are also treated with the “triangle pattern” approach. However, the height of the triangles may need to be greater than those along the roofline. Increase the triangle height so that it extends to one shingle row (5 1/2 in. [14 cm]) below the skylight. The triangle base is maintained at 15 in. (38 cm). (See Figure 5).

Triangle heights must not exceed 20 ft (6 m). The clips provided with the kit are not designed to attach triangles this large. For problem areas that are more than 20 ft (6 m) from the roof edge, commercial grade de-icing cable should be installed by a professional installer. Contact °STELPRO for assistance.



TRIANGLE PATTERN ALONG ROOFLINE



TRIANGLE PATTERN NEAR SKYLIGHT

Pattern for valleys

If a valley exists in a problem area of your roof, you must route cable up and back down the valley a minimum of 3 ft (90 cm), as shown in *Figure 6*. Extend the cable higher if the warm area of your roof is higher.

Pattern for dormers

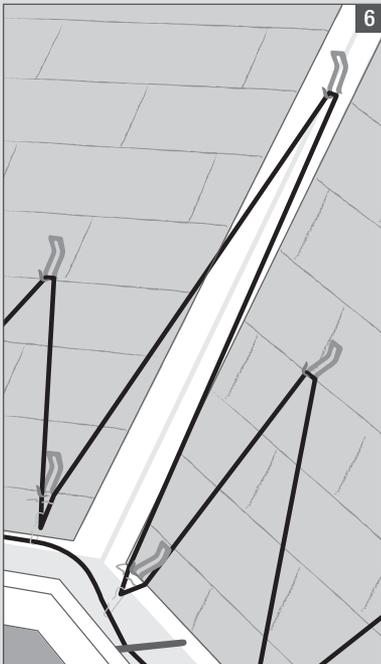
To treat a problem dormer area, the cable should be arranged up and around the dormer as shown in *Figure 7*.

Pattern for other special roof areas

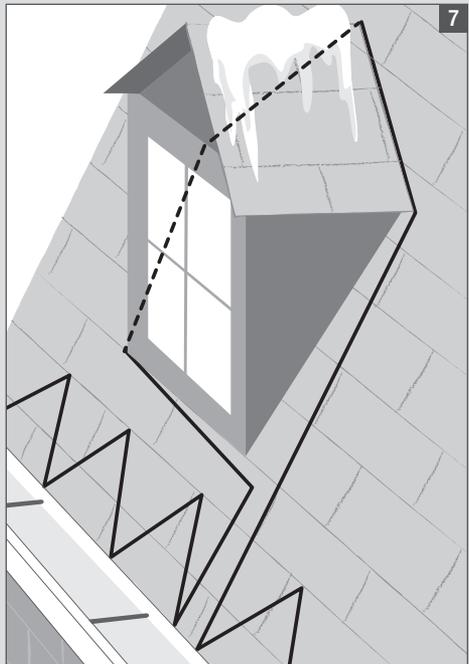
Other problem roof areas not previously described may also be treated with de-icing cable to prevent ice dam formation. Triangles – similar to those used for the roofline – can also be used to treat these special areas.

In treating these special problem areas, the height of the triangles may be greater than that used at the roof edge. Keep the triangle base at 15 in. (38 cm) but increase the triangle height so that it extends at least one shingle row (5 ½ in. [14 cm]) into the warm roof section.

Triangle heights must not exceed 20 ft (6 m). The clips provided with the kit are not designed to attach triangles this large. For problem areas that are more than 20 ft (6 m) from the roof edge, commercial grade de-icing cable should be installed by a professional installer. Contact °STELPRO for assistance.



CABLE PATTERN IN A VALLEY

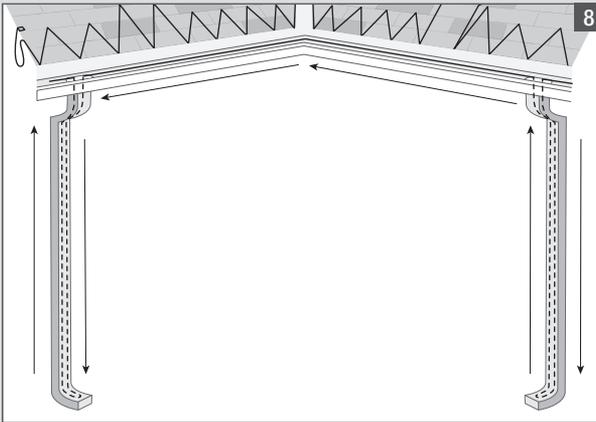


CABLE PATTERN AROUND A DORMER

3

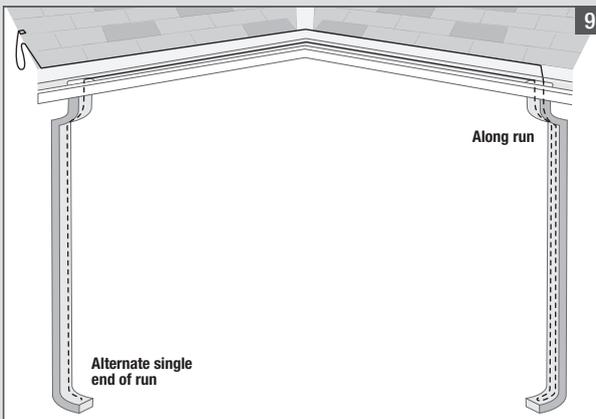
PLAN THE CABLE PATTERN FOR THE GUTTERS AND DOWNSPOUTS

For each roof area that has cable, the corresponding gutter (if present) must also have cable. After arranging the cable along the roofline, the cable will need to be installed back along the treated roofline through the gutter. Plan to install the cable down into and back up the inside of any downspouts along the way. If there is a downspout at the end of the roofline, you need only to route the cable down the inside of the downspout and back up. However, if there is a shortage of cable, you need only to route the cable down the inside of the downspout and not back up. The cable must terminate at the end of the downspout. Remember, to avoid overheating the cable and increasing the risk of fire or electric shock, no part of the downspout may pass through a building.



CABLE ROUTED BACK ALONG THE ROOFLINE IN THE GUTTERS AND DOWNSPOUTS

If your icing problems are only in the gutter, cable would be routed only in the gutter and downspouts using the recommended “double run” of cable, as shown in *Figure 9*. This figure shows an alternate “single end of run.”



DOUBLE CABLE RUN IN THE GUTTERS AND DOWNSPOUTS

4

CONSIDER THE NUMBER OF CABLES TO USE

If separate areas are being treated, it may be more practical to use separate cables. When planning your cable arrangement, consider where each cable will be routed given its length.

It is also possible to use one common cable for both areas; the cable can be routed from one area to the next either in the gutter or horizontally attached to the shingles. Do not route the cable over the roof peak, because the clips are not designed for this purpose.

5

CONSIDER CABLE SHORTAGE OR EXCESS

Consider how you will handle any excess or slight shortage of cable. For excess cable, triangles can be made larger (up to 20 ft [6 m] in height) or cable loops in valleys can be extended. For slight shortages, triangles can be made smaller in areas less sensitive to ice dams. Alternatively, if a downspout is present at the end of the roofline being treated, cable may be routed in a single run down, or as recommended, run down and back up. In either scenario, the cable must terminate at the end of the downspout. See *Figure 24 on page 21*.

WARNING: To reduce the risk of fire, electric shock, or ice dam formation, do not cut, splice or alter the de-icing cable in anyway. The cable length cannot be changed.

PREPARING

Follow these steps BEFORE installing the de-icing cable:

1. Remove any existing de-icing or heating cables, clips or cable spacers in the area where the new cable will be installed. (See *Removing the cable on page 24*.)
2. Remove any combustible debris from the roof, gutters and downspouts, such as leaves, pine needles, seeds or windblown trash.
3. Look and feel for sharp or jagged edges along gutters and downspouts that could damage the cable. Sharp or jagged edges could include gutter edges, downspout fittings or screws. Remove sharp or jagged edges by either filing or bending them down.

HANDLING

WARNING: Improper handling can damage the cable and may result in ice dam formation or injury or death from electric shock or fire.

Properly handle and care for the cable:

- Do not step on the cable.
- Do not bend cable more sharply than required for use with the clips included with the kit and according to the installation instructions. Sharp bends can damage the heating element.
- Do not allow the heated portion of an operating cable to touch, cross over or overlap itself or to touch another de-icing cable.
- Do not cut, splice or alter the de-icing cable in anyway.
- Do not cover or insulate any part of the cable.
- Do not paint or expose the cable to chemicals such as glue, caulk or adhesive.

TESTING

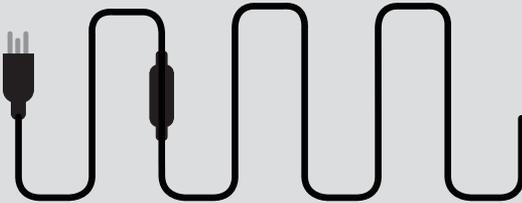
You may wish to test the cable before installation.

1. To do so, uncoil it completely so it does not touch, cross over or overlap itself. Do not plug in the cable until it has been completely uncoiled.
2. Plug cable in, and in approximately 5 minutes, it should feel slightly warm to the touch.
3. Unplug the cable.

INSTALLATION

TO ENSURE A SAFE AND EASY INSTALLATION,
TAKE A FEW MINUTES TO READ THIS INSTALLATION GUIDE.

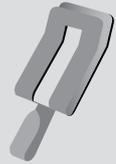
WHAT'S IN THE BOX



Cable



Cable
spacers



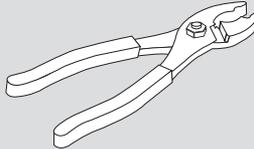
Shingle
clips

If any components of this kit are missing or damaged,
contact °STELPRO for assistance.

TOOLS REQUIRED



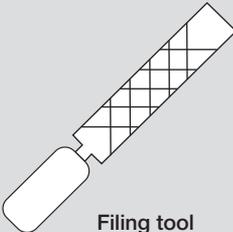
Tape measure



Tongs



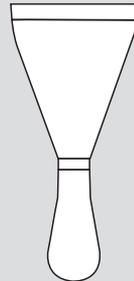
Marking chalk



Filing tool



Weighted string*



Putty knife

*The string should be at least as long as the longest downspout.

WARNING: Use only the clips and spacers provided to attach the cable. Do not attempt to staple or nail the cable or attach the cable with materials such as glue, caulk or adhesive. While the cable is being laid-out on the roof, loose attachment of the clips and spacers is recommended in case adjustments must be made.

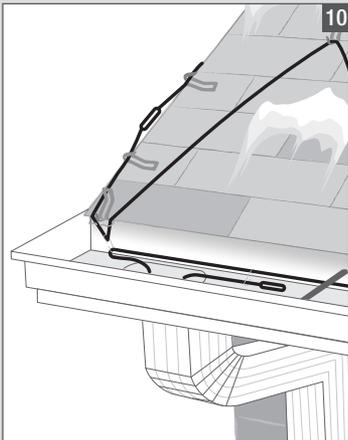
1 UNCOILING THE CABLE

To attach the cable properly, it must lie flat on the roof. To this end, uncoil the cable so that it is not twisted or tangled. If not properly uncoiled, the cable may be hard to clip to your roof.

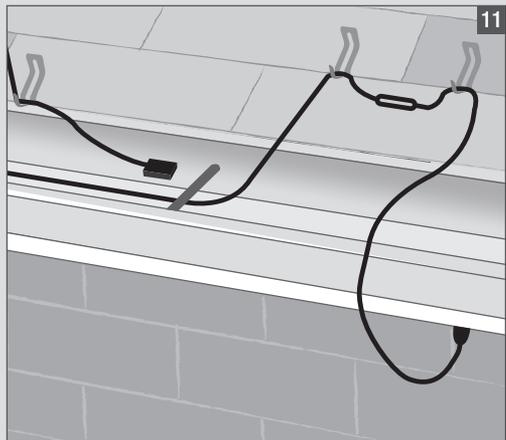
2 ATTACHING THE CABLE AT THE STARTING POINT

Attach the cable to the edge of the roof near the outlet using the clips as shown in *Figure 10 or 11*. Do not plug in the cable at this time.

Then, route your cable as planned on your roof or in your gutter and downspouts. Details on clip and spacer attachment are provided in the following sections.



STARTING POINT NEAR ROOF EDGE



STARTING POINT ALONG GUTTER EDGE

3

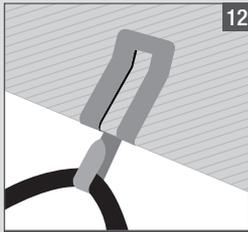
ATTACHING THE CABLE TO YOUR ROOF

At tops of triangles along edge of roof

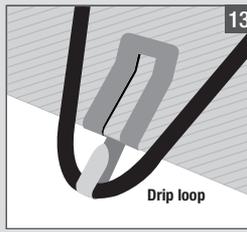
Taking care not to tear the shingle tab, lift it gently and evenly using a putty knife. Lift the shingle just enough to insert the clip. Press shingle back down firmly. **Note:** Shingles will reseal in hot weather. (See *Figure 12*.)

At bottoms of triangles along edge of roof

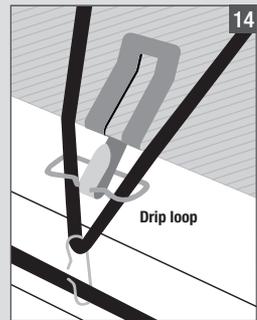
Form a “drip loop” over roof edge to direct melt water into the gutter or to the ground. There should be a minimum of 2 in. (5 cm) between the bottom of the drip loop and the bottom of the gutter. (See *Figures 13 and 14*.)



TOP OF TRIANGLE



EDGE OF ROOF WITHOUT GUTTERS



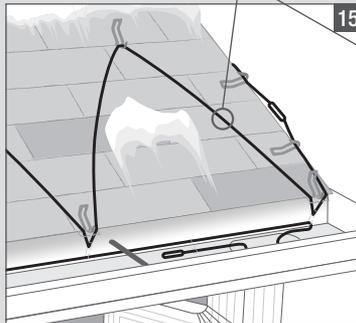
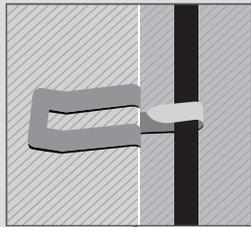
EDGE OF ROOF WITH GUTTERS

Along the rise of large triangles

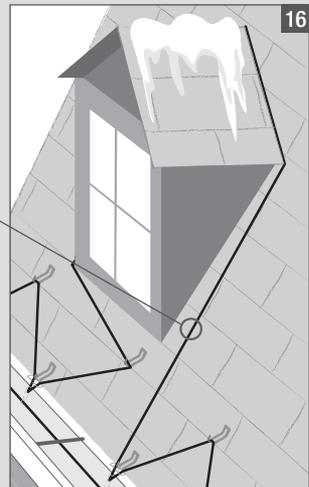
For triangles that are larger than 3 ft (90 cm) in height, also attach clips every 3 ft (90 cm) up the height of the roof. (See *Figures 15 and 16*.)

Around dormers

Figure 16 shows how to use a clip to attach the cable when the cable is running vertically around a dormer. Lift the side edge of the shingle gently to insert clip sideways.



ALONG RISE OF LARGER TRIANGLES



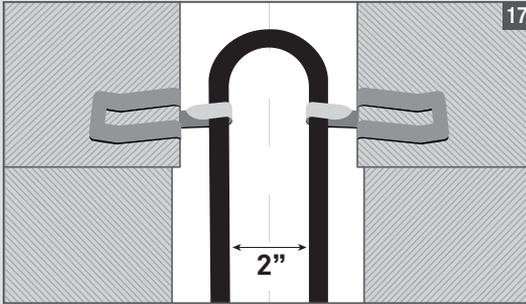
AROUND DORMERS

Near skylights

Triangles of cable are attached near skylights the same way as shown in *Figures 12, 13 and 14*. If the skylight is high up the roof (making the triangles larger than 3 ft [90 cm] in height), clips must also be attached every 3 ft (90 cm) up the height of the roof, as shown in *Figure 15*.

Up and down valleys

Figure 17 shows how to use a clip to attach the cable up and down valleys. Lift the side edge of the shingle gently to insert clip sideways.



ATTACHING CLIPS IN VALLEYS

4

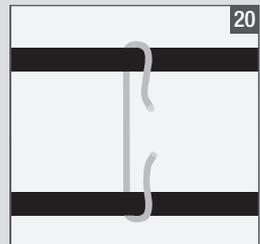
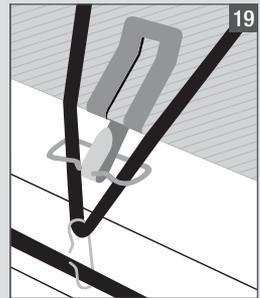
ROUTING THE CABLE ALONG THE GUTTER

1. While the cable is being laid in the gutter, the spacers can be tightened with fingers or pliers. If you use pliers, squeeze gently and use care to avoid pinching, crimping, cutting into or otherwise damaging the cable (see *Figure 18*). Do not use a hammer to tighten the clips and spacers.



SQUEEZING SPACERS WITH PLIERS

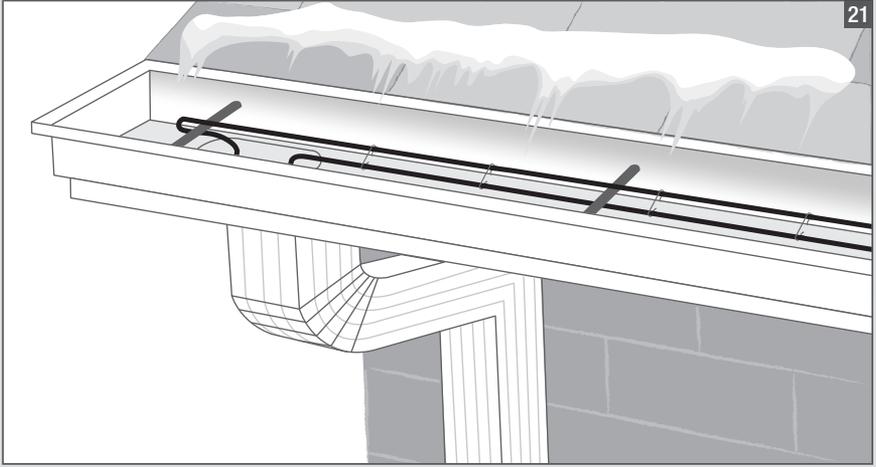
2. Route the cable in the gutter along a treated area of roofline. Using a spacer, fasten the gutter cable to the bottom of each drip loop you have formed. See *Figures 19 and 20*. Keep the cable in the gutter tight and off the bottom of the gutter to prevent heat loss.



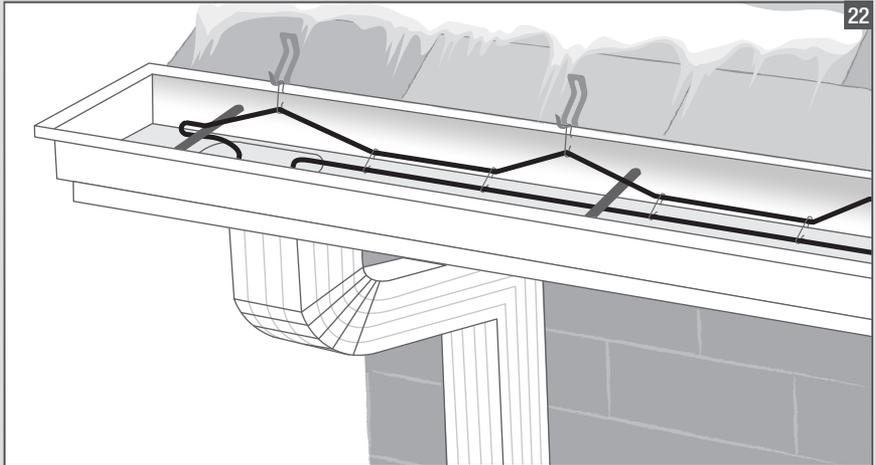
ATTACHING CLIPS IN GUTTERS

For a gutter-only installation

Use a “double-run” of cable in the gutters and downspouts. *Figure 21* shows a gutter installed with gutter spikes. Route the cable over and under the gutter spikes to keep the cable suspended off of the bottom of the gutter. Spacers should be attached every 12 in. (30 cm). *Figure 22* shows a gutter with external gutter straps. Use the clips and spacers to keep the cable suspended off the bottom of the gutter. Clips should be attached every 3 ft (90 cm) along the roof.



DOUBLE RUN OF CABLE IN GUTTER-ONLY APPLICATIONS (GUTTERS WITH GUTTER SPIKES)



DOUBLE RUN OF CABLE IN GUTTER-ONLY APPLICATIONS (GUTTERS WITHOUT GUTTER SPIKES)

5

ROUTING THE CABLE IN DOWNSPOUTS

“Along run” downspouts

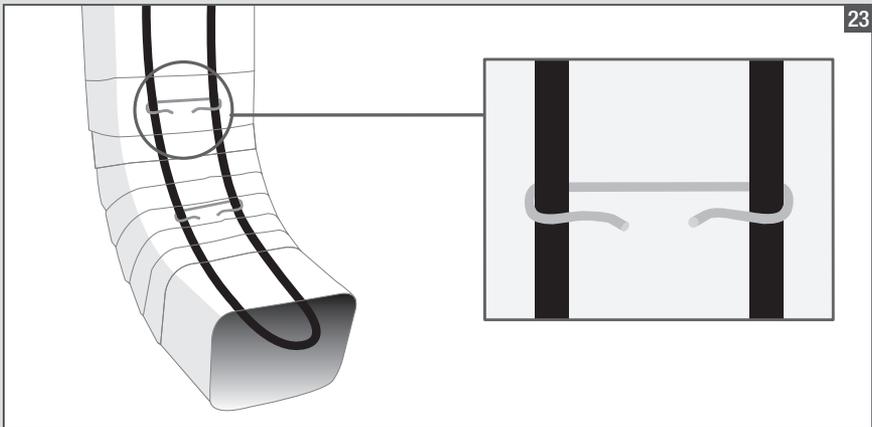
For downspouts that are along the run of the roofline being treated, the cable must be routed down and back up the inside of the downspout. Do not wrap the cable around the downspout or otherwise attempt to attach it to the outside. **Remember:** To avoid overheating the cable and increasing the risk of fire or electric shock, no part of the downspout may pass through a building.

You must first determine the total length of cable needed to go down and back up the downspout. It is important to measure as accurately as possible because the cable must be flush with the end of the downspout. No cable may be extended out the end of the downspout. Several different methods for determining the length may be used. One is to tie a small weight (such as a washer) to a string and lower it into the downspout. Once the string passes through the bottom of the downspout, mark the string as needed to record the length of the downspout. You will need twice this length of cable. (Note: For accurate results, use a string that does not stretch when the small weight is attached.)

Alternatively, you could also use a tape measure to measure each section of the downspout. To calculate the total cable needed, add the measurements in each section and multiply by 2.

Lastly, if it is not possible to use either one of these above methods, you may use the cable itself to estimate the length of cable needed in the downspout. However, to avoid snagging or cutting the cable on sharp edges, take care when pulling the cable into and removing it from the downspout. Inspect the cable for damage and do not use a cable that has been damaged.

Once you know the length of cable needed, the next step is to install spacers and feed the cable into the downspout. Spacers must be attached to the cable every 6 in. (15 cm) so that the cable does not touch itself in the downspout. You must tighten the spacers before the cable is installed in the downspout. You may do this with your fingers or pliers. If you use pliers, squeeze gently and use care to avoid pinching, crimping, cutting into or otherwise damaging the cable (see *Figure 18 on page 18*). Do not hammer to tighten the clips and spacers. Pull the cable into the downspout using a weighted string.



DOUBLE CABLE RUN IN “ALONG RUN” DOWNSPOUTS

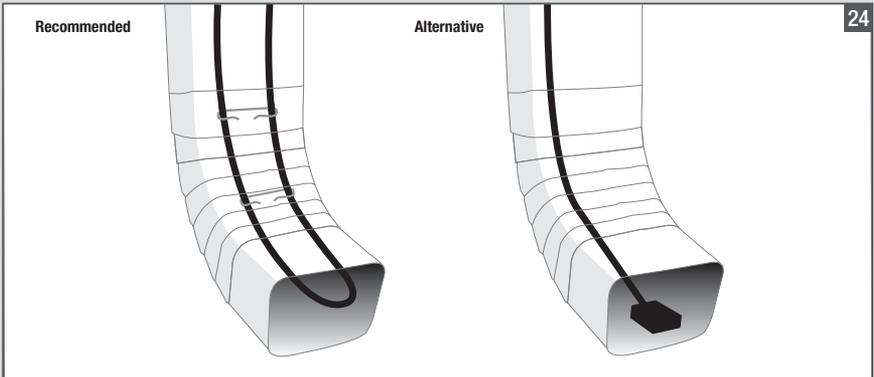
“End of run” downspouts

If a downspout exists at the end of the run of the roofline being treated, it is recommended the cable be routed down the inside of the downspout and back up. Do not wrap the cable around the downspout or attempt to attach it to the outside.

Pull cable into downspouts using weighted string. Be sure the run of cable is flush with the end of the downspout and that no cable is extended out the end of the downspout (see *Figure 24*). Remember: To avoid overheating the cable and increasing the risk of fire or electric shock, no part of the downspout may pass through a building.

If at this point you find that you have excess cable, triangles on the roof can be made larger (up to 20 ft [6 m] in height) or cable loops in valleys can be extended.

If you have a shortage of cable (the end of the cable does not reach to the bottom of the downspout), you may reduce the height of the triangles on areas of the roof that are less susceptible to ice dams. It is permissible in this scenario to only have a single run of cable in the end downspout, terminating at the end as shown in *Figure 24*.



CABLE IN “END OF RUN” DOWNSPOUTS

WARNING: To reduce the risk of fire electric shock or ice dam formation, do not cut splice or alter the de-icing cable in anyway. The cable length cannot be changed.

6

TIGHTENING THE CLIPS AND CABLE SPACERS

Tighten clips and spacers on the roof. You may do this with your fingers or with pliers. If you use pliers, squeeze gently and use care to avoid pinching, crimping, cutting into or otherwise damaging the cable (see *Figure 18 on page 18*). Do not use a hammer to tighten the clips and spacers.

Check to be sure the cable has not been moved from its intended position. The heated portion of the cable must be positioned entirely on the roof and must not touch, cross over or overlap itself.

USE

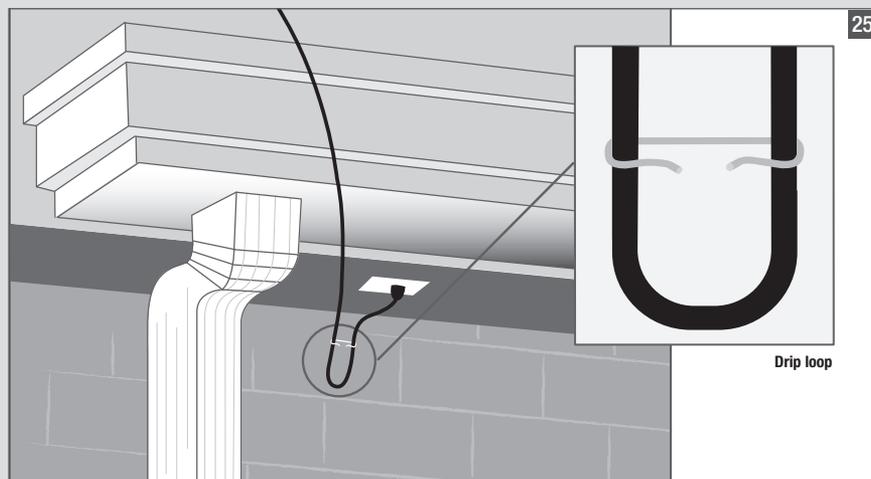
In addition to proper installation, proper use of the cable is needed to maintain a path for melted snow or ice to drain all the way to the ground.

WARNING: Failure to use and maintain the cable according to these instructions may result in ice dam formation or injury or death from fire electric shock.

PRE-SEASON CHECKS

At the beginning of the winter season, do the following:

1. **Check for and remove all combustible debris** from roof, gutters and downspouts, such as leaves, pine needles, seeds and windblown trash.
2. **Check to be sure the cable has not moved** from its intended position. The heated portion of the cable must be positioned entirely on the roof and must not touch, cross over or overlap itself.
3. **Without removing it from the roof, visually inspect the entire cable**, including the plug. Discontinue use and remove the cable if it shows any evidence of damage or deterioration, including cuts, brittleness, charring, cracking, discolored surfaces or bare wires. If there appears to be a problem inside a downspout, remove the cable to inspect it. Take care when removing cable from a downspout to avoid snagging or cutting the cable on sharp edges.
4. **If no damage is present, plug the power cord into the receptacle.** Arrange the cord to form a drip loop using a spacer (see *Figure 25*). The purpose of the drip loop is to prevent melt water from tracking along the cord and into the receptacle.
5. **Test all ground-fault protection devices** (see the instructions provided with the device).



FORMING A DRIP LOOP NEAR THE STARTING POINT

TURNING THE CABLE ON AND OFF

During the winter season, turn on the cable only when conditions are favourable for ice dams to form. The cable should only be operated when:

- **Snow or ice on the roof is melting, and**
- **The outside temperature is between -9°C and 2°C (15°F and 35°F).**

Below -9°C (15°F), very little melting will normally occur, and in very cold conditions, the cable may not generate enough heat in some roof sections to prevent melt water from refreezing. This may result in ice dam formation which may cause water to backup under your shingles.

Once turned on, the cable should be shut off when the melt/freeze condition stops, usually above temperatures of 2°C (35°F). The cable should be kept off until the melt/freeze conditions return.

The cable can be operated using an on/off switch (with an indicator light).

CHECKING OPERATION AND CONDITION OF CABLE

- During the winter season and when snow or ice on roof is melting, **check to ensure a complete path is available for melt water on the roof to get to the ground.** There should be no ice buildup above the cables, and gutters should not be clogged with ice. Icicles should not form at the roof edge.

If icing problems persist, the cable pattern may need to be adjusted to better suit melt/freeze conditions of your roof. Observe these conditions and adjust cable pattern (see *Planning on page 8*) when conditions are suitable (see *When to install the cable on page 4*).

To adjust your cable pattern, first unplug the cable. Then, identify areas where there is extra cable. This may include excess cable you had during the original installation or you may be able to reduce the cable in an area that is not as susceptible to ice dams. Remove the cable by opening the clips and spacers with pliers, as needed, to rearrange and supply more cable to the needed areas.

- During operation, **the ground-fault protection device may trip** if the cable is damaged or as a result of “nuisance tripping.” One way in which nuisance tripping can occur is if parts of the electrical circuit become wet. This can happen if driving rain or blowing snow enter the electrical receptacle. Use of a weather-proof in-use receptacle may help eliminate this risk (see *on page 7*).

Before resetting the ground-fault protection device and when weather and roof ice conditions allow, unplug and inspect the entire cable for damage. Remove and dispose of the cable if it shows any evidence of damage or deterioration, including cuts, brittleness, charring, cracking, discolored surfaces or bare wires. Do not use a damaged cable. If you cannot see damage on the cable, reset the ground-fault protection device. If the device trips again and there is no other explanation for it, call a licensed electrician to check the cable and the circuit. A licensed electrician can determine if the cable is damaged or if there is some other problem with your electrical system.

- As needed during winter season, **unplug the cable and check for and remove all combustible debris** from roof, gutters and downspouts, such as leaves, pine needles, seeds and windblown trash.
- About once a month during winter season, **unplug the cable and perform the same checks as outlined in the Pre-season check** section (See *on page 22*). Do these checks when weather and roof ice conditions allow.

RESETTING CIRCUIT BREAKER/REPLACING BLOWN FUSE

At any time during operation, if the circuit breaker trips or the fuse blows, stop using the cable. Unplug and inspect the entire cable for damage when conditions allow. Remove and dispose of the cable if it shows any evidence of damage or deterioration, including cuts, brittleness, charring, cracking, discolored surfaces or bare wires. Do not use a damaged cable. Even if you cannot see damage on the cable, assume it is damaged if you cannot find another cause for the tripped breaker or blown fuse.

OFF-SEASON INSTRUCTIONS

The de-icing cable may remain on the roof year-round. However, to avoid overheating the cable and increasing the risk of fire or electric shock, do not operate the cable when outdoor temperatures begin to remain above 10°C (50°F) (i.e., at the end of the winter season). To avoid accidentally turning the cable on, unplug it.

REMOVING THE CABLE

The de-icing cable must be removed prior to replacing roof shingles or starting roof repair. Other roof alterations, such as additions of antennae, flag poles, etc. in the area of the cable may require removal of the cable. Cable may also require removal for adjustment. Wait for conducive weather conditions to remove the cable. Then, unplug the cable. Open the clips with pliers and remove the cable. Take care when removing cable from a downspout to avoid snagging or cutting the cable on sharp edges.

Inspect the entire cable before replacing it on the roof. If cable is in good condition (no evidence of cuts, brittleness, charring, cracking, discolored surfaces, bare wires or other damage), it may be replaced on the roof, according to the instructions.

If a replacement de-icing kit is purchased, use only the new clips provided with it. Do not reuse the clips from the previous kit. The new cable may not be designed for use with the old clips. If the old clips are used, the cable may be inadequately secured or may be damaged.

Note that other models of de-icing cable may have different methods of removal. Follow the instructions provided with those cables.

APPENDIX

BASIC INFORMATION ABOUT ICE DAM FORMATION AND PREVENTION

How ice dams form

Snow and ice on a roof can thaw because of heat loss through the roof due to inadequate roof venting and/or insufficient ceiling insulation. In these cases, the roof surface above heated areas of the building is warm enough to melt the snow, while the roof surface above the overhang is cool enough to refreeze this melt water as it trickles down the roof. As a result, a layer of ice forms on this cooler, lower roof surface and in gutters. As snow continues to melt, the melt water flows downward and re-freezes at the roof edge. As this happens, ice builds up to several inches in thickness forming an ice dam. In addition to having ice dams along the roofline, structures such as skylights and dormers often have poor venting, and ice dams may form in the surrounding areas.

Signs of ice dams

Ice dams can be identified at points where snow has melted on an upper roof surface, but the roof area further down is still snow or ice covered. Icicles are also a sign of ice dams.

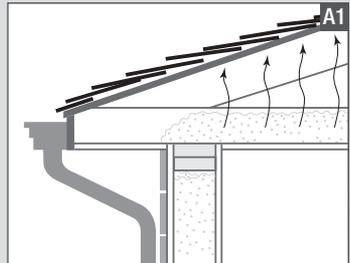
Damaging results

Ice dams prevent water from flowing off the roof. The melt water will pool at the ice dam instead, which can result in water seeping between shingles. Water that has seeped under the shingles can leak through roof penetrations, such as nail holes and sheathing seams, and inside the building walls and ceiling. The water can also flow along ceiling beams or wiring. Eventually, water can leak into the building interior at light fixtures or through the ceiling finishing at places other than below the ice dam's origin.

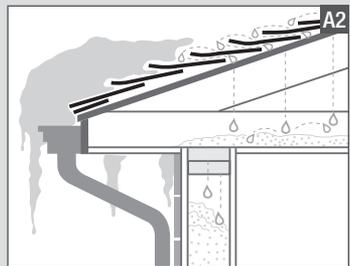
In addition, ice buildup in gutters can put significant stress on the gutter resulting in gutter damage.

How to avoid ice dams

To avoid ice dams, the entire roof surface should be kept at about the same temperature as the outside air. The best way to do this is to ventilate the space under the roof. However, this is often costly or impractical. In these cases, de-icing cables can be a cost-effective solution to ice dam problems. Placing de-icing cables on the roof edge above the overhang and in the gutters and downspouts prevents melt water from refreezing. This allows the melt water to have a clear path to flow to the ground and prevents water from leaking inside your home and damage to your gutter system.



ROOF HEAT CREATES POTENTIAL FOR ICE DAMS TO FORM



ICE DAM FORMATION AND THE CONSEQUENCES

°STELPRO LIMITED WARRANTY

This limited warranty is offered by °STELPRO Design Inc. (“°STELPRO”) and applies to the following product made by °STELPRO: model **SCRG**. **Please read this limited warranty carefully.** Subject to the terms of this warranty, °STELPRO warrants its products and their components against defects in workmanship and/or materials for the following periods from the date of purchase: **2 years**. This warranty applies only to the original purchaser; it is non-transferable and cannot be extended.

CLAIM PROCEDURE

If at any time during the warranty period the unit becomes defective, you must cut off the power supply at the main electrical panel and contact 1) your installer or distributor, 2) your service center or 3) °STELPRO's customer service department. In all cases, you must have a **copy of the invoice** and provide the **information written on the product nameplate**. °STELPRO reserves the right to examine or to ask one of its representatives to examine the product itself or any part of it before honoring the warranty. °STELPRO reserves the right to replace the entire unit, refund its purchase price or repair a defective part. Please note that repairs made within the warranty period must be authorized in advance in writing by °STELPRO and carried out by persons authorized by °STELPRO.

Before returning a product to °STELPRO, you must have a °STELPRO authorization number (RMA). To obtain it, call the customer service department at: **1-844-°STELPRO**. The authorization number must be clearly written on the parcel or it will be refused.

CONDITIONS, EXCLUSIONS AND DISCLAIMER OF LIABILITY

This warranty is exclusive and in lieu of all other representations and warranties (except of title), expressed or implied, and °STELPRO expressly disclaims and excludes any implied warranty of merchantability or implied warranty of fitness for a particular purpose.

°STELPRO's liability with respect to products is limited as provided above. °STELPRO shall not be subject to any other obligations or liabilities whatsoever, whether based on contract, tort or other theories of law, with respect to goods or services furnished by it, or any undertakings, acts or omissions relating thereto. Without limiting the generality of the foregoing, °STELPRO expressly disclaims any liability for property or personal injury damages, penalties, special or punitive damages, damages for lost profits, loss of use of equipment, cost of capital, cost of substitute products, facilities or services, shutdowns, slowdowns, or for other types of economic loss or for claims of a dealer's customers or any third party for such damages. °STELPRO specifically disclaims all consequential, incidental and contingent damages whatsoever.

This warranty does not cover any damages or failures resulting from: 1) a faulty installation or improper storage; 2) an abusive or abnormal use, lack of maintenance, improper maintenance (other than that prescribed by °STELPRO) or a use other than that for which the unit was designed; 3) a natural disaster or an event out of °STELPRO's control, including, but not limited to, hurricanes, tornadoes, earthquakes, terrorist attacks, wars, overvoltage, flooding, water damages, etc. This warranty does not cover any accidental or intentional losses or damages, nor does it cover damages caused by negligence of the user or owner of the product. Moreover, it does not cover the cost of disconnection, transport, and installation.

The warranty is limited to the repair or the replacement of the unit or the refund of its purchase price, **at the discretion of °STELPRO**. Any parts replaced or repaired within the warranty period with the written authorization of °STELPRO will be warranted for the remainder of the original warranty period. This warranty will be considered null and void and °STELPRO will have the right to refuse any claims if **products have been altered** without the written authorization of °STELPRO and if the nameplate numbers have been removed or modified. This warranty does not cover scratches, dents, corrosion or discoloration caused by excessive heat, chemical cleaning products and abrasive agents. It does not cover any damage that occurred during the shipping.

Some states and provinces do not allow the exclusion or limitation of incidental or consequential damages and some of them do not allow limitations on how long an implied warranty lasts, so these exclusions or limitations may not apply to you. This warranty gives you specific legal rights and you may have other rights which vary from state to state or from province to province.