

Retrofit Snow Melting Application Guide

A Step-by-Step Manual for Existing Concrete & Asphalt Surfaces

1. Introduction: Why Retrofit?

Installing a snow melting system doesn't always require a brand-new driveway. A retrofit installation allows you to add electric radiant heating to your existing surface, eliminating the need for salt, shovels, or snow removal services.

The Science of Snow Melting

Electric heating cables or mats are embedded into the surface. When snow falls, moisture and temperature sensors activate the system, melting snow on contact and evaporating the runoff to prevent refreezing. For asphalt surfaces, electric systems are preferred over hydronic (water-based) tubes, as electric cables can withstand the high temperatures 330°F to 450°F required during installation without melting.

2. Choosing Your Coverage

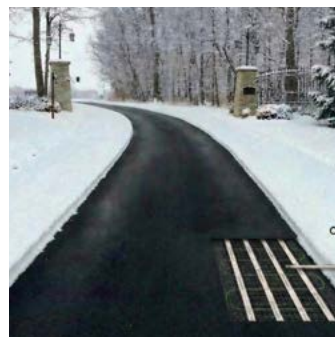
Before starting, decide on the layout that fits your budget and needs:

Full Coverage:

Heats the entire surface area. Ideal for walkways, entryways, or high-traffic areas.

Tire Tracks:

An economical option using two 2-foot wide heated paths. This reduces installation and operating costs while keeping the driveway passable.

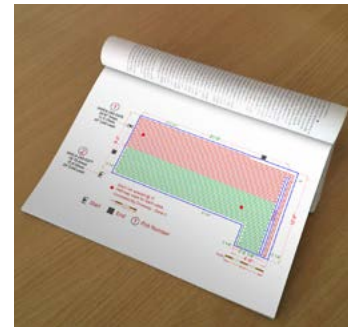


3. Preparation & Planning

Never start without a layout. WarmlyYours provides a SmartPlan, which is a professional installation guide prepared by engineers.

It includes:

- An itemized quote and electrical requirements.
- A detailed layout showing cable placement and “U-turns.”
- Locations for junction boxes and sensors.



4. The Installation Process (Step-by-Step)

Step 1. Measure and Mark the Saw Cutting Lines

Prior to beginning any digging, we suggest contacting a local utility locating/marking firm to make sure your project won't run into any gas, water, or electrical lines. Once that's done, you'll want to start with locating the area to be heated and then, marking the cable layout in that area according to the SmartPlan.

The recommended approach to marking the installation area is to spray paint the start and the end of the area with clear lines. Follow the spacing provided on the installation plan and mark the cuts with a chalk line. Ensure uniform spacing and verify the number of cuts as per the installation plan.

Pro Tip: While the chalk marking string is on the surface, spray the spray paint over the string to mark the position of the saw cuts. That will prevent the line from washing away and will provide a clear identification to ensure evenly-spaced and straight cuts.



Step 2. Preparing for Junction Box

Depending on the size and location of your project, it may require the use of one or more junction boxes. By reviewing your WarmlyYours SmartPlan, your electrician will be able to identify where the junction boxes for your snow melting system should be located. Make sure to mark and cut additional lines to exit points for the non-heating leads in the concrete slab or asphalt.

Please note that the cold leads of the heating cables must be protected by approved conduit as they exit the driveway and travel to the junction boxes. The junction box serves as an intermediary connection location between the heating element itself and the snow melting relay panel or control that you select. Making sure to establish the location of the junction boxes early on will allow you to make sure that all sequential steps are going according to plan.



Step 3. Making Room for Snow Melting Cables

Preferred Method: Saw Cutting Main Lines

Saw cut each line to achieve at least a 3/8" wide groove to fit a snow melting cable in. Multiple blades may need to be used to accomplish a wider cut. Test with a shorter cut first and use a cable to see if it fits in. Cuts need to be at least 1-1/2" deep, per National Electrical Code, and the cable should not run deeper than 2-3" from the surface to ensure proper performance. Plan a wider cut of about 9/16" or more for the 6" long factory splices at the beginning and end of the cable. Ensure the splice can be fully buried and placed at least 4" from the conduit opening. It may be a good idea to make the last run 5'-10' longer than needed to allow for any cable overruns.

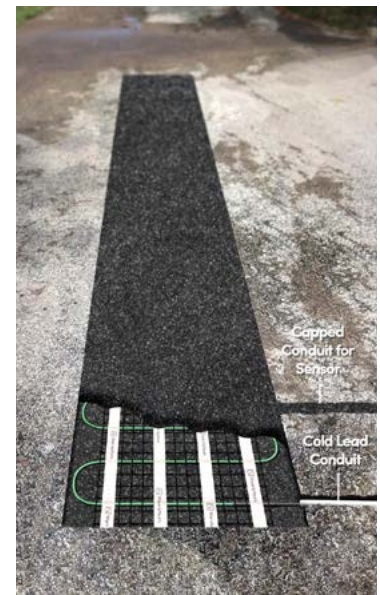
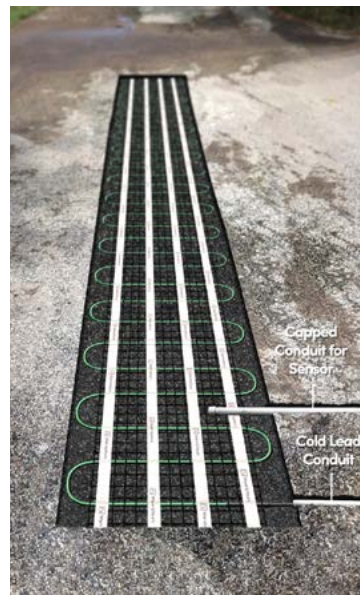


If an in-slab high temperature limit sensor will be used, this is the best time to plan one short groove equally spaced between two heating cables. Separate conduit should be used to protect the low voltage sensor wire and it must NOT be shared with any high voltage cold lead from the heating cable. The temperature sensor conduit should be capped off and the sensor itself installed within the conduit near the cap. This allows easy replacement of the sensor if required.



Alternative Method for Tire Track Format: Removing Trenches

If you're installing a snow melting system for tire track coverage during a retrofit installation, an alternative trenching method may be used. Remove 2-3" of the top asphalt layer that matches the length and width of the snow melt mats being used. Unroll the mats within the trenches and lay asphalt on top. Each trench needs to be at least 1.5" deep, per National Electrical Code, and the mat should not run deeper than 2-3" from the surface to ensure proper performance. Plan a cut about 9/16" wide or more for the 6" long factory splice at the beginning of the mat. Ensure the splice will be fully buried and is placed at least 4" from the conduit opening.



Step 4. Saw Cutting U-turns

Round the corners of cuts to allow smooth cable placing in the U-turns. This can be accomplished by making additional 45° cuts at the U-turns or doing a core drilling with a core drill bit with a diameter matching the cable spacing (typically 3"). Please note that core drilling will require much more filler than the saw cut method will.



Remove any sharp edges to avoid cable damage and clean the grooves with a high-power pressure washer. Allow to dry and ensure that the grooves are free of dust and debris.

Step 5. Test your System at Every Stage of Installation

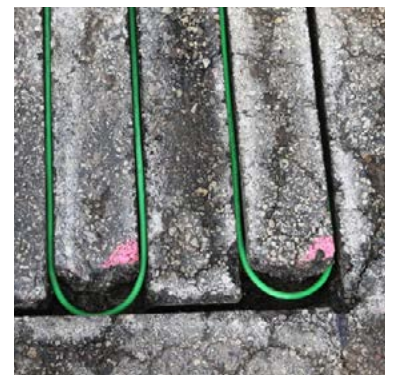
Testing your snow melting system with an ohmmeter and megohmmeter at every stage of installation will allow you to be certain that the heating element is functioning properly. Completing these tests, and recording your readings accurately, will also qualify your project for WarmlyYours' 10-year warranty. Make sure to consult your WarmlyYours snow melting installation manual for more information.



Step 6. Laying Out Snow Melting Cables

Install the conduit into the drive and run the leads into it and on into the junction box. Verify that factory splice will be 4" away from the conduit when installed, and start installing the cable into the grooves. Verify the length of cable used in the first run of grooves. If more cable was used than planned, coverage at the end will be reduced. If less cable was used, you may have too much cable for the last run. This is why we suggest an extra long groove cut for the last run, so that it will accommodate any extra cable. It is easier to make an extra cut while the cutter is there than it is to get the contractor back out to make additional cuts afterwards.

Do not try to pull on the cable to slide it through the grooves. Do not compress or strain the cable, run heavy machinery, equipment, or vehicles over it. Any of these actions could damage the cable.



Step 7. Make Sure the Manufacturer's Splice is Embedded

In this project, two separate heating cables (one in each tire track) are set up so that they 'begin' on the same side. This allows for one junction box to carry power to the cables. Power is carried to each mat by a non-heating 'cold lead', which is connected to the heating cable via a manufacturer's splice.

One of the most common snow melting installation mistakes that people make is leaving this splice, and some of the heating cable, outside of the asphalt (sometimes people leave it in the conduit or simply leave it exposed). This can cause the splice, which is half heating element, to overheat and fail. By simply making sure that the splice is embedded correctly in the asphalt, you'll help ensure a problem-free installation. Be careful to avoid stepping on or applying pressure to the factory splice or endcap.



Step 8. Filling The Grooves

Fill all cuts with hot asphaltic sealer for asphalt retrofits, or expansion joint sealer (SikaFlex or similar) for concrete retrofits. Make sure this step is done in accordance with the filler manufacturer's recommended procedures. A top seal-coat is not necessary, though it can be applied for aesthetic reasons.



05. Controls & Sensors

Choose a control system that fits your lifestyle:

- Automatic: Uses aerial or slab sensors to turn on the moment snow is detected.
- We recommend the SCP-120 or Zonebraker controls that utilize a slab over-temperature sensor. Your local code may require a sensor of this type.



6. Post-Installation Maintenance

Once installed, the system is virtually maintenance-free. Monitor the first few snowfalls to ensure the "after-run" timer is set long enough to evaporate all remaining moisture, leaving the driveway clean and dry.

Contact Information

Support: (800) 875-5285

Web: www.warmlyyours.com

Warranty: 10-Year Limited Warranty
(ensure your test logs are submitted!)