TECH Series Snow Melting Mats — Homeowner's Guide and Installation Manual — SNOW-MAT

TECH-Series Snow Melting Mats and Cables are designed to provide sufficient heat to melt snow in residential and commercial applications across Canada. They are constructed of the finest heating cables available, and are bound to a heavy mesh backing that will withstand the rigors of construction site installations.

The TECH-Series Snow melting Mats and cables consist of a solid copper, twin conductor cable with a resistance wire element and a return wire, wrapped in a layer of thermoplastic insulation. The insulation element is further protected by a tinned copper grounding shield. The armored heating element is then woven to a 1" open fiber mesh that can be easily formed and adapted to almost any geometrical shape, to suit your walkway, landing or ramp. The mats and heating cables are factory bonded to a 16' (4.9M) long cold lead for ease of installation. This design utilizes the most advanced materials and is the most easily installed mat or cable available for residential or commercial renovation and new construction.

TECH-Series Snow Melting Mats and Cables are CSA listed for OUTDOOR SNOW MELTING APPLICATIONS.

They are warranted to be free from manufacturers defect for 20 years (see written Limited Warranty for details). Maintenance free, safe, silent, energy efficient and once installed, it is totally out-of-sight. While a variety of controls can be used with TECH-Series Snow Melting Mats, we strongly recommend using a snow sensor and in slab thermostat with a remote bulb temperature sensor. This form of control affords the greatest comfort, energy efficiency and control of your installation.

These features are only a few of those which make TECH-Series Snow Melting Mats and Cables the most versatile, easy to install, and most reliable snow melt system available.

The following pages will provide you with an overview of how the TECH-Series Snow Melting Mat works, how it is installed and maintained. Take a few moments to review this information. If you have further questions, one of our application engineering professionals will be happy to assist you.

Owner's Information

General Instructions:

The electrical connection of the TECH-Series Snow Melting Mat must be preformed by a qualified electrician in accordance all National (NEC), State and Local Electrical Codes. Most installers should be able to provide you with a plan of the system installation. We suggest taking a photo of the heating elements and the location of the optional floor temperature sensor previous to covering the elements along with the electrical description of the system. Keep the photos for your system and a copy of these instructions for future reference. Future homeowners should also receive this information. The Snow Mats are designed to operate with 240 volt system. To optimize the efficiency of the system never bury the mat deeper then 3" (76mm) in concrete or asphalt. Interlocking stone or bricks should be no more than 3" (76mm) thick with a 1" (25mm) thick layer of sand or screening underneath. Make sure your installation is planned to use the mats or cables only in the areas where snow melting is required. Do not install them under lawns or city sidewalks.

Snow Sensing:

We recommend the use of an automatic snow sensor to sense temperature, freezing rain, and falling or blowing snow. This makes the system fully automatic and will ensure the area will be clean all the time.

Temperature Control:

A thermostat which monitors and controls the temperature through a remote sensor is mounted in the ramp, driveway or sidewalk at the time of installation. It is required in all installations. The system will not be warranted without this type of temperature controller. The thermostat will also save energy by only providing the amount of heat necessary to melt snow or ice.

Temperature Controls come in many different varities and are designed to sense remotely.

Maintenance:

Periodically, the listed GFEP (Ground Fault Equipment Protection) which is required in all installations, should be tested (if the unit design allows) to insure its continued operation. TECH-Series Snow Melting Cables have no moving parts. The system is virtually maintenance free. If the system does not appear to be heating properly, refer to the trouble-shooting guide. For further trouble-shooting needs, call your installer.

Installer's Guide to Installation

General Instructions:

These instructions must be followed when assembling and installing the Snow Melting system. Make them available to the installer working on the project and when finished turn them over to the homeowner for future reference. Failure to follow these instructions may void the warranty on the installed system.

Considerations:

The electrical connection of the heating system and the thermostat should be done only by a qualified electrician in accordance with the National Electrical Code and with local codes. To assure safety, the TECH-Series Snow Melting System **must** be connected to the electrical service via a listed GFEP (Ground Fault Equipment Protection).

The heating system may be installed in concrete, asphalt and under interlock or marble driveways. Do not install in loose gravel. The Mat and Cables must be covered by a permanent surface. Do not walk on the unprotected Mat or Cable.

Penetrating fasteners such as nails or screws may not be installed through the areas of the Mat or Cables

The Mat's heating element should not be laid across expansion joints of ramps. While installing the TECH-Series Snow Melting Mat, avoid crimping or bending the heating element wire.

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Testing the System Resistance:
Before setting the heating Mat or cables, measure the resistance with an Ohmmeter (see chart) and note the value on the system installation sticker that should be attached to the distribution panel. After completing the heating system installation, measure the system's resistance again with the Ohmmeter. Compare the new reading with the first measurement to assure they are identical and no damage has occurred to the Snow melting Mat during installation. Mark the measured resistance on the attached card and fasten to the circuit breaker box (distribution panel).

IMPORTANT: The system warranty may be cancelled without evidence that the system resistance has been tested or the data is not filled in on the Control Card below.

The TECH-Series Snow Mats are designed to operate on 240 volts.

TECH-Series Snow Melting Mat

Operating Voltage 240V

PRODUCT	AREA (Sq. ft.)	WIDTH (ft) of Mat	LENGTH (ft) of Mat	POWER (watts)	LOAD (Amps.)	RESISTANCE (ohms)
SMMT- 970	24.0	1.5	16.0	970	4.0	59.4
SMMT- 1440	36.0	1.5	24.0	1440	6.0	40.0
SMMT- 1950	49.0	1.5	32.0	1950	8.1	29.5
SMMT- 2160	54.0	1.5	36.0	2160	9.0	26.7
SMMT- 2890	72.0	1.5	48.0	2890	12.0	19.9
SMMT- 3900	97.0	1.5	65.0	3900	16.3	14.8
SMMT- 4330	108.0	3	36.0	4330	18.0	13.3
SMMT- 4870	122.0	3	41.0	4870	20.3	11.8

TECH-Series Snow Melting Control Card

Cat Ref No :

Test	Before commencing installation	After installation but before final surface	After final surface
Continuity			
Resistance of Cable (Ohms)			
Insulation Resistance (M Ohms)			

Address of Installation :

Date of Installation :

Name and Signature of Qualified Electrician :

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NOTE: To avoid damage to the heating element during installation, care must be taken that tools with sharp edges or points are not dropped or used carelessly on the element. Do not drive loaders, wheelbarrows, cars or trucks over the cables. These are electric elements. Care must be taken to avoid costly repairs or cancellation of the warranty.

For electrical connections use the correct gauge of wire as listed in the National Electric Code. To determine amperage, add up the wattage of each Mat or Cable and divide by the volts.
Example: 5200 w / 240V =22 amps.
Use 10 gauge wire to connect.
A GFEP must be installed on all cables.

IMPORTANT: Cold leads from remote temperature sensors must also be wired in accordance with all National (NEC), state and local electrical codes. If EXTENSIONS or SPLICES are required for heating cables or remote sensors, follow all National (NEC), state and local electrical codes. All junction boxes must be visible and accessible pre NEC Code.

The National Electrical Code (NEC) requires that cold leads must be protected in a listed conduit when they extend outside the heated area (see also local codes). Plastic bushings should be used where cold leads and sensors enter conduit to protect the wires.

IMPORTANT: The slab sensor should be secured in the heated area only after heating mats and cables have been secured to the sub-base. This will allow you to place the sensor properly between the heating element wires.

Positioning the Heating Mat
Start to layout the heating mat from an area adjacent to the thermostat or junction box. Ensure cold leads and temperature sensor can reach the flush mounted electrical box where the thermostat will be installed.
Heating cables must not cross or overlap at any point. The heating cable length may NOT be cut or altered under any circumstances. This will cause over heating and result in damage to the system.
Mats should be separated from others

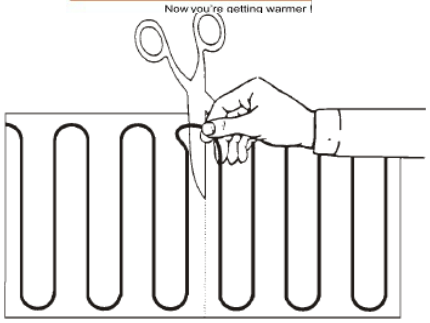
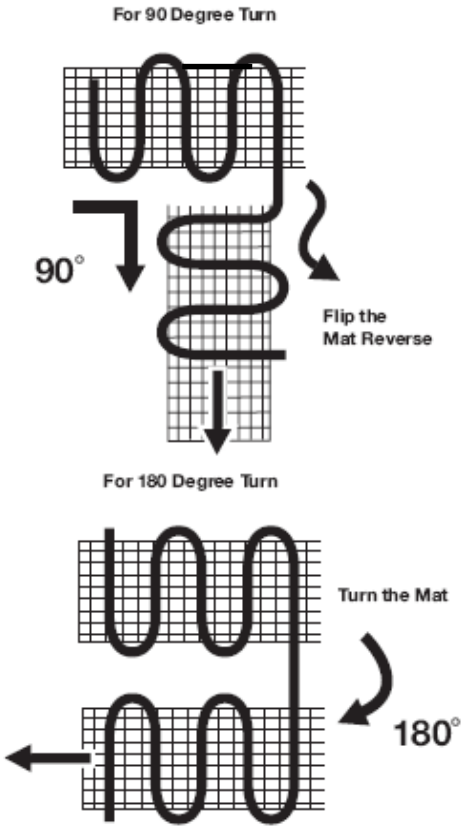
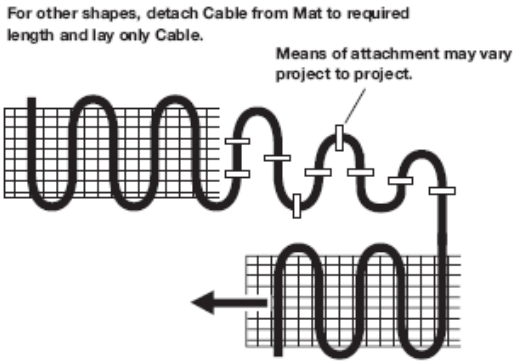


Figure 4 Cutting heating mat.

heat sources that may hinder operation and/or possibly damage the product.

Laying Out the Snow Melting Mat
Make sure the area is completely free of all debris including all nails, sharp metallic objects, wood and construction debris.
Start from the location of the power connection box. Roll out the Heating Mat with cable side up, and secure the mesh onto the sub-base with Clip Strips or U clips. For rebar or grid use plastic zip ties (supplied by the installer). As needed, cut the mesh backing between the heating elements wire to create the desired layout shape.





while cutting, be sure to cut only the mesh and to avoid nicking or damaging the heating element wires.

Ensure the entire element is encased in the sidewalk, ramp or driveway material. Only the cold lead and temperature sensor tube can protrude beyond the heated area.
IMPORTANT: At no time may the heating element wire be cut.

For snow melting on stairs or uncommon geometric areas, please contact your TECH-Series representative for information on Snow Melting Cables.

ELEMENT SPACING

Dimension A and B should be equal when possible. Dimension A Should never be less than 60% of dimension B

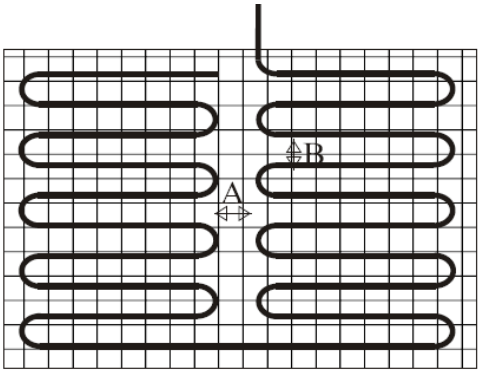


Figure 5

MPORTANT: The mesh may overlap but the heating element wire must never overlap.

Minimum bend radius of the cables is 2 inches (5cm).
Do not install the mat below –15º C (5º F).

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Covering the Heating Mat or Cables

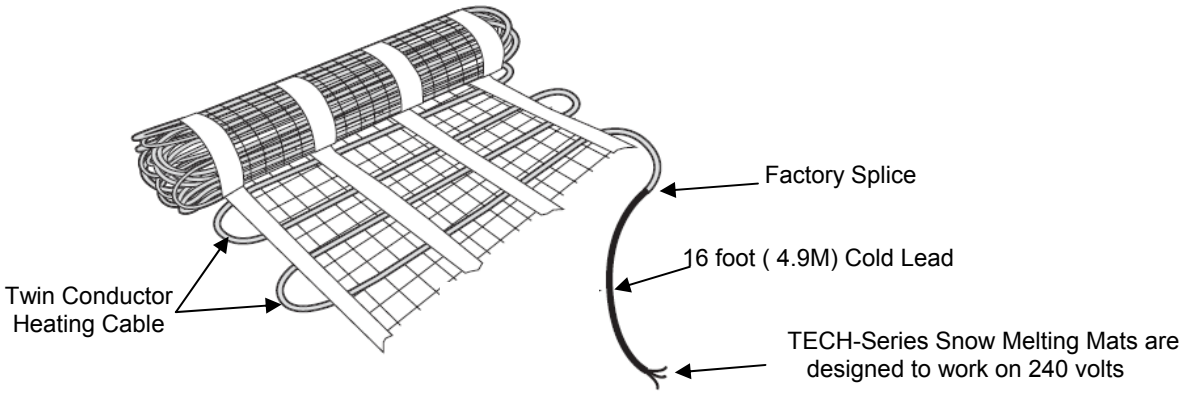
The Heating system may be covered with concrete, asphalt or interlock. When covering the system do not move or place heavy loads such as wheel loaders, tampers, wheelbarrows, cars, trucks, skids of brick, stone, or cement or mixers on the cable or mat.

BE CAREFUL!! Shovels and rakes can damage the cables.

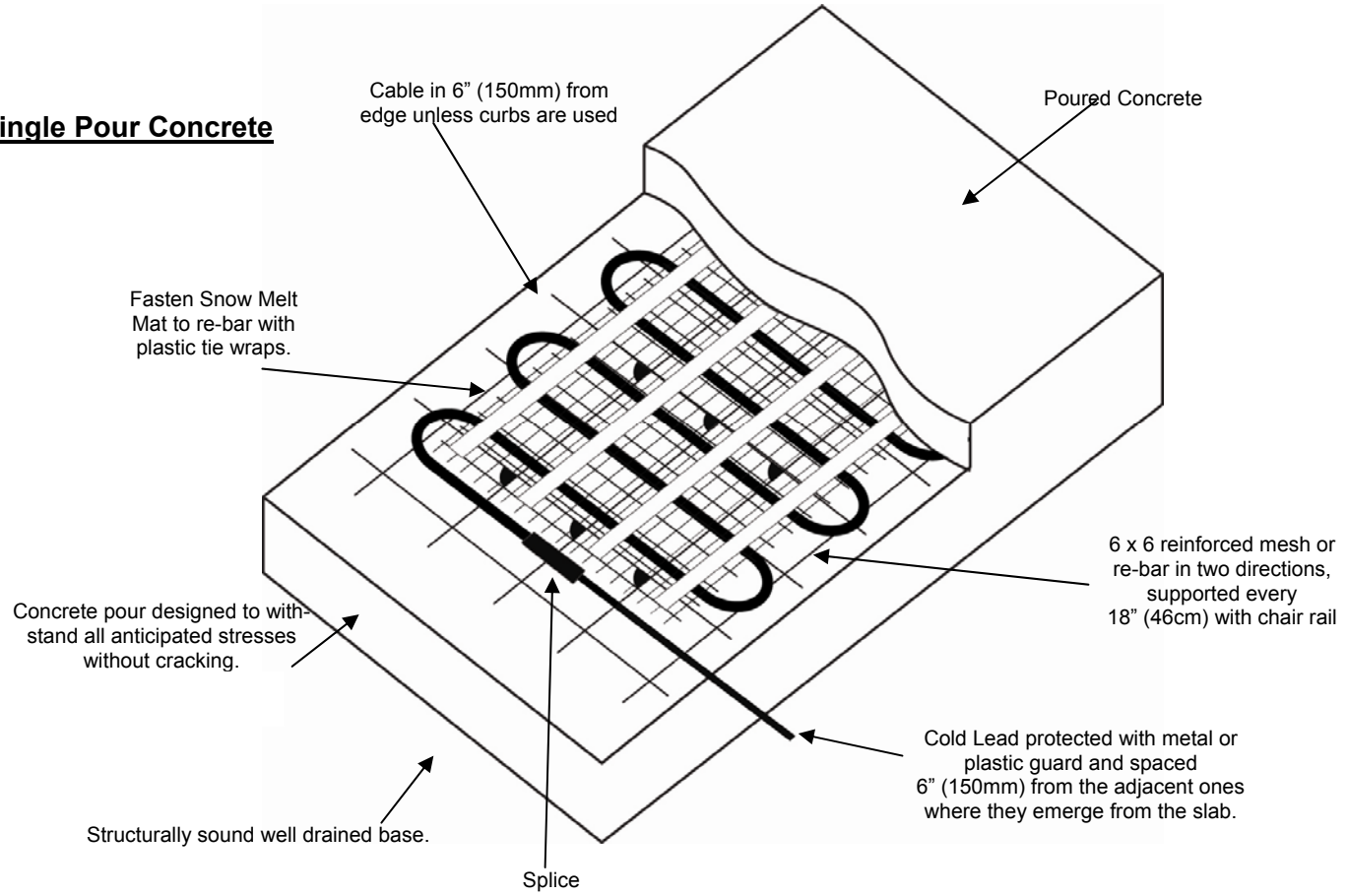
Should access with heavy equipment be required, carefully move the mats or cables away from the path of the heavy loads, cover the furthest area with the surface material and work back towards the road.

Ensure the entire Heating Cable, factory splice and thermostat sensor are embedded into the cement, asphalt or sand. Allow a sufficient drying or curing period of the concrete or asphalt before turning on the system, to prevent failure of the system.

For snow melting on stairs, small areas or uncommon geometric areas, please contact your TECH-Series representative for information on Snow Melting Cables.



Single Pour Concrete



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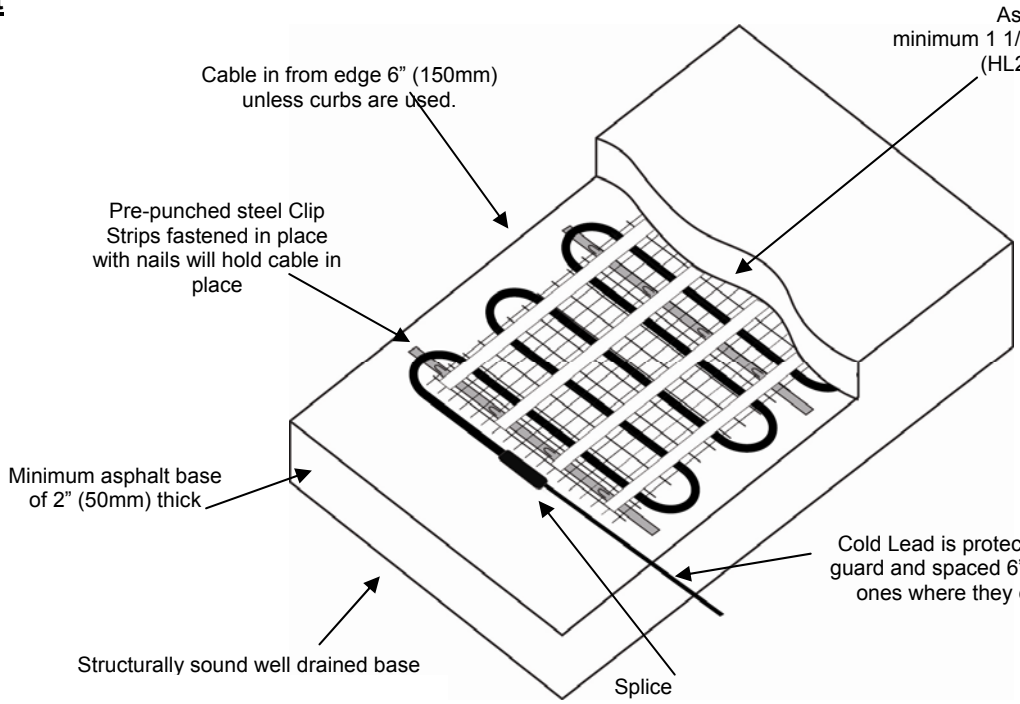
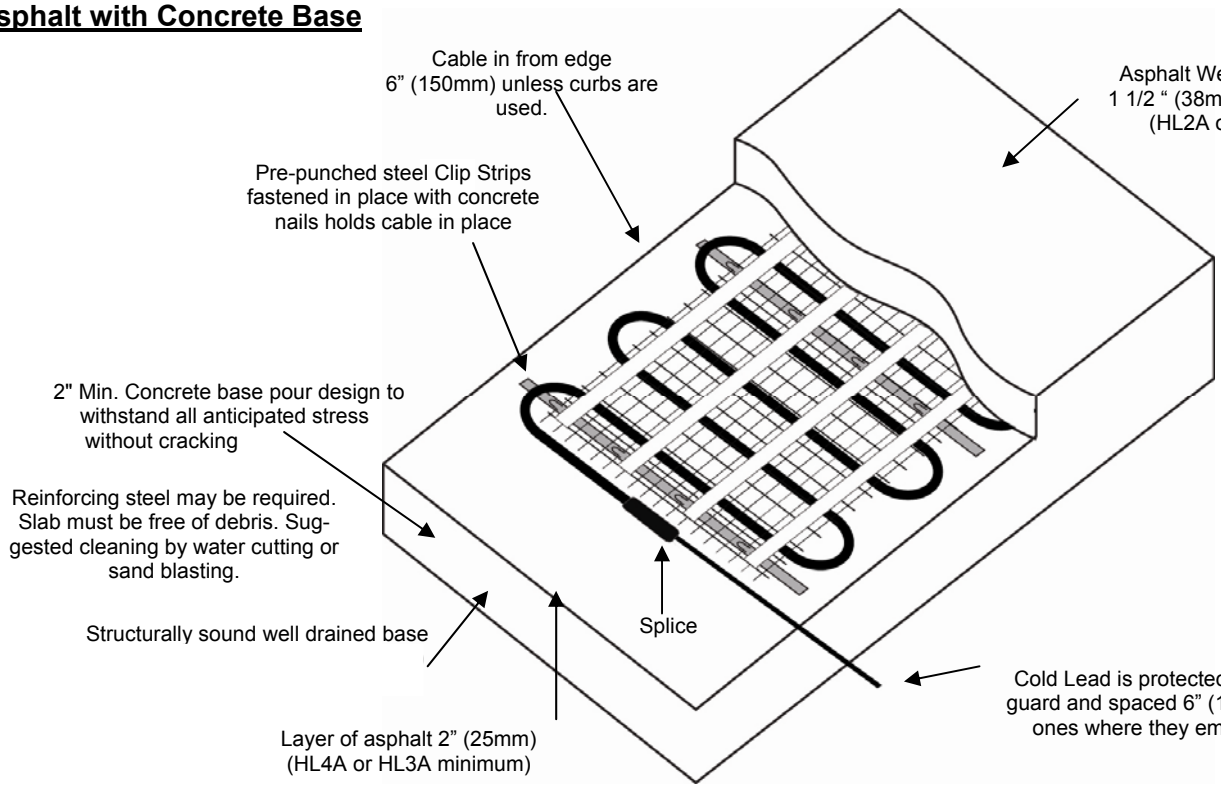
Asphalt



A layer of asphalt at least 1" (25mm) thick must be placed over the mat and cable manually and rolled with a maximum 1 1/2 ton (1400kg) roller to protect cables from equipment during paving.
If wear course is to be machine laid, use pneumatic tired equipment

Asphalt with Concrete Base



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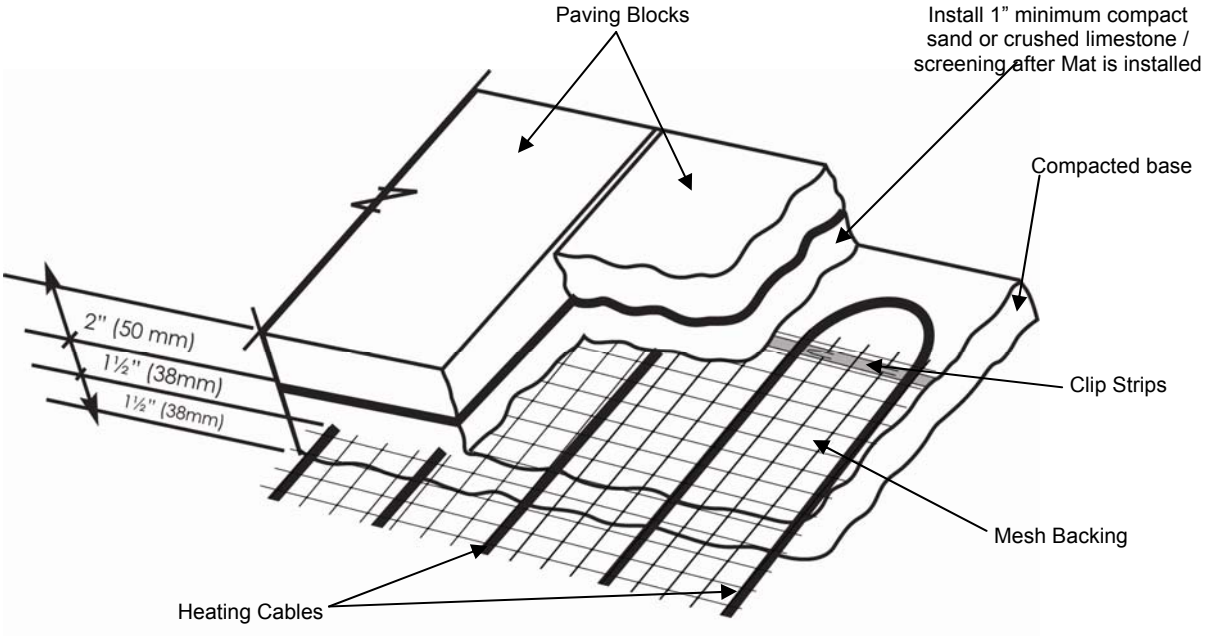
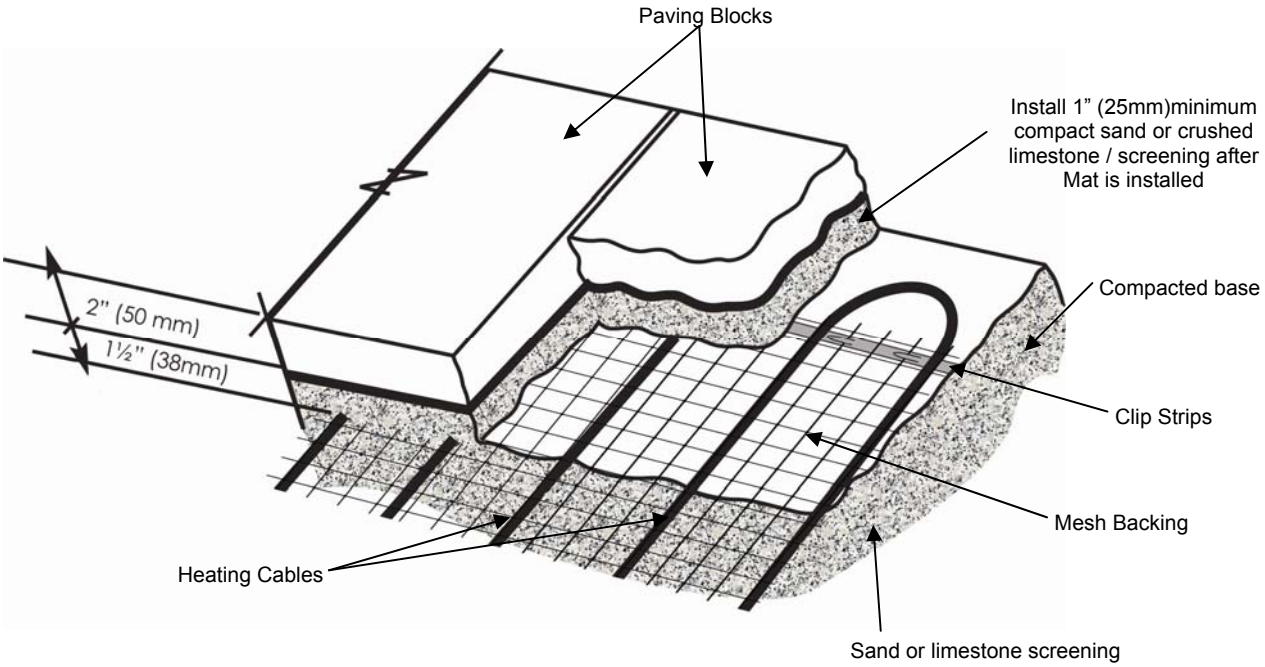
Pavers on Concrete



Pavers on Crush Run



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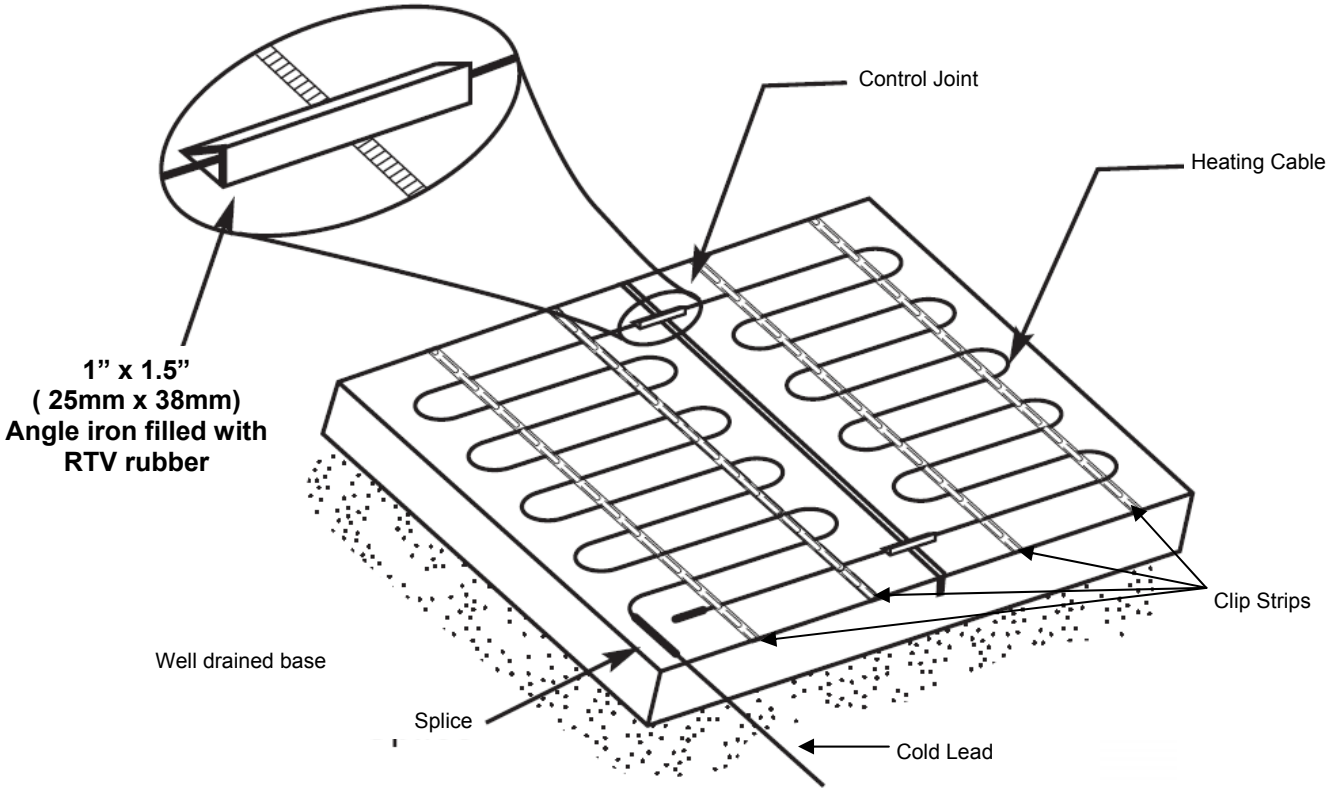
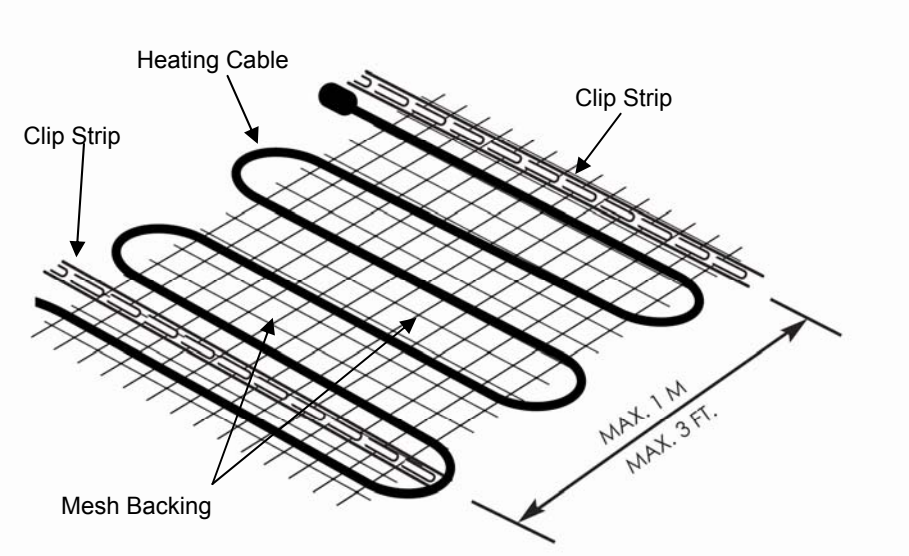
Control Joint



Clip Strip



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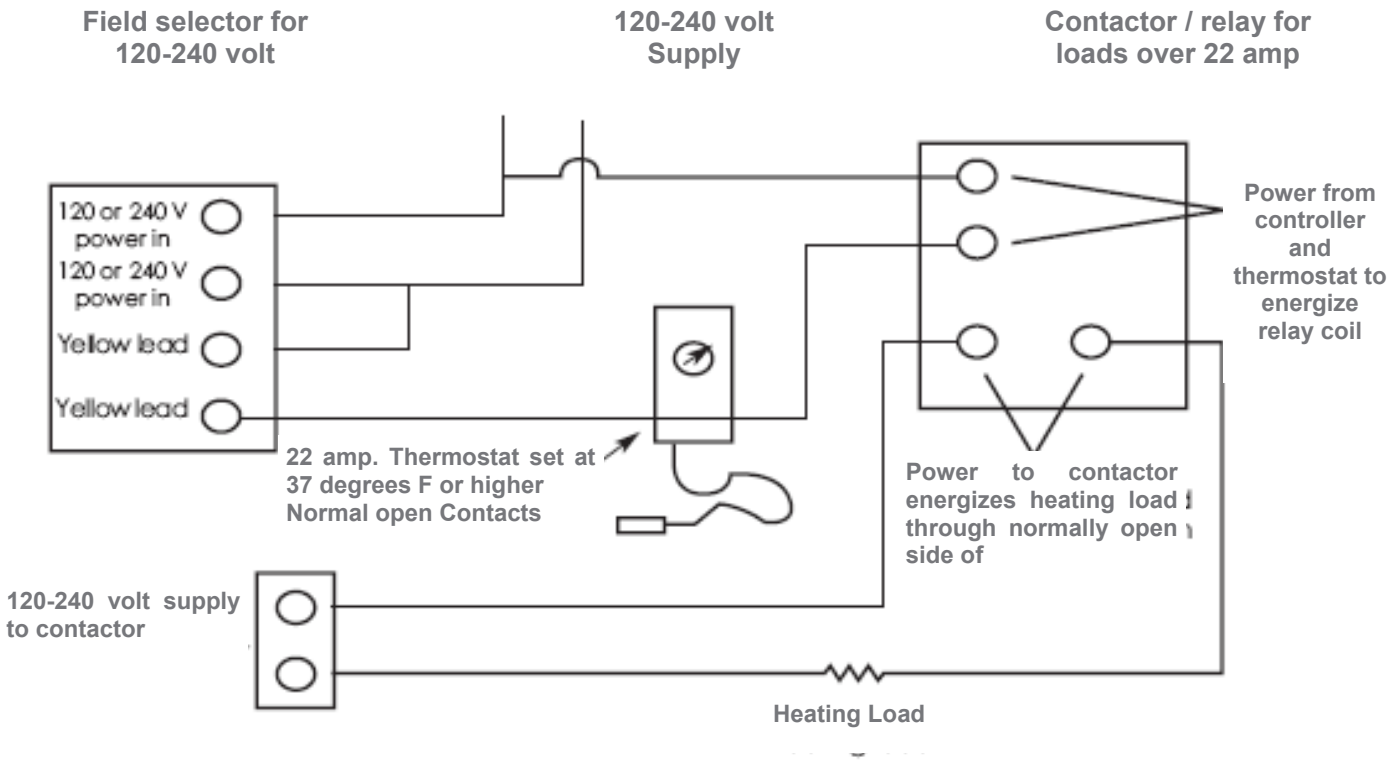
SNOW MELT CONTROL—120 to 240 volt

Maximum 22 amp. 240 volts supply to sensor and thermostat

DS-2B



Check instruction manual to ensure the timer, temperature settings and dip switches are set.

Timer should be set for 90 minutes “ON”.

Temperature switch to be set to 34 to 35 degrees F. (1-1.5 C.)

Dip switches set as following:

LTC	OFF
DEL	ON
RAIN	OFF
SNOW	ON

FAILURE TO ACCURATELY SET ALL FUNCTIONS WILL RESULT IN POOR PERFORMANCE.

Trouble Shooting

CAUTION: TURN OFF ELECTRICITY BEFORE TROUBLESHOOTING SYSTEM

1. If the system fails to heat, make sure the GFEP (Ground Fault Equipment Protection) did not trip. If it has, contact your installer for further testing.

2. Your installer can check for continuity with an Ohmmeter. Compare the reading with the resistance marked on the Warranty Card. Lack of, or reduced continuty may indicate a break in the system.

3. If your system fails to heat and the GFEP has not tripped, call your installer. They can verify the breaker is supplying power to the system. Have the Model Number of your system ready before calling tech support. This can be found on the Invoice, Packing List or Warranty Card that should be on site.

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