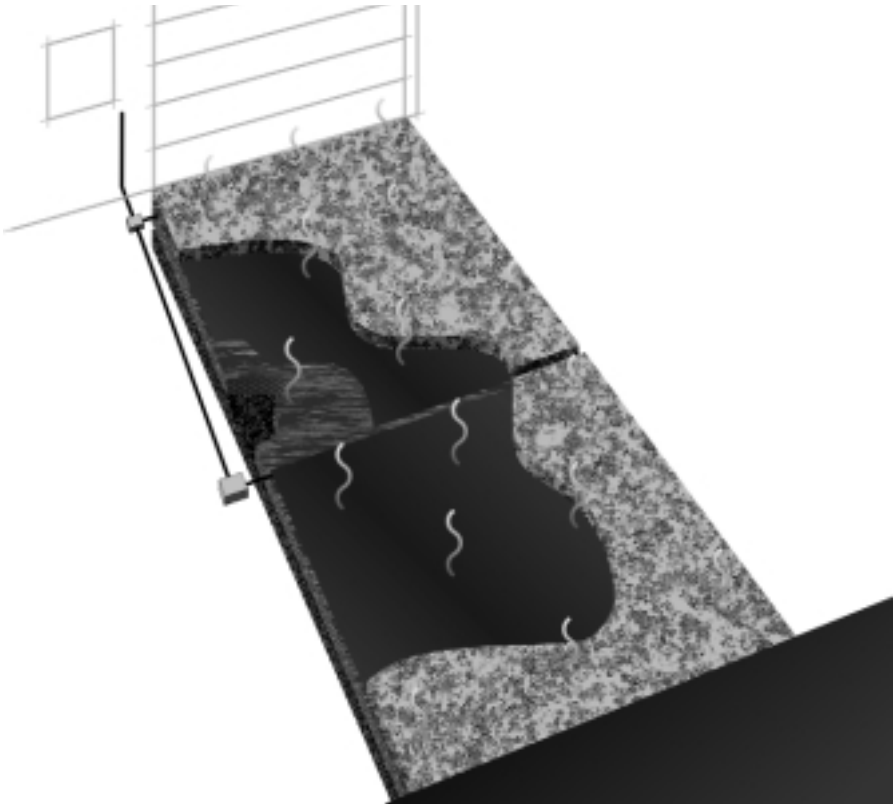




Embedded Snow & Ice Melting System



Installation Manual

Before Installing

- Installation of this system must be made in accordance with National Electrical Code Article 426 - Fixed Outdoor Electric Deicing and Snow-Melting Equipment.
- Install all wiring in accordance with all national and local codes pertaining to outside wiring.
- For installation under concrete only.
- Do not install this system under tarmac or other hot-pour surfacing materials.
- Do not incorporate any other outdoor electrical equipment in any branch circuit which feeds this heating system.
- This system must be connected to an electrical branch circuit incorporating a ground fault circuit interrupter (GFCI) rated for equipment protection.
- Heating mats must never be run through or across expansion joints.
- Do not run power leads, other electrical wiring or any other material between the heating mats and the surfacing material.
- Special care must be taken to ensure that expansion joints do not extend into the heating elements. Elements which are damaged are shock and fire hazards. If possible, order elements sized so that the expansion joints can be cut between the elements and leave one inch (2.5 cm) between the elements.
- **WARNING:** Ensure that adequate drainage is provided for water runoff.

Components

- **Calorique heating mats.** Supplied by Calorique or authorized distributor. See the following section for specifications of heating mats.
- **Electrical control device.** Supplied by Calorique, automatically turns the system on and off based on the temperature, humidity, and presence of precipitation. This unit is a double-pole line voltage unit that meets National Electrical code requirements.
- **Overcurrent Protection.** User / installer supplied. The circuit breaker used with this system must have an overcurrent rating of 30 amps and an integral GFCI rated for 30mA equipment protection.
- **Wiring and conduit.** User / installer supplied. As required by national and local code for outdoor installation.
- **Junction boxes** certified for use in outdoor, buried applications.
- **Insulation** (rigid foam or radiant barrier) User / installer supplied. When using rigid foam, the insulation must have the following properties:
 - Walkways: one inch (2.5 cm) or thicker with a minimum strength of 25 psi.
 - Driveways and other vehicular traffic areas: two inches (5.0 cm) or thicker with a minimum strength of 60 psi.
- **Warning labels.** Supplied by Calorique or authorized distributor.
 - **Element Labels.** Mounted on the non-heating leads. Both labels must remain in place as they supply necessary information about the elements. If the leads are cut to length, the trimmed-off label must be reattached within two inches (5.0 cm) of the end of the cable.
 - **Junction Box Label.** Must be attached to the junction box.
- **Stakes.** Supplied by Calorique or authorized distributor.
- **Warranty Card.** This card must be filled out and returned to Calorique to ensure proper registration of the warranty.
- **Specification Sheet.** Provides specifications for all heating elements included with the system.

Heating Mat Specifications

Part Number	Width Length		Voltage (volts)	Power (watts)	Current (amps)
	(inches)	(feet)			
SLB22-192W240V-2	22	2	240	192	0.8
SLB22-384W240V-4	22	4	240	384	1.6
SLB22-576W240V-6	22	6	240	576	2.4
SLB22-768W240V-8	22	8	240	768	3.2
SLB22-960W240V-10	22	10	240	960	4.0
SLB34-288W240V-2	34	2	240	288	1.2
SLB34-576W240V-4	34	4	240	576	2.4
SLB34-864W240V-6	34	6	240	864	3.6
SLB34-1152W240V-8	34	8	240	1152	4.8
SLB34-1440W240V-10	34	10	240	1440	6.0
SLB46-384W240V-2	46	2	240	384	1.6
SLB46-768W240V-4	46	4	240	768	3.2
SLB46-1152W240V-6	46	6	240	1152	4.8
SLB46-1536W240V-8	46	8	240	1536	6.4
SLB46-1920W240V-10	46	10	240	1920	8.0

System Layout

Figure 1. Heating elements wired in parallel. ↻

Layout the system based on the following:

Residential Sidewalks and walkways

- In most cases, one heating mat is all that is needed to melt snow and ice from the width of a standard residential sidewalk or walkway.

Figure 2. Cross section of system (sand base not shown). ↻

- More than one length of heating mat may be required to heat the entire length of the sidewalk or walkway. In this case, you will need to wire the mats according to Figure 1.

Residential Driveways

- A typical residential driveway is effectively kept ice free by installing one length of heating mat underneath only the area where automobile tires travel. This helps reduce power consumption and energy cost.

Figure 3. Typical residential driveway. ↻

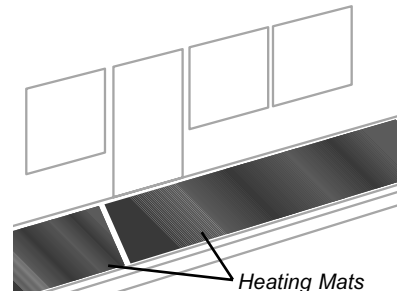
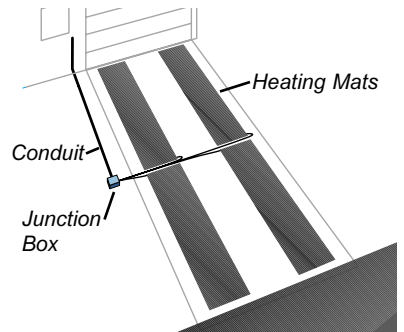
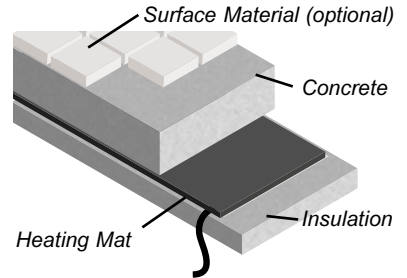
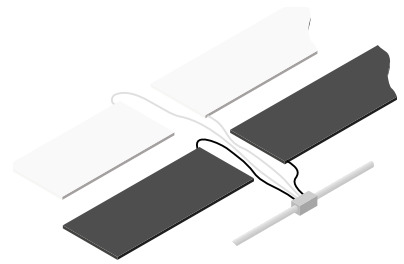
- For complete coverage of driveway surfaces, use multiple heating mats arranged next to each other.
- More than one length of heating mat may be required to heat the entire length of the driveway. In this case, you will need to wire the mats according to Figure 1.

Industrial / Commerical Driveways, Roadways and Walkways

- For complete coverage of surfaces, use multiple heating mats arranged next to each other.

Figure 4. Commercial walkway. ↻

- More than one length of heating mat may be required to heat the entire length of the sidewalk or walkway. In this case, you will need to wire the mats according to Figure 1.



Installation

1. Using an accurate ohm meter, test each element to ensure that it is within the limits shown on the specification sheet.
2. Grade area to be heated as normal. Remember to grade down an extra amount equal to the thickness of the insulating material used.
3. Lay insulation in those areas which will be heated.
4. Place heating mats on the insulation per the layout you prepared.
 - Push the supplied stakes through the grommets on the heating elements, into the sand or insulation base below. This will secure the elements while the concrete is being poured.
 - The heating mats must run flat and smooth on the insulation.
 - Do not crease, fold or otherwise alter the shape or length of the heating units.
 - Ensure that elements are laid out with “this side up” label facing up.
5. Pour the concrete as normal.
 - Take extra care not to dig into the heating mat surface or otherwise damage the heating mats.
 - Ensure that the heating mats do not fold when surfacing material is poured.
 - Do not use the heating mats to accelerate the curing of the surfacing material as this may lead to cracks and other structural defects.
 - Crown or pitch the driveway normally to direct melt water flow.
6. Prepare the face of the concrete normally, including the cutting of expansion joints. You may add stone, tile, texture, or other surfaces to the concrete in accordance with the manufacturer's instructions.

When cutting expansion joints, ensure that the blade does not contact the heating elements.

7. Confirm the resistance of the system by performing another ohm check with an accurate ohm meter and comparing it against the figures provided on the specification sheet. This check ensures that no damage has occurred to the elements during the installation process.
8. Make electrical connections between the heating mats and the branch circuit wiring per the layout you prepared, making sure to take into account all applicable electrical regulations.

Operation

The Calorique Embedded Snow & Ice Melting System is easy to operate. Simply turn on the system during winter months and the control will automatically activate the mats when it detects moisture and the temperature drops below 38°F (3°C). For more detailed information about the control, see its separate manual.

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