



Perfectly Clear™

Exterior Concrete Embedded Snow and Ice Melting System

FOR CONCRETE WALKWAYS, DRIVEWAYS AND PAVER SYSTEMS

INSTALLATION AND OPERATION INSTRUCTIONS

Calorique

MANUFACTURED USING UL RECOGNIZED COMPONENTS

PCCED 2016

Perfectly Clear™

Exterior Concrete Embedded Snow and Ice Melting System

2 YEAR LIMITED WARRANTY

Calorique LLC warrants that its ***Under Concrete De-Icing System*** is free of defects in materials and construction and conforms to any other warranties to the extent made mandatory by law.

If that customer believes that a shipment of product fails to satisfy the above warranty, that customer must contact Calorique LLC in writing within 2 years after that customer receives the shipment, including a detailed explanation of the alleged nonconformity. If Calorique LLC reasonably determines that the shipment did not satisfy the above warranty, then AS Calorique LLC'S EXCLUSIVE LIABILITY AND THE CUSTOMER'S SOLE REMEDY, Calorique LLC WILL, WITHIN A REASONABLE PERIOD OF TIME, REPAIR THE PRODUCT, REPLACE THE PRODUCT WITH THE SAME OR SIMILAR PRODUCT, WHICH Calorique LLC MAY ELECT IN ITS SOLE DISCRETION.

This warranty does not apply if Calorique LLC reasonably determines that the product has been cut, added to or otherwise altered, stored improperly, misused, damaged, or installed improperly.

Except as expressly provided in this Limited Warranty, the customer is responsible for the cost of labor, service calls, insurance, shipping, installation costs and any other expense or damage incurred.

THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER REPRESENTATIONS, WARRANTIES, OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, AND OF ANY OTHER OBLIGATION OR LIABILITY ON THE PART OF Calorique LLC, WHETHER BY STATUTE, CONTRACT, STRICT LIABILITY, TORT OR OTHERWISE.

Calorique LLC IS NOT RESPONSIBLE FOR ANY INCIDENTAL, CONSEQUENTIAL, MULTIPLE, PUNITIVE OR INDIRECT DAMAGES OR LOSS, LOSS OR DAMAGE TO OR LOSS OF USE OF FACILITIES OR OTHER PROPERTY, OR FOR LOST PROFITS OR LOST REVENUE, WHETHER BASED UPON WARRANTY, STATUTE, CONTRACT, STRICT LIABILITY, TORT OR OTHERWISE. Calorique LLC SHALL IN NO EVENT BE LIABLE FOR THE PERFORMANCE OF, OR COST OF PERFORMING, THE REMOVAL OR INSTALLATION OF THE PRODUCT OR ANY PRODUCT OR MATERIAL INTO WHICH IT IS INSTALLED, INCORPORATED OR ADDED. THE CUSTOMER IS RESPONSIBLE FOR THE COST OF LABOR, SERVICE CALLS, INSURANCE, SHIPPING, INSTALLATION COSTS AND ANY OTHER EXPENSE OR DAMAGE INCURRED.

IN NO EVENT SHALL Calorique LLC'S MAXIMUM LIABILITY EXCEED THE PURCHASE PRICE FOR THE RELEVANT SHIPMENT OF PRODUCT, EXCEPT TO THE EXTENT MADE MANDATORY BY LAW.

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Exterior Concrete Embedded Snow and Ice Melting System

PRIOR TO INSTALLATION

- Installation of this system must be made in accordance with National Electrical Code Article 426 - Fixed Outdoor Electric De-icing 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 Equipment Protection (GFEP).
- 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.
- Check the resistance reading upon receipt of the material. If the resistance reading is not within 3% of the recorded information on the label, do not install the product and contact your supplier.

COMPONENTS

- **PerfectlyClear Exterior Concrete Embedded De-Icing Heating Mats by Calorique LLC.** Supplied by Calorique LLC or authorized distributor. See the following section for specifications of heating mats.
- **Manufactured with UL Recognized Components**
- **Electrical control device.** Recommended and supplied by Calorique LLC, automatically turns the system on and off based on the temperature, humidity, and presence of precipitation. It also modulates the power provided to the elements to ensure the maximum ice and snow melting potential with the lowest operating cost and is a double pole line voltage unit that meets National Electrical code requirements.
- **Wiring and conduit.** User / installer supplied. As required by national and local code for outdoor installation.
- **Junction boxes.** User/installer supplied, certified for use in outdoor, buried applications.
- **Rigid Foam Insulation.** User / installer supplied.
 - Walkways: one inch (2.5 cm) or thicker with a minimum strength of 25 psi.
 - Driveways and other vehicular traffic areas: two inches (5.0cm) or thicker with a minimum strength of 60 psi.
 - For installations involving thicker concrete pour or more layers it may be required to install a thicker insulation with a higher R factor to insure efficient heating.
- **Warning labels.** Supplied by Calorique LLC or authorized distributor.
- **Product 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.
- **Tape.** User/Installer supplied. Use of tape is suggested to secure mats and insulation in place.
- **Junction Box Label.** Must be attached to the junction box.
- **Warranty Card.** This card must be filled out and returned to Calorique LLC to ensure proper registration of the warranty.
- **Specification Sheet.** Provides specifications for all heating elements included with the system.

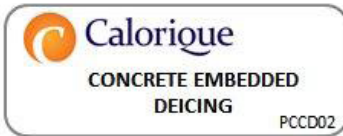
WARNING LABELS

Apply warning stickers provided with mats in appropriate locations, as shown below. these labels are an integral part of this heating system and must be installed for warranty to be in force.



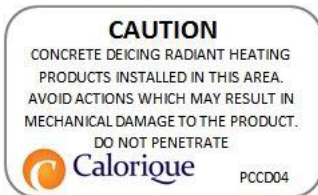
PCCD01

To be affixed to the outside of the Panel Breaker Box



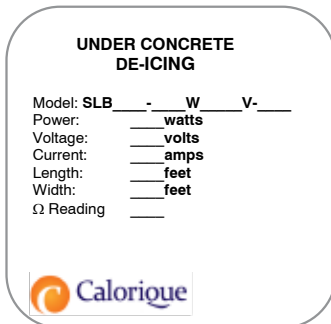
PCCD02

To be affixed to the controller unit



PCCD03

To be affixed to the interior junction box where resistance can be checked



PRODUCT LABEL

To be affixed within 3" of each end of the non heating leads

POWER CHART

| Part Number | Width (inches) | Length (feet) | Voltage (volts) | Power (watts) | Current (amps) |
|--------------------|---------------------------|--------------------------|----------------------------|--------------------------|---------------------------|
| SLB11-50W240V | 11 | 2 | 240 | 50 | 0.21 |
| SLB11-101W240V | 11 | 4 | 240 | 101 | 0.42 |
| SLB11-126W240V | 11 | 5 | 240 | 126 | 0.52 |
| SLB11-151W240V | 11 | 6 | 240 | 151 | 0.63 |
| SLB11-170W240V | 11 | 7 | 240 | 170 | 0.71 |
| SLB11-195W240V | 11 | 8 | 240 | 195 | 0.81 |
| SLB11-220W240V | 11 | 9 | 240 | 220 | 0.92 |
| SLB11-246W240V | 11 | 10 | 240 | 246 | 1.02 |
| SLB22-139W240V | 22 | 2 | 240 | 139 | 0.58 |
| SLB22-279W240V | 22 | 4 | 240 | 279 | 1.16 |
| SLB22-348W240V | 22 | 5 | 240 | 348 | 1.45 |
| SLB22-418W240V | 22 | 6 | 240 | 418 | 1.74 |
| SLB22-470W240V | 22 | 7 | 240 | 470 | 1.96 |
| SLB22-540W240V | 22 | 8 | 240 | 540 | 2.25 |
| SLB22-610W240V | 22 | 9 | 240 | 610 | 2.54 |
| SLB22-679W240V | 22 | 10 | 240 | 679 | 2.83 |
| SLB34-226W240V | 34 | 2 | 240 | 226 | 0.94 |
| SLB34-453W240V | 34 | 4 | 240 | 453 | 1.89 |
| SLB34-566W240V | 34 | 5 | 240 | 566 | 2.36 |
| SLB34-679W240V | 34 | 6 | 240 | 679 | 2.83 |
| SLB34-764W240V | 34 | 7 | 240 | 764 | 3.18 |
| SLB34-878W240V | 34 | 8 | 240 | 878 | 3.66 |
| SLB34-991W240V | 34 | 9 | 240 | 991 | 4.13 |
| SLB34-1104W240V | 34 | 10 | 240 | 1104 | 4.60 |

SYSTEM LAYOUT

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.
- 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 (see Figure 2). This helps reduce power consumption and energy cost.
- 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 / Commercial Driveways, Roadways and Walkways

- For complete coverage of 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 sidewalk or walkway. In this case, you will need to wire the mats according to Figure 3.

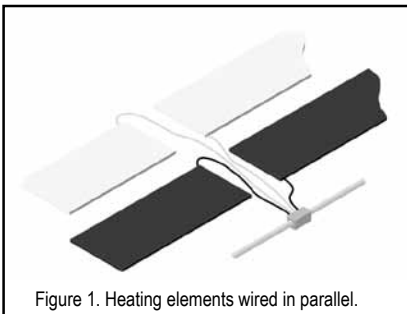


Figure 1. Heating elements wired in parallel.

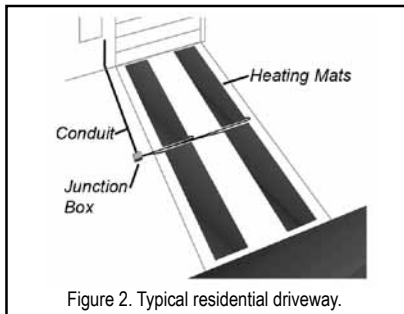


Figure 2. Typical residential driveway.

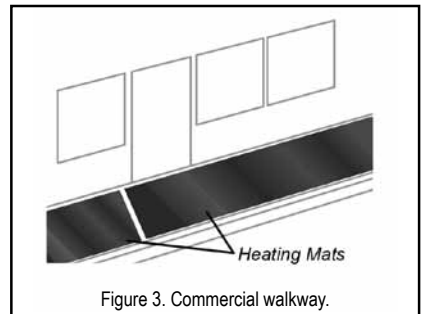


Figure 3. Commercial walkway.

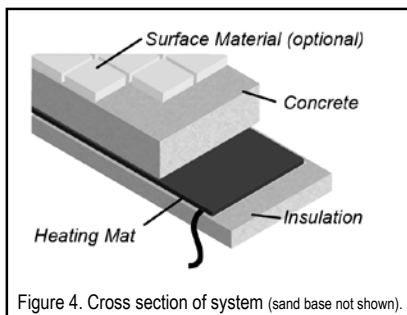


Figure 4. Cross section of system (sand base not shown).

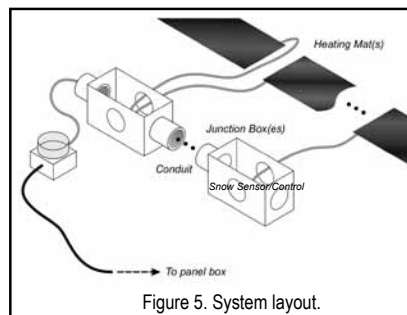


Figure 5. System layout.

INSTALLATION AND OPERATION

1. Using an accurate ohm meter, test each element to ensure it is within the limits shown on the product label. Record the readings on the System Checklist and Warranty Registration Form shown on Page 8.
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 pre-pared.
 - Tape the Heating Mats to the Insulation in order to secure the elements while the concrete is being poured.
 - The heating mats must run flat and smooth on the insulation.
 - Do not overlap, 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. Record the readings on the System Checklist and Warranty Registration Form shown on Page 8.
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.

PerfectlyClear by Calorique LLC Embedded Snow and Ice Melting System is easy to operate. Simply turn on the system during winter months and the control will automatically activate the mats when conditions turn icy. For more detailed information about the control, see its separate manual.

PAVERS INSTALLATION AND OPERATION

1. Perform resistance check and grade area as indicated in above instructions for concrete
2. Lay insulation in those areas which will be heated. If a sand base is to be used, add the sand and tamp normally before laying the insulation
3. After installing insulation and heating elements as in above instructions for concrete, then add a thin layer of sand (1 inch minimum) over the elements to cushion them from the pavers. Next, lightly tamp the sand to smooth it down. Special note: Do not use pneumatic or hydraulic machinery to tamp this layer of sand.
4. Lay pavers normally
5. Take resistance readings and enter into Warranty Registration form

The Calorique LLC ***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 conditions turn icy. For more detailed information about the control, see its separate manual.

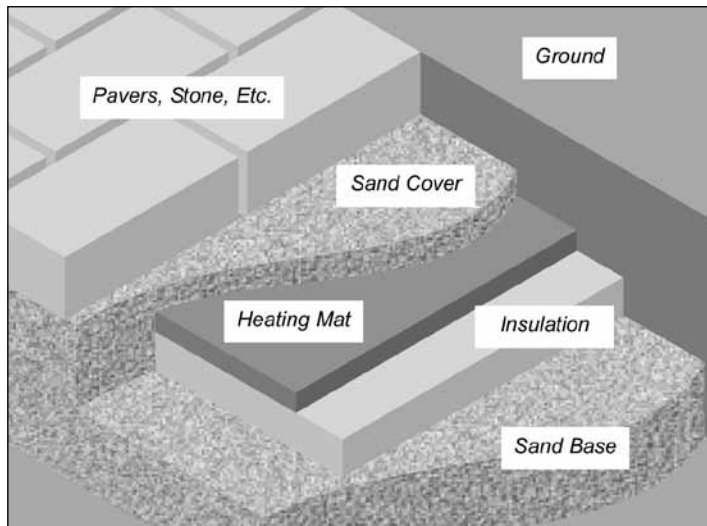
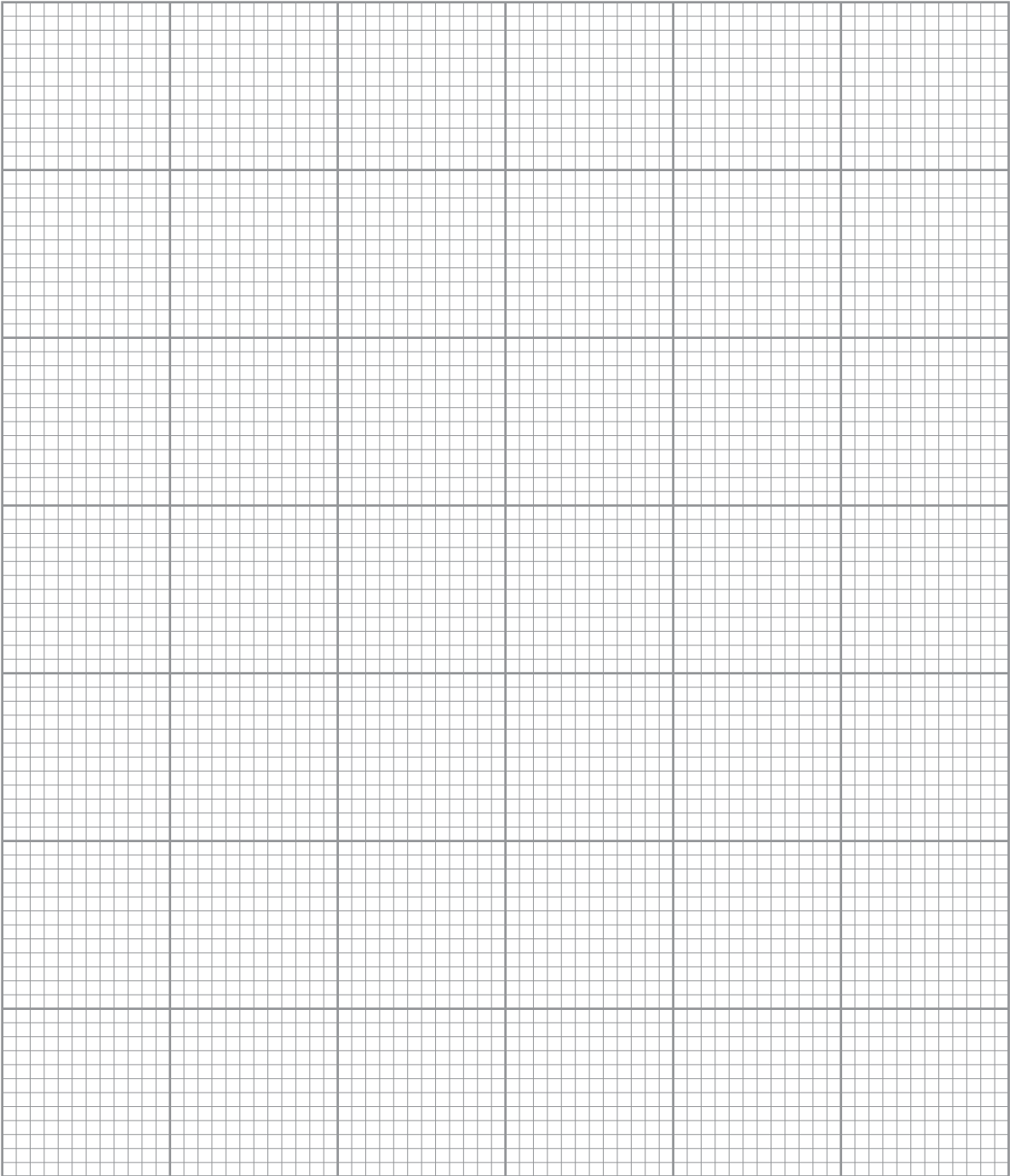


Figure 6. System cross section

Sketch Grid



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