



TempZone™ Custom Mat
Electric Radiant Floor Heating System
Installation Manual



Free Design Service • 24/7 Installation Support • No Nonsense™ Warranty
(800) 875-5285 • www.WarmlyYours.com

INSTALLATION INSTRUCTIONS FOR WARMLYYOURS CUSTOM MATS

WARNING

READ ALL OF THE INSTRUCTIONS BEFORE BEGINNING INSTALLATION. FAILURE TO OBSERVE THE WARNINGS COULD RESULT IN DEATH OR INJURY FROM ELECTRICAL SHOCK OR FIRE. MAT FAILURE, IMPROPER OPERATION, OR FLOOR DAMAGE MAY ALSO BE A RESULT. A MAT WARRANTY IS PROVIDED (PER NOTED TERMS) BASED ON THE INSTALLATION BEING DONE IN ACCORDANCE WITH THESE INSTRUCTIONS. IMPROPER INSTALLATION MAY VOID WARRANTY.

Inspection

Electrical inspection may be required during and/or after heating mat installation. BEFORE BEGINNING INSTALLATION, contact your local electrical and building inspection authorities for more information. Local codes may require this mat and/or the thermostatic control to be installed or connected by an electrician. WarmlyYours requires all electrical connections be made by qualified personnel and in accordance with the National Electrical Code (NEC) or Canadian Electrical Code (CEC) and all applicable local codes and ordinances.

Application

The WarmlyYours mat has been designed to warm hard surface materials such as ceramic and porcelain tiles, marble, granite, slate, laminate, and engineered wood flooring. WarmlyYours mats are designed for use inside residential and light commercial buildings.

DO NOT use the WarmlyYours custom mat for applications other than for embedded indoor floor warming.

DO NOT use the WarmlyYours custom mat with carpet, solid wood, linoleum or vinyl floors.

DO NOT energize the WarmlyYours custom mat until it is embedded in thinset masonry and the masonry has cured per manufacturer's recommendations.

DO NOT cut or modify the WarmlyYours custom mat to fit the area.

DO NOT overlap WarmlyYours custom mats.

DO NOT use staples to hold or secure the cold lead or thermostat sensor wire.

DO NOT attempt to repair a damaged heating mat, call WarmlyYours for instructions before proceeding further.

DO NOT unroll and install mat when it is colder than 0C° (32F°).

DO NOT cross construction or expansion joints.

WarmlyYours custom mats provide comfort warming. WarmlyYours custom mats are approved to standard C22.2 No 130-03 and carry a –X rating, suitable for indoor embedded floor surface heating in dry locations; residential kitchens, basements, and bathrooms (not shower areas) are considered dry locations. WarmlyYours mats must be connected to a ground fault protection device. WarmlyYours thermostats include ground fault protection, if this thermostat is not used, the mat must be connected through a separate ground fault protection device.

Operational Notes

- The wire spacing and power output of each WarmlyYours mat is custom designed and also thermally balanced in multi-mat applications. The power output of each mat will be between 12-15 watts per square foot.
- Each floor is unique and will heat at a different rate. As such, it may take as little as 30 minutes or as long as 3 hours to reach the optimum temperature; possibly longer under certain conditions.
- WarmlyYours recommends using a floor sensing thermostat to regulate floor temperature. WarmlyYours offers a variety of programmable thermostats which allow the mats to be automatically shut off at night or when you are away from home.
- If the overall floor surface feels unusually hot when the system is energized, or if the circuit breaker trips when the system is energized, the mat may be damaged. De-energize the system immediately and contact WarmlyYours. Never bypass a tripped ground fault device.

Planning Ahead

- To reduce the potential for tile cracking, ensure the subfloor structure is built strongly enough to accommodate the tile (slate, granite, etc.) and tiling method selected. Your local tile retailer may be able to help with such information. The ANSI, the TTMAC [Tile Terrazzo Marble Association of Canada] and the Tile Council of North America have published standards available which provide detail on recommended methods of flooring construction. If using metal mesh, always fully cover the mesh with a layer of thinset prior to laying the mat, as the mesh edges are sharp enough to damage the heating mat.
- When installing the mat on a floor which is over an unheated area, it is recommended that the area below the floor be insulated. If left uninsulated, the finished floor may not be able to achieve comfort temperatures due to heat loss below.
- When installing the mat on top of a concrete slab, it is recommended to insulate the slab surface, between the slab, and the heating mat to limit heat loss (refer to the applicable building code for slab insulation requirements). If left uninsulated, the finished floor may not be able to achieve comfort temperatures due to the heat sink effect of the slab.
- Warmly Yours recommends that the mat(s) be installed on a dedicated 20 amp circuit and controlled by an nSpiration series line voltage ground fault thermostat. There are instances where the load requirements of the mats installed may exceed the dedicated circuit rating. In these instances, divide the load (area) into zones and use multiple thermostats or use thermostat relays on multiple circuits controlled via one thermostat. Consult with the local electrical authority for approved methods. Contact WarmlyYours for control options.
- Ensure electrical junction boxes are properly positioned so that the leads from each mat will be able to reach into and extend 6" beyond the box. A large volume single-gang 2" x 4" box is usually suitable for 1 or 2 mat installations. A 4" x 4" double gang box (with a single gang plaster or mudring) is recommended for installation with 2 or more mats.

Take Pictures and Keep Notes of Installation Detail

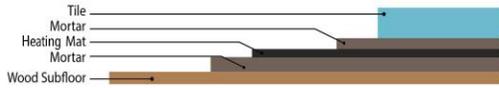
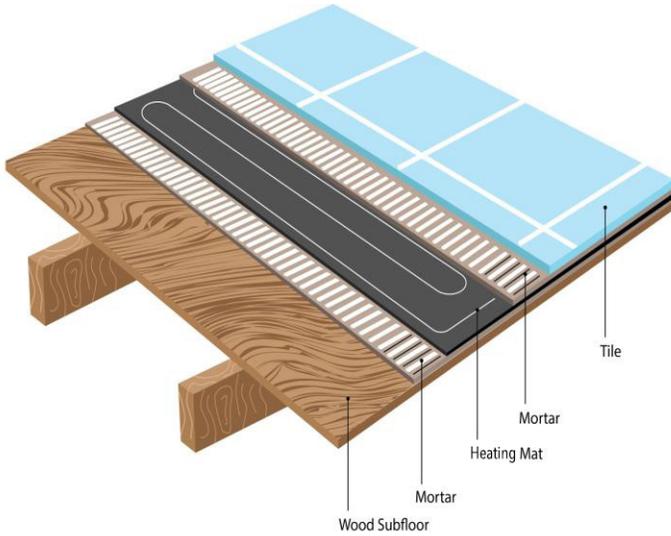


WarmlyYours recommends you keep track of the details of your installation and save them for future reference. Use the tables at the back of this manual to write down and record the installation details. We recommend taking (and saving) photos of the installation as it progresses from mat installation to a finished floor.

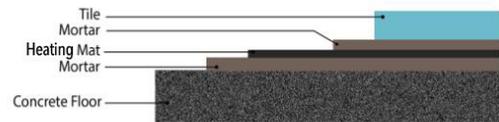
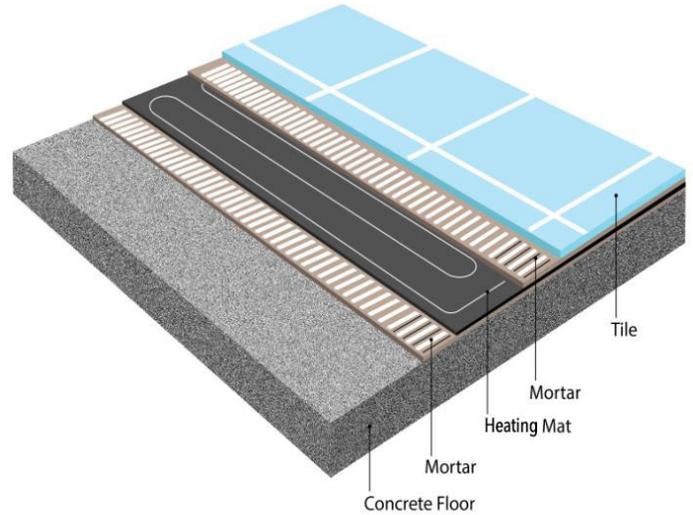
Typical Flooring Cross Sections

The following diagrams show cross sections of the most common floor constructions. Use them as a visual reference as you read further.

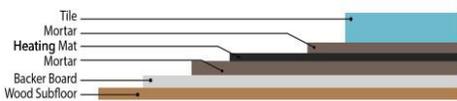
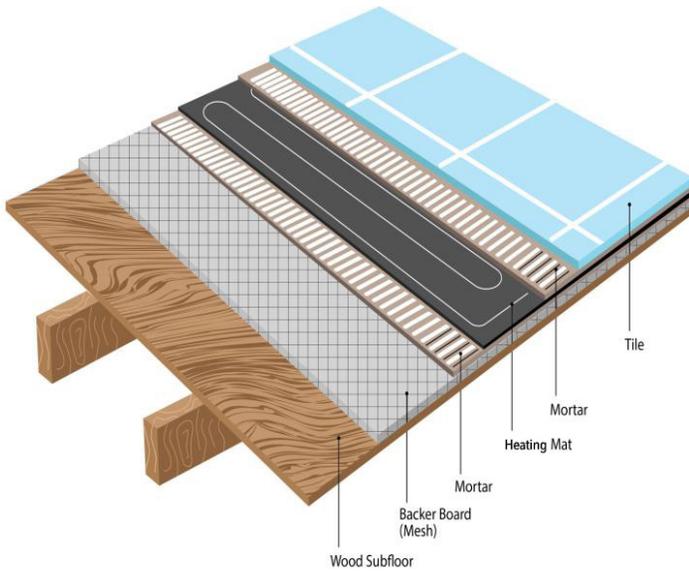
Tile over wood subfloor



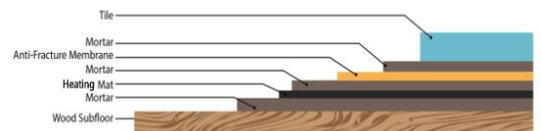
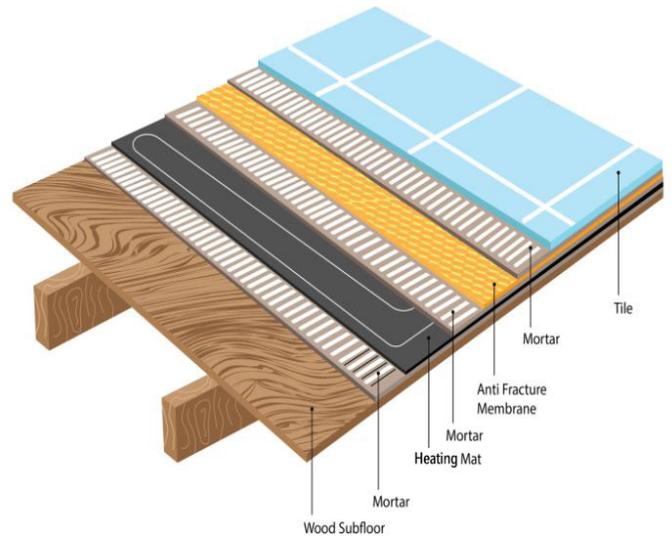
Tile over concrete subfloor



Tile over backer board (or mesh)

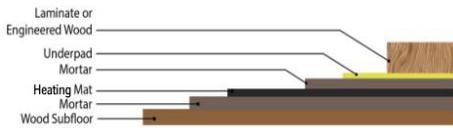
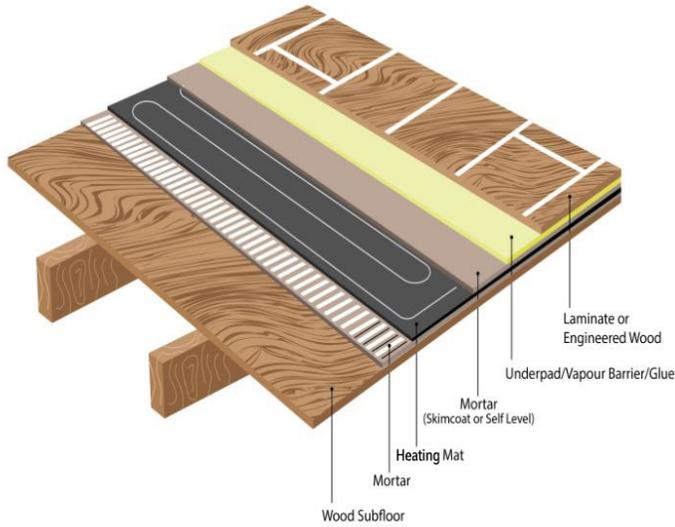


Tile over anti-fracture membrane

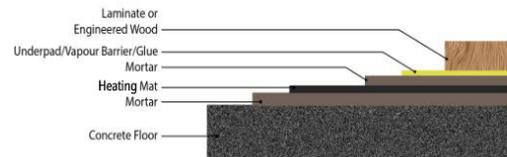
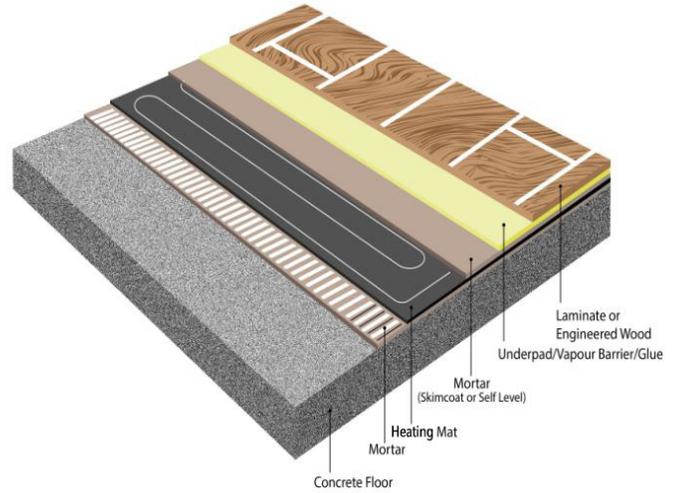


Typical Flooring Cross Sections, cont.

Laminate over wood subfloor

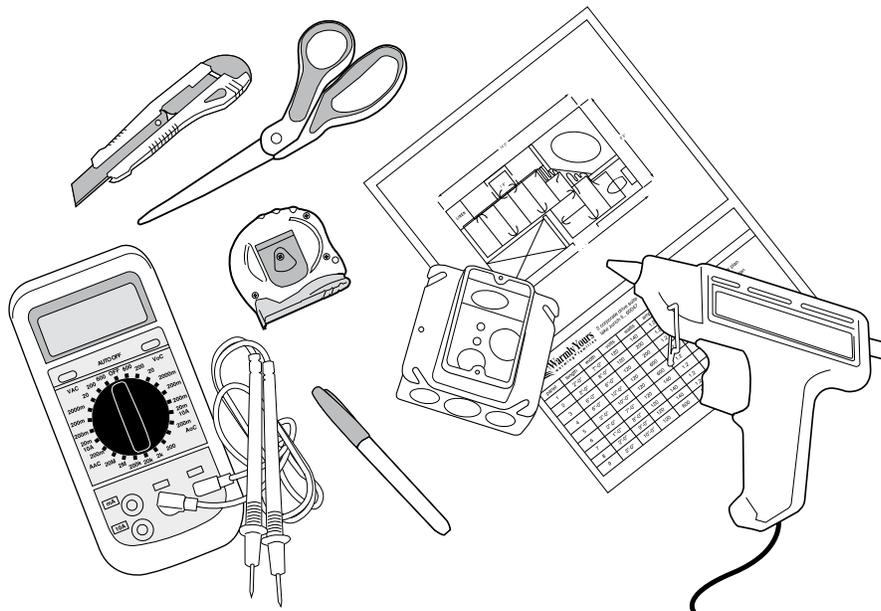


Laminate over concrete subfloor



Tools Required

Square notch trowel, 1/4"x1/4" or larger (e.g. 3/8" x 3/8"). Rubber grout float. Tape or hot melt glue. Electrical and construction tools: (screwdriver, wire stripper, etc.). Digital ohmmeter capable of 20 to 20,000 ohms readings. Megohmmeter capable of 500V testing or a multimeter capable of continuity measurements.



Materials

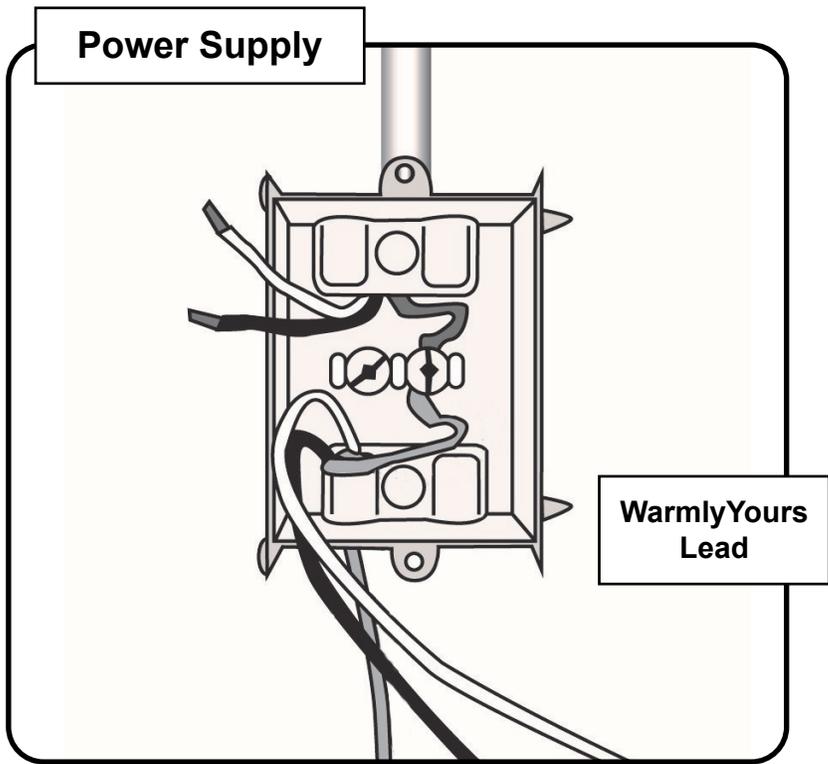
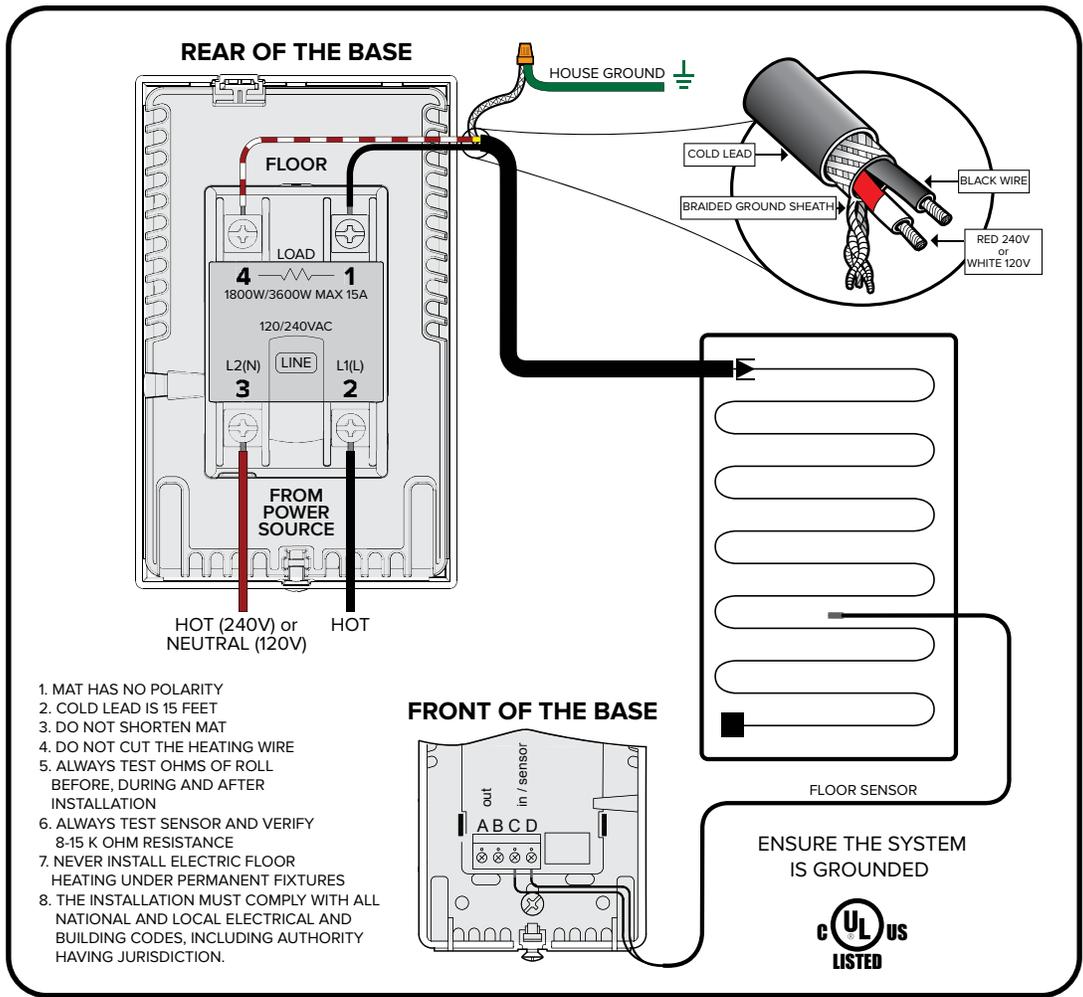
- WarmlyYours mat
- Tiling materials (latex/polymer modified thinset mortar, waterproof membranes, tile, grout, etc.).
- Floor-sensing thermostat with integral ground fault protection.
- Thermostatic relay and ground fault protection device (only as required for multiple mat installations).
- Electrical junction box for thermostat. A 2"x4" box is suitable for a single mat installation, a 4"x4" box is recommended for two or more mats. Conduit (if required by local code).

Subfloor Preparation

Before beginning installation, ensure the subfloor is clean and free of loose material. Protrusions such as nails or screw heads sticking above the floor level must be removed and ridges levelled smooth. Review and follow your thinset manufacturer's recommended floor preparation requirements.

Electrical Tests

- Conduct electrical tests after each of the following stages: 1) after the dry test fit, 2) after the mat is installed in its mortar layer 3) after tiling/finishing the flooring.
- If there are problems with any of these tests, resolve before proceeding further.
- Check the resistance of the mat. The resistance for 120V mats is measured between the black and white conductors; the resistance for 240V mats is measured between the red and black conductors. The resistance value measured should be +/- 10% of the resistance value noted on the rating label.
- WarmlyYours recommends that the insulation resistance of each mat be tested by connecting a megohmmeter across the black lead and the ground braid. Test 500VDC, 20 megohm minimum insulation resistance. Ground the black conductor after each test to discharge any energy build-up. If a megohmmeter is unavailable, measure the continuity across the black lead and the ground braid. The continuity reading should be infinite or "OL".
- Measure the resistance across the two conductors of the temperature sensor. The resistance value will change with temperature, so it may read anywhere from 8,000-18,000 (8k-18k) ohms.
- As the tests are completed, record the measurements in the tables on the back page.
- **IMPORTANT.** WarmlyYours requires all electrical connections be made by qualified personnel and in accordance with the Canadian Electrical Code (CEC) or National Electrical Code (NEC) and all applicable local codes and ordinances.
- Only connect the mat to the rated voltage. **DO NOT** use higher voltages, as this will increase current draw and cause the mat to overheat; possibly resulting in death or injury from electrical shock or fire, mat failure, improper operation, or floor damage.
- Consult the thermostat manufacturer's instructions for proper wiring detail.
- A circuit protected by a ground fault protection device must be used to power mats connected through a relay.



Wiring Reference

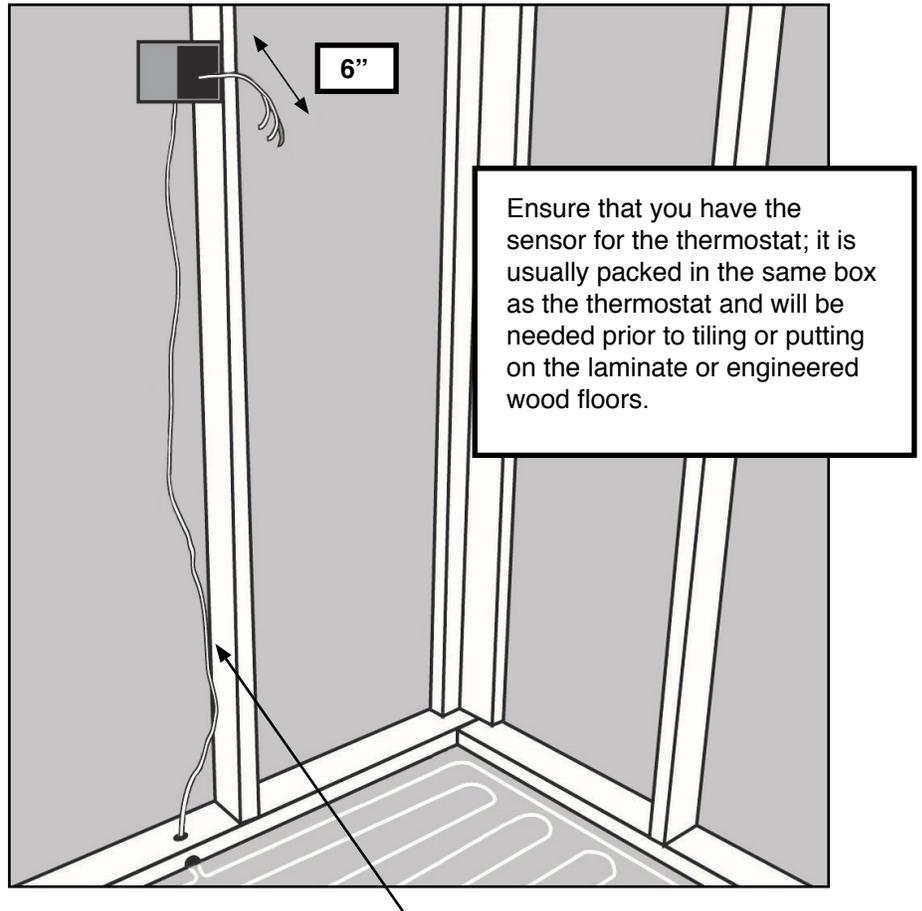
- Each WarmlyYours mat has two (2) leads.
- Each lead has its own grounding braid.
- Ensure that the cold lead braids are directly connected to electrical ground. If the ground braids are not connected to electrical ground, there will be a risk of electrical short circuit, overheating or electrical shock.

Test Fit - Dry

1. Verify the mat voltage is correct; 120V mats have black and white leads, 240V mats have red and black leads.
2. Completely roll out the mat(s) on the floor to ensure it fits the floor space and run the leads into the junction box. Multiple mats install edge to edge. Do not overlap.
3. Confirm the leads are long enough to reach the electrical junction box and will extend a minimum of 6" beyond the box.
4. Conduct Electrical Tests as previously described.
5. Use a marker to trace the cold leads and mark the splice locations on the subfloor.

The cold lead and splices are slightly thicker than the mat, some removal of sub-floor material may be required where the splices will set or where the cold leads will run to eliminate any possible interference with the tile. See side note.

6. Carefully roll the mat back up and have ready for the next step.
 7. Drill or cut holes at the bottom wall stud plate for routing the cold lead and thermostat sensor wire to the electrical junction box.
- DO NOT cut or modify the WarmlyYours mat to fit the area, if there is a problem with fit, contact WarmlyYours.
 - Ensure that you have the sensor for the thermostat; it is usually packed in the same box as the thermostat and will be needed prior to thinset and tile.



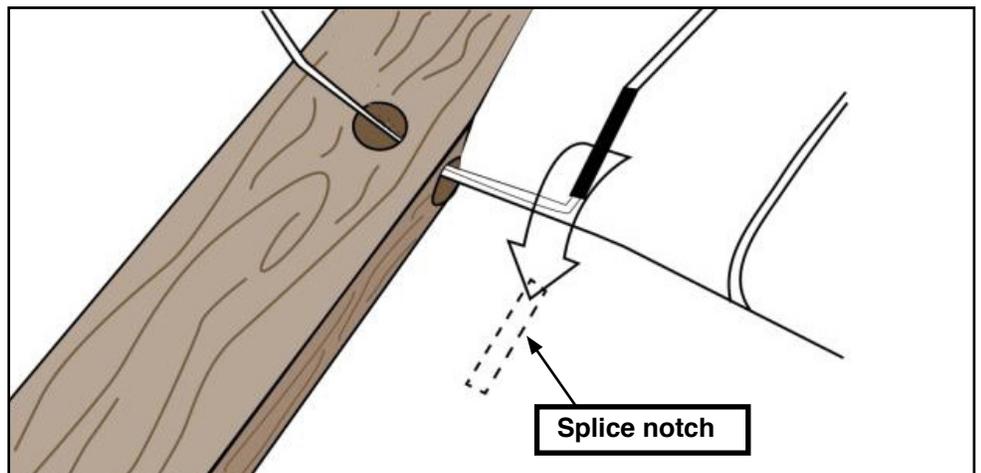
Cold Lead and Conduit Note

The braided cold lead may be installed with, or without, electrical conduit. Confirm conduit requirements with your local electrical and building inspection authorities.

Each mat has 1 lead.

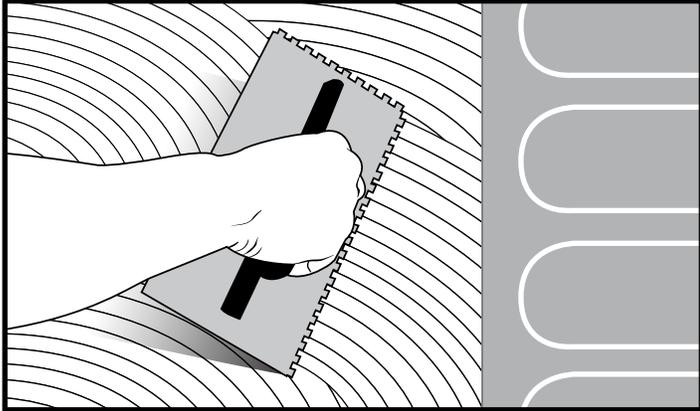
Splice Thickness Note

The splice is thicker than the majority of the mat. This thickness difference is typically balanced out by the mortar coverings and should not affect the final floor height level. If you are concerned it may present a height issue, then it is suggested to cut, or chip, a recessed notch in the floor.

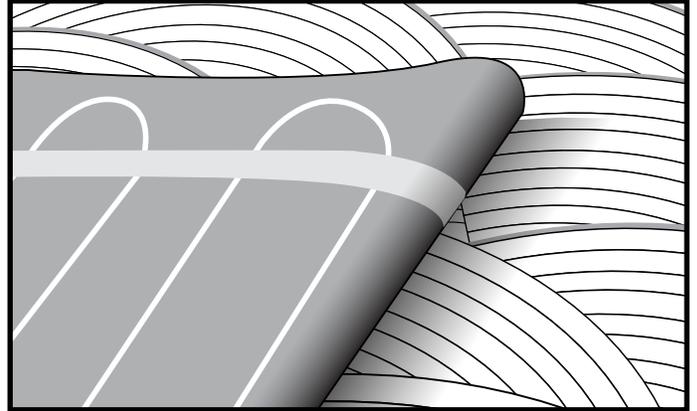


Install the Mat

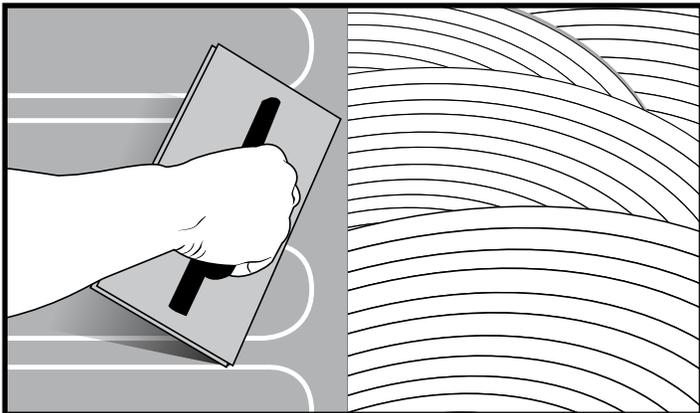
IMPORTANT Take care not to damage the mat during installation. Avoid the placement of heavy equipment or pails of mortar on the mat. Limit foot traffic across floor.



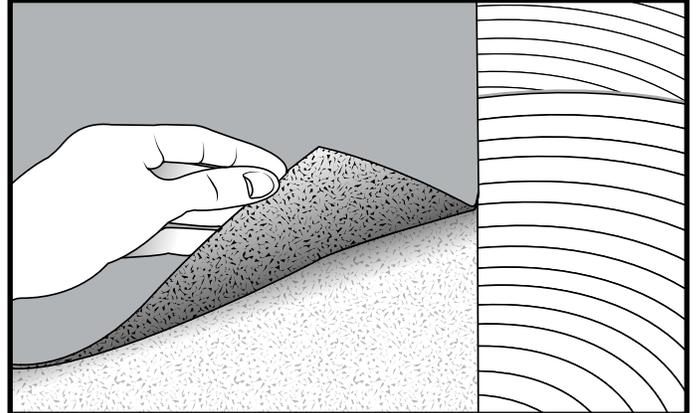
1. Using a square notch trowel, 1/4" x 1/4" or larger (e.g. 3/8" x 3/8"), apply a layer of thinset to the subfloor area which will be covered by the WarmlyYours mat. If the subfloor area is particularly large it may be necessary to apply the thinset in sections.



2. Carefully roll out the mat into the mortar bed.



3. The entire mat must be in contact (embedded) with the thinset layer. To ensure complete contact, use a rubber grout float to press the mat into the thinset.

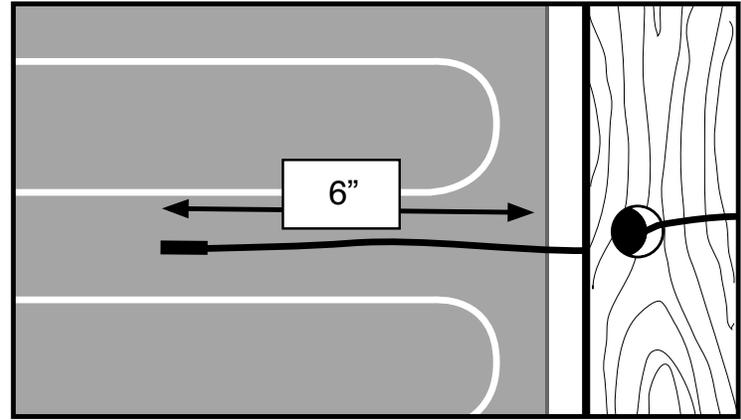


4. Check the bond between the mat and thinset by peeling up an edge of the mat. The mat should look at least 90% covered with thinset material. Check that the splices and cold leads are in the proper positions.

5. Run the cold leads into the electrical junction box and protect at the bottom wall stud with a guard plate.
6. If there is more than one mat being installed, ensure the edges of the mats are aligned edge to edge. This ensures even heating across the floor.
7. Conduct Electrical Tests as previously described. Your installation may require inspection at this point; consult with your local building and electrical inspection authorities.

8. Secure the Thermostat Floor Sensing Probe

IMPORTANT. The thermostat floor sensing probe must be installed prior to setting the tile (or other covering) in place. Secure the probe on top of the mat with tape or hot melt glue. The sensor should be positioned in the middle of two heating cable runs, and at least 6" from the edge of the mat. Avoid placing it in an area where the floor sees direct sunlight. Run the free end of the sensor wire back to the junction box.



Installation Warnings



Do not hammer high spots to level floor, hammering high spots can damage the heating mat, resulting in risk of electrical shock and/or mat failure.



Clean grout lines carefully, scrapers can penetrate and cut into the heating mat below, possibly resulting in death or injury from electrical shock or fire, mat failure, improper operation, or floor damage.



Do not drill into floors with WarmlyYours mats; drills can cut into the heating mat below, possibly resulting in death or injury from electrical shock or fire, mat failure, improper operation, or floor damage.

Thinset and grout materials have cure times, review the recommended cure time from each manufacturer and do not energize the mat until the materials have fully cured. This cure time may be as long as 28 days.

9. Install the Floor Covering Tile

Before installing, read the tile flooring manufacturer's installation instructions; review any specific instructions they may have with regard to the use of their product with electric radiant heating.

Apply a 1/4" layer of modified thinset, using appropriate-sized trowel over the WarmlyYours TempZone Custom Mat, as per the tile manufacturer's instructions, and install the tile or stone as per manufacturer's instructions, cleaning the grout lines as you go. Do not use sharp tools to clean grout lines, doing so may damage the TempZone Custom Mat.

Conduct Electrical Tests as previously described. Your installation may require inspection at this point; consult with your local building and electrical inspection authorities.

Laminate or Engineered Wood Floors

Before installing, read the laminate or engineered flooring manufacturer's installation instructions; review any specific instructions they may have with regard to the use of their product with electric radiant heating.

Attach the mat to the subfloor as described above, and then cover the mat with 3/8" of self-leveling compound. Ensure the thinset or self-leveling compound is smooth and level, as an uneven finish may result in a poor floor fit. Allow the compound to cure as per the manufacturer's instructions.

Install a vapor barrier (if necessary) and any under padding as per manufacturer's instructions.

Install the laminate or engineered wood flooring as per the manufacturer's instruction. Allow the floor time to acclimatize to the room's temperature and humidity levels before using the floor heating (1-3 days).

Conduct electrical tests as previously described, if there are any problems, contact WarmlyYours before proceeding further.

Many laminate and engineered wood flooring manufacturers recommend that the floor temperature be limited to a maximum of 82F° (28C°). WarmlyYours thermostats, employing a floor sensor, provide this level of control.

Special Note on Waterproofing (not Anti-fracture) Membrane Installations

Use WarmlyYours mats in conjunction with waterproof membranes that, as a minimum, meet American National Standard for Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone Installations (ANSI A118.10) and are suitable for the intended application.

Before installing, read the waterproofing membrane manufacturer's installation instruction and tile flooring manufacturer's installation instruction. Review any specific instructions that either may have with regard to the use of their products with electric radiant heating.

- Apply a layer of mortar (minimum 1/4" x 3/16" V-notched trowel or a 1/8" x 1/8" square-notched trowel) on top of the mat to secure the waterproofing membrane. The mat (consisting of heating wire, splice connections and cold leads, as well as any thermostat sensor) must be fully covered by a waterproofing membrane when in wet locations.
- Install the tile on top of the membrane. The thickness of the thinset layer must be in accordance with the tile and thinset manufacturer's recommendations.
- Conduct Electrical Tests as previously described. Your installation may require inspection at this point; consult with your local building and electrical inspection authorities.

IMPORTANT. The mats must be installed on a GFCI (personnel protection, 5 milliamp trip level) protected circuit.

Warranty Information

Please complete and return the Warranty Card

(Online or by mail or fax)

Thank you for purchasing your new WarmlyYours TempZone™ floor warming system. To register your system, go online to www.WarmlyYours.com/warranty, or simply complete, detach and mail the Warranty Card within 30 days of date of purchase to: WarmlyYours, 590 Telser Rd, Suite B Lake Zurich, IL 60047 . For your convenience, you may also fax this card to (800) 408-1100.

1. HOMEOWNER INFORMATION		
Company Name		Phone
Address	Email	
City	State	Postal/Zip
Fax		

2. FLOOR INSTALLER INFORMATION		Check here if homeowner installed <input type="checkbox"/>
Company Name		Phone
Address	Email	
City	State	Postal/Zip
Fax		

3. ELECTRICIAN INFORMATION		
Company Name		Phone
Address	Email	
City	State	Postal/Zip
Fax		

4. HEATING SYSTEM INFORMATION		
Install Date		
Installed Under: <input type="checkbox"/> Tile <input type="checkbox"/> Stone <input type="checkbox"/> Laminate Wood <input type="checkbox"/> Other		
(Please specify other) _____		
Sub Floor Material		
Set In		
Total Rolls Installed		
	Roll Size	Final Ohm Reading
Roll 1		
Roll 2		
Roll 3		
Roll 4		
Roll 5		
Roll 6		
Roll 7		

5. INSULATION RESISTANCE MEASUREMENTS (MEGOHMMETER OR CONTINUITY)					
Room					
Mat 1: IR at dry fit.		IR after installing mat.		IR after tiling/finishing.	
Mat 2: IR at dry fit.		IR after installing mat.		IR after tiling/finishing.	
Mat 3: IR at dry fit.		IR after installing mat.		IR after tiling/finishing.	
Mat 4: IR at dry fit.		IR after installing mat.		IR after tiling/finishing.	
Mat 5: IR at dry fit.		IR after installing mat.		IR after tiling/finishing.	

WarmlyYours, Inc. warrants the WarmlyYours TempZone™ electric floor warming system rolls ("the Product") to be free from defects in materials and workmanship for 25 years from the date of manufacture, provided that the Product is installed in accordance with the WarmlyYours product installation guide, any special written or oral design or installation guidelines provided by WarmlyYours for the specific project that the Product is intended, the provisions of the National Electric Code (NEC), and all applicable local building and electrical codes. If the Product is determined to be defective in materials and workmanship, and has not been damaged as a result of misuse, misapplication or improper installation, WarmlyYours will, at the customer's discretion, either refund the original cost of the Product or reimburse the cost for any labor and materials required to perform the repair or replacement of the Product. Controls sold under the WarmlyYours name are warranted for specific coverage periods. Please see www.WarmlyYours.com for the length of warranty coverage for each control. Should the control be defective or malfunction, return the control to WarmlyYours and it will be repaired or replaced (at WarmlyYours option). The warranty does not cover removal or reinstallation costs. See entire warranty in packaging.

WarmlyYours Inc. assumes no responsibility under this warranty for any damage to the Product prior to or during installation by anyone, including, but not limited to trades people or visitors to the job site, or damage caused as a result of post installation work. Call our toll free number, (800) 875-5285, if you have any questions about installation. The Limited Warranty is null and void if the Product owner or his representative attempts to repair the Product without receiving authorization. Upon notification of an actual or possible problem, WarmlyYours will issue an Authorization to Proceed under the terms of the Limited Warranty.

Warranty Subject to the Following Conditions: 1. The warranty of the warming system must be registered by completing and returning the attached 'System Warranty Registration' card to WarmlyYours, Inc. within thirty days of date of purchase. Please keep your invoice, as proof of date of purchase will be required in the event of a claim. 2. The warming roll must be installed flat under tile, stone, resilient flooring or laminate wood in a latex modified thin-set or a portland-based cement. 3. The warming system must be electrically grounded and protected by a GFI (Ground Fault Interrupter). 4. The installation must comply with all national and local electrical and building codes, as well as any other applicable statutory requirements. 5. The manufacturer hereby reserves the right to inspect the installation site at any reasonable time. 6. The warranty is not automatically transferred with change of ownership, but the manufacturer may, on application, transfer the warranty for the period remaining. This transfer

is solely at the discretion of the manufacturer. 7. The warming system should be used strictly in accordance with the following: 7.1 Hard wire the warming system rolls to a dedicated circuit. The voltage of the circuit should match the voltage of the warming system, and the size of the circuit should be such that the warming system does not occupy more than 80% of the circuit capacity. 7.2 Should you feel no warmth on the floor within 60 minutes, verify that there is power to the control or thermostat. Contact WarmlyYours after verifying that there is power through the load wires. Under no circumstances should you or anyone else tamper with or attempt to repair the warming system - this will render the warranty null and void. 7.3 Switch the warming system on and off as you would any conventional electric heater, although timers or thermostats may be used if preferred. 7.4 Use reasonable care in the operation of the warming system. Do not drop heavy articles on the flooring or pierce the flooring with sharp objects. 7.5 All restrictions and warnings detailed in the installation guide must be strictly followed.

WARMLYYOURS, INC. DISCLAIMS ANY WARRANTY NOT PROVIDED HEREIN, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. WARMLYYOURS FURTHER DISCLAIMS ANY RESPONSIBILITY FOR SPECIAL, INDIRECT, SECONDARY, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING FROM OWNERSHIP OR USE OF THIS PRODUCT, INCLUDING INCONVENIENCE OR LOSS OF USE. THERE ARE NO WARRANTIES, WHICH EXTEND BEYOND THE FACE OF THIS DOCUMENT. NO AGENT OR REPRESENTATIVE OF WARMLYYOURS HAS ANY AUTHORITY TO EXTEND OR MODIFY THIS WARRANTY UNLESS A CORPORATE OFFICER MAKES SUCH EXTENSION OR MODIFICATION IN WRITING.

RETURN POLICY
Product will be accepted for return if it is in "resalable" condition. The product must be in exactly the same condition as when we shipped it to you.