

QUIETwarmth[®]

TILE



**Radiant Heat Film for
Traditional Tile or
Glued Flooring**

Notes Page:

Date Installed: _____

General Contractor: _____

 Contact Information: _____

Electrical Contractor: _____

 Contact Information: _____

Flooring Contractor: _____

 Contact Information: _____

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Before You Begin

Safety Information

This equipment shall be installed only by qualified personnel who are familiar with the construction and operation of the apparatus and the risks involved.

Throughout this manual you will see icons to draw your attention to important cautions. These highlight conditions, procedures, or other information that require special attention. For a safe and functional installation of QuietWarmth mats, read and follow these important safety precautions. This information must be read and understood by all technicians who will be working with electrical systems or in the area of an installed QuietWarmth mat. Failure to comply may result in damage to the mats, electrical shock, or personal injury.



Indicates precautions or procedures that should be followed to prevent the possibility of fire.



Indicates precautions or procedures that should be followed to prevent the possibility of electrical shock.



Indicates an item that you should pay special attention to. For example, notes are used to highlight installation tips.

QuietWarmth places a strong emphasis on quality assurance through meticulous adherence to a rigorous testing regimen and the enforcement of stringent processes. The company strategically incorporates a minimum of one certified logo on each product or system component, denoting compliance with safety standards set by Nationally Recognized Testing Laboratories (NRTL). This steadfast commitment to avoiding shortcuts or compromises underscores QuietWarmth's dedication to delivering technically sound and dependable solutions. If you have any specific inquiries or require additional technical details about QuietWarmth's products, feel free to inquire without hesitation.



Don'ts

- ⊗ Don't install in "wet areas", i.e. showers, steam rooms, pool rooms, etc. Bathroom floors are not considered wet areas and are an acceptable location for mats. Locations must be considered dry locations by the National Electrical Code.
- ⊗ Don't fold, bend, or crinkle the mats.
- ⊗ Don't install mats in walls, under walls or partitions, or under cabinets. A vanity with "feet" at least 2 inches tall is acceptable as there is proper airflow.
- ⊗ Don't place mattresses, beanbag chairs, or flat bottom furniture directly over mats. This could trap the heat and cause damage to your flooring or potentially cause a fire.
- ⊗ **Don't use area rugs, floor mats, hampers, etc. over mats.** Similarly, don't leave towels or piles of clothes on the floor where mats are installed for long periods of time. Trapped heat can cause damage to your flooring and potentially lead to a fire.
- ⊗ Don't install toilets, shower pans, bathtubs, or other bathroom fixtures over mats.
- ⊗ Don't install decorative trim, baseboard trim, etc. over top of the mats, or mechanically fasten anything through the mats.
- ⊗ Don't install mats underneath appliances such as refrigerators, dishwashers, stoves, etc as they generate heat.
- ⊗ Don't overlap the mats.
- ⊗ Don't install the mats until ready to install the flooring, as unintentional damage could occur when left exposed to traffic.
- ⊗ Don't route supply leads across the heating elements of the mats.
- ⊗ Don't use a floor covering that exceeds R-value 1.0.

Dos

- ✓ Do follow all installation instructions. Improper installation techniques and procedures can result in potentially unsafe conditions, including overheating and shock hazards. Improperly installed mats may not work, heat poorly, or cause nuisance GFCI tripping. Failure to follow these instructions will void the manufacturer's warranty.
- ✓ Do follow all National, State, and Local Electrical Codes.
 - In the United States, installation of this product shall be in accordance with Article 424 of the National Electrical Code ANSI/NFPA 70.
 - In Canada, installation of this product shall be in accordance with Section 62 of the Canadian Electrical Code, Part 1.
- ✓ Do maintain a 6 inch (15 cm) clearance between the edge of the mat and the perimeter of the room, as well as vertical obstructions such as cabinets or walls. Clearance may be greater than 6 inches.
- ✓ Do maintain an 8 inch (20 cm) clearance between the heating mats and other heat sources such as hot water pipes, stoves, fireplaces, hot air vents, baseboard heaters, etc. Also ensure your floor temperature sensor is located away from heat sources as well for accurate readings.
- ✓ Do ensure there is airflow to the flooring anywhere where heat mats are installed.
- ✓ Do ensure the flooring is approved for use with radiant heat, and has an R rating of 1 or less for optimal performance.
- ✓ Do install a QuietWarmth thermostat with built-in GFCI to safely operate the system.
- ✓ Do make sure all electrical wiring other than for the heating system is at least 2 inches (5 cm) away from the heating mats and/or separated from the heating mats by insulation or the building structure.
- ✓ Do use copper supply conductors for wiring between breaker and thermostat, and between thermostat and junction box.
- ✓ Do employ a licensed electrician to perform all electrical wiring connections.
- ✓ Do use a floor covering that is 4mm or greater in overall thickness

Introduction

The QuietWarmth Tile Radiant Heat System works just like the sun. It is the same type of heat that warms you on a cool spring day. Although the air is cool, the radiant heat from the sun keeps you warm. Similarly, QuietWarmth Radiant Heat Mats warm by providing uniform heat throughout your floor, which in turn will warm the air circulating around the floor. This is the opposite of how conventional forced hot air or baseboard heating systems work. In other types of heating systems, the large mass of air in a home is heated while the objects and especially the outside walls remain relatively cool.

QuietWarmth Tile is a unique heating system with an anti-fracture membrane that is installed below thinset installations of tile or natural stone, or glued flooring materials such as wood or vinyl plank, provided they exceed 4mm thick and are approved for use with radiant heat.

QuietWarmth Tile combines a peel-and-stick installation feature with anti-fracture protection to give you an easy to use floor warming option. The mats offer a safe and efficient electric floor warming product for interior applications. It cannot be used for exterior applications, or for snow melting and de-icing. QuietWarmth Tile is intended for installation in residential and light commercial applications.

When specifying as primary heat, a heat loss calculation must be performed to determine how many watts are required to heat the space. QuietWarmth Radiant Heat Film is designed to deliver 12 watts per square foot. The floor temperature attainable is dependent upon how well the floor is insulated, the temperature of the floor before start up, and in the case of uninsulated slab applications, the thermal transfer of the underlying materials. QuietWarmth Tile's efficiency is maximized with a well insulated subfloor.

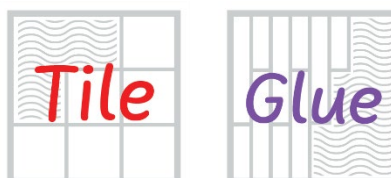
QuietWarmth Tile comes in several sizes which may be modified and cut to shorter lengths in accordance with instructions. QuietWarmth mats are warranted to be free of defects in manufacture for a period of 25 years.

Features

- 0.03" thick and easy to install
- Crack isolation up to $\frac{3}{8}$ " in plane
- 12 Watts per Square Foot Nominal (Tolerance -10% to +5%)
- Produces 41 BTUs per sq. ft. providing even heat throughout
- Available in 18" and 36" widths in standard mat lengths or custom lengths
- 120V or 240V
- Thermostat controlled
- Warranted to be free of defects in manufacture for a period of 25 years

Tile vs Glue Instructions

This manual outlines installation of the QuietWarmth mats for traditional tile and glued down products. Some included information may only be applicable depending on the type of flooring being installed. We have highlighted these product-specific instructions with these icons:



Planning



Flooring materials must be rated for use with electric floor warming system.

Approved Floor Coverings

- Traditional Ceramic, Porcelain, or Natural Stone Tile
 - Small format tiles may require additional installation considerations
 - Tile smaller than 4"x4" should be mesh or grid mounted
- Glued Hardwood
- Glued Laminate or Luxury Vinyl
- Can also be used under all Floating Flooring

All floor coverings must be 4mm or thicker

Ensure floor covering does not exceed a thermal insulation R-value of 1.0.

Approved Substrates

- When installing ceramic, porcelain, or natural stone tile, subfloor must meet all requirements set forth by the Tile Council of North America (TCNA)
- Wood, OSB, or Plywood
- Concrete- A liquid applied waterproofing and anti-fracture membrane is recommended on all concrete applications. If WVTR exceed 4lbs/1000sf/24 hrs per ASTM F1249, use of a liquid applied waterproofing membrane is **required**.
- Cement Backer Board
- Existing fully adhered hard surface floor coverings such as ceramic tile, sheet vinyl, or epoxy floor coverings. Existing ceramic tile must be skim-coated with a portland-based cementitious floor patch compound to fill grout lines. Floor primers may be required for proper thinset or adhesive bond. Consult installation instructions for flooring. **Cannot be installed over floating floor coverings or carpet.**
- All substrates must be clean, level, structurally sound, and deemed suitable by the manufacturer of the intended floor covering. Any necessary leveling, patching, or other prep work should be performed prior to installation of heat mats.
- It is crucial to ensure there are no objects protruding from the subfloor that could cut, tear, or otherwise damage the heat mats. Check meticulously for debris, rocks, nail heads, screw heads, staples, etc.



Additional Underlayment (Glue Down Only)

Additional underlayment may be used with glue-down wood, bamboo, or laminate flooring. It is not required, however use of an approved underlayment will increase the efficiency of the heating system. It also makes recessing the lead wires and connections easier. Recommended underlayment options are QuietBoard, QuietWalk Plus, or Insulayment. When using QuietBoard, the underlayment should be installed with the metallic silver film side down, facing the substrate.

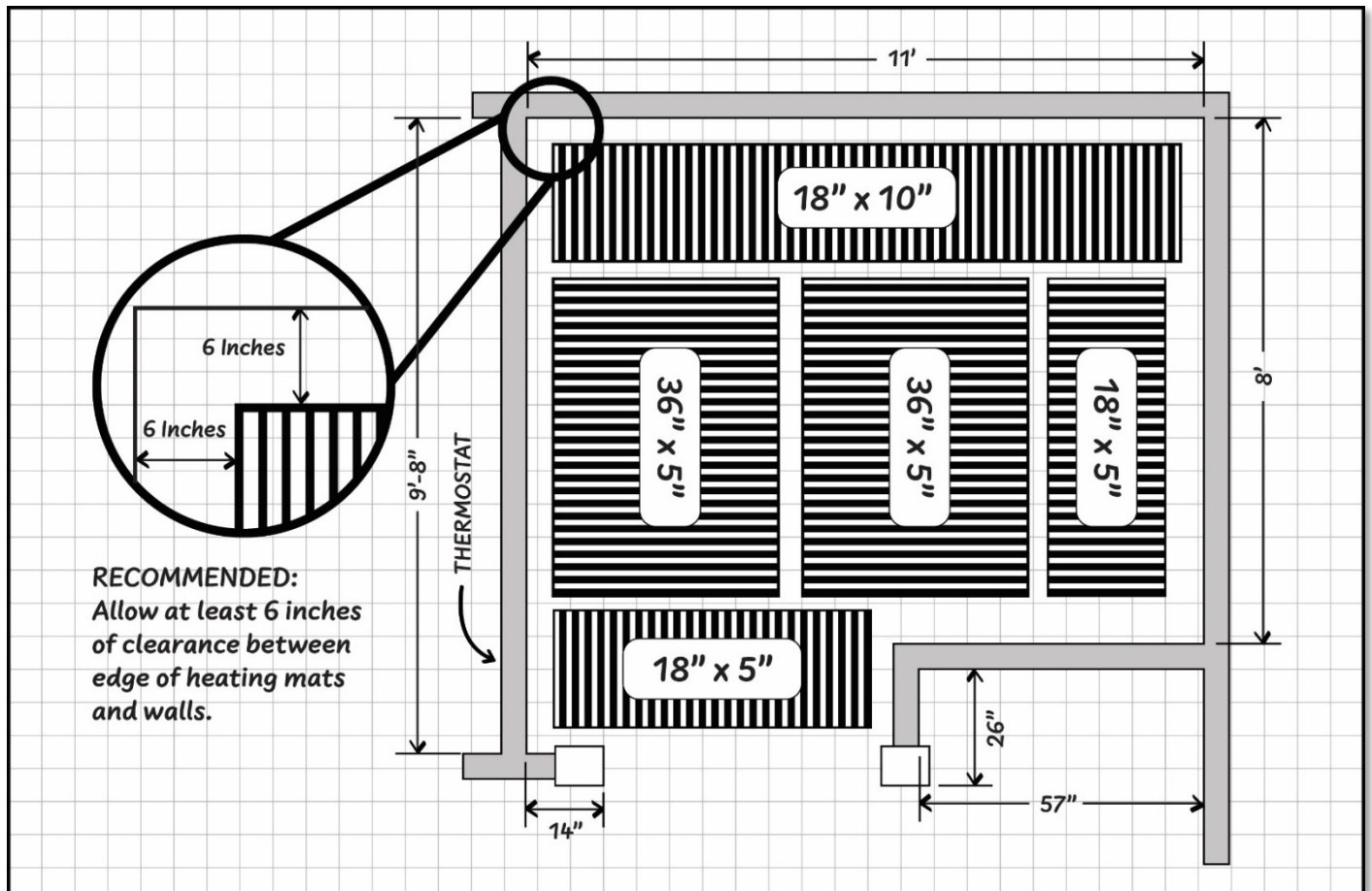
Design the Layout

Your floor heating assembly consists of four major components: the heating mats, the wiring, the control device and the floor structure. These components work together to create a system that provides comfortable, trouble-free floor warming. Designing your layout is straightforward, and will be your foundation for a simple installation.

Start with a sketch of the room and draw in the mats in the areas to be warmed. Use the sketch below as an example. Allow at least 6 inches clearance between the edge of the mats and the wall, and 8" between the mats and an alternate heat source. The heat will disperse out some from the edge of the mat, but this is all dependent on the flooring material and insulation below the mats. If there is space between your mats, those areas may be cooler than the flooring directly above your mats. It is better to leave a greater space around the perimeter of the room, than to space the mats too far apart.

Plan for where you want your thermostat located, ensuring it is on an interior wall where it will not be subjected to direct sunlight. Consult with your electrician if you are unsure of where your thermostat should be installed.

Non-heating leads (the wires that connect your mats to the electrical source) are 15' long. For single mat applications, your lead wires can be wired directly to the thermostat, provided it is less than 15' away. For multiple mat applications, your electrician will need to install a junction box within 15 feet of the leads. Plan the route your lead wires will take, keeping in mind they cannot cross over/under any of the mats.



Designing for Large Areas

Large areas will need to be broken down into zones. Each zone will be operated by one thermostat or power module (more on that later). The size of each zone is dependent on the voltage of the mats installed. If your mats are 120V mats, we recommend each zone is 120 square feet or less. If your mats are 240V mats, we recommend each zone is 240 square feet or less.

So, which mats to buy? It depends on the area you want heated, and the available space in your breaker box. Consult your electrician for guidance.

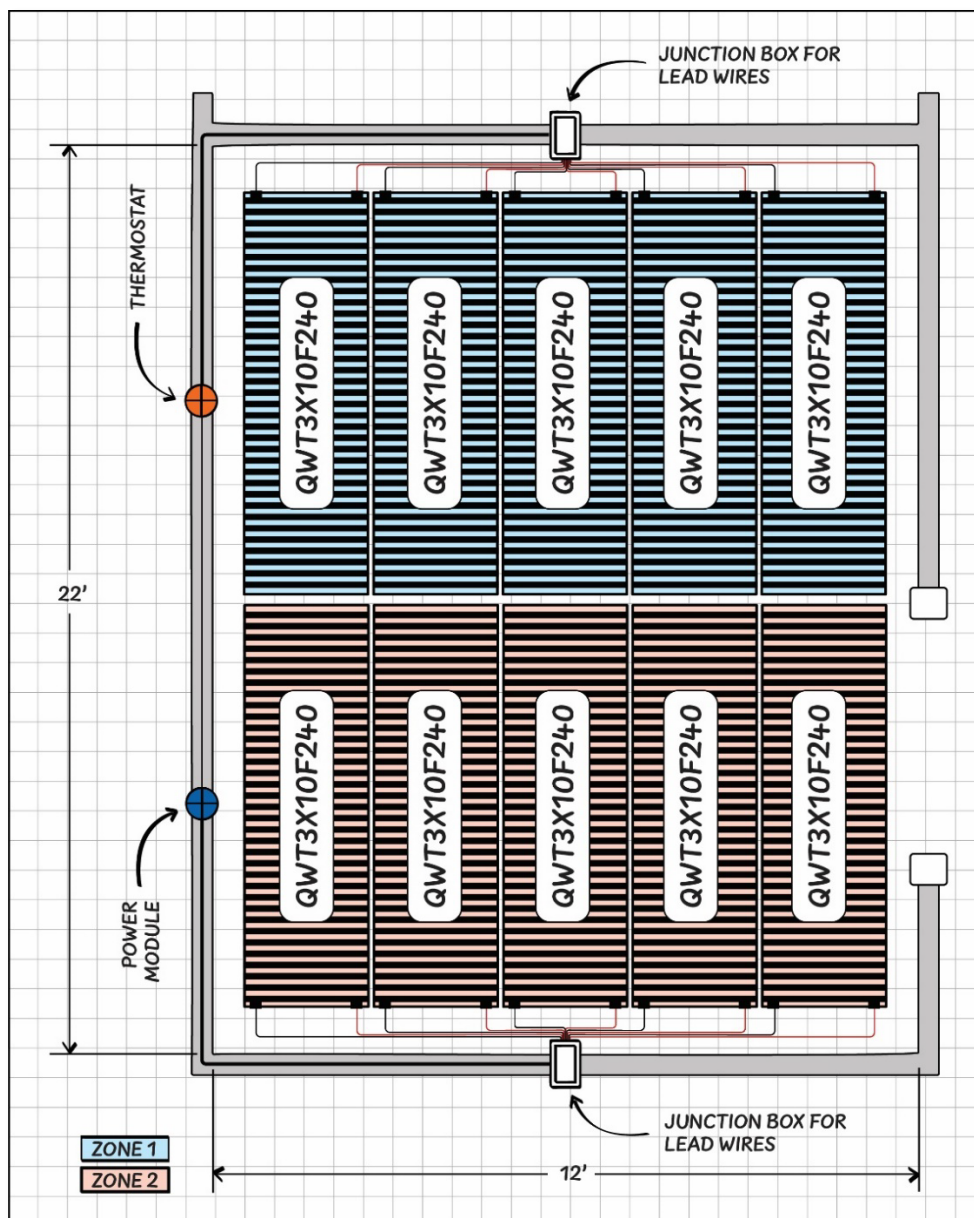


MATS ARE VOLTAGE SPECIFIC. YOU CANNOT WIRE 120V MATS TO 240V POWER SUPPLY, OR VICE VERSA!

120V- Great for small areas. Only requires one single-pole breaker per zone.

240V- Best for large areas. Requires a double-pole breaker per zone.

Large area example:

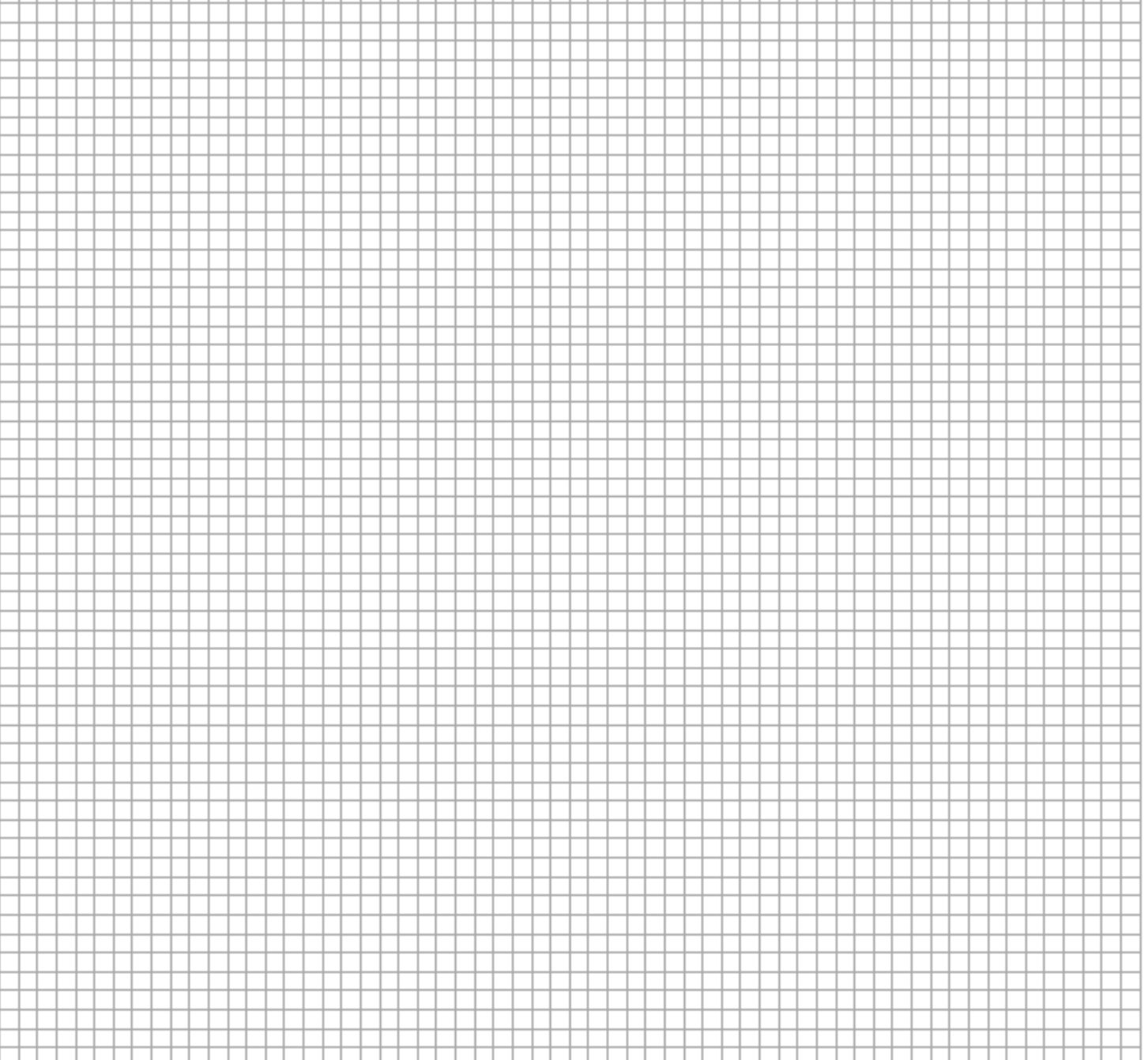


My Layout— Keep this page handy throughout the install!

Available Mats

Standard Sizes:

1'6"x5'	3'x5'
1'6"x10'	3'x10'



Keep in Mind-

6" or greater clearance between mats and walls, partitions, cabinets, etc.

8" or greater clearance between mats and a heating source

Mats cannot go underneath flat bottom cabinets or furniture, appliances, etc.

Mats can be cut shorter, but cannot be made narrower!

Mats cannot overlap!

Calculate Total Heated Area

Tally up how many of each size of mat you have in your layout, depending on the voltage for your system. Fill out only the section for the voltage you are using. Then, multiply the number of mats by the total square footage per mat. Finally add all the square footages together to determine the total square feet of all heating mats.

120V System

<u>Size</u>	<u>Model</u>	<u>Qty</u>	<u>Total sq ft</u> Qty x sf/mat
1'6"x5'	QWT1.5x5F120	_____ X 7.5 sf/mat =	_____
1'6"x10'	QWT1.5x10F120	_____ X 15 sf/mat =	_____
3'x5'	QWT3x5F120	_____ X 15 sf/mat =	_____
3'x10'	QWT3x10F120	_____ X 30 sf/mat =	_____

Total Square Feet of All Mats _____

240V System

<u>Size</u>	<u>Model</u>	<u>Qty</u>	<u>Total sq ft</u> Qty x sf/mat
1'6"x5'	QWT1.5x5F240	_____ X 7.5 sf/mat =	_____
1'6"x10'	QWT1.5x10F240	_____ X 15 sf/mat =	_____
3'x5'	QWT3x5F240	_____ X 15 sf/mat =	_____
3'x10'	QWT3x10F240	_____ X 30 sf/mat =	_____

Total Square Feet of All Mats _____

Plan Your Control Devices

For 120V systems, you will need 1 control device per 120 square feet of heating mats.
For 240V systems, you will need 1 control device per 240 square feet of heating mats.



If your heating mats are in multiple rooms, **a thermostat is required for each individual room.**

Please visit our website at www.quietwarmth.com to view all available thermostat models.

Power Modules

You may incorporate Power Modules in large rooms to expand coverage of your thermostat. A Power Module serves as a relay point only. It can operate the same size of area as a thermostat, but cannot be independently controlled. It will power the mats under the direction of the thermostat in the room.



Gather Materials Needed

What You May Need

- QuietWarmth Tile & Glue mats
- QuietWarmth Thermostat(s) w/ Built-In GFCI and Floor Temperature Sensor
- QuietWarmth Power Module (if applicable)
- Liquid Applied Waterproofing Membrane (for installations over concrete)
- Kapton Discs and Warning Labels (included in QuietWarmth box)
- Underlayment/Backer board (if applicable)
- Duct Tape or Hot Glue Gun
- Tools
 - Digital Ohm Meter (multi-meter)
 - Wire stripper
 - Screwdrivers
 - Wood chisel, drill, or oscillating saw to notch base of wall for lead wires
 - Utility knife
 - Scissors
 - Handheld sweep brush
- Junction Boxes: Minimum of two required for each room or area. One box (3") required for each thermostat or power module, one box (4") required for electrical connections
- 12/2 Romex Wire or a minimum 14-gauge house wiring in emt conduit.
- Tools and materials required for installation of flooring (USE OF PLASTIC TROWELS IS PREFERRED!)

Prep

Prepare the Electrical

This section is for your licensed electrician.

This is a general guide and is not intended to supplant the direction of electrical authorities. Follow all local, state, and national building and electrical codes. All wiring, fuses and/or circuit breakers must conform to National Electrical Code requirements.

GFCI Protection

All heated areas must be protected by a GFCI in either the thermostat or at the service panel. We recommend our QuietWarmth Thermostats, which all have a load of 15A and have a built-in Class A GFCI. Do NOT use a GFCI breaker **and** a thermostat with a built-in GFCI. Having both will cause nuisance tripping.

Prepare The Power Supply

The fuse or circuit breaker used to protect the circuit supplying power to the QuietWarmth system must be rated for a maximum of 20 amperes (no greater than 16 amp load). If a lower rated fuse or circuit breaker is used, it must be rated at least 25% greater than the heating system load attached to it. If an area requires more than the 16 amperes allowed, additional branch circuits may be used, each having its own overcurrent protection. These branch circuits may all be controlled by a single thermostat if it is used with a system of QuietWarmth Power Modules.

Typical Amperage Requirement: 120V QuietWarmth Tile & Glue= 0.1 amps per square foot, or 10 amps per 100 square feet of mats. 240V QuietWarmth Tile & Glue= 0.05 amps per square foot, or 5 amps per 100 square feet of mats.

Note, while QuietWarmth Thermostats are 15A thermostats, we do not recommend installing the maximum square footage per circuit. The trip threshold for the GFCI in the QuietWarmth Thermostats is 5mA. Maxing out the amps per thermostat can cause nuisance tripping. We recommend up to 120 sq. ft. of 120V mats, and up to 240 sq. ft. of 240V mats per circuit.

Install appropriate electrical wire (conductor) from the power source following all codes. Leave extra wire at the control switch/thermostat box for making connections.

Additional Power Circuits

Depending on the amperage requirements of the mat(s), one or more secondary thermostats or power modules may be required. Do not load the thermostat control with more than 15 amps. The National Electrical Code specifies that each branch circuit used in conjunction with a heating system must be for the exclusive use of the heating system. Do not connect lights, outlets, etc. to any branch circuit used with the QuietWarmth system.

Locating the Thermostat(s)

Thermostats are usually located near the power leads, however if the thermostat is to be located beyond where the power leads will reach, connection of the mats needs to be made in a 4" junction box. Power leads need to be wired in parallel, and cannot be connected in series or "daisy-chained". Connect the junction box to the thermostat with 12/2 Romex wire or a minimum 14-gauge house wiring in emt conduit. Location of the thermostat should be approximately 60" (152 cm) above the floor on an inside wall and away from direct sunlight. A 3" deep junction box is recommended for the thermostat. If mats are installed in multiple rooms, a thermostat is required for each room.

Install Electrical Boxes

Install junction box for the control device (thermostat) according to the manufacturer's instructions. This box should be located, unobstructed, on an inside wall so that the device reads accurately. Install a 4x4 inch junction box for making electrical connections between the mats and thermostat. If only using one mat, connection can be made directly from the power supply leads to the thermostat. If connecting multiple mats, it is recommended to join all power leads for that circuit in a junction box, then wire to the thermostat. Power supply leads are 15' long. Locate the junction box where all leads will reach.

Bottom Plate Work

Drill or saw holes at the bottom plate. One hole is for routing power leads or conduit and the other is for the thermostat sensor (included with the thermostat). These holes should be directly below the electrical box(es). It is recommended that you drill or saw holes at the bottom plate. You may also use a notch technique as an alternative.

Install Conduit

Place conduit where the power supply leads from the mat will travel from the opening in the bottom plate through the wall cavity up to the junction box. A floor sensor will be included with the thermostat. Install a separate conduit if required for this sensor.

Install Thermostat Sensor

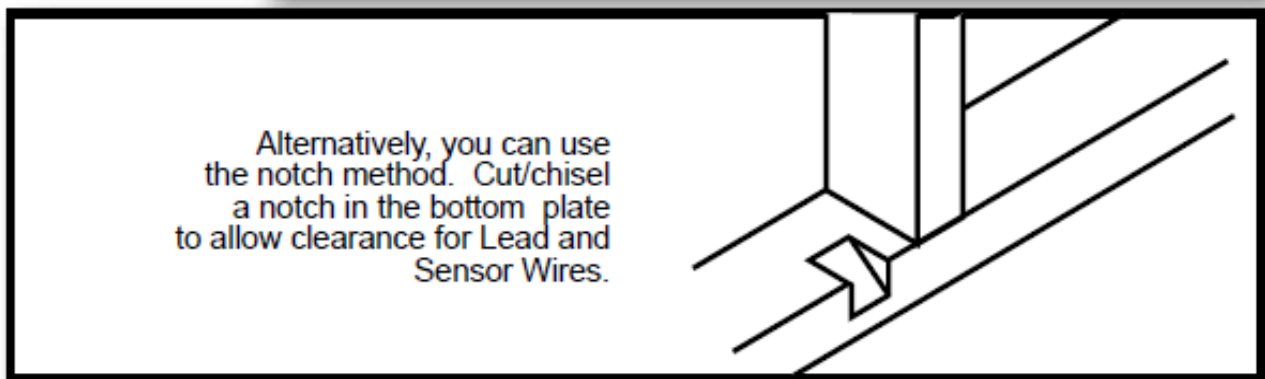
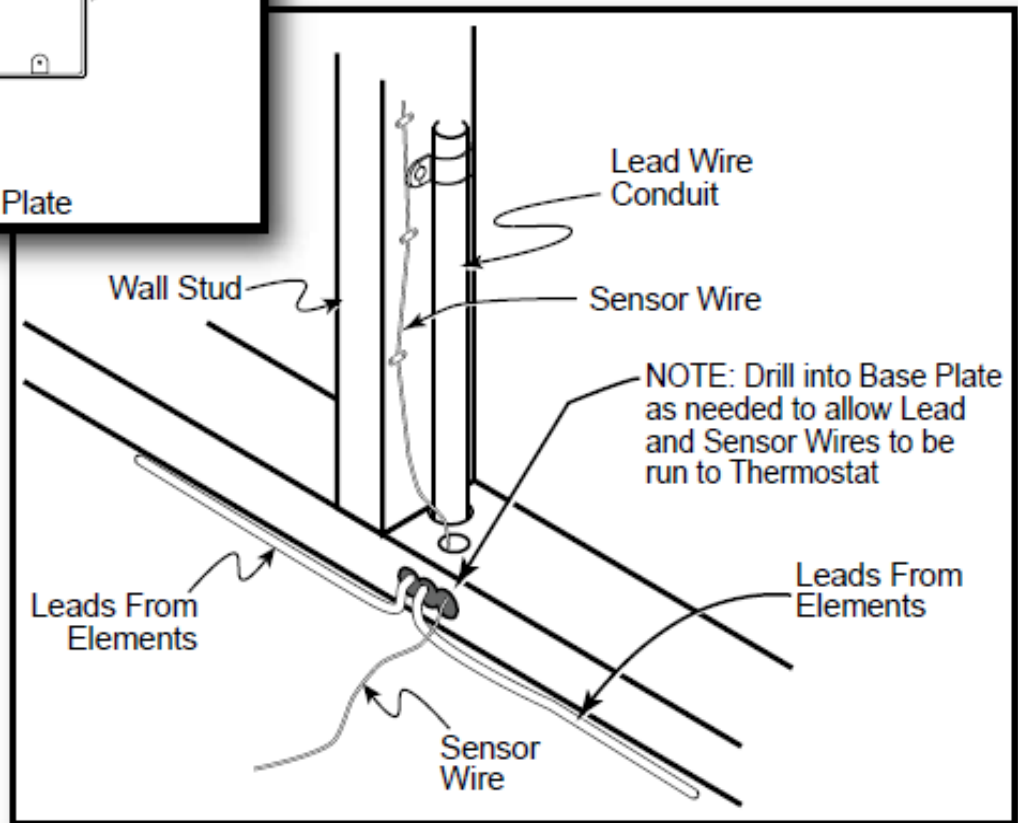
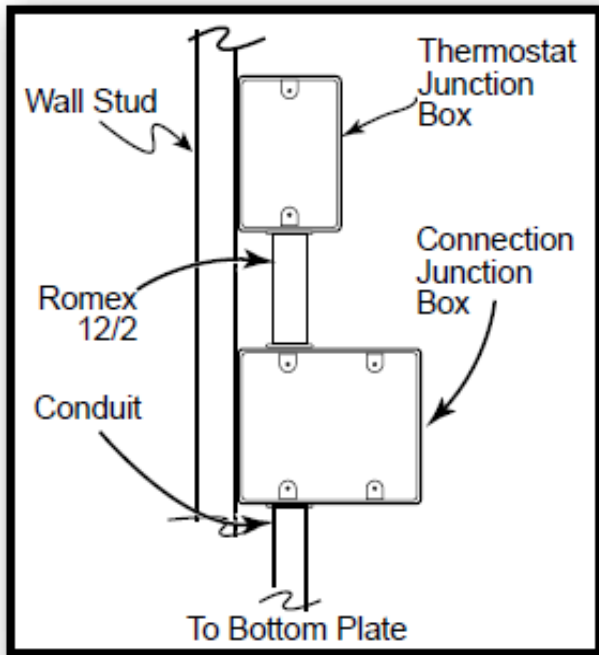
A floor sensor comes with the recommended thermostat control. The sensor wire can be installed without a conduit or in a conduit separate from the electrical power leads if conduit is required by code. Open a second knockout in the bottom of the thermostat box. Feed the sensor (and conduit, if including) through the knockout, down the wall cavity, through the opening in the bottom plate. Temporarily tape the sensor to the slab or subfloor in a location approximately 6" to 12" from the wall---final location of sensor after mat installation will be taped down at the edge of or in between two mats so that the sensor is not directly above a heating mat. Butt the sensor up against the side of the mat for best results. **The sensor is located in the thermostat packaging.*

Connect Junction Boxes

Run speaker wire between thermostat and power modules (if applicable). Run 12/2 Romex or a minimum 14-gauge house wiring in emt conduit between junction box(es) where power supply leads from mats will connect and thermostat box.



Ensure that the breaker supplying power to the heating mats has been turned off before making electrical connections.



Prepare the Subfloor

QuietWarmth Tile and Glue can be installed on many standard subfloors, so long as it is flat, smooth, and free from protrusions. When installing ceramic, porcelain, or natural stone tile, subfloor must meet all requirements set forth by the Tile Council of North America (TCNA). If you are installing a cement backerboard, or other necessary underlayment for your tile installation, do so now following all backerboard/underlayment manufacturer and TCNA guidelines. If you are installing another type of flooring, consult installation guidelines from the flooring manufacturer for subfloor. All substrates must be clean, level, structurally sound, and deemed suitable by the manufacturer of the intended floor covering. Any necessary leveling, patching, or other prep work should be performed prior to installation of heat mats.



Prep

Proper subfloor preparation is crucial to the overall performance of your flooring. Follow all flooring manufacturer's instructions regarding floor preparation prior to installing your QuietWarmth Mats. Your subfloor may require sanding, patching or leveling to ensure it is within flooring manufacturer's tolerances.



Inspect

Carefully inspect subfloor for any sharp objects, such as nails, staples, or screws. Remove any that you find. Subfloor screws should be countersunk and patched with a portland based floor patch compound. Protrusions in the concrete should be ground flat and smooth.



Clean

Clean the subfloor thoroughly with a handheld brush, ensuring that any rocks and debris is removed. Sharp objects can damage the mats creating a potential shock hazard or inefficient operation of the system. Any mats that become torn or otherwise damaged must be discarded.

Create Recesses for Connections/Wires


(Glue Down Only)



Lead Wire and Connections Channel


Once your subfloor is clean and prepped, check the thickness of your underlayment (if using) in comparison to the thickness of the power supply leads and connections on the QuietWarmth Tile & Glue mats. If you are *not* using an additional underlayment, or your underlayment is not thicker than the leads, you must create a channel in your subfloor to recess the route where the lead wires will run.

If your underlayment is thinner than the lead wires and connections, you **NEED** to recess your subfloor.

A cross-sectional photograph showing a wooden subfloor with a thin, dark underlayment. A white lead wire is shown running across the surface, which is higher than the underlayment, indicating it needs to be recessed.

If your underlayment is thinner than the lead wires and connections, you **NEED** to recess your subfloor.

If your underlayment is thicker than the lead wires and connections, you do not need to recess your subfloor.

A cross-sectional photograph showing a wooden subfloor with a thick, dark underlayment. A white lead wire is shown running across the surface, which is lower than the underlayment, indicating it does not need to be recessed.

If your underlayment is thicker than the lead wires and connections, you do not need to recess your subfloor.

If you need to channel into a concrete subfloor, this must be done prior to installing your liquid applied vapor barrier and underlayment. Refer to your planned layout to determine where power supply lead wires will route to the junction box. Remember the lead wires cannot run underneath any of the heating mats. Use a grinder tool such as an angle grinder or rotary die grinder (Dremel) in a concrete subfloor.

Thermostat Sensor Channel



Sensor is thicker than the heating mat; you must create a recess in the subfloor so that top of sensor sits flush with top of mat!

Using the same method as you did for the lead wires and connections, you will need to create a relief space to route the thermostat sensor wire. The depth of that relief channel must be such that the sensor is recessed so that it is level with the top of the mat. **The sensor is located in the thermostat packaging but the electrician may have already hooked it up to the thermostat.* Ideal location for the thermostat sensor is 6"-12" away from the wall, butted next to the edge of the long side of one mat. Sensor wire cannot run under or above any mat. Refer to planned layout to determine best sensor location.



Failure to create proper relief space for connections, lead wires, and thermostat sensor may cause wiring to be pinched or compressed. This can result in nuisance tripping or failure of the heating system, which may occur immediately or over time.

Once you have all channels created in your subfloor, install your vapor barrier and underlayment.

Install Vapor Barrier and Underlayment

Vapor Barrier- CONCRETE SUBFLOOR

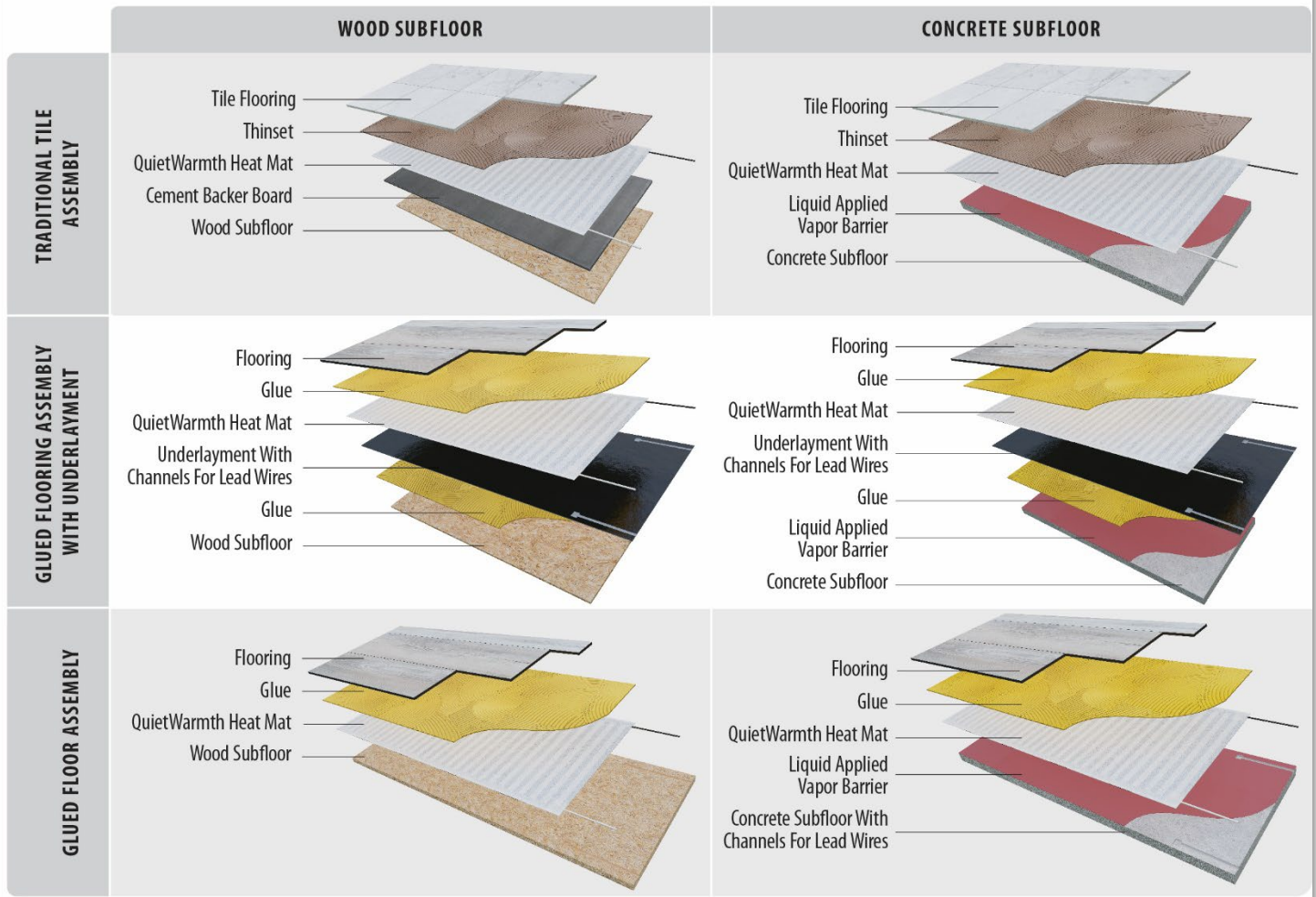
A liquid applied waterproofing membrane is **required** on a concrete subfloor. Failure to use a vapor barrier may result in nuisance tripping of the GFCI in the thermostat. If you have a wood subfloor, you can omit the vapor barrier.



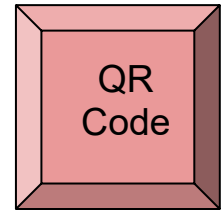
Underlayment- Glue Installations Only (see recommendations in Planning section)

Install the underlayment, film side up, except when using QuietBoard. QuietBoard should be installed with the silver metallic film facing the subfloor. Follow installation instructions for the underlayment being used. Installations of QuietWarmth over non-insulated concrete subfloors may require a longer period of time to adjust to your desired temperature. Cut recesses for connections, lead wires, and sensor probe in underlayment.

TYPICAL TILE FLOORING ASSEMBLIES



QuietWarmth Install



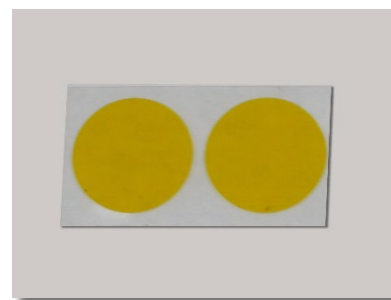
Unpack the Mats

Unpack the mats and inspect. Make sure there are no loose connections, no damaged wires, no bends/tears/cuts in the mats. If anything is damaged, the mat cannot be installed and needs to be replaced.



Locate the warning stickers. Do not discard, these are required after installation is complete to maintain the warranty.

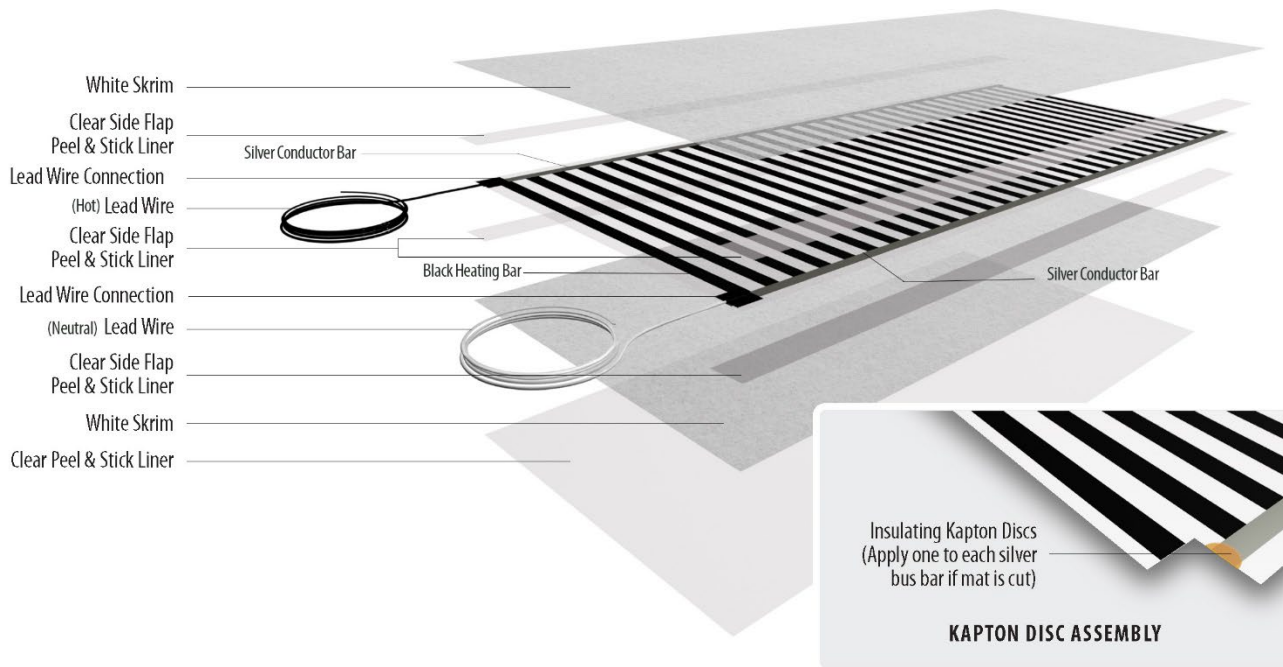
In the mat kit, there will be Kapton discs- these are very important! Do not discard!



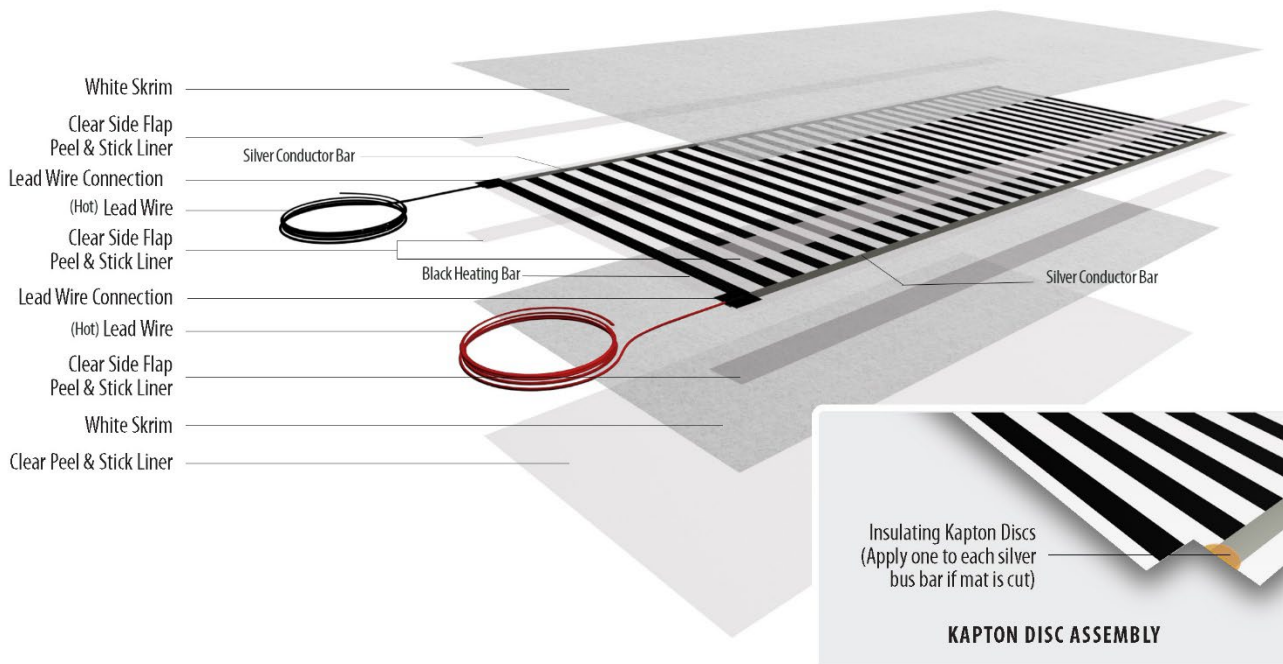
Upon removing the heating mats from the box, it is important to check and record the resistance of each mat using a digital ohmmeter, and compare those readings with the baseline resistance indicated on the stickers attached to the mats. If any mat shows a resistance reading that is less than 10% or greater than 5% from the baseline value, call the technical support hotline at **1-888-WARM PAD**.

Anatomy of the Mats

120V QUIETWARMTH TILE MAT ANATOMY



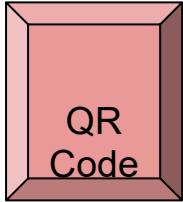
240V QUIETWARMTH TILE MAT ANATOMY



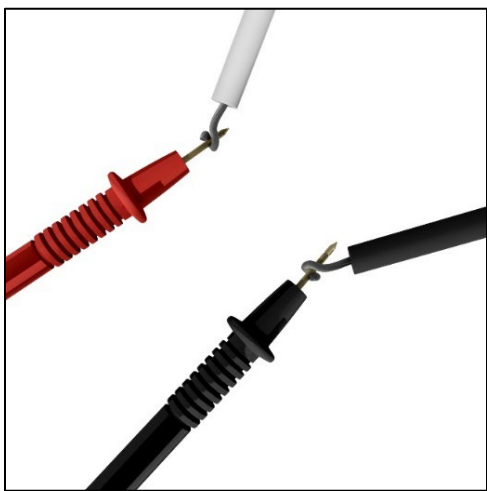
Check Resistance



Record Results

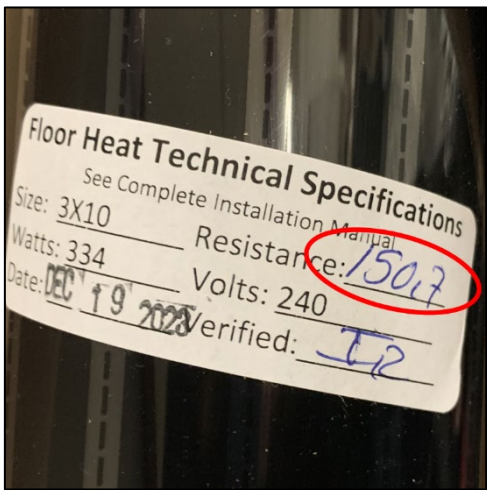
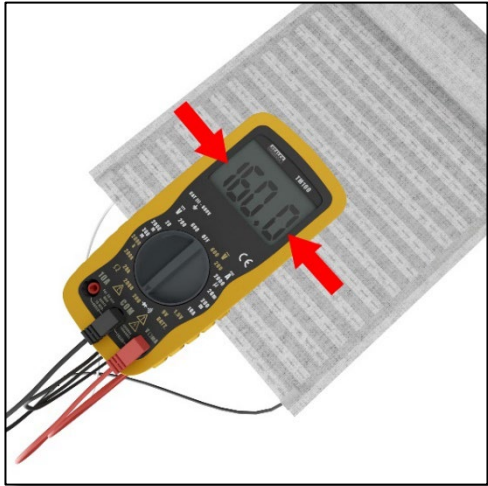


Insert probes into multimeter marked VΩmA and COM. Color of probe does not matter. Set multimeter to section marked with the Ohm symbol Ω and 200 Ohms or if the heating mat has resistance over 200 Ohms, then set the multi-meter to 2000 (see circle).



Wrap black and white lead wires from 120V mats, or black and red lead wires from 240V mats around the multimeter probes (color of probe does not matter). Avoid touching the probes during measurement as it could affect the accuracy of the resistance value.

Record the resistance value displayed by the multi-meter, in this example 160.



Compare the resistance with the value on the factory label. If the difference is within a range -10%/+5% the mat is okay to use. You can consult chart for lower & upper limits.

Prepare the Mats for Install

If you don't need to cut the mat, proceed to Install Mat Section



Altering the Length of the Mats (If necessary)



Consult your diagram and determine if you need to adjust the length of any of your mats. Mats can be cut to length as needed. Mats **cannot** be cut to width.

Use scissors to cut between solid black bars straight across the width of the mat. Do not cut mats in arches, circles, curves, "L" shapes, or angles. Make sure you measure the length you need from the end that has lead wires. Cut off portions of the mats are unusable and should be discarded.

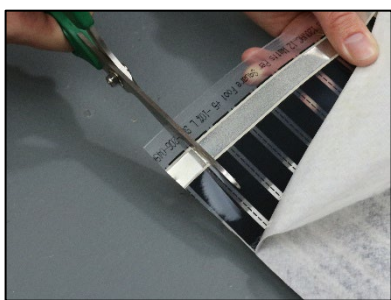


Cut between solid black bars all the way across the mat at the length needed.

Lay back the white flaps on the long sides of the mats to expose the clear film with metal conductor bars and black heating elements.



The heating mats can only be cut to fit length. Do not cut or notch to fit around any obstructions or penetrations such as door openings or floor registers.

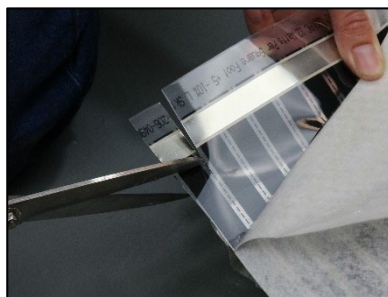


Make a cut across the silver metal conductor bar one black heating element from the end of the mat. Do not cut into black heating element bar as this will cause the GFCI to trip. Do **not** cut through the white scrim on the top and bottom of the mat.



Cut only through the clear area between the heating stripes. NEVER cut into the solid black heating stripes themselves.

Cut through the last black heating element bar to remove the end of the silver bus bar, creating a notch. Do not over-cut into the next black bar. Repeat on both sides.



Insulate Cut Ends



It is very important to insulate the cut ends of the mat with the provided Kapton discs. Failure to do so will lead to nuisance tripping of the GFCI.



Use the included Kapton discs to insulate the cut ends of the silver bus bars. The silver bus bars run parallel down the length of each side of the mat and are the electricity conducting component of the mat.

Make sure the ends are clean and free of debris. Fold the Kapton disc in half over the end of the bus bar, so that half the circle is stuck to the front of the mat and the other half is stuck to the back of the mat.

There will be two bus bars per mat to insulate.

If Kapton discs are missing or damaged, use electrical tape as a substitute



Check Resistance AGAIN!



Record Results

A resistance check across the supply leads of each mat using a digital ohm meter must be made to detect any short or open circuits. If you have not altered the mat, compare your readings to the factory readings. If you alter the length of the mat, the resistance WILL change. The value will be different from the original factory reading. Compare your resistance reading to the chart below, based on the NEW mat length.

120 V Resistance (Ohms)

Size	Amps	Watts	Low Limit	Nominal	High Limit
1.5x1	0.150	18	720.00	800.00	840.00
1.5x2	0.300	36	360.00	400.00	420.00
1.5x3	0.450	54	240.00	266.67	280.00
1.5x4	0.600	72	180.00	200.00	210.00
1.5x5	0.750	90	144.00	160.00	168.00
1.5x6	0.900	108	120.00	133.33	140.00
1.5x7	1.050	126	102.86	114.29	120.00
1.5x8	1.200	144	90.00	100.00	105.00
1.5x9	1.350	162	80.00	88.89	93.33
1.5x10	1.500	180	72.00	80.00	84.00
1.5x11	1.650	198	65.45	72.73	76.36
1.5x12	1.800	216	60.00	66.67	70.00
1.5x13	1.950	234	55.38	61.54	64.62
1.5x14	2.100	252	51.43	57.14	60.00
1.5x15	2.250	270	48.00	53.33	56.00
1.5x16	2.400	288	45.00	50.00	52.50
1.5x17	2.550	306	42.35	47.06	49.41
3x1	0.300	36	360.00	400.00	420.00
3x2	0.600	72	180.00	200.00	210.00
3x3	0.900	108	120.00	133.33	140.00
3x4	1.200	144	90.00	100.00	105.00
3x5	1.500	180	72.00	80.00	84.00
3x6	1.800	216	60.00	66.67	70.00
3x7	2.100	252	51.43	57.14	60.00
3x8	2.400	288	45.00	50.00	52.50
3x9	2.700	324	40.00	44.44	46.67
3x10	3.000	360	36.00	40.00	42.00
3x11	3.300	396	32.73	36.36	38.18
3x12	3.600	432	30.00	33.33	35.00
3x13	3.900	468	27.69	30.77	32.31
3x14	4.200	504	25.71	28.57	30.00
3x15	4.500	540	24.00	26.67	28.00
3x16	4.800	576	22.50	25.00	26.25
3x17	5.100	612	21.18	23.53	24.71
3x18	5.400	648	20.00	22.22	23.33
3x19	5.700	684	18.95	21.05	22.11
3x20	6.000	720	18.00	20.00	21.00
3x21	6.300	756	17.14	19.05	20.00
3x22	6.600	792	16.36	18.18	19.09
3x23	6.900	828	15.65	17.39	18.26
3x24	7.200	864	15.00	16.67	17.50
3x25	7.500	900	14.40	16.00	16.80

240 V Resistance (Ohms)

Size	Amps	Watts	Low Limit	Nominal	High Limit
1.5x1	0.075	18	2880.00	3200.00	3360.00
1.5x2	0.150	36	1440.00	1600.00	1680.00
1.5x3	0.225	54	960.00	1066.67	1120.00
1.5x4	0.300	72	720.00	800.00	840.00
1.5x5	0.375	90	576.00	640.00	672.00
1.5x6	0.450	108	480.00	533.33	560.00
1.5x7	0.525	126	411.43	457.14	480.00
1.5x8	0.600	144	360.00	400.00	420.00
1.5x9	0.675	162	320.00	355.56	373.33
1.5x10	0.750	180	288.00	320.00	336.00
1.5x11	0.825	198	261.82	290.91	305.45
1.5x12	0.900	216	240.00	266.67	280.00
1.5x13	0.975	234	221.54	246.15	258.46
1.5x14	1.050	252	205.71	228.57	240.00
1.5x15	1.125	270	192.00	213.33	224.00
1.5x16	1.200	288	180.00	200.00	210.00
1.5x17	1.275	306	169.41	188.24	197.65
3x1	0.150	36	1440.00	1600.00	1680.00
3x2	0.300	72	720.00	800.00	840.00
3x3	0.450	108	480.00	533.33	560.00
3x4	0.600	144	360.00	400.00	420.00
3x5	0.750	180	288.00	320.00	336.00
3x6	0.900	216	240.00	266.67	280.00
3x7	1.050	252	205.71	228.57	240.00
3x8	1.200	288	180.00	200.00	210.00
3x9	1.350	324	160.00	177.78	186.67
3x10	1.500	360	144.00	160.00	168.00
3x11	1.650	396	130.91	145.45	152.73
3x12	1.800	432	120.00	133.33	140.00
3x13	1.950	468	110.77	123.08	129.23
3x14	2.100	504	102.86	114.29	120.00
3x15	2.250	540	96.00	106.67	112.00
3x16	2.400	576	90.00	100.00	105.00
3x17	2.550	612	84.71	94.12	98.82
3x18	2.700	648	80.00	88.89	93.33
3x19	2.850	684	75.79	84.21	88.42
3x20	3.000	720	72.00	80.00	84.00
3x21	3.150	756	68.57	76.19	80.00
3x22	3.300	792	65.45	72.73	76.36
3x23	3.450	828	62.61	69.57	73.04
3x24	3.600	864	60.00	66.67	70.00
3x25	3.750	900	57.60	64.00	67.20

*Amperage and Wattage listed is the nominal value. Tolerance range is -10%/+5%. Actual acceptable range for resistance may vary based on true amperage and wattage of individual mat.

Check Resistance (cont)

If your mat is cut to a length not represented in the chart, you can also figure the acceptable resistance range with the following formulas:

- **18 inch wide film** - Each heating bar or stripe =0.86 Watts. Multiply the number of heating bars or stripes of the newly shortened mat by 0.86 and this will equal the total wattage of the mat.
- **36 inch wide film** - Each heating bar or stripe =1.75 Watts. Multiply the number of heating bars or stripes of the newly shortened mat by 1.75 and this will equal the total wattage of the mat.

120V Radiant Heat Film Resistance Values

Tolerances for resistance measurements are -10% and +5%. To determine nominal resistance for 120V, divide 14,400 by the total wattage. This will equal Nominal Resistance for the 120V material. Next, multiply nominal resistance by 1.05 to equal the high limit. Then, multiply the nominal resistance by 0.90 to equal the low limit.

240V Radiant Heat Film Resistance Values

Tolerances for resistance measurements are -10% and +5%. To determine nominal resistance for 240V, divide 57,600 by the total wattage. This will equal Nominal Resistance for the 240V material. Next, multiply nominal resistance by 1.05 to equal the high limit. Then, multiply the nominal resistance by 0.90 to equal the low limit.

18" Wide 120V Mat

$14,400 \div (\# \text{ of black heating bars} \times 0.86) = \text{Nominal Resistance}$
 $\text{Nominal Resistance} \times 0.90 = \text{Low Range}$
 $\text{Nominal Resistance} \times 1.05 = \text{High Range}$

36" Wide 120V Mat

$14,400 \div (\# \text{ of black heating bars} \times 1.75) = \text{Nominal Resistance}$
 $\text{Nominal Resistance} \times 0.90 = \text{Low Range}$
 $\text{Nominal Resistance} \times 1.05 = \text{High Range}$

18" Wide 240V Mat

$57,600 \div (\# \text{ of black heating bars} \times 0.86) = \text{Nominal Resistance}$
 $\text{Nominal Resistance} \times 0.90 = \text{Low Range}$
 $\text{Nominal Resistance} \times 1.05 = \text{High Range}$

36" Wide 240V Mat

$57,600 \div (\# \text{ of black heating bars} \times 1.75) = \text{Nominal Resistance}$
 $\text{Nominal Resistance} \times 0.90 = \text{Low Range}$
 $\text{Nominal Resistance} \times 1.05 = \text{High Range}$

Example- I have an 18" wide 120V mat that I have cut down to 4'2" long. It has 27 full black bars on it.

$27 \times 0.86 = 23.22 \text{ Watts}$

$14,400 \div 23.22 = 620.16 \text{ Nominal Resistance}$

$620.16 \times 0.90 = 558.14 \text{ Low Range}$ ← If resistance falls between these two numbers,

$620.16 \times 1.10 = 682.17 \text{ High Range}$ ← then it is in the correct range!

After performing your second resistance check of each mat, you need to record the values. These measurements are **required** for warranty registration.

- If the resistance check is **BETWEEN** the low and high resistance limits, the mat is reading accurately and you can proceed to install it.
- If the resistance is **HIGHER** than the indicated high resistance limits this indicates a damaged mat. You will need to locate the damage and cut the mat off at that point & reinsulate the ends. If you cannot visually locate the damage, you will need to discard the mat and purchase a new one.
- If the resistance is **LOWER** than the indicated low resistance limits please contact us at 1-888-WARM PAD.
- If the resistance reading is **ZERO**, this indicates a short circuit. Check the path that the wiring is taking and make sure that no wires are pierced or otherwise damaged. Mats with damaged non heating leads must be replaced.

Install Mats



Room temperature must be above 32°F (0°C) at the time of mat installation, and thereafter.



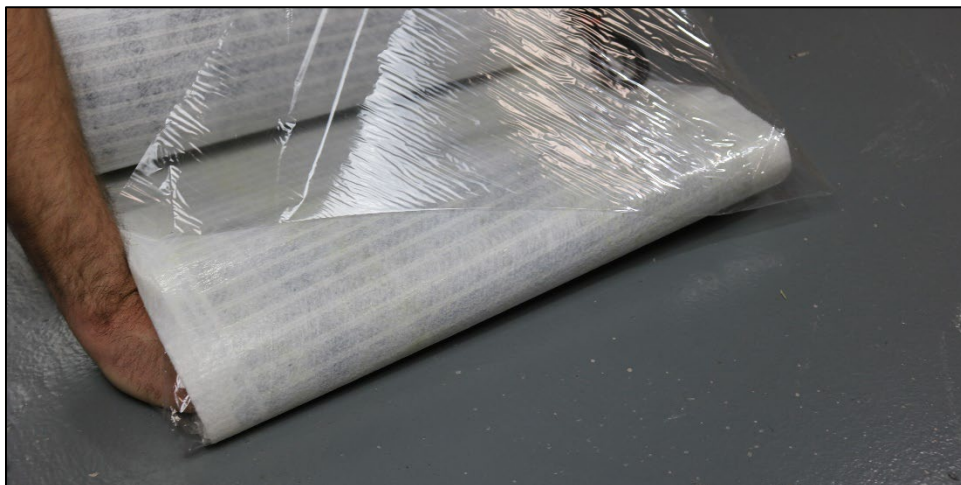
This equipment shall be installed only by qualified personnel who are familiar with the construction and operation of the apparatus and the risks involved.

1. With the release liner still on, position all the mats according to your design plan. Make sure the 15' lead wires are within reach of your junction boxes for the lead wire connections.
2. When all the mats are in proper position, roll the end with the connections back far enough to peel back approximately 12" (30cm) of the release paper to expose a portion of the adhesive surface.



It is important to take care in the placement of the heating mats, as once the adhesive side of the mat comes in contact with the stable subfloor it will provide a tenacious bond and will be very difficult to move.

3. Press this exposed section of the mat onto the surface and then roll the other end back to the point where the release paper was removed.



Install Mats (Cont)

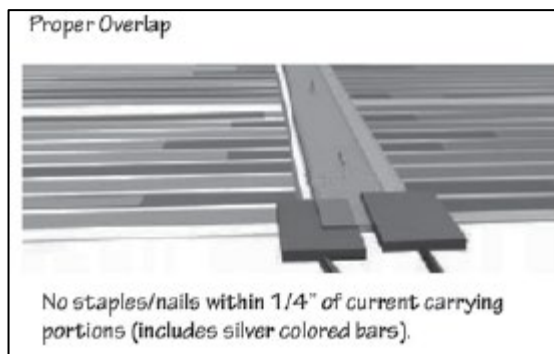
4. Begin pulling the release liner off and hand smooth the mat into position as it unrolls to achieve a positive bond while avoiding trapping air bubbles.



5. Continue installing all mats in the same fashion.
6. Route the lead wires and use duct tape or hot glue to secure in place. If you are installing a glue-down flooring, make sure connections and lead wires are positioned in relief channels created in subfloor/underlayment.



We do not recommend overlapping the mats, however if mats need to be placed close together for layout, you must ensure no portion of the silver or black heating elements, or the electrical connections or wires should be overlapped.



Elements may be overlapped **ONLY** as shown in the figure. Under no circumstances may current carrying portions of the mats overlap. Overlapping warming sections can result in overheating and potential fire danger.

Seal The Sides of the Mats (EXTREMELY IMPORTANT!)

**This step must be done regardless if you are cutting the mat or not! If this step is not done, it will lead to nuisance tripping of the GFCI and void the warranty.*



Fold back and crease the top white “flap” on the side of the heating panel to keep it out of the way while working with the bottom flap.



Gently lift up the heating elements (DO NOT FOLD OR CREASE)



Peel the release liner on the bottom flap to expose the adhesive. Lay the heating elements down on the bottom flap and press with your hands, smoothing out all air bubbles.



Once the heating element is adhered to the bottom of the flap carefully peel back the upper release liner and press down to seal the edges of the membrane.



Make sure to press out all air bubbles. Repeat process for all sides of all mats.

Install Thermostat Sensor



Sensor is thicker than the heating mat. If installing a glue down floor, you need to create a recess for the floor sensor in the underlayment or subfloor, so the top of the sensor is level with the top of the heating mat. If installing tile the thinset layer may accommodate for the difference in thickness.

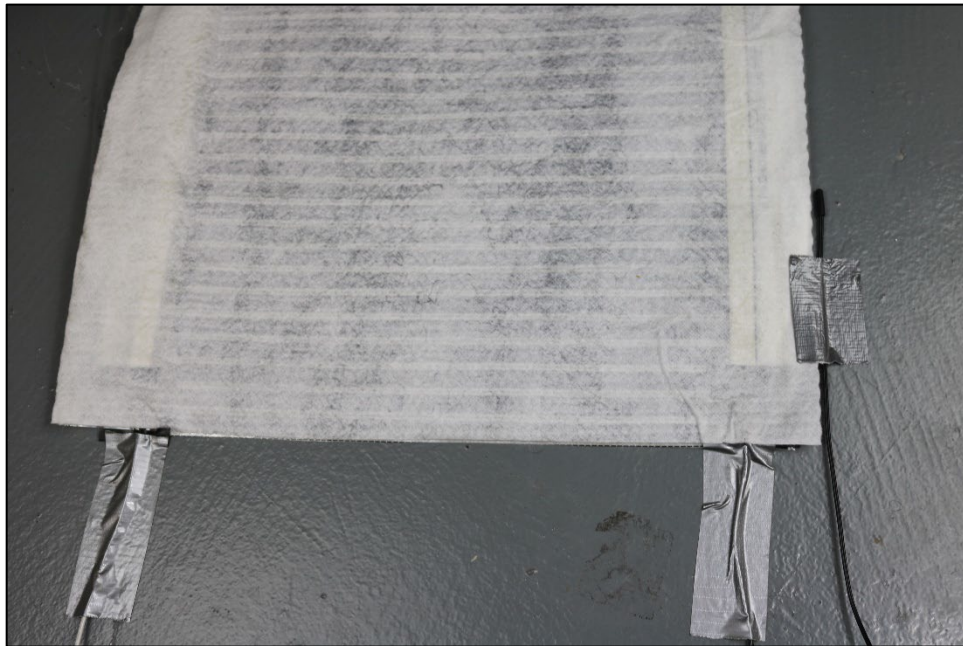


Do not damage the sensor.



For best results, the sensor should be positioned parallel to the long edge of one of the mats. It can touch the outer edge of the white skim on the mat, but should **not** touch the metal bus bar (heating element). It should also not cross over, or be installed on top of or under any mats. Use duct tape to secure the sensor in the place.

**The sensor is located in the thermostat packaging, but your electrician may have already hooked it up to the thermostat at this point.*



Take care not to damage the heating mats while they are on the floor. Do not drop items on mats and avoid unnecessary foot traffic in heating areas before finished flooring has been installed.

Electrical Connection & Testing

This section is for your licensed electrician.

It is important that this manual be followed during the installation procedures and that all warnings be followed. Wiring should be performed by a licensed electrician in accordance with all applicable building and electrical codes during the installation as well as for any trouble shooting of the system. Failure to do so voids warranty.



Follow all national and local electrical codes for final electrical hook up.



Ensure power is turned off to the circuit prior to electrical hook up.

If installing an individual mat, the mat can be wired directly to the control.

When installing multiple mats, connect the mats together in a junction box. Run the lead wires from the individual mats along the base of the wall and up to the junction box. Mats must be wired in parallel, and cannot be connected in series or “daisy-chained”. From there, connect to the control (thermostat or power module) according to the manufacturer’s instructions using the 12/2 Romex wire or a minimum 14-gauge house wiring in emt conduit.

Refer to the complete thermostat installation guide.

On 120V systems, we recommend no more than 120 sq ft of radiant heat film mats be wired together for one thermostat to run.

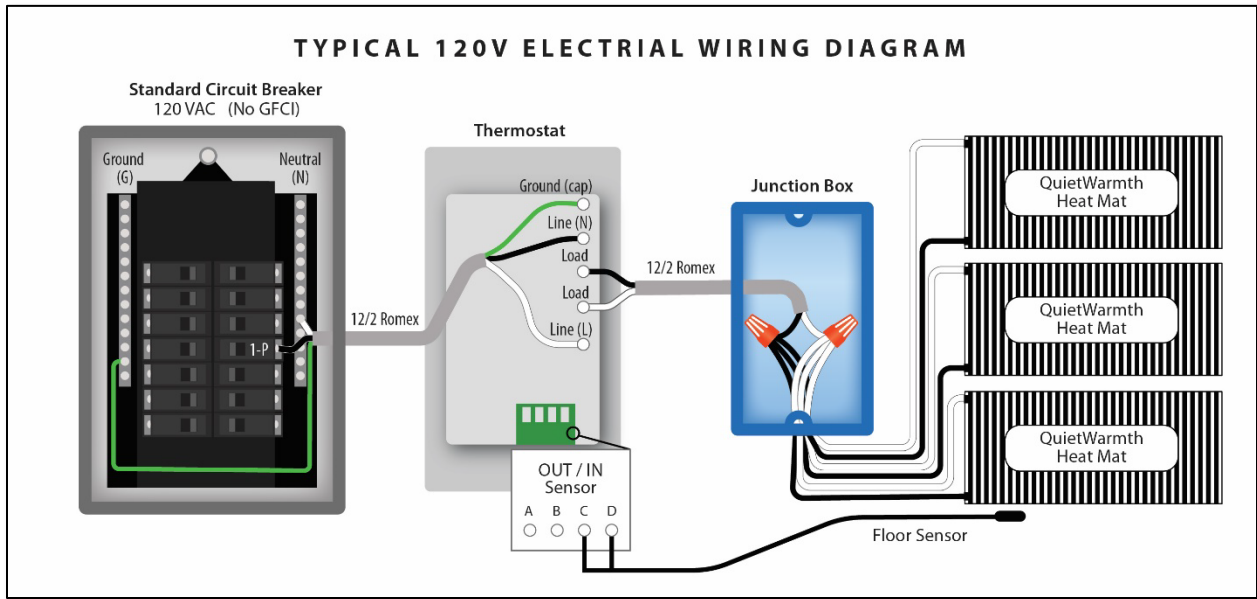
On 240V systems, we recommend no more than 240 sq ft of radiant heat film mats be wired together for one thermostat to run.



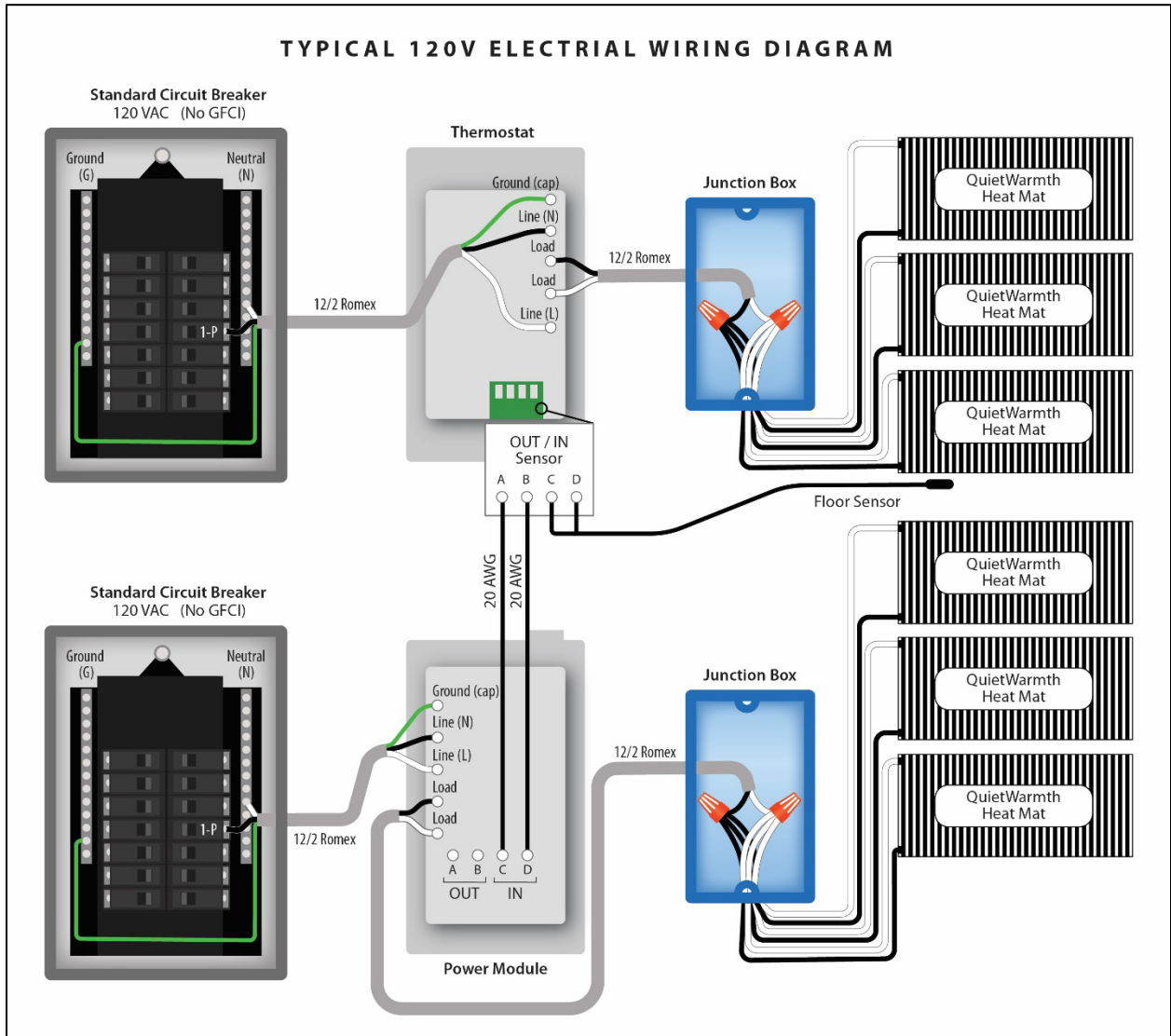
MATS ARE VOLTAGE SPECIFIC. YOU CANNOT WIRE 120V MATS TO 240VAC POWER SUPPLY, OR VICE VERSA!

If additional area coverage is needed, a power module may be added. Each control unit (thermostat or power module) must be placed on a dedicated 20 amp circuit from the main electrical box. Follow all thermostat manufacturer installation instructions.

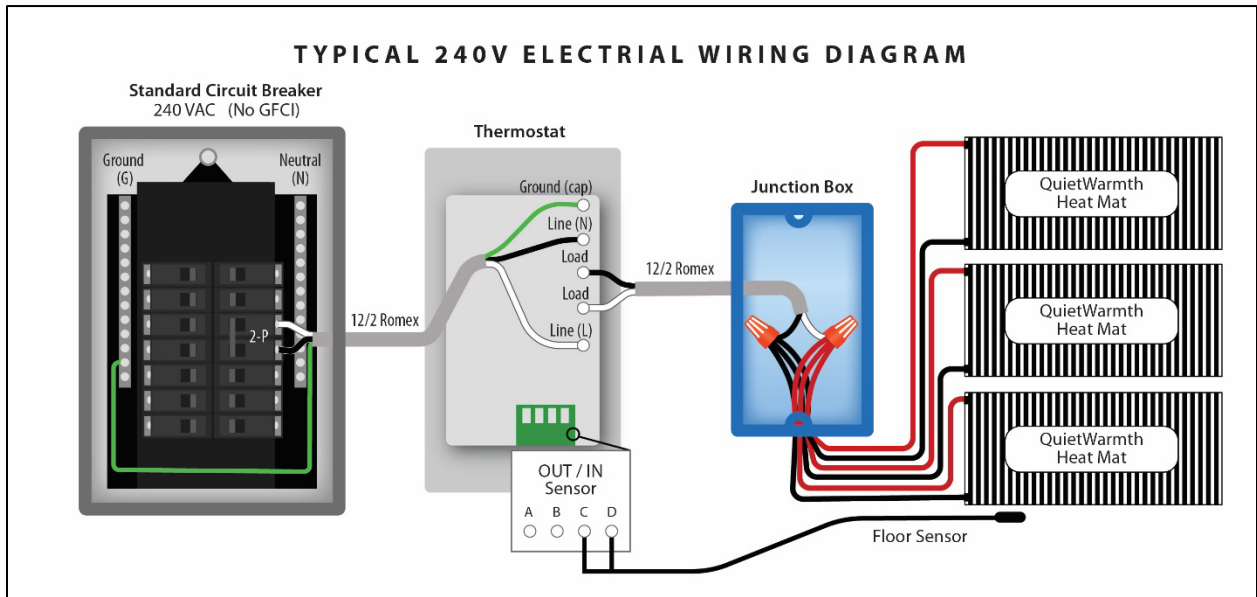
Typical 120V Electrical Wiring



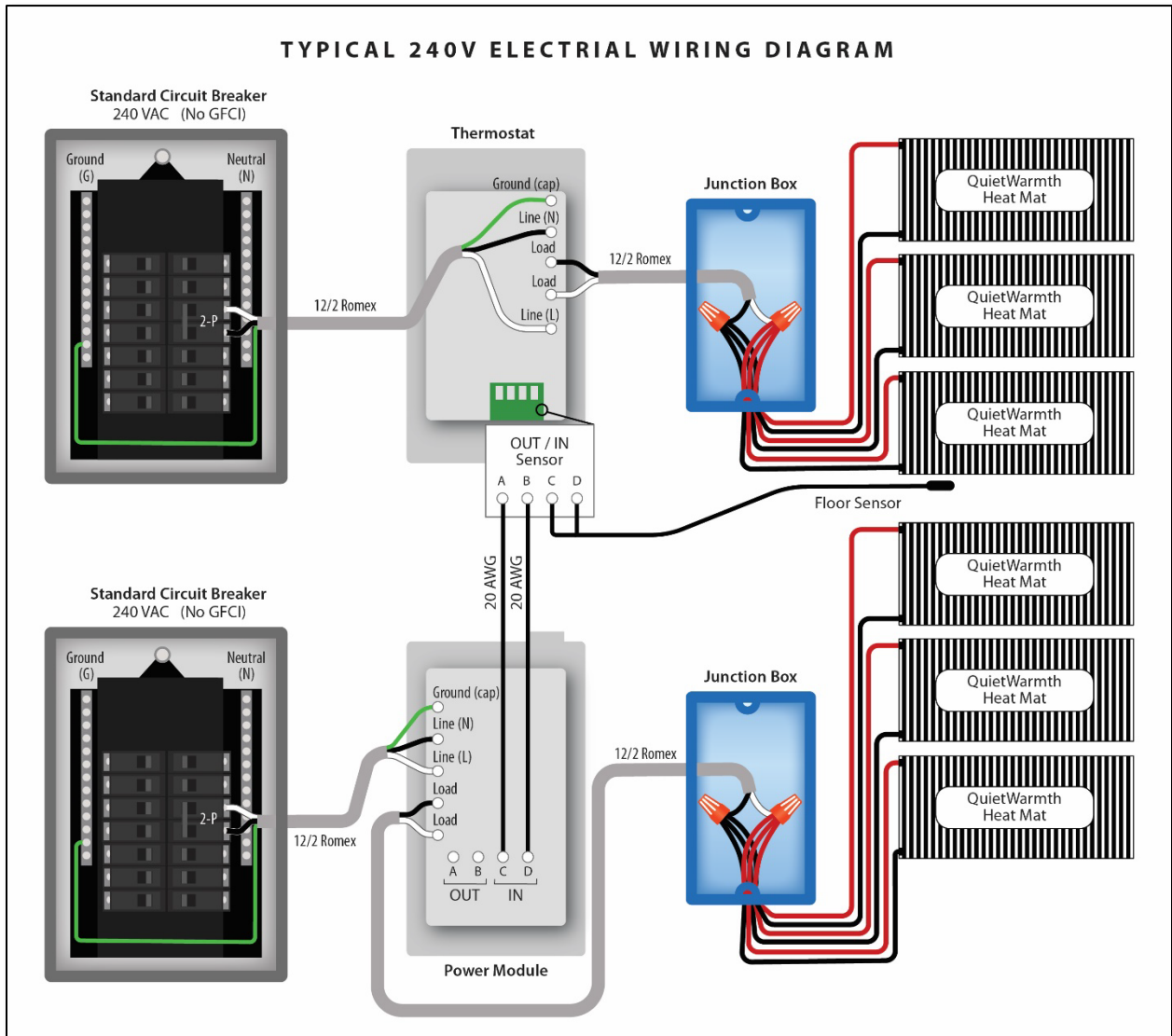
With Power Module



Typical 240V Electrical Wiring



With Power Module



Visual Inspection

A visual check must be performed on the heating mats prior to electrical activation to look for any signs of damage to the mat or electrical leads that may have occurred during installation. Be especially watchful for any signs of damage, wear, scratches, cuts, etc. that might have occurred during installation. If any portion of a mat appears damaged, replace the entire mat.

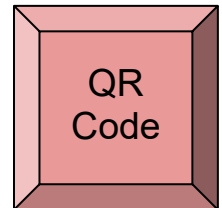
The heating test may be required by the floating floor manufacturer based on the type of sub-floor being used (i.e. concrete). Always check with your floating floor manufacturer for any restrictions and/or requirements that they have concerning the use of their product in conjunction with floor warming systems.

Check Resistance THIRD TIME!



Record Results

Resistance must be checked and recorded again at this time prior to energizing the mats. Refer back to [Check Resistance](#) section for instruction on how to check the reading. Compare this reading to the factory reading if the mat is unaltered, or to the chart on [PAGE #](#) or the calculated range if the mat length has been altered.



If the resistance check is BETWEEN the low and high resistance limits, the mat is reading accurately and you can proceed.

If the resistance is HIGHER than the indicated high resistance limits this indicates a damaged mat. You will need to discard the mat and purchase a new one.

If the resistance is LOWER than the indicated low resistance limits please contact us at [1-888-WARM PAD](tel:1-888-WARM-PAD).

If the resistance reading is ZERO, this indicates a short circuit. Check the path that the wiring is taking and make sure that no wires are pierced or otherwise damaged. Mats with damaged non-heating leads must be replaced.



Record the resistance measurements of each mat after installation. These measurements should be compared to the recorded readings on the product label if mats are unaltered, or to the calculated resistance range if mats were altered, to confirm a successful installation. These measurements are required for warranty registration. If a mat fails the resistance check, it must be retested after any corrective actions.

Energize the Mats & Test for Heating

Once all mats have passed the third resistance check, you can energize the mats and check for warming.

A test of the system to make sure all mats are heating properly is recommended prior to installation of finished flooring. The manufacturer will not be responsible for the replacement of the floor heating system if the system operation was not checked, verified, and recorded prior to installation of the flooring.

Test for Heating

1. Turn on the breaker and adjust the thermostat so that the system begins heating.
2. It may be helpful to set a piece of flooring or an object such as a tool on top of the heating mat during the test to indicate the mat is conducting heat.
3. After the system has been on for several minutes, place your hand on the heating mats and object to ensure that they are warm.
4. If the mats do not become warm, double check all wiring and re-perform the electrical tests above (after turning off power at the breaker).

***Disclaimer:** The mats will generate a low, comfortable warmth, which may not be detectable to the touch. The mats are designed to heat the flooring through radiant heating, but without being covered by flooring there is no thermal mass to radiate the heat and they may not feel warm to the touch. If the area is cold during installation it is likely that the mats will not feel warm to the touch, so you will have to rely on the electrical resistance tests alone or the use of an IR thermometer temperature sensing device.*



The mats will generate a low, comfortable warmth. If area is cold during installation, it is likely that the mats will not seem warm so you will have to rely on the electrical tests. If the mats do not become warm, double-check all wiring and again perform the electrical tests above (after turning off power at the breaker).

STOP! Last Chance to Check Your Work!

Before you install your flooring, ask yourself these questions:

Were you careful not to pull/damage where the lead wires connect to the mats? Mats with damaged wires or connections should not be installed and need to be replaced. If you install them, they may fail, trip the GFCI, or could potentially lead to risk of fire or electric shock.

Did you protect your mats from moisture? When you are installing over concrete, a vapor barrier is required to protect the electrical components from moisture. Moisture can interfere with the electricity and will often cause GFCI tripping.

Did you install Kapton discs on cut ends? These insulating discs are extremely important to make sure there is no electrical leakage. Even slight amounts of electrical leakage will cause the GFCI in the thermostat to trip.

Did you seal the edges of the mat? It is crucial to protect the heating elements from moisture in the thinset, adhesive, or concrete subfloor vapor emissions. Moisture can interfere with the electricity and will often cause GFCI tripping. The white flaps on the edges of the mats must be sealed up, even if the mats are not altered in length.

GLUE DOWN ONLY- Did you recess an area for your connections and lead wires in the underlayment or subfloor? It is very important to ensure the connections, lead wires, and floor sensor are not pinched by the finished floor covering. A channel to recess connections and wires must be cut into the underlayment; if no underlayment is used or if the connections are thicker than the underlayment, the channel needs to be in the subfloor. Pinched wires and connections may cause failure of the system.

Did you perform and record all of the resistance (OHM) readings and ensure they are in the proper range? This information is required for warranty registration/claims and troubleshooting assistance.

Did you inspect for any damage to the mats? Damaged mats should not be installed and need to be replaced.

Please make sure you thoroughly read, understand, and follow all installation instructions.

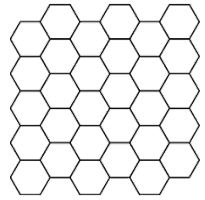
- Thermostat GFCI “tripping” is often due to improper installation.
- Inadequate heating or mat failure is often due to improper installation.
- Overheating is often caused by improper installation or improper use of materials over flooring. Overheating is dangerous and can ruin your flooring or potentially lead to fire.
 - **REMEMBER!- No flat bottom furniture, mattresses, beanbag chairs, area rugs, hampers, etc are to be placed on flooring above radiant heated areas.**

Employ a licensed electrician for all wiring connections. Remind your electrician that each thermostat needs to be on a dedicated circuit with a standard 20-amp breaker. Any deviation from this could lead to nuisance tripping.

Flooring Install



If using a small format tile or mosaic tile, it may be best to use a self-leveling product over the top of the QuietWarmth mats to minimize unevenness and prevent mat locations from being visible under the tile assembly.



When using a glue down flooring, we recommend using a floor patch compound around the edges of the mats to minimize telegraphing, especially when installing a luxury vinyl product. Flooring must be 4mm or thicker.

Any claims made regarding visibility of mats under finished floor covering are not covered under warranty.

Install the finished flooring according to the manufacturer's instructions.



Be extremely careful when installing the flooring in the area of the mats. Avoid walking or kneeling directly on exposed mats.



Do not use sharp tools when installing the flooring over the mats. Plastic trowels are highly recommended for thinset and adhesives. Do not pierce or puncture the flooring in the area of the mats.



Use a silicone sealant against all plumbing fixtures and around the perimeter of the room in bathrooms.



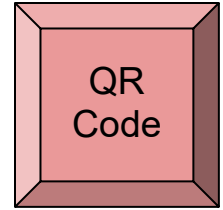
When installing all basework around the perimeter of the room and transition strips at doorways, do not puncture the mats, connections, lead wires, or thermostat sensor.

Check Resistance FOURTH TIME!



Record Results

Perform another resistance check on all mats after installing your floor covering to ensure nothing was damaged during flooring installation. Record the readings. If any resistance readings have changed from previous test, your mats may have been damaged during flooring installation.



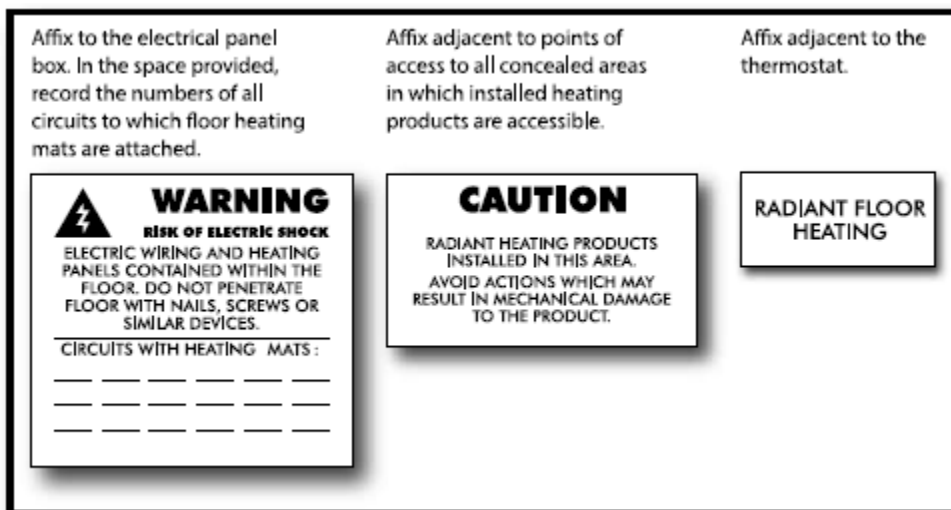
If the resistance is HIGHER than the indicated high resistance limits this indicates a mat was damaged during the installation process. You will need to replace the mat. Be extremely careful in removing the flooring to access the damaged mat so as not to damage adjacent mats.

If the resistance is LOWER than the indicated low resistance limits please contact us at [1-888-WARM PAD](tel:1-888-WARM-PAD).

If the resistance reading is ZERO, this indicates a short circuit. Check the path that the wiring is taking and make sure that no wires are pierced or otherwise damaged. Mats with damaged non heating leads must be replaced.

Place Caution Stickers

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.



Repair/Remodel Information

Ensure any remodeling and repair technicians are made aware of and use caution when working in the area of heating mats. Keep your design layout to show them approximate locations of the mats. Before performing any remodeling work near a heated floor, carefully read through this manual to understand the clearances, procedures, and materials involved as well as the testing procedures required to ensure system safety.



This information must be read and understood by all repair and remodeling technicians who will be working on the house structure in the area of an installed QuietWarmth Mat or main electrical systems. Failure to follow these guidelines may result in a risk of electric shock or fire hazard.



When installing any other materials on or near a heated floor, ensure that no heating elements are punctured by nails, screws, etc.

Do Not Energize System for 28 Days

System must remain off for 28 days after completion of flooring installation to allow for thinset to properly cure. Energizing the system prior to 28 days may cause nuisance tripping of GFCI, or compromise the integrity of the thinset bond.

Post Installation

Troubleshooting

It is important that this manual be followed during the installation procedures and that all warnings be followed. Wiring should be performed by a licensed electrician in accordance with all applicable building and electrical codes during the installation as well as for any troubleshooting of the system. Failure to do so voids warranty.

A test of the system to make sure all mats are heating properly is recommended prior to installation of finished flooring. The manufacturer will not be responsible for the replacement of the floor heating system if the system operation was not checked and verified prior to installation of the flooring.

Symptom	Corrective Actions
Individual Mat Not Warming	Verify all leads from all mats are properly connected to the power source. Areas within a mat that are not heating could be the result of damage and will require the mat to be replaced.
Slow to Heat	Installations on concrete slabs can require a period of several days to warm up to desired temperature especially if the slab is uninsulated in a cold climate. Set Thermostat to maximum heat to allow the system to continue running until it becomes warm. Then adjust the thermostat down if needed. Verify floor temperature sensor is not directly on top of heating element causing the thermostat to shut off more frequently.
System Too Hot	Adjust thermostat Verify that the correct voltage is being applied to heating elements- 120V mats can only be powered by 120V circuits; you cannot connect 120V mats to 240V power circuits. Verify that the thermostat has not been bypassed. If necessary, reposition the floor temperature sensor. Ensure no pillows, beanbags, mattresses, fabric ottomans, flat bottomed furniture without feet, heavy area rugs, or other objects that can trap the heat are on the floor above the mats.
Thermostat GFCI	If the thermostat trips and will not re-set, check the following: System MUST be on a dedicated branch circuit separate from any other electrical devices which could overload the circuit or create interference issues resulting in the GFCI to trip. If it is not, you will need to have your electrician change it out. Check that the breaker is a standard breaker. If you have a GFCI at the breaker and in the thermostat, it can cause nuisance tripping. Resolve this by asking your electrician to remove the GFCI breaker and install a standard breaker. Check electrical connections to verify leads from all mats are wired in parallel (black to black / white to white / red to red) and all connections are tight and properly insulated against grounding. Check leads from mats to verify no nicks or cuts have occurred during construction that may be causing a short. Mats with damaged leads need to be replaced.
Thermostat Issues	Refer to thermostat manufacturer's troubleshooting recommendations.

For Additional Help

Technical Hotline: 1-888-379-9695
Email: info@MPGlobalProducts.com

Operating the System

Operation of QuietWarmth is very simple, just set the thermostat to the desired temperature and the system warms your finished floors.

Suggestions to Optimize Performance:

- Since each room has its own thermostat, you can individually tailor room temperatures based on activity or occupancy. For instance, if a room is rarely used, you can set its thermostat lower to conserve electricity.
- Before you leave your home for an extended period of time, lower the temperature settings to reduce the power consumption.
- Setting the thermostat to a very high temperature will not make a room warm up faster – it will merely result in the occupants being too hot when the set temperature is ultimately reached.
- High airflow velocities (from open doors or windows or extreme drafts) may make occupants feel cold.
- Routinely test thermostats according to their manufacturer's instructions.

Precautions

Although the QuietWarmth system requires no maintenance, there are some things that must be taken into account to ensure that the systems are not damaged.

- Never pierce the floor where mats are located.
 - Piercing the electrically conductive portions of a heating mat can result in a potentially dangerous electric shock.
 - Piercing the mats will damage them and may present a fire hazard.
- If a portion of the floor surface must be replaced, inspect any exposed heating mats for damage that may have occurred while removing the flooring. Recheck the resistance prior to reenergizing the mats.
- Never cover any heated portion of a floor with walls or other permanent structures. This may trap heat and create a potential for overheating.
 - If new walls or partitions are added over the heating portions of the floor, the heating mats located under the walls or partitions must be disconnected from power to avoid a potential for overheating.
- Never cover any heated portion of the floor with pillows, beanbags, mattresses, fabric ottomans or “poufs”, flat bottomed furniture without feet, heavy area rugs, hampers, piles of laundry, or other objects that can trap the heat. **Total combined thermal insulating R-value of coverings must not exceed 1.0.**

Documentation

The System Checklist and Warranty Registration form records vital information about your QuietWarmth installation. Fill out all requested information on BOTH copies. One copy is returned to the manufacturer to register the installation, and the second copy is for the homeowner's records. This information is required for any troubleshooting assistance or warranty claim.

This manual must be attached to the service panel so that it is easily accessible to the homeowner and any repair technicians.

Design Criteria		Insulation					
Room Number	Product Model Number (A)	Number of Mats & Tiles	Area of Mats (sq. ft.)	Product Code (B)	Number of Tiles	Wiring	Other
				+3 -13 10			
				+3 -13 11			
				+3 -13 12			
				+3 -13 13			
				+3 -13 14			
				+3 -13 15			
				+3 -13 16			
				+3 -13 17			
				+3 -13 18			
				+3 -13 19			
				+3 -13 20			
				+3 -13 21			
				+3 -13 22			
				+3 -13 23			
				+3 -13 24			
				+3 -13 25			
				+3 -13 26			
				+3 -13 27			
				+3 -13 28			
				+3 -13 29			
				+3 -13 30			



LIMITED WARRANTY

MP GLOBAL PRODUCTS, LLC (THE "MANUFACTURER") WARRANTS TO THE ORIGINAL PURCHASER (THE "OWNER") THAT THIS RADIANT HEAT FILM FOR USE UNDER FLOATING OR TILE FLOORS (THE "PRODUCT") will be free of defects in workmanship and materials and will conform in all material respects to any written specification that the Manufacturer provided to that customer before the purchase.

If that customer believes that a shipment of product fails to satisfy the above warranty, that customer must (a) contact the Manufacturer in writing within 25 years after that customer receives the shipment, including a detailed explanation of the alleged nonconformity and (b) return the shipment to the Manufacturer postage prepaid. If The Manufacturer reasonably determines through examination of the returned shipment that the shipment did not satisfy the above warranty, then AS THE MANUFACTURER EXCLUSIVE LIABILITY AND THE CUSTOMER'S SOLE REMEDY, THE MANUFACTURER WILL, WITHIN A REASONABLE PERIOD OF TIME, REPAIR THE PRODUCT, REPLACE THE PRODUCT WITH THE SAME OR SIMILAR PRODUCT, OR CREDIT THE CUSTOMER'S ACCOUNT WITH THE PURCHASE PRICE, WHICHEVER THE MANUFACTURER MAY ELECT IN ITS SOLE DISCRETION. If the Manufacturer determines that the function of the Product caused the failure of the overlying finished floor covering, and installation instructions were properly followed during installation, the Manufacturer will repair or replace the finished floor covering at no cost to the customer.

This warranty does not apply if the Manufacturer reasonably determines that the product has been cut improperly, added to or otherwise altered, stored improperly, misused, damaged, or installed not in accordance with the instruction manual supplied by the Manufacturer. The Manufacturer requires that this product be used ONLY with approved control devices. Use of any other control device will render the provisions of this warranty null and void. This warranty covers only components manufactured by the Manufacturer. Components such as attaching hardware, connecting parts, wire, tape, and other items included in kits or assemblies that are not manufactured by the Manufacturer are excluded from the provisions of this warranty.

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 THE MANUFACTURER WHETHER BY STATUTE, CONTRACT, STRICT LIABILITY, TORT OR OTHERWISE.

THE MANUFACTURER 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. THE MANUFACTURER 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 THE MANUFACTURER'S MAXIMUM LIABILITY EXCEED THE PURCHASE PRICE FOR THE RELEVANT SHIPMENT OF PRODUCT, EXCEPT TO THE EXTENT MADE MANDATORY BY LAW.



System Checklist and Warranty Registration

Homeowner Name _____

Street Address _____

City/State/Zip _____ / _____ / _____

Phone Number _____

Email _____

Installation Dates _____

Purchased From _____

Type of Mat: **FLOAT** **TILE** **JOIST**

Name of Installer _____

Installation Company _____

Installer Phone _____

City/St/Zip/Country _____

Heat Loss Calculated by _____

Only required if being used as primary heat. Floor warming systems used as supplemental heat do not require heat loss calculation.

Electrical Inspector _____

Provide all requested information for each room/area

Design Criteria					Inspection				
Heated Area Name	Used for Primary Heat? YES NO <small>*If YES: Heat loss +20%</small>	Product Model Number (s)	Number of Mats & Sizes	Total Number of Installed Watts	Visual Inspection*	Product Date Code**	Number of Thermostats	Voltage	Ohm Reading
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
Panel Box ***					D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/>				
Total									

Do not energize QuietWarmth Tile or Glue for 28 days after installation of flooring is complete.

* Visual Inspection: A — No Installation Damage such as creasing, punctures, cuts or abrasions.
 B — Control / Thermostat Warning Label has been installed.
 C — Insulation Type and Thickness corresponds to specifications.

** Date Code: The product date code is a 3 letter, 6 number code printed in the center of the element (except tile mats).

*** Panel Box: D — Warning Label is attached to panel box. E — All Circuits Properly Labeled.
 F — Each Heating System Circuit For Exclusive Use of the Heating System (no outlets, etc.).

Date flooring complete: _____
 Date system turned on: _____

Completely fill out all information and return 1 copy to:



2500 Old Hadar Road
 Norfolk, NE 68702
 888-379-9695 • FAX 402-379-9737
 info@QuietWarmth.com

The undersigned represents that the above installation has been performed in accordance with the installation instructions and all applicable codes and that all of the above statements are true, correct and complete. A copy of this form must be kept on site as a permanent record.

NAME (please print) _____ SIGNATURE _____ DATE _____



System Checklist and Warranty Registration

Homeowner Name _____
 Street Address _____
 City/State/Zip _____ / ____ / ____
 Phone Number _____
 Email _____
 Installation Dates _____
 Purchased From _____

Type of Mat: **FLOAT TILE JOIST**
 Name of Installer _____
 Installation Company _____
 Installer Phone _____
 City/St/Zip/Country _____
 Heat Loss Calculated by _____
Only required if being used as primary heat. Floor warming systems used as supplemental heat do not require heat loss calculation.
 Electrical Inspector _____

Provide all requested information for each room/area

Design Criteria					Inspection				
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					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
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					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
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					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
					A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
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Panel Box ***					D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/>				
Total									

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 F — Each Heating System Circuit For Exclusive Use of the Heating System (no outlets etc) , ...

Date flooring complete: _____
 Date system turned on: _____

Homeowner copy
 Retain for your records.



The undersigned represents that the above installation has been performed in accordance with the installation instructions and all applicable codes and that all of the above statements are true, correct and complete. A copy of this form must be kept on site as a permanent record.

 NAME (please print) SIGNATURE DATE

