



VineHeat™ Mat

Installation Instructions

Dear Valued Customer

Thank you for purchasing this premium VineHeat™ product. To ensure your safety and satisfaction, it is vitally important that you READ this entire instruction manual BEFORE you begin the work.

Improper installation, use, and maintenance of under-floor heating system components can cause fire, electric shock or injury to persons and damage to property. Installation must be performed by qualified personnel familiar with generally accepted construction techniques and safe electrical practices.

Only a qualified electrician should connect the heating mat(s) to the thermostat and/or to the electrical supply circuit, per:

- **the National Electrical Code (NEC), especially Article 424 in the United States, and**
- **Section 62 of the Canadian Electrical Code (CEC) Part I, in Canada.**

Be sure to verify you have selected the correct type and model of heating mat(s) before beginning the installation.

Your VineHeat™ Team

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1. For Your Safety

1.1 Do's

- ✓ Completely embed the heating wire and factory splice (the join between the heating cable and cold lead) in the floor mortar or leveling compound underneath the floor covering.
- ✓ Pay close attention to voltage and amperage requirements of the breaker, the thermostat, and the mat(s).
- ✓ Wear gloves to prevent irritation from the fiber glass mesh.
- ✓ Follow the manufacturer's instructions for installing floor covering materials, scratch coat, thin-set mortar, or quick drying mortar beds.
- ✓ Always use a ground-fault circuit interrupter (GFCI) in company with the thermostat for electric shock prevention.
- ✓ Ensure the tip of the sensor cable be placed away from other heat sources i.e. sunshine or heat vents to give an accurate reading of floor temperature.
- ✓ Be sure the type and thickness of floor covering materials used do not exceed a total thermal insulation R value of 1.
- ✓ Ensure the system is tested before, during, and after installation.
- ✓ Take photos of the installation in all the stages.
- ✓ Install the heating mat system on a dedicated circuit coming directly from the circuit breaker panel. (Do mark the appropriate circuit breaker reference label indicating which branch circuit supplies power to the system.)

1.2 Don'ts

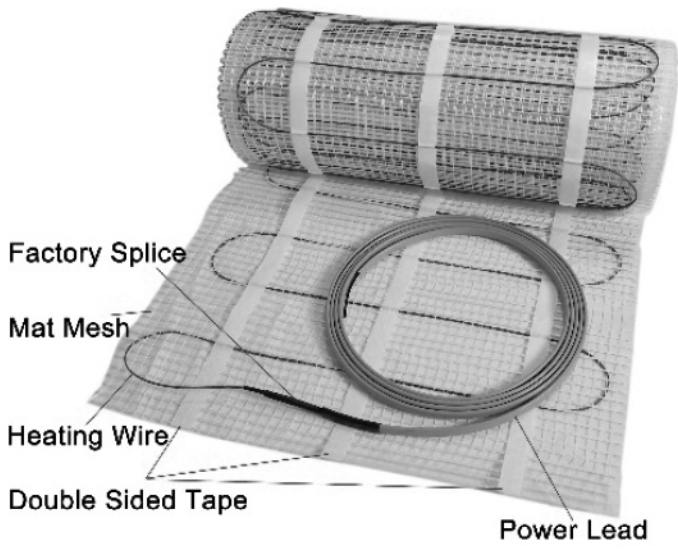
- ✘ Install one mat on top of another or allow its heating cable to cross over or touch another at any point. This will cause overheating.
- ✘ Lay out heating cable with spacing less than 3.2 in. Doing so will cause overheating and void the warranty.
- ✘ Completely remove the Power Lead from the Heating Cable. (It may be cut shorter if necessary- but not removed.)
- ✘ Bang a trowel, other sharp tools, or heavy objects on the cable while tiling. Be careful not to nick, cut, or pinch the cable.
- ✘ Use nails, staples, or similar connectors to fasten the mat/cable to the floor.
- ✘ Attempt to repair the heating cable, power lead, or any part of the system if it is damaged. It must be replaced.
- ✘ Splice one mat/cable to another to make a longer mat/cable (connection in series). The power leads of multiple mats must be wired in parallel in a junction box or to the thermostat.
- ✘ Run the floor sensor wire or power lead to cross over or under the heating cable.
- ✘ Install mats on stairs, up walls or partitions that extend to the ceiling.
- ✘ Install mats under cabinets or other built-ins (i.e. tubs, vanity units, bookshelves, walls, or partitions), having zero-clearance, or in small closets. Excessive heat will build up in these confined spaces, and the mat could be damaged by nails or screws used to install built-ins.
- ✘ Remove the identification label from the power lead. Make sure it is viewable for inspection later.
- ✘ Connect the mat to power when folded or during testing
- ✘ Switch on the installed heating system until the adhesive has fully cured (2 weeks minimum).
- ✘ Leave surplus matting. Only use the correct size.
- ✘ Step directly on the heating cable during installation and tiling.
- ✘ Install the mat across expansion joints.
- ✘ Extend the heating mat beyond the room or area in which it originates.

2. General Information

This manual covers general under-floor heating mat design, installation procedures, precautions, and floor covering guidelines. The manual also discusses controls and testing of the VHM heating system.

2.1 Heating System Description

- VHM heating system is a heating mat consisting of a series heating cable and a power lead that runs in the wall and connects to the electric power supply through a thermostat.
- VHM heating cable(s) are constructed by a braided twin-wire design to reduce electromagnetic fields (EMF) to ultra-low levels.

Specification	Appearance
Mat Dimension: 1.5 ft (0.45 m) / 2 ft (0.9 m) Heating Cable: 2 wires, grounded, fluoropolymer insulating jackets Power Lead: 3×14 AWG, 10ft (3 m) length	
Performance	
Operating Voltage: 120/240 VAC	
Power Output: 14 W/ft ² (150 W/m ²)	
Min. Bend Radius 1 in (25 mm)	
Max. Ambient Temp. 85°F (30°C)	
Max. Exposure Temp. 195°F (90°C)	
Min. Installation Temp. 40°F (5°C)	
Application	Electrical Requirement
Type (-X) for indoor floor heating application only.	Max. Circuit Overload Protection: 20A
Type (-W) can be installed into shower floors	GFCI: Required for each circuit
System Approvals	
UL Listed for U.S. and Canada under UL 1683 and CAN/CSA C22.2 No. 130-03, File No. E520361	

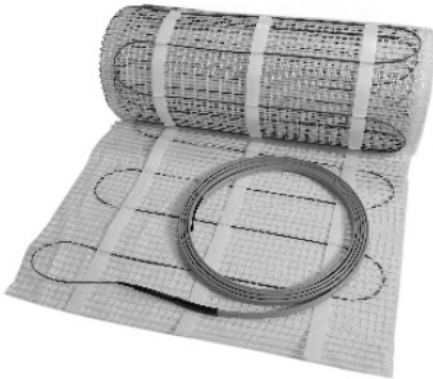
2.2 System Application

- VHM series comes in many different sizes and they can be shaped and used in combinations to warm rooms of different sizes.
- VHM series is a safe and efficient electric floor-warming product for interior applications.
 - ※ It cannot be used for exterior snow melting applications.
 - ※ It is generally intended for installation below tile, stone, and other masonry flooring materials.
- Never install VHM series directly below vinyl, carpet, or wood flooring.
- VHM series must be embedded in cement-based polymer modified mortar, per UL requirements. Do not use glues, adhesives, or premixed mortar.
- Non-masonry flooring materials such as carpet, vinyl, or hardwood can be installed over VHM if the mat is installed in mortar first.

3. Preparations

3.1 Required Items

You will need the following items to install and test the floor warming system:



(A) VHM heating mat(s)



(B) Listed junction boxes for fitting the thermostat of your choice, in accordance with local building & electrical codes.



(C) Listed thermostats with 15Amp minimum load, in accordance with local building & electrical codes.

(D) Conduit for floor sensor (included in kit)

(E) External contactor (Relay) (if required)

(F) Breaker with GFCI (if not part of the thermostat)

(G) Insulation (if required)

(H) Mortar/ Backer board/ tile....

3.2 Tools Required



Craft knife



Multi-meter (Digital)



Scissors



Wire stripper



Screwdriver



Tile installation tools – Plastic trowels are recommended.

3.3 Inspection

Remove the materials from their packages. Inspect them for any visible damage and verify everything is the correct size and type according to the plan and the order. Do not attempt to install a damaged product.

The model number, serial number, voltage, and resistance range as well as the application marking in(-X) in and in(-W) in are shown on a nameplate label attached to the power leads. Record the product information in table1.

3.4 Testing the Heating Mat

You must perform the insulation resistance test, the resistance test of heating cable, and the sensor resistance test BEFORE you start the installation. For details of testing procedure, please refer to the section of Testing in of this manual.

4. Testing

Insulation and Resistance tests must be performed before, during, and after the installation of the mat(s) to validate the warranty. It is very important to take resistance readings of the mat(s) and the floor sensor wire(s) to make sure they have not been damaged.

- **Caution:**
 - ⊗ Make sure power is not applied until the heating system is fully installed and ready for final testing.
 - ⊗ If there is any change in the reading, record this information and contact the supplier before continuing.
- Always: Record the product information and the testing result in table1. Give the records to the homeowner to keep.

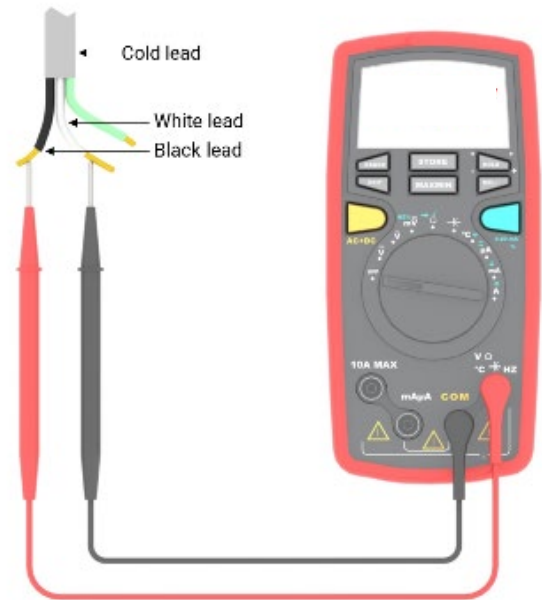
4.1 Insulation Test

- This test ensures that the insulation of the heating cable(s) is/are not damaged.
- Using a digital multi-meter, place one of the meter probes on the conductor wire in either the white or black lead and the other probe on the conductor wire in the green lead (ground). This measurement should be inopen in, usually indicated by an inOL in or an inI in.
- **Record these readings on the Start-Up Record.**



4.2 Heating cable resistance test

- This test is used to determine circuit integrity of the mat.
- Set the digital multi-meter to the appropriate setting (normally 200-ohm range). Place one of the meter probes on the conductor wire in the white lead and the other probe on the conductor wire in the black lead. The measured resistance reading should be within the resistance range specified in the inProduct Selection Table in of this manual or on the nameplate label.
- A cut or break in the wire is indicated by a resistance of infinite in ohms usually indicated by an inOL in or an inI in.
- **Record these readings on the Start-up Record.**



4.3 Sensor resistance test

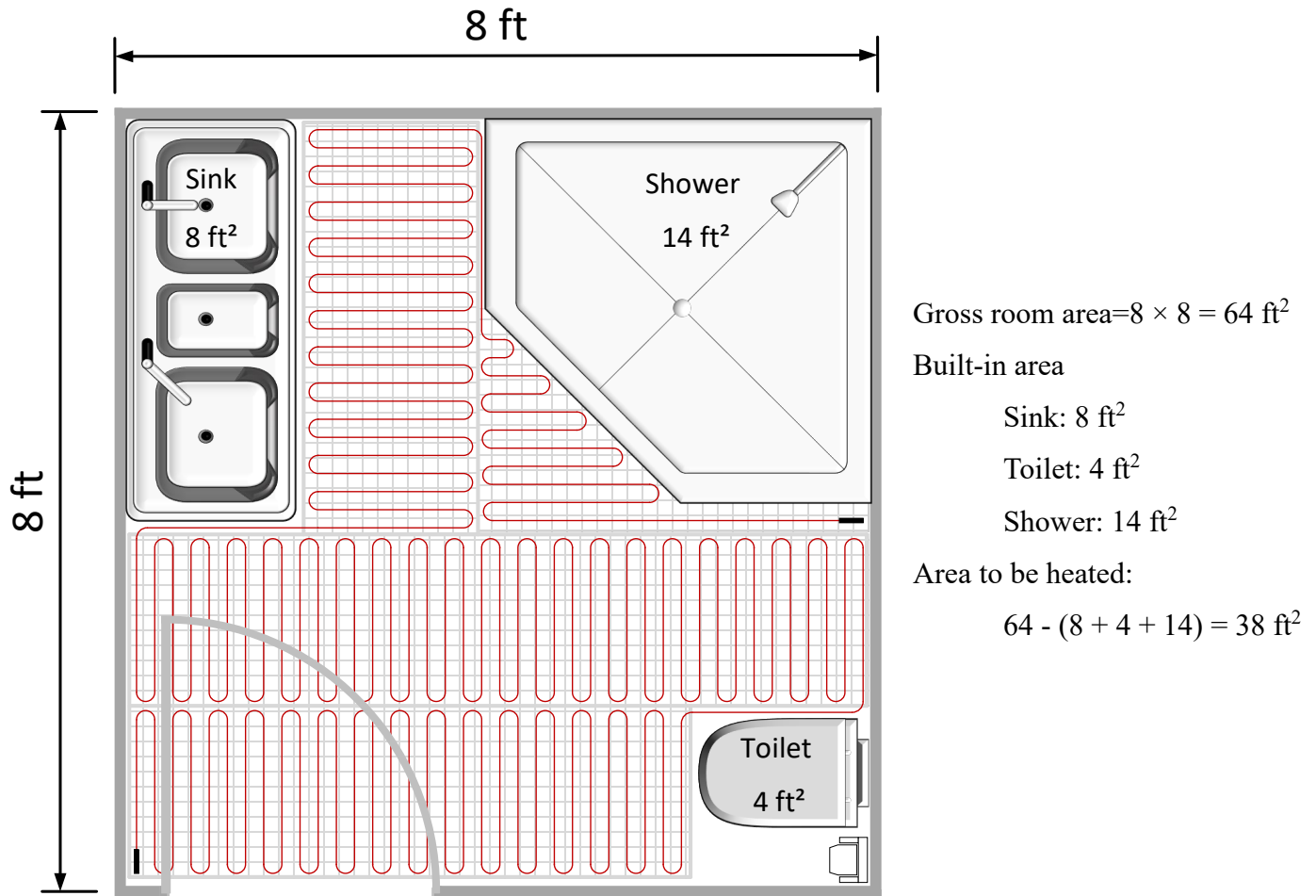
- This test measures the resistance of the floor sensor and is used to verify the sensor integrity.
- Change the resistance range of the digital multi-meter to the appropriate setting (normally 20 KΩ) and measure the resistance between the lead wires of the sensor probe.
- Probe wires resistance reading should be within the range specified in thermostat's specification table (normally 8-18 KΩ)
- **Record these readings on the Start-Up Record.**



5. Design

5.1 Determine the heated area of the floor to be heated

- Sketch the interior perimeter of the room. Begin measuring from one corner of the room and measurement should be made from wall-to-wall and include size and location of permanent fixtures or furniture such as vanities, cabinets, tub, showers, toilet flanges, etc.
- Measure and record the total square footage of floor area to be warmed by subtracting the area associated with the built-ins.
- ※ Caution: Locate power locations, fixtures, toilet flanges, doorways and all other floor obstructions accurately on your drawing.
- ※ Note: Sketch a diagram of the matting layout for future reference, which should be kept with the manual for future reference.



#Fig.7

5.2 Planning

- Select either 120 VAC or 240 VAC depending on the power available.
- Determine the optimum floor warming mat layout for your heated area to ensure coverage.
- Select a spot for the thermostat in the wall above the heated area where it can be reached by the 10 ft (3 m) cord lead on the mat, and the corresponding floor temperature sensor.

5.3 Confirm Your Product Selection

- Following the example, if the applied voltage is 240V and the heated area is 38 ft², select the 30 ft² mat.
- Select the appropriate mats from the table.
- Confirm that your mat is no larger than the heated area.
- If your heated areas are greater than 160 ft², then for 240V / 80 ft² or for 120V, multiple mats may be used.

※ Caution:

- ※ The heating wire must never be cut shorter to fit, do not select a product larger than necessary.
- ※ When selecting multiple mats, make sure the thermostats, circuit breaker, and all wiring have the proper capacity.
- ※ If the area requires more than 15 amps to be controlled by one thermostat, use relays to take the additional amp load. (For details please consult a qualified personnel or licensed electrician.)

VOLTAGE 120 VAC

MODEL	Width		Length		Area		Total Power	Current	Total Res.	C-C		Cable Length	
	ft	m	ft	m	ft ²	m ²	W	A	Ω	in	mm	ft	m
VHM1-15-009-0126	1.5	0.45	6	1.8	9	0.8	126	1.1	114.3	3.2	80	33.7	10.3
VHM1-15-012-0168			8	2.4	12	1.1	168	1.4	85.7			46.1	14.1
VHM1-15-015-0210			10	3.0	15	1.4	210	1.8	68.6			58.5	17.8
VHM1-15-018-0252			12	3.7	18	1.7	252	2.1	57.1			69.4	21.2
VHM1-15-021-0294			14	4.3	21	2.0	294	2.5	49.0			81.8	24.9
VHM1-15-024-0336			16	4.9	24	2.2	336	2.8	42.9			92.7	28.2
VHM1-15-027-0378			18	5.5	27	2.5	378	3.2	38.1			105.1	32.0
VHM1-15-030-0420			20	6.1	30	2.8	420	3.5	34.3			117.5	35.8
VHM1-15-036-0504			24	7.3	36	3.3	504	4.2	28.6			140.8	42.9
VHM1-15-042-0588			28	8.5	42	3.9	588	4.9	24.5			164.0	50.0
VHM1-15-048-0672			32	9.8	48	4.5	672	5.6	21.4			187.3	57.1
VHM1-15-054-0756			36	11.0	54	5.0	756	6.3	19.0			212.1	64.7
VHM1-15-060-0840			40	12.2	60	5.6	840	7.0	17.1			235.4	71.7
VHM1-15-069-0966			46	14.0	69	6.4	966	8.1	14.9			271.1	82.6

MODEL	Width		Length		Area		Total Power	Current	Total Res.	C-C		Cable Length	
	ft	m	ft	m	ft ²	m ²	W	A	Ω	in	mm	ft	m
VHM1-20-010-0140	2	0.6	5	1.5	10	0.9	140	1.2	102.9	3.2	80	38.6	11.8
VHM1-20-015-0210			7.5	2.3	15	1.4	210	1.8	68.6			57.0	17.4
VHM1-20-020-0280			10	3.0	20	1.9	280	2.3	51.4			77.5	23.6
VHM1-20-025-0350			12.5	3.8	25	2.3	350	2.9	41.1			96.0	29.3
VHM1-20-030-0420			15	4.6	30	2.8	420	3.5	34.3			116.5	35.5
VHM1-20-035-0490			17.5	5.3	35	3.3	490	4.1	29.4			135.0	41.1
VHM1-20-040-0560			20	6.1	40	3.7	560	4.7	25.7			155.5	47.4
VHM1-20-045-0630			22.5	6.9	45	4.2	630	5.3	22.9			174.0	53.0
VHM1-20-050-0700			25	7.6	50	4.6	700	5.8	20.6			194.5	59.3
VHM1-20-060-0840			30	9.1	60	5.6	840	7.0	17.1			233.4	71.2
VHM1-20-070-0980			35	10.7	70	6.5	980	8.2	14.7			272.4	83.0
VHM1-20-080-1120			40	12.2	80	7.4	1120	9.3	12.9			311.4	94.9
VHM1-20-090-1260			45	13.7	90	8.4	1260	10.5	11.4			350.4	106.8
VHM1-20-100-1400			50	15.2	100	9.3	1400	11.7	10.3			389.4	118.7

VOLTAGE 240 VAC

MODEL	Width		Length		Area		Total Power	Current	Total Res.	C-C		Cable Length	
	ft	m	ft	m	ft ²	m ²	W	A	Ω	in	mm	ft	m
VHM4-15-015-0210	1.5	0.45	10	3.0	15	1.4	210	0.9	274.3	3.2	80	58.5	17.8
VHM4-15-018-0252			12	3.7	18	1.7	252	1.1	228.6			69.4	21.2
VHM4-15-021-0294			14	4.3	21	2.0	294	1.2	195.9			81.8	24.9
VHM4-15-024-0336			16	4.9	24	2.2	336	1.4	171.4			92.7	28.2
VHM4-15-027-0378			18	5.5	27	2.5	378	1.6	152.4			105.1	32.0
VHM4-15-030-0420			20	6.1	30	2.8	420	1.8	137.1			117.5	35.8
VHM4-15-033-0462			22	6.7	33	3.1	462	1.9	124.7			128.4	39.1
VHM4-15-036-0504			24	7.3	36	3.3	504	2.1	114.3			140.8	42.9
VHM4-15-042-0588			28	8.5	42	3.9	588	2.5	98.0			164.0	50.0
VHM4-15-048-0672			32	9.8	48	4.5	672	2.8	85.7			187.3	57.1
VHM4-15-054-0756			36	11.0	54	5.0	756	3.2	76.2			212.1	64.7
VHM4-15-060-0840			40	12.2	60	5.6	840	3.5	68.6			235.4	71.7
VHM4-15-066-0924			44	13.4	66	6.1	924	3.9	62.3			258.7	78.8
VHM4-15-075-1050			50	15.2	75	7.0	1050	4.4	54.9			294.4	89.7
VHM4-15-084-1176	56	17.1	84	7.8	1176	4.9	49.0	328.6	100.2				
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MODEL	Width		Length		Area		Total Power	Current	Total Res.	C-C		Cable Length	
	ft	m	ft	m	ft ²	m ²	W	A	Ω	in	mm	ft	m
VHM4-20-020-0280	2	0.6	10	3.0	20	1.9	280	1.2	205.7	3.2	80	77.5	23.6
VHM4-20-025-0350			12.5	3.8	25	2.3	350	1.5	164.6			96.0	29.3
VHM4-20-030-0420			15	4.6	30	2.8	420	1.8	137.1			116.5	35.5
VHM4-20-035-0490			17.5	5.3	35	3.3	490	2.0	117.6			135.0	41.1
VHM4-20-040-0560			20	6.1	40	3.7	560	2.3	102.9			155.5	47.4
VHM4-20-045-0630			22.5	6.9	45	4.2	630	2.6	91.4			174.0	53.0
VHM4-20-050-0700			25	7.6	50	4.6	700	2.9	82.3			194.5	59.3
VHM4-20-060-0840			30	9.1	60	5.6	840	3.5	68.6			233.4	71.2
VHM4-20-070-0980			35	10.7	70	6.5	980	4.1	58.8			272.4	83.0
VHM4-20-080-1120			40	12.2	80	7.4	1120	4.7	51.4			311.4	94.9
VHM4-20-090-1260			45	13.7	90	8.4	1260	5.3	45.7			350.4	106.8
VHM4-20-100-1400			50	15.2	100	9.3	1400	5.8	41.1			389.4	118.7
VHM4-20-110-1540			55	16.8	110	10.2	1540	6.4	37.4			428.3	130.6
VHM4-20-120-1680			60	18.3	120	11.1	1680	7.0	34.3			467.3	142.4
VHM4-20-130-1820			65	19.8	130	12.1	1820	7.6	31.6			504.7	153.8
VHM4-20-020-0280			70	21.3	140	13.0	1960	8.2	29.4			508.6	155.0
VHM4-20-025-0350	80	24.4	160	14.9	2240	9.3	25.7	559.5	170.5				

6. Electrical Rough-in

6.1 Confirm Power Supply

- Confirm that the power supply is either 120 or 240 V depending on the mat you chose.
- All mats must be protected against overload by a circuit breaker and connected to the electrical service through a Ground Fault Circuit Interrupter (GFCI). Some of them are built into the thermostat controls.
- ※ **Caution:** The electrical rough-in must be made by qualified personnel familiar with generally accepted construction techniques and safe electrical practices to validate warranty.

6.2 Determine the Number of Circuits.

- The floor warming system must be connected to an appropriately sized electrical circuit breaker.
- The rating of the breaker is determined by the amp draw of the heating mats (located on the UL tag attached to the power leads). If multiple mats are to be controlled by one breaker, total their amp draws. If this total exceeds 20 amps (depending on local codes), an additional breaker will be required.

6.3 Install Electrical Junction Box

- Install the electrical junction box for accommodating the thermostat into interior walls at a convenient height—typically 5' (150cm) above the floor.
- Remove two knock-outs on the bottom of the electrical junction box and make two paths inside the wall leading to the floor. You will need these holes and paths to route the power lead and the floor temperature sensor wire.
- Install appropriate 12 or 14 AWG electrical wire from the circuit breaker or branch circuit source to the thermostat electrical box following all codes.
- If Relay(s) are used, feed appropriate wire between the Relay(s) and the thermostat(s).
 - ※ **Note:** The spot of the junction box must be reached by the 10' (3m) cold lead on the mat, and the corresponding floor temperature sensor.

7. Installation

7.1 Prepare the Subfloor.

- Prior to heating mat installation, it is important that the sub-floor is properly prepared as per Tile Council of America Guidelines.
- It is recommended that layers of underlay (ex. insulation board, cement backer-board or plywood) be put down above the sub-floor and underneath the mat. This will not only strengthen the floor but also help to direct the heat generated to the floor surface.
- Install the cement backer board/ Insulation board as per manufacturer's instructions.
- Make sure the floor area to be heated is clean, flat, and without any debris that can damage the mat, such as nails, dirt, wood, and other construction objects.
- Wet mop the floor to ensure there is no dirt or dust. This will allow proper bonding of the mortar and strong sticking of the double-sided tape.
- **Caution:**
 - ✘ All old flooring and adhesive such as, linoleum, bitumen must be removed. (Bitumen was used to glue tiles in place and can be found in many homes constructed pre-2000.)
 - ✘ The type and thickness of underlay materials used must not exceed a total thermal insulation R value of 2.
- ✘ **Note:** The heating mat is not intended to be installed directly upon the sub-floor.

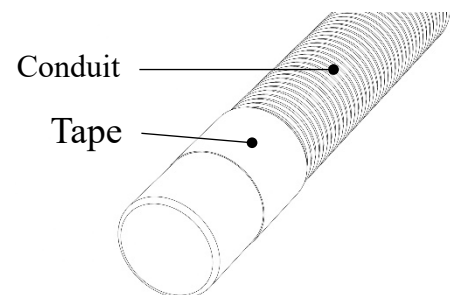
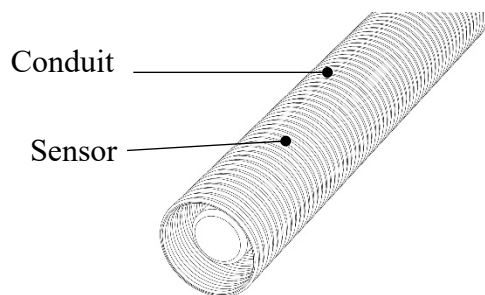
7.2 Install the Power Lead/Splice

- Position the cold lead of the mat as close as possible to the wall near the electrical junction box. Place the mat on the floor to ensure the power lead will reach the junction box.
- Run the power lead inside the wall (through electrical conduit) up to the junction box location, leaving at least 8 in (20 cm) of free power lead coming out of the knock-out for easy connection to the thermostat.
- As the power lead and splice is thicker than the mat, you must chisel a path or gouge out the subfloor so that the lead wire and the splice are level with the mat.
- Make sure the factory splice lay completely flat in the floor, not in the wall. Use hot glue to secure the power lead and splice to the floor.
- **Caution:**
 - ✘ Do not place the sensor in the same conduit as the power leads to avoid possible interference.
 - ✘ The cold lead must be routed outside of the heating mat, never under or over the heating cable.
- ✘ **Important:** Do not allow heating cable, cold lead, or floor temperature sensor to cross over themselves or each other.

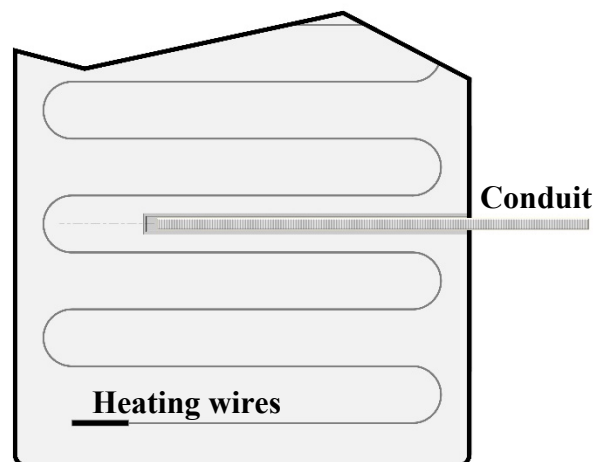
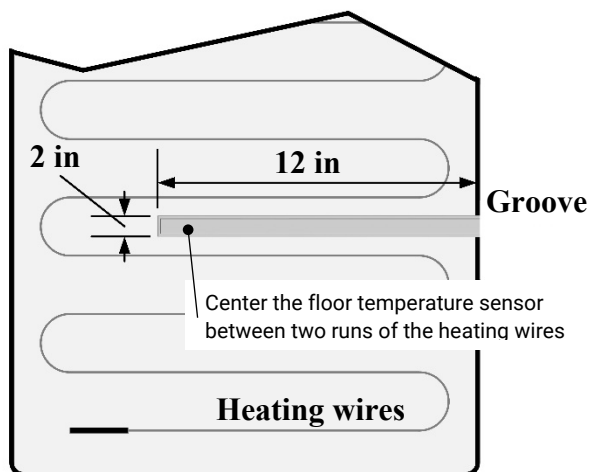
※ **Note:** Position the nameplate on the cold lead inside the electrical junction box.

7.3 Install the Thermostat Sensor

- For floating laminate and engineered wood flooring materials application skip this step, please refer to the step6 of this section for the detail of thermostat sensor installation.
- A floor sensor is included with the thermostat.
- Feed the sensor through the other knock-out of the junction box, down through the conduit out into the floor where the heating mat will be installed. Leave at least 8 in (20 cm) of free lead length at the junction box for easy connection to the thermostat.
- Put the sensor into the conduit.
- In order to prevent the concrete or tile adhesive entering the inside of a conduit, seal the opening of a conduit with tape.

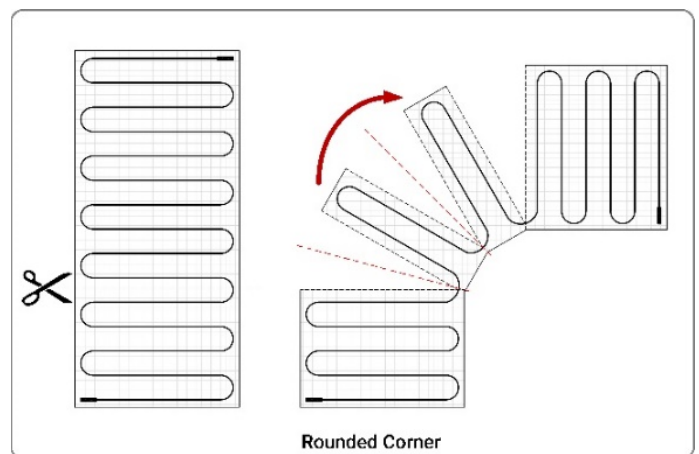
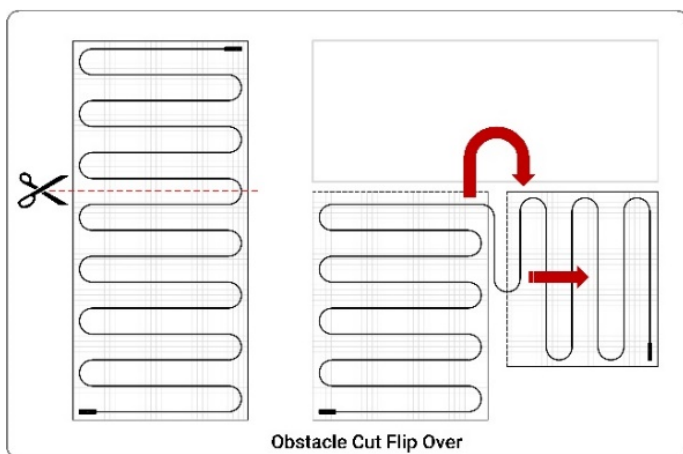


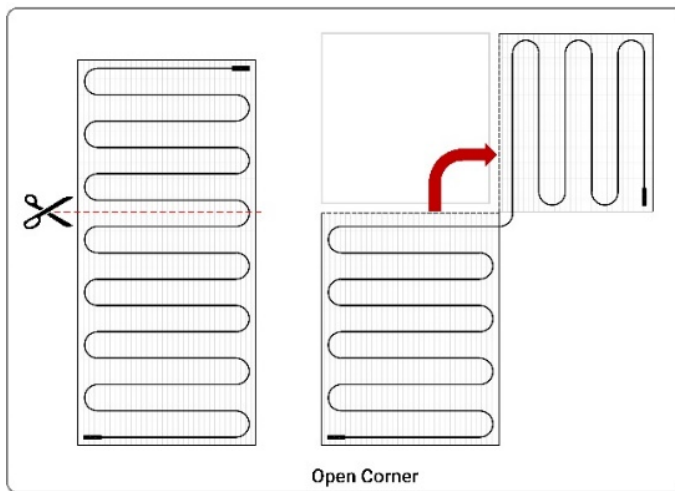
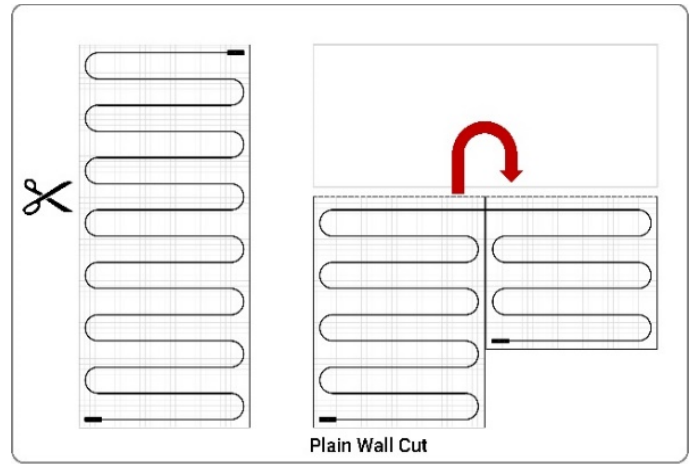
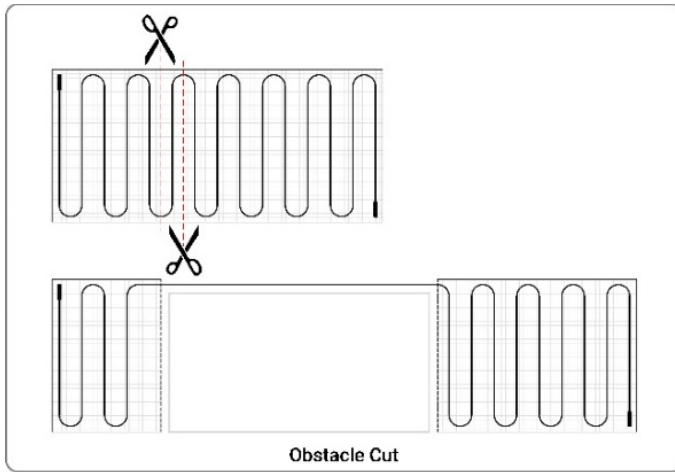
- Make a groove on the insulation board.
- The depth of the groove is 0.5 in. Center the groove between two runs of the heating wires, 12 in (30.5 cm) into the heated area (or 4 in (10 cm) from the end of the heating cable loop).
- Place the conduit into the groove, and secure it using hot glue.



7.4 Laying Out the Heating Mat

- Dry fit the mat to ensure it fits the outlines of the room and provides proper coverage.
- Lay out the mat flat by removing the paper from the double-sided tape along one mat edge and press the tape down to temporarily hold it in place according to your design to cover the intended area.
- Ensure it fits well and flat on the floor and has no folds. This will help to make a smooth surface for spreading mortar. If it is necessary to make a turn in the direction or to make the mat fit odd-shaped spaces, fit into corners, and work around angles or built-ins, cut the mesh with scissors being careful not to damage the heating cable. See figures below for examples.
- ※ **Note:** If there is too much mat for the area, it cannot be cut shorter to make it fit the area. All heating wire must be embedded in the floor mortar.
- ※ **Note:** If you remove the wire from the mesh for a custom layout, maintain a min. 3.2 in max. 4 in spacing between the heating cables.
- Install the mat approximately 4~6 in away from walls, showers, tubs, toilets, drains, etc.
- Align the mats so that the fiberglass mesh is edge to edge. If it is necessary to remove the heating cable from the mesh to route around an obstacle, maintain a min. 3.2 in spacing between the cables.
- Take photographs of the mat installation. This can be very useful later during remodel work to help avoid possible wire damage. Keep the photos with this installation manual and provide to end user upon completion.





7.5 Conduct Insulation & Resistance Tests

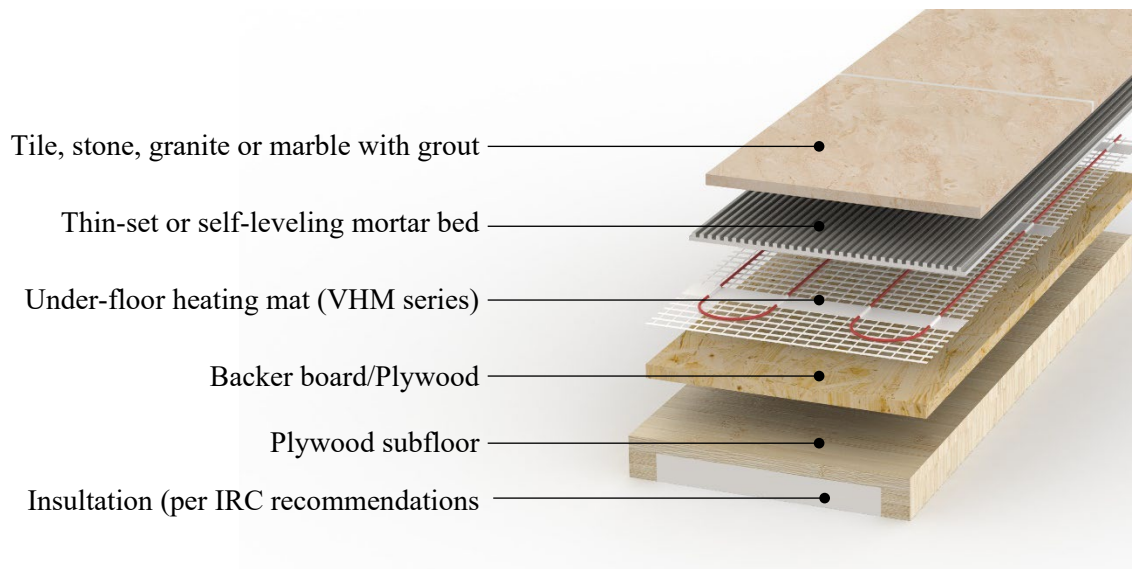
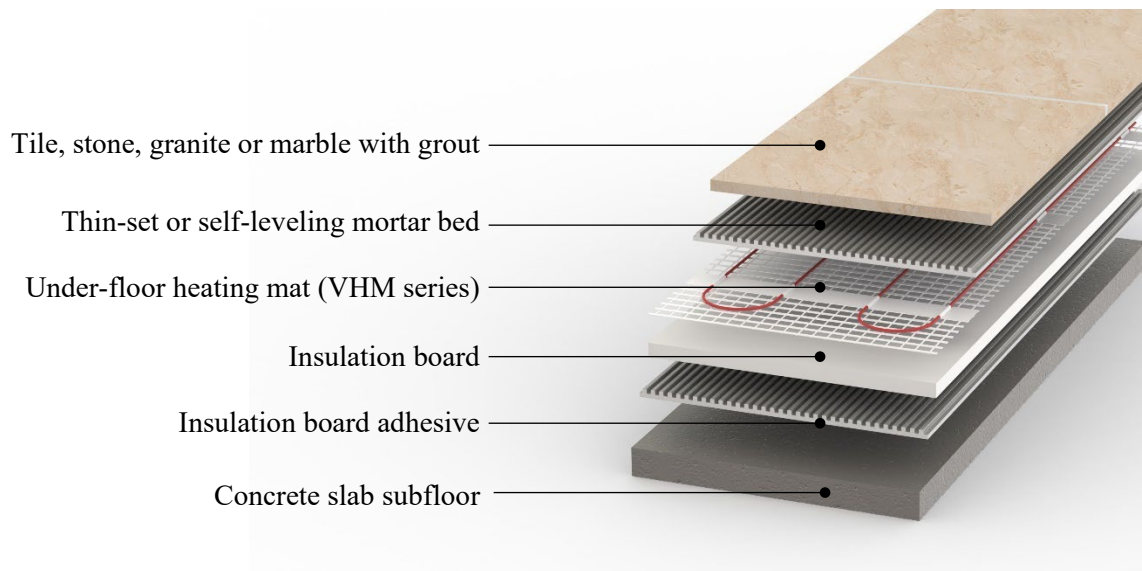
You must perform the insulation resistance test, heating cable resistance test, and the sensor resistance test before you embed the mat in mortar to confirm that the heating cable and floor sensor have not been damaged.

7.6 Floor Covering

7.6.1 For tile and stone floor

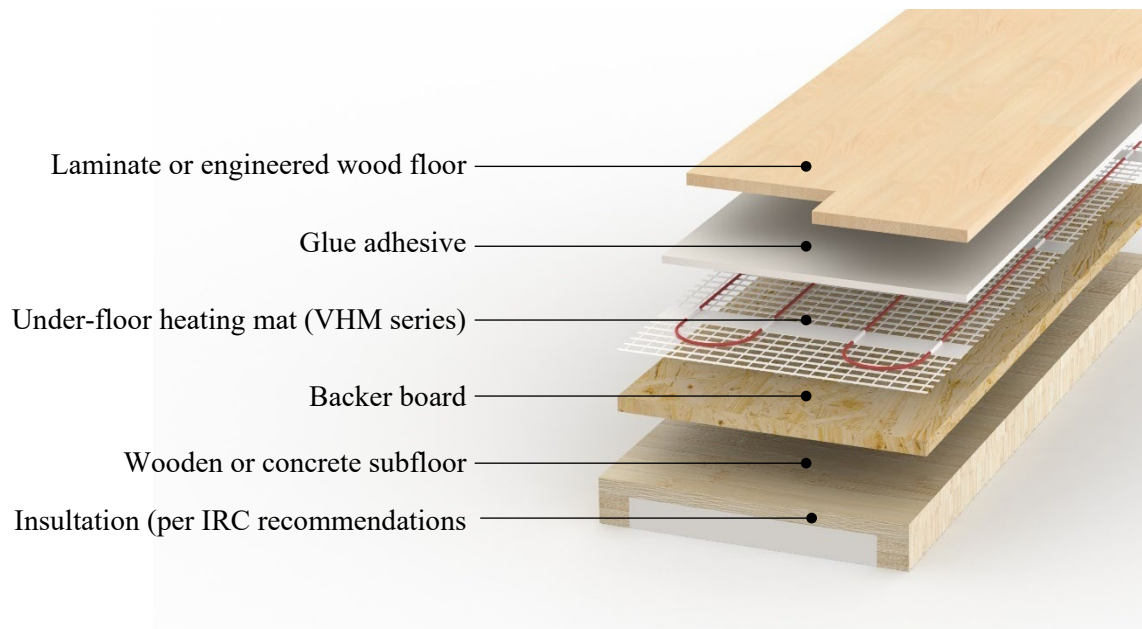
- Embed the mat, power lead, splice, and end seal in mortar.
- Apply a thin coat of self-leveling or acrylic/latex modified thin-set mortar to tile over the mat, power lead, splice, and end seal. Select the proper size trowel using the flat side to avoid any damage to the mat. Spread the mortar evenly over the mat filling in all spaces between the floor, mesh and heating cable. Once the surface is smooth and even, allow it to cure to a hard surface before installing the flooring material.
- **Note:**

- ※ Make sure the thin-set and grout fully cured before activating the mat.
- ※ Take particular care when tiling not to dislodge or damage the heating cable.
- Apply a layer of minimum half-inch modified thin set cement or adhesive over the heating mat.
- Repeat the insulation and resistance test of the heating cable and floor sensor wire.
- Install the tile/stone.
- Tile and grout the floor in accordance with the Tile Council of North America (TCNA) guidelines or ANSI specifications. The thin-set thickness applied is according to the floor covering requirements.
- **Note:**
 - ※ Clean excess thin set from grout lines with a sponge or small plastic.
 - ※ Ensure that each tile is solidly bedded in tile adhesive, with no gaps or voids beneath.
- Repeat the insulation and resistance test of the heating cable and floor sensor wire.



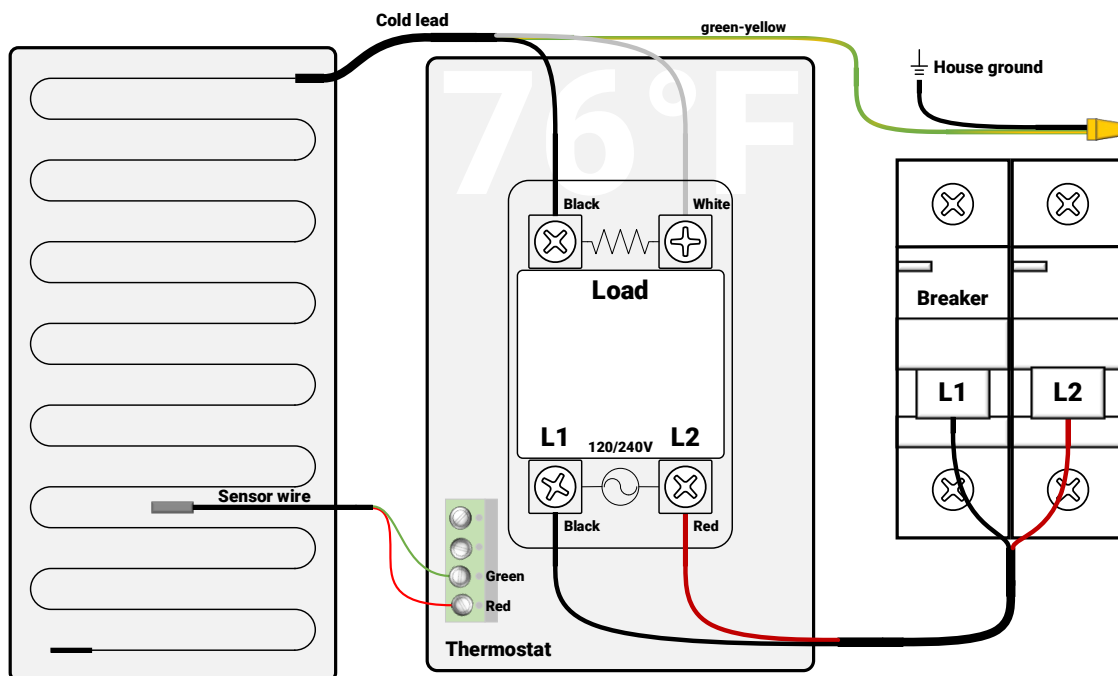
7.6.2 Glue Down Wood Floor

- Embed the mat, power lead, and end seal in mortar.
- Apply a thin coat of self-leveling or acrylic/latex modified thin-set mortar to tile over the mat, power lead, splice, and end seal. Select the proper size trowel using the flat side to avoid any damage to the mat. Spread the mortar evenly over the mat filling in all spaces between the floor, mesh and heating cable. Once the surface is smooth and even, allow it to cure to a hard surface before installing the flooring material.
- **Note:**
 - ※ Make sure the thin-set and grout fully cured before activating the mat.
 - ※ Ensure that the heating mat is covered with a minimum of half-inch of self-leveling compound.
- Repeat the insulation and resistance test of the heating cable and floor sensor wire.
- Use an adhesive that is approved for use with radiant floor heating systems.
- Apply a layer of adhesive with a notched trowel evenly across the working surface following adhesive manufacturers' instructions.
- Install the laminate or engineered wood flooring per manufacturer's instruction.
 - ※ **Note:** Nail down installations or other fasteners penetrating the floor cannot be used in the heating mat area.
- Repeat the insulation and resistance test of the heating cable and floor sensor wire.



7.7 Thermostat Installation

- ※ **Caution:** Only use Listed Thermostats with 15 Amp minimum load, in accordance with local building & electrical codes.
 - Refer to the Installation and Operation Manual, included with the thermostat for instructions on how to install and to program (if necessary) the thermostat.
 - If installing heating mat in a bathroom, install the thermostat on an internal wall outside the bathroom as close to power cable of the mat as possible.
 - Connect the ground wire to the electrical box ground screw and attach to the GFCI with a standard ground copper conductor. And make any final connections to the circuit breaker or branch circuit source.
-
- ※ **Caution:** All electrical work must be performed by a qualified electrician in accordance with local building & electrical codes and the National Electrical Code (NEC), especially Article 424, Part V of the NEC, ANSII/NFPA 70.
 - ※ **Recommendation:** When connecting multiple mats it may be easier to connect the mats at a floor level junction box rather than direct to the thermostat (junction box).



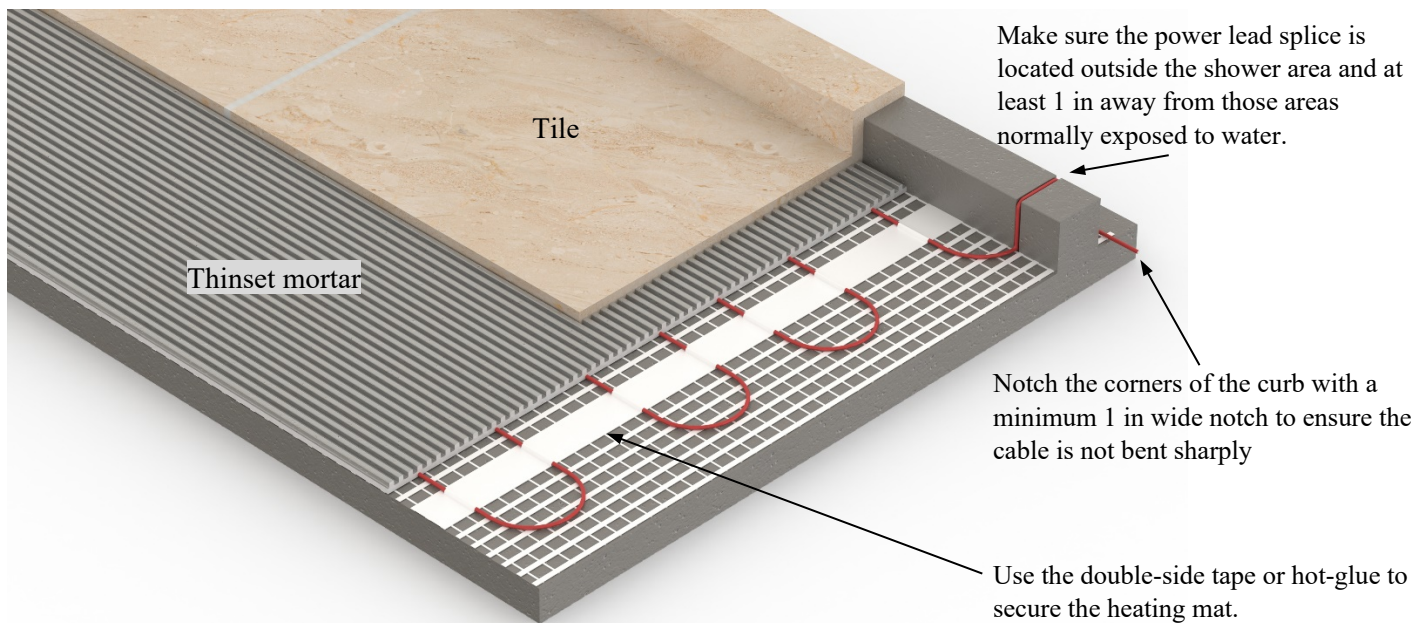
Typical wiring for a thermostat GFCI control to an existing breaker

7.8 System Start Up

Wait at least 2 weeks minimum before switching on the system to allow mortar to dry. The heating may be slow to react at first, especially if installed on a new screed floor or in a new building. Start by setting the floor temperature at approximately 64°F (18°C) and build up by 2°F (or 1°C) per day until your desired temperature is reached.

7.9 Shower area installation precautions

- Heating mat only with (-W) on the identification label may be installed into a floor in a wet location such as, shower area.
- The heating system should be completely embedded into mortar directly, also do not run the heating cable through a non-masonry curb, causing it to overheat.
- Only tile, stone or other masonry surfaces can be used as floor covering material for this application.
- Install a dedicated heating mat in the shower area, separate from the rest of the bath floor.
- The end of the heating cable has a waterproof splice that may be located in the shower area, fully embedded into the mortar like the heating cable.
- Make sure the control is located at least 4 in away from shower openings such that it cannot be exposed to water or touched by a person in the shower area.
- Install a heating cable around the drain leave at least 2 in spacing from the edge of the flange.



8. Troubleshooting

- If problems arise with the heating mat or its related electrical components, please consult this troubleshooting guide. All electrical related work must be carried out a qualified, licensed electrician. Any electrical troubleshooting should be performed with the power removed from the circuit, unless otherwise noted.
- Caution:
 - ※ This product is not for installation in pool and spa areas, nor for outdoor uses.
 - ※ It is necessary to connect the heating system to a GFCI or other protective device as required by local codes to keep proper grounding of the product.
- Note:
 - ※ This product must be installed only in locations in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, and as permitted by the Authority Having Jurisdiction.
 - ※ Do not use staples or anything that will damage any of the waterproofing of the components.

Problem	Causes	Solution
Floor does not heat up	Thermostat not programmed properly	Refer to instructions and re-program.
	Bad connections in junction box or heating mats	Call your electrician to correct the connection. Multiple heating mats must be connected in parallel.
	No voltage to thermostat	Check circuit breaker.
	No voltage out of thermostat	Call your electrician - return thermostat to place of purchase for replacement.
	Incorrect voltage supplied	Measure and check to ensure the right voltage used.
	Sensor placed on heating wire	Call your tile setter to reposition sensor.
	Heating mat has been damaged.	Check for mat resistance readings. If incorrect, record resistances between all wires and contact the manufacturer.
	Sensor in direct sunlight	Call your tile setter to reposition sensor.
GFCI light is on	Check for loose wire connections. Reset the GFCI. If GFCI keeps tripping, check for a short circuit in	

		the heating mat. If mat is not damaged, replace the GFCI.
Floor heats continuously	Sensor wire is loose.	Check the sensor wire for loose connection.
	Sensor is broken.	Measure resistance across the sensor wires. For detail please refer to the section in Testing in of this manual.
	Incorrect wiring	Make sure wiring connections are correct. Make sure the thermostat was not bypassed when it was wired to the power supply. Consult the wiring diagram of the thermostat come with the thermostat.
	Defective thermostat	Return it to dealer for replacement.
Floor not warm enough	Wrong thermostat settings	Carefully read and follow thermostat programming instructions.
Thermostat is not working at all.	Incorrect wiring	Ensure that the wiring of thermostat is in accordance with the thermostat installation and operation manual
	No voltage to the thermostat	Check circuit breaker and all connections between breaker and thermostat.
	Defective thermostat	Return it to dealer for replacement.
	Sensor wire is loose or not wired properly	Make sure sensor wiring connections are correct.
Thermostat is not working correctly.	Problem with the thermostat	Return it to dealer for replacement.
	Sensor wire is loose or not wired properly	Make sure sensor wiring connections are correct.
	The programming may be incorrect for a programmable thermostat.	Carefully set the program by reading and following thermostat instructions again.

9. Warranty

Thank you for your purchase. To protect your investment in your new VineHeat™ Underfloor Heating Mat(s), you must register your purchase within thirty (30) days of purchase. You can scan the QR Code on the right to complete product registration, or fill in the required information in the Warranty Card and mail it to:

*Attn: Warranty Department
TruCor Solutions LLC
13419 Currituck Dr N
Jacksonville, FL 32225*

VineHeat™ warrants its electric floor heating mats (the Product) to be free from defects in materials and workmanship for a Lifetime Guarantee. To be eligible for the warranty, the product must be registered within thirty (30) days of purchase and installed in accordance with the accompanying Installation Manual, and all applicable national and local building and electrical codes.

If the Product is determined to be defective in materials or workmanship and is not damaged due to abuse, misapplication, or modification, VineHeat™ will refund 100% of the purchase price.

VineHeat™ is not responsible for any damage to the Product caused by anyone before or during installation, including but not limited to sales personnel or personnel on the job site, or damage caused by work after installation. If you have any questions about the installation, please call our phone (888) 960-9698. If the product owner or his representative attempts to repair the product without authorization, the Limited Warranty is invalid.

9.1 To be valid, the warranty must meet the following conditions:

- The heating system purchase must be registered within 30 days of purchase. Please, keep your invoice as proof of the date of purchase. This will be required in the event of a claim. The Product can be registered using the QR Code or by completing and mailing the Warranty Card to TruCor Solutions LLC.
- The Product must be properly installed under tile, stone, resilient or laminated wood floors and used with latex-modified thinners or silicate cement.
- The Product must be controlled by a thermostat with a temperature sensor and must be grounded and protected by a GFCI (Ground Fault Circuit Interrupter). The installation must comply with all national and local electrical and building codes and any other applicable statutory requirements.
- The warranty will not be automatically transferred with the change of property ownership, but

VineHeat™ can transfer the warranty within the remaining period upon application. This transfer is entirely determined by VineHeat™ .

- Products should be used in strict accordance with the following regulations:
 - a. It is crucial that the supply voltage matches the voltage of the product, and the circuit size not exceed 80% of the circuit capacity.
 - b. If you do not feel the floor heating within 60 minutes, please check whether the control device or thermostat is powered on. If the floor does not begin to heat after confirming that the load line is energized, contact VineHeat™ Under no circumstances should you or anyone else tamper with or attempt to repair the product as this will invalidate the warranty.
 - c. Do not drop heavy objects on the floor or pierce the floor with sharp objects.
 - d. All restrictions and warnings detailed in the Installation Manual must be strictly followed.

9.2 **Statement Regarding Additional Warranties :**

- VineHeat™ rejects any warranties not provided here, including implied warranties for merchantability or suitability for specific purposes.
- VineHeat™ is not responsible for special, indirect, secondary, incidental or secondary damage caused by the ownership or use of this product, including inconvenience or improper use.
- There is no warranty beyond the scope of this document, and unless VineHeat™ is making any such extension or modification, no agent or representative has the right to extend or modify this warranty.

9.3 **Return Policy**

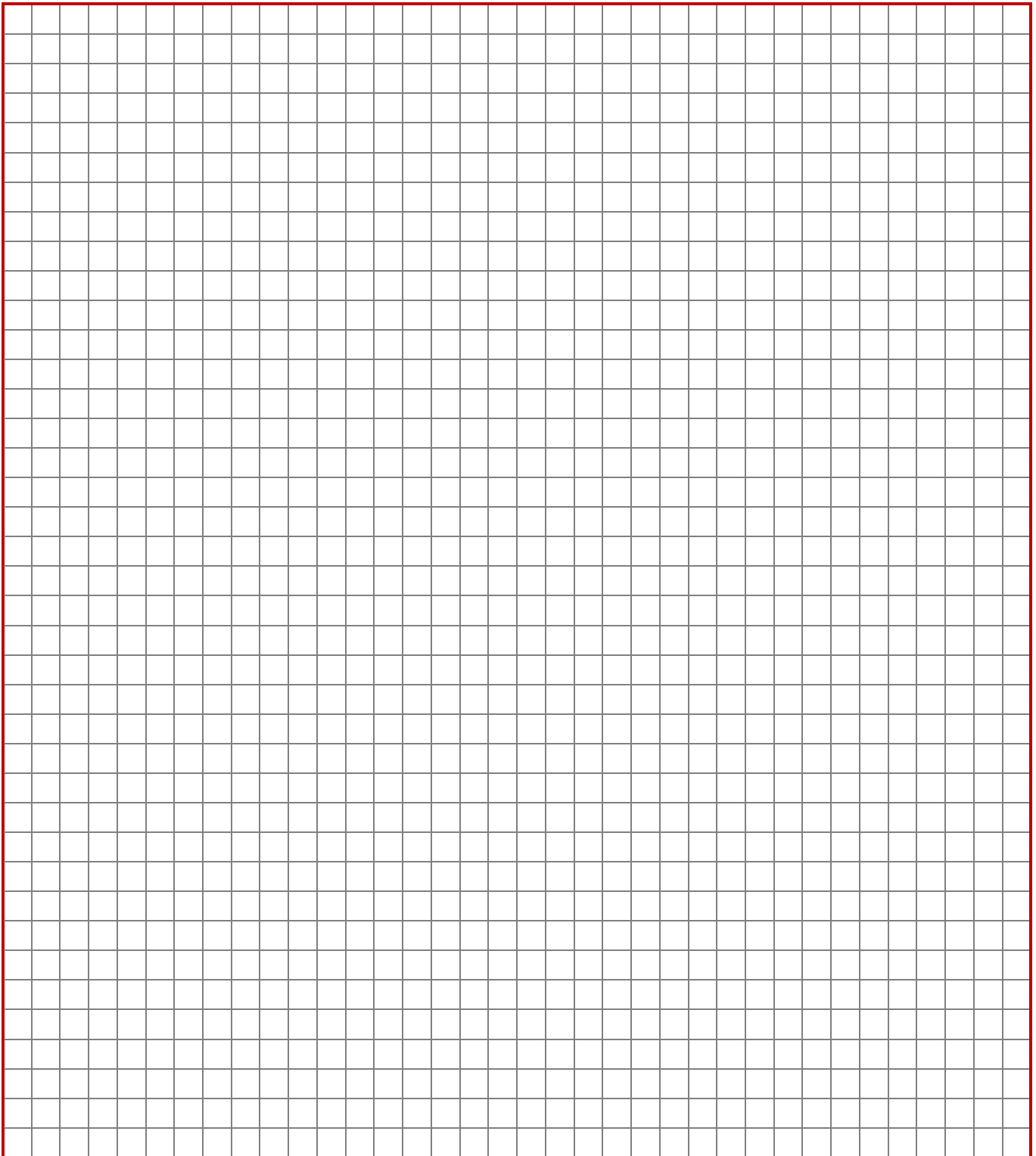
The Product can be returned for a refund within thirty (30) days of purchase only if it is in a "resalable" state, i.e., exactly the same condition as when it was shipped to you.

Start-Up Record

Project Data				
Identity		Customer	Installer	
Name				
Phone				
Fax				
E-mail				
Address	(City) (State) (Street) (Postal Code)			
Date of Commissioning				
Room type	<input type="checkbox"/> Living room <input type="checkbox"/> Bathroom <input type="checkbox"/> Kitchen <input type="checkbox"/> Hall <input type="checkbox"/> Other:			
Subfloor type	<input type="checkbox"/> Concrete <input type="checkbox"/> Wood <input type="checkbox"/> Other:			
Floor covering	<input type="checkbox"/> Tile <input type="checkbox"/> Nature Stone <input type="checkbox"/> Laminate <input type="checkbox"/> Wood <input type="checkbox"/> Other:			
Total area of the room				
Testing Record	Product	Mat 1	Mat 2	Mat 3
	Model No. *			
Before beginning the installation	Insulation Resistance (ohm)			
	Heating cable resistance (ohm)			
	Sensor resistance (ohm)			
After the mat and sensor are fastened to the floor	Insulation Resistance (ohm)			
	Heating cable resistance (ohm)			
	Sensor resistance (ohm)			
After embedding in mortar	Insulation Resistance (ohm)			
	Heating cable resistance (ohm)			
	Sensor resistance (ohm)			

✓ Can be read directly from the nameplate label attached to the power lead.

✘ It is highly recommended that these measurements also be checked frequently during tile installation.



In this layout worksheet a plan of the Underfloor Heat Mat showing the following:

-  Indicating the underfloor heating mat area
-  Position of the sensor and thermostat

