Warmzone FilmHeat™

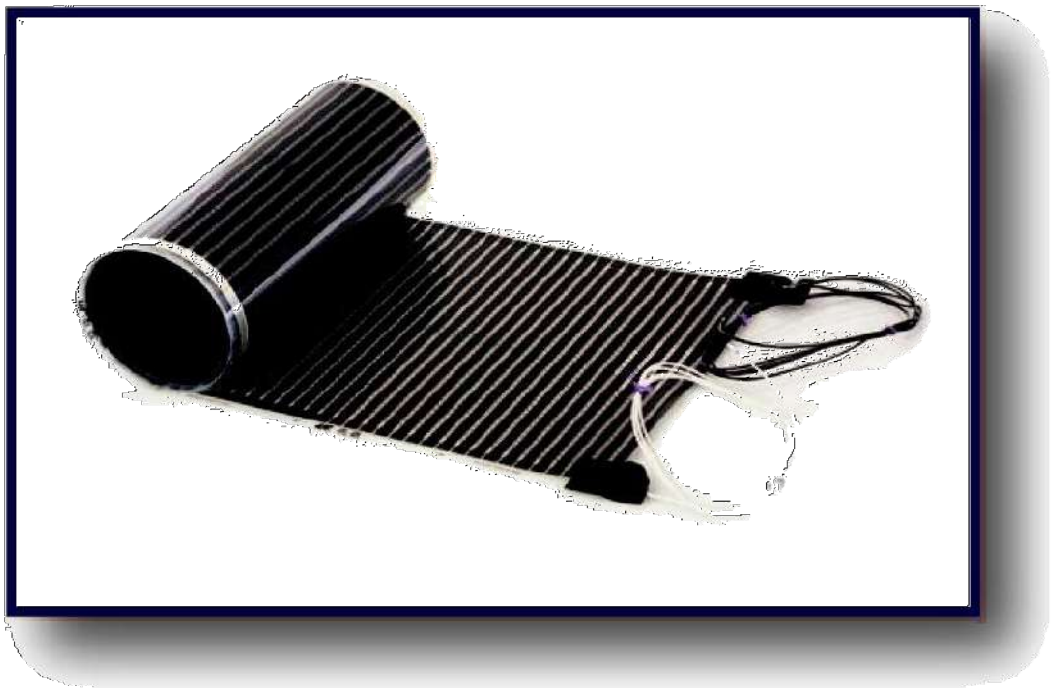
Floating Floor Radiant Heating System

Installation and Operation Manual



WARMZONE

PREMIER RADIANT HEATING



FilmHeat

Floating Floor Heat

Installation & Operation Manual

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FilmHeat™

Floating Floor Heat

Installation & Operation

The FilmHeat™ floating floor heat system works just like the sun. When the thermostat calls for power, the heating element warms the floating floor or laminate finished flooring surface by providing radiant heat, 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.

The radiant heat warms your floor, and provides clean even heat throughout the room by uniformly warming the objects while providing thermal comfort. There is no need to directly over-heat the air. This is the opposite of how a conventional forced hot air or baseboard heating systems works. 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.

CAUTION



Read and follow all the installation instructions in this manual before attempting to install the FilmHeat™ floor heating system. Improper installation procedures or techniques can cause potentially unsafe conditions, including overheating and shock hazards.

Failure to comply with the instructions in this manual can void the manufacturer's warranty.

Electrical connections should only be made by licensed contractors.

NOTE



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 varies from the baseline value, call the technical support hotline at (801) 948-7577.

Limited Warranty

MANUFACTURER warrants that, at the time of shipment to the customer, the product will be free of defects in workmanship and materials and will conform in all material respects to any written specification that 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 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 Perfectly Warm postage prepaid. If MANUFACTURER reasonably determines through examination of the returned shipment that the shipment did not satisfy the above warranty, then AS MANUFACTURER EXCLUSIVE LIABILITY AND THE CUSTOMER'S SOLE REMEDY, 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 MANUFACTURER MAY ELECT IN ITS SOLE DISCRETION.

This warranty does not apply if MANUFACTURER reasonably determines that the product has been cut, added to or otherwise altered, stored improperly, misused, damaged, or installed not in accordance with the instruction manual supplied by MANUFACTURER. 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 PERFECTLY WARM™. Components such as attaching hardware, connecting parts, wire, tape, and other items included in kits or assemblies that are not manufactured by PERFECTLY WARM™ 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 MANUFACTURER WHETHER BY STATUTE, CONTRACT, STRICT LIABILITY, TORT OR OTHERWISE.

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

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Safety Information

Throughout the manual you will see *Cautions* and *Notes*. These notices highlight conditions, procedures, or other information that require special attention to prevent damage to the mats, to your flooring, or possible injury. For a safe and functional installation of FilmHeat floating floor heat, read and follow these important safety precautions. Failure to comply with these items may result in injury or damage to the mats. This information must be read and understood by all technicians who will be working in the area of an installed FilmHeat floating floor heat or main electrical systems. Failure to follow these guidelines may result in a risk of electric shock or fire hazard.


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.

CAUTION


Make sure that the jobsite is neat and clean before working with the mats. Nails, screws, and other sharp debris can damage the mats creating a potential shock hazard. Any mats which become torn or otherwise damaged must be discarded.

CAUTION


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


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


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

Safety Information - Continued

CAUTION



Not for use in wet areas, such as showers. This system is only for use in areas considered dry locations by National Electrical Code.

CAUTION



Do not fold or alter the heating mats.

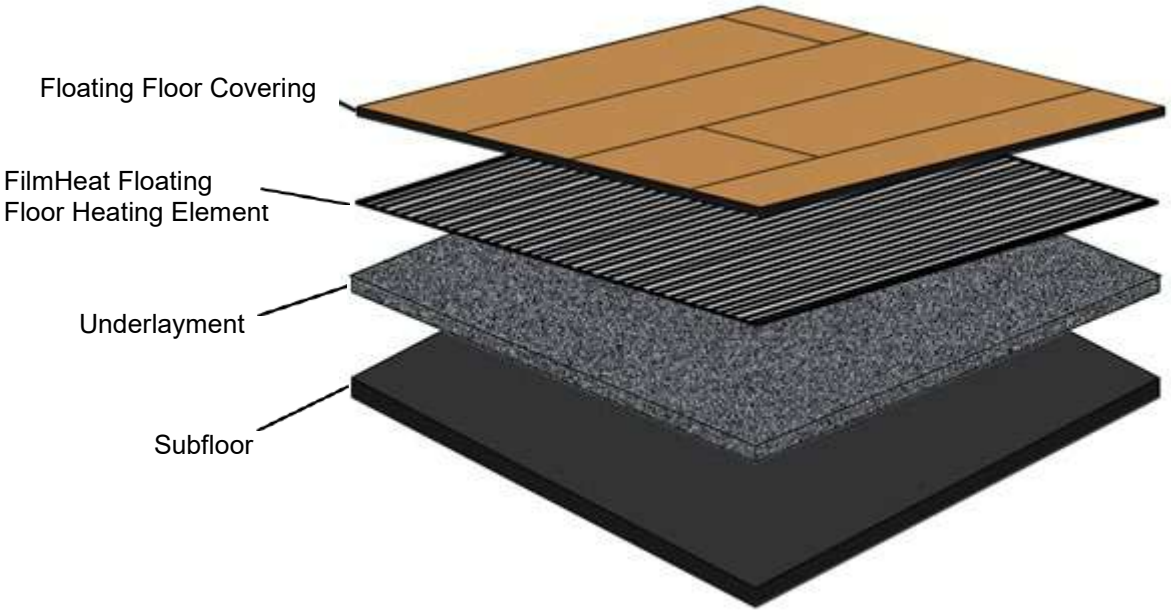
CAUTION

Do not install mats in walls, under walls or partitions, or in locations where they will be covered by floor hugging furniture or fixtures.

CAUTION



Do not place futons, beanbag chairs, or similar furniture on heated floors.



***NOTE:** For installation on concrete at or below grade, a 6-mil vapor barrier must be installed on top of the sub floor.*

Section 1: Introduction

The FilmHeat™ floating floor heat heating system is a unique heating system that is installed below floating flooring materials to create warm, comfortable floors and provide supplementary or primary heat. FilmHeat consists of low heat density film heating mat sets that cover the majority of the open floor area to ensure optimum thermal comfort. FilmHeat floating floor heat comes as standard kits which may be modified and cut to shorter lengths in accordance with instructions or is available as custom orders.

The FilmHeat system can be installed on any standard sub-floor, so long as it is flat, smooth, and free from protrusions such a nails, screws, etc. The heating elements feature a manufacturer warranty of 25 years.

When specifying as primary heat, a heat loss calculation must be performed to determine how many watts are required to heat the room or space. For more information please visit www.warmzone.com.

How to Use this Manual

This manual is organized into five sections:

- Section 1. Introduction
- Section 2. Designing the Installation
- Section 3. Installation
- Section 4. Inspection and Testing
- Section 5. Operation

Features

- 12 watts per square foot
- 0.016-inch thick
- Easy to install
- Available in 18” and 36” widths in standard kit lengths or custom lengths
- 120V or 240V
- Thermostat controlled
- Warranted to be free of defects in manufacture for a period of 25 years

For Additional Help

For additional help, the following resources are available:

- Technical Hotline: (801) 948-7577
- Website: www.warmzone.com
- Email: info@warmzone.com

Before You Begin

FilmHeat floating floor heat must be installed on a dedicated 20-amp circuit. Do not connect lights, outlets, or any other electrical device to any branch circuit used with the FilmHeat floating floor heat mats.

All wiring, fuses and/or circuit breakers must conform to National Electrical Code requirements.

NEVER Do the Following:

- Install in wet areas such as showers. This system is only for use in areas considered dry locations by National Electrical Code.
- Never fold or alter the heating mats.
- Never install mats under walls or partitions, or in locations where they will be covered by floor hugging furniture or fixtures. Call for instruction before proceeding.
- Never place futons, beanbag chairs, or similar furniture on heated floors.
- Never install in walls.

ALWAYS Do the Following:

Protect the circuit supplying power to the FilmHeat Floating Floor Heat mats with a ground fault circuit interrupter (GFCI).

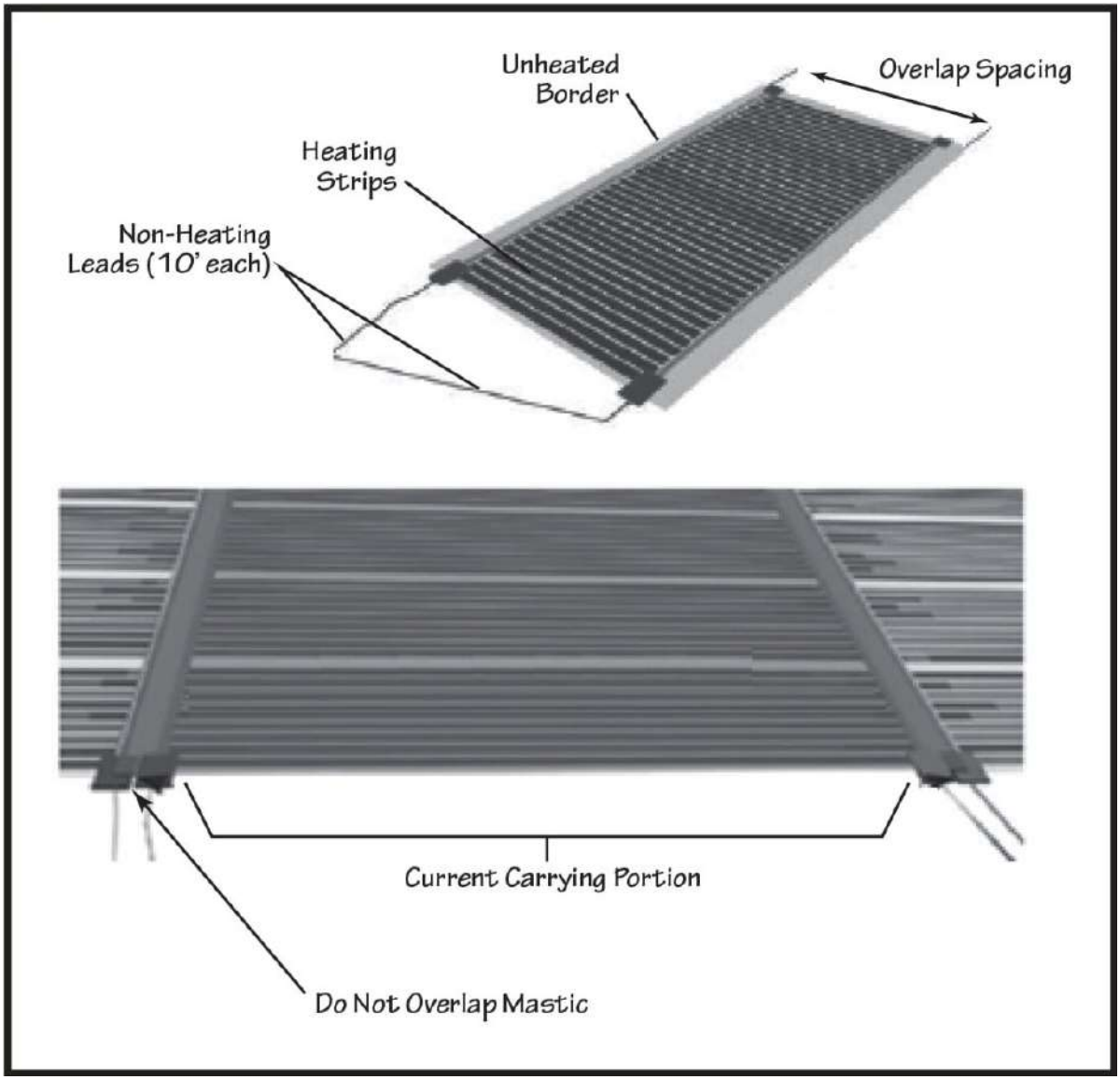
Completely cover the heating mats and factory connections in mortar (tile and stone) or glue (wood and LVT that is 4mm or thicker) or self-leveling underlayment (laminate and non-masonry) materials.

Refer to the TCNA Handbook recommendations and ANSI references for proper substrate needed for thinset tile installations and for recommendations on proper Movement Joints within the plane of the tile per Detail EJ-171.

Be sure to install a floor sensor.

FilmHeat

Heating Element



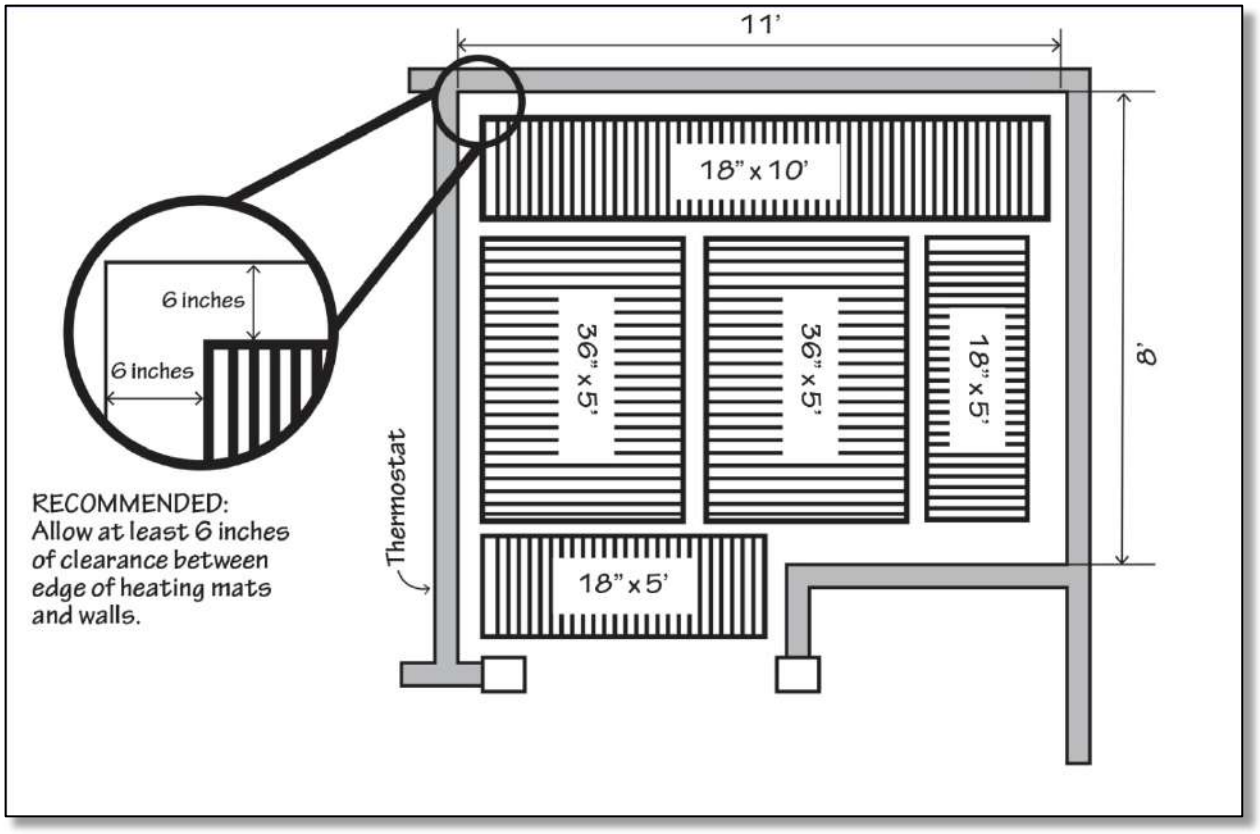
Section 2: Designing the Installation

Introduction

The FilmHeat™ floating floor heating system is made up 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 or as primary heat when appropriately specified. Designing a FilmHeat floor heating system is straightforward. The following instructions will ensure a trouble-free design and full compliance with the warranty requirements.

Sketch the System Layout

A sketch of the area to be warmed, including the mat locations and associated wiring is suggested to make installation and ordering as smooth as possible. Use the sketch below as an example. Allow at least 6 inches clearance between the edge of the mats and the wall. Note that the thermostat is located on an interior wall where it will not be subjected to direct sunlight and that the length of the non-heating leads is taken into account. Ensure that non-heating leads will not cross over any heating mats.



2: Designing the Installation - Continued

Control Devices



NOTE:

The installation of this heating product and listed components shall be in accordance with Article 424, of the National Electric Code, ANSI/NFPA 70. All electrical connections should be made by a licensed electrician.

All heated areas must be protected by a GFCI in either the thermostat or at the service panel. The fuse or circuit breaker used to protect the circuit supplying power to the FilmHeat floating floor heating 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 electric relays or power modules.

Thermostat Requirements



NOTE:

The system must be installed using a thermostat approved by the manufacturer. Use of any other thermostat will void the manufacturer's warranty. For a list of approved thermostat devices, refer to www.perfectly-warm.com.

Locating the Thermostat

Thermostats are usually located near the power leads. However, they can be located almost anywhere, because the power leads and the sensor wire can be routed to electrical junction boxes and extended to a location outside the heated room (such as a utility room or basement).

Location of the thermostat should be approximately 60" (152 cm) above the floor on an inside wall, near the center of the room to allow the connection leads to reach. A 3-inch deep box is recommended for the thermostat.

Floor Construction

The FilmHeat floating floor heat can be installed on any standard sub-floor, so long as it is flat, smooth, and free from protrusions such a nails, screws, etc.

Design Clearances

When designing the heating system, care must be taken to ensure that proper clearance is maintained from fixtures which may be part of the floor.

For best results, there should be a 6 inch (15 cm) clearance between the edge of the mats and the perimeter of the room or the walls. Clearance may be greater than 6 inches.

Decorative trim: Mats must be installed so that they will not be covered, even in part, by decorative trim, baseboards or other structures on the floor. Heating mats that are covered by other structures may overheat.

Wiring: Electrical wiring in the floor, other than that for the heating system, must be at least 2 inches (5 cm) away from the heating mats and/or separated from the heating mats by insulation or the building structure.

Heat Sources: At least 8 inches (20 cm) of clearance must be maintained between heat sources and the FilmHeat floating floor heat mats. Heat sources include hot water pipes, stoves, fireplaces, wood stoves, hot air vents, etc.

Section 3: Installation

3.1 Preparation



CAUTION

Make sure that the jobsite is neat and clean before working with the mats. Nails, screws and other sharp debris can damage the mats. Any mats which become torn or otherwise damaged must be discarded.



NOTE

The installation of this heating product shall be in accordance with the manufacturer's instructions. Improper installation can result in mats that do not work, poor heating, and can void the manufacturer's warranty.



NOTE

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



NOTE

Heating mats should not be installed at or below 32°F (0°C).



NOTE

The installation of this heating product shall be in accordance with the manufacturer's instructions. Improper installation can result in mats that do not work, poor heating, and can void the manufacturer's warranty.



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



NOTE

Heating mats should not be installed at or below 32°F (0°C).

Preparing the Job Site

Make sure that the job site is neat and clean before working with the FilmHeat heating element. Nails, screws and other sharp debris can damage the mats. Any mats which become torn or otherwise damaged must be discarded.

What You Will Need

FilmHeat floating floor heating mats

Kapton Discs and Warning Labels (included in kits)

Thermostat: Use a recommended floor-sensing thermostat. (Go to www.warmzone.com for recommended thermostats.)

GFCI Breaker (if not part of the thermostat)

Junction Boxes: Minimum of two required for each room or area. One box (3") required for thermostat, one box (4") required for electrical connections.

Vapor Barrier (6 mil; only for concrete slabs when using underlayment without an attached vapor barrier.)

Underlayment

Duct tape

Tools: Digital Ohm Meter (multi-meter), wire stripper, screw driver, wood chisel, knife and scissors to cut underlayment

12/2 Romex Wire

***3. Installation** - Continued*

3.2 Electrical Installation

Step 1: GFCI Installation

FilmHeat floating floor heat mats must be protected by a ground fault circuit interrupter (GFCI). This can be done either by the internal GFCI in the thermostat (as long as it directly controls the mat), or by a GFCI protected circuit breaker.

Follow all local building and electrical codes.

Step 2: Multiple Mat Installations

For any installation with multiple mats where the total electrical draw will exceed 15 amps, it will be necessary to install additional power modules, each protected with an Equipment Ground Fault Protection Device (EGFP). For example, if the total calculated current draw for a large room is 37 amps, a thermostat and two power modules would be required, with no individual power module handling more than 15 amps. The two power modules are controlled by the thermostat.

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 FilmHeat floating floor heating system.

Step 3: 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.

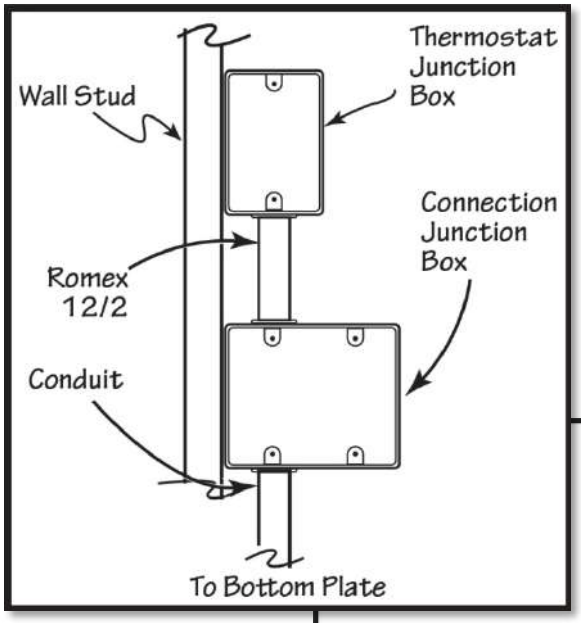
Step 4: Bottom Plate Work

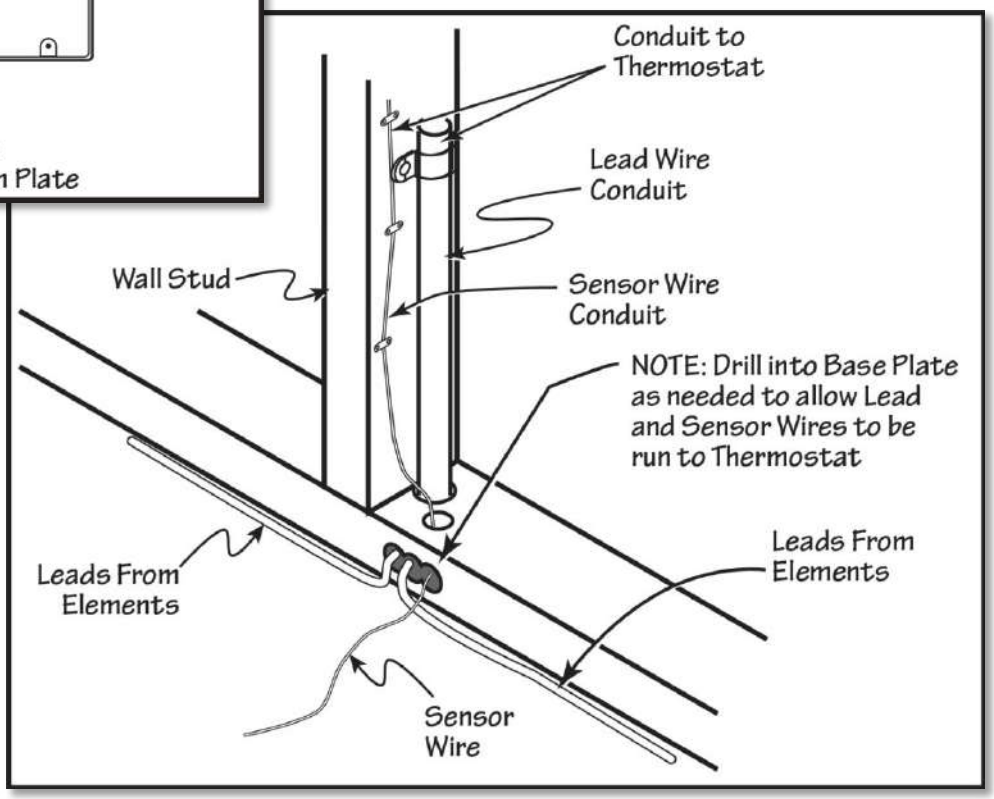
Drill or saw holes in the bottom plate as shown in the diagram on Page 15. One hole is for routing power leads or conduit and the other is for the thermostat sensor. These holes should be directly below the electrical box(es). You may also use a notch technique as an alternative.

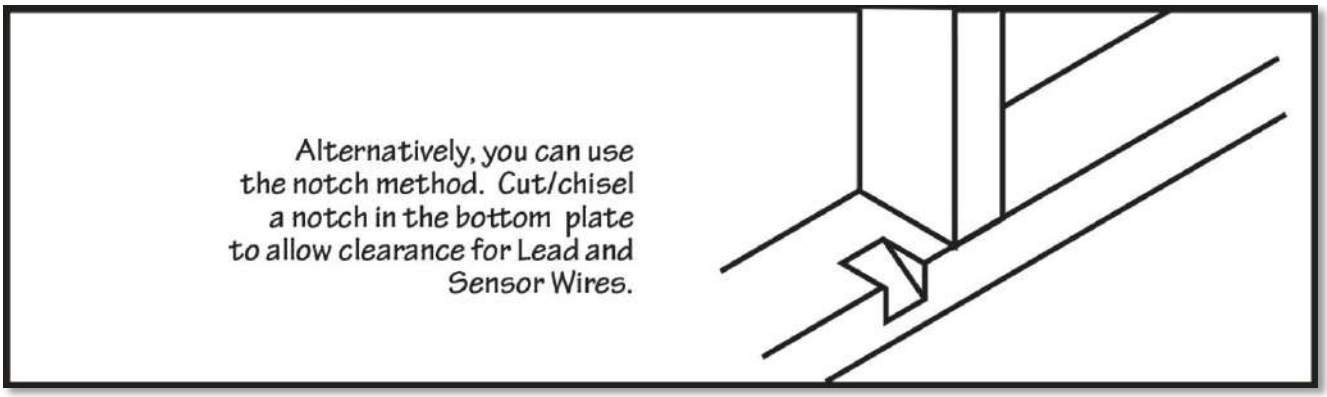
Step 5: Install Power Lead Conduit

Route the power leads from the thermostat down the wall cavity through opening in the bottom of plate to connect the mats.

Wiring Illustrations







***3. Installation** - Continued*

3.3 Installing the Units

Installation Sequence

The sequence of installation should be as follows:

1. Apply lower vapor barrier if installing over concrete slab using underlayment without a built-in vapor barrier.
2. Install insulating underlayment.
3. Install heating mats.
4. Install finished floor covering.

Step 1: Inspect and Test Mats

Visually inspect each mat for any signs of damage that may have occurred during shipping.

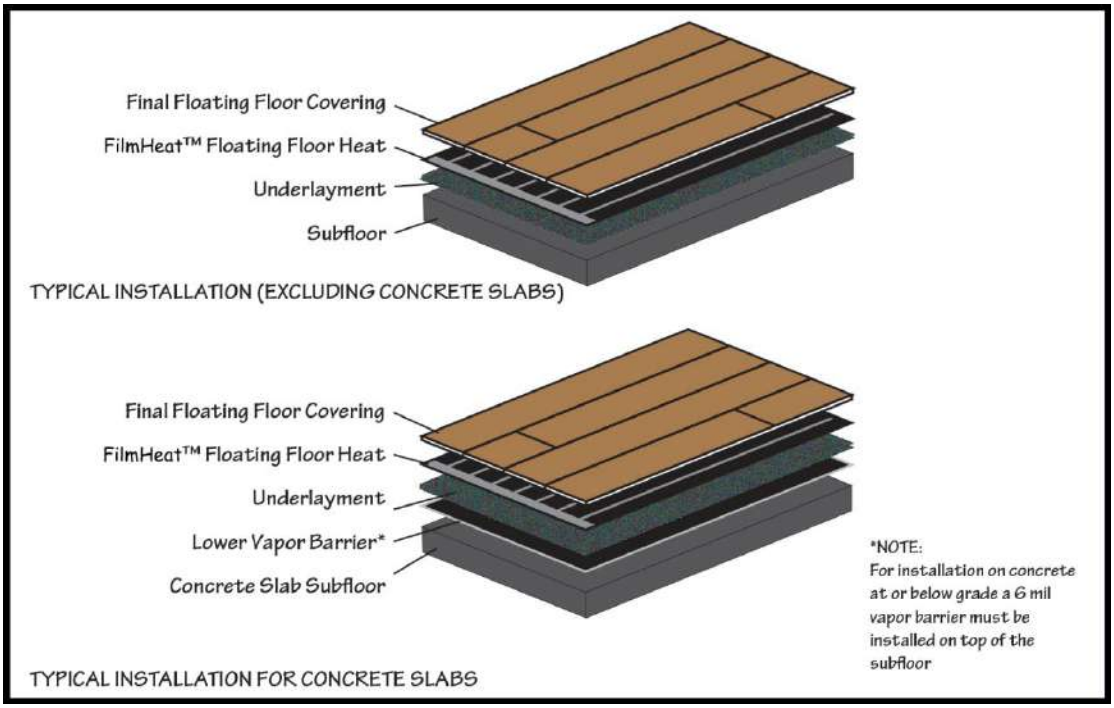
The individual mats provided with each kit have resistance readings (in ohms) on a sticker on the mat. Using an ohm meter, check and verify the resistance of each mat. If any reading is significantly different from the value on the mat, contact the technical hotline at (801) 948-7577.

Step 2: Install Lower Vapor Barrier

For installations on concrete slabs, ensure the lower 6 mil (0.15 mm) vapor barrier is completely and properly installed.

Step 3: Install Underlayment

For all floors, install 0.080”-0.15” (2-4 mm) underlayment. For installations over concrete slabs in extremely cold regions, it is highly recommended that a rigid foam insulating layer (such as extruded polystyrene) be installed over the entire floor. Seal the underlayment/ insulation according to the manufacturer’s instructions.

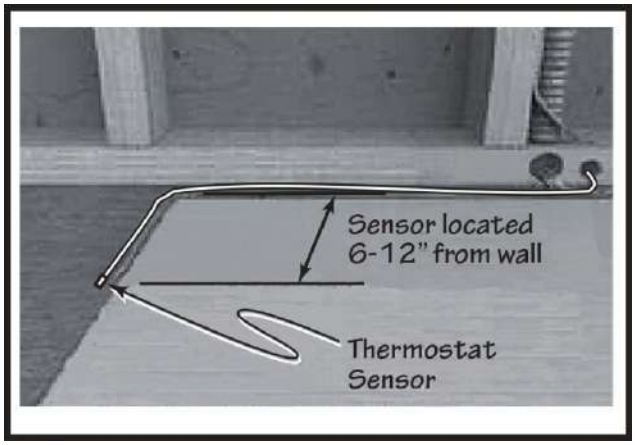


Step 4: Install Thermostat Sensor

NOTE:

Sensor is thicker than the heating mat. If necessary, saw a groove in the underlayment between the mats, to recess the sensor to the level of the mat. Use duct tape to secure the sensor in the groove. Do not damage the sensor. Ensure the sensor is set down so it is level with the mat and not on top of the mat.

Cut an area of underlayment to push the sensor down so it is completely level with the mat. Tape the floor sensor to the underlayment in an area at least 2 inches (5 cm) from any heated (black stripe) of the heating mat. Do not allow sensor to contact mat.



Step 5: Prepare Mats

If installing cut-to-length mats, you first need to prepare them for use, as follows:

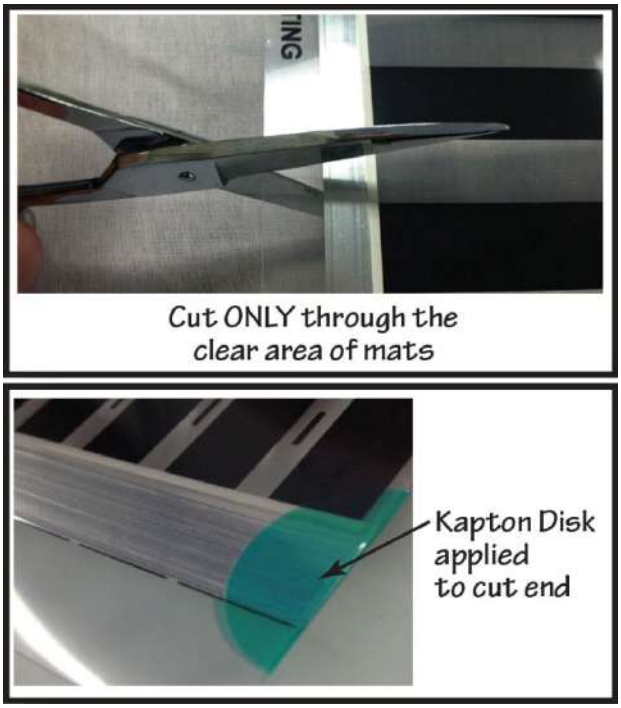
NOTE:

Cut only through the clear area between the heating stripes. NEVER cut closer than ¼ inch (6 mm) to the heating stripes and DO NOT cut into the heating stripes themselves.

Using the diagram you made earlier, cut the heating element to length using scissors.

Do not cut the end with wired connections; only cut the opposite end (without wiring).

Insulate the cut ends with Kapton Disks.



Installation - *Continued*

Step 6: Install Mats

Clear the floor of all debris, nails, etc. so the floor is smooth, clean and dry.

Roll out the mats over the floor surface according to the layout created in Section 1, Designing the Installation.

Cut out an area of the underlayment and push the connectors down so they are completely level with the mat. Route the cold leads between sections of the underlayment. If necessary, cut a narrow channel in the underlayment to route the cold leads.

Attach the heating mats to the underlayment using a high quality duct tape.

CAUTION

Elements may be overlapped ONLY as shown in the figure below. Under no circumstances may current carrying portions of the mats overlap. Overlapping warming sections can result in overheating and potential fire danger. When overlapped properly, the mats will be spaced by their nominal width (18 inches or 36 inches).

CAUTION

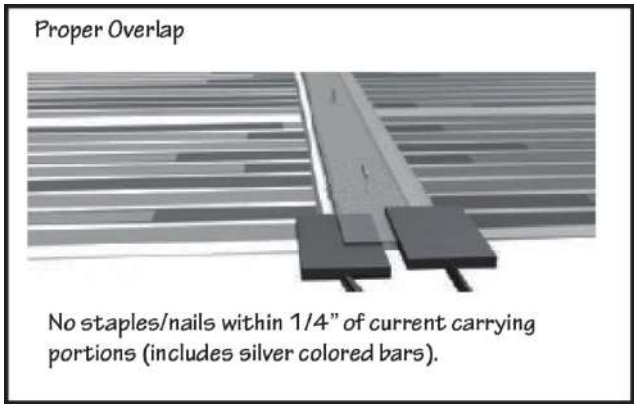
Take care not to damage the heating mats while they are on the floor. Do not drop items on mats and avoid unnecessary walking in heating areas before finished flooring has been applied.

Step 7: Recheck Mat Resistance

Using an ohm meter, recheck the resistance of each mat. If any reading has changed, closely inspect the mat for damage. For additional help contact the technical hotline at (801) 948-7577.

Step 8: Connect the Electrical Leads

Now, depending upon your wire lead installation, run the lead wires from the individual mat(s) along the base of the wall and up to the junction box. Wire the heating mats to the control according to the manufacturer's instructions using the 12/2 Romex wire.



Section 4: Inspection and Testing

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

Visual Inspection

Also perform a visual check to look for any signs of damage to the mat or electrical leads that may have occurred during installation. When visually checking the mats, look for any signs of damage, wear, or scratching that might have occurred during installation. If any portion of a mat appears damaged, replace the entire mat. If damage is found, call 888-488-9276 for advice and/or replacement assistance.

Electrical Test



NOTE:

Record the resistance readings that are required for warranty activation. If a mat fails the resistance check, it must be retested after any corrective actions are made.

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. Please refer to the charts on page 20 under the section of low resistance limits and high resistance limits.

If the resistance check is between the low and high resistance limits shown on page 20, the system is connected properly and no further testing is required.

If the resistance is LOWER than the indicated low resistance limits on page 20, contact 888-488-9276.

If the resistance is HIGHER than the indicated high resistance limits on page 20, this indicates a damaged mat. Inspect all wiring for damage or loose connections and retest.

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.

If the element or film has been cut to shorten the length, to calculate the new resistance, follow the instructions below:

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.

4. Inspection and Testing - Continued

120V FilmHeat Floating Floor Heat Resistance Value

Tolerances for resistance measurements are -5% and +10%. 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 1.1 to equal the high limit. Then, multiply the nominal resistance by .95 to equal the low limit.

Part Number	Dimensions	Amps	Watts	Resistance (Ohms)		
				Low Limit	Nominal	High Limit
ULH18-16W120V	18" wide X 1' long	0.13	15.6	876.92	923.08	1015.38
ULH18-31W120V	18" wide X 2' long	0.26	31.2	438.46	461.54	507.69
ULH18-47W120V	18" wide X 3' long	0.39	46.8	292.31	307.69	338.46
ULH18-62W120V	18" wide X 4' long	0.52	62.4	219.23	230.77	253.85
ULH18-78W120V	18" wide X 5' long	0.65	78	175.38	184.62	203.08
ULH18-94W120V	18" wide X 6' long	0.78	93.6	146.15	153.85	169.23
ULH18-109W120V	18" wide X 7' long	0.91	109.2	125.27	131.87	145.05
ULH18-125W120V	18" wide X 8' long	1.04	124.8	109.62	115.38	126.92
ULH18-140W120V	18" wide X 9' long	1.17	140.4	97.44	102.56	112.82
ULH18-156W120V	18" wide X 10' long	1.30	156	87.69	92.31	101.54
ULH36-33W120V	3' wide X 1' long	0.28	33.38	409.83	431.40	474.54
ULH36-67W120V	3' wide X 2' long	0.56	66.76	204.91	215.70	237.27
ULH36-100W120V	3' wide X 3' long	0.83	100.14	136.61	143.80	158.18
ULH36-134W120V	3' wide X 4' long	1.11	133.52	102.46	107.85	118.63
ULH36-167W120V	3' wide X 5' long	1.39	166.9	81.97	86.28	94.91
ULH36-200W120V	3' wide X 6' long	1.67	200.28	68.30	71.90	79.09
ULH36-234W120V	3' wide X 7' long	1.95	233.66	58.55	61.63	67.79
ULH36-267W120V	3' wide X 8' long	2.23	267.04	51.23	53.92	59.32
ULH36-300W120V	3' wide X 9' long	2.50	300.42	45.54	47.93	52.73
ULH36-334W120V	3' wide X 10' long	2.78	333.8	40.98	43.14	47.45

4. Inspection and Testing - Continued

240V FilmHeat Floating Floor Heat Resistance Values

Tolerances for resistance measurements are -5% and +10%. 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 1.1 to equal the high limit. Then, multiply the nominal resistance by .95 to equal the low limit.

Part Number	Dimensions	Amps	Watts	Resistance (Ohms)		
				Low Limit	Nominal	High Limit
ULH18-16W240V	18" wide x 1' long	0.07	15.6	3507.69	3692.31	4061.54
ULH18-31W240V	18" wide x 2' long	0.13	31.2	1753.85	1846.15	2030.77
ULH18-47W240V	18" wide x 3' long	0.20	46.8	1169.23	1230.77	1353.85
ULH18-62W240V	18" wide x 4' long	0.26	62.4	876.92	923.08	1015.38
ULH18-78W240V	18" wide x 5' long	0.33	78	701.54	738.46	812.31
ULH18-94W240V	18" wide x 6' long	0.39	93.6	584.62	615.38	676.92
ULH18-109W240V	18" wide x 7' long	0.46	109.2	501.10	527.47	580.22
ULH18-125W240V	18" wide x 8' long	0.52	124.8	438.46	461.54	507.69
ULH18-140W240V	18" wide x 9' long	0.59	140.4	389.74	410.26	451.28
ULH18-156W240V	18" wide x 10' long	0.65	156	350.77	369.23	406.15
ULH36-33W240V	3' wide x 1' long	0.14	33.38	1639.30	1725.58	1898.14
ULH36-67W240V	3' wide x 2' long	0.28	66.76	819.65	862.79	949.07
ULH36-100W240V	3' wide x 3' long	0.42	100.14	546.43	575.19	632.71
ULH36-134W240V	3' wide x 4' long	0.56	133.52	409.83	431.40	474.54
ULH36-167W240V	3' wide x 5' long	0.70	166.9	327.86	345.12	379.63
ULH36-200W240V	3' wide x 6' long	0.83	200.28	273.22	287.60	316.36
ULH36-234W240V	3' wide x 7' long	0.97	233.66	234.19	246.51	271.16
ULH36-267W240V	3' wide x 8' long	1.11	267.04	204.91	215.70	237.27
ULH36-300W240V	3' wide x 9' long	1.25	300.42	182.14	191.73	210.90
ULH36-334W240V	3' wide x 10' long	1.39	333.8	163.93	172.56	189.81

4. Inspection and Testing - Continued

Documentation

The System Checklist and Warranty Registration form records vital information about your 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 manual must be attached to the service panel so that it is easily accessible to the homeowner and any repair technicians.

WARMZONE
PREMIER RADIANT HEATING

System Checklist and Warranty Registration

Installation Location: _____
City / State / ZIP / Country: _____
Installation / Inspection Dates: _____ / _____
Purchase Order Number: _____
Purchased From: _____
Electrical Permit Number: _____

Name of Installer: _____
Installer Company Name: _____
Street Address: _____
City / State / ZIP / Country: _____
Heat Loss Calculated by: _____
Floor warming systems being used as primary heat require heat loss calculation. 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				
	Primary Heat: yes no If "yes": Heat Loss +20%	Product Model Number (s)	Number of Mats & Sizes	Total Number of Installed Watts	Visual Inspection*	Product Date Code**	Number of Thermostats	Voltage	Ohm Reading
Living Room					A☐ B☐ C☐				
Dining Room					A☐ B☐ C☐				
Entrance					A☐ B☐ C☐				
Kitchen					A☐ B☐ C☐				
Family Room					A☐ B☐ C☐				
Bedroom 1					A☐ B☐ C☐				
Bedroom 2					A☐ B☐ C☐				
Bedroom 3					A☐ B☐ C☐				
Bathroom 1					A☐ B☐ C☐				
Bathroom 2					A☐ B☐ C☐				
Den					A☐ B☐ C☐				
Other					A☐ B☐ C☐				
Panel Box ***					D☐ E☐ F☐				
Total									

* 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.).

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

Completely fill out information and return one (1) copy to:

Perfectly Warm™
2380 Cranberry Highway
West Wareham, MA 02576

Test for Heating

NOTE:



The mats will generate 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).

1. Turn on the breaker and adjust the thermostat so that the system begins heating.
2. After the system has been on for several minutes, run your hand over the heating mats to ensure that they are warm.
3. 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).

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 trouble shooting 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 that all leads from all mats are connected together to 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 un-insulated in a cold climate. Set thermostat to allow system to continue running until it becomes warm. Then adjust 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 240V power is not being applied to heating mats rated for 120V service. Verify that thermostat has not been bypassed. If necessary, reposition floor temperature sensor
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. Check electrical connections to verify leads from all mats are wired properly in parallel (white to white and black to black for 120V) (red to red and black to black for 240V) and that 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. For further assistance with GFCI problems call **888-488-9276**.
Thermostat issue	Refer to the thermostat manufacturer's documentation.

4. Inspection and Testing - Continued

Complete the Installation

NOTE:

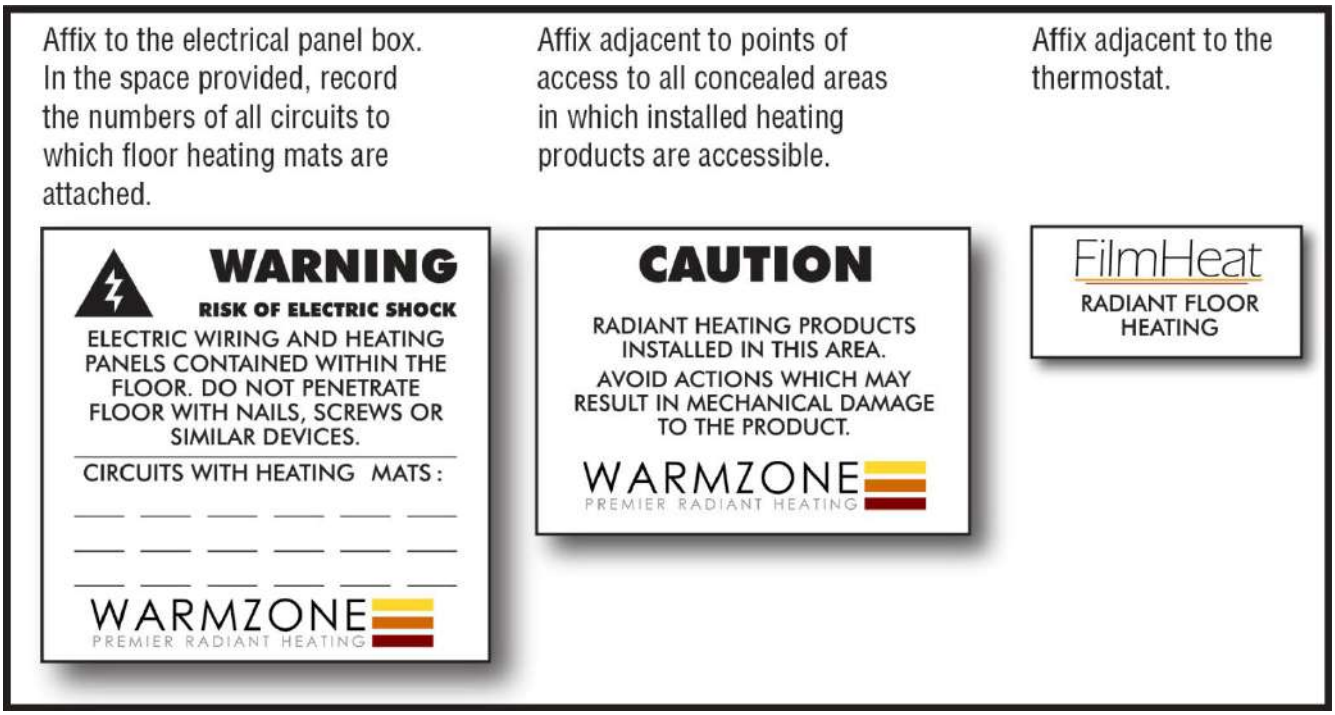
Install baseboards or trim around the perimeter of the room. This will ensure that the floor will not lift, exposing the mats. The laminate manufacturer's instructions will have information about installing the baseboard or trim to allow the floor to float properly.

Place Warning Labels

Apply warning labels 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.

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1. Install the finished flooring according to the manufacturer's instructions.
2. Retest the mats to ensure that the mats have not been damaged during installation process. If they have been damaged, follow guidelines provided to remedy the situation.



Section 5: Operation

Operating the System

Operation of FilmHeat™ floating floor heat is the same as other heating systems. Just set the thermostat to the desired temperature and the system warms your finished floors and the room.

Keep the following things in mind:

- 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 FilmHeat floating floor heat system requires no maintenance, there are some things that must be taken into account to ensure that the systems are not damaged. Additional information for remodeling and repair technicians is available by calling 888-488-9276.

Never pierce the floor

- 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 fire hazard.
- If a portion of the floor surface must be replaced, inspect any exposed heating mats for damage that may have occurred while moving the flooring. See "Section 3, Step 1: Inspect and Test Mats" on page 16 for complete instructions on inspecting 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 heating portions of a new floor, the heating mats located under the walls or partitions must be disconnected from power to avoid a potential for overheating.

Repair/Remodel Information



CAUTION

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 FilmHeat floating floor heat mat or main electrical systems. Failure to follow these guidelines may result in a risk of electric shock or fire hazard.



CAUTION

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

Before performing any remodeling work near a heated floor, carefully read Sections 1 through 3 of this manual. These sections detail the clearances, procedures, and materials involved as well as the testing procedures required to ensure system safety.

Notes:

Date of Installation: _____

General Contractor: _____

Electrical Contractor: _____

Flooring Contractor: _____

WARMZONE
PREMIER RADIANT HEATING
By INNOVAIR SOLUTIONS

www.warmzone.com
Toll free: 888-488-9276
Fax: 801-948-7599

FilmHeat
Floating Floor Heat