



Installation Manual

Foil Heating System

for Carpet and Laminate

IMPORTANT

Read this manual before attempting to install your heater.
Incorrect installation could damage the heater and will invalidate
your warranty.

TECHNICAL HELPLINE
0800 WARMUP (927 687)

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ITEMS REQUIRED FOR SYSTEM INSTALLATION:

- The customized installation plan (or layout)
- A Warmup thermostat
- Digital ohmmeter (multimeter)
- Electrical housing boxes/switch plates
- Electrical conduit
- Junction box
- Adhesive aluminium tape

Warmup Foil mats must be fitted directly on top of the underlayment/insulation, and directly under the wood laminate flooring. (The "underlayment" is also known as the "pad")

See page 7 for information on suitable materials.

If these instructions are followed you should not have any problems. However, if you do require assistance at any stage please call the Warmup helpline: 0800 WARMUP (927 687)

You can also find a copy of this manual, wiring instructions, a list of frequently asked questions and more helpful information on our website: www.warmup.co.nz

Before You Begin

Introduction

Thank you for purchasing the Warmup Foil heating mats.

This manual contains **IMPORTANT** information regarding the safe use and installation of your heating mats. Please read through the entire manual carefully before you install or use the product.

Product Specification and details

Warmup Foil Floor Heating Mat - for carpet and laminate floors

The Warmup Foil is an ultra thin electric radiant floor heating system primarily for use under carpet, laminate and engineered wood.

CONSTRUCTION:

The Warmup Foil system is constructed using dual core fluoropolymer insulated heating cables. The heating cables are sandwiched between two layers of specially reinforced aluminium foil acting as the earth.

The aluminium foil along with the uniform spacing of the heating elements ensures even heat distribution. The heating elements are connected to the power supply cable, which exits the mat from one corner. The power lead is a flat thin two core flexible cord, consisting of two insulated conductors covered by a metallic earth braid and an outer sheath.

Warmup Foil heating mats are available at a nominal heat output of 140W/sqm & 230 V. The mats are available in predetermined lengths with a 10m cold tail. The Warmup Foil heating mats are manufactured & tested in a carefully controlled factory environment.

Warmup Foil heating mats are intended to be installed between the underlayment and the laminate/carpet floor. Refer to important notes section in this manual in regard to compatible materials.

Warmup Foil heating mats are for indoor applications only. Although they are completely watertight and grounded, all installation and wiring instructions **MUST** be followed. The FOIL heating mats are **NOT** suitable for under tile, stone, or nailed/glued hardwoods.

DO's

Please read the following information before installing your Warmup FOIL heating mats.

DO :

- DO** Check with the manufacturer of your flooring, that their products are compatible with radiant electric floor heating systems.
- DO** install the underlamine heating mats on top of a polyethylene foam or reconstituted rubber which is at least 2mm thick.
- DO** operate the heating mat with a Warmup floor sensor thermostat to ensure the floor does not exceed the maximum temperature of 81°F (27°C), as recommended by leading laminate/carpet floor manufacturers.
- DO** ensure that the system is operated with a Warmup Listed thermostat and connection is via an RCD (Residual Current Device)
- DO** connect all cold wire leads from the Warmup foil heating mats in parallel inside an electrical junction box or boxes.
- DO** provide each room with an Warmup FOIL system with its own thermostat. Each Warmup thermostat has a maximum capacity of 16 Amps. If the amount of Amps in the room is greater than 15 Amps, divide the amperage over several thermostats.
- DO** consider using insulation under the mats to reduce running costs and warm-up time. Call your Warmup representative for more information on insulation options.
- DO** ensure that no sharp edges (e.g. metal-edged laminate locking systems) come in contact with the foil heating.
- DO** allow a minimum distance of 300mm between the mat and the wall.
- DO** keep the Warmup foil mats separated from heat sources such as luminaries and chimneys.
- DO** allow a minimum distance of 40mm between adjacent heating panels.
- DO** indicate which circuit supplies power to the foil heating system and retain the label for each foil mat in a convenient location at the distribution box for reference by the Electrical inspector or homeowner.
- DO** attach a warning label in a convenient location indicating where the foil mats have been installed.
- DO** use listed conduit, fittings and other components if required.
- DO** ensure that all electrical work is undertaken by a registered electrician.

DONT's

DON'T :

- DON'T** use any foam backed carpets
- DON'T** install the Warmup foil mat in walls or up stairs.
- DON'T** install Warmup over floors that have traces of moisture.
- DON'T** leave insulating materials such as **bean bags, pillows, linen or towels on the floor surface**
- DON'T** overlap heating mats.
- DON'T** fold or wrinkle Warmup foil heating mats.
- DON'T** place heavy/sharp tools (or any other potentially damaging object) on top of the heating mats.
- DON'T** walk unnecessarily on the foil heating mats without protecting them.
- DON'T** install foil heating mats anywhere except inside buildings.
- DON'T** install foil mats on top of other in-floor radiant heating systems (for example hydronic or in cement systems) Unless the system is permanently disconnected in a way that it cannot be inadvertently switched on while the foil system is in use.
- DON'T** install Warmup Foil heating panels on floors where radiant ceiling mats are used in the room directly below where the foil mat is installed.
- DON'T** install foil mats within approximately 50mm of any heat conductive building part such as cold water pipes.
- DON'T** install foil heating mats under wooden floor, if the floor is thicker than 15mm.
- DON'T** put acoustic material between the foil heating mats and the wooden floor, installing wooden type floor.
- DON'T** use this heater under any floor covering other than floating wood, bamboo or laminate floors. The Warmup foil mats are not designed for installation under ceramic tile natural stone or similar floor coverings.
- DON'T** **place items on the floor surface which will stop the air flow or not allow heat to rise into the room.**
- DON'T** Install the heating mats under cabinets or furniture that will be permanently fitted to the floor. Built in cabinets and other furniture with solid bases must not be placed over the mats.

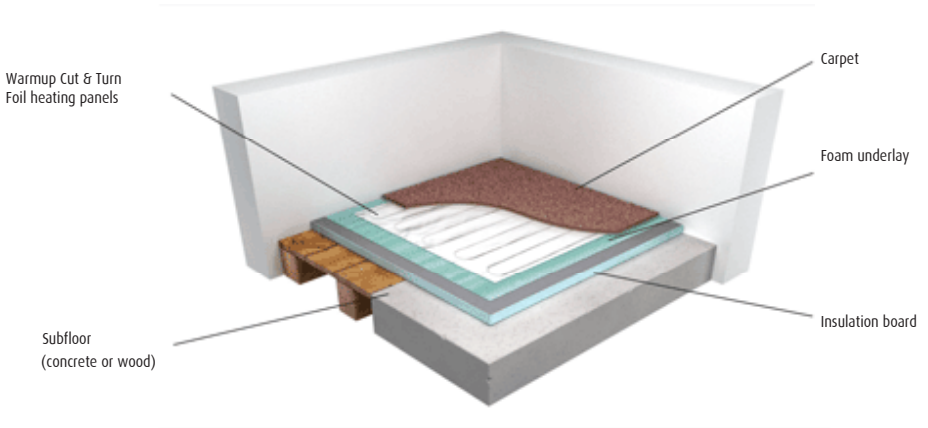
How to select the correct heating mat(s)

Measure the area (square meter) of your room, length x width = sqm

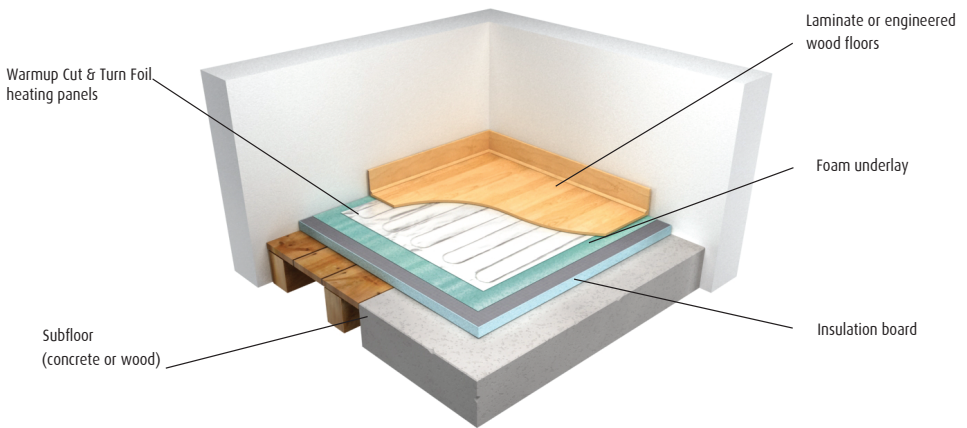
Select the heating mat or combination of mats closest in size to the area you want to heat.

Product Code	Wattage (W)	Covered Area (sqm)	Heater Mat Sizes (m)	
			Length	Width
W2140	140	1.0	2.0	0.5
W2280	280	2.0	4.0	0.5
W2490	490	3.5	7.0	0.5
W2700	700	5.0	10.0	0.5
W2980	980	7.0	14.0	0.5
W21260	1,260	9.0	18.0	0.5
W21540	1,540	11.0	22.0	0.5

Carpet floor example



Laminate floor example



Compatible Wood Laminates

Always ensure that your laminate flooring is suitable for use with radiant heating. Due to the nature of Warmup foil panels, we do not recommend their use under floors exceeding 15mm. Most modern wood laminate floors are compatible with Warmup Foil mats.

Wood flooring with metallic strips as part of their locking systems are NOT compatible as these metallic strips may damage the Warmup Foil mats.

Laminates that have their pad already attached to the laminate are not compatible with the Warmup Foil mats.

R-Value of floor covering:

The type and thickness of floor covering materials used with this product must not exceed a thermal insulation "R" value of 1.

Example R-values: LAMINATE FLOORING = R 0.675

WOOD FLOORING = R 0.80 maximum.

Compatible Underlayments

PADDING - Warmup FOIL Heating mats must be installed on top of suitable underlayment and cannot lay directly on the concrete slab.

Any type of underlayment / padding can be used as long as it has a density of 0.96 g/cm³.

Certain underlayment such as 6mm thick cork, or 6mm to 10mm of Expanded Polystyrene (EPS) are recommended for Warmup Foil heating mats. It is also acceptable to place a vapour barrier, such as a plastic sheet, under the underlayment.

NOTE: Underlayment papers are not compatible with Warmup Foil mats.

Underlayment is necessary to prevent Warmup Foil mats from being damaged when the weight of the floor furniture and people are added. Make sure unavoidable wooden floor movements will not harm Warmup Foil mats. Wooden floors expand and contract with temperature and moisture.

Important Carpet Information

Always ensure that the carpet and underlay are suitable for use with electric radiant heating.

Take extra care when working with sharp tools to avoid damage to the foil mat, which could cause the mat to fail.

Ensure all cables have been channeled correctly into the underlay to avoid an uneven carpet surface.

Do not install nails, screws or staples in direct contact with the Foil mat and power supply cable.

When making a join (or “seam”) in the carpet, ensure that the seaming iron DOES NOT come into direct contact with the foil heating mat as this may cause damage to the heating system. Wherever possible, avoid joins in the carpet over mats. Always use a good quality heat-bond tape, and use an ultra-wide tape when joining heavy wool or similar carpets.

RISK OF CARPET DISCOLORATION:

The foil heater is powered at 140 watts/sqm so will not cause carpet discoloration when installed in accordance with this instruction manual.

However, if excessive insulation is placed for long periods of time over a heated carpet area, some carpets of lighter colors, and lower quality may be subject to discoloration.

The major factors affecting discoloration of a carpet are-

- 1)the nature of the fibres
- 2)the type of colouring process and its application to fibres, yarns, or fabric,
- 3)the colour range from pastels to dark colours,
- 4)the temperature level if the heat is trapped under a high level of insulation such as a futon mattress, bean seat or a dog bed,
- 5)the length of time the carpet is exposed to higher temperature.

Compatible Carpets

Most modern tufted and woven carpets are compatible with the Warmup Foil mat. Polypropylene, hessian or jute secondary backings are compatible, but rubber or foam-backed carpets are not compatible as they trap too much heat.

The carpet must be at least 6.5mm thick, but not more than 25mm thick and the R-value of the carpet should not be greater than 1.

Compatible Carpet Underlay/Cushion:

Any type of carpet padding can be used as long as it has a density of 0.96 g/cm³ or more. Most good quality rebounded polyurethane (rebound) and prime polyurethane are 1.28 g/cm³ or more.

Restrictions on furniture placement

Warmup FOIL Heaters should not be installed under flat-bottom furniture or any permanent fixtures, such as cabinets. Please see below for specific restrictions in regards to furniture use and placement, remembering you have heating mats operating under your carpet / laminate floors

- NEVER puncture the carpet with nails, staples or other sharp objects
- NEVER use nails or screws in the floor to secure furniture above Warmup FOIL heaters
- **Area rugs can be placed over the flooring surface, but the total thickness over the heater (including your flooring) should never exceed 38mm.**
- ALWAYS ensure that chairs, tables and furniture legs are over 25mm square or make use of PVC "carpet protectors" or protective sliding pads
- **NEVER leave items larger than 150mm x 150mm permanently over the carpet as they will trap the heat (bean bag, dog bed, etc)**
- ALWAYS ensure a minimum of 50mm clearance for low lying furniture on legs to allow free movement of air.
- Never place any item with a footprint of 22500 square mm (e.g. 150mm x 150mm) or more on the carpet, if the item is thicker than 25mm. (e.g. a dog bed, bean bag, mattress)

The maximum allowable PSI rating on top of the FOIL heaters is 100 lbs per square inch.

You can obtain the PSI of your furniture by dividing the overall weight of the item by the total contact surface with the floor.

Specific Items of furniture that should not be allowed onto the carpet surface.

- Pianos
- Stands for Hi-fi speakers that have sharp points as feet
- Bookcases
- Closed-bottom furniture

Controlling Your System

Warmup recommends any Warmup programmable thermostat to control the Warmup Foil heating mats. When using multiple heating mats, you can connect them in parallel to the same thermostat. Check with your installer or call Warmup for circuit sizes and maximum loads.

Most wood laminate manufacturers specify that their floors should NOT be subjected to temperatures in excess of 81°F (27°C). The only reliable way to achieve this is to install a temperature sensor directly under the Warmup Foil mat, below the wood laminate.

Check with your laminate manufacturer or Warmup for their recommendations for installing electric radiant heating.

For more safety always ensure that the Thermostat is preset for 27°C max.

Electrical connections

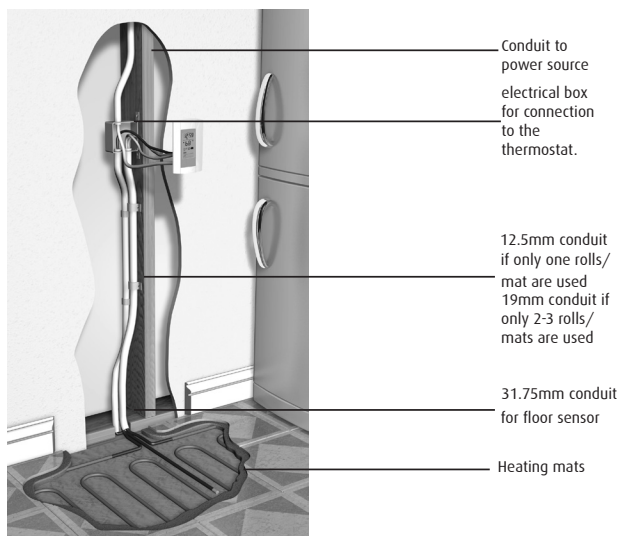
Caution: Only a qualified person who is familiar with the construction and operation of the apparatus and the hazards involved shall install this product.

The installation of electrical systems presents risks of fire and electrical shock which can result in personal injury. Caution should always be taken to guard against each such risk. Only a qualified electrician should connect Warmup Foil mats to the thermostat and/or to the electrical supply circuit.

Warmup FOIL heating mats MUST be connected to the electrical system through a RCD (Residual Current Device)

This requirement is critical to the safe operation of your Warmup FOIL heating mats.

ALWAYS use listed conduit, fittings and other components.



Testing

Each and every Warmup FOIL Heater is subjected to careful testing before it is shipped from the factory and is safely packaged in a tube to protect it in transit. However, damage does sometimes occur in storage or transit, and sometimes during installation. We strongly recommend you verify the resistance of your panels using a simple multimeter:

- After unpacking them but before you install them, and
- After you have installed them but before you install the floor covering (i.e. while the panels are still exposed), and
- After installation of the wood laminate but before the thermostats are connected

Complete a simple visual inspection of the heating mats to make sure there is no visible damage. A simple electrical inspection can be done with a digital ohmmeter to ensure the ohms resistance is what it should be. Ohm resistance can vary significantly depending on the ambient temperature and an allowance of +/- 5% from the norm is acceptable.

TROUBLE SHOOTING - Checking Ohm resistance and continuity

CAUTION: TURN OFF THE POWER SUPPLY BEFORE TROUBLESHOOTING

If the system fails to heat, check that the RCD (Residual Current Device) has not been tripped: you will find that either with a tripped breaker, or simply with the red "test" light on the thermostat. Check for continuity and resistance level with an ohmmeter and compare the reading with the resistance recorded on the UL label. Make sure the breaker or fuse is delivering power to the system. If the system fails to heat after these checks, call your installer or Warmup. You will need to locate the model information for the heater, either on the product labels you kept, or based on an invoice. While incorrect grounding is the main cause for breaker tripping, we should review your installation more in detail.

CHECKING FOR BREAKS

The ohm resistance should be measured between the two conductors without touching the ground wire, which is the ground connection. The ohm resistance measurements should come within about 5% of the original measurement indicated by the factory on the UL label. Checking for ohm resistance between the two conductor wires ensures there is no break in the cold lead conductor and the heat resistance wire. It does not assure you that there is no electrical short in the circuit. If the measurements between conductors is not satisfactory, call Warmup.

CHECKING FOR ELECTRICAL SHORT

In some rare instances, a sharp object can puncture the foil over a heating element and pierce through the insulation of the heater wire, thereby allowing the electricity to flow to the ground. If this situation occurred it would immediately trip the RCD (Residual Current Device).

To check if you have a short, measure the ohms resistance between:

1. One of the conductors and the ground wire,
2. The other conductor and the same ground wire.

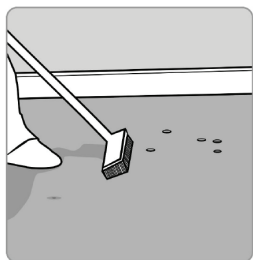
Step 1: Planning Your Installation

Before installing, draw an installation plan showing the placement of the mats, floor sensor, and junction box or boxes.

The Warmup FOIL heating mats should cover at least 80-90% of the floor area to be used as a primary heat source*. Warmup's foil heating mats are available in several convenient sizes. Choose the combination of heating mats that best enables you to cover the recommended 80-90% of your room. Plan to use the larger foil heating mats as much as possible and to use smaller mats only as gap fillers.

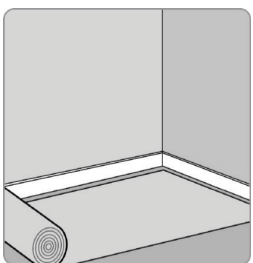
*Depending on insulation, air-flow & overall heat-loss within the room, additional heating may be required.

Step 2: Pre -Installation and Subfloor Instructions



Ensure the sub floor is structurally sound. The sub floor should be clean and dry.

It shall be noted that most wooden floor and sub floor manufacturers restrict the level of moisture content as well as Relative Humidity for installing and maintaining sturdy floors. Strictly follow the wooden floor / sub floor manufacturer guidelines for the correct installation and maintenance of wooden sub floors to avoid any horizontal or vertical movement and consequential damage to your Warmup Foil laminate heating system.



To prevent damage to the mats, special attention should be given to ensure that no nails, screws, staple, tacks are protruding from the sub floor before the underlayment/insulation is installed.

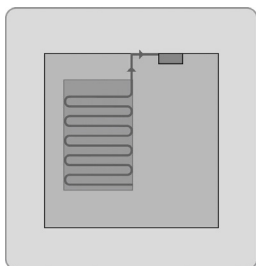
Beware of automatic staple guns if you use one to secure the underlayment/insulation to the sub floor. A badly installed staple that protrudes from the floor can pierce and damage the mat.

Nails, screws or staples should not be installed close to the mats and power supply cables.

Permanent fixtures, including built-in furniture, must NEVER be installed on top of the mats.

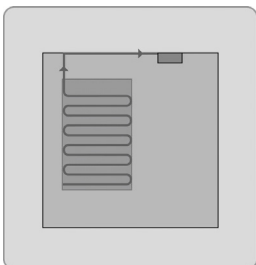
It is important to keep an accurate record of where the mats are installed, to assist you (and a future owner!) to easily locate them when you undertake remodelling work in the room at some future date. Taking a few photographs during the installation process is a good idea.

Step 3: Laying Out Your Heating Mats

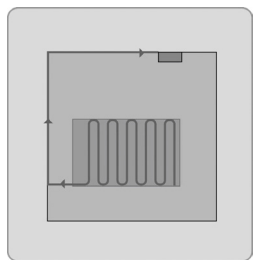


Once the underlayment/insulation has been fitted in the normal manner, remove your Warmup Foil mat from the packaging box, unroll it completely and place it in the required position on top of the underlayment/insulation. Make sure that Warmup Foil heating mats are installed with the correct orientation. The side marked "THIS SIDE UP" is facing upwards.

When positioning the mat on the underlayment/insulation, be aware of the following:

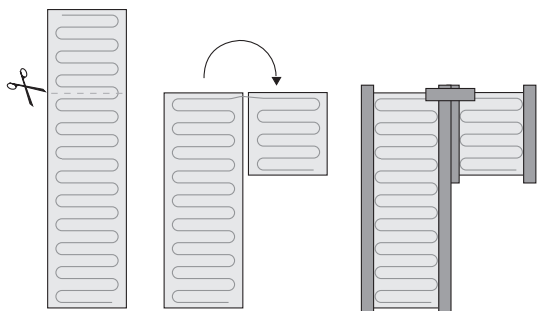


- Keep it at least 6 inches (150mm) from any edge of the Laminate and 300mm for the carpet, (to prevent the spikes of the power stretcher damaging the mat)
- Ensure the power supply cables can reach the thermostat point to which they will be connected;
- Wherever possible, keep the corners where the power supply cable enters the mat away from high traffic areas. Run the power supply cables parallel or at right angles to the walls.
- NEVER run the power supply cables under or over the mats .
- The power supply cables (non heating leads) must be installed in accordance with applicable national electric building codes.
- The power supply cables (non heating leads) are to be installed in listed conduit as the cables exit the floor where mandated by building codes.
- Warmup Foil mat can be cut and turned at 90° or 180° angles while laying to cover the total area.

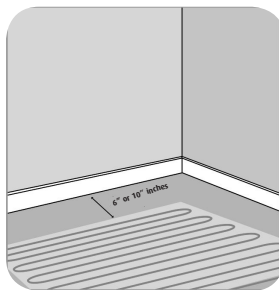


NOTE : Cables MUST NOT be cut.

Cutting and turning the mat

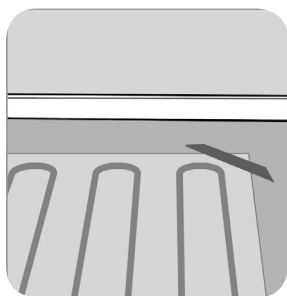


Step 3: Laying Out Your Heating Mats (cont'd)



WARMUP FOIL MATS MUST NEVER BE CUT OR TRIMMED TO FIT INTO A SPACE THAT IS TOO SMALL!

Smooth out the mat and adhere to the underlayment/insulation with adhesive tape. Allow a minimum distance of 380mm (laminated) and 300mm (carpet) between the mat and the wall. After deciding the route that your power supply cables will take from the mat to the point of supply, cut a 6 mm wide channel in the underlayment along this route and drop the power supply cables into this channel. Similarly you have to cut a small section / channel in underlayment or laminate depending on the position of Thermostat sensor.

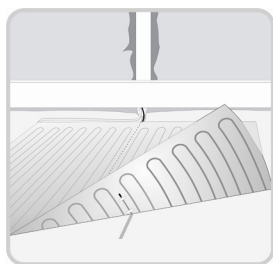


You may also need to remove a small section of underlayment from under the mat at the point where the power supply cord enters the mat, to prevent an unsightly lump on the Laminate or carpet surface and excessive wear on that part of the mat.

When installing two or more Warmup Foil heating mats next to each other make sure that the heating wires in adjacent mats do not overlap and we recommend the use of adhesive tape to assure that they will not overlap over a period of time.

To avoid damage to your mats during installation, care must be taken so that tools with sharp edges or points are not dropped on the mats

Step 4: Install the thermostat floor sensor



The floor sensor is used for temperature regulation of the floor surface.

Positioning the floor sensor in-between element wires on the heating mat. The sensor tip must be placed directly under the underlayment.

The “heater wires” within the foil are identified as raised parallel lines.

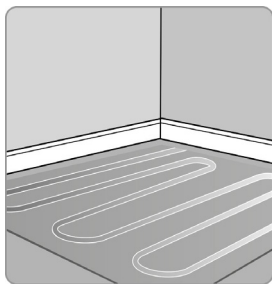
The sensor wire should not cross over the heating wires.

This is to ensure that the average heating temperature is measured and not the temperature of the heating element.

Run the sensor cable off the heater and back to the thermostat. The sensor wire can NOT cross over the FOIL heater wires. If using conduits to route the wires to the thermostat, Do NOT use the same conduit for the lead wires and the sensor.

Note: All electrical connections must be performed by a fully qualified and certified electrician.

Step 5: Install the carpet or laminate floor



Before fitting the floor covering switch on the heating mat to check that it is working - warmth should be noticeable on the surface of the heating mat within minutes.

Switch off the heating mat and disconnect the thermostat from the supply when fitting the flooring.

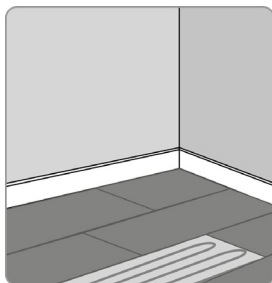
Take care not to damage the heating mats when fitting the carpet or laminate flooring. Do NOT drive nails or screws into the floor or cut the floor planks on top of the heater.

Be careful not to pinch the heating mats when using blocks to hammer the laminate in place. Always keep cardboard or similar handy to place underneath as you move forward in the room. Never make cuts to the planks over the heating system.

Do not walk on the mats more than is absolutely necessary during installation, and Do not drop or place heavy articles on the mats.

Warmup Foil mats must not be used folded, and care should be taken not to fold or crease the mats at any time during installation.

For this reason Warmup Foil mats are not suitable for use on stairs. Should you wish to move your mat at some later stage, please remember to roll it rather than folding it.



Step 6: Installing the Thermostat

Once the flooring has been installed, connect the thermostat ensuring that it is set to reach a maximum temperature of 81°F (27°C).

The connection of the thermostat must be completed by a qualified electrician.

WARNING:

This product must be used with a Warmup RCD-protected controller. A 30mA trip level RCD is required. Always consult a qualified electrician for advice.

Note: These installation instructions are NOT intended to replace or supersede the installation instructions provided by the manufacturer of the carpet or wood laminate, but to supplement them. BOTH sets of installation instructions should be complied with.

Exclusions

Warmup New Zealand Ltd shall in no event be liable for incidental or consequential damages, including but not limited to extra utility expenses or damages to property. This Warranty is null and void if

1. The floor covering over the heater(s) is damaged, lifted, replaced, repaired or covered with subsequent layers of flooring
2. The heater fails due to damage caused during installation or flooring installation, unless damage is caused directly by an employee of Warmup. It is therefore essential to check that the heater is working (as specified in the installation manual) prior to flooring installation.
3. Damage as a result of flood , fires, winds, lightning, accidents, corrosive atmosphere or other conditions beyond the control of Warmup.
4. Use of components or accessories not compatible with Warmup heating mats
5. Warmup products installed outside New Zealand.
6. Parts not supplied or designated by Warmup.
7. Damage or repair required as a result of any improper use, maintenance, operation or servicing.
8. Failure to start due to interruption and/or inadequate electrical service
9. Any damage caused by frozen or broken water pipes in the event of equipment failure.
10. Changes in the appearance of the product that does not affect its performance.
11. The owner, or his/her designated representative, attempts to repair the product without receiving prior authorization from Warmup. Upon notification of a repair problem, Warmup will issue an Authorization to Proceed under the terms of this Warranty.

If Warmup is required to inspect or repair any defects caused by any exclusions referenced above, all work will be fully chargeable at Warmup's inspection and repair rates then in effect.

WARMUP NEW ZEALAND LIMITED DISCLAIMS ANY WARRANTY NOT PROVIDED HEREIN, INCLUDED ANY IMPLIED WARRANTY OF THE MERCHANTABILITY OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. WARMUP FURTHER DISCLAIMS ANY RESPONSIBILITY FOR SPECIAL, INDIRECT, SECONDARY, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING FROM OWNERSHIP OR USE OF THIS PRODUCT, INCLUDING INCONVENIENCE OR LOSS OF USE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE FACE OF THIS DOCUMENT. NO AGENT OR REPRESENTATIVE OF WARMUP HAS ANY AUTHORITY TO EXTEND OR MODIFY THIS WARRANTY UNLESS SUCH EXTENSION OR MODIFICATION IS MADE IN WRITING.

DUE TO DIFFERENCES IN BUILDING AND FLOOR INSULATION, CLIMATE AND FLOOR COVERINGS, WARMUP MAKES NO REPRESENTATION THAT THE FLOOR TEMPERATURE WILL ACHIEVE ANY PARTICULAR TEMPERATURE OR TEMPERATURE RISE.

C-UL STANDARD LISTING REQUIREMENTS LIMIT THE HEAT OUTPUT OF Warmup UNDER FLOOR HEATING, AS SUCH, USERS MAY OR MAY NOT BE SATISFIED WITH THE FLOOR WARMTH THAT IS PRODUCED.

WARMUP DOES WARRANT THAT ALL HEATING MATS WILL PRODUCE THE RATED WATT OUTPUT LISTED ON THE HEATER NAMEPLATE, WHEN OPERATED AT THE RATED VOLTAGE.

TERMS AND CONDITIONS

The terms of this Limited Warranty are exclusive and supercede any other warranty or terms and conditions relating to the subject matter whether included in a purchase order for this product or in any other document or statement

Control Card

Ensure that this control card is completed and signed and safely stored along with your floor plan.

Item Code	Size of panel	Resistance readings		
		Before	During	After
Installation address:				
Date of Installation:				
Name & Signature of Qualified Electrician				