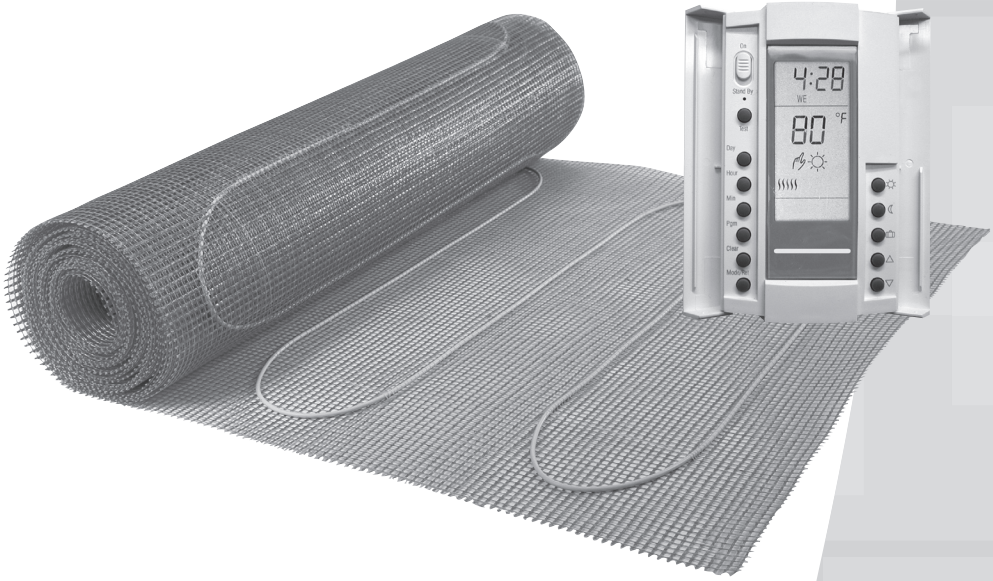
Thermonet Installation Guide

For Thermonet underfloor heating.
A guide for installation, testing and floor finishes.



FEEL THE DIFFERENCE

thermonet
UNDERFLOOR HEATING
Customer Service 317-293-5700

Thank you for purchasing Thermonet underfloor heating.

Follow the step by step guide for easy installation and years of reliable service.

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1 OVERVIEW

Thermonet electrical underfloor heating is suitable for heating in any room including bathrooms and sunrooms.

A range of standard heatmat sizes means that virtually any room size can be heated. Larger rooms may require more than one heatmat.

The heating elements are pre-spaced on a mesh backing making installation flexible and fast. Thermonet can be installed over solid or suspended floors and is suitable for most types of floor finish.

2 SITE CONDITIONS

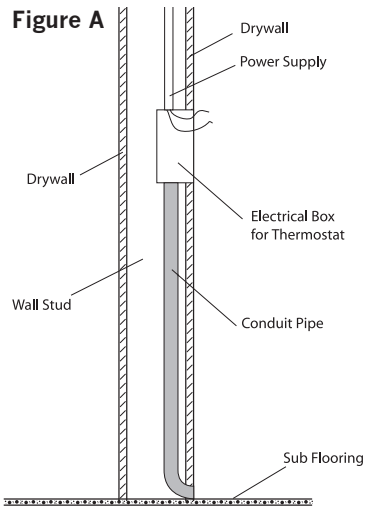
Caution: Ensure minimum foot traffic only during installation.

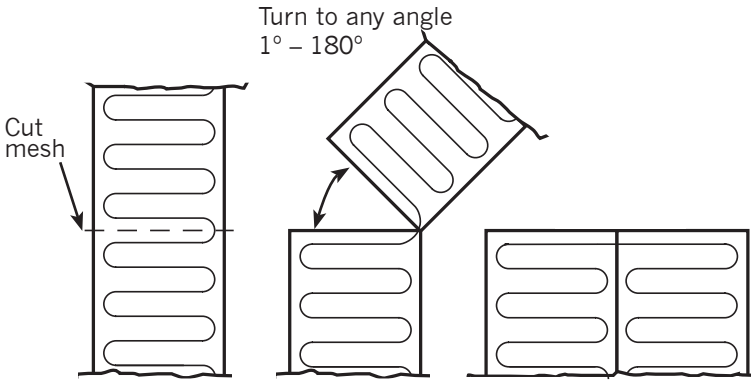
Before installation make sure the floor is clean, free of sharp edges and structurally stable.

Floors that require improved insulation, unstable concrete floors and all types of wood floor must be overlaid with Wediboard™ or equivalent.

Insure that a licensed electrician has installed an electical box at thermostat location and brought appropriate power supply to box. Electrical conduit should be run from the box to the floor, to accommodate easy feeding of heatmat leads and sensor probes to and from thermostat location. *(See figure A)*

Figure A



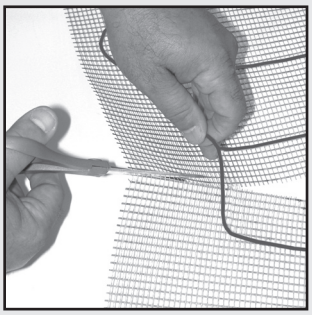


Heatmat blue backing can be cut for angles or return runs.

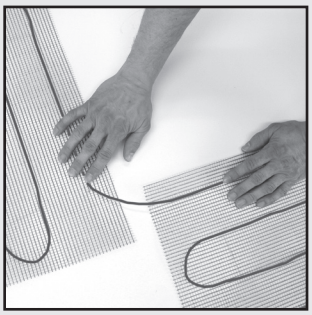
INSTALLATION TIPS

Step 1
Use a utility knife or scissors to cut the blue mesh backing.

Take care not to damage the yellow heating wire.

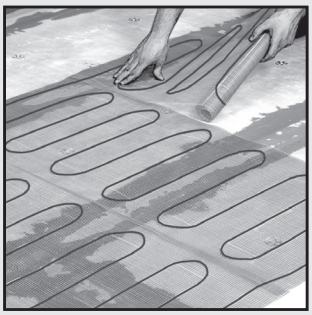


Step 2
Separate the yellow heating wire from the blue mesh at the loop ends and cut the mesh from the underside.



Step 3
After cutting the mesh, the next run can be at any angle.

Curves or angles can also be accommodated by detaching the yellow heating wire from the blue mesh and just laying the wire.



Step 4
Long lengths of Thermonet can be cut and returned any number of times.

After installation, Thermonet should lie flat. Where necessary, secure the mesh backing to the floor using staples or adhesive. Take care not to damage the yellow heating wire.

3 INSTALLATION

Caution: – Never cut the yellow heating wire.
– Always wear soft shoes when laying Thermonet.

Roll out the heatmat(s) on the clean floor with the blue mesh up. If required, cut the blue mesh to run around shapes, eg. shower trays, or to turn the mat 180° for return runs.

Do not install heatmats under cabinets, vanities, bathtubs, and other fixtures.

Each heatmat is supplied with two connection wires, 1 x black and 1 x white. All connection wires must return to the thermostat without touching or crossing the yellow heating wire. Extension cable and connection kits are available through your Thermonet distributor. For installations of three or more heat mats, connect the connection wires to a junction box and take single wire feeds to the thermostat.

If the heatmat current draw exceeds the maximum load of the thermostat, use a slave unit or more than one thermostat. Slave units are available through your Thermonet distributor.

4 FLOOR TEMPERATURE SENSOR LOCATION/INSTALLATION

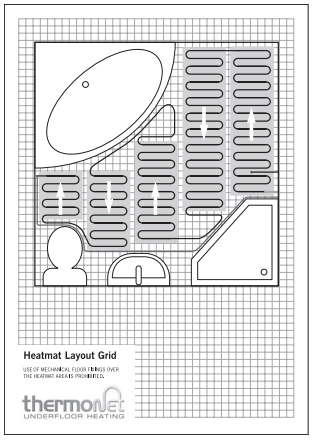
The sensor head should be placed in a representative area of the heatmat(s) for optimum system performance. Locate the sensor head and wire centrally between any two of the yellow heatmat wires. The sensor must not cross or touch any yellow heatmat wires. An extra sensor is recommended with each thermostat install. It is important that this sensor is installed approx. 6" from the first sensor, the connection wires should not be connected to the thermostat at installation, it is backup for future use, in event of first sensor failure.

Using a multimeter, measure the resistance between the two connection wires in the floor temperature sensor flex, and check against the thermostat installation guide supplied. Check the resistance before and after installation.

5 LAYOUT DRAWING

Important: Make sure all relevant contractors, including kitchen and bathroom installers, know that underfloor heating has been installed. Use of mechanical floor fasteners over the heatmat area is prohibited.

Draw the mat layout on the heatmat layout grid provided. Mark the position of the floor temperature sensor, connection wires and any connections made.



Example of heatmat layout drawing

Figure B

STAGE		ON SITE RESISTANCE TEST FOR EACH HEATMAT	
		CENTERCORE/CENTERCORE	CENTERCORE/EARTH BRAID
1	After laying heatmat(s) and before starting floor finishing	✓	✓
2	During floor finishing	✓	✓
3	On completion of floor finishing	✓	✓

Figure C

FACTORY TEST CERTIFICATE

Stock code: 5228
Size: 228" x 20"
Wattage: 433
Working Voltage: 115v or 220v
Batch No. 73436

RESISTANCE	
Centrecore/Centrecore	120 Ohm
Centrecore/Earth braid	Open Circuit

Resistance Centercore/ Centercore

Resistance Centercore/ Earth braid

Install and test in accordance with the Thermonet Installation Guide.
Detach and file this certificate in the Thermonet Customer Installation File.

thermonet UNDERFLOOR HEATING

TFTC/03

Example of Factory Test Certificate

Figure D

thermonet UNDERFLOOR HEATING **Warranty Application**

To validate the ten year warranty against manufacturer's defects, all heatmats must be installed and tested in accordance with the Thermonet Installation Guide. Return the white copy of the completed application form to Thermonet using the envelope provided. File the yellow copy in the Customer Installation File.

Customer name:.....
Address:.....
City:.....State:.....Zip:.....
Telephone:.....

Installers name:.....
Address:.....
City:.....State:.....Zip:.....
Telephone:.....

Purchased from:..... Date:.....

Signature of installer. I/We declare that all details on this applicaton are correct.
Signature:.....
Print name:.....
Date:.....

Application number – please quote in any correspondence
888888

Thermonet Corporation
P.O. Box 68178, Indianapolis, IN 46268

HEATMAT ON SITE RES
Stage 1 After laying he
Stage 2 During floor fi
Stage 3 On completion

Room Reference	Stock Code	Size mm
1		X
2		X
3		X
4		X
5		X
6		X
7		X
8		X
9		X
10		X
11		X
12		X
13		X
14		X
15		X

Notes

Warranty Application Form

6 ON SITE TEST PROCEDURE/ WARRANTY APPLICATION

Warning: Each heatmat requires two electrical resistance tests at three stages: 1) before, 2) during and 3) after floor finishing. *(See figure B)*

Each heatmat is supplied with a factory test certificate. *(See figure C)*

On site test results for each heatmat must be checked against the factory test certificate at all three stages and site test results recorded on the Warranty Application Form. *(See figure D)*

6a HOW TO CHECK CENTERCORE/ CENTERCORE RESISTANCE

Using a multimeter, measure the resistance in Ohms between the centercores of the two connection wires *(See figure F)* for each heatmat.

The Centercore / Centercore resistance value should equal the factory test certificate value to within a tolerance of +10% / –5%. e.g. Factory test certificate value 440 Ohms. On-site value must be between 418 – 484 Ohms.

Check and record resistance values on the warranty application form at Stage 1, Stage 2 and Stage 3 of installation.

Should the resistance value fall outside the allowable tolerance at any stage of installation contact your Thermonet distributor for advice.

Figure E

HEATMAT ON SITE RESISTANCE TEST RESULTS
Stage 1 After laying heatmat(s) and before starting floor finishing
Stage 2 During floor finishing
Stage 3 On completion of floor finishing

Room Reference	Stock Code	Size inches	Connection wire extension	Centercore/Centercore			Centercore/Earth braid		
				Stage 1	Stage 2	Stage 3	Stage 1	Stage 2	Stage 3
1 BATHROOM	5063	20 x 63	Yes/No	126 Ω	127 Ω	125 Ω	OPEN CIRCUIT	OPEN CIRCUIT	OPEN CIRCUIT
2 ON-SUITE	5078	20 x 78	Yes/No	139 Ω	139 Ω	140 Ω	OPEN CIRCUIT	OPEN CIRCUIT	OPEN CIRCUIT
3 KITCHEN	5102	20 x 102	Yes/No	38 Ω	37 Ω	37 Ω	OPEN CIRCUIT	OPEN CIRCUIT	OPEN CIRCUIT
4 KITCHEN	5144	20 x 144	Yes/No	103 Ω	105 Ω	105 Ω	OPEN CIRCUIT	OPEN CIRCUIT	OPEN CIRCUIT
5 STUDY	5196	20 x 196	Yes/No	43 Ω	43 Ω	44 Ω	OPEN CIRCUIT	OPEN CIRCUIT	OPEN CIRCUIT
6 SUNROOM	5228	20 x 228	Yes/No	33 Ω	34 Ω	33 Ω	OPEN CIRCUIT	OPEN CIRCUIT	OPEN CIRCUIT
7 SUNROOM	5348	20 x 348	Yes/No	34 Ω	34 Ω	34 Ω	OPEN CIRCUIT	OPEN CIRCUIT	OPEN CIRCUIT
8 PLAYROOM	5492	20 x 492	Yes/No	38 Ω	38 Ω	37 Ω	OPEN CIRCUIT	OPEN CIRCUIT	OPEN CIRCUIT

Example of completed warranty application. Note: Centercore/centercore test results can vary. *(see section 6a)*

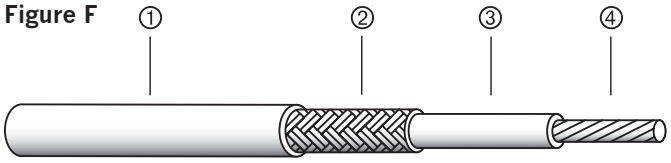
6b HOW TO CHECK CENTERCORE/ EARTH BRAID RESISTANCE

Using a multimeter, measure the resistance in Ohms between either one of the connecting wire centercores *(See figure F)* and either one of the earth braids for each heatmat.

The centercore / earth braid resistance value should always be open circuit. Check and record resistance values on the warranty application form at Stage 1, Stage 2 and Stage 3 of installation.

Should the resistance value change from open circuit at any stage of installation, contact your Thermonet distributor for advice.

Figure F



① Black or white insulation.
② Earth braid.
③ Centercore insulation.
④ Centercore.

Cross section of connection wire.

6c WARRANTY APPLICATION

Return the white copy of the completed warranty application form *(See figure E)* in the envelope provided. File the yellow copy in the Customer Installation File.

7 FLOOR FINISHES

Warning: Always follow the floor finish manufacturer's guidelines for electrical underfloor heating.

Thermonet underfloor heating is suitable for use with most types of floor finishes including ceramics, vinyls, wood/ laminates and carpet.

It is generally accepted that the maximum surface temperature of the floor finish should be between 75-85°F. Thermonet underfloor heating controls are fully adjustable to meet the floor finish manufacturer's instructions.

Installation of Thermonet adds little to the overall height of the floor. This makes Thermonet ideal for use in renovation projects.

Consideration should be given to the moisture content of the subfloor and its effect on the adhesive or floor finish being used. New concrete and screeds will require a drying time. All surfaces must conform to current building regulations.

After completing the floor finish, pay attention to any recommended time periods when underfloor heating is switched off. As a general rule, the heating system should be gradually brought up to working temperature over a 7 day period.

7a CERAMIC FLOOR TILES INCLUDING SLATE, FLAGSTONES ETC.

Thermonet underfloor heating works very well with all types of ceramic and stone based floor finishes, as these all offer a minimum resistance to heat transfer.

Using a notched trowel and a flexible tile adhesive, trowel out the adhesive over the blue mesh backing. Take care not to snag the heatmat wires during floor finishing. Tile or stone floor finishes are bonded onto the adhesive by the tiler.

Installation of Thermonet with floor tiles or stone will add less than 1/8" to the finished floor height.

7b VINYL/LINOLEUM INCLUDING STRIP FLOORING.

Almost every type of vinyl or linoleum floor finish is suitable for use with Thermonet underfloor heating. Heat conduction remains high as these types of materials offer little resistance to heat transfer.

Thermonet recommends that the suitability of electrical underfloor heating for floor finishes of this type is verified by the floor finish manufacturer.

Thermonet heatmats are laid in the normal way and covered with a layer of self levelling floor compound, eg. To ensure even heat distribution, the self levelling floor compound must be a minimum thickness of 3/8" and laid to a consistent thickness. Take care not to snag the heatmat wires during floor finishing.

Allow the self levelling floor compound to cure. The vinyl or linoleum floor finish can then be laid in the normal way.

7c WOOD/LAMINATE FLOORING

Solid wood and laminate type flooring can be suitable for use with Thermonet underfloor heating. Thermal resistance can vary as can the moisture content of wood based flooring. Thermonet recommends that the suitability of electrical underfloor heating for floor finishes of this type is verified by the floor finish manufacturer.

Thermonet heatmats are laid in the normal way and covered with a layer of self levelling floor compound. To ensure even heat distribution, the self levelling floor compound must be a minimum thickness of 3/8" and laid to a consistent thickness. Take care not to snag the heat mat wires during floor finishing.

Allow the self levelling floor compound to cure. The wood or laminate floor finish can then be laid in the normal way.

7d CARPET/CARPET TILES

Selecting a carpet and underlay with a low thermal resistance (Tog rating) will be beneficial to the operation of the heating system. Thermonet recommends that the suitability of electrical underfloor heating for floor finishes of this type is verified by the floor finish manufacturer.

Thermonet heat mats are laid in the normal way and covered with a layer of self levelling floor compound. To ensure even heat distribution, the self levelling floor compound must be a minimum thickness of 3/8" and laid to a consistent thickness. Take care not to snag the heat mat wires during floor finishing.

Allow the self levelling floor compound to cure. The carpet or carpet tiles can then be laid in the normal way. Installation of carpet and underlay using the double stick bonding method will avoid uneven heating pockets.

8 ELECTRICAL CONNECTION

Important: All electrical work must conform to current NEC & local wiring regulations and be carried out or checked by a qualified electrician. Turn off the electrical supply at the power distribution unit to avoid risk of electrical shock.

Connect the heatmat connection wires and floor temperature sensor in accordance with the instructions supplied with the thermostat.

HEATMAT	RATING (APPROX)	SUPPLY
Thermonet Heatmat	150w	120v – 240v 50/60 Hz

It is the responsibility of the electrician to ensure that all electrical equipment and cables provided are suitable for the installation.

9 JOB COMPLETION

Important: Check that the following are included in the Customer Installation File:

- **Heatmat layout drawing**
- **Factory test certificate(s)**
- **Copy warranty application**
- **Thermostat operation instructions**
- **Thermonet installation guide**

Explain how to operate the thermostat and give details of any time settings. (Programmable thermostat installations only.)

Heat up times will be governed by floor construction and floor finish. As a guide, solid uninsulated floors may take up to 5 hours. Insulated wood floors may take 30 minutes. For installations where heat up times are extended, cool down times are also extended, so it is unlikely that the floor will be heating up from cold each day.

Turn over the Customer Installation File to the customer. This should be kept with other building documents and passed on to any future owners.

10 SERVICING

Thermonet is maintenance free. Once correctly installed, the system does not need further service work.

11 TECHNICAL ADVICE

If you have any questions regarding installation of Thermonet, please contact your distributor or call
Thermonet Customer Service 317-293-5700.

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