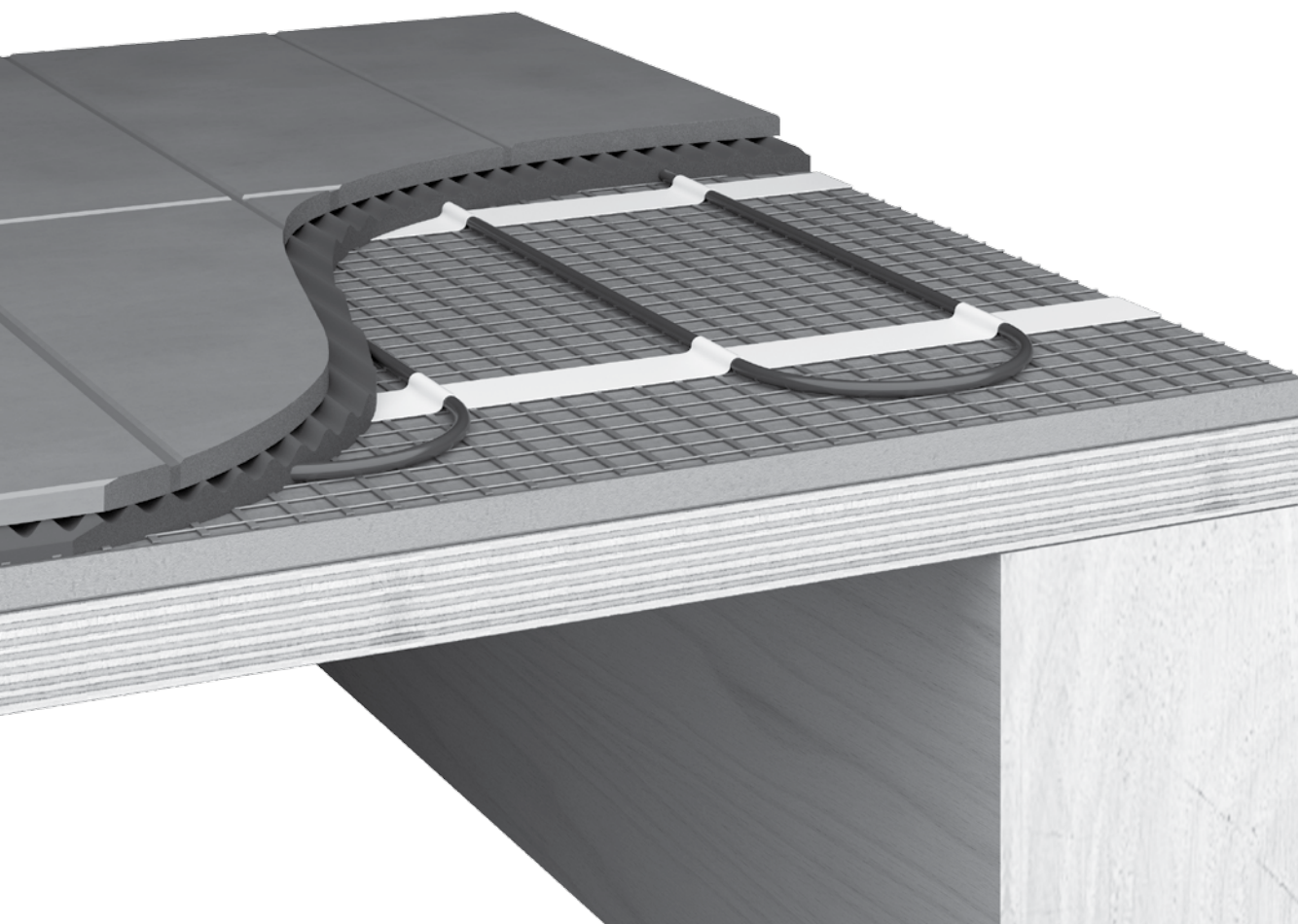




Perfectly Warm

FLOOR HEATING MAT

Electric underfloor heating solution
for all **stone** and **tile** floors



INSTALLATION MANUAL & GUARANTEE

Perfectly Warm

FLOOR HEATING MAT

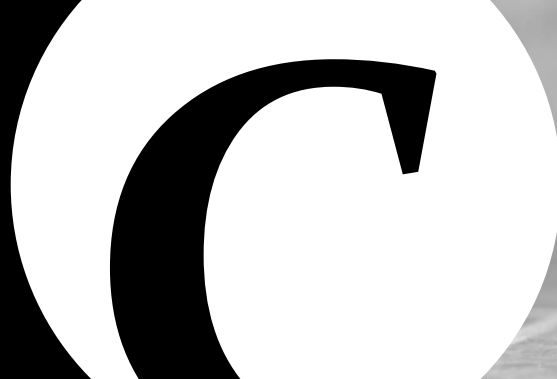


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EASY TO INSTALL

By following these simple instructions , you will be able to install the Calorique Perfectly Warm Floor Heating Mat without any difficulties. Only the final connection to the mains supply **MUST** be carried out by a suitably qualified electrician.

INSTALL ALMOST ANYWHERE

The Floor Heating Mat can be installed on top of suitably prepared suspended timber, solid concrete or preferably, Calorique Perfectly Warm Insulation Board enabling installation in all room types. The Perfectly Warm Floor Heating Mat can also be installed under many floor coverings including: Tile, natural stone, slate, porcelain, marble, limestone & terracotta.

MAINTENANCE FREE, SAFE, OVERALL WARMTH

Totally safe, under tile and stone floors, the radiated heat provides overall warmth and comfort without the usual dust carrying convective air currents of conventional radiator systems. The large heated area provides an even temperature distribution, and once installed is completely maintenance free.

HOW EFFECTIVE IS UNDER TILE HEATING?

The Underfloor Heating Mat is a highly effective direct acting radiant heating system. It can provide primary heating or can just be used to warm a floor and provide background heat. If you are considering using your heating mat as a primary or “sole” heat source, heat Loss calculations for the room should be performed by your architect or heating engineer.



This symbol indicates that a shock hazard may exist if a particular action is not followed.



General notes direct you to pay special attention to these items.

Perfectly Warm
FLOOR HEATING MAT



PRE-INSTALLATION CHECKLIST

- The blue heating cable must NOT be cut. Only the cold tail connection lead (black cable) may be shortened, as required.
- The installation must be protected by a 30mA RCD for safe operation.
- Check that the label on the outer packaging and the label attached to the cold lead of the cable mat are an identical match. Also that the mat supplied matches your requirement for area coverage and heat output by cross referencing on the product table (page 3) before commencing installation.
- In case of any discrepancies, you should report these immediately to the manufacturer or supplier and discontinue the installation immediately.
- When installing the Calorique Perfectly Warm Floor Heating Mat, always use rubber soled boots and avoid any unnecessary traffic over the cable mat. Inform other trades working in the vicinity of the installation process and request that they do not walk on the mat.
- Before laying the cable mat, check the cable resistance with an Ohm meter. It should match the rating on the mat label and on the product table (page 3) with a tolerance of -5 to +10%. You should check the cable mat resistance regularly at all stages of the installation.
- When installing multiple floor heating mats in a single room, the mats MUST be connected in parallel. Consideration should be given to Calorique Perfectly Warm Insulation Board before laying your mat. A high quality thermal/acoustic barrier such as Perfectly Warm Insulation Board will significantly slow the process of heat losses into the subfloor, improve performance and reduce the initial warm-up time.
- Calorique's Perfectly Warm Insulation Board is installed onto the concrete subfloor using tile adhesive or with screws and washers onto wood subfloor. The underfloor heating mat is placed directly onto its surface before being covered with flexible tile adhesive or self-levelling compound.
- When using flexible tile adhesive ensure that the cable is totally encapsulated with no air pockets.
- The perimeter of the self-levelling compound area should be separated from the vertical structures by an expansion joint (polystyrene etc and up to 10mm wide).
- In cases where cables are laid in an area larger than 20m² or with a diagonal greater than 7m, it is necessary to install an expansion joint. The heating cable should not cross expansion joints. The non heating connecting cables located at the expansion joints must be laid loosely in a protective tube.
- Consult the self-levelling compound manufacturers instructions as to a suitable drying out period before turning on the heating system.
- A suitable flexible tile adhesive is required when tiling over underfloor heating. Check with the adhesive manufacturer for suitability.
- The heating mat should not be placed in floor areas that will be permanently covered with floor fitted furniture (e.g. Kitchen units or baths etc).
- A minimum clearance of 50mm should be left between the heating mat and perimeter walls.



• Final electrical connection to the mains supply MUST be carried out by a qualified Electrician.

- Ensure that you have a thermostat with a floor sensor before commencing installation. The floor limit sensor complete with protective conduit must be installed in the floor before laying the heating mat.
- Consideration should be given to the load rating of the controlling thermostat. Where the load rating of the thermostat (Watts) is exceeded, a suitably rated contactor should be installed.

AVAILABLE SIZES

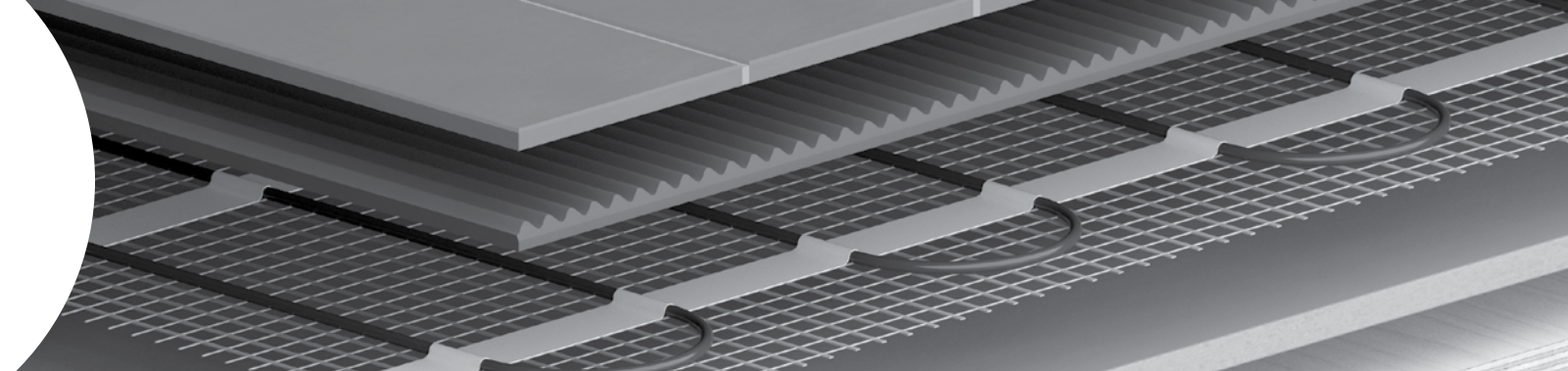
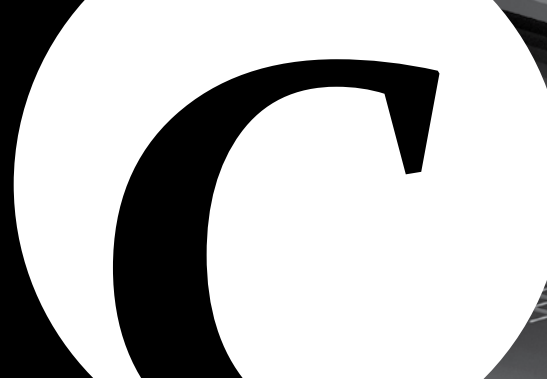
Perfectly Warm Heating Mat 100 W/sq.m @ 230 VAC

PRODUCT CODE	WIDTH	LENGTH	AREA	POWER	RESISTANCE
Twin conductor	(m)	(m)	(sq.m)	(W)	(ohms +/-10%)
WT10100	0.5	2.0	1.0	100	529.00
WT10150	0.5	3.0	1.5	150	352.70
WT10200	0.5	4.0	2.0	200	264.50
WT10250	0.5	5.0	2.5	250	211.60
WT10300	0.5	6.0	3.0	300	176.30
WT10350	0.5	7.0	3.5	350	151.10
WT10400	0.5	8.0	4.0	400	132.30
WT10450	0.5	9.0	4.5	450	117.55
WT10500	0.5	10.0	5.0	500	105.80
WT10600	0.5	12.0	6.0	600	88.20
WT10700	0.5	14.0	7.0	700	75.60
WT10800	0.5	16.0	8.0	800	66.10
WT10900	0.5	18.0	9.0	900	58.80
WT11000	0.5	20.0	10.0	1000	52.90
WT101100	0.5	22.0	11.0	1100	48.09
WT101200	0.5	24.0	12.0	1200	44.08

Perfectly Warm Heating Mat 150 W/sq.m @ 230 VAC

PRODUCT CODE	WIDTH	LENGTH	AREA	POWER	RESISTANCE
Twin conductor	(m)	(m)	(sq.m)	(W)	(ohms +/-10%)
WT15150	0.5	2.0	1.0	150	352.67
WT15225	0.5	3.0	1.5	225	235.11
WT15300	0.5	4.0	2.0	300	176.33
WT15375	0.5	5.0	2.5	375	141.07
WT15450	0.5	6.0	3.0	450	117.56
WT15525	0.5	7.0	3.5	525	100.76
WT15600	0.5	8.0	4.0	600	88.17
WT15675	0.5	9.0	4.5	675	78.37
WT15750	0.5	10.0	5.0	750	70.53
WT15900	0.5	12.0	6.0	900	58.78
WT151050	0.5	14.0	7.0	1050	50.38
WT151200	0.5	16.0	8.0	1200	44.08
WT151350	0.5	18.0	9.0	1350	39.19
WT151500	0.5	20.0	10.0	1500	35.27
WT151650	0.5	22.0	11.0	1650	32.06
WT151800	0.5	24.0	12.0	1800	29.39

Perfectly Warm FLOOR HEATING MAT

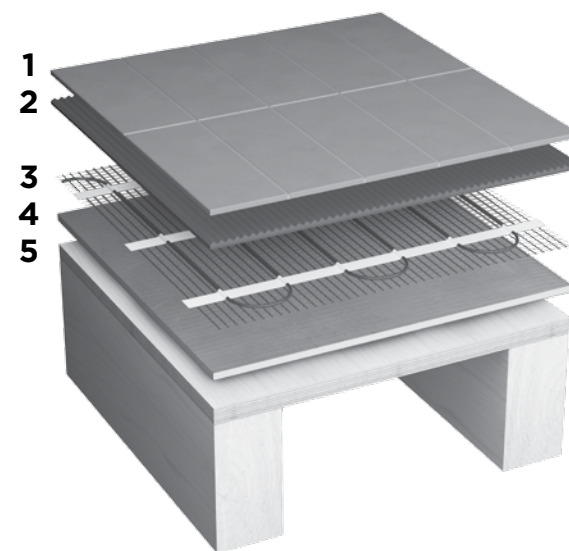


FLOOR CONSTRUCTIONS

SUSPENDED WOODEN FLOORS

When fitting the Perfectly Warm Floor Heating Mat onto a timber subfloor it is essential that you take the standard precautions to stabilise the floor and prevent floor movement. You must always over-board the timber, floorboards or chipboard with a surface suitable for tiling such as Calorique Perfectly Warm Insulation Board or primed 18mm WBP Plywood.

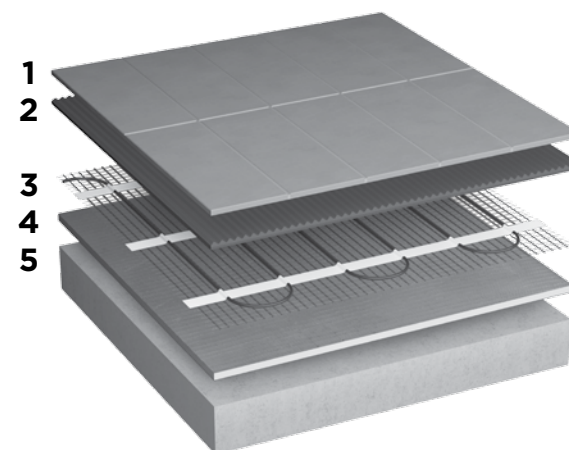
1. Tile/Stone Floor
2. Tile Adhesive and/or Self levelling compound
3. Calorique Perfectly Warm Heating Mat
4. Calorique Perfectly Warm Insulation Board/ Plywood
5. Suspended Wooden Sub Floor



SOLID CONCRETE FLOORS

For optimum performance it is recommended that concrete subfloors should be covered by a layer of Perfectly Warm Insulation tile backer board. This will minimise heat losses & ensure quicker heat-up times. The Floor Heating Mat can be laid directly onto an un-insulated concrete floor, however this will increase both heat-up times & running costs.

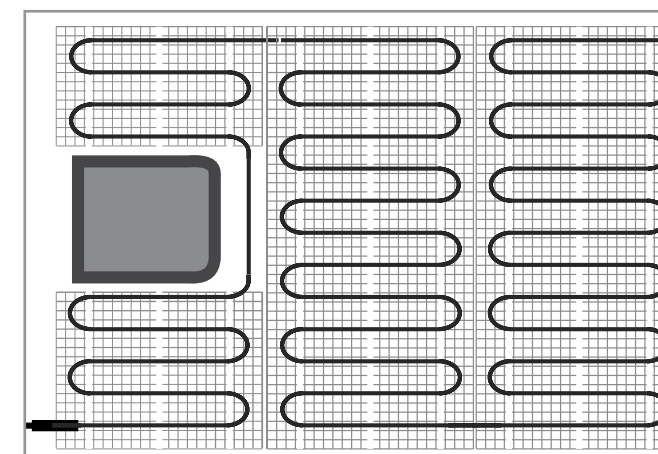
1. Tile/Stone Floor
2. Tile Adhesive and/or self levelling compound
3. Perfectly Warm Floor Heating Mat
4. Perfectly Warm Insulation Board
5. Concrete Sub Floor



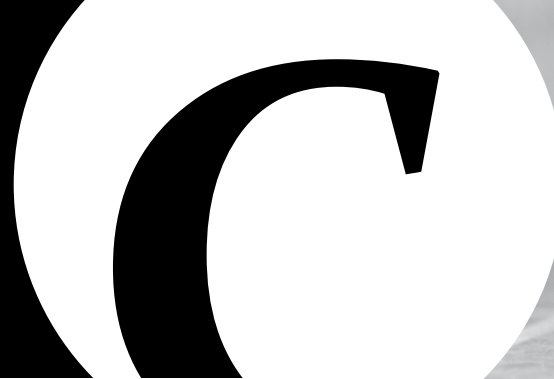
GETTING STARTED

It is good practice to plan your installation using a sketch marking your laying pattern and planning the positions for the floor sensor, connection box and thermostat. Accurately measure the free floor area to be heated, in square metres, deducting any items of fixed furniture such as baths, WCs, showers, kitchen units etc. To allow for perimeter clearance, reduce the free floor area by 15% for areas up to 5m² and 10% for areas greater than 5m². Use this calculated area (m²) to select the nearest cable mat size DOWN using the product selection chart. NEVER select the nearest mat size up.

If the calculated “Effective” floor area is larger than the mat sizes offered, you can use a combination of mats to achieve the coverage. Additional mats should be wired in parallel using a suitable junction box. It is important that the correct size of the Heating mat is used as the cable cannot be shortened



Perfectly Warm FLOOR HEATING MAT



LAYING THE THERMAL INSULATION

CONCRETE FLOORS

Ensure the floor is level and dust free and primed with an acrylic primer. A new concrete screed should be well cured prior to laying Perfectly Warm Insulation board. A bed of flexible tile adhesive should be applied to the floor using a notched trowel. Lay the boards in a staggered brick work pattern butting the edges together. Boards should be thoroughly bedded, ensuring that no air pockets remain.

A waterproof joint can be made using silicon sealant before butting the board edges together. When the adhesive is dry, board joints can be taped with a fibreglass reinforcing scrim tape.

WOODEN FLOORS

Boards can be laid onto a flexible tile adhesive. A bed of flexible tile adhesive should be applied to the floor using a notched trowel. Lay the boards in a staggered brick work pattern butting the edges together. Boards should be thoroughly bedded, ensuring that no air pockets remain. 10mm boards can be mechanically fixed to flat and level timber floors using mechanical fixings (at 30cm centres) using stainless steel screws with penny washers under their heads. These should be screwed down until the washer grips the boards cement like surface. Joints can be taped with a fibreglass reinforcing scrim tape.

LAYING THE MAT

When rolling out the mat and you reach the end of a run, simply cut the backing mesh (NOT the blue cable) and turn through 180 degrees. The mat is unrolled in the opposite direction ensuring a MINIMUM SPACING OF 50MM BETWEEN THE CABLE LOOPS. When satisfied with the proposed layout; stick the mat to the floor.

ADJUSTING THE MAT

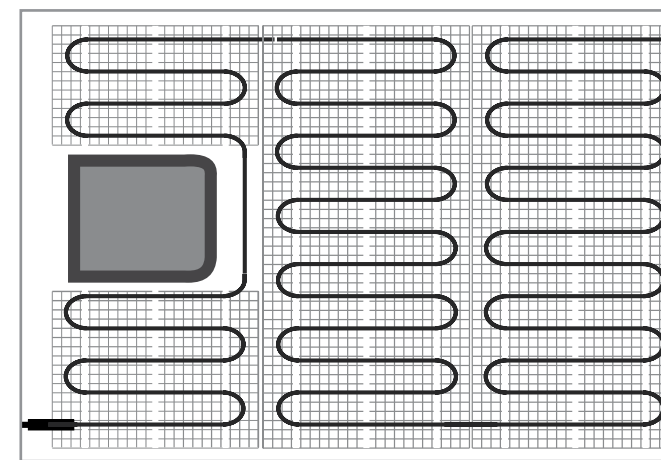
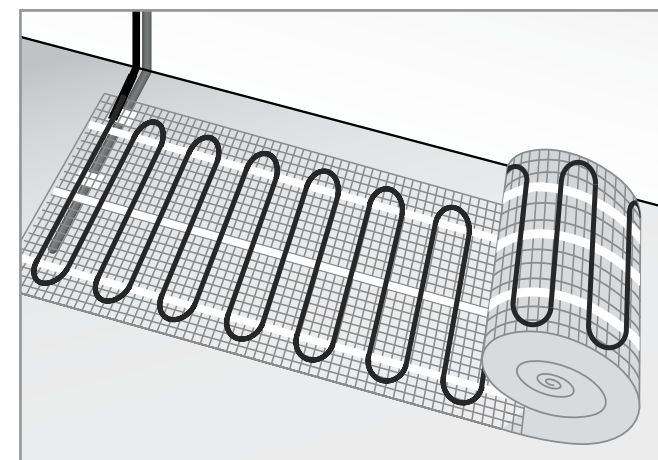
For areas that will not accommodate the full mat width of 500mm the cable can be removed from the matting and attached to the floor uniformly with adhesive fixing tape. The matting can be further secured to the floor by a hot glue gun, staple gun or adhesive tape. This is recommended on the outer edges of the matting when using self levelling compound to prevent the mat lifting. These additional fixing methods should only be used on the matting and NOT on the CABLE.

! INSTALLING THE FLOOR PROBE

Cut a groove in the floor to accommodate the floor sensor for the thermostat. Before laying the sensor check the resistance using an Ohm meter. The sensor should then be installed in the 12mm flexible conduit supplied with the thermostat. Seal the end of the conduit with tape to prevent adhesive entering. The sensor should be positioned between 2 heating cable loops under the mat approximately 500mm from the wall. The existing floor should then be prepared as normal for tiling. The entire floor should be swept clean and be free of any sharp projections. The floor surface should then be primed to accept the tile adhesive if required.

! JOINING MULTIPLE MATS

If your area to be heated is larger than the largest available mat size, Calorique's Perfectly Warm Heating Mats can be simply wired in parallel.



Perfectly Warm FLOOR HEATING MAT



COMPLETING YOUR INSTALLATION

There are two recommended methods of covering the Floor Heating Mat.

1. CONCRETE, WOOD OR CALORIQUE PERFECTLY WARM INSULATION BOARD WITH TILE ADHESIVES

Using flexible tile adhesive and working with one width of mat at a time, apply flexible tile adhesive on top of the mat so that it is completely covered, ensuring that there are no air pockets. This should be done using a rubber backed trowel or similar, taking care not to damage the wire cable. Once dry another layer of adhesive can then be applied carefully using a notched trowel to comb the adhesive before laying the tiles.

2. CONCRETE, WOOD OR CALORIQUE PERFECTLY WARM INSULATION BOARD WITH LEVELLING COMPOUND

Using self-levelling compounds as an alternative method for all but the smallest installation is to cover the cable mat installation with a suitable latex self-levelling compound. This product will find its own level and once dry will provide a suitable flat surface to apply a layer of flexible tile adhesive before laying the tiles.

! Note

- i. The heating cable must not be cut or shortened and the joint between the cold tail (black) cable and the (blue) heating cable must not be bent or put under strain. The blue heating cables should never cross or touch (50mm gap min) and must be installed in the floor.
- ii. Always wear rubber soled shoes when walking on the Floor Heating Mat and avoid any unnecessary traffic over the area until the Mat is completely protected under a screed or layer of adhesive.
- iii. A fully qualified Electrician must now make the final connections to the mains supply and install the thermostat. The thermostat should be installed in the room to be heated. For bathrooms or shower rooms the thermostat must be placed outside the room but as close to the installation as possible.



Control of the heated floor in this application is provided by the floor sensor only. Finally, the Electrician should check for continuity of the floor sensor and retest the resistance of the Floor Heating Mat. A further insulation test should be carried out in accordance with IEE regulations. The installation should be protected by a 30mA RCD for safe operation.



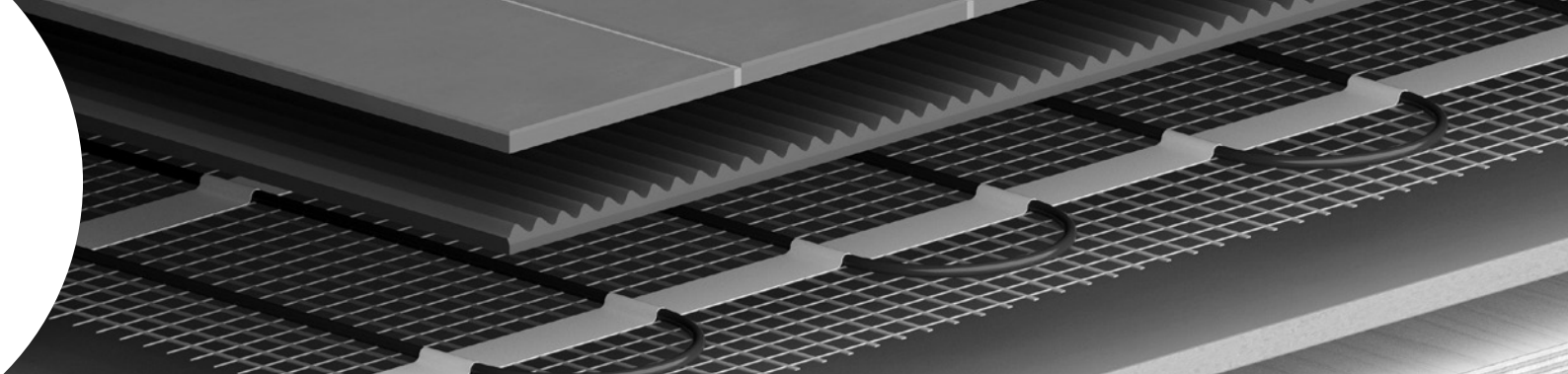
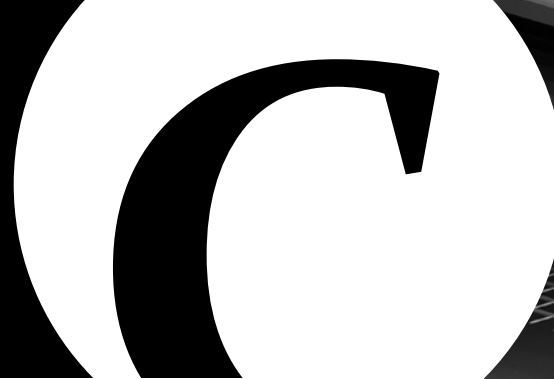
SWITCHING ON:

Consult the adhesive manufacturer's instructions to determine a suitable drying out period before turning on the floor heating system. Once the adhesive and grout has completely dried, operate the system at a reduced temperature, gradually increasing it over a 7 day period to full operation.



GUARANTEE CERTIFICATE:

Following installation, the guarantee certificate on the back of this installation guide should be fully completed, including a plan of the mat lay-out and position of the floor sensor. This could then be used for locating the Floor Heating Mat in guarantee claim situations. This operational booklet should then be permanently fixed in or near the installation distribution board.



OPERATING MANUAL

Operation of your Perfectly Warm Floor Heating Mat system is similar to other conventional heating systems. Your method of control is via the wall mounted room thermostat. Set the thermostat to your desired temperature and the system will warm the room. There are several points to consider when operating your system to ensure economical operation.

1. Following installation of your Perfectly Warm Floor heating system; there are several precautions you should take on initial start-up of the heating system. Do not be tempted to turn on the system immediately after laying the finished floor. Depending on the floor covering, please allow time for the adhesive or levelling compound to cure completely (see manufacturer's guidelines, usually 14 days). Bring the system up to temperature gradually in stages over the next few days using the floor limit sensor temperature setting.
2. Each room installed with a Perfectly Warm Floor heating system will have its own thermostat. This means that you can individually set the room temperature based on the use of the room. If the room is rarely used, turn the thermostat down to a lower level to conserve energy.
3. Your Perfectly Warm Floor Heating Mat is a direct acting system. However depending on the subfloor and the floor covering installed there may be a certain amount of thermal lag in the system (heat-up and cool down periods). Please anticipate these when switching your system on and off. Careful time clock control of on/off periods ensures maximum comfort at minimum cost.
4. Although your radiant heating system is less effected by air change/ventilation losses than a traditional convection heating system it is good practice to minimise drafts from open doors or windows as these can make occupants feel cold.
5. Set the thermostat to your desired comfort level and leave it. Setting the thermostat to a high temperature will not make the room get up to temperature quicker. It will merely over heat the occupants once the set temperature is reached.
6. Thermostats are fitted with floor limit sensors. The temperature of the actual floor can be varied to suit individual comfort levels. We recommend a maximum floor temperature setting of 28 degrees Celsius for optimum comfort conditions.

Be aware that although your Perfectly Warm Floor Heating system requires no annual maintenance, care should be taken to ensure that the system is not damaged. Additional information for renovating and repairing is available in the system's installation manual.



7. Never pierce the floor. Piercing an electrically conductive cable with a nail or screw fixing can trigger the RCD unit and cut all power to the system.
8. Never cover any heated part of the floor with walls, solid or permanent floor fixed furniture. This could trap heat and potentially cause local overheating and hot spots.
9. Thick rugs, dog beds, bean bags, exercise mats and items with high thermal insulation should not be laid on the heated floor as this may cause localised overheating.



! INFORMATION FOR REPAIR OR RENOVATION TRADESMEN

Please inform all repair or renovation tradesmen if they are working in the area of an installed Perfectly Warm Floor Heating system. They should read the information contained within the installation and operating manual before commencing work. Failure to comply with this information may result in risk of electric shock.

HEATING SYSTEM CHECKLIST AND GUARANTEE CERTIFICATE



Installation Location: _____
 City / State / Zip / Country: _____
 Installation / Inspection Dates: _____ / _____
 Purchase Order Number: _____
 Purchased From: _____
 Electrician / Electrical Permit Number: _____
 Heating System Type: Ceiling Heating: ☐ Floor Warming: ☐

Name of Installer: _____
 Installer Company Name: _____
 Street Address: _____
 City / State / ZIP / Country: _____
 Heat Loss Calculated by: _____
Heat loss calculation required for all ceiling heating systems. 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 <input type="checkbox"/> no <input type="checkbox"/> If "yes": Heat Loss +20% <small>Answer "yes" for all ceiling heating systems.</small>	Product Model Number (s)	Number of Heating Panels / Mats	Total Number of Installed Watts	Visual Inspection	Product Date Code(s) / Mat Size	Number of Thermostats	Voltage	Ohm (Ω) Reading
Living Room				A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
Dining Room				A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
Entrance				A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
Kitchen				A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
Family Room				A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
Bedroom 1				A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
Bedroom 2				A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
Bedroom 3				A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
Bathroom 1				A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
Bathroom 2				A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
Den				A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
Other				A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
Panel Box**				A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>				
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.
- ** 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.).

NOTE This Floor Heating Mat Instruction Manual must be left at the distribution board along with a copy of the thermostat operating instructions and the original Calorique product sales receipt. All warning stickers should be placed near the distribution board and in the room installed with the underfloor heating.

The undersigned represents that the above installation has been performed in accordance with the installation instructions and all applicable codes and that of the above statements are true, correct and complete.

Name (please print)

Signature

Date

Email a scale drawing / photo
of the actual installation to:

UK: sales-uk@calorique.com | Tel +44 (0)20 3411 3370

IRL: sales-ireland@calorique.com | Tel +353 (0)1 554 3990

USA: sales@calorique.com | Tel +1 (800) 922 9276