LivingHeat

THE UNDERFLOOR HEATING EXPERTS

V1120

For Use Under:

Tiles
Stone
Wood
Laminate
Carpet
Vinyl
Concrete

"Bringing Heat To Life"

01803 316060

www.livingheat.co.uk

FITTING INSTRUCTIONS

Welcome To Living Heat, The Underfloor Heating Specialists.

Living Heat Underfloor Heating systems are suitable for use under virtually any type of floor covering. All Living Heat systems are suitable for use as a primary heat source, no radiators required or for just floor warming, (this assumes sufficient coverage and insulation is installed). For further information on all underfloor heating systems and ancillary products please ask your supplier or visit our website: www.LivingHeat.co.uk

Thermostats.

All our thermostats are suitable for use with all Living Heat underfloor heating systems. All our thermostat are rated to switch a maximum of 15 amp or 16 amp loads, (please see individual thermostat ratings for exact maximum loads). If larger heating loads are being installed, either additional thermostats or a relay switch, (sometimes known as a contactor) should be installed to carry the load.

M1 Thermostat

D6 Thermostat

T7 Thermostat

CT1 Thermostat

i8 Wi-Fi Thermostat

Frequently Asked Questions.

Can I use this as a primary heat source; do I still need radiators?

All our underfloor heating systems have been designed to be suitable for use as the primary heat source (no radiators required). This is providing you install a minimum of 150w/m2 system over 70%+ of the floor area. Also the floor and room must have suitable insulation levels which will then mean no additional heating will be required.

Can I cut the cable or mat if I have too much?

When considering what size system you require it is important not to over order as the heating cannot be cut down to fit. A good rule of thumb is to order approximately 80% of the total floor area. This will allow you to easily fit the heating system leaving only a small unheated border around the room edge. The heating cable must never be cut or reduced in length.

Do I need insulation? How long will it take to warm up?

Although not always a necessity over wood sub floors, insulation will still greatly increase the response rate and overall efficiency of all underfloor heating systems. When installing heating over a concrete subfloor a suitable insulation must be installed as un-insulated concrete will drain the heat from the heating system. The table opposite shows some approximate timing's.

Subfloor Construction	Heat Up Time
Plywood	35 Minutes
Plywood + 10mm HIB	15 Minutes
75mm Insulated Concrete in Screed	2 - 4 Hours
Un-insulated Concrete	2 - 8 Hours
Concrete + 10mm HIB	20 Minutes

Is underfloor heating expensive to run?

Underfloor heating is the most efficient way to heat an area due to the even heat distribution from the floor up. This helps to keep the heat at a low, effective and usable level. Studies have shown that when a person's feet are warm they perceive the environment to be warmer than when their feet are cold. Because of this the ambient temperature of the room can then be lowered without the person feeling cold which reduces the running cost of the heating but still providing the occupant with a more consistent and comfortable heat distribution.

Can I fit the heating and will it require maintenance?

Electric underfloor heating does not require any specialist labour or equipment to install or maintain the system, (other than a qualified electrician to make the final connections to the mains power). With a little patience and common sense most competent DIY enthusiasts would be able to install our underfloor heating systems with ease.

Unlike other forms of heating, electric underfloor heating requires no maintenance once installed. With no moving parts, no excessive heats or leaks to consider once installed and protected by the floor covering our underfloor heating can provide a lifetime of hassle free heating.

How do you control the heating?

All our underfloor heating systems should be controlled with a suitable thermostat. There are various thermostat options but all options control the heating through the same principle. Mains 220-240v power is fed through the thermostat to the heating system as and when heat is needed. The user will set a desired temperature and the thermostat will switch the power on and off accordingly to the heating system as and when needed to achieve and maintain the set temperature.

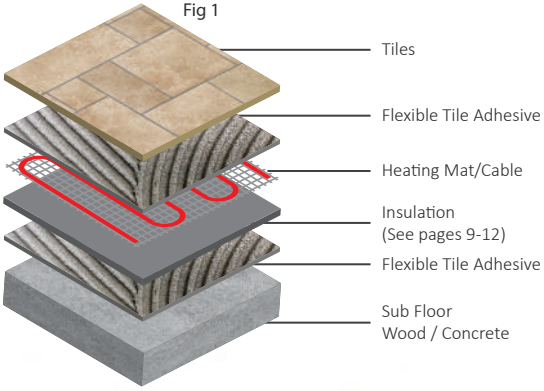
Insulation must be fitted over all un-insulated sub-floors.

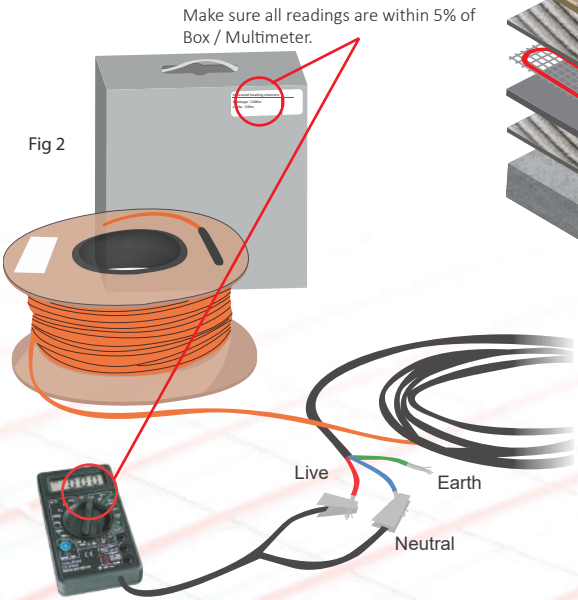
Loose Wire Under Tile & Stone Heating Cable.

1: The sub-floor must be clean, sound and suitable for the chosen floor covering prior to laying the heating. We highly recommend the use of a suitable insulation layer over concrete and uninsulated sub floors.

Fig 1

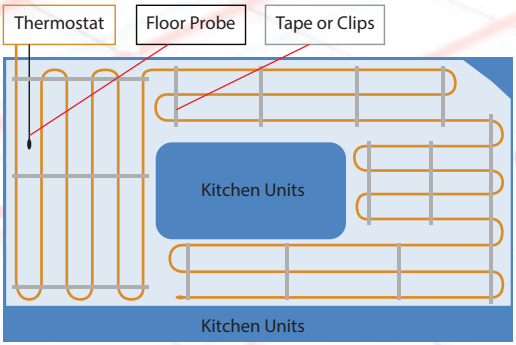
2: Measure the floor accurately allowing for a 100mm+ unheated border around the perimeter of the area. Once measured make sure the heating cable is suitably sized for the area to be heated. Typically most domestic loose wire systems (depending upon your requirements) will be fitted with 140w-200w/m2. To work out your floor/system wattage, simply divide the heating system total wattage by the total floor area m2 to be heated. The end figure should ideally be between 140 – 200w/m2. The length of the cable and total system wattage can be found on the outer box, end of cable and cable spools.





3: Before the cable is unrolled it must be tested for continuity and resistance. Mark this reading down on the back warranty page of this manual. (See Fig 2)

(IMPORTANT, If the cable is incorrectly sized or the resistance readings do not match the test results on the box label, stop and return for the correct size. Once the cable is unrolled over the floor it becomes the responsibility of the installer and the cable can not be returned for an alternate size).



4: Using the figures worked out in stage 2, the spacings between cable runs are worked out by:

A: Divide 1000 by the length (meters) of the heating cable.

B: Multiply result A by the size of the area you are heating in m2.

The final figure is the spacing in mm the cables should be spaced out at. Please note the figure should be somewhere between 50 - 80mm. This figure is a guide required for the final spacings to achieve the best coverage. The cable must NOT be cut or reduced in length. The spacings between cables are either increased to increase the heated area, or reduced to reduce the heated area. Only the black cold / connection end can be reduced or lengthened if required.

5: Before the cable is unrolled and fitted it is advisable to mark the floor accurately using the results from stage 4 showing precisely where the heating cable is to be laid. This will allow the installer to accurately design the floor layout to best use the available cable making sure to keep even spacings between cable runs. (See Fig 3)

6: If possible start laying the cable working away from the thermostat location. Using small tabs of fixing tape, accurately lay the cable. It is un-advisable to cover the entire cable with fixing tape as this can affect the performance of subsequent adhesives to adhere sufficiently to the sub floor. The tape is only required to maintain a consistent spacing between cable runs until the levelling/adhesive is applied over. It is important that cables are not laid too close together. A minimum of 50mm should be maintained between cable runs. If the heating cable is set to close, touch or overlapped at any point the cable may overheat.

7: Once the heating is fitted the insulation resistance, electrical resistance and continuity test should be repeated and noted down on the warranty page. Make sure these readings are the same as the readings noted down during stage 2. The heating should also be tested and results recorded after the flooring has been fitted. There is no limit to how much the cable can be tested but to complete the warranty the heating must be tested before it is laid, after being laid and after the floor covering has been installed. All figures must be accurately recorded. (See Fig 2)

8: The floor probe supplied with the thermostat should now be fitted. The probe must be installed between 2 heating wires but no more than 30mm away from one cable, (see fig 4). Make sure when fitting the probe no other heating or cooling sources can influence the floor probe such as hot water pipes. Once the probe is fitted a resistance check should be carried out to confirm the probe is fully functional and the readings noted down on the warranty card.

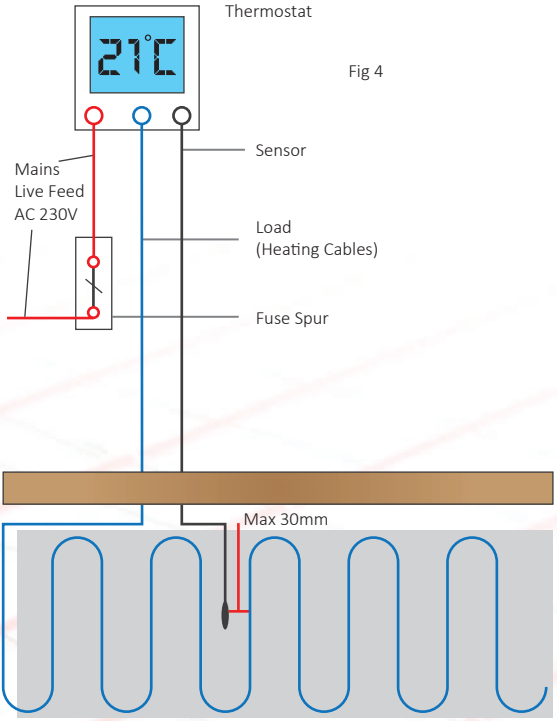


Fig 4

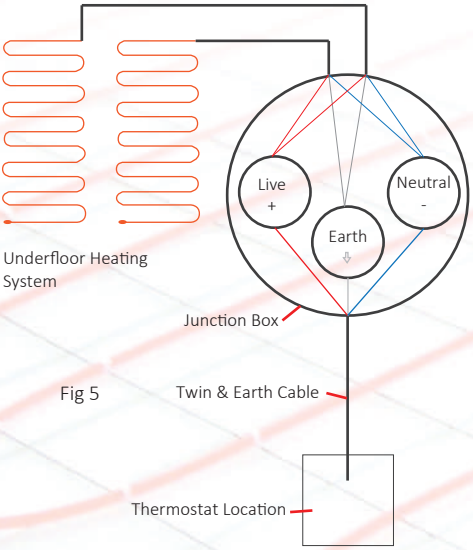


Fig 5

9: If multiple cables are to be installed, all cables can be connected together into a suitable junction box and then one suitable spur run to the thermostat location and left ready to be wired in. (See Fig 5)

10: The heating system must be run via a residual current device (RCD), fitted in accordance with all current electrical regulations at time of installation. All electrical connections should be carried out by a qualified electrician. It is the installer/electrician's responsibility to make sure the system is fitted correctly and any additional materials are suitable for use with the heating system installed.

NOTE: All do and don'ts in this brochure and on our website must be followed.

Under Tile & Stone Heat Mats.

1: The sub-floor must be clean, sound and suitable for the chosen floor covering prior to laying the heating. We highly recommend the use of a suitable insulation layer over concrete sub floors.

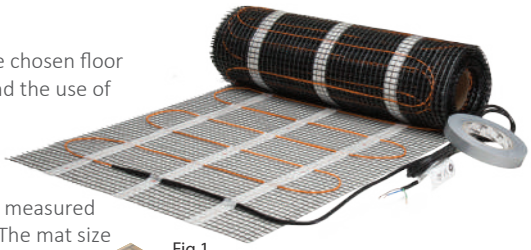


Fig 1

2: Measure the floor accurately allowing for a 100mm+ unheated border around the perimeter of the area. Once measured make sure the heating mat is a suitable size for the area. The mat size and wattage can be found on the outer box and heating mat label. The mat should also be tested for continuity and resistance at this stage. The readings should be noted down on the back warranty page of this manual. (See Fig 2)

(IMPORTANT, If the mat is incorrectly sized or the resistance readings do not match the test results on the box label, stop and return the mat for the correct size. Once the mat is unrolled over the floor it becomes the responsibility of the installer and the mat can not be returned for an alternative size).

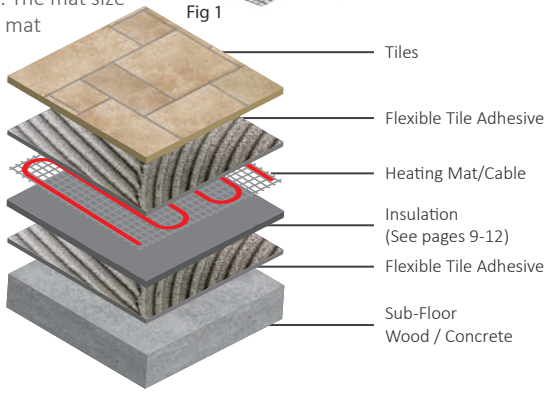
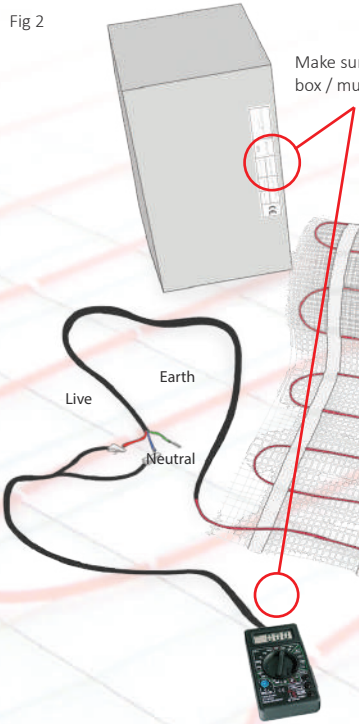
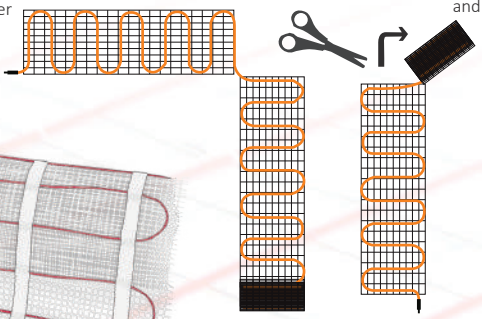


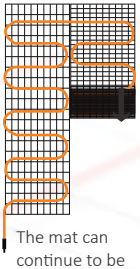
Fig 2



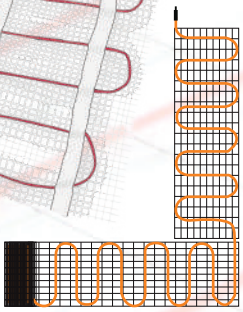
Use scissors to cut the mesh backing (Not the cable).

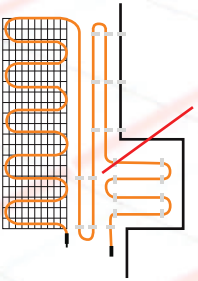


The cable / mat can be turned in any direction by cutting the mesh backing and rotating the roll.



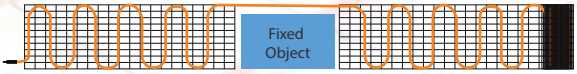
The mat can continue to be rolled out making sure the mat is not overlapped at any point.





The cable can be removed from mesh to cover small and awkward areas. Small tabs of tape should be used to hold the loose cable in place.

Fig 3



3: Start the heating close to the thermostat location if possible. If this is impractical the cold tail can be easily extended with a suitable electrical wire. Slowly unroll the mat, as you proceed the mat must be firmly pressed onto the floor making sure the heating element is not twisted or stressed at any point.

4: To turn the mat in any direction or return it back on itself the installer can cut through the mesh backing, (DO NOT CUT THE HEATING CABLE) to allow the mat to be redirected in any direction. (See Fig 3)

5: Alternatively if the area to be covered is an irregular shape or an obstacle has to be avoided the heating cable can be detached from the mesh backing and laid loose. This will allow the cable to be laid in any direction and a suitable fixing tape can then be used to hold the cable in position ready for the subsequent floor covering to be installed over. When laying the heating cable loose a consistent spacing between cable runs must be maintained, (the same spacing as when attached to the mesh backing) to achieve an even heat output across the floor. It is important that cables are not laid to close together. A minimum of 50mm should be maintained between cable runs. If the heating cables get too close, touch or overlap at any point the cable may overheat. (See Fig 3)

6: Once the heating is fitted the electrical resistance and continuity test should be repeated and noted down on the warranty page. Make sure these readings are the same as the readings noted down during stage 2. The heating should also be tested after the flooring has been fitted. There is no limit to how much the cable can be tested but to complete the warranty the heating must be tested before it is laid, after being laid and after the floor covering has been installed. All figures must be accurately recorded.

7: The floor probe supplied with the thermostat should now be fitted. The probe must be installed between two heating wires but no more than 30mm away from one cable (See Fig 4). Make sure when fitting the probe no other heating or cooling sources can influence the floor probe such as hot water pipes. Once the probe is fitted a resistance check should be carried out to confirm the probe is fully functional and the readings noted down on the warranty card.

8: If multiple mats are to be installed all mats can be connected together in parallel into a suitable junction box and then one suitable spur run to the thermostat location and left ready to be wired in. (See Fig 5)

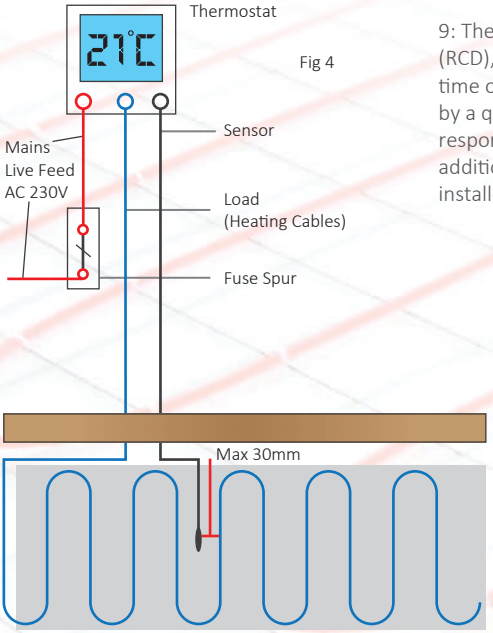


Fig 4

9: The heating system must be run via a residual current device (RCD), fitted in accordance with all current electrical regulations at time of installation. All electrical connections should be carried out by a qualified electrician. It is the installer/electrician's responsibility to make sure the system is fitted correctly and any additional materials are suitable for use with the heating system installed.

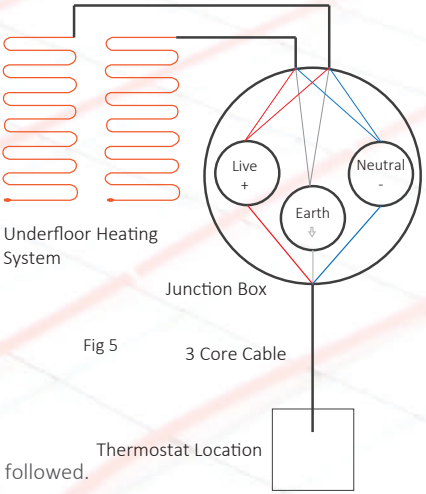
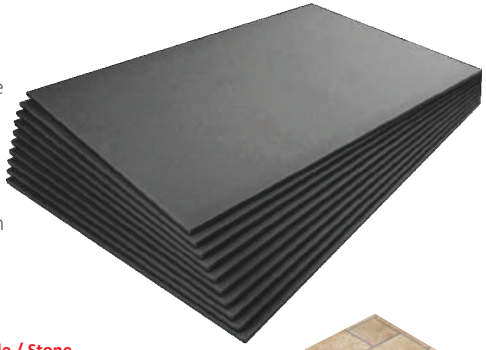


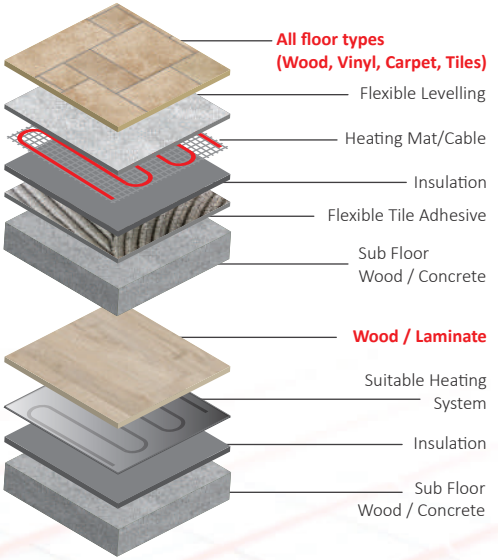
Fig 5

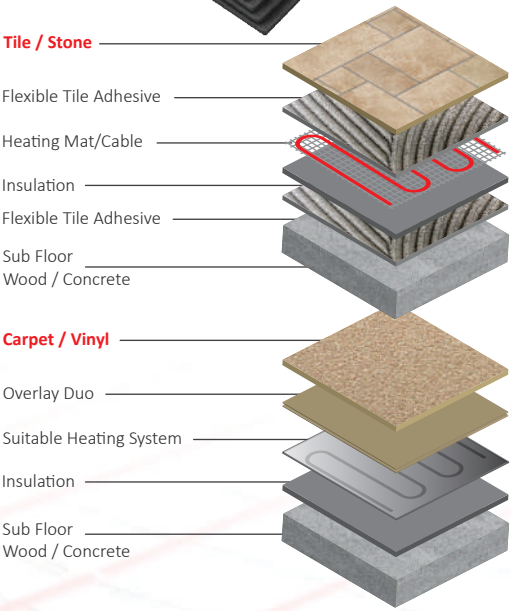
NOTE: All do and don'ts in this brochure and on our website must be followed.

Hard Insulation Boards. (HIB)

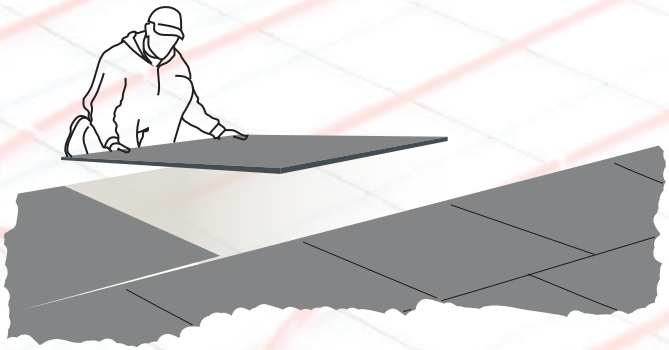
Underfloor hard thermal insulation boards are designed for use directly under tile, stone, wood and laminate floors. It can also be used under mosaic, vinyl and carpet flooring but must first have a suitable 9+mm layer of flexible self levelling installed over prior to the vinyl or carpet being fitted. The insulation comes in 6, 10, 20 and 30mm depths. The steps below are to help guide you through the installation processes dependigung upon what floor covering is bing installed.







1: The sub-floor whether concrete or wood should be made suitable for the chosen floor covering, (ie tiles) prior to any boards being fitted. The boards are designed to provide increased insulation levels not structural rigidity.



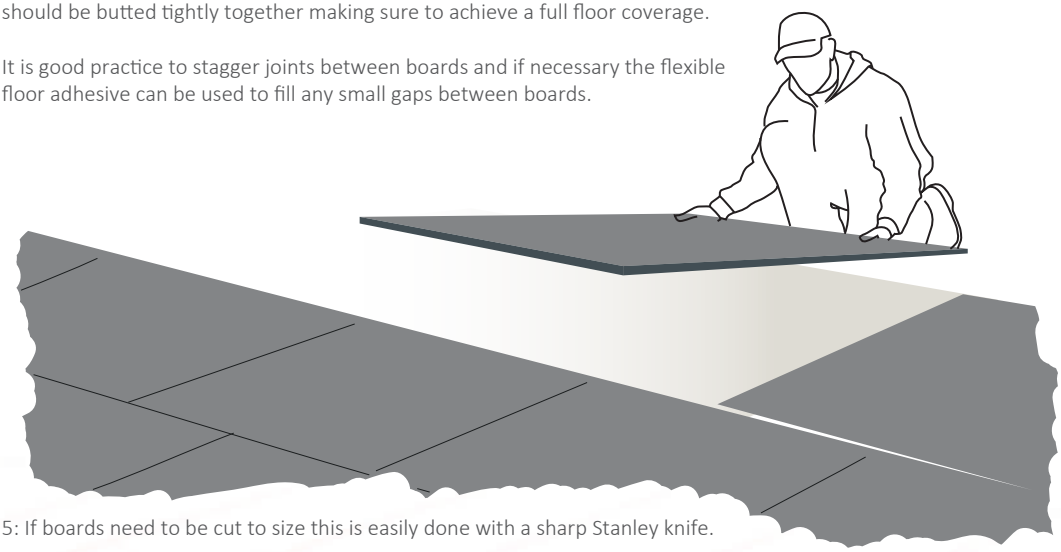
2A: For Wood and Laminate Floors. Once step one is completed and the floor is level, clean, dust and debris free the boards are ready to be laid. The boards can be laid directly over the sub floor making sure to butt the boards tightly together so not to leave gaps between boards and round the edge of the room. This will help prevent movement and maximise the floor insulation. Once the floor is fully covered the heating, wood or laminate can be fitted directly over the insulation boards.

2B: For all other floor types.
Make sure the floor is level, clean, dust and debris free as only then the boards can be laid. A suitable floor primer should be applied to provide a good fix for the adhesive (see adhesive fitting instructions).

3: Using a standard 1 part flexible floor tile adhesive, suitable for use with the sub floor construction, (ie wood or concrete) spread a thin full bed of adhesive over the floor. It is advisable to work in board size areas at a time and rather than using a typical floor tiling trowel, to use a smaller notched trowel such as a 6mm notch size which will increase the coverage of adhesive per bag.

4: Once the adhesive is spread lay the insulation boards over the freshly spread adhesive using a large, rigid, flat trowel/board to press the insulation boards down flat into/onto the adhesive. Care should be taken to make sure the boards are fully pressed into the adhesive and no air pockets or gaps are left under the boards. All boards should be butted tightly together making sure to achieve a full floor coverage.

It is good practice to stagger joints between boards and if necessary the flexible floor adhesive can be used to fill any small gaps between boards.



5: If boards need to be cut to size this is easily done with a sharp Stanley knife.

6: Once the boards are laid and the adhesive is set, care should be taken not to apply excessive point loads to the insulation until the tiles or levelling has been installed. Small dents and damage caused to the surface of the boards are quite normal and of no concern. If however the boards are to be left exposed for long periods of time or other work is to be carried out over the boards they should be covered with sheets of ply or other hard sheet material to minimise the chance of damage.

7: It is advisable to fit the final floor covering as soon as possible once the insulation has been installed. When fitting the chosen final floor covering it is advisable to work on top of a hard board. This will help prevent damage to the insulation when the work is being carried out.

8A: Wood and laminate flooring. (If not following step 2A) Both under floor heating and wood type tongue and grove flooring can now be fitted directly over the insulation in accordance with the manufactures fitting instructions.

8B: Tile & Stone Flooring
Tiles measuring 150x150mm or bigger can be fitted directly over the insulation. A suitable flexible tile adhesive should be used as directed by the adhesive manufacture. The tiling should be carried out in the normal way making sure to fit the tiles with a full bed of adhesive, (never dot and dab tiles).

8C: Fitting vinyl, carpet or mosaics and tiles under 150x150mm.
When fitting non interlocking rigid sheet material over the insulation boards a 9+mm layer of flexible levelling compound should first be fitted over the insulation. This will provide protection from high point loads as it will spread the weight over the insulation surface allowing the subsequent layers to be fitted. The levelling should be fitted in accordance with the manufacturer's instructions.

NOTE: All do and don’ts in this brochure and on our website must be followed.

Cementatious Tile Backer Board Pro. (Wall and Floor Boards)

Backer Board Pro is a cementatious tile backer board designed to insulate and water proof walls and floors. Ideal for wet room installations, the boards can be used directly under tile, stone, wood and laminate floors.

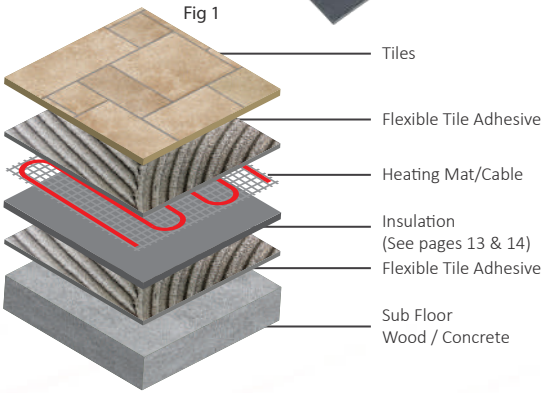
Backer Board Po can also be used under mosaic, vinyl and carpet flooring but must first have a 9+mm layer of flexible self levelling installed over prior to the vinyl or carpet being fitted. The insulation comes in 6, 10, 20 & 30mm depths. The steps below are listed to help guide you through the installation process.

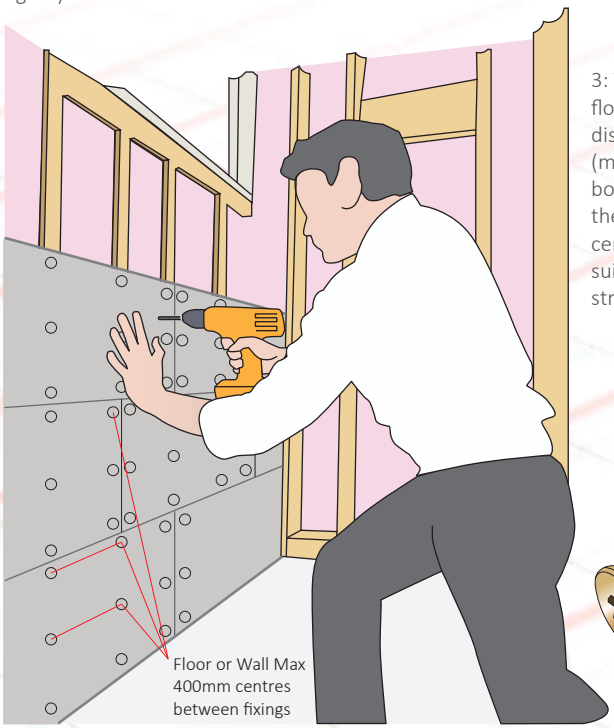
1A: If you are fitting tile backer board to a floor loosely or with tile adhesive please follow the instructions on page 9 - 10 (Hard insulation boards)

1B: If you are screwing the boards in place or tanking a room please follow the instructions below.

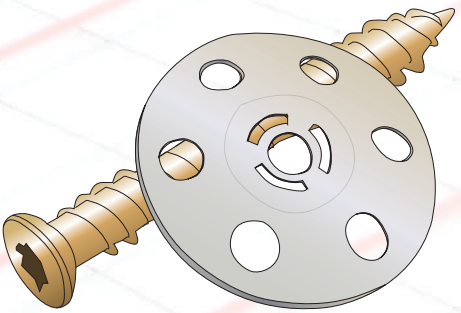
2: The sub-floor or walls whether concrete, wood or plasterboard should be made suitable for the chosen floor covering, (ie tiles) prior to any boards being fitted. The boards are designed to provide increased insulation levels not structural rigidity.

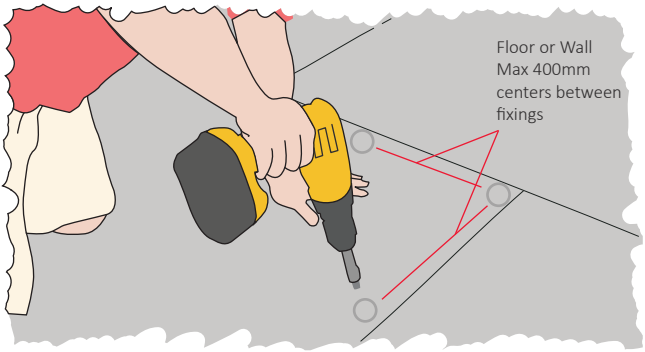
Fig 1





3: Tile backer boards can be screwed to walls and floors using suitable fixing discs and screws. The discs must be located at 400mm centres or closer, (minimum 12 fixings per 1200x600 board). If the boards are to be screwed directly to stud walling the supporting studwork must be fitted at 400mm centres, (6mm boards are for floor only and not suitable for walls due to their insufficient structural rigidity).





4: Fit the boards to the wall / floor making sure to butt the boards tightly together to achieve a full floor / wall coverage. It is good practice to stagger joints between boards and if necessary a flexible floor adhesive can be used to fill any small gaps between boards. It is important the boards are fixed securely to walls and consideration given to the weight of subsequent wall coverings. On floors the boards are not designed to bridge gaps and must be screwed back tight to the floor surface to avoid any bounce as this could adversely affect subsequent layers.

5: If boards need to be cut to size this is easily done with a sharp Stanley knife or fine tooth saw.

6: If the boards are to be used to tank a room then we recommend the use of our **Aqua Seal** tape to be applied to all joints (as per the **Aqua Seal** jointing tape instructions).

6A: Once the boards are fitted care should be taken not to apply excessive point loads to the insulation until the subsequent surfaces have been installed. Small dents and damage caused to the surface of the boards are quite normal and of no concern. If however the boards are to be left exposed for long periods of time or other work is to be carried out over the boards they should be covered with sheets of ply or other hard sheet material to minimize the chance of damage.

7: It is advisable to fit the final floor covering as soon as possible once the insulation has been installed. When fitting the chosen final floor covering it is advisable to work on top of a hard board. This will help prevent damage to the insulation when the work is being carried out.

8A: (Wood and Laminate Flooring).
Both underfloor heating and wood type tongue and grove flooring can now be fitted directly over the insulation in accordance with the manufactures fitting instructions. Care should be taken to avoid leaving any high spots caused by the screws/fixing discs. If these screws/discs are a problem they can be screwed down further to pull them flush with the board surface. Make sure not to over tighten these screws/discs.

8B: (Tile & Stone Flooring).
All tiles can now be fitted directly over the insulation. A suitable flexible tile adhesive should be used as directed by the adhesive manufacture. The tiling should be carried out in the normal way making sure to fit the tiles with a full bed of adhesive, (never dot and dab tiles). If Mosaic floor tiles are to be fitted a scrim tape should be fitted over all board joints with flexible levelling compound over the top to provide extra support.

8C: Vinyl & Carpet.
When fitting non rigid sheet material over the insulation boards such as sheet vinly, first a 9mm layer of flexible levelling compound should be fitted over the insulation. This will provide protection from high point loads as it will spread the weight over the insulation surface allowing the subsequent layers to be fitted. The levelling should be fitted in accordance with the manufactures instructions. (In high traffic or commercial areas, all board joints should have a scrim tape applied over prior to the levelling being fitted).

8D: Wall tiles should be fitted in the normal way making sure to use a full bed of adhesive. The adhesive should be a flexible wall adhesive and applied / mixed in accordance with the manufactures instructions.

NOTE: All do and don’ts in this brochure and on our website must be followed.

In Screed Heating Cable, (for all floor coverings).

1: The Sub-floor must be insulated with a suitable insulation, clean, sound and made ready to receive the screed covering prior to the heating cable being installed.

2: Measure the floor accurately allowing for a 100mm+ unheated border around the perimeter of the area. Once measured make sure the heating cable is suitably sized for the area to be heated. Typically most domestic in screed floors (depending upon your requirements) will be fitted with 160w-220w/m2.
To work out your floor/system wattage, simply divide the heating systems total wattage by the total floor area to be heated in m2.
The end figure should be between 160 – 220w/m2.
The length of the cable and total wattage can be found on the outer box or heating cable.

Fig 1

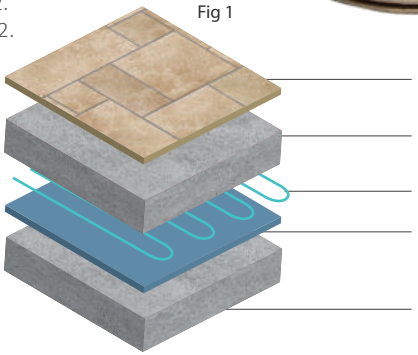
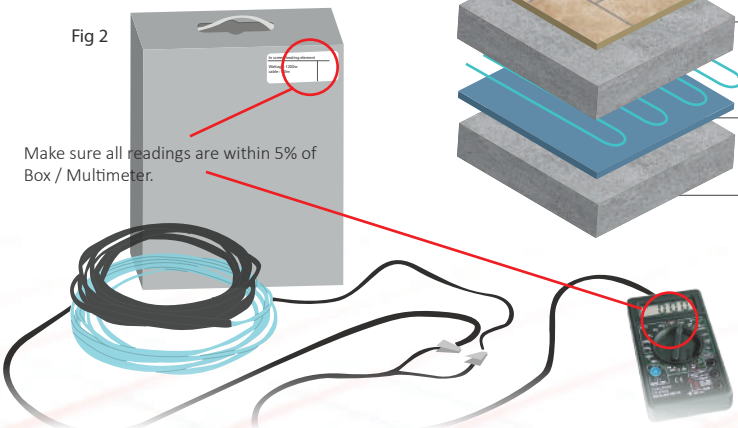


Fig 2



3: Before the cable is unrolled it must be tested for continuity and resistance. Mark this reading down on the back warranty page of this manual. (See Fig 2)
(IMPORTANT, If the cable is incorrectly sized or the resistance readings do not match the test results on the box label, stop and return for the correct size. Once the cable is unrolled it becomes the responsibility of the installer and the cable can not be returned for an alternative size).

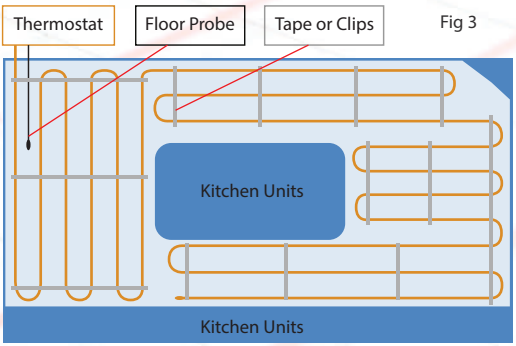
4: Using the figures worked out in stage 2, the spacings between cable runs are worked out by:

A: Divide 1000 by the length (metres) of the heating cable.

B: Times result A by the size of the area you are heating in m2. The final figure is the spacing in mm the cables should be spaced out at.

Please note the figure should be somewhere between 70 - 110mm. This figure is a guide and small adjustments may be required to the final spacing's to achieve the best coverage. The cable must NOT be cut or reduced in length. The spacings between cables are either increased to increase the heated area, or reduced to reduce the heated area, (the black cold/connection ends can be reduced or lengthened if required).
(See Fig 3)

Fig 3



5: Before the cable is unrolled and fitted it is advised to mark the floor accurately showing precisely where the heating cable is to be laid. This will allow the installer to accurately design the floor layout to best use the available cable making sure to keep even spacing's between cable runs. (See Fig 3)

6: If possible start laying the cable working away from the thermostat location using small tabs of fixing tape or fixing clips to accurately lay the cable. It is inadvisable to cover the entire cable with fixing tape as this will affect the screeds ability to fully envelope the cable. The tape is only required to maintain a consistent spacing between cable runs to achieve an even floor covering until the screed is applied over. It is important that cables are not laid too close together. A minimum of 50mm should be maintained between cable runs. If the heating cable is set too close, touch or overlap at any point the cable may overheat.

7: Once the heating is fitted the electrical resistance and continuity test should be repeated and noted down on the warranty page. Make sure these readings are the same as the readings noted down during stage 2. The heating should also be tested after the screed has been laid. There is no limit to how much the cable can be tested but to complete the warranty the heating must be tested before it is laid, after being laid and after the covering screed has been installed. All figures must be accurately recorded.

8: The floor probe supplied with the thermostat should now be fitted. The probe must be installed between 2 heating wires but no more than 30mm away from one cable, (see fig 4). Make sure when fitting the probe no other heating or cooling sources can influence the floor probe such as hot water pipes. Once the probe is fitted a resistance check should be carried out to confirm the probe is fully functional and the readings noted down on the warranty card.

Fig 4

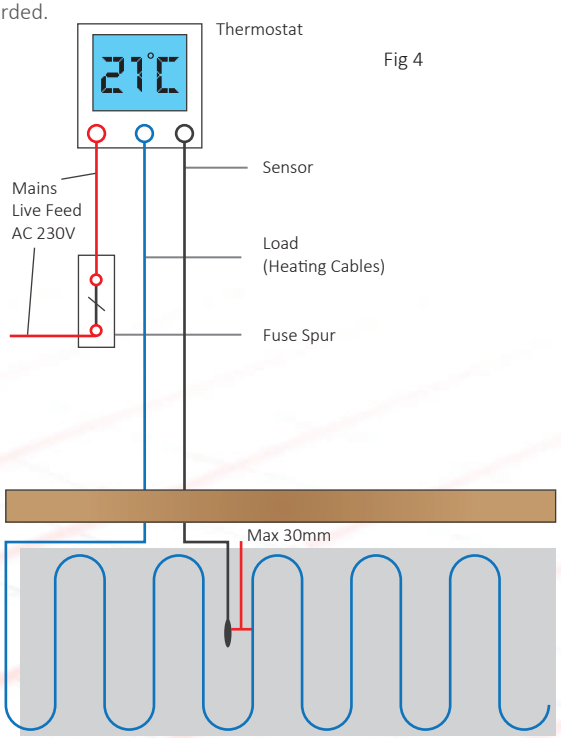
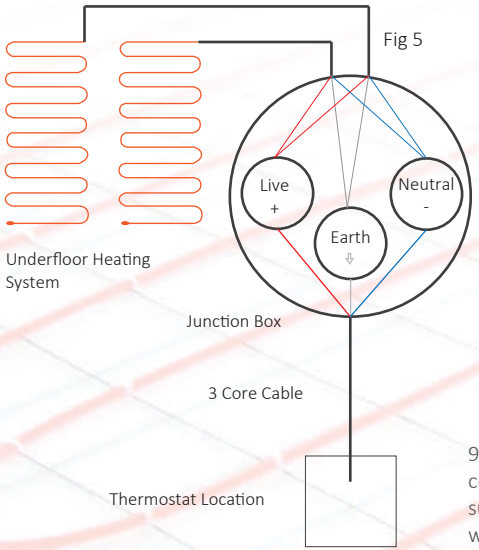


Fig 5



9: If multiple cables are to be installed all cables can be connected together into a suitable junction box and then one suitable spur run to the thermostat location and left ready to be wired in. (See Fig 5)

10: The heating system is now ready to have either, flexible 20-75mm self leveling compound or screed installed over in accordance with the adhesive manufactures instructions. The heating must be run via a residual current device (RCD) and connected to the mains power in accordance with all current electrical regulations at time of installation. All electrical connection should be carried out by a qualified electrician. It is the installer/electrician's responsibility to make sure the system is fitted correctly and any additional materials are suitable for use with the heating system installed.

NOTE: All do and don'ts in this brochure and on our website must be followed.

Warranty Card

Terms and Conditions:

Living Heat provides a limited warranty on all heating systems, (see website for details on exact systems).
In the case of a defective heating mat supplied by Living Heat, Living Heat will either repair or replace the defective heating mat.
Faults caused by incorrect installation or fitting procedure, misuse or damage caused by others, will not be covered under this warranty. This warranty does not cover installations completed by unqualified electricians.
Under no circumstances is Living Heat liable for any consequential damages or losses (materials or monetary) associated with the under floor heating system.
To complete and activate the warranty your electrician must fill in all details on the form below during each stage when fitting the heating system. Once completed log onto www.Livingheat.co.uk and click on warranty registration. Transfer the information recorded on this form below onto the online warranty and click submit.

Installation Address : _____

Customer Name : _____ Installation Date : _____

Electricians Name : _____ Contact Number : _____

NICEIC Registration Number : _____ Email : _____

Test		Cable/Mat 1	Cable/Mat 2	Cable/Mat 3	Cable/Mat 4
Heating Mat Resistance	Before laying				
	After laying				
	After installing floor				
Floor Sensor Resistance	Before laying				
	After laying				
	After installing floor				

NOTE - Please use and attach separate sheets if multiple systems are being installed formatted as above.

	Yes	No
Living Heat Thermostat is Installed -	☐	☐
Thermostat is set to regulate floor temperature only (For wood laminate vinyl and carpet floor coveringsd only) -	☐	☐
The thermostat floor probe is positioned correctly as per instructions -	☐	☐
No additional insulation has been fitted over the heating cables and no additional layers or insulated objects have been placed or left over the final floor covering -	☐	☐
The mats are not installed in an area prone to excessive movement or have been exposed to any liquid during installation-	☐	☐
The cables have not been laid over a metal surface or have any metal or abrasive objects installed over the cables-	☐	☐

Thermostat Model: _____

* If you have answered NO to any of the questions asked to the left your underfloor heating has been installed incorrectly and your warranty will be invalid. Action should be taken to install the heating correctly before the heating system is commissioned and turned on.

Installer: Please sign to confirm you have installed this heating system in accordance with all fitting instructions.
User: Please sign to confirm you have read & understand the usage / running guidelines set out in the instructions.

Installer Signature : _____ User Signature : _____

PLEASE RETAIN THIS FORM WITH YOUR UNDERFLOOR HEATING SYSTEM

To activate your free warranty log onto www.livingheat.co.uk/warranty-registration within 3 months of purchase and 30 days of installation date and complete the online form.