HEATWAVE

YOUR LOCAL DISTRIBUTOR

HEATWAVE
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Robina Town Centre
Queensland 4230
Australia

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Free Fax: 1-800-133-134
Email: support@heatwave.net.au
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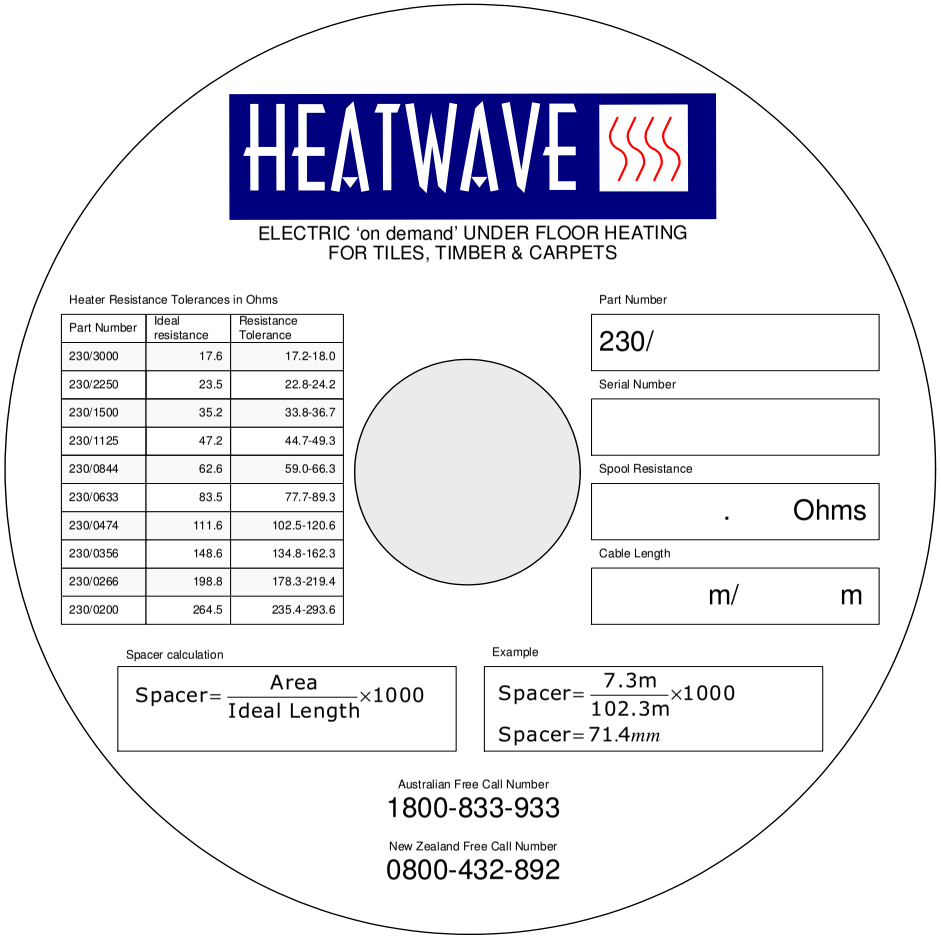
Website: www.heatwave.net.nz

Issued on Tuesday, 3 February 2004

INSTALLATION INSTRUCTIONS FOR HEATWAVE DIY/CONTRACTORS' UNDERFLOOR HEATING KIT



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SITE/JOB DETAILS

Product Serial Number		12345
Nature of Application		Tile
Room Type		WC
Substrate		Concrete
Area Covered		2.2
Heater Resistance		60.23
Comments		Customer Provided Poor Surface

INSTALLATION DETAILS

Company Name		Heating Customer Ltd
Title		Mr
First Name		Joe
Last Name		Smith
Phone		07 5555 5555
Fax		07 5555 5555
Mobile		0414 555 555
Address 1		55 Street Road
Address 2		Town
Address 3		Region
Post Code		4211
State		Queensland
Country		Australia

SETTING FROM AIR TO FLOOR SENSING CM67

- Move slide in left hand bottom corner to the OFF position.
- Press buttons 3,4 and (i) at the same time. Screen reads 1:OP 0.
- Press the TEMP up arrow till the screen reads 1:op 1 (flashing).
- Press the (i) to confirm the 1 (stops flashing).
- Press the button 2 Screen reads 6:HC 1
- Press + sign till screen reads 10:55 0
- Press the TEMP up arrow till the screen reads 10:55 2 (flashing).
- Press the (i) to confirm the 2 (stops flashing).
- Move slide in left hand bottom corner to the AUTO position.

SETTING THE DAY AND TIME
Above the screen the numbers 1 through 7 represent the days Monday to Sunday. The clock is set to a 24-hour clock.

- Move the slide in the bottom left corner to DAY/-
- Use the DAY 1…7 button in the top left corner to set your day.
- Use the +/- buttons on the left of the screen to set the time.
- To save the day and time settings move the slide back to AUTO.

SETTING THE RUNNING TIMES

In this example we will set the times for a room that is used between 07:00 to 08:00 and 21:00 to 22:00. As it takes time to heat the room we will switch the floor on before it is needed but also make use of the residual heat to switch it off before it is no longer needed. In doing this you only pay for the heat you used.

The thermostat makes use of 3 time temperature pairs to switch the heating on. The buttons 1[on] and 2[off] are for the first on off cycle. 3&4 and 5&6 make up the other cycles.

Setting the first cycle

- Move the slide in the bottom left corner to PROG.
- Press the number 1 at the bottom of the screen.
- The screen will show the time and temperature flashing.
- Set the temperature to 06:00 using the +/- button on the right side of the screen. Set the temperature to 24 ºC using the TEMP buttons on the right side of the screen.
- Press the number 2 at the bottom of the screen.
- The screen will show the time and temperature flashing.
- Set the temperature to 07:30 using the +/- button on the right side of the screen. Set the temperature to 5 ºC using the TEMP buttons on the right side of the screen.

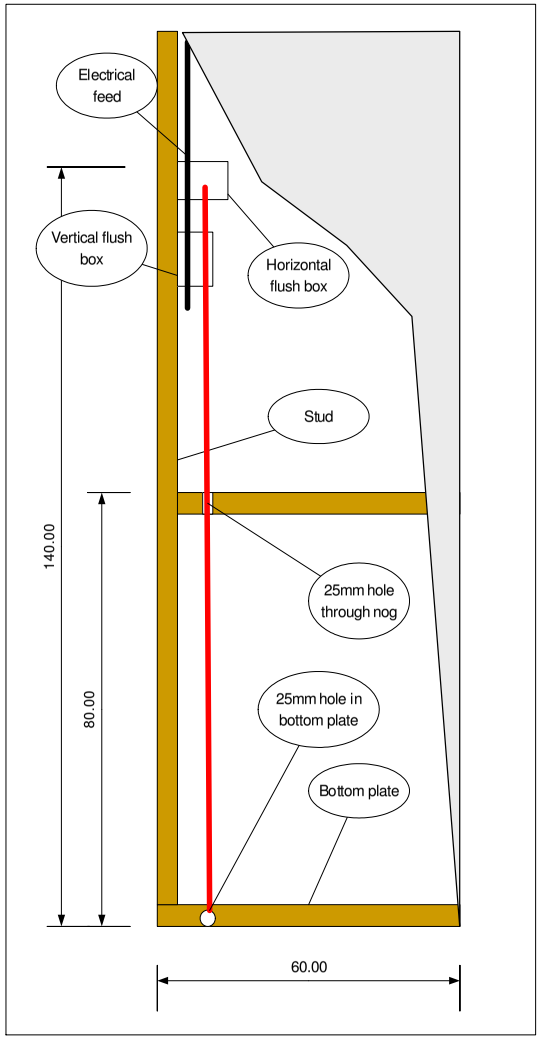
Setting the second cycle

- Press the number 3 at the bottom of the screen.
- The screen will show the time and temperature flashing.
- Set the temperature to 20:00 using the +/- button on the right side of the screen. Set the temperature to 24 ºC using the TEMP buttons on the right side of the screen.
- Press the number 4 at the bottom of the screen.
- The screen will show the time and temperature flashing.
- Set the temperature to 21:30 using the +/- button on the right side of the screen. Set the temperature to 5 ºC using the TEMP buttons on the right side of the screen.

To save the day and time settings move the slide back to AUTO.

WALL PREPARATION

The electrical supply of 1.5 or 2.5mm should be taken to a flush box fixed horizontally to the stud at a height of 1400 mm. The supply should stick out at least 200 mm from the flush box. Run a draw wire from the appropriate flush box through the nog to the floor of the room to be heated.



CUSTOMER DETAILS

Date Started		dd-mm-yyyy
Date Completed		dd-mm-yyyy
Address 1		
Address 2		
Post Code		4211
State		Queensland
Country		Australia

TO VALIDATE THE HEATWAVE CABLE WARRANTY

Installations must be registered with Heatwave through the Heatwave website www.heatwave.net.au in Australia and www.heatwave.net.nz in New Zealand if you are a Heatwave distributor. If you are not a Heatwave distributor take the details to your nearest Heatwave distributor to have the installation registered.

SPECIAL CONSIDERATIONS

- The information in this booklet is to assist in the successful installation of the product. It is not however a guarantee against defective installation and it is recommended that the product be installed by a qualified and ex perienced tradesperson. Heatwave will not be liable for defective installa tion or matters arising out of, or related to, such installation, all such claims must be referred to the installer.
- Never allow the heater cable to pass through a wall or floor.
- The heater cable should never cross or come within 40 mm of another heater cable.
- Only once the floor covering is fixed can the heater be connected to power.
- Do not use the heating to dry adhesive or grout.
- The heaters are classified fixed appliances and the same care afforded nor mal fixed appliances apply.
- Warranties do not cover abuse, neglect or improper use of the under floor heater.
- The under floor heater should not be installed or run without the protection of an RCD (earth leakage device).
- Where programmable temperature controllers are to be fitted provision must be made for isolating switches.
- Do not leave unattended infants, Helpless person or someone insensitive to heat on a heated floor
- Attention should be paid to heating limitations that may be placed on both the floor covering and the base.
- A 'suspect' base must be prepared by grinding or sanding then prepared with the relevant primer before the topping or adhesive is applied.
- When fixing floor coverings over under floor heating, use must be made of adhesives manufactured for that purpose.
- The tiler or tile shop will be able to recommend an adhesive. Flexible
- adhesives names usually end with 'flex'. With wood laminates a 2 part adhesive must be applied to the whole of the floor.
- For proper performance the wattages must be kept to between 133 Watts and 200 watts per square meter. It is the responsibility of the designer to provide adequate heat load.
- Until the floor covering has been fixed it is the installers responsibility to ensure no traffic other than the tile/timber/vinyl/carpet layer is allowed on the installed and topped heater. Abuse of the heater before covering will invalidate the cable warranty.
- No door stops should be drilled through the heated floor

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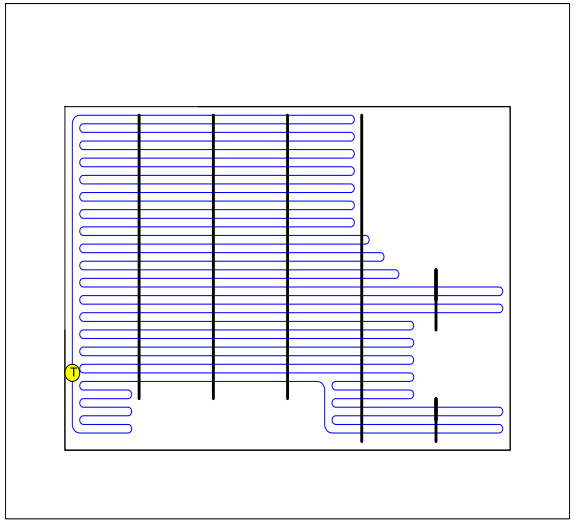
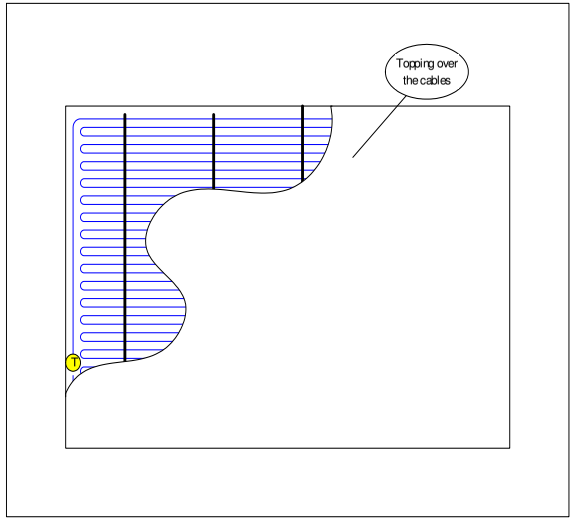
WET INSTALLATION METHOD

Taping the cables for a 'wet' installation— Once the cables have been fixed and the heater terminated. Fix the cables by spraying adhesive @ 90º across the cables @ 300 to 400mm intervals. Stick tape to the adhesive over the cables and press down firmly. This will stop the cables floating up in the thermal screed.



APPLICATION OF THE THERMAL SCREED OVER THE CABLES

Once the heater has been fixed and terminated the topping can be applied to a depth of 3 mm to 5 mm over the full extent of the floor. Care must be taken not to leave cables exposed as these can be damaged when the floor covering is fixed.

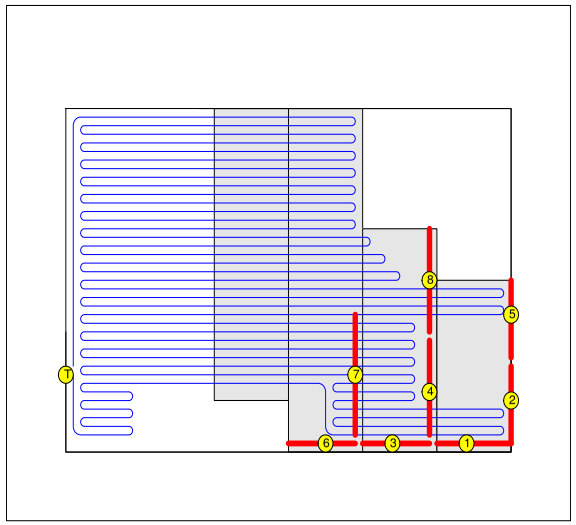


DRY INSTALLATION METHOD

Once the cables have been fixed and the heater terminated, the cables can be covered by the shear mesh run at 90º to the run of the cables. The mesh can then be fixed by taping or gluing to the primed or sprayed areas on the floor.

Follow the numbers 1 through 8 as an example of how to glue down the mesh. Just enough tension must be kept on the mesh to prevent bubbles from forming in the mesh.

If you are working on a timber floor, put tension on the mesh then nail down the corners of each strip. Apply the tape or glue in the same way illustrated above.



FOR THEM BEST FIXING RESULTS

Fixing can be done as you should have stayed 70mm away from the perimeter. This allows you sufficient space to spread the fixing adhesive with the spreader.

Cut the mesh to fit the shape by cutting off any excess mesh. This cutting is done with the stanley knife. Should you need more mesh, this must be run in the same direction as the first with a 2 to 3 square overlap . Stretch the mesh by pulling it flat over the cables avoiding bubbles before fixing.

INSTALLATION INSTRUCTIONS

CHECKING THE WALL

Check to see that the wiring for the installation of the heating has been done in accordance with the requirements on the back of this booklet.

THE FLOOR MUST BE CLEAN

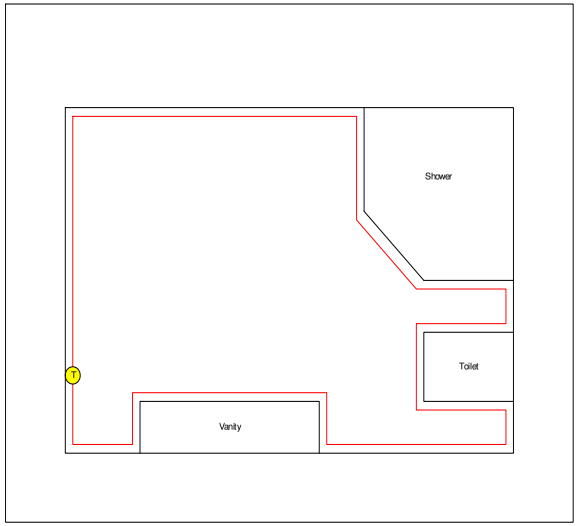
The floor must be clean and free of contaminants and dust. All raised matter should have been removed from the floor as these could upset the free run of the cables and floor covering.

PULLING UP THE COLD TAILS

When pulling up the cold tails be sure to tie, then tape on the tails to the draw wire securely so that the tails do not pull free when pulling them up by the draw wire. Pulling up is made easier by pushing the tails in at the bottom and pulling up by the draw wire at the same time.

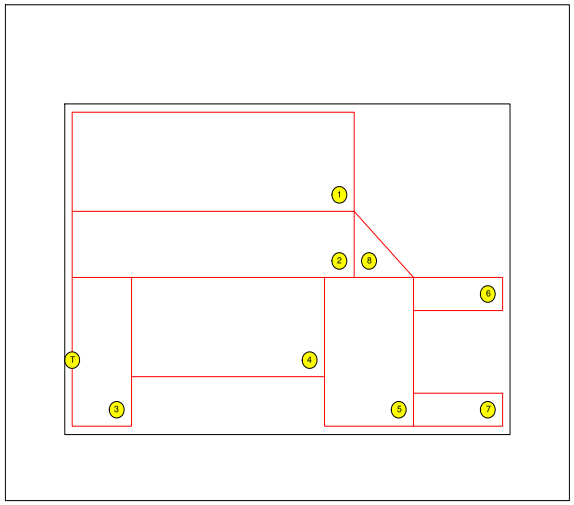
MARKING OUT THE AREA TO BE HEATED

Use the crayon provided to draw a line 50-70mm from the perimeter of the walls and cabinets. This will be the area covered by the heater.



CALCULATING THE SIZE OF THE AREA

With the area to be heated marked out, calculate only the demarcated area by dividing it into a series of squares and triangles as accuratly as possible. Once you have marked your areas, number them, measure them then calculate their areas finally adding up the numbered areas to give the total heated area.



HEATER SELECTION

For proper performance the wattages must be kept to between 133 Watts and 200 watts per square meter. It is the responsibility of the designer to provide adequate heat load.

SPACER CALCULATION

Follow the calculation on the label on the cover of this booklet or on the cable spool.

CABLE ROUTING

Stand back and decide the route the cable has to follow as you have to take into account that once the cable is laid it will have to 'return' past the cable to the termination.

SPRAY ADHESIVE

The adhesive spray is used to give a tacky surface on to which the tape anchors can be stuck. Spray overlapping widths of adhesive along the perimiter sothat the anchors do not pull free. The spray should be applied along the shorter widths so that the longer runs can be used for laying the cable.

RESISTANCE CHECK

It is important to check the resistance of the heater once installed to ensure that the installed resistance falls within the resistance tolerance.

ELEMENT TEST

Once the heater is down test the element for the ideal resistance and at the same time confirm that there has been no mechanical damage or crush resulting in a "down to earth". This is done with a multi meter set to test resistance. As you already know which heater has been installed you can compare the heater resistance to the resistances on the spasing schedule.

FINAL CHECK

To test a down to earth, you may use either your multi meter or an electronic digital Megger. Test both ends of the heater element by taking a reading between phase and earth, then neutral and earth. If both these tests are 'clear' (no resistance between the conductor and the earth), you are ready to do the termination.

ELEMENT MONITORS

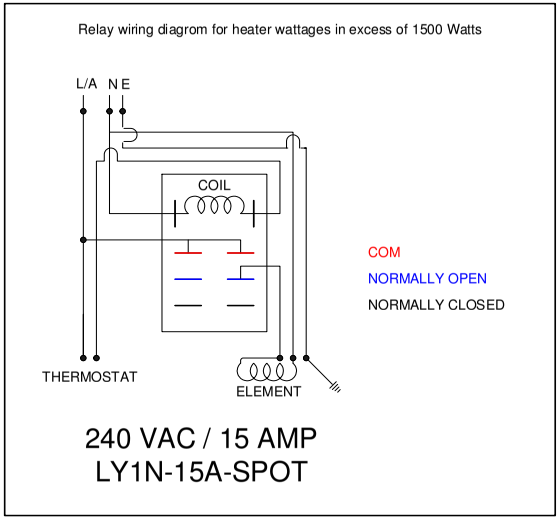
Element monitors are available for hire from your Heatwave distributor. The monitor will continually do a continuity test while the floor covering is being laid.

RESISTANCE TOLERANCES

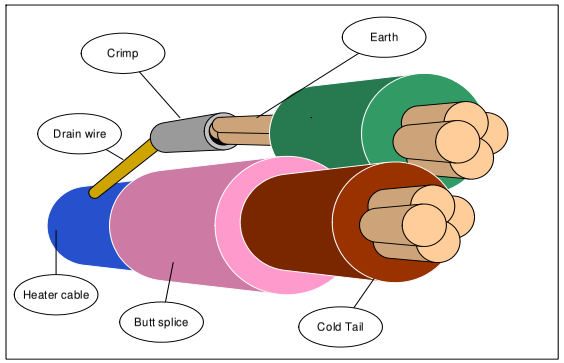
Install the cable only against the resistance for that part number as shown on the label on the cover of this booklet or on the cable spool.

ELECTRICAL FITTOFF

Install a relay to take the load behind the thermostat if the resistance between the heater Live and Neutral (Blue & Brown) is less than 35 Ω.

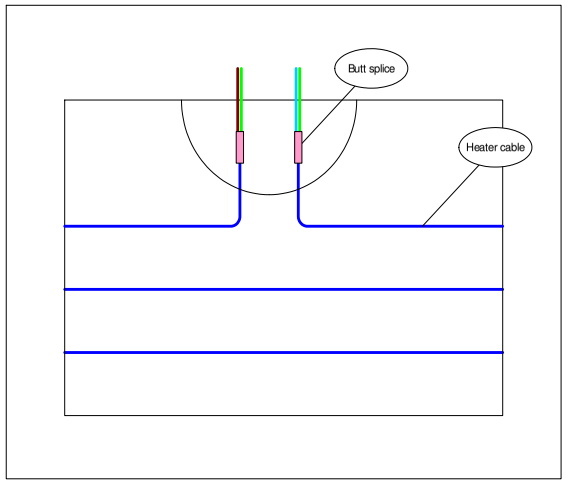


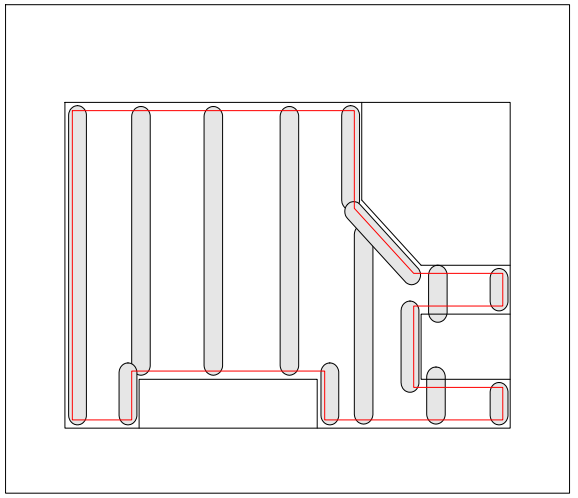
TERMINATE BOTH ENDS OF THE HEATER



CONNECTING THE HEATER TO THE COLD TAILS

Crimp firmly. Pull on the cable to ensure that the cable is held firmly. Be carefull not to pull the cable out of the butt splice. Heat the butt splice to seal the termination around the cable without burning the heat shrink. Slide the ferrule over the drain wire and then the cold tail earth and crimp firmly. Slide the heatshrink down over both terminations and heat till the heatshrink seals around the length of the termination.



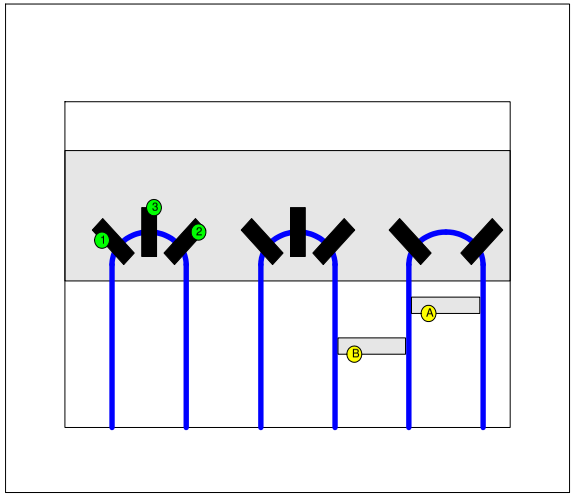


CABLE FIXING

To secure the cable as it is laid out, run the cable to the desired position then putting just enough tension on the cable tape it down @ 1 onto the primer or adhesive spray applied earlier.

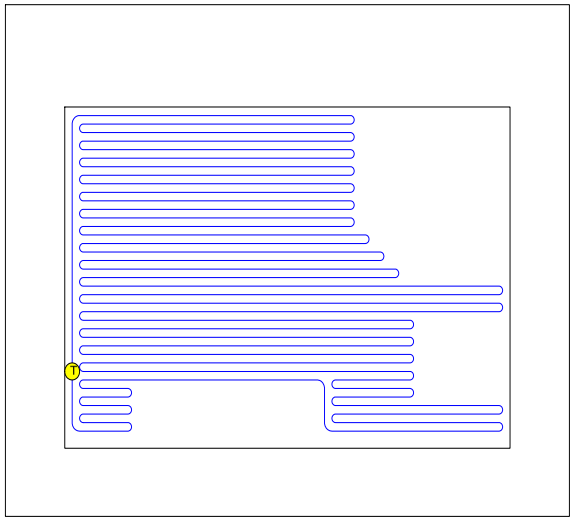
Using a spacer cut to the correct size according to the spacer calculation turn the cable as in (A) through 180° and secure again @ 2.

A tape to prevent the cable slipping is then secured @ 3.
Continue the process keeping the space between the cables the same as in (B).



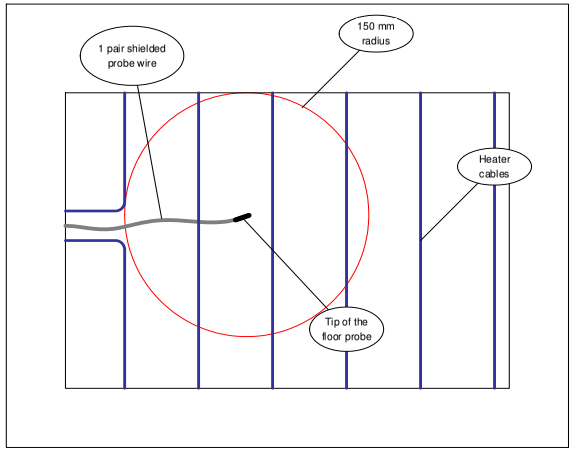
THE CABLES TAKE THE SHAPE OF THE ROOM

Press down firmly on the tape to ensure a good bond. Continue until the marked area is covered by cable and returned to the termination. If your calculations were correct you should have a couple of metres of cable left to trim and do the termination. When the cable has reached the start, cut the heater element leaving 200mm for adjustment at the termination.



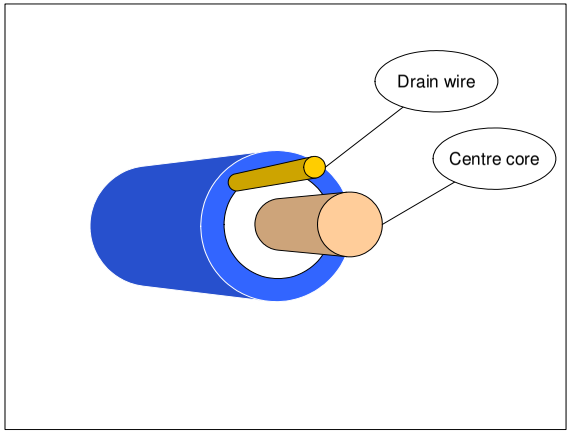
REMOTE PROBE PLACEMENT

The thermostats probe can be pulled out to lay under the heater cable in a shallow groove with the tip of the probe between 2 cables with an radius of about 100mm of cable around it for accurate temperature sampling.



TERMINATING THE HEATER TO THE COLD TAILS

EXPOSING THE CORE—Slide the black heatshrink tube over the heater element before you start the termination. it is necessary to 'strip' the centre core and the drain wire to do the terminations. Heat about 40 mm of the end of the cable with a cigerette lighter till it swells. Using the 'side cutters' (snips) strip off the heated section of the cable without cutting down on the conductors.



EXPOSING THE DRAIN WIRE

Once the conductors have been exposed bend the thinner of the 2 exposed wires through 90º and heat the conductor where it comes out of the insulation sothat it can be pulled through the outer insulation away from the other conductor for about 20mm. Cut the centre conductor to 10mm and fold double and squeeze the fold flat sothat it can fit into the metal part of the pink butt splice on the cold tail.