In Slab Heater Kit Installation Manual

Scan for Installation Support

We are here to support you

Contact Us
Call: 1800 85 75 65
Email: info@coldbuster.com.au
Visit: www.coldbuster.com.au

WARNING: Failure to read this guide prior to installing your COLDBUSTER heater(s) may result in installation problems that could void your heater warranty.

July 2023

Contents

Introduction

To ensure a simple and hassle-free installation, *read this guide before commencing installation*.

Coldbuster does not accept responsibility for any loss or consequential damage suffered because of installations that in any way contravene the instructions detailed in this guide.

If you require further assistance, please contact Coldbuster.

Installation Dos and Do Nots

Do:

- Ensure all heaters are installed as per these instructions
- Ensure the floor surface is smooth, clean and dry before installing heaters
- Start each heater cold tail on the floor below the thermostat point
- Plan installation layout before starting, especially when more than one heater is being installed
- Install the floor cover (slab) as soon as possible after heaters are installed
- Test heaters before installing the floor covering (ensure monitor is connected, turned on, and no siren sounding)
- Ensure the heater is connected to an RCD (safety switch) protected circuit
- Retain your invoice as proof of purchase for warranty purposes
- Complete the last page of this booklet for future reference

Do Not:

- **Cut heating element EVER**
- Allow heating elements to touch or cross one another
- Place sharp or heavy objects on uncovered heaters
- Install heaters under any surface not suitable for that particular floor heating
- Commence installing the final floor cover before testing heaters

Product Information

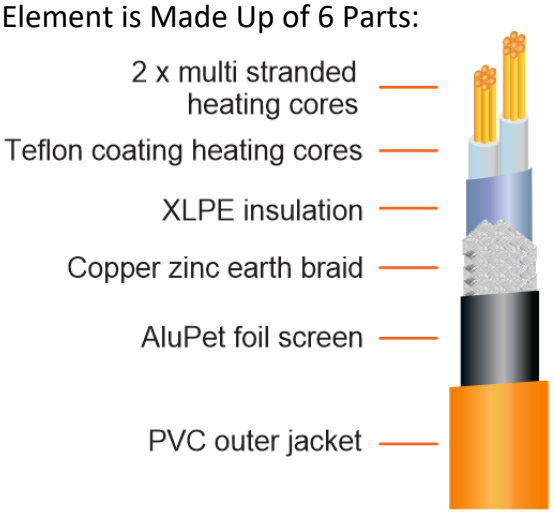
Coldbuster In-Slab Floor Heaters Consist of 2 Components:

- Heating cable (single ended, on reel)
- 3.0m cold tail

Coldbuster In-Slab Floor Heater Kits Contain:

- Heater
- Installation Alarm Monitor
- Installation Manual

The Heating Element is Made Up of 6 Parts:



Tools Required for Heater Installation

- Tape Measure
- Spray Paint
- Cable Ties
- Side Cutters
- Insulation Tape

Electrical Information

Electrical Preparation

The Coldbuster heater element has been classified as an electrical appliance. You must engage a licensed electrician for the heater installation if this is required by your state regulations.

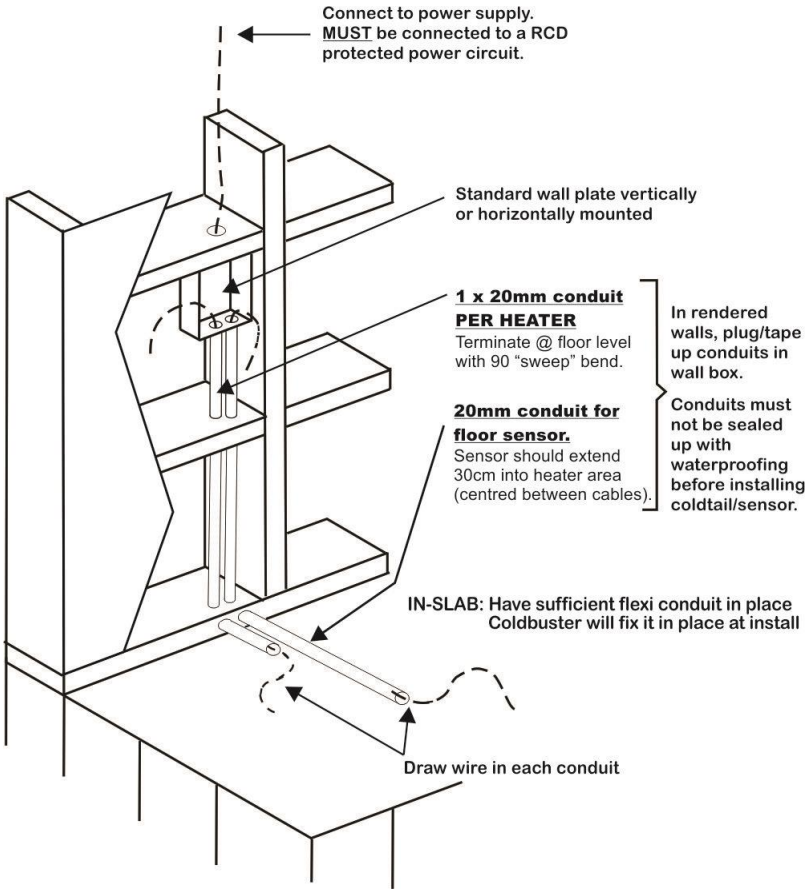
However, all electrical connections, including setting up the conduits (more detail below) and the connection of the thermostat must be undertaken by a licensed electrician in accordance with current electrical codes of practice, AS/NZS3000: 2007 and state codes.

Residual Current Device (RCD)

1. The heater element must be connected to a circuit with RCD protection.
2. Consult with your electrician to ensure any existing cabling and RCD already installed are working and capable of handling the additional load.

Hardwire Connection

- Power supply must be RCD protected
- Standard flush box or C-bracket mounted horizontally or vertically, height between 1000mm - 1500mm above the floor
- 20mm conduit for the heater leads
    - Number of leads per conduit depends on size of conduit
    - Maximum 2 heaters per conduit
- 20mm conduit for floor sensor extended into the room
  (optional: most thermostats have a built-in sensor and can be set up for air sensor)



Floor Sensor Preparation (typically provided with your thermostat)

- Install the floor sensor as shown in the electrical connection drawing, particularly if another form of heating such as air conditioning or a fireplace will also be used in the area
- Floor sensor is essential where the thermostat is mounted inside a cupboard or outside the area being heated
- Additional benefit will be achieved by extending the conduit with corrugated flexi conduit ±50cm in between the runs of the element

Planning Heater Layout

Heater Choice

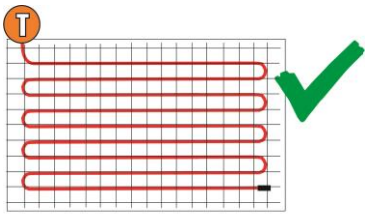
Ensure the heater(s) you have purchased is/are correct size for the area. Installing a heater too small may not produce enough heat to warm the area sufficiently, whereas too big a heater simply won't fit!

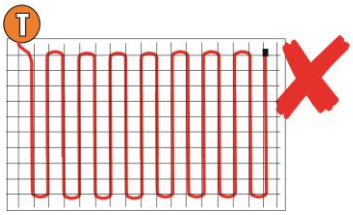
It is important to plan the position and layout shape of the heater(s) *before starting the installation*. The last thing you want to do is to have to pull up your installed heater(s) and restart because you ran out of room or otherwise placed the heater(s) incorrectly.

Step 1: Mark Out Permanent Fixtures

Using the tape measure and spray paint:

- Reference a floor plan for accurate dimensions and mark out permanent fixtures (e.g. shower, toilet, kitchen bench, closet, etc.)
- Mark a 20cm distance from walls as a perimeter of your heating area

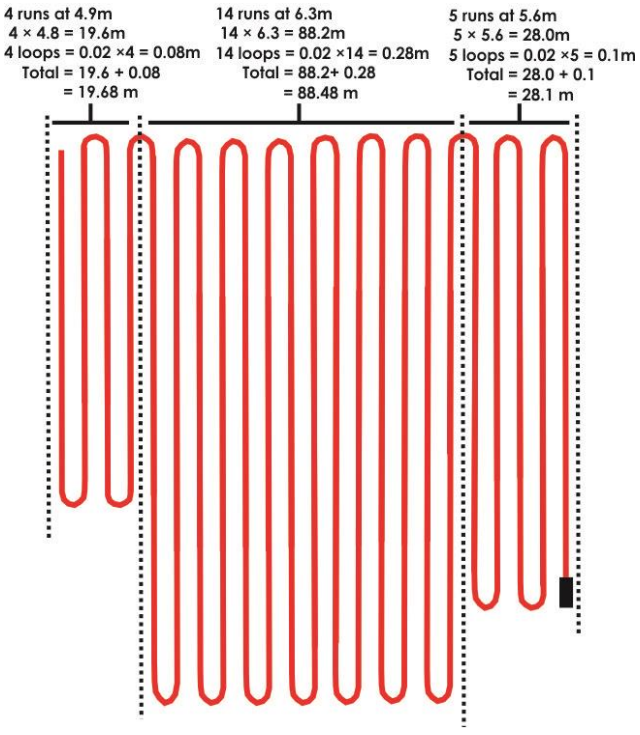




Step 2: Plan Heater Layout

- When considering layout, keep in mind:
  - It is always easier and more economical to run the heating cable parallel to the longest wall of the room
  - The heater will start on the floor below the thermostat position about 20cm away from the wall (for multiple heaters on one thermostat see page 9)
- Be sure to check the layout plan with the total heater length.
  - If you have more than one heater, the total length of runs should add up to the total of the heater lengths
  - Total length of heater cables can be found on each product box
  - It is better to have left over heater cable rather than not enough
  - If a small length of heater cable is left over at the end, it can be secured around the perimeter of the already secured heating cable (in the 20cm space between the wall and heater)
- The heating cable has a fixed length and a self-terminating end-cap

It is ESSENTIAL to calculate the total of the heater runs to ensure that the cable(s) is suitable to the area
The heating cable must NEVER be cut
The heating cable must NEVER be crossed over



Step 3: Check Layout Plan with Heater Length(s)

- Use the tape measure and spray paint to mark the lengths of each run
- Note the length of each run for later calculations
- Note the number of loops
- Add all the lengths up and add an additional 20cm per loop
  - Based on this example the total is 19.68 + 88.48 + 28.1 = 136.26m
  - If your heater is a SLK4125 (137.5m long) then you will have 1.24m left over
  - Secure this excess heating cable to the perimeter of the already secured heating cable (in the 20cm space between the wall and heater)

Pre-Heater Installation

Step 1: Place Cold Tail

- Connect (e.g. using tape) the cold tail to the draw wire and pull it up through the pre-installed conduit
- Using the cable ties secure the connector joint(s) onto the reinforcement grid below the thermostat position
- If there are no walls yet, tie a piece of reo rod vertically where the wall will be so the conduits can be cable tied to this in order to keep the wiring off the concrete when the slab is being poured

Step 2: Connect Monitor

- The purpose of the monitor is to confirm that the heater is working and not been compromised.
- The monitor should remain connected until the floor has been installed and your electrician connects the thermostat.
- Test the monitor before connecting to heater: Switching the monitor on with no heater connection should sound the alarm and turn on the red light. If these things don't occur, check that the battery is connected properly or replace the battery.
- Ensure the heaters to be monitored are not connected to a power source
- Connect the various wires to the alligator clips and pull the rubber boots over the metal clips:
  - Green alligator clip – green wire
  - Red alligator clip – brown wire
  - Black alligator clip – blue wire
  - Recommendation: Each clip can be taped up with insulation tape to prevent the clips from touching and setting off the alarm
- Once connected, there should be a white light which indicates that the monitor is checking the heater for damage.
- Hang/place the monitor where it can be seen and heard during the installation and is out of the way when floors are laid
- Should the white light go out, batteries will need to be replaced
- The alarm sounding and a red light indicates that, either:
  - A lead wire has come loose from the terminals;
  - The red or black alligator clip is touching the green alligator clip; or
  - Damage has occurred to the heater.
- It is important to stop work and identify the cause of the alarm sounding immediately.
- In the event of damage to the heater, call Coldbuster on 1800 85 75 65 for assistance.

Heater Installation

Step 1: Note First Meterage Figure for Later Progress Checks

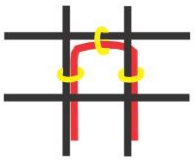
- During the installation process it is a good idea to check how much heater cable you have left and how much space you still have left to fill
  - At every meter of the heating cable there is a length marker. Look for this figure at the beginning of the heater (if multiple heaters, do this for each one) and use this to accurately check your progress
  - For example, if the first meterage reading is 0365m and you have installed up to the reading 0485m then you know you have installed 120m of heating cable. If the heater cable being installed is 200m long, then there is 80m of heater cable left to install.
  - By looking at the heater layout plan that you calculated, you can double check that you have enough cable length left to cover the intended heating area

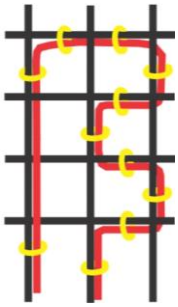
Step 2: Decide Laying Strategy

- The heating cable will be secured to the reinforcement grid using cable ties in one of two ways:
  - Securing the cable on top of the reinforcement grid → this is easier to do, less time consuming however not as protective of the heating cable once installed
  - Securing the cable to the underside of the reinforcement grid → more effortful, takes longer but more protective of the heating cable. Coldbuster recommends using this strategy if there could be a delay in slab pouring or if you intend to place any heavy objects on the heating

Step 3: Laying the Heater(s)

Throughout the install avoid placing the heating cable near sharp edges of the reinforcement grid or any tie wires used to join sections of the reinforcement grid





1.a. If securing the cable on top of the reinforcement grid, walk the cable down to the end of your first run

1.b. If securing the cable to the underside of the reinforcement grid, feed the heating cable under the reo until the end of the first run

2. From the end of the run pull tight to take any slack out of the cable
3. Secure the cable using cable ties
4. Loop the cable around to place it in the direction of the next run
5. Secure the looped cable using cable ties (one on each side of the loop)
6. Use the cable ties to secure the heater runs approximately every meter
7. Repeat this process until all of the heating cable is secured and remember to check progress as installation continues

Step 4: Using Up Excess Cable

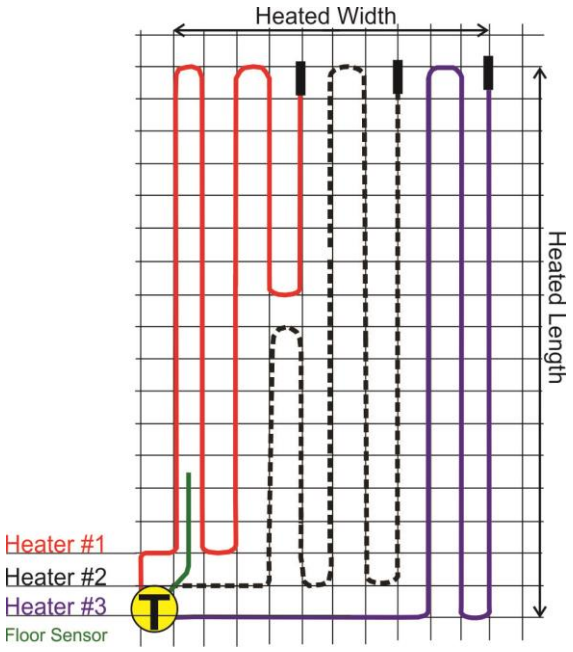
- Using the meterage that was recorded at the start of the heating cable, check progress throughout installation
- If the distance to be filled is too small for the length of heating cable left, switch to continuous 'S' shape placement
  - It is best to cable tie each loop on every side
- Excess cable can also be secured to the perimeter of the already secured heating cable, in the 20cm space between the wall and the heater

Step 5: Placing Floor Sensor

- It is easiest to do this with corrugated flexi conduit, but other conduits will suffice
- Secure (using cable ties) the conduit at the cold tail conduit with the bottom underneath the reo. Ensure the end of the conduit is evenly placed between 2 runs of the heating cable
- Feed the floor sensor through the conduit
- Seal the end of the conduit with tape → this stops the floor sensor being stuck in the slab in case of future needs to remove or replace it

Multiple Heater Installation

- If you are installing multiple heaters into one single heat zone (and thus using one thermostat), each heater will need to start at the thermostat location
- The heaters can be laid in any order however, it is important to bear in mind the other heaters to be laid
- See diagram as example
    - The 3 heaters are taking up a similar amount of space so at the planning stage the heated area was split into thirds
    - Runs of heater #1 start closest to the thermostat point but space had to be left for heaters #2 and #3 to start at the thermostat point as well



MULTIPLE heaters must be connected in PARALLEL

Do not allow different elements or factory connections (from cold tail to heating element) to touch or cross each other

Laying Floor Covering over Coldbuster Floor Heating:

- It is recommended that a piece of corflute, fiber cement sheet or carpet is used to temporarily cover the heaters to avoid accidental damage to the heaters while laying floor covering in other areas
- Advise the concreters to be careful when pouring over the installed floor heating cable
- If the monitor sounds an alarm:
    - Stop work immediately and check monitor connections (see page 6)
    - If connections are secure but alarm still sounding, then check the heater element and insulation resistance
    - Test yourself if you have a multimeter, otherwise contact Coldbuster or your electrician.
- Do not allow any heavy or sharp objects to fall, stand upon, run over or be dragged across exposed heating elements

IMPORTANT: The monitor will detect damage to the element needing to be repaired immediately (if there are cuts to the element). Bruising damage will only manifest at 240V. An insulation (Megger) test by an electrician is recommended.

Thermostat Fit off & Connection to Mains Power

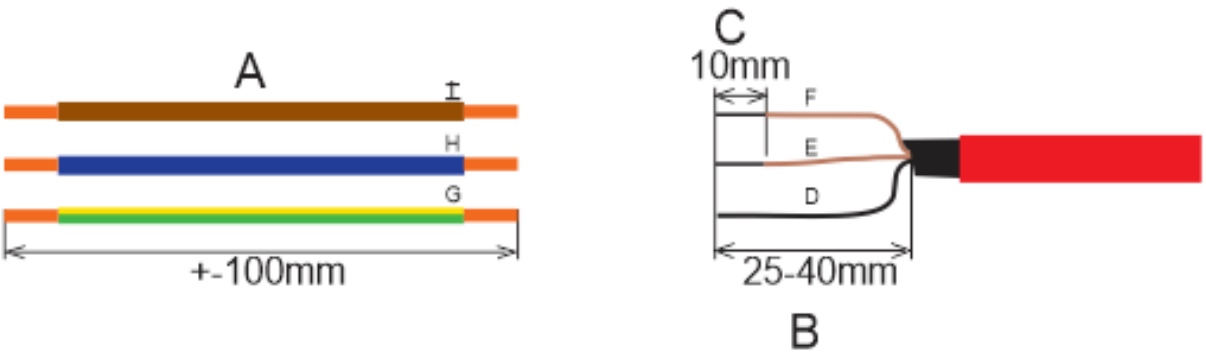
- IMPORTANT: THESE STEPS MUST BE DONE BY A LICENSED ELECTRICIAN
    - Check thermostat instructions for wiring details
    - All heaters must be connected to RCD protected supply circuit
- Disconnect monitor from heater before connecting heater and floor sensor to thermostat and thermostat to mains
- *Multiple* heaters must be connected in *parallel*
- Use of the floor sensor is optional but recommended
- The floor sensor is essential when the thermostat is mounted inside a cupboard/vanity or outside the area being heated (air sensor won't pick up correct temperature)
- Remember:
    - These are double insulated devices – there is no earth connection to the thermostat
    - The earth of the heater connects directly to the earth of the supply in a screw connector

Damage and Repair

If the monitor sounds an alarm and the LED lights up red during installation, stop work immediately and remove the screed where the damage has occurred

If the damage is not clearly visible, use an insulation tester set at 1000V connected to the element and the earth screen. This should create a spark where the damage has occurred

The repair can be done in the following manner:



1. Strip back (A) the outer insulation of the cold tail & cut off about 100mm of (non-resistive wire) brown(I), blue(H) & earth(G) wire. On each of these lengths, strip off the insulation to expose about 10mm of copper at each end
2. Using a blade, strip about 25-40mm (B) of the outer RED/ORANGE Nylon coating off the heating cable.
3. Separate the earth screen from the insulated inner core (E&F) and twist the strands of the earth screen (D) together
4. The inner core that protects the 2 elements is BLACK. Very carefully strip about 20-35mm of this insulation away. Be careful not to cut into the insulation protecting the 2 elements. You should then have the 2 elements exposed
5. Strip about 10mm of the Polymer coating of the 2 elements (E&F) by heating it with a flame until it melts, then pull it off
6. One at a time (2 elements & earth wire), slip a crimp tube over the end. Then insert respectively the non-resistive wire into the crimp tube. i.e. I&F, E&H and D&G. The green/yellow earth wire (G) is the only wire that must be connected to the outer earth screen braided wires (D) that were twisted together earlier. The 10mm ends of the non-resistive wire & the element end should now be side by side with the crimp tube over it. The crimp tube can now be crimped together with the correct crimping tool. If crimps are not available, the connection can be soldered
7. Before doing the other ends, slip a 2 x 25mm heat shrink tube over the crimp of each wire (H&I) of the heating element and shrink with heat. The earth wire (G) does not need a heat shrink tube over it
8. Recess the repair joins and cover with hot melt glue or non-conductive silicone
9. Do a continuity test across active and neutral and an insulation test between active/neutral and earth. Continuity readings can be obtained from Coldbuster office

Electrical connections and repairs must be undertaken by a licensed electrician
Coldbuster sells repair kits

Safety & Operating Instructions

This is an electrical heating system and must be used strictly in accordance with the manufacturer's instructions:

- DO NOT drill holes or drive sharp objects (i.e. nails or screws) into your floor without knowing with absolute certainty that you will not touch the heating elements
- Heaters **must** be connected through an RCD (safety switch) circuit breaker
- In case of damage or the unlikely event of heater failure, the RCD switch will trip and cut off power to the heating
    - In this case, turn off the thermostat and contact Coldbuster
    - Do not attempt to repair the heater
- Inform new owners or tenants about the position of the heaters and pass these safety and operating instructions on

Economy Tips

The ideal temperature of the floor depends on the heat required to maintain the desired room temperature. If it is very cold outside, the floor will have to be warmer to maintain the same room temperature than when it is moderately cold outside.

Ideal temperature also depends on size of area, ventilation, insulation, ceiling height, etc. Another important factor is whether you are intending to use the floor heating to heat just the floor or to be the primary heat source for the room area.

The lower the temperature you set on the thermostat, the less electricity the heating uses. We advise you to experiment to find the most comfortable setting. Start at a low temperature first, so if you find this desirable you know you're not using more electricity to maintain higher temperatures than needed.

A cold area will not heat up any faster by setting the thermostat to its maximum setting. Simply set the thermostat to your desired temperature and the heater will draw maximum power until the selected temperature is reached.

Reducing heat losses will make your heating system run more efficiently and economically.

Heat is lost through sub floor, windows, doors, ceiling and walls. Ways you can reduce heat loss:

- Install insulation in the floor, ceiling and walls
- Keep doors, windows and curtains closed

Other common sources of heat loss include:

- Open chimneys/fireplaces
- Stairwells
- A/C ceiling grilles

Warranty

Every heater is thoroughly tested before shipping and is guaranteed to be in good working order on dispatch. Coldbuster guarantees its products subject to the following conditions:

1. The product is free of defects at the time it was supplied. The product will be deemed to be defect-free if no defect has been detected and reported to Coldbuster:
    a) within 25 years (300 months) from date of purchase (for heaters); or
    b) 3 years (36 months) from date of purchase (for thermostats).

2. The following are conditions of this guarantee:
    a) a competent person installed the product;
    b) the installation was carried out according to the directions as supplied by Coldbuster;
    c) the installation was carried out in accordance with all applicable electrical regulations; and
    d) the heater has been connected to RCD protected supply circuit.

3. Damage during installation by others is not covered by warranty.

4. Damage or repair to a product by any party voids this guarantee. Repairs done by Coldbuster to rectify any damage cannot be guaranteed and the client will be charged regardless of the result.

5. Claims under this guarantee must be lodged with Coldbuster in writing within the period prescribed. Full particulars must be given and a copy of the invoice as proof of purchase must be enclosed.

6. In settlement of its obligations under the guarantee set out above, Coldbuster shall, at its option, either:
    a) repair or replace the defective part without charge; or
    b) pay the purchaser a sum equal to the price paid for the defective part at the time of purchase.

7. Coldbuster's liability to the purchaser is limited to amounts referred to herein. The purchaser agrees that Coldbuster shall not be liable for any other or additional damages suffered by the purchaser caused by any defects in the product, the installation itself or any constituent part of it. Coldbuster shall not be liable to compensate the purchaser for any floor coverings or any other item damaged or destroyed as a result of any such defects.

8. This guarantee is subject to the purchaser adhering to all safety and operating instructions.

9. This warranty is non-transferable.

Heater position/layout sketch
KEEP FOR FUTURE REFERENCE
Record heating layout and test readings on this page to comply with the 25-year warranty.

Sketch out the position of your heater(s), walls and other fixed fittings. Keep this manual and diagram for your reference and pass on to future occupants. Record the details below, as this can be used to validate the heater and thermostat warranties.

Date of Purchase_____ Heater Model Number(s) _____

Invoice Number_____ Installed By_____

Date Installed:	Element Resistance Test			"Megger" Insulation test @ 500V	Sensor Resistance Test
/ /	A - N	A - E	N - E		
Date Connected:	Ohm	Ohm	Ohm	M Ohm	K Ohm
/ /	Ω	Ω	Ω	MΩ	KΩ

10/14 Rodborough Road
Frenchs Forest NSW 2086
1800 85 75 65
info@coldbuster.com.au
www.coldbuster.com.au