



Under Tile & Timber 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.

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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
- Protect the heater with cardboard or hardboard if the floor covering installation is delayed
- Test heaters before installing the floor covering (ensure monitor is connected, turned on, and no siren sounding)
- Ensure adhesives and grouts are suitable for use with floor heating
- 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
- Install heating in shower recesses without builder's prior approval
- Commence installing the final floor cover before testing heaters
- Only run the heating after the adhesive & grout has cured for a week

Product Information

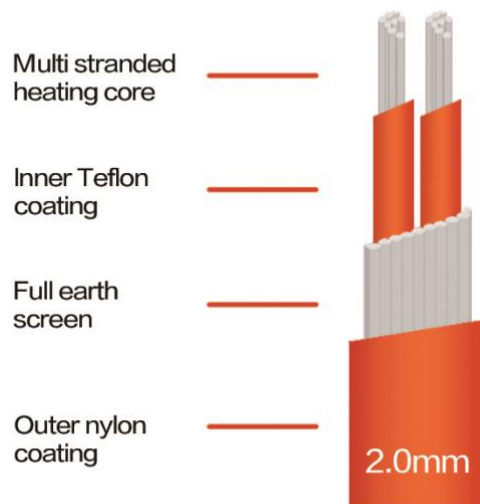
Coldbuster Under Tile & Timber Floor Heaters Consist of 2 Components:

- Heating element mounted on self-adhesive fibreglass mesh
- 3.0m cold tail.

Coldbuster Under Tile & Timber Heater Kits Contain:

- Heater, consisting of:
 - Heating element mounted on self-adhesive fibreglass mesh
 - 3.0m cold tail
- Installation Alarm Monitor
- Installation Manual

The Heating Element is Made Up of 4 Parts:



Tools Required for Heater Installation

- Tape Measure
- Pencil or Crayon
- Cloth/Duct Tape or Glue Gun
- Chisel and Hammer or Angle Grinder
- Bonding Liquid
- To be used where heaters need to be covered for protection:
 - Tile Adhesive
 - Large Bucket and Mixing Paddle
 - Steel Float (with rounded corners) to apply adhesive
- For under engineered/natural timber, vinyl or laminate heating installation:
 - Coldbuster recommends a 10-15mm sand cement screed or liquid leveller to be laid over the heating
 - ✓ For timber flooring, most timber manufacturers require a medium between the element & the timber flooring
 - ✓ For Vinyl, this ensures a nice smooth finish

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.

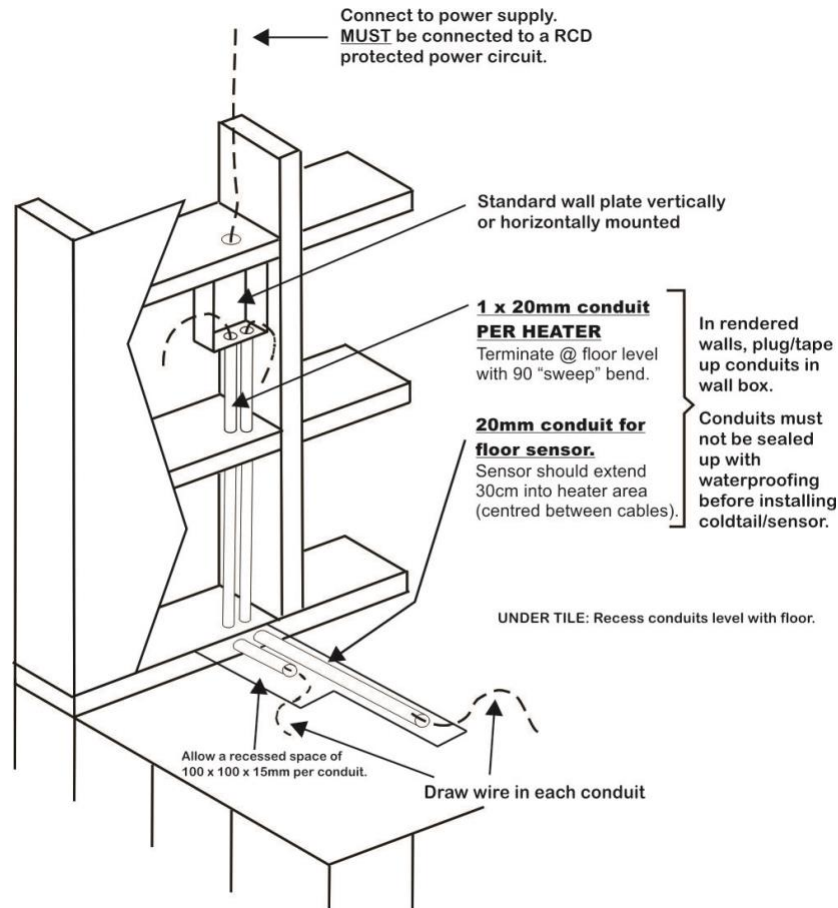
However, all electrical connections, including setting up the conduits (more detail below) and the connection of the thermostat must be undertaken by a licensed electrician in accordance with current electrical codes of practice, AS/NZS3000: 2007 and state codes.

Residual Current Device (RCD)

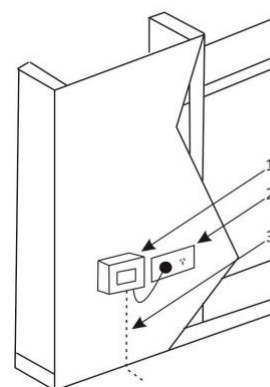
1. The heater element must be connected to a circuit with RCD protection.
2. Consult with your electrician to ensure any existing cabling and RCD already installed are working and capable of handling the additional load.

Hardwire Connection

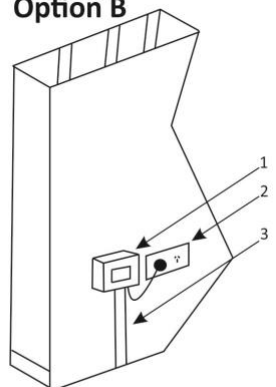
- Power supply must be RCD protected
- Standard flush box or C-bracket mounted horizontally or vertically, height between 1000mm - 1500mm above the floor
- 20mm conduit for the heater leads
 - Number of leads per conduit depends on size of conduit
 - Maximum 2 heaters per conduit
- 20mm conduit for floor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



Option A



Option B



Plug-In Connections

- Thermostat mounted between 300 - 600mm from the floor
- Power point must be RCD protected
- **Option A:** For cavity walls, fit heater lead and floor temperature sensor inside the cavity
- **Option B:** For brick walls, fit heater lead and floor temperature sensor inside PVC trunking and notch out the thermostat baseplate for cable access

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
- After the heating is laid, the floor sensor should be secured at an even distance between 2 of the heater runs

Floor Preparation

This guide intends to serve only as an outline for the most common floor preparation required. Please contact us for any additional advice.

Concrete Subfloor Preparation

- The concrete must be completely cured (this can take up to 8 weeks)
- The floor surface must be smooth, unpainted and free of dust, oil, grease, tar and glue residues
- Clean and sweep or vacuum floor surface

Timber Subfloor Preparation

- The floor should be rigid and free from movement
- Install a fibre cement underlay or insulation board over the timber structural floor before tiling
- The floor surface must be smooth, unpainted and free of dust, oil, grease, tar and glue residues
- Clean and sweep or vacuum floor surface
- After the heating is placed, Coldbuster recommends laying a 10-15mm sand cement or liquid leveller over the heater so there is a medium between the heating element and the flooring

Prepping Subfloor Surface with a Bonding Liquid (If heater(s) don't stick due to dusty floor surface)

1. Apply a coat of bonding liquid mixed 1:4 with water using a paint roller & tray (avoid ponding),
2. Allow bonding liquid to dry completely before installing heater(s)

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.

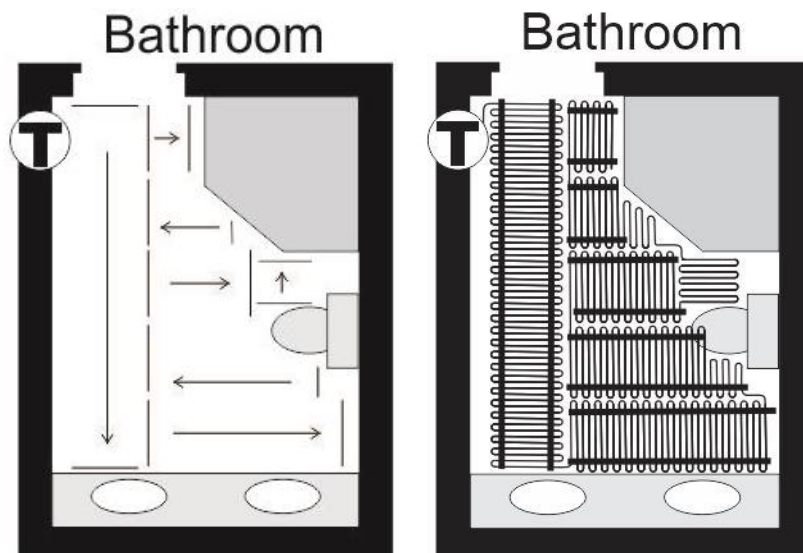
Step 1: Mark Out Permanent Fixtures

Using the tape measure and crayon or pencil:

- Reference a floor plan for accurate dimensions and mark out permanent fixtures (e.g. shower, bathroom, kitchen bench, closet, etc.)
 - If your permanent fixtures are wall hung, you have the option to heat underneath in order to ensure your feet keep warm when standing up against them
- Mark a 10-20cm distance from walls
 - Coldbuster recommends a 10cm distance from walls however the distance you use will depend on the dimensions of the room and the size and layout shape of the heater(s)

Step 2: Plan Heater Layout

- When considering layout, keep in mind:
 - The heater will start on the floor below the thermostat position
 - Distance from walls
 - It is ideal to end the heater at an area where there is extra space in case of left-over heater length (e.g. can place left-over heating under wall hung fixtures or along the perimeter of the room)
- Using the tape measure and crayon or pencil, mark out the placement of your runs (e.g. a line at the beginning and the end of the run and an arrow to indicate the direction) as seen in the Bathroom example below



Step 3: Check Layout with Heater Length

- Add up the various heater runs' lengths to confirm that they add up to the total heater length (found on the box end)
- If you have more than one heater, the total length of runs should add up to the total of the heater lengths

Pre-Heater Installation

Step 1: Create Cavity Below Thermostat

- The purpose of the cavity is to allow the connection joint (the rubbery insulation covered junction between the element and cold tail) to be recessed into the floor
- Using a chisel and hammer or angle grinder, chip away some of the sub floor with a chisel to form a 10mm deep cavity
- The width of the cavity will depend on the number of heaters to be connected to the thermostat



Step 2: Place Cold Tail

- Connect (e.g. using tape) the cold tail to the draw wire and pull it up through the pre-installed conduit or wall cavity to the thermostat position
- Secure (using either hot glue or tape) the connector joint(s) into the cavity created below the thermostat position

Step 3: 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 or place the monitor where it can be seen and heard during the installation
- 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: Begin Laying the Heater

- With the heater layout in mind, the overall process is to roll out the heater, cut the mesh to change direction (if/when required) and secure the heater to the subfloor

NEVER CUT THE HEATING ELEMENT

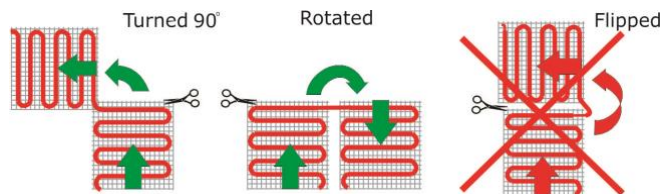
- Place the heater with the sticky side of the mesh face down, then roll the heater out in accordance with your heater layout – This is your first run
- Ensure the heater is straight and under slight tension when sticking it down

HEATING ELEMENTS MUST NEVER TOUCH OR CROSS

- Press the mesh down so that the adhesive strips stick to the floor, keeping the element in position
- If part of the mesh lifts, it can be stuck down with duct tape or hot melt glue

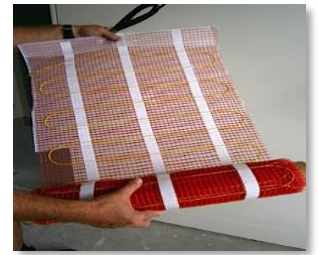
Step 2: Changing Direction of the Heater (if/when required)

- Once you've reached the end of the run you will need to change direction
- You will need to *cut the mesh* without cutting the heating element (see diagram below)
- After cutting the mesh, you are now able to take the next part of the heater to create your next run, using the same guidelines as above
- Things to keep in mind while setting up next run:
 - Ensure that you do not flip the heater as you set up for your next run
 - Ensure that the adhesive side of the mesh is still facing down after you have rotated the heater
 - Ensure that your next run is consistent with the heater layout you planned
 - Where necessary, cut the mesh (without cutting the heater element) to separate the element into a single line to get to another point (as seen in the photo)



Step 3: Finish Laying Heater

- Repeat above steps until the heated area is covered as per your heater layout
- If there is extra heater length left over, you can either:
 - Lay under wall hung fixtures
 - Cut the mesh (without cutting the heater element) to separate the element into a single line and lay along the perimeter of the room, around where the heater is already laid



Step 4: Additional Protection (optional)

- Coldbuster recommends the application of a thin layer of flexible tile adhesive over the laid heating in order to give the element protection from accidental damage caused by removal of the floor covering in the future
- Spread the tile adhesive evenly over the heater with a steel float (with rounded corners)
- Ensure the element stays in position and the adhesive penetrates through the mesh with complete coverage
- Allow the tile adhesive to set

Multiple Heater Installation

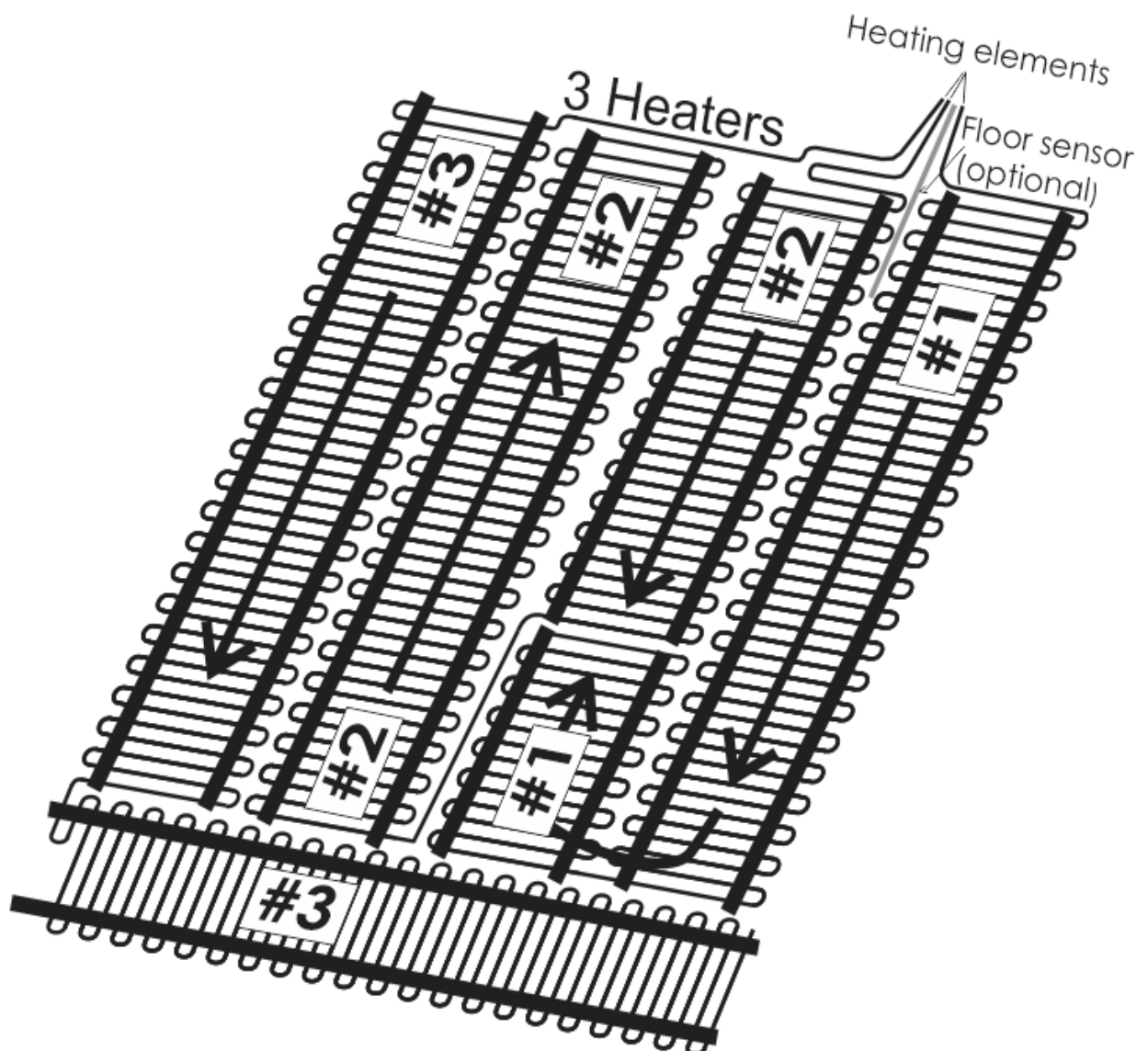
- If you are installing multiple heaters into one single heat zone (and thus using one thermostat), each heater will need to start at the thermostat location

MULTIPLE heaters must be connected in PARALLEL

- As explained earlier, you may need to cut the mesh between the elements (without cutting the heater element) to enable the heater to be laid in a single line, leading to the start of the next run

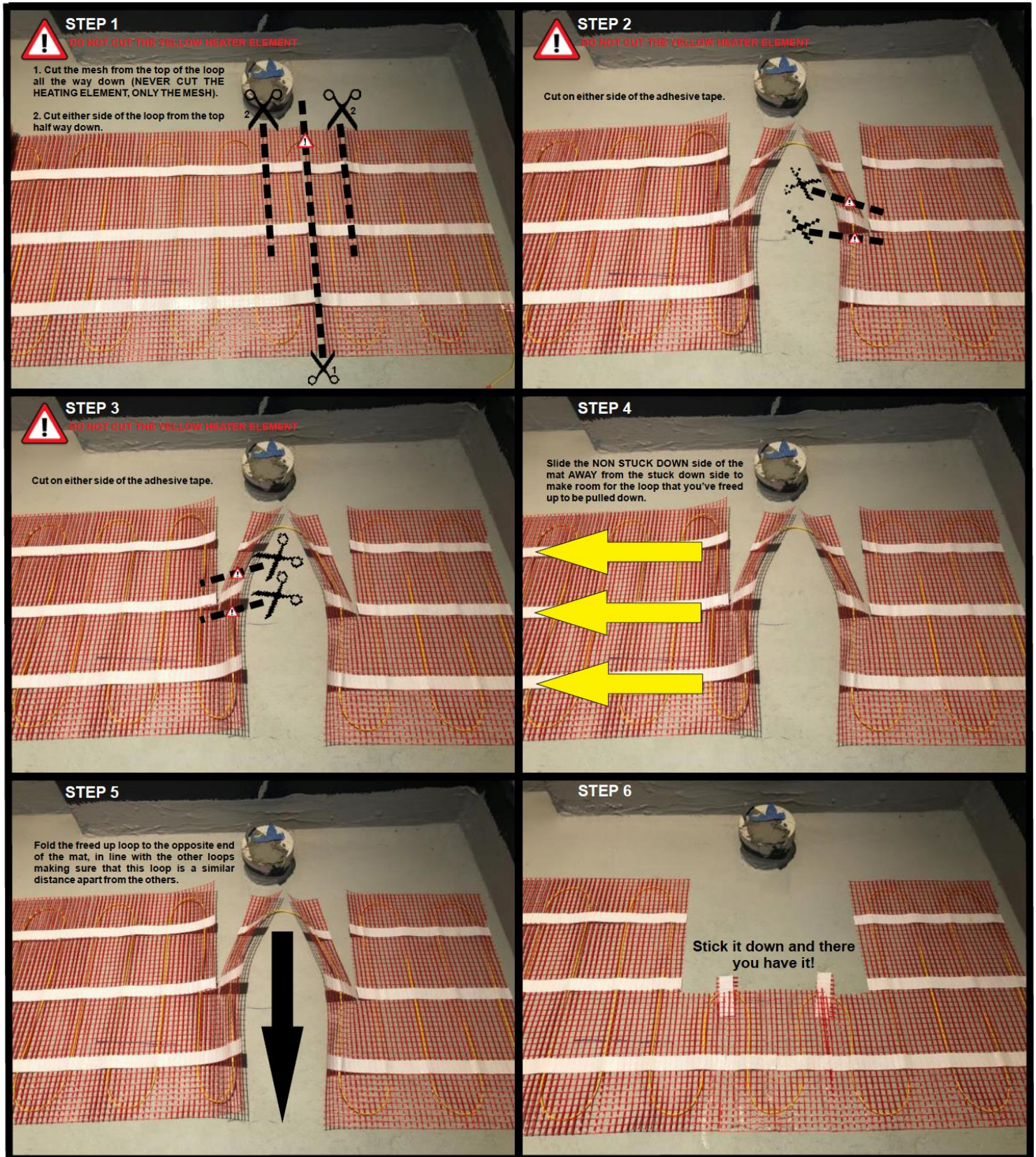
Do not allow different elements or factory connections (from cold tail to heating element) to touch or cross each other

- Remember to maintain a spacing of 60-80mm when laying the heater element freehand. Laying the element further apart than suggested may result in cooler areas



Placing Heater Around Floor Obstacles (e.g. Floor Waste)

WARNING: NEVER CUT THE HEATER ELEMENT. ONLY CUT THE MESH.



Laying Floor Covering over Coldbuster Floor Heating:

- For engineered/natural timber floor finish only:
 - Prior to laying floor covering, a liquid leveller/screed layer is required
 - Liquid leveller/screed (the main brands) used must be compatible with floor heating
 - The layer must be a minimum of 10 ml thick to ensure flooring does not become void of warranty from floor manufacturers
- Additional care should always be taken when working over floor heaters
- It is recommended that a piece of cardboard or carpet is used to temporarily cover the heaters to avoid accidental damage to the heaters while laying floor covering in other areas
- If the monitor sounds an alarm:
 - Stop work immediately and check monitor connections (see page 7)
 - 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.
- A flexible cement-based tile adhesive and grout suitable for floor heating must be used – contact a floor-tiling supplier for advice if uncertain of the adhesive type
- If tiles require lifting during tiling, to avoid point pressure of lever trowel damaging the heater element:
 - Slide a trowel under tile
 - Slide a second trowel between tile and first trowel and lever tile up
- Do not allow any heavy or sharp objects to fall, stand upon, run over or be dragged across exposed heating elements
 - Place buckets of tile glue on a piece of hardy sheet to protect the element from the weight of the bucket
 - Do not use an angle grinder to create expansion joints
- For tile finish only:
 - Grout tiles as soon as possible according to the adhesive manufacturer's guidelines
 - Do not turn heaters on until tile adhesive has cured in accordance with adhesive & grout manufacturer's guidelines (usually about 7 days)

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

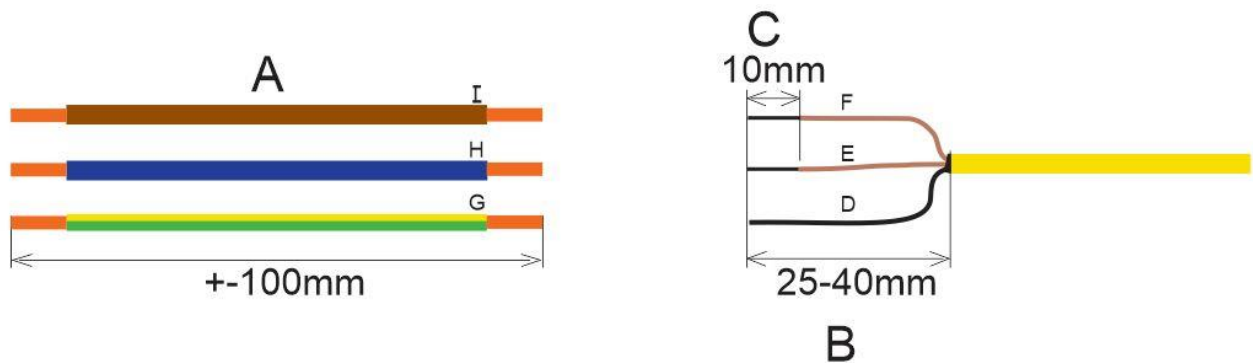
- **IMPORTANT: THESE STEPS MUST BE DONE BY A LICENSED ELECTRICIAN**
 - Check thermostat instructions for wiring details
 - All heaters must be connected to RCD protected supply circuit
- Disconnect monitor from heater before connecting heater and floor sensor to thermostat and thermostat to mains
- *Multiple* 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 flooring and adhesive 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 the outer insulation of the cold tail & cut off about 100mm of (non-resistive wire) brown, blue & earth wire (A).
2. On each of these lengths, strip off the insulation to expose about 10mm of copper at each end.
3. Using a blade, strip about 25-40mm of the outer Nylon coating off the heating element (B)
4. Separate the earth screen (D) from the insulated 2 inner cores (E&F) and twist the strands of the earth screen (D) together
5. Strip about 10mm of the Polymer coating of the 2 elements (E&F) by heating it with a lighter flame until it melts, then pull it off
6. One at a time (2 elements & earth wire), slip a crimp tube over the end
7. 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 crimp together with the correct crimping tool. If crimps are not available, the connection can be soldered
8. 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
9. Recess the repair joins and cover with hot melt glue or non-conductive silicon



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
- Replacing damaged tiles may, if not done properly, cause damage to the heaters
- 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 them about the position of the heaters and pass these safety and operating instructions on to new owners or tenants

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 20 years (240 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.

Record heating layout and test readings on this page to comply with the 20-year warranty.

[illegible]

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



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