

Step 1:

Ensure the sub floor has been solidly fixed down and free of dust and debris.

Timber floorboards must be covered with a suitable thickness marine ply or suitable tile backer boards (PLEASE CONTACT FOR ADVICE IF YOU ARE UNSURE).

Do not use XPS boards on a timber sub floor. Bitumen coated floors must be covered by a tile backer board or 3 to 5 mm of a self-smoothing compound that is suitable to cover bitumen.

Never install a cable or mat onto a bitumen covered surface.

Step 2:

Prime the floor with the acrylic based primer (this primer is not suitable for Anhydrite screeds). Leave to dry, typically 1 to 2 hours dependent of air temperature. Avoid excess foot traffic on primed surface.

Always check that the self-smoothing compound and tile adhesive are compatible with the primer (most are) but if in doubt check with the manufacturer of the self-smoothing compound and adhesive.

Step 3:

If using tile backer boards or XPS insulation boards, please follow the manufacturer's instructions. Fix the boards in a brick bond fashion. Either fix the boards with a cement-based tile adhesive or screws and washers. Fix the screws at a maximum 300mm centres dependent on the sub floor.

IMPORTANT

Do NOT use XPS insulations boards on to a timber sub floor, use tile backer boards to give a stable sub floor.

Step 4:

Test the heating system.

The NovaTherm Electric Cable is tested prior to shipping but must also be tested as follows:

- 1) After unpacking and prior to installation (record the readings).
- 2) At this point installing electrician must carry out a 500 Volt DC insulation resistance test (record the readings).
- 3) Once you have installed it on the sub floor (record the readings).
- 4) If a smooth levelling compound has been used test again prior to the final floor covering (record the readings).

Step 5:

Calculate the cable spacing.

IMPORTANT This is a very important step and **MUST** be done correctly to ensure all the cable is used up. Please refer back to NovaTherm's 'Electric Cable Spacing Guide' for support.

Before you start measure the area to be heated in sqm (do not include the area taken up by fixed objects such as toilets and kitchen units etc), then divide this area by the length of the cable shown on the drum. The cable is 10 watts per linear metre so a 850 watt kit contains 85 metres of heating cable. The spacing is calculated by dividing the total sqm of to be heated by the cable length in metres. Again, refer back to NovaTherm's 'Electric Cable Spacing Guide' for guidance.

Step 6:

When you have worked out the spacing leave a perimeter of 5-7cms around the edge of the room and mark out the floor at the calculated spacings. This will usually be between 5 and 10cms.

If your calculated spacing is less than 5cms, then do not continue and do not install. The cable size is too big for the area.

A spacing of 10cms will only just warm the floor and not heat the room.

A heating source in most domestic situations would be between 5 - 7cms (this always depends on the insulation thickness and type of floor construction).

Step 7:

The red heater cable **MUST NOT** be cut or cross at any point (the heater cable/s should not be spaced closer than 50mm at any point anywhere).

If necessary adjust the spacing to ensure all the cable is used and the floor has an even amount of cable covering it. Fix the tape over the cable at regular intervals to ensure that it's well taped to the floor.

Do not use excess tape over the cables, as it can create unnecessary air pockets around the heating wire.

Do not use too much tape as it can also impede the bonding capability of the levelling compound or tile adhesive.

Cold Tail and End Joint Installation

When installing the heating cable you need to be careful with how you install the end joint and cold tail joint (the join between the supply lead and the heating cable). They can potentially overheat if the following steps are not taken.

The joints on the heating cables are a much larger diameter than the heating element, you will need to cut a small channel for them to sit into the subfloor or the insulation boards.

Once they have been secured in the channel it is important that you do **NOT** cover them with tape as this will create an air pocket preventing the joint from releasing the heat, this can lead to a potential failure in the future.

The cold tail joint can be secured in place by taping the cable either side of the joint, a small piece on the heating cable and a small piece on the cold tail. This will ensure the joint is **NOT** covered with tape.

The end joint can be secured in place by taping the red heating element just before the joint to help secure it in place. This will ensure the joint is **NOT** covered with tape. Both these heating joints **MUST** now be fully encapsulated within levelling compound and/ or tile adhesive.

Step 8:

Check and record the insulation resistance value and the cable resistance value.

Step 9:

The cold tail from the cable has an earth which is a braided wire. If it is necessary to shorten the cold tail, at the thermostat, then the earth braid must be 'unpicked' with a small screwdriver or similar tool.

IT MUST NOT BE CUT ALONG ITS LENGTH as this will cause it to become unravelled. It should then be twisted back together and connected to the incoming earth on the power supply.

Step 10:

Position the sensor in the black conduit supplied from the thermostat position down in between two runs of cable (not overlapping the heating cable) and tape into position. If using insulation boards, these can be cut to allow the conduit to be placed inside. If installing directly onto plywood then a groove can be cut using a sharp chisel (beware of pipes). The joint between the heating cable and the cold tail can also be placed inside a groove in the floor as this can be bulky and difficult to tile over. The sensor wire can be shortened or lengthened. If you need to cut the sensor wire you must only cut the end with the exposed wires.

DO NOT cut the end which contains the plastic sensor. The connections to the thermostat can now be made.

Step 11:

Test the heating cable as before.

Step 12:

If possible cover the cables with a thin layer of suitable latex based levelling compound (5-6mm). This will help protect the cables when tiling. You may tile directly over the cables, however extra care must be taken not to dislodge the cables or to damage the cable in anyway.

If you are using a vinyl floor covering, then a minimum 10mm self-smoothing compound should be used to cover the cable. **CONSULT VINYL FLOOR INSTALLER BEFORE USING THE COMPOUND TO CHECK COMPATABILITY.**

If carpet is to be used as the finished floor covering then a 10mm self smoothing compound needs to be used in conjunction with a suitable low tog underlay and subfloor.

You can now lay your flooring according to your floor manufacturer's instructions. Please refer to adhesive manufacturer's guidelines for drying times before turning on your heating system, this is usually around 7 days, the floor temperature should be increased gradually by 1-2 degrees per day over a 2 week period to reduce the risk of force drying. If in any doubt please check with adhesive/latex manufacturers for advice.

Step 13:

Tile the floor using a flexible tile adhesive and grout as per industry standards and manufacturers conditions. Finally wait at least 1 week before turning on to allow time to dry. NOTE the heating may be slow to react at first, especially if installed on a new screed floor or in a new building. Start by setting the floor temperature at approx 18°C - and build up by 1°C per day until your desired temperature is reached. Please see separate instructions for connection and operation of digital thermostat.

IMPORTANT

Please ensure that the cold tail joint (the join between the heating cable and flexible supply lead) is fully encapsulated in adhesive or levelling compound underneath the floor covering.

Please ensure that the end joint (the join at the end of the cable which is black) is also fully encapsulated in tile adhesive or levelling compound underneath the floor covering.

Both the cold tail joint and end joint **MUST NOT** be covered with tape, this can cause the cable to overheat and eventually fail!

DO NOT BEND THE COLD TAIL JOINT AT ANY POINT.