Installation Requirements : Heat IQ floor system Pipework

Correctly laid and spaced pipes in a slab are crucial to effective heat output though hidden in concrete it is extremely important to ensure they are laid as prescribed.

We strongly advise anyone installing or having underfloor heating installed is to keep a photographic record of the pipes as laid before they are encased to serve as reference and handed to the end user on completion .

Note also before the insulation and mesh are laid flow and returm pipework from the heat source to the manifold may need to be run sub slab, insulated and sleaved, *Going sub slab is generaly better than taking pprimary flows up and over due to the potential for air locks*

The following should be the norm in all installations with pipes fixed on mesh

Requirements, relating to pipework fixed Direct to base insulation are shown in blue

Specific details and instructions are available separately for pipe laid within a European over-screed system

1/ If the slab has no perimeter insulation, floor pipes should be no closer than 350mm from outer edges of the foundation slab. *This will minimise perimeter heat loss.* Also applies to pipes fixed on base insulation

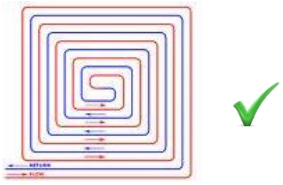
2/ (usually by the builder) before piping, Internal walls must be marked clearly and accurately e.g. dayglow paint on the polystyrene,

It is important to also identify and mark (In a different colour) any expansion joints or cuts

3/ Though in reality sometimes be unavoidable, wherever possible pipes should not pass below wall lines,. When this is the case the installer and builder should retain a drawing with crossing points clearly marked to avoid later puncturing with frame fixings etc.

4/ Pipe loops within rooms should be kept 250mm from internal wall centre lines. *This will minimise zone to zone heat creep.* Also applies to pipes fixed on base insulation.

5/ Whenever possible pipes should be laid in a counter flow configuration
This gives the most even distribution of heat rather than a serpentine which will start hot and run cooler as it crosses the floor



6/ We recommend you do not lay pipes below kitchen units, in walk in pantries, built in store cupboards or into wardrobes (other than walk in robes).

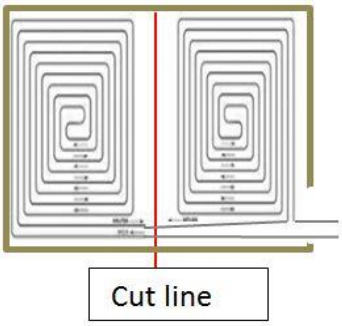
The installer must identify and keep minimum 300mm away from fridge and freezer locations.

7/ Spacing between pipes should be **as per the system loop cad heat loss calculated design** and may vary room by room (Typically 150mm or 200mm centers**.) In all instances a heat loss calculated loop cad detail with spacing specified should be followed.** *This will ensure system is optimised for efficiency.*

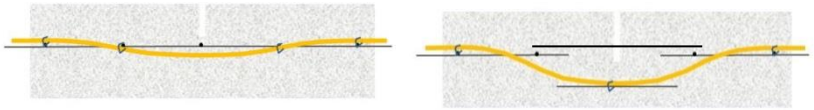
8/ Pipes should be secured at a maximum of 400mm spacing using wire tie from a proprietary tie gun. alternatively cable zip ties can be used (4mm or heavier).
Where pipes are to be laid directly onto the sub slab insulation pipes should be staple fixed at minimum 400 centres, closer around tight bends.

9/ Expansion cuts and free joints, the heating installer should ensure that pipework has minimal crossing points over expansion or cut joints line when possible as this exampe for instance.

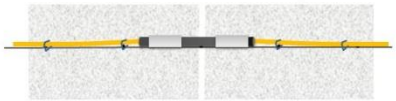
Cut Joints may not always be covered in Loop Cad Drawings



where pipes do cross expansion cuts pipes should pass beneath the mesh. cut mesh and drop pipes low to avoid the cut re place / re tie the mesh above



Where a formed full break expansion joint (not a cut Joint) exists the pipework crossing the break should be sleaved with minimum 10mm wall insulation or placed in a flexible conduit sleave with a minimum 25mm internal diameter extending 200mm either side of the free expansion joint.



10/ All Pipe in the floor should be water filled and pressurised to around 20 PSI before the concrete is poured. Keeping them under pressure with a gauge fitted throughout the build will ensure any damage during concrete placement or, later from accidental drilling is immediately evident and traceable.

Pipes not pre filled with water will try to float in wet concrete,

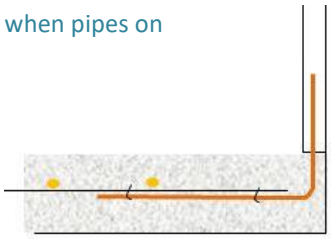
Never use Air to pressure test a floor system. Air will not allow pipes hydraulicly to expand. This is Because air can be compressed, where water can't.

<u>Compulsory in the EU and UK, we strongly recommend the use of multi zone control that includes floor sensing</u>

Floor probes are wired sensors used with underfloor controls. Installed into the floor with the pipe system they allow a controller to be used either to work of ambient temperature in the room or of static desired temperature at the floor.

11/ Floor probes should sit between the first two pipe loops below the point on a wall which the controller is to be fitted to. Take care to ensure the possition of any control is away from direct sunlight

Install an ofcut of underfloor pipe as shown with the floor end taped up to act as a duct for the probe Fix this to the underside of the mesh terminating between two pipes Keep these on the mesh when pipes on insulation



11/ Notes relating to builder requirements and associated council requierments

It is essential to have the building contractor increase the amount of chairs used to suport the mesh. This will ensure minimum rolling (High and low points) which are the result of the concrete placers walking over the mesh as they lay concrete.
We recommend the use of 30% additional chairs

There must be a minimum of 30mm of cover over in floor pipes to the finnished floor.
The builder should be made aware of this requirement before he boxes up the foundation so he can set the mesh hieght approprately

Floor slab thickness requirements should be verified with the relevent local autority, different councils may require differing thicknesses when UFH pipework is installed. We recommend a thickening of 20 to 25mm.

Perimiter insulation of the floor slab is reccomended, but not essential.

12/ **General notes**

Pipework brought up to the manifold should ideally be in a series of pairs, held in a simple locating jig, they should be clearly identified as which circuit they associate to.

Notes should be kept that identify which pair is which zone and which loop within that control zone. Your notes should also note the actual length of pipe in each loop. These notes should be kept safely and ultimately handed over to the owner upon commissioning.

System Design verified. (Only where Heat IQ has provided the floor Cad detail).

Heat IQ Loop cad system design has been produced with heat loss calculation in accordance with recognised European standards.

Product specification Heat IQ - floor Pipe for heating systems

PERT / Pex B Pipe with EVOH barrier. Manufactured to comply with NZ standards . Recommended operating pressure 1 to 2 bar with 3 bar relief - Max operating pressure 6 Bar (max test pressure 10 Bar) Max temp 95 Degrees, Max operating temperature in concrete 50 Deg. System design operating input temp typically 38°to Max 44°. Product life exceeding 50 years.