

UNDERFLOOR HEATING INSTALLATION METHOD GUIDE

This guide explains the different methods of installing underfloor heating pipe work and the scenarios that best suit each method.

Standard "Kiwi Slab"

The "Kiwi Slab" method is the most common method for the installation of underfloor heating pipe work. In this method the underfloor heating pipe work is tied to the reinforcing mesh in the construction slab and allows for a quick installation with no additional construction work.

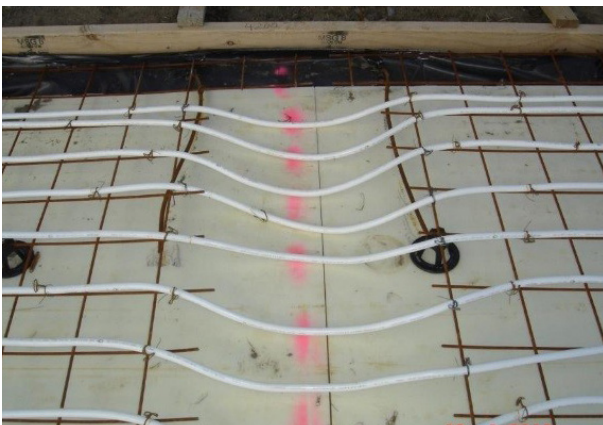
Where this installation method is the most suitable and is to be used in conjunction with saw cuts, care must be taken to avoid damage to the pipe. The saw cut plan should be provided with the floor plan CAD file and the Underfloor Layout Drawing will be configured to avoid the pipes crossing saw cuts as much as possible. Where the pipe does cross under a saw cut, a section of the mesh should be removed before the pipe is laid, the pipe can then be laid lower in the slab in this location and the mesh reinstated once the pipe is laid.

A recommended alternative to saw cutting is the use of crack inducers. This reduces the risk of damage to the pipes. Two crack inducing products available are Crackmate and CANZAC.

The easiest and quickest method to fix the pipe to the mesh is with the use of rebar tie wire and a [tie wire](#) gun available from CHNZ or other local suppliers.

Method Requirements:

- 150 or 200mm mesh over the entire width of the slab.
- Minimal saw cuts or the use of crack inducers.
- Mesh to be minimum 50mm from the top of the slab.
- Polystyrene or polyurethane insulation to the bottom of the slab.
- Pipe must have zero to minimal crossing under walls and be protected from damage as limited clearance from the surface.
- If sections of mesh are to be removed the reinstatement requirements should be discussed with the structural engineer or local council.

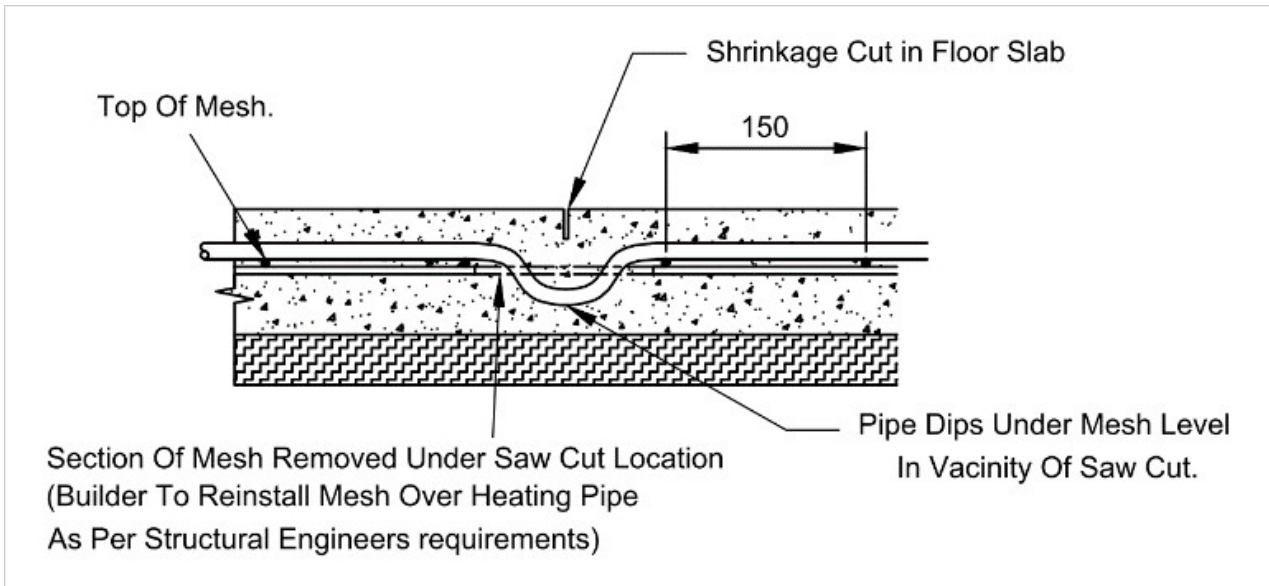


Method 1: Pipe dipped below saw cut.

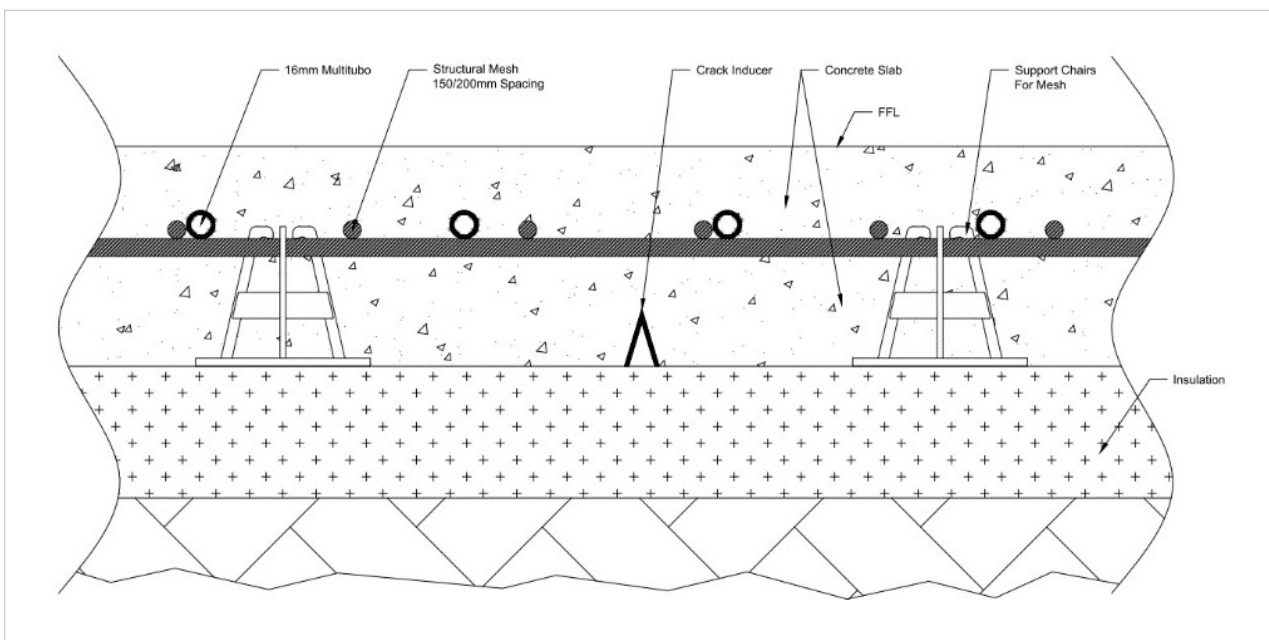


Method 2: Installation using crack inducement.

Method 1: Pipe dipped below saw cut.



Method 2: Installation using crack inducement.

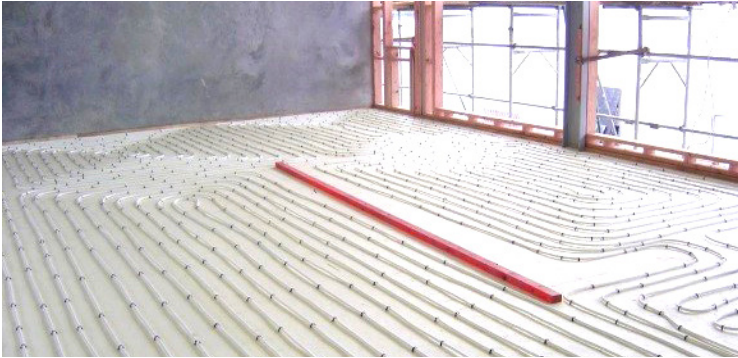


The [Multitubo PE-RT](#) pipe is the most suitable pipe system for this option however the higher specification [Multitubo Composite](#) pipe can be used also if desired.

Please Note: Raft type slabs typically require this installation method.

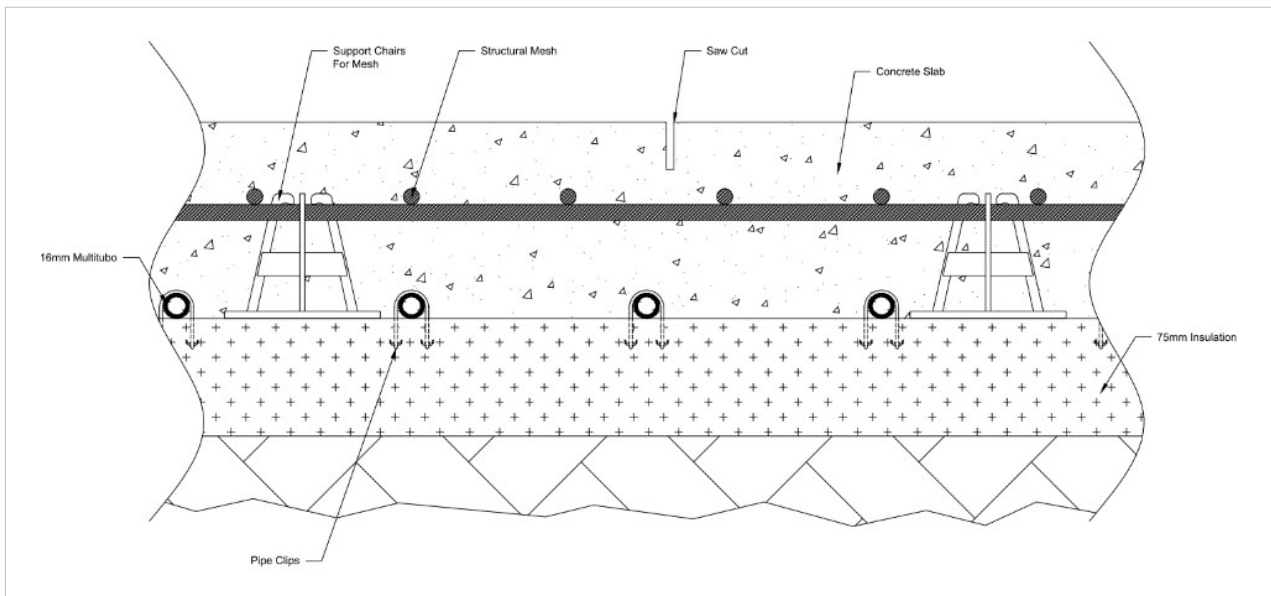
Structural Slab Pipe work Clipped To Insulation

In some situations it is not possible to tie the pipe to the mesh, for example polished concrete floors where numerous saw cuts are required. The solution for this is to clip the underfloor pipe to the insulation layer at the bottom the slab. This method provides ample clearance from the saw cuts to the pipe and is therefore at low risk of being damaged.



Method Requirements:

- Concrete cover above insulation no greater than 100mm . NB: The greater the concrete depth over the pipes the greater the temperature lag and higher temperature water is required
- High density XPS insulation is preferred as the pipe clips are less likely to pull out.
- Not suitable for raft type slabs where steel in ribs is above the level of the insulation layer.



Pipe work clipped to insulation within a structural slab

This method uses [plastic pipe clips](#) to fix the pipe to the insulation . The clips supplied by CHNZ feature two long barbs providing a good fix into the insulation. The [pipe clip tool](#) should be used to aid with the installation.

The [Multitubo Composite](#) pipe is the most suitable pipe system for this installation method, the aluminium layer allows the pipe to hold its shape when laid applying less resistance to the pipe clips.

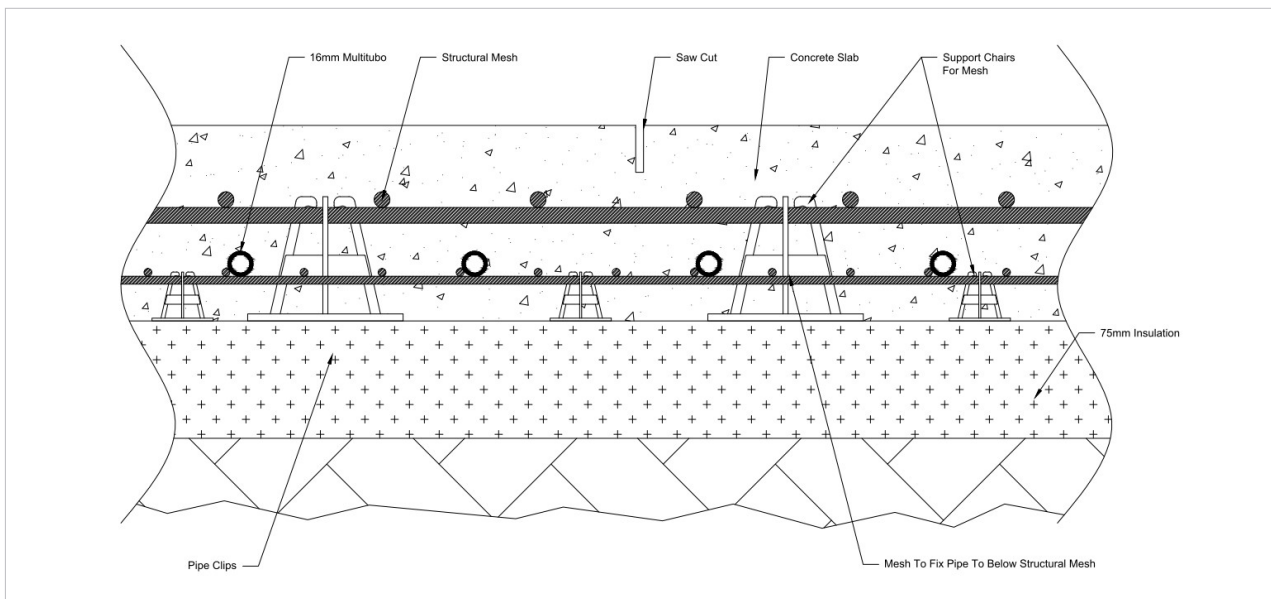
Pipe Tied To Sacrificial Mesh

Where the pipe cannot be tied to the structural mesh or clipped to the insulation layer, a small sacrificial mesh can be installed (typically by the builder) below and before the structural mesh. The sacrificial mesh and underfloor pipe would be installed prior to the structural mesh. Care must be taken by the builder when fitting the structural mesh to prevent damage to the pipe.

The easiest and quickest method to fix the pipe to the mesh is with the use of rebar [tie wire](#) and a tie wire gun available from CHNZ or other local suppliers.

Method Requirements:

- A 150mm light mesh is recommended and should be suitably supported.
- This method should be discussed with the structural engineer to confirm it is suitable.



Pipe work tied to sacrificial rebar mesh

The [Multitubo PE-RT](#) pipe is the most suitable pipe system for this option however the higher specification [Multitubo Composite](#) pipe can be used also if desired.

European Screed

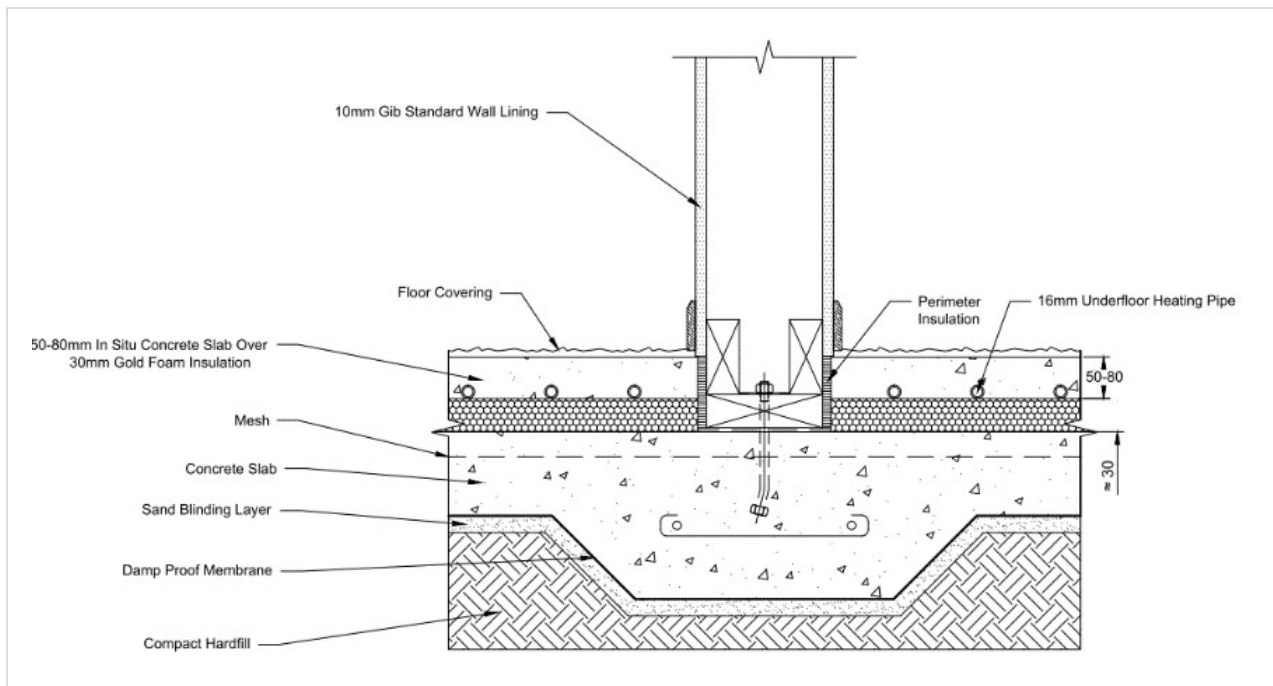
The European screed floor method is where the underfloor heating pipe work is installed in a thin screed thermally broken from the structural slab. A 30-50mm layer of high density insulation is fitted over the structural slab and a thin layer (10mm) of insulation is fitted around the perimeter of the screed. The screed is typically 50-80mm thick depending on the supplier/installer and provides a low thermal mass underfloor heating system.

The European screed method uses the [plastic pipe clips](#) to fix the pipe to the insulation, the clips supplied by CHNZ feature two long barbs providing a good fix into the insulation. The [pipe clip tool](#) should be used to aid with the installation.



Method Requirements:

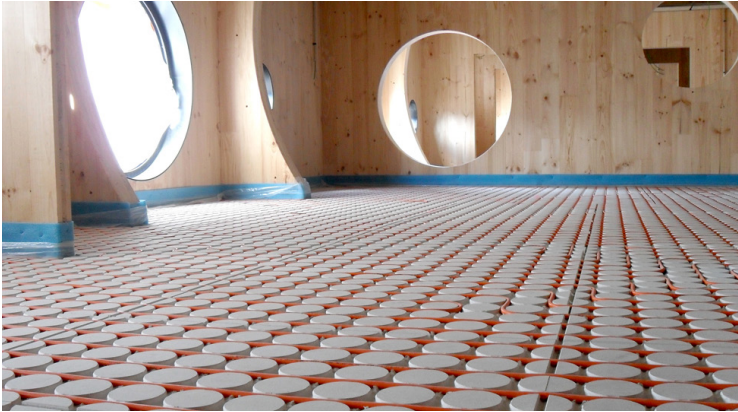
- Insulation should be high density XPS insulation type to maximise effectiveness while keeping the depth low (Goldfoam).
- Screed floor design to be coordinated with Architect, Structural engineer, and Screed supplier.
- Control joints to be trowelled or pressed in to remove the requirement for saw cuts.
- Screed design should be carefully considered based on loading requirements, building programme, and installer/supplier experience.



Typical screed floor detail

The [Multitubo Composite](#) pipe is the most suitable pipe system for this installation method, the aluminium layer allows the pipe to hold its shape when laid applying less resistance to the pipe clips.

Micro Screed (Variocomp)



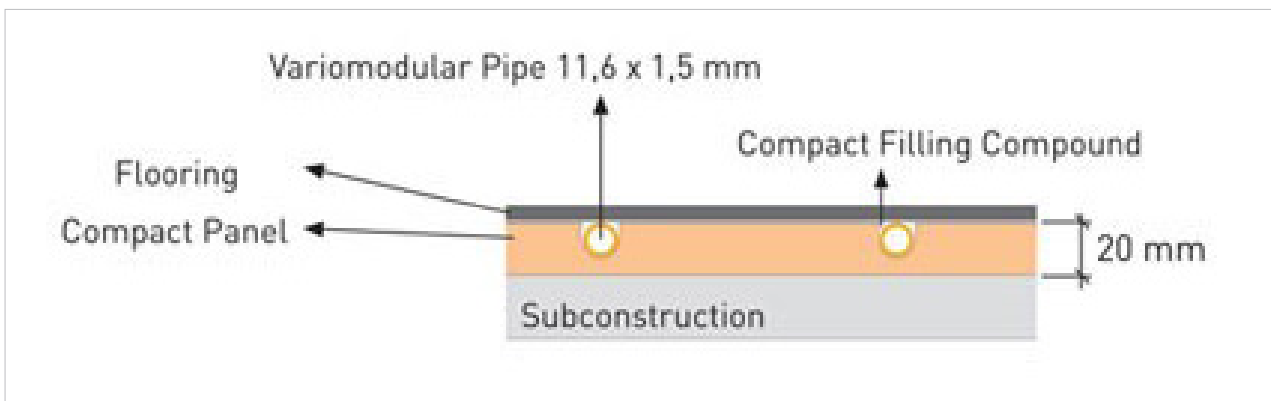
Variocomp pipes and panel ready for screed

A Micro Screed underfloor heating system comprises of a thin topping screed complete with small heating pipes onto a structural slab or joisted floor. These are installed with or without insulation below depending on the application. The Micro screed system typically has a total construction height of 20mm.

The most common system used is the [Variocomp](#) system which is a complete system including a damp proof membrane, edge insulation, pipe positioning panel, blank panels (for unheated areas), pipe, and filling compound. This product is proven worldwide and provides a quick reaction with a very low thermal mass efficient underfloor heating system.

Method Requirements:

- Suitable clean level substrate required for the system to be installed over.
- Building enclosed and wall lining and window joinery installed prior to installation of the system.
- No other trades can work in the area until the system installation is complete.
- A floor levelling compound up to 10mm thick laid by the flooring contractor will be required with soft floor finishes.
- Should be detailed in design by architect and builder will need to clearly understand the requirements of the installation.



Spreader Plates

The spreader plate system suits new build projects with joisted floors. An aluminium spreader plate is fitted between the joists allowing for pipe to be pressed into the spreader plate, the heat from the pipe is transferred into the spreader plate which transfers the heat to the floor surface heating the space above.

The spreader plate system should ideally be used in areas that do not require a high output and is most effective with boiler powered systems. An example of an ideal application for spreader plate underfloor heating is upper floor bedrooms, the output from this system is likely to be suitable for this application however any living or bathroom areas where the system is installed will likely require supplementary heating at times.

Method Requirements:

- Joists spacing at 400mm.
- Insulation fitted to ensure spreader plates are pressed against the underside of the floor covering.
- Protection for the installer to ensure they cannot fall through the joists, upper floor areas may require a false floor within the joists.

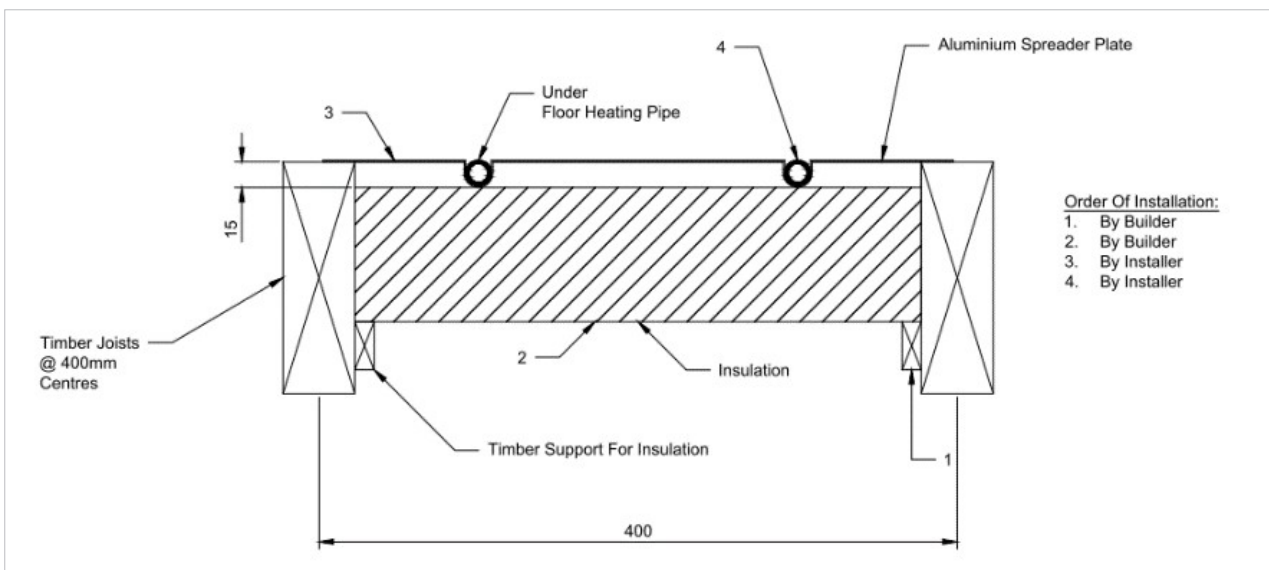


Spreader plate installation with joists at ground floor close to ground level

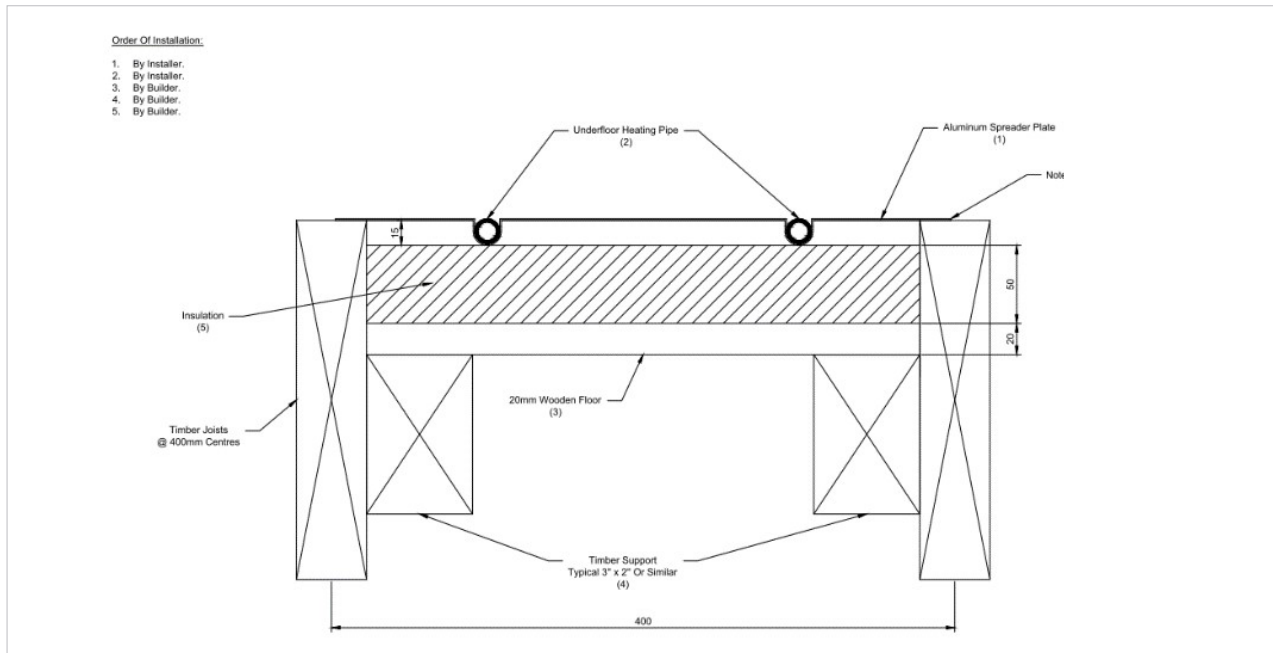


Spreader plate installation for upper floors or elevated ground floors

Spreader plate installation with joists at ground floor close to ground level



Spreader plate installation for upper floors or elevated ground floors



The [Multitubo Composite](#) pipe is the most suitable pipe system for this installation method, the aluminium layer allows the pipe to hold its shape when bent allowing it to be run around the joists in a tidy manor reducing the requirement for pipe mounts.