

# Adelaide



## Heating Solutions

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### **What is underfloor heating?**

It is a system that heats the concrete floor by using hydronic water pipes installed in a specific way within the floor to provide an even heat across the whole floor area. We only use Rehau pipe for the in slab pipework which, when installed by ourselves, comes with a 25 year warranty.

### **How does it work?**

Warm water is delivered from a heat source to a central manifold and then distributed around all the circuits evenly. As the warm water flows through the pipes it transmits the heat to the concrete floor or heating medium using conduction. This heat is then radiated into the room from the floor upwards.

### **What are the benefits?**

- Same comfort level at lower room temperatures therefore reducing running costs.
- Reduces heat wastage.
- Large heat emitter reduces water temperatures and reduces running costs.
- Can be combined with radiator panels to give flexible heating options.
- An even spread of heat across the floor.
- Silent and invisible heating system.
- No ducting, minimising the circulation of allergens and dust mites.
- Reduced problems with dampness, draughts and condensation.
- Clean and odourless.
- Suitable for use with a large range of floor coverings.
- Low operating costs.
- A warm, dry floor inhibits the growth of dust mites.
- Can be zoned to provide full control over the system.
- Low maintenance costs.

### **What is my heat source?**

You can use any of the following sources to heat your floor although each installation will be designed to your specific needs.

- Natural or LP gas boiler
- Diesel boiler
- Air sourced heat pump
- Geo-thermal heat pump
- Combustion stove

### **What type of floor covering can I use?**

Different floor coverings have different thermal restrictions which either aid or hinder underfloor heating. Included in the download section is a page from the Rehau installation manual which shows the effectiveness of each product, the less the resistance the better it is for underfloor heating.

### **How is underfloor heating installed into my house?**

Normally installation is incorporated at the design stage although it can be retro fitted and this was predominantly the case when working in the UK. Please note that to retro fit, the floor is raised by 100mm-refer to the two stage pour guide below.

## **Methods of Installation**

### **Tied to the mesh**

This is the traditional method of installation in Australia and is also the least expensive method of installing. The warm water is circulated around the pink Rehau pipe which in turn heats up the concrete slab resulting in heat being radiated into the room.

The pipework is secured direct to the steel mesh prior to the concrete being poured. The Australian standard AS 2870 – Residential Slabs and Footings Construction states that when the slab incorporates heating pipes the following applies:

- To ensure that the required slab thickness is not reduced by the pipes the slab thickness must be increased by 25mm to at least 125mm.
- The reinforcement mesh is to be increased by one level i.e. from F72 to F82

### **Advantages**

- Quick to install.
- Cheapest method of achieving underfloor heating.

### **Disadvantages**

- The pipe will transfer its heat in a 360 degree arc therefore sending the heat downwards as well as upwards where it is required.
- The additional cost of thickening the slab.
- The additional cost of increasing the steel mesh size.
- Potential damage to pipes during construction due to drilling.
- Once coiled and the slab poured the internal features like walls and doors cannot be moved without increasing the risk of damage when securing to the slab, also heated zones may cross over to other rooms.
- The efficiency of the underfloor heating for an even heat distribution is reliant on the steel mesh being laid level.



### **Two stage pour**

This is the traditional European method and involves the use of insulation on top of the structural slab which is where the Rehau pipe is laid. A concrete screed is poured over the pipes and insulation and this acts as the heat medium. The heat is transferred into the room by radiation but the insulation prevents any downward loss of heat therefore making the system more efficient to operate. This method can be used for new builds or a retro fit.

This installation method can be achieved by using either of these two methods:

#### **Second pour**

The insulation is laid on the concrete slab and the heating circuits installed. A screed is then placed over this to the finished floor level and the wall frames built on top of the screed. A typical set down for the structural slab is 100mm which allows for a 25mm thick insulation a 16mm heating pipe with screed coverage of 60mm.

#### **Once built**

The framework is in place having already been built off the structural slab. Insulation is placed throughout the house and the heating circuits installed, again a screed is placed over this to the finished floor level.

#### **Advantages of the Two Stage Pour**

- The pipe will transfer its heat in a 180 degree arc therefore only heating the floor upwards.
- Increased efficiency due to a smaller mass of concrete surrounding radiant coils
- The reduced concrete mass also reduces heat up times resulting in further cost savings
- Wall frames can be moved before coiling is commenced.
- On the second pour method the wall frames are marked out on the slab and, it is at this time, that alterations can be made before the insulation is laid and pipework installed. Clients can benefit from this as they are able to see the footprint of each room prior to the building being erected.

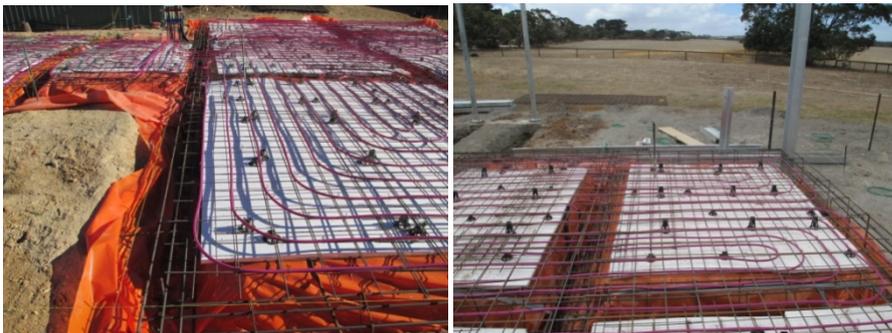
#### **Disadvantages**

- The additional cost of the insulation.
- The additional cost of the screed.



### **Slab Insulation**

This is an alternative to the two stage pour method and uses an insulation sheet laid on the ground on top of the damp proof membrane with the usual 125mm thick concrete slab poured on top. It acts in the same method as the insulation in the two stage pour except it doesn't cover the whole of the heated floor area as insulation cannot be placed over the footing beams.



### **Advantages**

- It affords better insulation properties than the tied to the mesh method and helps reduce running costs.

### **Disadvantages**

- Only gives insulation to the flat ground areas and not to the perimeter and tie beam footings.
- The expense of the insulation.

### **Peace of mind**

We have been designing and installing underfloor heating for over 25 years. We are the people who will meet you, design for you, produce an estimate and be the people on site installing. We only use the best which, in our opinion, is Rehau so you also qualify for the 25 year warranty from Rehau when we install for you.