Underfloor Heating Cost Comparisons

Advantages of cost comparisons

The purpose of this guide is to show the comparisons between the various types of available underfloor heating methods. Each system has its benefits in terms of efficiency, convenience and install costs. All cost estimates are excluding GST and do not include the manifolds, controls, feed pipes, or heat source. Some of the costs below are building related and these are estimates only. Please talk to your builder about these aspects for more accurate pricing indications. Please refer to our website **www.centralheating.co.nz** for more information on underfloor heating.

Kiwi Inslab

This is the most common warm water underfloor heating system installed in New Zealand because it is the most cost effective to install in a standard home with a concrete floor slab. Because existing homes already have a slab in place, the Kiwi Inslab method is only possible in new homes or during extensive renovations.

Although the heating system installer will install the pipes in the floor, the Kiwi Inslab method requires special considerations from the architect and builder as well. The slab must be insulated and meet the minimum building code requirement for a heated floor of R 1.9. Most slabs today (eg: Raft type slabs) are insulated, however if this was not included in the design it is likely this will need to be added to meet the building code. Some home designs, even when the slab is insulated underneath, will still not meet the building code and will need edge insulation around the outside of the slab as well. The builder will need to mark out the locations of the walls on the polystyrene.

The projects' structural engineer or floor slab system supplier may specify a thicker concrete slab where underfloor heating is required, sometimes an extra 20-30mm thick, to accommodate the pipes.

A typical Kiwi Inslab system will provide heating to the room in around eight hours and is generally left on low continuously.

Although these systems work very well, around 10-15% of the heat can leak from the slab edge and through the foundations. There are methods of insulating against this, but there is a general reluctance in the construction industry to implement them due to time and cost restrictions.

From our experience some edge insulation options can be very cost effective but this will depend on your builder. The best floor/foundation for inslab heating is using a Maxslab or Maxraft fully insulated slab. See an estimated breakdown of the costs (right) that can be discussed with your architect and/or builder.

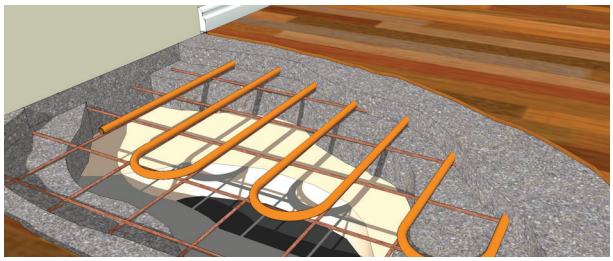
EzyMix European Style Screed Floor

The application of Central Heating New Zealand's underfloor system with an EzyMix European style screed has created an extremely efficient method of in-floor heating.

EzyMix screed floors can be installed in both new and existing concrete floor homes. Pipes are clipped to a high density insulation base which sits on top of the construction slab. Edge insulation is installed around each room. A 50mm self-levelling EzyMix solution is then laid on the polystyrene covering the pipes. The heated screed floor is then fully isolated by the insulation and almost 100% of the heat is emitted to the room.

EzyMix guarantees a clean, even surface and reduces the installation time by 60 percent when compared to sand and cement screeds. No reinforcement steel within the screed is necessary.

The EzyMix screed has removed all problematic issues of cement screeds, and offers a reduced floor thickness and lowered running costs when compared to an in slab solution. A screed floor does increase in the construction costs but having almost zero heat loss to the foundation and ground is a huge benefit. See an estimated breakdown of the costs (right) that can be discussed with your architect and/or builder.

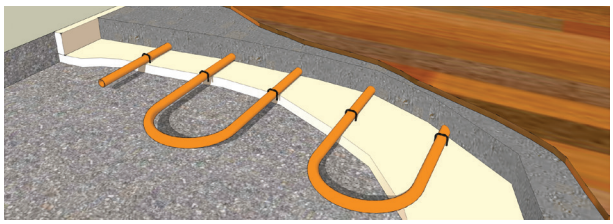


Kiwi Inslab

Kiwi Inslab	Per SQM
Mark out walls	$3.40
Pipe (150mm centres)	$12.72
Install Pipe	$14.15
	$30.27+GST

Optional	Per SQM
50mm underslab insulation (if not already included)*	$10.00
Install underslab insulation*	$6.80
Edge insulation (supply and install)	$31.63
Increased concrete thickness	$7.50

*Most new builds now included underslab insulation



EzyMix European Screed Floor

European Screed	Per SQM
30mm high density insulation	$8.00
Adhesive	$0.50
Edge Insulation (10mm foam)	$2.00
Install insulation (under and edge)	$5.00
Pipe (150mm centres)	$12.72
Install Pipe	$14.15
Supply screed	$60.00
Install Screed	$35.00
	$137.37+GST

Excludes the cost of the structural slab and any architectural and builders work required to accommodate the screed

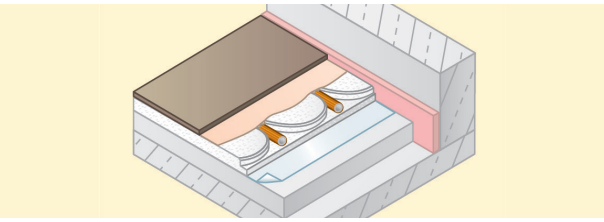
VarioComp

VarioComp is a system by Variotherm in Austria. It is a quick-reaction, light-weight underfloor system that can be used in both new and existing houses. It can be installed on a concrete or wooden floor either directly or on a thin layer of polystyrene. The pipes used in the VarioComp system are smaller in diameter than what is used in either the Kiwi Inslab or the European Screed method. These pipes are installed in a reinforced gypsum board panel, which is installed over the structural floor or insulation. After the pipe is installed in the panels a screed is used to fill the panel voids and provide a finished level for levelling compounds or floor coverings to be applied.

This system has the highest efficiency as the pipes are normally spaced at 100mm centres (typically the other methods space the pipes at 150-200mm, which requires higher water temperature for the same output). This enables the heat source powering the system to operate at a very low temperature, which is ideal for renewable energy systems. Variocomp also has the quickest reaction time with heat being delivered to the room in approximately 30 minutes (depending on heat source and floor coverings). The total height of the VarioComp is 20mm (without polystyrene) making it ideal for it to be retrofitted in existing buildings or in very thermally efficient new buildings.

If carpet or lino floor coverings are to be used a levelling compound of 5-10mm thick will need to be applied over the Variocomp system to allow the floor coverings to be installed. It is wise to allow for this in the original budget as decisions on floor coverings often change.

The Variocomp system will require architectural detailing and additional builders work for integration into the home. See an estimated break down of the costs (right) that can be discussed with your architect and/or builder.



VarioComp

VarioComp	Per SQM
Adhesive	$0.50
Plastic membrane	$1.30
Install membrane	$6.00
Edge insulation (10mm foam)	$2.60
Install edge insulation	$1.00
Variocomp panel	$64.00
Install Variocomp panel	$12.00
Pipe (100mm centres)	$23.34
Install Pipe	$18.75
Supply screed (Variocomp)	$18.40
Install screed	$42.00
	$189.89+GST

If Insulation Required	Per SQM
High Density Insulation (10-20mm)	$8.00
Install Insulation	$4.00
If Carpet or Lino Floor Covering	**Per SQM**
Levelling Compound (5mm)	$26.00
Install Levelling Compound	$16.00

Excludes the cost of the structural slab and any architectural and builders work required to accommodate the screed

Summary

While each system has its advantages, floor coverings, building insulation, glazing and window coverings play a huge part in making a system efficient, effective and with reasonable running costs.

For all of these methods of warm water underfloor heating, the comfort in a house is unrivalled when you choose a system designed and supplied by Central Heating New Zealand Ltd.