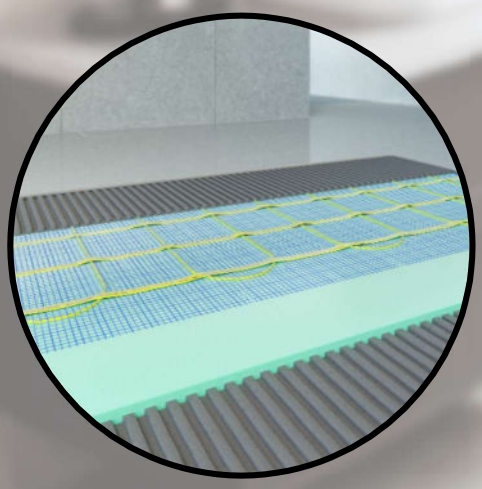
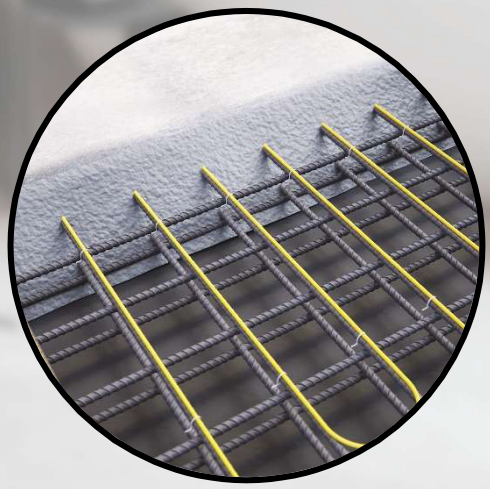
The Complete Guide to Electric Underfloor Heating





Thermogroup

That little bit extra...

Because warmth and comfort should be easy, cost-effective and beautiful

Bring simple, effortless luxury and comfort to any living space with the flexibility of Underfloor Heating.

Underfloor Heating not only removes the chill off floors, but it is a system that lasts for years so you can enjoy the efficient, on-demand heating you deserve in your home.

Contents

Benefits over Hydronic Heating Systems

Electric Underfloor Heating has significant benefits over a hydronic system.

It is easier to install than a hydronic system, and hence cheaper due to minimal labour costs.

In remodelling instances where you have an existing slab an in slab hydronic system is not an option, an above slab hydronic system tends to be even more expensive and adds additional height build-up. Electric Underfloor Heating systems are available in as thin as 3-4mm making them ideal for retro fit options as well as new builds.

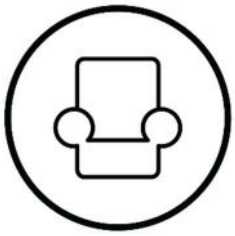
As hydronic systems are typically in slab, the heat up times are greater than that of an electric system. The in slab system will heat the slab creating a heat bank which then radiates upwards in the dwelling. To fully heat up a slab and create a heat bank, it can take up to 3 days and it will take the same for the slab to cool back down when the heating is switched off.

With the typical Australian climate being cold nights and warmer days, hydronic is not recommended, as the in slab heat bank continues to generate heat during the day when it is not required, often resulting in the need for a cooling system to be used making it extremely inefficient and costly.

Electric systems can run for shorter heating periods due to rapid heat up times. They are also maintenance free as there are no boilers or valves and have no risk of leaks, making them a reliable source of heating.

Benefits of Electric Underfloor Heating

Energy Efficient: Electric Underfloor Heating can be powered by renewable energy providing a greener approach to heating. Zoning can be used to heat certain areas, reducing energy wastage by only heating areas used in your home. As hot air rises, it is efficient to heat from the lowest point in the room and let the heat radiate up.



Comfortable Heat: An even climate is provided by Underfloor Heating, with no cold or hot spots. As hot air rises, having heat coming up from the floor makes it the most comfortable form of heating. Underfloor Heating systems are silent, providing that additional comfort.

Interior Design Freedom: Underfloor Heating allows interior design freedom. Due to the unit being invisible once installed, it is unobtrusive, providing a streamlined finish and a welcome alternative to ugly radiators that take up wall space.

Maintenance Free: Electric Underfloor Heating provides an easy heating option with a rapid heat up time, and there is nothing to pack away in the summer. It is a safe and clean method of heating with no moving parts and does not require annual servicing, providing you with peace of mind.

Allergy Friendly: There are no drafts emitted by Underfloor Heating systems; hence it is recommended for allergy and Asthma sufferers due to the reduced number of pollens in the air.

Warm Floors: With any form of heating, it is common that the room can be warm and the floor and air just above it are still cold. This is especially noticeable with tiles which are one of the most common floor coverings. Underfloor Heating ensures warm floors and warm feet.

Accurate Control: With Underfloor Heating, you can use intelligent thermostats allowing complete control over the heating time and temperatures, making the system more efficient.

Rapid Heat-Up Times: With the rapid heat-up time of Electric Underfloor Heating, you can have almost instant heat in any room. It also dries bathroom floors quickly, hence preventing damp, mould, mildew and slip hazards.

Advantages and Disadvantages of Electric Underfloor Heating

Underfloor Heating used to be considered a luxury commodity which was only affordable for the elite. What a dream to always have warm feet in the cold winter months and a heating system with very low or zero maintenance.

Today, Underfloor Heating is becoming part of everyday life as an affordable luxury that everyone can enjoy. As an efficient and effective way to heat your home, it is increasingly popular in both new builds and renovations.

If you are considering including Underfloor Heating in your home for the first time but still are sitting on the fence as to whether this is the right heating solution for your home and lifestyle, we completely understand. To help you, we will honestly review the advantages and disadvantages of Electric Underfloor Heating so that you can decide for yourself.

Advantages:

Comfort of heat
This must be the number one advantage of Underfloor Heating. For anyone that has experienced the warmth and comfort of Underfloor Heating, it's hard to beat. Consider that with traditional heating you have got heat coming from one heat source, often in the roof, and spreading out through the room.
However, with Underfloor Heating installed under your floor, it means that you have a much larger and more consistent heating area. Naturally, heat rises, therefore heating from the floor is the best way to evenly warm any room. Also, as there is not hot air being pumped into the room, it will not become hot & stuffy. Underfloor Heating gently warms the room, silently creating a comfortable and enjoyable environment.

If you have never experienced Underfloor Heating, then this might sound like something that would be nice, trust us it's going to be nicer than you imagine.

Low running costs
Underfloor Heating can cost as little as $4.20 per week to run a 3.5m^2 bathroom. It is a cheaper heating option opposed to traditional methods and provides comfort and even heat distribution with no cold spots.

Add value to your home
Another key advantage of Electric Underfloor Heating is the resale value that it adds to your home. Whilst this may not be an advantage that you initially think about, it's worth a consideration. If you are building or renovating, at some point you will have thought about the resale value of your property and Underfloor Heating is one of those items that absolutely adds to your resale value.

Efficient
Underfloor Heating runs at a lower temperature than most other heating options, ultimately using less energy. Each room in the home can have its own controller giving you greater control over your heating and also meaning you only need to heat the areas you are using. The even heat distribution throughout the room means no more fighting over who gets to stand in front of the heater!
Another advantage of Underfloor Heating is that it can be programmed to a schedule so you can set and forget. Ultimately, you can schedule the heating to come on only when it is needed, thus eliminating the amount of energy used which is better for your pocket and the environment.

It also means that the room is warm and comfortable to suit whenever you need it, for instance, if you shower every morning at 7am, you can have the heating set to come on so the room is warm the moment you step inside.

Design freedom
By installing Underfloor Heating, wall and ceiling space is freed up, meaning that the heating does not compromise or restrict any design choices or aesthetics. In addition, we have a range of heating systems that can go under any floor finish, so you can enjoy the comfort of warm feet no matter what floor finish you select.

Health benefits
An advantage of Underfloor Heating that is often not considered or is overlooked is the health benefits. Firstly, it dries the floor a lot quicker; not only does drying the floor prevent mould growth, but it also reduces the chance of any nasty trips, slips, or falls as those hazardous puddles are dried up.
Secondly, with Underfloor Heating, there is no movement of air due to the heat radiating up from the floor differing from the convection heating used in traditional heaters. Simply put, Underfloor Heating doesn't blow any air into the room to try to heat the room, this means it is not causing dust particles to move around the room, which is of particular concern for those with Asthma or allergies.

No maintenance
The last advantage of Underfloor Heating that we want to focus on, is that there is no ongoing maintenance or servicing involved with Electric Underfloor Heating. All you may need to do is adjust the temperature or your heating schedule as needed, otherwise it's simply forgotten about, only recalled when you step into the warmth and comfort of your home.

Disadvantages:

Initial cost
The initial cost can be quite significant depending on your application and budget. For instance, when you are building a new home, you might encounter budget overruns elsewhere in your project so Underfloor Heating can then feel out of reach. Whilst the cost can be considered a disadvantage of Underfloor Heating remember that you do need to include some form of heating, and you may also be surprised at how affordable the actual cost and running costs are.
The install cost will also add to heating as they don't want the extra work involved.
When considering Underfloor Heating, you have to weigh up this initial cost opposed to the ongoing lifetime benefit that you will gain.

No heat gathering point
Several types of heaters create a gathering point for warmth, think of a family sitting around a fireplace or a gas heater. Underfloor Heating doesn't create this type of heat location for people to gather around, instead your whole house is warm no matter where you are.

Faults/issues
If there is an issue with the Underfloor Heating, it can be a long and costly process to pinpoint exactly where the fault is and for it to be repaired. Although there are technicians who can locate the exact fault location and lift the flooring at that point and make the repair, it can still mean some time without any heating. Whilst faults or issues with the actual Underfloor Heating are a disadvantage, as long as the heating is installed correctly, there is very minimal chance of something going wrong. *All Thermogroup Underfloor Heating systems are covered by a lifetime warranty.*

Long heat up-times
Underfloor Heating doesn't provide the instant warmth and comfort of a traditional heater so the heat-up times can seem like a disadvantage. This may be a particular disadvantage if you have an In-Slab system due to the long heat up times. However, whilst it's not instant, the heat up times for a system directly below the substrate are quite rapid.

In summary: Is Underfloor Heating worth it?

Ultimately, yes, it is. It provides a constant, primary heat source for your whole house without compromising on any design choices while adding value to your home. We believe that the advantages clearly outweigh the disadvantages. We do hope that you can also see the advantages of Underfloor Heating and that you will include it in your project.

If you want to have a chat specifically regarding your home or requirements, please get in touch and one of our team will be happy to discuss further.

System Components

Electric Underfloor Heating systems have three typical components: The Heating System, a Thermostat and Insulation.

Heating System

There are several different Underfloor Heating systems, so it is important to select the system suitable for your application and floor covering. There are some important aspects to consider when selecting your heating system.
Refer to page 6.

Controllers

A wide range of controllers are available to allow complete control of Underfloor Heating systems. Both manual and programmable thermostats are available, allowing greater flexibility with programming the heating around daily schedules, hence helping to reduce running costs by allowing the heating to run only when necessary. Wi-Fi controllers are now emerging on the market, allowing the heating to be controlled via an iOS or Android device.

Equally as important as the controller is the floor sensor probe. This is installed in the same floor layer as the floor heating and is positioned in proximity to the heating cable to ensure it takes an accurate reading of the floor temperature.

Insulation

Insulation is not always necessary; however, it allows the heating to be more energy efficient and hence cost effective. Insulating a floor can reduce running costs by up to 40%. Heat travels equally in all directions until stopped by a barrier, so insulation can be used to stop downward heat loss by reflecting the heat upwards. This minimises the heat lost, hence reducing running times and using less energy.

Other considerations:

Adhesives and levelling compounds

To cover an electric floor heating system, you may need to consider a layer of self-levelling compound. The advantage of placing a screed over the floor heating is that it provides a clean, flat surface for the tiler to work on, however the more screed layers on top of the floor heating the longer it will take for the floor to heat up.

Different Types of Systems

There is a range of different types of Electric Underfloor Heating systems, which can be used for different floor coverings and in different room applications.

Directly Below the Substrate

The most common type of floor heating system sits directly below your substrate whether it is tiles, timber, carpet or vinyl.

Any cable system that is available on the market is required to be surrounded by a cement compound. The cement compound is critical as this is how the cable spreads the heat. If the system is not in a cement layer it will overheat and burn out. The only exception to this is a foil system which uses the foil layer to spread the heat, however these systems are not designed for a substrate to be glued onto.

Systems to be covered with cement compounds

Both mat systems and loose wire systems need to be in a cement layer which could be a thin screed, self-levelling compound or in the tile adhesive. The advantage is that once the system is covered in a 10mm cement compound, it can be covered with any floor covering.

This system is the one most advertised on the market and there are various levels of products across the market. The two most common styles are loose wire and mat systems. The mat systems consist of a cable attached to a mesh.

Other important aspects to consider:

1) When looking at the system on a quote, ensure you check if it is a mat or loose cable. Whilst loose cable is often cheaper, it takes a lot longer to install, especially in large areas.
2) Check the supplier's product specs and measure it against the features on page 14 to see how good the system actually is.
3) This type of system will give you the fastest response times in both heating up and cooling down.
4) To use as a primary heat source, 80% for the room floor area needs to be covered with a 150 watt per m^2 system.

Foil Systems

Foil systems consist of a cable enclosed inside a foil sheet which helps to spread the heat. This means that a foil system can be used directly under carpet or under a floating timber floor.

There are also components available which supplement the system to allow it to be used under vinyl or under a glued timber floor.

The following are important aspects to remember:

1) Check with your floor heating manufacturer that the floor covering is suitable for use with floor heating, especially for timber flooring.
2) Consider the floor build-up and where the floor heating will fit into it. Ensure the foil is suitable or check if you will need any other components.
3) It is not recommended to be installed below any known fixtures in a room such as large lounges, beds or shelves.

Read this article to find out the best system to use

In Screed Systems

In screed systems consist of both mats and cables and go below a screed layer of usually 30-75mm. By using an in screed heating system, you can use any floor covering on top of the screed layer. The system is also suitable for heating 2 pour polished concrete floors. In a tiling application, it also ensures that the tiler has a smooth, clean surface on which to work from.

When using an in screed system consider the flowing:

1) The thicker the screed, the longer it will take for the floor to heat up. Allow around 1 hour per 25mm of screed for the heat to penetrate.
2) If using a cable system, you will need to consider the method for fixing it to the floor. There are fixing profiles and fixing mesh available on the market.
3) Ensure the cable has a high enough wattage output to heat the screed layer of the floor. 18W/Lm is recommended for a screed layer.

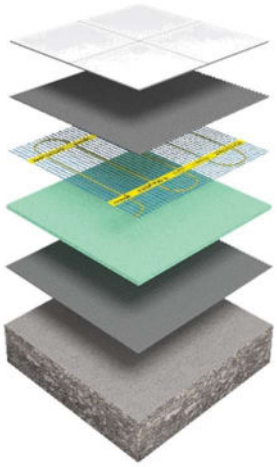
In Slab Systems

In slab systems are a heating cable which is usually attached to the concrete mesh and heats up the whole slab similar to a hydronic system. These are suitable for heating polished concrete floors. With an in slab system, you do not have the fast response times of heating directly below your floor covering.

When selecting an in slab heating system, there are three important aspects to consider:

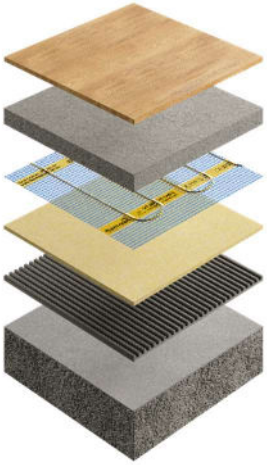
1) The thickness and durability of the cable-this cable is going in a slab with concrete poured around it. A thin cable is likely to get damaged and hence is not desirable. 7mm thickness is recommended.
2) The wattage of the cable-make sure the cable has a high enough heat output to heat the slab. 30W/Lm is recommended.
3) Ensure that you can run the system on off peak power-this will provide dramatic cost savings.

Typical Floor Heating Build-Up Examples

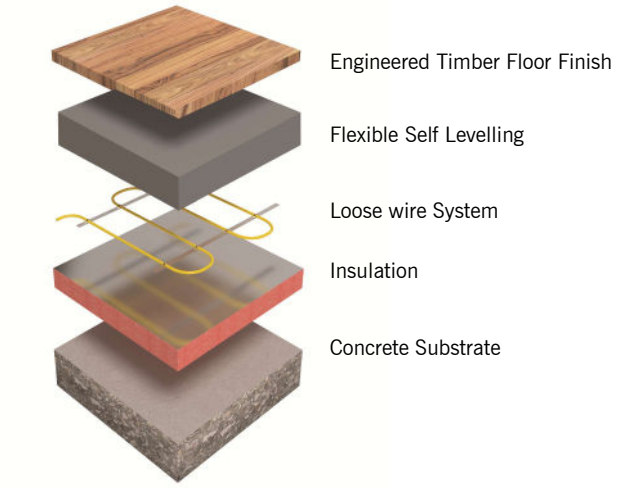


This is a typical build-up for an Underfloor Heating system showing insulation under tiles on a concrete substrate. In this instance, the system is a Thermonet Mat. *Consider where the water proofing will go in the build-up as this will influence the fixing method used.*

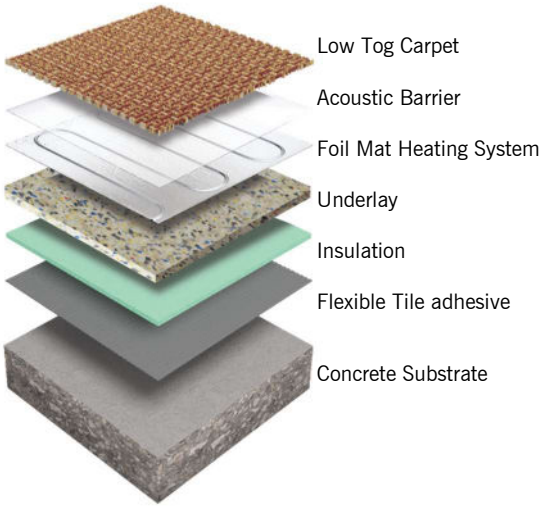
This is a typical build-up of a mat system under tiles with insulation below the floor heating on a timber substrate. The insulation is preventing heat-loss into the substrate.



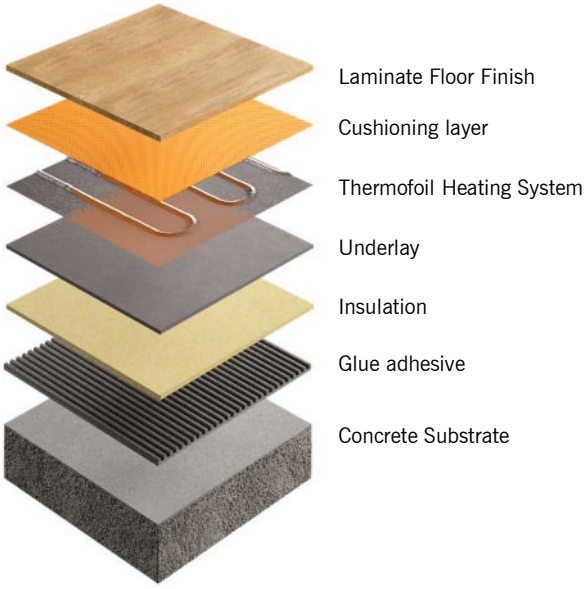
This is a typical build-up of a mat system under laminate or engineered floorboards, with insulation below the floor heating on a concrete substrate. The insulation is fixed down using tile adhesive and the floorboards are laid over the top of the screed.



In an instance where you wish to use a loose wire system, with a floor covering which wouldn't usually require a screed layer such as timber, vinyl or carpet, you will need to add a self-levelling compound across the heating before laying flooring.



Alternatively, a foil system can go directly below a carpet or timber floor finish, as seen in the build-up image. In this build-up, the foil is on top of the carpet underlay with a layer of cushioning above it.



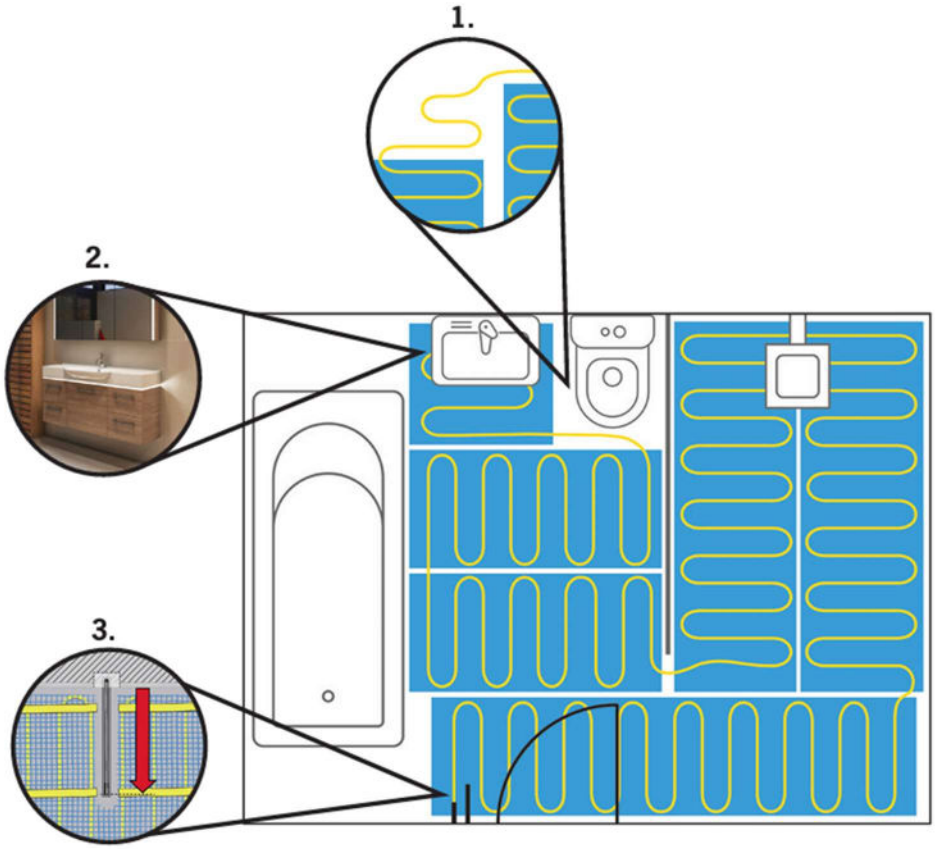
This build-up is showing a laminate floor finish on top of a Thermofoil heating mat. The Heating is laid on top of the underlay and has a cushioning layer on top. The insulation is fixed using glue adhesive.

What size to install

When calculating the amount of floor heating to install, the total floor area is calculated, less fixtures; such as baths, toilets, vanities or kitchen cabinets. In a bedroom situation where the bed or cupboards are to be in a fixed spot, we recommend not running heating under these areas.

In a bathroom, you can also consider running the heating into the shower, provided it is a tiled shower base. This helps to dry the shower, preventing mould and mildew.

A typical bathroom example is shown below.



1. Modify the mat

When Thermonet mats are needed to fit around irregular shapes like a toilet or vanity, simply remove the cable from the mesh and arrange in loops to cover the area.

2. Wall mounted fixtures

If you have a wall hung vanity, always allow enough floor heating to run under the front of the vanity to ensure this floor area is warm

3. Floor sensor and conduit

Ensure the floor sensor is installed in the conduit and placed centrally between two runs of heating cable to provide an accurate floor temperature reading.

Please note the cable cannot be cut.
All cables must be spaced at least 50mm apart.

Installation Process

Electric Underfloor Heating is easy to install and is available for DIY installation in Australia (excluding Victoria which requires a qualified electrician). The thermostats must be wired up by a qualified electrician.

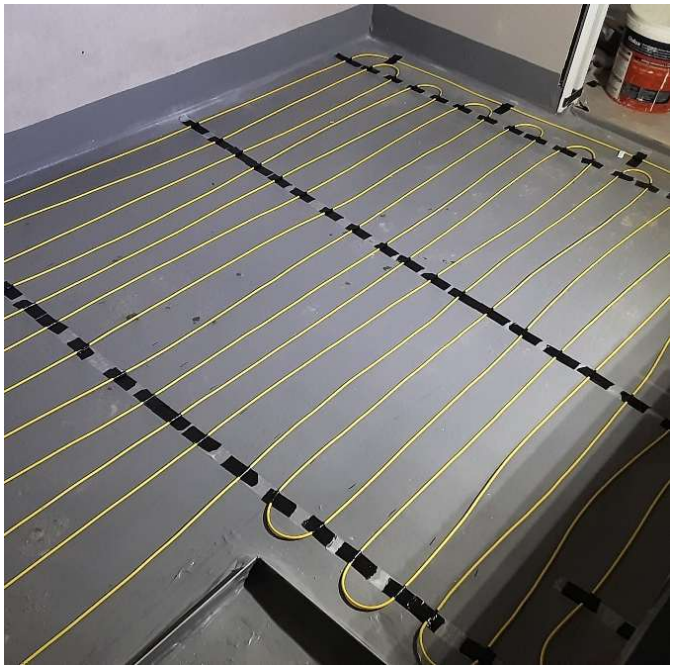
Mat systems are the easiest to install, with the heating cable being rolled out on the floor, held in place by adhesive mesh on the mat and then linked up to the thermostat and mains power supply.

Foil systems are installed using the same cut and return process as the mats, however, are not self-adhesive. If they need to be fixed down, it can be done using the foil tape to pin it down along the edges.

Loose wire systems usually come with a cloth tape or there are systems available with various fixing profiles.

Installation occurs once the floor is ready for tiling. This means the room is clean and the floors dust free.

It is highly advisable that the waterproofing is complete and inspected before the floor heating is laid to prevent additional foot traffic on the heating system. There will also be difficulties applying the waterproofing once the floor heating has been laid.



Important Aspects to consider when comparing Underfloor Heating Systems

Warranty

Once Underfloor Heating is installed, it is not easily accessible, so it is recommended to choose quality products which will last as long as the floor finish. A 10 Year warranty is considered the absolute baseline for warranty with systems available with lifetime warranties, to allow peace of mind that the system won't fail. *Thermogroup offers a lifetime warranty on their Underfloor Heating Products.*

Some important features of the system

With an Underfloor Heating system, look at what install benefits are advertised as this will help to reduce you installation costs.

Features like:

- Self-adhesive mesh on a mat system.
- A single ended system which means only one cold tail goes back to the thermostat.
- The thickness of the cable as this will affect the floor height build-up.
- The durability of the cable. Features such as twisted twin cable represents a high-quality cable.
- For loose wire systems, consider what fixings methods are available such as fixing tapes or fixing mesh.

Country of origin

The product you are looking at may have the country it is manufactured in advertised. This helps give an idea of the quality of the system, as if it is made in Europe or America, you are likely to find this is a much better heating system.

How much does Underfloor Heating cost to buy?

When it comes to Underfloor Heating, there are two standout questions that we get asked all the time, both relating to cost. One is around the running cost of Underfloor Heating and the other is around the purchase price of Underfloor Heating. There are several factors that influence the price of Underfloor Heating, some examples include the size of the area you want heated, and the type of system you buy.

What factors influence the purchase cost of Underfloor Heating?

–The size of the room

–The system you choose to install

–The controller you choose

–The differences between different brands

–Install and associated costs

The Total Size

This seems pretty obvious as the more heating you have, the more it will cost to buy. There isn't a lot that you can do about this one, you don't want to reduce the system size just to save some money and then end up without enough heating to warm the room.

If you are looking at the cost based on the total size of the room, particularly bathrooms, then your heating cost should actually come out lower. This is due to the fact that we do not run the heating under any floor-mounted fixtures in a bathroom such as a toilet, vanity, or bath which then reduces the heating area.

Likewise, in the living or kitchen areas, the floor heating doesn't run under any counters or benches.

When comparing Underfloor Heating quotations, make sure that both companies have quoted for the same size and wattage system to ensure you are getting an equal comparison. Sometimes suppliers will go downsize more than they need to and whilst this looks good on the quote you end up short-changed on the heating.

The other common difference in bathrooms that causes a variance, is if the heating has been allowed in the shower.

Type of system

The type of system that you are purchasing will also affect the buying cost of your Underfloor Heating. There are different systems for different floor finishes and floor build-ups so that we can offer a solution for your specific requirements.

Whilst we aim to offer the best system for your needs, there may be a cheaper system that we could use, however, this would typically compromise on either the heat performance or incur associated costs separate to the heating. Let's give you some examples.

- Using an under-tile system under the screed – this is a common one, whilst the under-tile system will work under the screed, it will take a lot longer to warm up so your cost saving to buy will be offset by the longer-term running costs and the less than satisfactory heating performance.
- Under-tile system for under carpet or floating timber floors – whilst this will definitely be cheaper than our Thermofoil solution, it will mean the heating needs to be covered with self-levelling compound prior to the floor finish being laid which brings in additional costs, extra trades, and time and won't provide as good a heat performance.

For more information about the best system for your room, contact us, or use the system selector tool.

Always ensure that you are comparing like-for-like systems when comparing quotes as different systems may make a big difference in the initial look of a quote.

The Controller

The controller that you choose or that you are offered will also make a difference to the overall price. There are a variety of controllers in the Thermogroup range and an even wider variety on the market.

The simpler the controller, the lower your initial purchase cost will be. For instance, a manual thermostat or a dial thermostat will be your cheapest option however this gives you no programming control over your heating., Being able to program the controller will give you better heating control and help control running costs to save you money in the long run.

Opting for a more advanced programmable controller comes at a higher cost, but it lets you tailor your floor heating to suit your schedule, ensuring warm floors exactly when you need them. There is also the option of a Wi-Fi enabled unit for smartphone control, or a dual controller that manages both your Underfloor Heating and Heated Towel Rail from one controller. While these options do add to the overall system cost, they offer significantly enhanced control and convenience.

Always assess the thermostat options when considering Underfloor Heating. Whilst it may increase the cost initially, consider the benefits of being able to program the heating and the ease of control.

Install & Associated Costs

When budgeting for Underfloor Heating, remember to always plan for install costs as you will most likely be getting someone to install the Underfloor Heating. Install rates do vary a lot, for instance, if your electrician is doing the rest of your electrical installs, he may not charge a high amount as it's part of his work while onsite. If you get in a specialised installer, this may cost slightly more, not always but it may. However, you will have the assurance that it is done correctly. We have included some details on the install rates in our costing examples below.

The other associated cost to consider is the power supply to the heating. This cost varies so much each time that we aren't able to give you an estimation of the cost. In some cases, with small zones such as a bathroom, they can add heating to the existing circuit. *With other areas, particularly larger zones, they need to run a separate circuit. The cost for this varies depending on the ease of running the cable, the location of your board, etc., so speak to your electrician regarding this.*

Differences in costs between brands

If you are comparing the costs of Underfloor Heating between brands and wondering why some are more expensive than others, there are a few factors to consider.

- Firstly, consider all the points that we have covered above, what size they are covering, what system type they are using, and what controller they are using.
- Look at where their system is made, is it made in a reputable country?

- What is the warranty on offer? Underfloor Heating is going down below the floor, so you want a system that has a warranty that gives you peace of mind. Thermogroup offers a life-time warranty to help you achieve this peace of mind.
- How reputable does the company appear? Look for things like social proof from pictures of installs, customer reviews, website presentations, and the number of resellers offering the product as well as other proof like if they offer an installer program or backup support.
- What all are they offering, is it a full kit with the system, the thermostat, floor sensor & alarm? Or are they missing some key components that you may need? Thermogroup kits come with all the necessary components needed for install.

Some of these points may help you to identify the differences in the cost of buying the Underfloor Heating from between your quotes. Shopping on the price for Underfloor Heating may save you on the initial price, however, is unlikely to deliver the best heat or experience.

Examples

A typical bathroom, or the most common size bathroom that we sell is 3.5m^2 of Underfloor Heating. Remember this is once all the fixtures have been taken out, so we are talking about the actual heated area. The majority of systems are sold with our standard programmable controller; however, we have also given the prices with a manual dial controller and a dual controller for your reference.

- 5m^2 in screed Heating Kit with Manual Controller – $689.00
- 5m^2 in screed Heating Kit with the standard Programable Controller – $789.00
- 5m^2 in screed Heating Kit with the Dual Controller – $919.00

That's the price for a bathroom with the 200W/m^2 system to provide the best heat either above or below a screed. However, we want to show you what it would cost if you used the under-tile system, again this could be used above or below the screed but will provide slower heat-up at only 150W/m^2 which means it will cost more in the long run due to the increased heat-up times.

- 5m^2 Under-tile Heating Kit with Manual Controller – $637
- 5m^2 Under-tile Heating Kit with the standard Programable Controller – $737.00
- 5m^2 Under-tile Heating Kit with the Dual Controller – $867.00

Next, we want to look at a 20m^2 living room with an under-tile system. In this case, we have just given the cost example with the standard programable controller.

- 20m^2 of Under-tile Heating with the standard Programable Controller – $2,609.00

Lastly, we wanted to look at 20m^2 of Thermofoil Under Carpet Heating. In this case, our system is laid between the carpet underlay and the carpet providing the best heat-up times. Most other companies use an under-tile system and then self-level over the system prior to laying the carpet. This would be cheaper; however, you need to allow for the self-level, which increases costs and increase height build-up, and remember that the heating is below the underlay, so the heat is not going to be as effective in heating up through the floor build-up. You can refer to the 20m^2 of under-tile above as a comparison.

- 20m^2 of Thermofoil & overlay for use under the carpet with a standard Programmable Controller – $3,017.00

Summary

Well, there you have it, a detailed run-through with examples on the cost of buying Underfloor Heating. We don't deny that there would be cheaper ways out there to heat your home or that there may be cheaper brands of floor heating. However, if you want the very best and most comfortable type of heating that is suited to your floor finish and floor build-up plus comes with an unmatched warranty and backup service, then check out our product page or get in touch.

How much does Underfloor Heating cost to run?

This is another question that we get asked time and time again, and unfortunately, like so many commonly asked questions, the answer isn't all that straightforward. In fact, the answer is really, that it depends.

We know that an answer like this isn't what you are after though, so we have drilled down into the running costs of Underfloor Heating and looked into the different factors that affect how much it costs to run.

What drives cost up?

There are several key aspects that drive costs up and with most, the obvious observation is that the opposite action will drive the price down.

Heating Time
An obvious one, the longer the heating is on, the more it will cost to run. We know it's obvious, but we often find that people leave the heating running the whole time, which is going to drive up the running costs. With a system installed directly below your floor finish, the heat-up times will be quite rapid, so once you find out the heat-up times for your room, set up a schedule accordingly so that it heats up and is warm when you need it.

If you can reduce the time your system is heating, you will help to reduce your Underfloor Heating running costs.

Lack of Insulation
Again, it seems pretty obvious that if you don't insulate, you will have high running costs due to heat loss. Customers often think that we offer insulation as an upsell product, but the fact is that insulation truly will help to drive down your running costs.

Heat moves equally in every direction as opposed to hot air which means you are going to lose some heat down into the substrate rather than it all being pushed up into the room. It's not just about the floor though, uninsulated walls or ceilings will also allow heat to rapidly escape. Even worse, an old window frame that isn't well-sealed is going to result in high heat loss.

To be clear, if you are lacking insulation, that results in high heat loss meaning you will be increasing the running costs of your Underfloor Heating, as the heating will have to work harder to combat this loss.

Your set temperature

So many times we see people overlook the temperature they run their Underfloor Heating at as they don't realise the influence that this has on their running costs.
Like most heating, you ideally want the room to be comfortable, so you want to run your heating at around 22-24℃. If you run it higher than these temperatures, what typically happens is that the additional heat is lost, and your heating will be running longer trying to reach your higher set temperature.

If you are running your heating at over 25℃, then you are driving up your running costs. To help bring down your running costs, drop your temperature a few degrees. Of course, make sure it's still comfortable in the room. In most cases we find that when clients reduce their set temperature a couple of degrees, they do not notice the difference in the heating but will notice a difference in their running costs.

Size of the room

The bigger the area that you are trying to heat, the more expensive it is going to be to run. This is one that you can't really avoid, you don't want to compromise on your heating, and you don't want to end up with cold sections on the floor. Just consider any areas in the room that won't be used such as the void down the side of the bath or in a living room under any large permanent furniture fixtures where you won't need to install the heating.
The other way to combat the large areas is through zoning. In large living areas, consider zoning the heating so that you don't have to have all areas on at the same time, allowing you to just heat the areas you are using. This will also help to reduce your running cost.

If you can reduce the size of your system, you can bring down the ongoing running costs of your electric floor heating.

If those are some of the key factors that drive costs up, then what are some of the key factors that drive costs down?

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What drives cost down?

Some of the points above have already covered how to drive down the running costs of your electric floor heating so we will keep the below simple.

Set up a heating schedule
As mentioned, you don't want to leave your heating running the whole time so set up a heating schedule based on your lifestyle so that you aren't heating when you don't need it. Particularly, make sure you turn off any heating periods when you won't be using the room as these will be a great way of driving down the costs of your electric Underfloor Heating. Think about if no one is going to be home during the day, if you are heating large areas like living rooms or lounge rooms, the heating doesn't need to run the whole time if no one is home to enjoy it, you can have it on a schedule so it turns on before you arrive home so the house is warm when you step inside. Another point to consider is when the warm peak is during the day, typically in the afternoon, the heating might not necessarily need to run during this time.

Turn the heating off when you leave the room
Another great tip is to switch the heating off when you leave the room. Especially in a bathroom, if the heating is on a schedule and you are using the bathroom early, then switch the heating off before you leave the room, and it will pick up the schedule at the next switching period.

Insulate the room
We touched on this as an area that can drive the costs up, but we wanted to emphasise it again. Insulation is truly the most effective way of driving your costs down. It might be more upfront, but it will pay itself off in the long run.

Keep the room warm
Sometimes you can't increase the insulation in the room once it's built however you can take small steps to help keep the room warm. Keep windows and doors closed as much as possible so that heat can't escape. Particularly with a bathroom, keep the door closed at night so the heat is trapped in the room as it begins to heat up.

Green Energy – Using Solar to drive down your running costs
In a time when we are all conscious about our electricity usage, we are seeing a surge in the popularity of solar panels on homes, which means more and more homes are offsetting their electricity costs. If you are one of the many Australians that have invested in solar for your home, you are going to be well placed for reducing the running costs of your electric Underfloor Heating.

Summary

So that covers some of the key drivers behind how much Underfloor Heating costs to run. Before we get to some numbers, there are two final points we want to make regarding the running costs.

1. Our systems are all electric so the electricity tariff in your area will directly influence your electricity bill. Check out the electricity tariff in your area when considering some of the numbers below.
2. Secondly, the brand of Underfloor Heating won't influence the running costs, any brand that is drawing an equal equivalent wattage will cost the same to run so you don't need to go shopping around by brand to see if you can reduce your running costs.

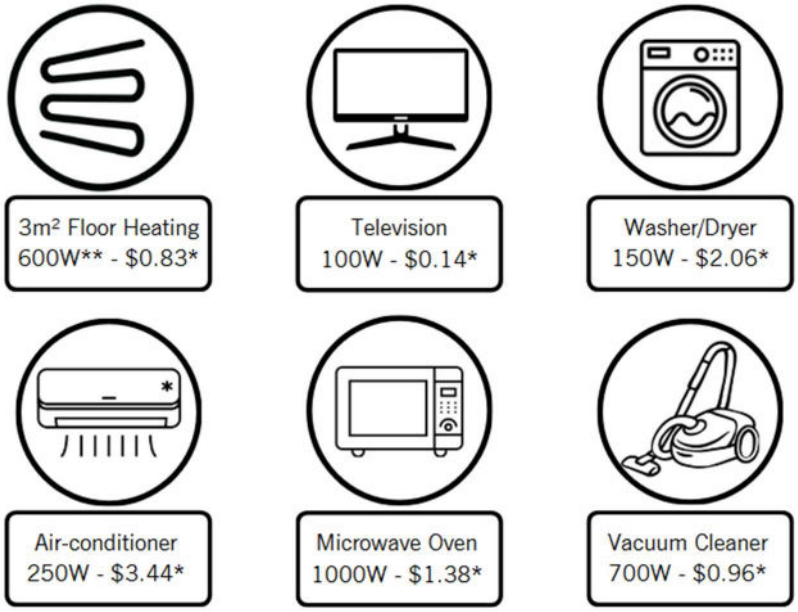
Running costs of Underfloor Heating

There are several different electric Underfloor Heating systems, from mats to loose wire to foil systems. The fact is that the different systems don't make a lot of difference to the costs. If you are lifting the floor temperature from 16° to 22°, each system will be drawing roughly the same amount of electricity.

A standard 3m² bathroom with a 200w system installed below the screed, will be drawing 600watts when heating. Based on an electricity tariff of 35c/kWh, it will cost 5c per square meter to run, or effectively 15c for that bathroom per hour.
The table below helps to show the running costs of your electric Underfloor Heating.

Area	1m²	2m²	3m²	4m²	5m²	10m²	25m²
1 hr	$0.05	$0.10	$0.20	$0.25	$0.51	$0.76	$1.27
2 hrs	$0.10	$0.20	$0.40	$0.51	$1.02	$1.53	$2.55
3 hrs	$0.15	$0.30	$0.61	$0.76	$1.53	$2.29	$3.82
4 hrs	$0.20	$0.40	$0.81	$1.02	$2.04	$3.06	$5.10
5 hrs	$0.25	$0.51	$1.02	$1.27	$2.55	$3.82	$6.37
6 hrs	$0.30	$0.61	$1.22	$1.53	$3.06	$4.59	$7.65
7 hrs	$0.35	$0.71	$1.42	$1.78	$3.57	$5.35	$8.92
8 hrs	$0.45	$0.81	$1.63	$2.04	$4.08	$6.12	$10.20

The diagram below shows the electricity draw compared to other appliances in the home. Remember your bathroom of 3m² is drawing 600W.



*Daily running cost based on running for four hours per day
**Based on 200 Watts per square meter.

Lastly: A story about coffee

Yep, you read that right, we have a coffee story. We find this one makes a lot of sense to people wondering about the running costs of their Underfloor Heating.

We just agreed a typical bathroom of 3m² with an In-screed system is costing 15c an hour to run so let's crunch some numbers.15c x 4 hours a day (2 hours in the morning and 2 hours in the evening) **= 60c per day 60c x 7 days = $4.20 per week to run your bathroom.** That means that your bathroom of Underfloor Heating for a week is costing the equivalent of a standard takeaway coffee. Most people are guilty of buying more than one takeaway coffee a week without giving it too much thought.

Summary

In summary, the answer to the question of how much Underfloor Heating costs to run is a tricky one to answer. We have gone over what drives costs up and what drives costs down and have given some examples, as well as referencing our running cost tool.

We firmly believe, as conveyed in all that has been stated above, that Underfloor Heating is a cost-effective way to keep your home comfortably warm. We accept it's probably not the cheapest way of heating the home, however we certainly won't be swayed from the fact that it is the most comfortable.

We hope that this has given you an understanding regarding the running costs and that you choose to find Underfloor Heating as the preferred heating system for your home.

What is the best Underfloor Heating System to use?

Underfloor Heating is a brilliantly versatile heating system that can be used in any room of your home. As a result, clients often want to know what the best Underfloor Heating system for their application is.

There are several ways we can look at this question, but we don't have enough eyes to look in every direction at once, so instead we are going to focus on the best Underfloor Heating system for the different areas of the home and the different floor finishes. Included below is a list of the different rooms that we will discuss.

- Bathroom
- Living room
- Kitchen & laundry
- Bedrooms & offices
- Outdoor areas
- Entire home

- Tiles and stone floors
- Timber floors
- Vinyl floors
- Carpet floors
- Polished concrete

Bathroom

The bathroom is undoubtedly the most common room for Underfloor Heating. Why? Because tiles are one of the coldest floor finishes.
In any Underfloor Heating installation, you need at least 80% floor coverage with heating to make Underfloor Heating the primary heat source.

In a bathroom, you quickly begin to lose that coverage when you take out the areas where the heating won't be installed such as the toilet, bath etc. As a result, to get the best heating performance, you want to be aiming for 200W/m^2 of floor heating.

Based on aiming for the 200W/m^2, the best Underfloor Heating system for a bathroom would be one of the following:

- **Thermonet 200W Mat** – This is suitable for either above or below the screed installations and provides a fast install with consistent cable spacing across the room.

- **Thermowire Under-tile Loose Wire** – This is the best option for an under tile, loose wire system; still aim for your wattage to be at 200W/m^2.

- **Thermoscreed In Screed Loose Wire** – This is the best below screed loose wire floor heating system and again aim for 200W/m2.

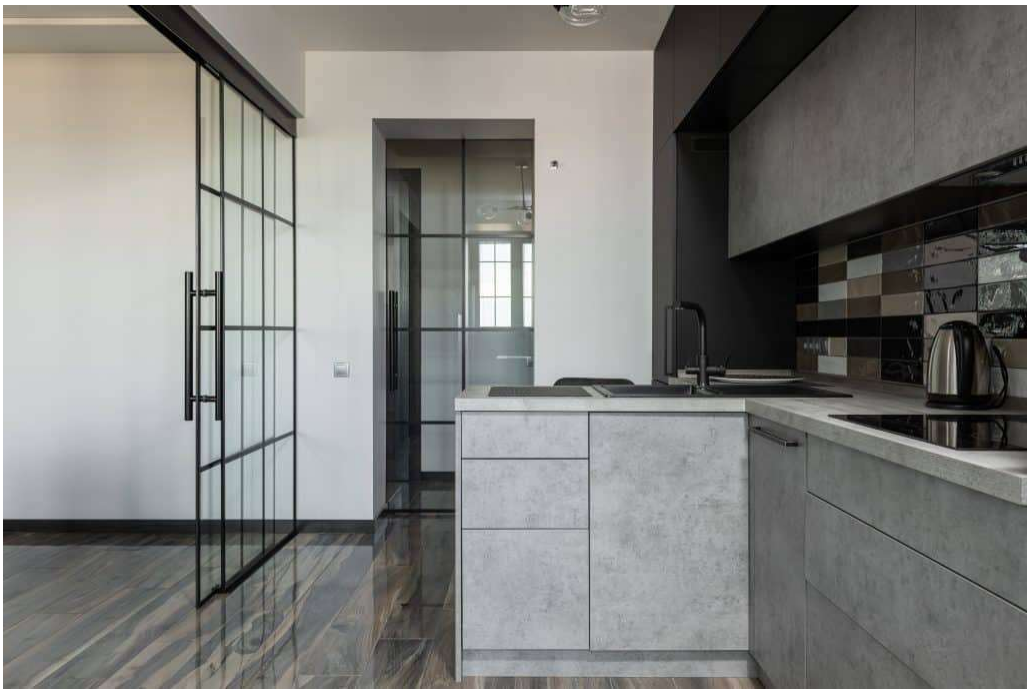
Living Room

Underfloor Heating is the best way to heat any space, as the heating is even and consistent throughout the room so what better area to have this in than your living area. So, what is the best Underfloor Heating for your living room? On this one we are going to have to reference the different systems to fully answer this question, however, unlike the bathrooms, we are not aiming for such a high wattage. The best option is to aim for 150W/m^2 for these areas as you have a larger heat area and typically don't require such an instant heat source as a bathroom.

You may also want to consider zoning your living areas with different thermostats so that you can control the different areas such as living, lounge, dining etc.

If you are after tiles, then check the best system for tiles below, likewise with timber, carpet, vinyl or lastly a polished concrete floor finish.
Keeping the wattage at 150W/m^2 rather than 200W/m^2 will help to reduce your electricity draw and running costs, and you will have the best possible system for your living area.

Kitchen & Laundry



The kitchen is often called the heart of the home, so what's the best electric underfloor heating system for your kitchen and laundry?

Similar to living rooms, we are going to need to look at the different floor finishes again, also typically aiming for a wattage of 150W/m^2. We have put the kitchen and laundry together as we see a lot of homes with the laundry coming off the kitchen and a lot of people run it on the same zone. This isn't always the case, and possibly you may want to consider a 200W/m^2 system as the best system for the laundry where you have a door directly to the outside, as you may lose more heat in this room.

Bedrooms & Study

Your bedroom is generally a great place to get away to for a bit of peace and quiet, the study maybe not so much peace & quiet but hopefully quiet enough to get your work done. So, what is the best Underfloor Heating system for your bedroom or study?

Typically, bedrooms are carpet, so in this case, with a loose lay carpet, we will use the Thermofoil system. Thermofoil is the best Underfloor Heating for a bedroom with carpet as it is installed between the underlay and carpet, thereby efficiently heating the room whilst minimising downward heat loss. Check out the carpet section below for more information.

Your study could have several different floor finishes so to work out the best Underfloor Heating system for your study check out the different floor finishes below. Again, you are ideally aiming for 150w/m^2 for your study heating. *Just one point on if you have carpet in your study and a wheelie office chair, Thermofoil will not be a suitable system to use. The pressure from the wheels running over the cable will cause potential cable damage in the future.*

Outdoor Areas

This is one that you may not have considered but you would be surprised at how common Underfloor Heating is becoming in outdoor areas. So, what's the best Underfloor Heating system for an outdoor area?
There are two common options here:

Firstly, a concrete slab that has a tiled floor finish. In this case, use either a Thermonet Mat or Thermoscreed Loose Wire system aiming for 200W/m^2 to provide a higher heat source.

Alternatively, you may be having the exposed concrete slab as the floor finish. In this case, the best floor heating option for your outdoor area is to use the In slab system. This will take longer to heat up, however it will heat the entire slab in time and provide a good heat bank.

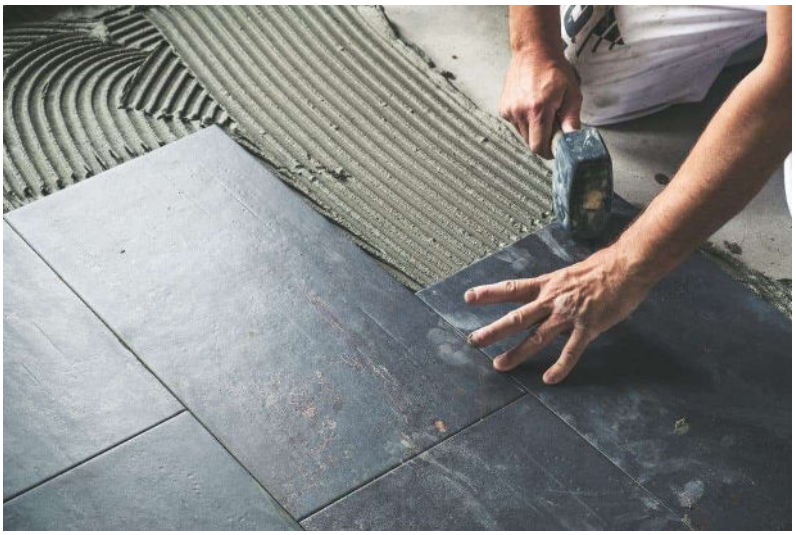
These are the two best Underfloor Heating systems for your outdoor area. If you are wondering why in an outdoor area, well consider that it's very common to entertain in your outdoor area on a winter's evening and generally you are sitting a lot of the time, and therefore need to keep warm, and what better way than with heat gently rising from the floor. Also, if your outdoor area is partly closed in or has pull down blinds, you will be able to reduce the amount of heat loss and enjoy the comfort and warmth of Underfloor Heating with your friends & family.

Entire Home

Finally, what is the best Underfloor Heating system if I want to heat my entire home? There are two answers to this, firstly you could go through and use the best system for each area based on the recommendations above and the different floor finishes.
Or you could use an in slab system throughout the home regardless of the different floor finishes. An in slab system is designed to heat your entire concrete slab, and while this does take longer to heat up, it builds a heat bank which makes it an effective heating system. You can find out more about our Thermoslab system and how it may be the best Underfloor Heating option for your entire home on our website.

Well, that's an overview on the different rooms in the home and the best heating system to use. In a number, we have advised that it does depend on what the floor finish is in the room so let's now explore the best Underfloor Heating system for the different floor finishes.

Tiles and Stone floors



Tiles and stone floors are the most common floor finish for Underfloor Heating as they are such a cold floor finish. So, what is the best Underfloor Heating for use with your tiles or stone?
As mentioned, in bathrooms we recommend using 200W/m^2 which can be achieved by using our Thermonet 200W mats, Thermowire Loose Wire or Thermoscreed Loose Wire cable.

For tiles elsewhere in the home, we would recommend using 150W/m^2 and Thermonet 150W mats or Thermowire Loose Wire would be the best systems, unless it's outdoors then we would recommend 200W/m^2 as mentioned above.

For stone, we have two options. Firstly, if it's a standard 10-12mm thick stone, then 150W/m^2 will be fine, as long as it's not in the bathroom. Anything thicker than that, we would recommend using the 200W/m^2 to provide more heat to get through the thicker floor finish. This is not mandatory, a 150W system will still heat it up but we are talking about the best Underfloor Heating option for your stone, right.

Timber Floors

There are two different installation methods for your timber floor and this affects which is the best Underfloor Heating system to use.
For floating timber floors, the best Underfloor Heating system is our Thermofoil system. Thermofoil is like an electric foil blanket that you install onto an underlay, cover with an overlay and then lay your floating timber floor on top of that. The advantage of this is that you don't have to get any wet trade involved in the floor build-up.

The other option is when you have a glued timber floor. In this application, the best Underfloor Heating system would be a 150W/m^2 system, if this is a larger room then a mat system might be best, and then the system must be covered with a 10mm of self-levelling before gluing down your timber floor.

Always check with the flooring manufacturer that the timber is suitable to be installed over Underfloor Heating.

Vinyl Floors

The best Underfloor Heating system for vinyl floors is essentially the same as timber floors. It will depend on if your vinyl is glued down or a floating vinyl plank. If it's a glued vinyl, then you will need to use the 150W/m^2 system and cover it with a self-levelling compound. If it's a floating vinyl plank, you could use the Thermofoil system.

Always check with the flooring manufacturer that the vinyl is suitable to be installed over Underfloor Heating.

Carpet Floors

A lot of people don't realise that you can bring the luxury and comfort of Underfloor Heating to carpet floors. The best Underfloor Heating system for carpet is the Thermofoil system. The Thermofoil system is installed directly on top of your carpet underlay and then covered with an overlay before the carpet is installed over the top.

This is the best way to heat carpet as the heating is directly below the carpet and the underlay acts as an insulator to prevent downward heat loss. The overlay provides protection for the system by eliminating any abrasion against the carpet.

Polished Concrete

The final floor finish that we would like to discuss in our search for the best Underfloor Heating system is polished concrete. There are two main ways that a polished concrete floor is achieved which may affect the system used.

Firstly, in an application where the main slab is being polished to create the floor finish, the best system to use is the Thermoslab which is installed in the slab before the slab is poured. An in slab system will take around 1-2 days to heat up, so it's a much slower heat-up time than our systems directly below the substrate, but the slab will hold the heat for longer.

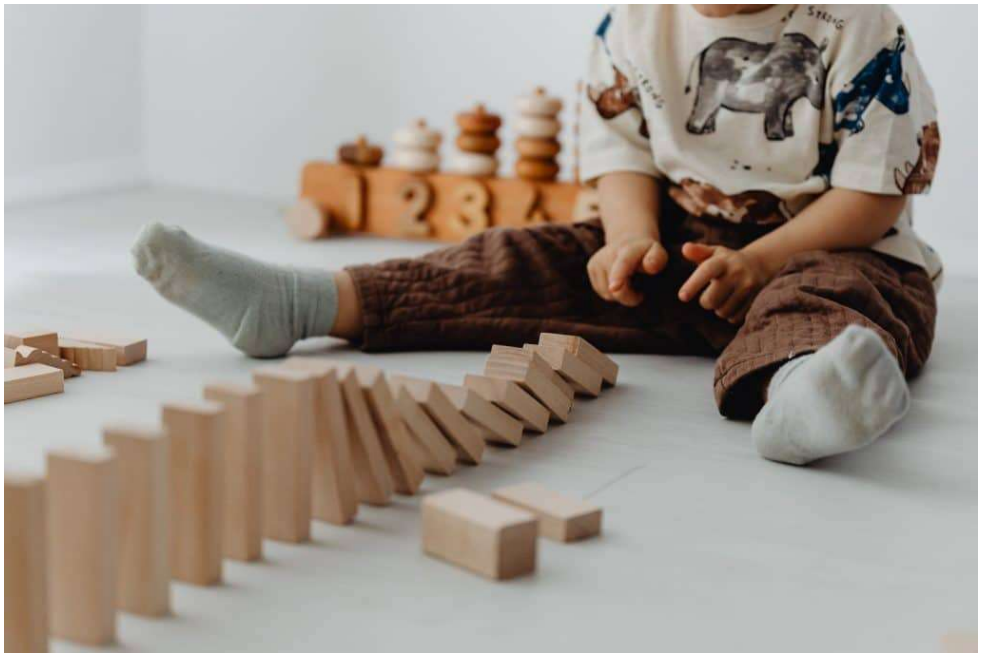
The other method for polished concrete is to pour a second slab on top of the original slab which is then polished to create the floor finish. In this case the best system will depend on the thickness of the second slab. If it is 50mm or less, then the Thermoscreed system is the best option with a desired output of 200Wm^2. If the slab is thicker than 50mm we would recommend that you use the Thermoslab system to stick onto your first slab to ensure that you have sufficient heat to heat up the thickness of the slab.

Polished concrete is becoming a more common floor finish, and it would typically be a very cold floor, so you certainly want to use the best system to ensure that your floor not only looks amazing but feels amazing when you walk across the room.

Summary

Well, that wraps up our answer to the question of what the best Underfloor Heating system is. We have looked at it both from the room and the floor finish point of view, aiming to cover the most common floors and rooms that we get requests for.

How long does it take Underfloor Heating to heat up?



The common myth's regarding heat-up times of Electric Underfloor Heating

The traditional myth is that Underfloor Heating takes forever to heat up. Now, this can still be true in some cases, however Underfloor Heating traditionally was always installed in the slab. This meant that the heating was warming the whole slab, which then became a heat bank and became an efficient way to heat the home, but it also meant to it would take 1-2 days to heat up. Yes, that's right, 1-2 days was the heat up time to warm your whole slab.

So, if you woke up one morning coming into winter and it was cold, you would switch on the heating, but the floor would not be warm anytime soon. So, the myth regarding the heat up times of Underfloor Heating was born.

To defend the slow heat up times of an in slab system though before we move on, once the slab is warm, it will hold the heat well and becomes an efficient way to heat the home. In slab systems are more suited to cold climates where winter sets in and it's cold for long periods of time, this way you turn the in slab heating on and have it running for weeks or even months to keep the slab and your home warm. For more moderate areas where you have cold mornings and evenings but warm days, the heat-up time means that in slab heating is not the best way to warm your home.

To make it clear, longer heat up times aren't all bad. The longer the heat up times, the longer the cool down times and therefore the heating won't necessarily be required to be running as often to maintain the temperature which is what helps to make them an efficient option from a running cost perspective.

What are the factors that affect heat-up times of Underfloor Heating?

Floor Build Up
Following on from what we have discussed above, the floor build-up and where the Underfloor Heating is installed in that build-up will affect the heat up times. Simply put, the lower down in the layers of flooring that the Underfloor Heating is installed, the longer it will take to heat up.

As mentioned, an in slab system can take 1-2 days to heat up. A system installed in the screed will also take longer to heat through verses a system installed directly below the tiles. So, the higher up the floor heating is installed in the floor build-up, the faster the heat-up times will be however, bear in mind that a screed or slab will create a heat bank and hold the heat for longer for you.

Substrate
Secondly, the substrate on which the heating is installed will play a part in affecting the heat-up times. The substrate would normally be either concrete or timber construction. A concrete substrate is typically colder and less resistive to heat so the heat-up times will be longer than a timber floor.

A timber floor on stilts with a void below will increase your heat up times, as it means the subfloor is colder and heat will be lost downwards into the cold void. This is why many people will install insulation under their Underfloor Heating.

Level of insulation
The level of insulation in the room and the floor is probably one of the single biggest factors that will affect the heat-up times of your Underfloor Heating.

Heat, as opposed to hot air, moves equally in every direction. This means that the heat moving away from the heating cable will travel downwards as well as upwards. The more heat you lose downwards, the less effective your system will be, and it will also take longer to heat up.

Insulation below the floor or heating will substantially reduce the heat up times of electric Underfloor Heating.

Insulating your floor could be done in several ways as outlined below:

Below the slab – Insulating between the ground and the slab before the slab is poured. This will mean the slab will not be as cold regardless of where the Underfloor Heating is installed in your floor build-up.

- Below a timber substrate – As mentioned above, a timber substrate with a cold void below; by insulating the underside of the timber, you will greatly improve efficiency and heat-up times of your Underfloor Heating.
- Directly below your floor heating – Our Econoboard products are laid onto your substrate with the floor heating installed directly over the top. This acts as a thermal break to minimise the heat going down into the substrate and will dramatically improve the heat-up time.

It's not just the insulation of the floor though, the level of insulation in the room will also affect the heat-up time. The lower the level of insulation, the colder the room will be and will be more prone to heat loss.

If the room is constantly losing heat due to insufficient insulation, the heat-up times will increase as the heat generated is constantly being lost. Lack of insulation in the walls, the ceiling, windows etc will result in heat loss.

Insulation, often seen as an additional expense, is one of the most important factors for affecting heat-up or cool-down times as well as the running costs in any home. It may seem like a large upfront cost, but it absolutely pays itself off over time, even if you don't have floor heating.

Ambient temperature & set temperature

Another factor to consider is the ambient temperature in the room. The colder the room is, the longer it will take to heat up. This links back directly to the point above about the level of insulation in the room.

If you are measuring the time it takes to reach your set temperature, you will find this affects the heat-up time. We often see people setting their floor heating in an excess of 26°c, the floor heating will struggle to reach this temperature and will certainly increase the heat-up time. Unless you have a very well insulated room, you will struggle to achieve these temperature levels.

A comfortable level to run your floor heating at is 21-24°c. It is also recommended to set your off temperature at around 15°c to ensure that even though the heating is effectively off, the heating would still come on to prevent the room dropping below this temperature, which will reduce the temperature difference that the heating is trying to heat up & therefore decrease your heat-up time.

Thickness & type of floor finish

The thickness and type of floor finish will also affect the heat-up times. The thicker the flooring, the longer the heating will take to pass through and heat the room.

The floor finish will also have an influence on the heat-up time, some floors are more resistive to heat passing though such as timber and carpet as opposed to tiles. Also, a tiled or stone floor is a colder floor finish and will therefore feel warmer quicker.

The Underfloor Heating system

The actual system that you have installed in the floor will affect the heat-up times. Most commonly, this would be if a 150W or a 200W system has been used. Essentially, the higher the wattage of the system, the faster your heat up times will be. Also, it is important that you select a system that is suitable for your floor build-up & it is correctly installed.

Why is it important to know your heat-up time?

We have looked at the factors that influence the heat-up time and we trust you agree that there are so many factors that contribute which makes it impossible to give a direct answer, just like an air conditioner company couldn't give you an exact answer on how quickly they can cool down your room.

What's most important is for you to know your heat-up times. With this, you can then set your thermostat accordingly so that your floor and room are warm when you want it. *For example, if you find that your Underfloor Heating takes an hour to reach your set temperature, and that you want to shower at 7am, you need to program the heating to come on at 6am so that your floor and room are warm the moment you enter the bathroom.*

With a thermostat, you have the full control over your heating, so play around with the heat-up times to find the best solution for your home.

Heat-up time examples

We know you still want some actual numbers for the heat-up times. We understand, so below we have set out some examples of the heat-up times based on a number of different scenarios, so that you have an idea of what to expect for your home.

	150W/m²	200W/m²
Uninsulated Concrete	2-4 hours	90 minutes-3 hours
Concrete with 10mm Econoboard	1 hour	45 minutes
Concrete with 10mm Econoboard and 25 mm screed	2 hours	90 minutes
Uninsulated Timber Substrate	1 hour	45 minutes
Timber substrate with 10mm Econoboard	30 minutes	20 minutes

(Allow an additional 1 hour per 25mm of screed for heat to penetrate)

Summary

Well, there you have it, the heat-up times for Underfloor Heating. We are not able to give you an exact answer, however we trust this guide has helped you understand what affects the heat-up times and why most importantly you need to be able find out the heat-up times for your home.

If you would like to have a chat specifically about your application, floor build-up or the best system to use, then please don't hesitate to contact us and we will be happy to discuss your requirements.

How do I Control my Underfloor Heating?

If you are looking at Underfloor Heating, you're probably wondering how you are going to control it, to make sure it is warm and dry when you want it, and to keep control of your running costs. We have a range of thermostats that will provide you with a solution that suits your control requirements. They can be run on manual or on a schedule depending on what best suits your lifestyle. Having your Underfloor Heating regulated by a thermostat will ensure your home or room is always warm and comfortable without wasting energy and money.

How do I turn my Underfloor Heating on and off?

A thermostat is required to operate Underfloor Heating. It allows you to turn the heating on and off and set the temperature at which the Underfloor Heating will operate.
The Australian regulation states the max temperature for running Underfloor Heating is 28°C, therefore a thermostat is essential for controlling the Underfloor Heating to prevent it from overheating.

What is the best Thermostat to use with Underfloor Heating?

We have a range of thermostats that are suitable to use with Underfloor Heating, so we wanted to give you an overview of the options that are available.

• **Standard programmable thermostat** – Our standard thermostats come with a floor sensor and can also be run on ambient sensing mode. They are a fully programmable thermostat that feature a 7-day, 6-event heating schedule. Every day can be set up differently, or all days can be the same or you can have weekdays the same and weekends different. It has a range of different options to suit everyone's busy schedule. These units are relatively simple to program and are available in white and black featuring a glass touch panel display. The units come in portrait as standard and suit a standard Australian mounting plate, a landscape mounting plate is also available if required. View the programable thermostats.

• **Dual thermostat –** Our Dual thermostat is a touchscreen controller that can control both Underfloor Heating and an appliance such as a Heated Towel Rail or mirror demister from the same unit. The two relays can be operated completely independently meaning you can have your floor heating or rail on at two different times. The Dual thermostat also features a boost function allowing you to turn the heating on outside of the standard schedule and it will revert back to the schedule at the next heating event. The Dual controller is very easy to use and ideal for eliminating the need for two controllers on the wall. The unit is available in white or black and the screen can be adjusted on the unit to allow it to be mounted in either a portrait or landscape orientation.

• **Wi-Fi thermostat** – Our Wi-Fi controller allows you to control your Underfloor Heating from anywhere via your smartphone. The SWATT app is compatible for use with both Apple and Android devices. The app allows you to set your heating schedule and adjust your heating mode all via your phone. As well as having multiple thermostats controlled by one app, you can also connect multiple users to the one app. This means all your family members can be connected to control the same thermostats via the app.

The Wi-Fi thermostat is fully programable both via the app and on the thermostat unit. This allows you to create your own personalised heating schedule based on your lifestyle and desired comfort levels. The 5235W features several different heating modes to give you ultimate control over your heating. The Wi-Fi controller is a single relay unit which means it can only control Underfloor Heating. The unit is only available in white, and the mounting plate allows it to be mounted in either a horizontal or vertical position.

• Manual thermostat – Our Manual thermostats feature the simple function of manually controlling the temperature of your Underfloor Heating. The Manual thermostat has no programming capability, you simply turn the unit on or off and control the temperature. The manual thermostat is used in two main applications, firstly to control in slab heating. As slab heating has a much longer heat-up and cool-down time, there is less of a need to set up a schedule. Further to this, when off-peak was common in homes, the manual thermostat was perfect as it came on at the preset temperature whenever there was power to the unit, as it is a manual unit, there is no program or schedule that would be lost every time the power was cut to the unit.

The second use for the Manual thermostat is for home automation. Similar in application to off-peak, the Manual thermostat is used to control the temperature of the heating which is manually set on the unit. The home automation system then can be used to cut the power to the controller, making the home automation system responsible for controlling when the heating is on or off.

We have two types of Manual thermostats, one is a simple dial unit and the second is an LCD screen which is a more modern-looking unit, and also available in white and black.

A final note on our thermostats

All our thermostats are covered with a 3-year warranty and all of the thermostats are supplied with a floor sensor and conduit. The controllers have a 16-amp relay which means they can handle up to 3840 watts of Underfloor Heating. The Dual controller includes a second 5-amp relay for your Heated Towel Rail. If you need more information about the amp load for your system, speak with your electrician or get in touch with our team to assist.

What is the best way to set up the thermostat?

Our programable thermostats have the option to either run on a schedule or run on manual. Running on manual will regulate the floor to the temperature you set it until you tell it to do something else, meaning it will be constantly running to maintain the floor at the set temperature. If you have a changing schedule and the times you are at home are always different, this might be the best option for you – just don't forget to turn it off when you leave! If your routine is very similar day to day, a schedule is the best option for you, with this mode you can set and forget. Your Underfloor Heating will turn on to the temperature you set and turn off when you want it. No need to remember to turn it off! Having a heating schedule setup will help to boost the energy efficiency of your system by ensuring the heating is not left on and it is only running when you want it.

What is the best location for the thermostat?

Having your thermostat somewhere that is accessible and central is ideal. Generally, next to the light switch is the best place so they don't look out of place.

The thermostats are all designed to work using a floor sensor, which is installed at the same time as the heating and provides the thermostat with an accurate floor temperature reading. Most thermostats do also have an ambient mode, which means they are measuring the temperature in the room. Providing the thermostat will be working with the floor sensor, they could be installed inside a cupboard such as a mirror cabinet.

If the thermostat is going to be using the ambient sensor it is important to make sure it's clear of any external influences that could affect the temperature such as exposure to direct sunlight and draughts from doorways or other heating or cooling systems.

Who installs the Thermostat?

Whilst the Underfloor Heating system isn't mandatory to be installed by an electrician, the thermostat must be wired up by a qualified electrician. The thermostat needs to be connected to a 240Volt power feed as well as to the Underfloor Heating and this needs to be done by the electrician.

Summary

In summary, your Underfloor Heating has to be connected to a thermostat to ensure you can control the temperature. Unless you have one of the applications where a manual thermostat would be recommended, we would recommend using a programmable thermostat and setting it up to suit your lifestyle.

Our range of thermostats provides you options to best suit your application and combined with our Underfloor Heating with lifetime warranty, they will give you peace of mind and the ultimate warmth and luxury in your home.

What is the difference between undertile and in screed heating

What is meant by undertile & in screed?

Let's begin by understanding undertile heating, it's pretty straightforward. This is where your Underfloor Heating is installed directly below the tiles. The Underfloor Heating is laid on top of the substrate, either concrete or timber, ideally with insulation, and then the tile glue is spread over the heating and tiles laid on top. This means your floor heating is sitting in the 6-8mm of tile glue and doesn't add to your height build-up.

To understand the in screed system, we need to understand what a screed is. The primary purpose of a screed is to give a smooth and level floor on which to lay your chosen floor finish, however it is also used to adjust or slope the levels of a floor, especially in a bathroom.
A screed is typically a mix of sand and cement that is spread out over the floor so another way of understanding it is to consider it as a mini slab that is spread over the substrate before the floor finish is laid. The thickness of the screed will vary based on the application but would typically be a minimum of 20mm and up to 50mm thick.

Typically, when it comes to Underfloor Heating and screed, the screed would be used to cover the Underfloor Heating to give a smooth surface for laying the floor finish. Most commonly though, a screed is actually used in a bathroom to help shape the slope of the floor to help the water drain to the floor waste. In most cases where there is a screed, the Underfloor Heating would be installed below the screed, hence the two different systems.

What are the different systems?

There are different systems that are designed for either going below the screed or directly below the floor finish. Whilst the systems are essentially the same, it comes down to a difference in the wattage. If you are going below the screed, then you want to ensure that you use a higher wattage system, so that it effectively heats through the screed as opposed to a system installed directly below the tiles. We will discuss this further when we get to the pro's and con's. A mat or loose wire system doesn't necessarily mean one is for screed and the other is for undertile, there are typically both loose wire and mat systems for both applications. *A credible Underfloor Heating supplier should have both systems*

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Undertile	
Pro's	Con's
• Fast heat-up time • Can be used in renovation applications where the screed is not being removed • Less electricity draw per m^2	• Fast cool-down times • More difficult for the tilers to tile over (it is still straightforward but slightly more challenging than the screed method)
In screed	
Pro's	Con's
• Heats up the screed, turning the screed into a heat bank so it remains warm for longer • Reduces likelihood of the system being damaged while the screed is being laid • Easier for the tilers	• Slower heat-up time • Draws more electricity per m^2

Why do you use screed wattage in bathrooms?

An in screed system going below your screed will typically be around 200W/m^2 to help heat through the thickness of the screed. However, we recommend using 200W/m^2 in bathrooms regardless of if it is below the screed or directly below the tiles.

The reason for this is that for Underfloor Heating to be the primary heat source in the room, 75-80% of the floor area must be covered. In a bathroom, this is sometimes difficult to achieve when you take out the areas with floor-mounted fixtures such as toilets, baths or showers etc.

Further to this, bathrooms are typically one of the coldest rooms in the home and are mostly used early mornings and evenings, the coldest times of the day. So again, we are trying to put as much heating in as possible to heat the room effectively for you.

As a result, we prefer to use the 200W/m^2 system to get an increased amount of heating for the available floor space. For an undertile install in a bathroom, we would use either the Thermonet 200W mats or the Thermoscreed loose wire system working on 200W/m^2.

This doesn't mean that you can't use an undertile system below a screed or an undertile system below the tiles in the bathroom. The systems will still work, we are just recommending the 200W/m^2 systems as the best option for providing suitable heat-up and performance.

Contact Support

Underfloor Heating is no longer a luxury. It is fast proving to be the most efficient and certainly the most comfortable form of heating in all homes. Underfloor Heating has certainly developed significantly since being originally utilised by the Romans in the form of a fire below concrete floors.

Electric Underfloor Heating has played the biggest part in this advancement with a process of continuous improvements resulting in the ever-increasing floor heating demand today.

Thermogroup is one of Australia's and Europe's leading Underfloor Heating specialists with a wide range of some of the very best Underfloor Heating systems available. We believe in bringing a unique level of comfort to consumers backed with superior customer service and Underfloor Heating allows us to do just that.

For all enquires, specifying and quoting, contact Thermogroup.

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