

HYDRONIC UNDERFLOOR HEATING GUIDE



Proud partners with SunRay in bringing you
the best underfloor heating in South Australia



Introduction to Underfloor Heating

Staying warm and comfortable all winter long can be a challenge, especially if your home is heated with a traditional, centralised forced-air heating and cooling system.

You've probably been balancing energy costs against your comfort, especially when you step out of the shower and onto cold tiles, or out of bed onto a chilly floor. This is because there are serious limits on what forced-air systems can do.

Energy costs of forced-air systems can be too expensive for you to warm your entire home to a truly comfortable temperature in the winter. Costs are exacerbated by the very nature of these systems. For example, energy can be lost when heated air escapes through leaks in the ducts installed in your home. That heated air often escapes your home before it ever has a chance to warm up your favourite rooms. Depending on the age and condition of your forced-air heating system, these losses could represent as much as 50 percent of the energy your system consumes.

Fortunately, there's another option. Radiant heating has become popular recently, and advances in system design and efficiency mean that it can easily surpass forced-air systems in both effectiveness and energy costs.

This guide will explain what radiant heating is and how hydronic underfloor heating might be the best heating solution for your home.

Say goodbye to dust, ducts and noisy fans.

Welcome to the clean, silent world of radiant heating.



How Radiant Floor Heating works

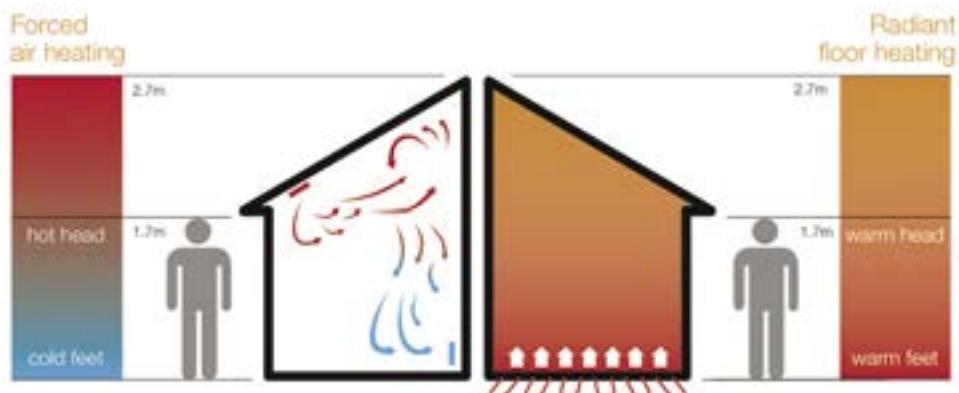
With a radiant floor heating system, the temperature of the floor surface is higher than that of the air. CSIRO tests have shown that radiant heating warms the whole body compared to convection heating which primarily warms the upper body.

There are two major kinds of radiant heat, electric and hydronic. Both are installed beneath the floors of your rooms, also called sub-floor heating.

In electric radiant heat systems, cables are installed underneath the floor. These cables are heated by electricity, which warms the floor, and then the room. Electric systems are great for heating limited areas, such as a bathroom with a floor that never seems to be warm enough for you. However, due to the cost of electric heating, it's not the best solution if you're looking for an alternative to forced-air for your entire home.

That's where hydronic heating shines. Instead of using cables that are warmed with electricity, hydronic systems use a series of pipes. Heated water flows through these pipes, which provide effective heating to the room above. In fact, hydronic radiant heat can create temperatures that are much more consistent throughout a home. No more getting a chill walking from your living room to your kitchen. If you want different temperatures in different rooms or at different times, such as cooling off your bedroom when it's time for bed, many systems use thermostats that can be programmed to do so.

Radiant heating warms the whole body compared to convection heating which primarily warms the upper body.



About Hydronic Underfloor Heating

Hydronic radiant heat uses pipes, water and an energy source of your choosing. Hydronic underfloor heating systems are efficient enough to use as a heating solution for your entire home.

Small pipes beneath the floor are used to circulate heated water throughout the area. As the water flows through the system, the heat is released. Water can be heated in a number of different ways, which means that you'll have many energy options when choosing hydronic radiant heat:

- Electric heat pump
- Natural gas boiler
- LPG gas boiler
- Electric boiler

Some underfloor hydronic systems supplement these primary heat sources with solar energy. Choosing a solar-assisted system is environmentally friendly, and it can further reduce your heating costs. The best choice for heating your system depends on the size of your home and where it's located. We can advise on which method will be the most efficient. A system of pipes channels water from this heating source to the pipes under different rooms of your home, which means that you can set different temperatures for different rooms.

In installations in new homes, the pipes that run through individual rooms are put in place, and a concrete slab is poured over top. Heat from water moving through the pipes transfers into this concrete slab, which then warms the room.

Hydronic heating technology is constantly evolving, especially in regards to the required water temperature needed to reach desired heating levels.



Efficiency of Hydronic Underfloor Heating

Hydronic radiant heat can be one of the most efficient ways to heat your home. The nature of the system limits the amount of energy that can be wasted.

By comparison, forced-air systems can lose so much heat through ducts that their efficiency is reduced by half. In a hydronic system, there's significantly less heat loss.

Several other factors contribute to the efficiency of hydronic heat. Since the heat comes from the floor, it can keep you comfortable at a lower set temperature than would be required for the same comfort from a traditional forced-air system. This method of heat distribution also means that the system doesn't have to run for as long to heat up or to maintain the set temperature.

It's especially effective in areas where forced-air heat can't keep up with your heating needs. In addition to being installed beneath flooring, hydronic radiant heat systems can also be installed in walls and ceilings, which can help you heat trouble spots in your home.

Hydronic underfloor heating systems create a uniform temperature in your home because they don't rely on circulating air to provide warmth. This means that even the corners of your favourite rooms will be adequately heated. Additionally, you can use a programmable thermostat to set different temperatures in different rooms or at different times of the day. Programmable thermostats have been associated with both reduced heating costs and increased comfort.

The efficiency of hydronic systems can be further improved by careful design and adequate insulation. We are radiant heat specialists here at Glow, and can help you create a system that maximises efficiency and keeps your home comfortable all year round.

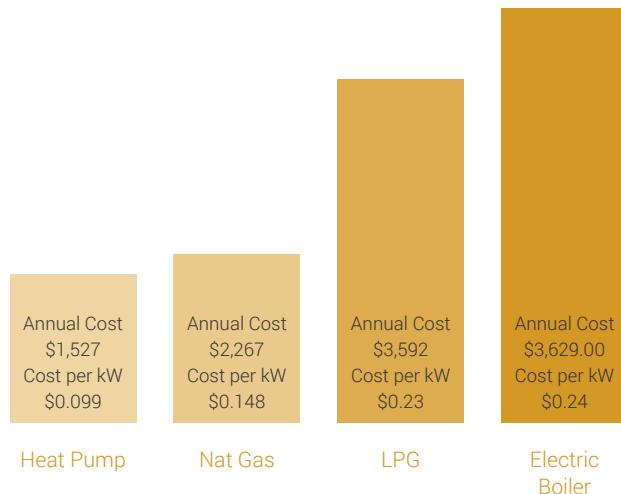
Hydronic underfloor heating systems can reduce your energy costs, which means that they pay for themselves over time. They can also increase the value of your home.



Heat Sources Running Costs

Running costs are a key consideration and one which can be challenging to answer due to the variability in types of fuels and prices. Actual cost of heating will depend on the area heated, running time, thermostat settings, house insulation, energy tariffs and your local climate.

This costing graph is based on a 200m² home at 16kW heat load, operating for 8 hours a day for 120 days per year.



Heat Source Outputs and Cost Per Unit

Heat Pump

Single phase 16kW based on 45° Water Flow Temp & 7° Day = \$0.41 per kW/hr

Natural Gas Boiler

Condensing 20kW = \$0.041 per mJ/hr

LPG Boiler

Condensing 20kW = \$1.23 per Litre

Electric Boiler

Three phase 18kW = \$0.21 per kW/hr (off peak)

Please note: Figures accurate as of 1st August 2017 and should be used as example only.
Excludes supply, rental and delivery charges. Excludes time payment, member discounts and government subsidies. Includes 10% GST.

Why choose **Hydronic Underfloor Heating**

Hydronic underfloor heating is a good choice if you want a silent, invisible heating system that will improve the air quality in your home for allergy sufferers and consistently heat your entire home.

Choose hydronic underfloor heating if you want to heat your entire home or you're building a new home or other structure and want an efficient heating method. Hydronic underfloor heating will also allow you some flexibility in the energy source for your home's heat and will reduce your overall heating costs.

If you've considered these factors and still have questions about hydronic underfloor heating, we are happy to assist. We can provide you with a customised estimate based on your home and individual heating needs.

Our estimate will enable you to make an informed decision that takes into account the total cost of installation, the amount you can expect to save in energy costs, and the increase in your personal comfort, especially through the cold winter months.

We can also give you extra information on the different kinds of systems we work with and explain the installation process.

Experience the Glow difference! We are always happy to help and look forward to hearing from you soon.

Hydronic underfloor heating is perfect for allergy and asthma sufferers, and provides consistent heat to your entire home.





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