



An Overview of Wet Underfloor Heating Systems

Wet UFH systems can differ in many ways from the types of the base they can install on, what heating zones they require and how manifolds control flow and temperatures.

Wet underfloor heating is suitable for domestic and commercial property types. It can be attached to different heat sources. The most common are boilers and air-source heat pumps. We can incorporate UFH into an existing or new central heating system.

Whilst the most economical time to install underfloor heating would be during a new build or when building an extension, there are options to retrofit a system to allow the switch from wall radiators to an underfloor heating system. Although a retrospective system is a little more disruptive, Underfloor Heating Supply Ltd provide several solutions to enable this.

Underfloor heating can replace the conventional radiators in any room or a combination of rooms covering anything from a single conservatory to the entire property.

UFH Installers Ltd supplies and fits underfloor heating systems. UFH Installers Ltd will quote to supply all the elements necessary to install a designed system using their qualified fitters to carry out the work. They even offer a screed and polished concreting service if required. At Underfloor Heating Supply Ltd, we offer trade and DIY UFH kits to enable this equipment to be self-installed if preferred.

How Wet Underfloor Heating Works

Underfloor heating systems heat the floor. Unlike radiators which work by heating the air around them through convection, underfloor heating uses both convection and radiant heat to warm a space. This combination results in a consistent temperature throughout the room with no more cold spots. The concept is that people feel comfortable using a lower air temperature. The result is an even temperature throughout the room.

Wet underfloor heating uses a series of pipes looping through each room set beneath the surface that return to a manifold. The manifold is attached to the heat source, a boiler, or an air-source heat pump. The floor becomes a giant heat emitter with flow and return points on the manifold. Manifolds are usually sited within a cupboard with easy access for maintenance or repair if required. We recommend a minimum height of 600mm from the floor level to provide access for the flow and return pipes.

Rather than high-temperature water being fed through as required by traditional radiators of 65°C lower water temperature of 40°C can be used. The pipes are heating a larger surface area; as a result, they do not provide as much heat per m². However, it gives the required room temperature. The result is a more efficient boiler use as the water is heated less than in conventional systems; the result is a cheaper running cost and better for the environment.

A considerable benefit is freeing up space by removing wall-hung radiators; the rooms become more adaptable. Allowing more versatility when placing furniture by now having to consider restricting heat flow from wall-mounted radiators, not to mention the dreaded decorating behind the radiators, is also an excellent solution for rooms with high ceilings.

There are many options to consider when opting for UFH; each has different merits; below are our most common:

Wet UFH Systems

If using a combination boiler to run the underfloor heating system and radiators, you will need zone valves and a separate thermostat for the best results.

When using a system boiler to heat a hot water cylinder, these should already use a two-port zone valve, separating hot water and radiators. A three-port zone valve needs fitting for the underfloor heating system.

Multiple Zoned UFH

Multiple-zoned systems work similarly to the single-zone system; the difference is you would need actuators for each manifold port and a thermostat for each zone you would like to control.

The thermostats provide the ability to control the temperature and starting time of the UFH in any area. Programmable thermostats activate the UFH for each heat zone, usually individual rooms, or linked spaces. An electronic manifold valve opens when a thermostat is activated, starting the pump and heat source.

The Manifold

Hot water supplied by the heat source passes through a high-limit thermostat and then flows into the underfloor heating manifold, which then, in turn, draws water from the underfloor heating pipework.

When this happens, the cold water in the underfloor heating pipework is mixed with the hot water from the heat source and pumped around the underfloor heating circuits.

Suppose the water passing over the temperature sensor is warmer than the temperature set by the sensor (usually somewhere between 25 and 50 degrees). In that case, the sensor will trip the pump to prevent the water from passing through the UFH circuits.

Installing Wet Underfloor Heating

We design domestic UFH systems to be simple; they are quick and straightforward to install. The skills in fitting UFH are minimal, making them great DIY projects. UFH systems are compatible with pre-installed conventional heating systems/boilers and radiators (If unsure, please check with us before purchasing). Most UFH systems are compatible with a wide range of floor coverings (please check with the floor covering supplier/manufacturer before purchasing). We can adapt system designs to suit most heat sources; please let us know if you are unsure of your requirements.

Detailed installation instructions and information on commissioning the system come with our designed systems.

When you have laid the pipework and connected it to the manifold, we recommend a qualified plumber makes the final system connections. This work should not take more than a few hours, but if you feel confident enough to connect to your heating system, you should not need more than a few simple connectors. Once the connections are complete, fill the system, bleed it and balance it; the plumber can do this if you have employed one.

Once all the pipe work side of the system is complete, you will need to connect the electrical side of things, e.g., the wiring centre and thermostats. At this juncture, we assume connections to any programmable controllers, zone valves, and a heat source are complete.

Most electrical connections are made in the wiring centre, generally placed above the manifold. These connections link the heat source to any controllers and zone valves. We recommend that a qualified electrician carry out this work and wire the thermostats using standard 3-core and earth cables.

We can install wet underfloor heating in a typical home over various flooring surfaces.

Please see below a list of surfaces and brief descriptions:

A Solid Screeded Floor

A straightforward install – insulation, UFH pipes and screed, laid on the existing structural concrete slab.

A Solid Concrete Floor (no screed)

Like the one above, the only difference is that the screed element is removed. The UFH pipes are encapsulated within the concrete slab.

Already Insulated Concrete Floor (board system)

If your existing concrete floor already has insulation, installing UFH becomes easier.

Heating is Laid on Top of the Existing Timber Floor Using Spreader Plates.

The UFH sits on top of an existing timber floor. The joists will need to be insulated using a quilt or board insulation.