



ambiente®

more than underfloor

UNDERFLOOR HEATING AND HEAT PUMPS



HEAT PUMPS THE PERFECT PARTNER FOR UNDERFLOOR HEATING

Heat pumps produce lower water temperatures for heating than traditional boilers. This makes them the perfect partner for underfloor heating systems. UFH uses warm water to produce efficient radiant heating in the room. With a heat pump supplying the required low temperature water we can have a heating system that is renewable and provides the ultimate comfort.





MITSUBISHI ELECTRIC ECODAN AIR-SOURCE HEAT PUMPS



Heating UK homes with Ecodan air source heat pumps is now a viable and credible alternative to traditional methods and can help to combat rising energy bills through greater efficiency.

As perhaps the single most important renewable solution, heat pumps are an established, proven technology, supported by Government incentives, economically viable and flexible in their application for domestic heating.

Ecodan uses inverter-driven heat pump technology to harvest and upgrade free, renewable energy from the outdoor air to deliver heating and hot water, even in temperatures as low as -25°C .

For every 1kW of electrical input energy, Ecodan harvests and upgrades renewable heat from the outdoor air to provide the home with an average of at least 3.2kW of heat output.

1kW
Electrical
energy input



2.2KW
Low temperature
renewable heat
energy taken from
the environment



3.2KW
Heat energy output



HEAT PUMPS AND UFH THE DESIGN PROCESS

The most important thing is that any parameters specified by the heat pump manufacturer are incorporated into the UFH design. The design of a UFH system is based around four main input parameters:

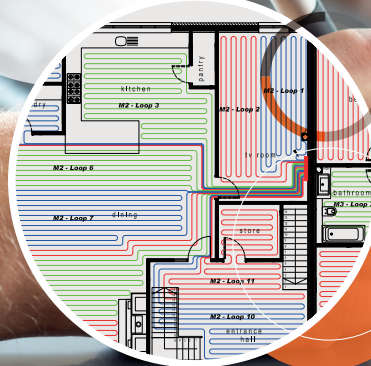
- The size of the pipework installed
- The spacing between each 'run' of pipework installed
- The flow temperature provided by the heat source
- The room design temperature (the target temperature we are trying to achieve)

There are also other assumed parameters such as the floor construction type and the external weather conditions, but these are taken as 'fixed' parameters rather than the above which can vary.

The most accurate way to make sure that UFH will adequately heat a room, is to work back from the heat loss figure – this is the actual heat loading that will satisfy the heat loss, at worst-case external weather conditions. This is normally calculated by a mechanical consultant, and can then be used to make sure that the UFH is providing adequate heating to the area.

UFH DESIGNS

Here at Ambiente we offer a complete Underfloor Heating CAD design service for your projects.

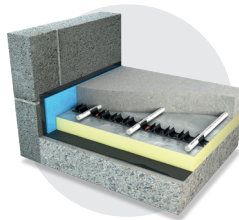




CAN UNDERFLOOR HEATING BE INSTALLED INTO ANY FLOOR CONSTRUCTION?

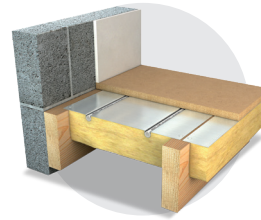
+ SCREEDED SYSTEMS

Screeeded systems are the most popular and effective type of underfloor heating. Pipes are clipped or stapled onto an insulation layer, then the screed is laid on top. The warm pipes effectively heat up the whole slab, giving even and consistent heat output.



+ SUSPENDED SYSTEMS

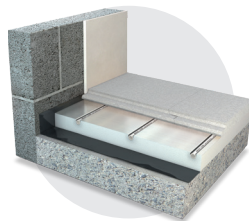
We have a range of UFH for joisted or battened floors, the most common method being to use an aluminium spreader plate, fixed to either side of the joists.



ambiente

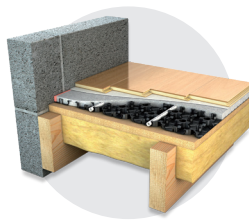
+ FLOATING SYSTEMS

Floating floor systems consist of UFH pipes laid directly into pre-grooved and foiled insulation boards, which can be laid directly onto the floor surface below.



+ LOW PROFILE SYSTEMS

Low Profile systems are ever increasing in popularity as more people see the benefits of underfloor heating and want to add it to their property. These systems can be laid onto solid floor surfaces to provide an even heat output with minimal floor build-up.



+ OTHER/BESPOKE SYSTEMS

Ambiente has developed some specialist systems to cater for specific requirements such as structural floor areas and raised access floor systems, as well as adapting systems to meet bespoke client requirements.



Please note that this list is only an example and not in any way exhaustive – Ambiente can assist with questions surrounding floor construction and specifying the correct UFH system to suit. Also note that the effectiveness of each of these systems types when coupled with a heat pump should be considered at design stage.



WHAT ARE THE MAIN ADVANTAGES OF UNDERFLOOR HEATING?

Efficiency

UFH is the most energy efficient way of transferring heat into any room since it works by radiation from the floor surface - this is a more natural form of heating and requires lower flow temperatures due to its increased surface area.

Comfort

It is recognised that UFH is the most comfortable form of heating, creating a consistent temperature with no draughts or cold spots.

Control

UFH offers the benefit of customisable and flexible heating control, from small, individual heating zones to multiple areas controlled

from a single controller. Heat pumps perform most efficiently when connected to larger heating zones.

Interior Design

As UFH is completely hidden from view, there is nothing to hinder interior design - no unsightly radiators on the wall means all wall space is maximised for furniture positions.

Health & Safety

With no radiators mounted on the wall, UFH is considered an ideal heating solution for areas where this could be a safety hazard - for example schools and nursing homes.

HOW DOES UNDERFLOOR HEATING WORK?

Underfloor heating works by circulating warm water through a series of continuous loops that are fitted underneath your floor, creating a large radiant surface that heats your room from the floor upwards.

+ RADIATORS



+ UNDERFLOOR HEATING



This radiant form of heating is much more comfortable than the convected heat provided by radiators which draws cold air across the floor, heating it and then convecting it upwards towards the ceiling.

ambiente

Do you have any questions about underfloor heating? Call our technical team today on **01707 649 118**

EXAMPLE 1

MITSUBISHI ELECTRIC ECODAN PUHZ-W85VHA2 HEAT PUMP

UFH System **AmbiClip**

**Mitsubishi Electric Ecodan
PUHZ-W85VHA2 unit,
coupled with ground floor
UFH system in residential
property.**

This scenario illustrates a typical residential application, with a ground floor underfloor heating system within a screed, coupled with a Mitsubishi Electric PUHZ air-source heat pump.

- UFH Heating Output required: 5.8 KW
- Size of area heated: 78m²
- Flow/Return temperature 40/35 degrees

ECODAN
PUHZ-W85VHA2
RESIDENTIAL
PROPERTY



EXAMPLE 2

MITSUBISHI ELECTRIC ECODAN QUHZ HEAT PUMP

UFH System **AmbiClip**

Mitsubishi Electric Ecodan QUHZ Unit coupled with UFH system in 1 bed residential bungalow.

The new QUHZ Mitsubishi air-source heat pump is the perfect partner for smaller properties with underfloor heating installed, due to its 5KW maximum loading. This scenario shows a bungalow with UFH throughout the property, coupled with a QUHZ heat pump.

- Heating Output required: 3.7 KW
- Size of area heated: 70m²
- Flow/Return temperature: 50/35 degrees

**ECODAN
QUHZ UNIT
RESIDENTIAL
BUNGALOW**





Heritage House, 1 Woodside Lane, Bell Bar, Hertfordshire AL9 6DE
telephone 01707 649 118 **email** info@ambienteufh.co.uk
ambienteufh.co.uk