

thermogboard

Surface heating and cooling solutions by Wavin

Underfloor Heating Product Guide



For residential and light commercial applications



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advanced UFH technology

Thermoboard is the name for underfloor heating and cooling solutions from Wavin.

We give you an unrivalled combination of proven technology, in-depth expertise and reliable service.

This Underfloor Heating Product Guide provides descriptions of the Thermoboard product systems, manifolds and controls that work together to deliver our UFH system solutions.

The Guide will also help you to identify and select precisely the right UFH system to deliver project success for each individual project you undertake.

Whatever your UFH needs, Thermoboard can satisfy them all: for new and existing floors and for all types of floor construction.

With our long experience, we're UFH specialists who can be relied upon to give you total peace of mind.

UFH: Basic principles and benefits

Energy-efficient comfort

Underfloor Heating (UFH) using piped warm water is the most modern and energy-efficient option for heating homes and other buildings.

UFH also delivers the most comfortable warmth for occupants, as well as other practical benefits.

Heating principles

With UFH, the floor is gently heated by piped warm water (or alternatively by electric cable) and the heating energy is emitted from the floor by natural radiation. This heat is absorbed by other surfaces in the room which then also emit warmth.

The result is an all-round, more even warmth than is typically achieved by other space heating techniques.

Radiators, for example, use room air to transfer the heat, mostly by convection. This reliance on the convection of air to heat the room results in uneven warmth and higher temperatures at ceiling height compared with floor level. As radiators intrude on the usable space within a room, there is a general desire to keep them as compact as possible. As a consequence of this, the piped water has to be hotter than for UFH in order to achieve the same level of comfort for the occupants.

Heat sources

Plumbed UFH uses piped warmed water from any primary heat source. This may be from a conventional domestic boiler that is also supplying domestic hot water.

In some situations, the boiler may be supplying heated water for radiators as well as for UFH.

Alternative sources of warmed water may be heat pumps or solar water heating. UFH is especially suited for such renewable heat sources because it requires water at lower temperatures than traditional heating techniques.

Principal advantages of UFH

Comparison of radiated heat from UFH and convected heat from traditional radiators shows the typical differences between these heating options – and the main benefits of UFH.

Radiated heat (UFH)

Performance Advantages

- A UFH floor only needs heating to 26–28°C (similar to hand temperature) to achieve the required room temperature
- Therefore, UFH requires lower temperatures for heated water:
 - 40–45°C for concrete (screeded) floors
 - 50–60°C for timber floor constructions

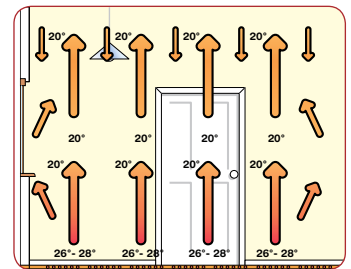
NOTE: radiators typically require water heated to 70–80°C.

- Lower water temperatures mean better energy efficiency with fuel bills up to 20% lower (see *SOURCE*)
- More even room temperature ensures all round comfortable warmth
- Silent running – no expansion creaking or water flow noise

SOURCE: Energy Efficiency Partnership for Homes: Domestic Heating systems ranked by carbon emissions, version 2.

Practical Advantages

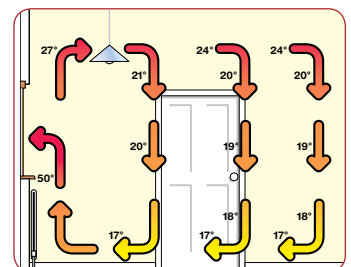
- Unhindered room layout
 - because there are no wall-mounted radiators
- Healthier environment
 - because less dust is circulating in the air
- Decreased irritants
 - as the warm floor inhibits the breeding of dust mites and fungi
- Greater safety
 - because there are no exposed hot surfaces
- Low maintenance
 - no radiators to redecorate or renew, or to be 'dropped' to allow room redecoration
- UFH is ideal for connection to renewable energy sources (e.g. heat pumps and geothermal systems)
 - because lower water temperatures are required



Convected heat

Typical Comparison with Radiated Heat

- Requires higher temperature at heat source: using water at 45°C with radiators would require the radiator to be three times larger than normal for it to produce the same amount of heat.
- Hot air at ceiling level and cooler at floor level, often with associated draughts, so there is uneven warmth
- Significant heat loss through windows, walls and ceilings, representing wasted energy costs
- Dust carried round room in convection currents
- Dry, re-heated air causing a stuffy atmosphere
- Convective air currents (e.g. above radiators) that can stain walls



The three essential elements

Plumbed UFH comprises three key elements that work together to deliver the required heating performance and effect:

1. **Floor products incorporating UFH pipe:** to create the pipework circuits within the floor that will emit heat. Many floor products help to hold the pipe at the correct spacing to ensure even distribution of heat across the floor surface above.
2. **Manifold:** to provide flow and return circulation of warm water at the correct temperature and flow rate to ensure an even, comfortable temperature across the whole floor surface.
3. **Controls:** to monitor water and air temperature and signal the heat source. In effect, the nerve centre of the installed system.

The careful selection of each of these is critical to the efficient operational performance of the entire installation.

Thermoboard is dedicated to ensuring that precisely the right combination of these essentials can be selected for each project type and location.

Key criteria for each integrated solution are:

- Appropriate heat output when and where needed
- Maximum energy-efficiency
- Reliable time and temperature control as required



1 Floor products

The choice of floor product is influenced by several factors:

- Whether the floor is being newly constructed or already exists
- Its type of construction: solid/screeded or dry/timber – or special floor constructions such as Acoustic or Raised Access floors
- The size and shape of the space to be heated
- The type of floor finish that will be installed over the UFH (see page 5)

A solution to suit any combination of these factors, without compromise, can be found within the Thermoboard product range (see pages 9-19).

2 Manifolds

A manifold is required wherever UFH is to be installed to serve two or more plumbed circuits from the same primary heat source.

When underfloor heating is being connected to a high temperature heat source which also controls hot water or other heat emitters, a mixing unit is connected to the manifold to mix the water to the required temperature for the system.

Thermoboard has manifold solutions that can be tailored to each situation. Our Composite Manifold can be sized to serve the exact number of individual UFH circuits up to a maximum of 12 circuits (see page 21).

Single circuit installations which require water temperature control will be connected to their heat source via a mixing unit, but will not require a full manifold.

3 Controls

As with any type of heating, UFH operation requires time and temperature control.

The choice of controls will initially be based on these key factors:

- Whether wired or wireless installation is practical or preferred
- Requirement for programmed or non-programmed operation
- Number of individual circuits – and whether these are to be controlled separately or linked

In addition, special operational features and functions may be included to enhance convenience (e.g. remote operation) or operational safeguards for householders (e.g. frost settings, child/interface lock).

Thermoboard UFH controls provide a comprehensive choice for solutions tailored to the specific needs of each installation – and the preferences of the householders (see pages 22-24).

Project considerations

Floor construction

Selecting the right underfloor heating elements for a project is always influenced first by the type of floor construction that underlies the chosen floor finish.

For UFH projects, these are broadly categorised into screeded, dry construction and special floor construction.

Screeded Floors

Floors laid onto a solid sub-floor onto which a sand/cement or liquid screed will be applied over an insulating layer.

When UFH pipework is incorporated, the screed is a good conductor of heat and acts as a heat diffuser.

Dry Construction Floors

Floors constructed in various forms, typically using timber:

- **Joisted**

Parallel softwood or engineered joists supporting a floor deck, typically at 400mm or 600mm centres

- **Battened**

Parallel timber battens placed at regular intervals across a main structural floor.

If the joists/battens are regularly spaced, UFH may be placed between them, and in contact with the underside of the floor deck that is supported by the floor structure.

However, the joists/battens may be irregularly spaced in some situations, particularly in older properties. In such cases, UFH would be installed across, and supported by, the floor structure.

- **Fully-floating**

A floor deck (typically tongue-and-groove panels) that is not secured to the underlying structure. A 10mm expansion gap around the floor perimeter allows for expansion due to seasonal changes in humidity and moisture content.

In this case, UFH is supported by the floor structure and either lies under the floor deck or is integrated within it.

Special Floor Constructions

These include **Raised Access** floors incorporating an accessible underfloor void (*page 18*); and **Acoustic floors** to minimise transferred sound (*page 19*).

Insulation

Insulation within any floor construction ensures that heating energy is not wasted. Some of our UFH systems include insulation panels with pre-cut channels to hold the pipe. With other Thermoboard systems, insulation is separately selected, sourced and installed according to the floor type.

- **Rigid insulation panels** Required beneath all UFH systems. Their thickness should comply with current Building Regulations and/or standards.
Thermoboard systems that include insulation panels use extruded polystyrene (XPS). XPS provides superior strength and moisture resistance over other insulation types.
- **Edge expansion foam** is typically installed around the perimeter of a room to allow for thermal expansion of floor screed. Thermoboard Edge Expansion Foam, with its adhesive backing and integral gaiter, is specifically designed to prevent the screed bridging to the wall or the sub-floor below the floor's insulation.
- **In transit from manifold to heating area** Flow and return pipes to and from the primary heat source should be insulated. This reduces localised overheating.

Warm-up times

Warm-up time of any UFH system is a function of the thermal mass of the floor:

- **Thick floor screeds** take longer to reach the target surface temperature and hold temperature for longer.
- **Thin screeds** and **timber floors** begin emitting heat sooner and cool down faster.

Heat diffuser

UFH needs to spread its energy evenly through the floor mass so that the overlying floor surface does not have hot spots or cold spots.

Screed acts as a heat diffuser. For Thermoboard dry construction systems, a highly-conductive aluminium diffuser is pre-fitted into insulation panels. This wraps around the UFH pipe and spreads across the panel surface to evenly heat the floor above.

Floor finishes

All UFH installations are overlaid with a final floor finish. This may be: carpet; resilient vinyl; linoleum (or equivalent); stone; ceramics; timber or laminate.

As with different types of floor construction, the thermal resistance of each floor finish option varies. This can affect heat output – for more information, please see the tables on page 7.

Allowance should be made for the thermal resistance of the floor finish, in combination with that of the floor construction, to ensure this will not prevent efficient heating performance.

Selection Advice

If you have any queries about any of these project considerations, advice is available on request if required (*see page 26*).

Layout guidance

Pipe centres and pipe layout pattern are two key considerations.

For consistent heat output, the UFH pipe runs should be placed at consistently spaced centres. The closer the spacing, the greater the potential output.

In some Thermoboard floor products, pipe spacing and layout patterns are pre-determined at consistent centres. Others allow pipe runs to be spaced at wider centres or closer together. Closer spacing may be required in specific areas where higher outputs are wanted (e.g. near large windows). Smaller pipe centres are usually necessary close to the manifold.

Recommended pipe centres

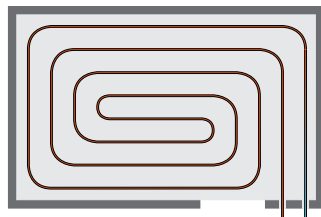
For typical heat output, using 16mm pipe and a boiler, recommended pipe spacing is at 200mm centres. However, for some projects, smaller or greater spacing may be appropriate.

Typical pipe layout patterns

There are two typical patterns for laying UFH pipe:

Spiral

- Initially at 400mm centres: follows room shape in a spiral to the middle
- Then reversed out from middle: leaves pipe spacing at 200mm centres



This pattern is possible with two Thermoboard systems – **Staples** (page 9) and **System Plates** (page 10).

Serpentine

- Pipe laid in parallel runs up and down room length, with loop turns at each end

Thermoboard systems with pre-determined pipe spacing all use the serpentine pattern.



If there's a choice, which pipe layout?

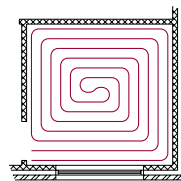
Serpentine patterns can cause greater outward pressure on pipe fixings because tighter turns are needed to achieve close centres.

With spiral patterns, close centres can generally be achieved without excessively tight turns but planning is required to determine the extent of the heated area each pipe will cover, before starting installation.

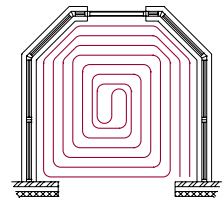
This may influence which layout is preferable if the selected system does not have panels with pre-determined pipe spacing and layout.

Thermoboard System	UFH Pipe (diameter)	Spacing (pipe centres)
Staples	16mm	flexible
System Plates	16mm	multiples of 75mm (typically 225mm)
Pocketed Polystyrene	16mm	options: 150/200/300mm
Foiled Polystyrene Low-Build 25	16mm	options: 150/200/300mm
Low-Build 15	10mm	150mm
Modular Wood	10mm	100mm
Raised Access	16mm	300mm

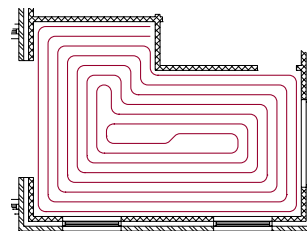
Typical single room layout – Spiral



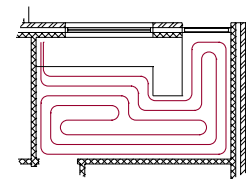
Basic Square



Conservatory

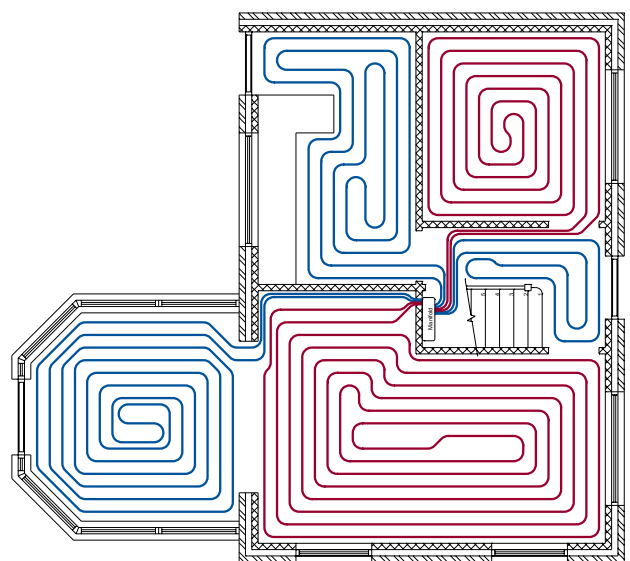


L-Shaped



Irregular Shape

Typical multi-room layout – Spiral



Typical heat outputs

The heat output of any given underfloor heating system is the result of a combination of factors: UFH system installed, floor finish installed over it, the UFH pipe spacing and the designed flow/return temperatures. All of these factors are considered when a UFH system is designed.

System performance: K_H , W/m^2K

How to calculate the heat output of a system using K_H values

Heat output = K_H x difference between the mean water and room air temperatures.

Example 1: A System Plates system with pipes spaced at 225mm centres and a 1.5ToG carpet laid over. With a room air temperature of 21°C and a mean water temperature of 50°C.

$$\text{Heat output} = 2.35 \times (50-21) = 2.35 \times 29 = 68W/m^2$$

Example 2: A Foiled Polystyrene system with 18mm gypsum fibre board, 150mm pipe centres and 0.07ToG Tiles. With a room air temperature of 20°C and a mean water temperature of 35°C.

$$\text{Heat output} = 4.78 \times (35-20) = 4.78 \times 15 = 72W/m^2$$

Heat source efficiency

When using a condensing boiler with UFH the return temperature is typically below 55°C, enabling it to run in condensing mode unlike heating systems which require higher water temperatures. This provides a 3% increase in boiler efficiency throughout the normal operating range of UFH.

When using either air source or ground source heat pumps the following table taken from the "Heat Emitter Guide for Domestic Heat Pumps", published by the Department of Energy and Climate Change and the Energy Savings Trust, is recommended as a source of guidance to optimise the Seasonal Performance Factor and reduce running costs.

Heating circuit flow temp, °C	Likely heat pump SPF	
	GSHP	ASHP
35	4.3	3.6
40	4.1	3.4
45	3.7	3.0
50	3.4	2.7
55	3.1	2.4
60	2.8	2.1

Thermoboard System	Pipe Centres	No Covering	10mm Tiles	25mm Stone	4mm Vinyl	7mm Laminate	6mm Carpet	18mm Timber	12mm Carpet	12mm Carpet + 4mm underlay
		TOG value of typical floor finish								
		0.00	0.07	0.15	0.16	0.44	0.75	1.13	1.50	2.00
Staples <i>inc 65mm Screed</i>	100mm	6.05	5.77	5.48	5.45	4.64	4.00	3.42	3.01	2.58
	150mm	5.17	4.95	4.73	4.70	4.07	3.55	3.08	2.73	2.38
	200mm	4.46	4.28	4.10	4.08	3.58	3.16	2.78	2.49	2.19
	300mm	3.35	3.24	3.13	3.12	2.80	2.53	2.27	2.08	1.86
System Plates <i>inc 65mm Screed</i>	150mm	5.07	4.86	4.64	4.61	4.00	3.50	3.05	2.71	2.36
	225mm	4.06	3.91	3.76	3.74	3.31	2.95	2.61	2.35	2.08
	300mm	3.28	3.18	3.07	3.06	2.76	2.50	2.25	2.06	1.84
Pocketed Polystyrene <i>inc 65mm Screed</i>	150mm	4.59	4.41	4.23	4.21	3.69	3.26	2.86	2.57	2.26
	200mm	3.96	3.83	3.68	3.66	3.25	2.91	2.59	2.34	2.08
	300mm	3.02	2.93	2.84	2.83	2.57	2.35	2.14	1.97	1.78
Foiled Polystyrene/ Low-Build 25 <i>inc. 18mm T&G Chipboard</i>	150mm	3.37*	3.28	3.18	3.17	2.88	2.61	2.34	2.13	1.90
	200mm	2.95*	2.88	2.81	2.80	2.56	2.35	2.12	1.94	1.74
	300mm	2.04*	2.01	1.97	1.97	1.84	1.72	1.60	1.49	1.37
Foiled Polystyrene/ Low-Build 25 <i>inc. 18mm Gypsum Fibre Board</i>	150mm	4.96	4.78	4.58	4.56	3.98	3.49	3.03	2.68	2.32
	200mm	4.28	4.14	3.99	3.97	3.52	3.13	2.75	2.45	2.14
	300mm	2.89	2.82	2.75	2.74	2.51	2.30	2.08	1.90	1.71
Low-Build 15**	150mm	3.99	3.86	3.72	3.71	3.30	2.95	2.61	2.34	2.06
Modular Wood***	100mm	3.30	3.23	3.13	3.12	2.84	2.58	2.32	2.11	1.88
Raised Access	300mm	2.94	2.87	2.79	2.78	2.55	2.33	2.10	1.92	1.72

* Laying a 20mm hardwood floor finish directly over foiled polystyrene is equivalent to having no floor covering.

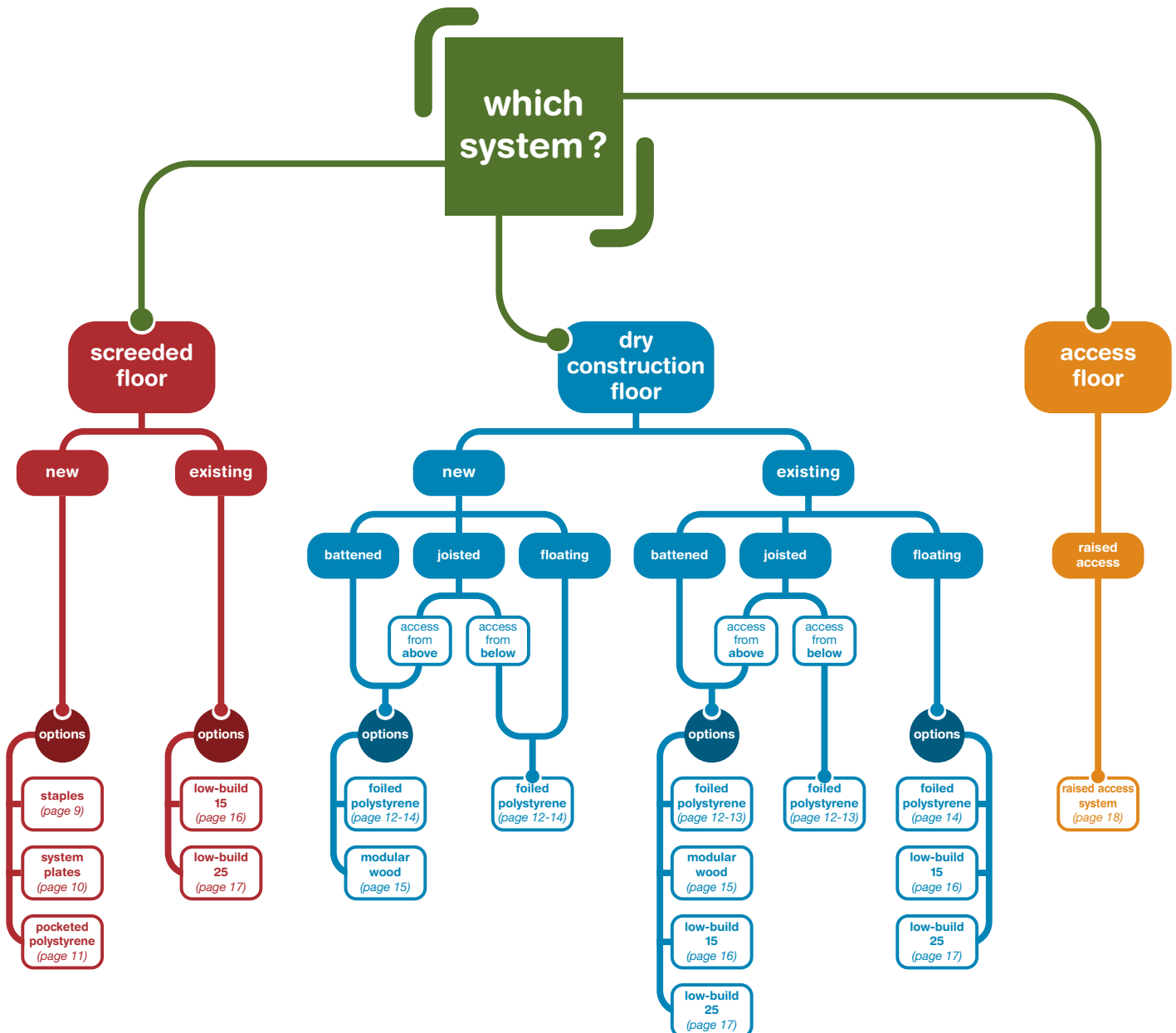
** Includes 12mm T&G plywood, some floor finishes will allow this to be reduced or removed completely.

*** Where pipes are connected from above, access panels will typically reduce the heated floor area by 17%.

System selector

Identification of the right Thermoboard UFH system for your project normally starts from the type of floor construction.

Using this selector can lead you quickly to the system, or system options, that will ideally suit your project.



Underfloor heating can also be incorporated into Acoustic Floor constructions. The selection options are the same as for non-acoustic floors and dependent on the floor construction (see page 19 for further information).

Staples

Overview

Product

Basic system for placing/fixing 16mm UFH pipe.

Application

Fixing UFH pipe to rigid insulation panels on a solid floor slab before screeding.

Features and benefits

Product

- Staples to fix pipe in position on rigid insulation
- Lowest material cost

Design/Installation

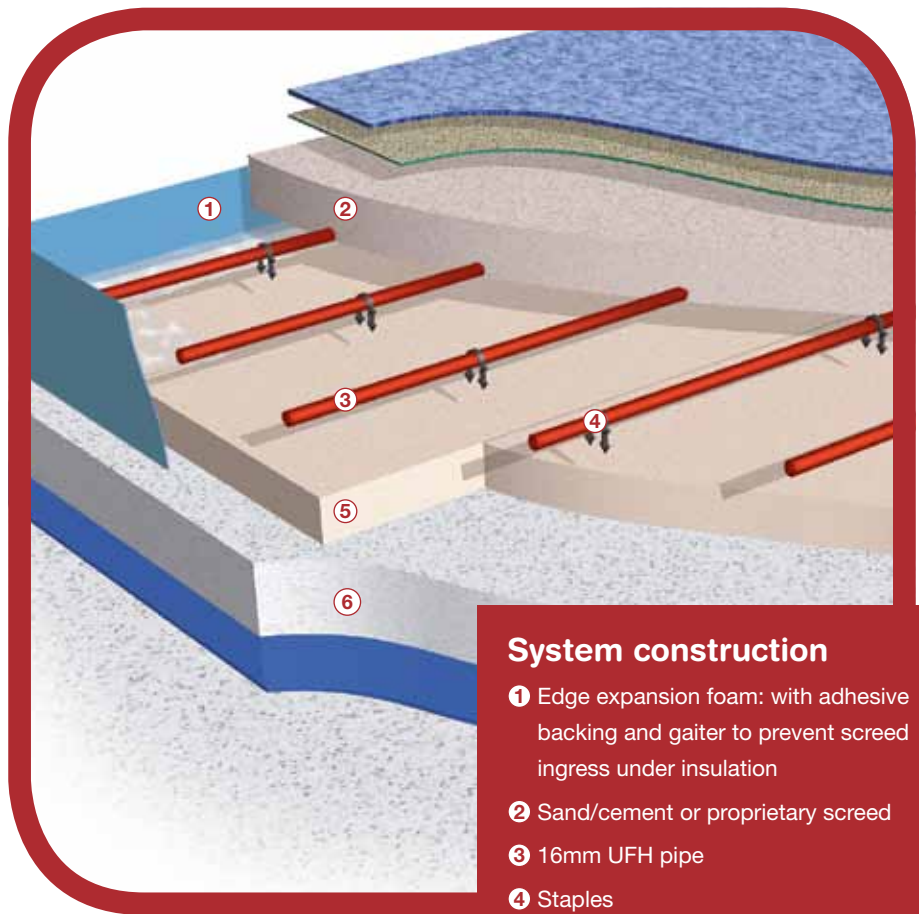
- Pipe spacing/layout at installer's discretion

NOTE: 200mm centres normally offer the best balance of performance and cost.

- Installer marks top of insulation to indicate pipe positioning/spacing
- Full flexibility to set pipe layout and spacing to suit specific project needs
- Independent choice of insulation panels to suit thermal and acoustic properties as required
- Suits irregularly shaped floor areas
- Staple gun available to installer: enables pipe fixing from standing position

Select this system if

- Fastest installation time is not a priority
- You are ready to independently select, source and lay floor insulation panels, and to decide pipe spacing
- You want lowest possible materials cost
- Risk of damage to pipework by other trades during installation is minimal/not an issue

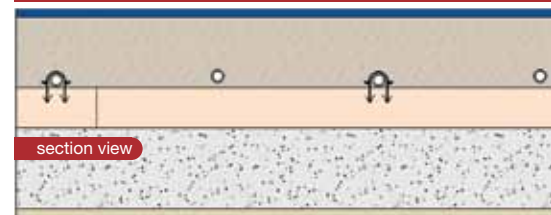


System construction

- 1 Edge expansion foam: with adhesive backing and gaiter to prevent screed ingress under insulation
- 2 Sand/cement or proprietary screed
- 3 16mm UFH pipe
- 4 Staples
- 5 Insulation panels: independent choice to suit required thermal/acoustic performance
- 6 Level solid sub-floor

System Performance

- Heat output subject to pipe spacing and layout consistency, see heat output tables on page 7.



Select an alternative system if

- You need easy-to-determine pipe spacing and/or pipe shielded from accidental damage during installation: consider **System Plates** (page 10) or **Pocketed Polystyrene** (page 11)
- You want a system that includes floor insulation panels and/or reduces required screed depth: consider **Pocketed Polystyrene** (page 11)
- You are installing on an existing screeded floor and not planning to dig out the current floor: consider **Low-Build 15** (page 16) or **Low-Build 25** (page 17)

Transitional Areas

Where pipes need to be supported and secured for run up wall to manifold: **Curved Pipe Supports** and **Clamps** are available (see page 27).

System Plates

Overview

Product

Plastic sheets with pre-formed grips to hold UFH pipe in position.

Application

Placement over rigid insulation panels on a solid floor slab before pipe installation and screeding.

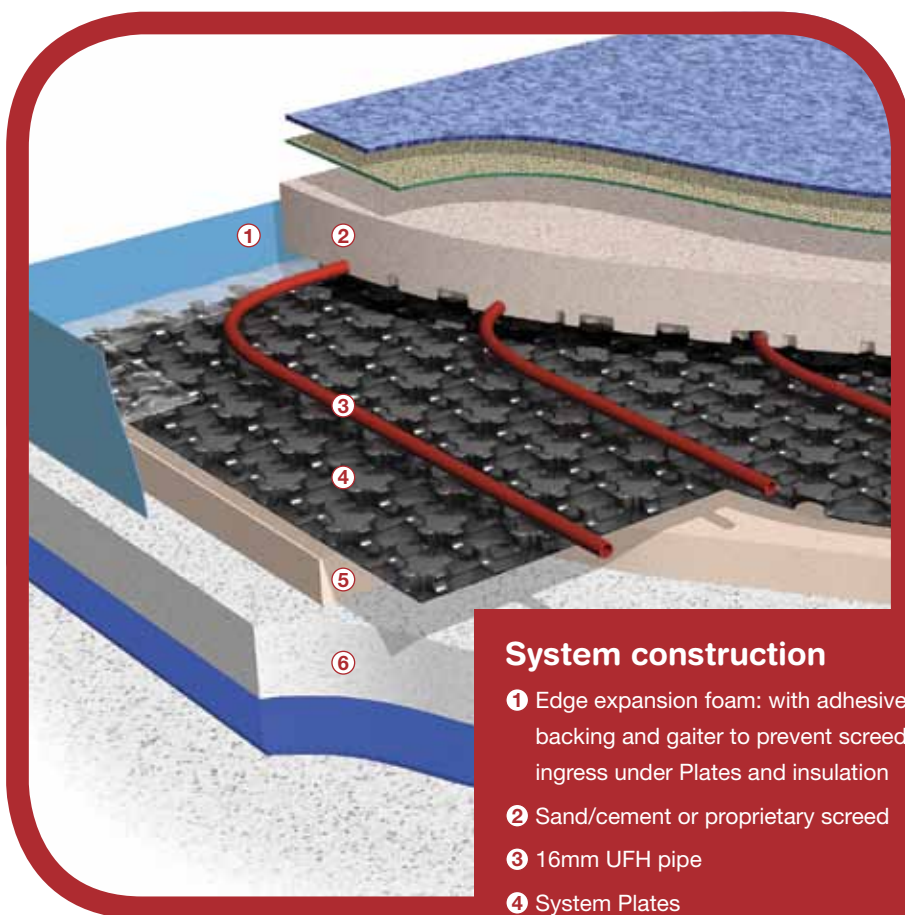
Features and benefits

Product

- Moulded sheets lock together: prevents screed ingress under Plates
- Strong enough to support on-site foot traffic or wheelbarrows before screeding

Design/Installation

- Sheets easily trimmed to size with utility knife
 - Moulded pipe grips designed to
 - make regular spacing easy (in multiples of 75mm)
- NOTE:** 225mm centres normally offer the best balance of performance and cost.
- allow diagonal pipe placement if layout requires
 - protect pipe from foot/wheel traffic before screeding
 - No measuring of pipe position needed
 - Layout flexibility to suit specific project needs



System construction

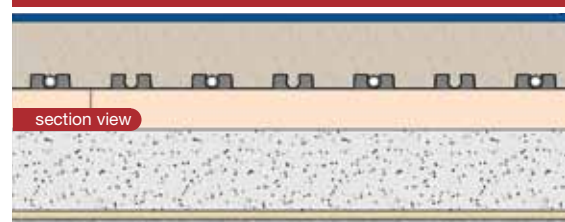
- 1 Edge expansion foam: with adhesive backing and gaiter to prevent screed ingress under Plates and insulation
- 2 Sand/cement or proprietary screed
- 3 16mm UFH pipe
- 4 System Plates
- 5 Insulation panels: independent choice to suit required thermal/ acoustic performance
- 6 Level solid sub-floor

- Independent choice of insulation panels to suit thermal and acoustic properties as required
- Easy, fast installation

NOTE: spiral pattern recommended = more even floor surface temperature.

System Performance

- The supported pipe position improves screed wrap around the pipe reducing voids and increasing performance



Transitional Areas

Where System Plates are not required or practical and/or where pipes need to be closely placed together (e.g. on approach to manifold): pipes may be anchored to insulation using **Staples** system (see page 9).

Where pipes need to be supported and secured for run up wall to manifold: **Curved Pipe Supports** and **Clamps** are available (see page 27).

Select this system if

- You want to ensure regular pipe spacing
- You are ready to independently select, source and lay floor insulation panels
- Risk of damage to pipework by other trades during installation is an issue

Select an alternative system if

- You want lowest material cost, and installation time/risk of accidental pipe damage are not an issue: consider **Staples** (page 9)

- You want a system that includes floor insulation panels and/or reduces required screed depth and/or minimises installation time: consider **Pocketed Polystyrene** (page 11)
- You are installing on an existing screeded floor and not planning to dig out the current floor: consider **Low-Build 15** (page 16) or **Low-Build 25** (page 17)

Pocketed Polystyrene

Overview

Product

Insulation panels with pre-routed screed pockets and channels to hold UFH pipe.

Application

Placement on a solid floor slab before pipe installation and screeding.

Features and benefits

Product

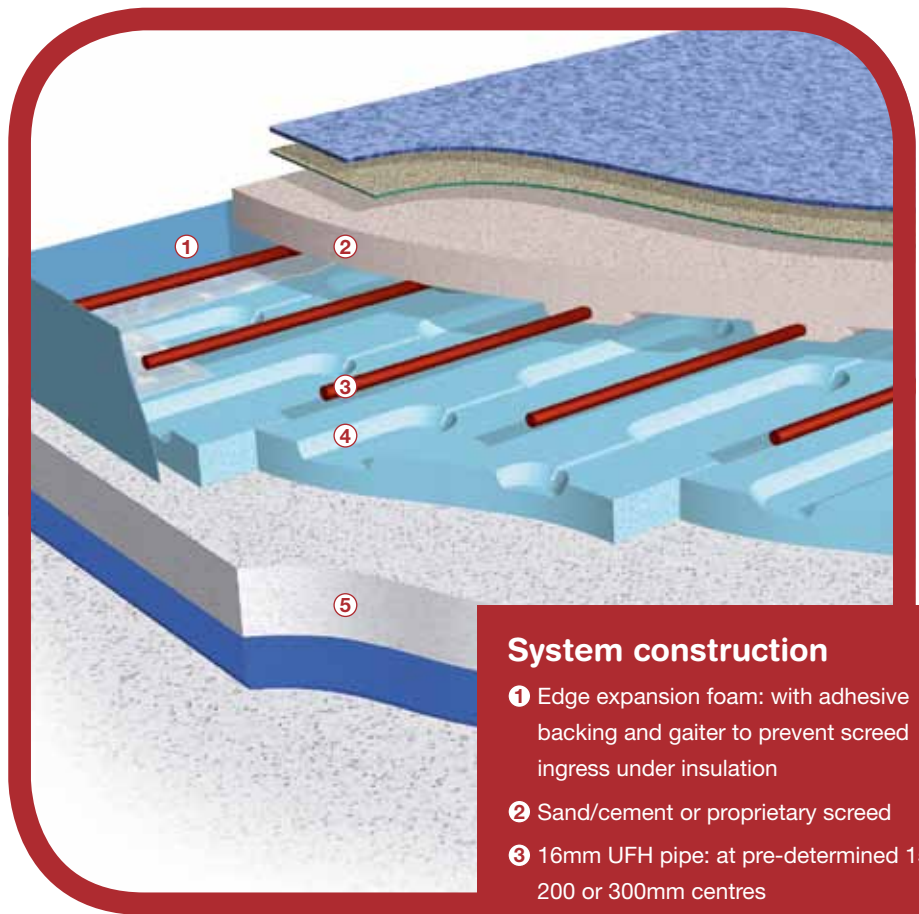
- Machined panels: used in place of plain insulation and separate pipe fixing products
- Pockets encourage screed to wrap round pipe
- Complementary end-panels insulate flow and return pipework, and support pipe turns
- Insulation thickness options: 25, 35, 50 and 75mm

Design/Installation

- Easy, fast and consistent installation
- Insulation and UFH pipe base installed simultaneously: saves labour time/costs
- Reduced cost from reduced screed depth: typically 17mm less depth of screed than with a staples system
- Reduced screed = reduced drying time
- Can be walked on during installation

Select this system if

- You'd like a system that includes the floor insulation
- You want/prefer pre-determined pipe spacing with guaranteed heat output
- You want to minimise required quantity/depth of screed to enable faster job completion/quicker floor heat-up in service
- Risk of damage to pipework by other trades during installation is an issue



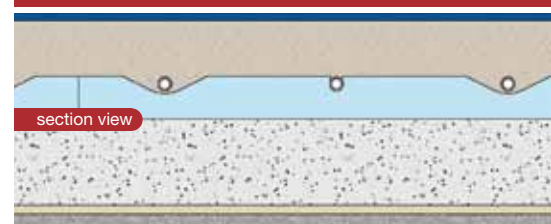
System construction

- 1 Edge expansion foam: with adhesive backing and gaiter to prevent screed ingress under insulation
- 2 Sand/cement or proprietary screed
- 3 16mm UFH pipe: at pre-determined 150, 200 or 300mm centres
- 4 Pocketed Polystyrene panels (insulation)
- 5 Level solid sub-floor

- Panels protect pipe from wheelbarrows and foot traffic
- Pipe held in place: no tripping hazard

System Performance

- Reduced screed = quicker floor heat-up in service
- Fixed pipe centres ensure thermal performance consistency



Select an alternative system if

- You would prefer to independently select floor insulation panels and/or decide pipe spacing: *consider Staples (page 9) or System Plates (page 10)*
- You want lowest materials cost, and installation time/risk of accidental pipe damage are not an issue: *consider Staples (page 9)*
- You are installing on an existing screeded floor and not planning to dig out the current floor: *consider Low-Build 15 (page 16) or Low-Build 25 (page 17)*



Transitional Areas

For transitional areas, dedicated channel panels are available which insulate the flow and return pipes reducing localised overheating.

Where pipes need to be supported and secured for run up wall to manifold: **Curved Pipe Supports** and **Clamps** are available (see page 27).

Foiled Polystyrene

For joisted/battened floors

Overview

Product

Insulation panels with pre-fitted heat diffuser and pre-routed channels for UFH pipe.

Application

Placement within new or existing timber joisted and battened floor constructions.

In joisted applications, installation work for this system may be from either above or below the floor construction.

Features and benefits

Product

- Pipe and diffuser is fully constrained by the insulation: enables full contact with overlying floor deck
- Insulation thickness options: joisted floors = 50/75mm, battened floors = 25/35/50/75mm
- Panels to suit 400 and 600mm joists
- Supplied with integral PET film

Design/Installation

- Separate diffuser plate not required
- Easy/fast installation
- No pugging or wet trades required: no delay of laying floor deck
- Insulation and UFH pipe base installed simultaneously: saves labour time/costs
- Panels can be neatly trimmed using circular saw
- Pipe in serpentine pattern to follow joists/battens layout
- Plastic film shields pipe channels from dirt and debris, enabling better contact between the pipe and the aluminium heat diffuser

System Performance

- Floor structure has low thermal mass = fast response to heat demand changes
- Fixed pipe centres ensure consistent thermal output
- Plastic film prevents floor ticking caused by the diffuser's expansion and contraction



Transitional Areas

For transitional areas, dedicated channel panels are available which insulate the flow and return pipes reducing localised overheating.

Where pipes need to be supported and secured for run up wall to manifold: **Curved Pipe Supports** and **Clamps** are available (see page 27).

Either this system, or Modular Wood, is suitable if

For new or existing joisted floors:

- The joists will be/are regularly spaced

For new or existing battened floors:

- The battens will be/are set out with regular spacing
- You do not intend to run major service pipes/cablings within the floor void

Select this system if

- The room is irregular in shape and you want to ensure the entire floor area is heated

For existing joisted/battened floors:

- You are able to/intend to lift the existing floor deck

For existing joisted floors:

- You cannot lift the floor deck/gain access from above – but can do so from below
- The joists are regularly spaced, ideally at 400mm or 600mm centres

This system is recommended when

- The planned floor finish is engineered or solid wood

Select an alternative system if

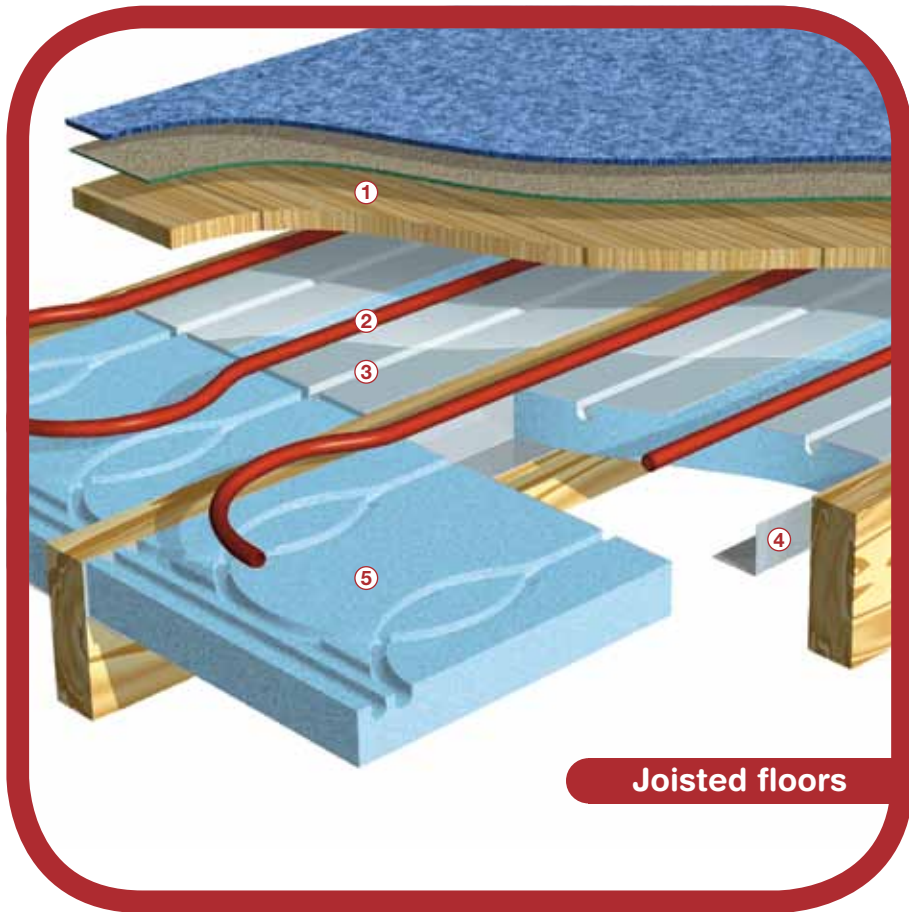
- The joists or battens will be/are irregularly spaced for some reason: consider **Modular Wood** (page 15)
- Any part of the installation requires a weather-resistant floor deck: consider **Modular Wood** (page 15)

For battened floors:

- You intend to run major service pipes/cablings within the floor void: consider **Modular Wood** (page 15)

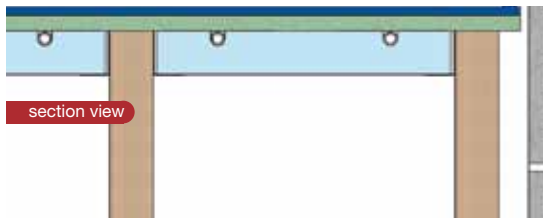
For existing joisted/battened floors:

- Where lifting the floor deck is not planned/not possible: consider **Low-Build 15** (page 16) or **Low-Build 25** (page 17)

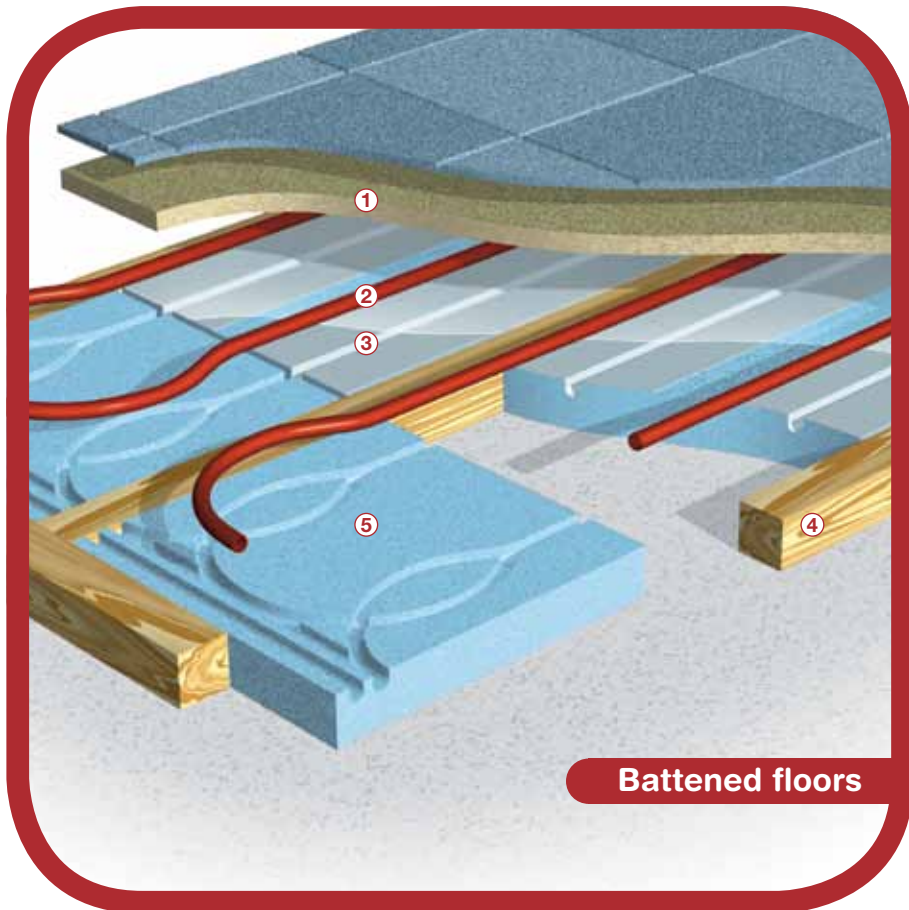


Joisted floors

- ### System construction (joisted floors)
- 1 Timber floor deck
 - 2 16mm UFH pipe: placed into pre-cut channels at 200mm centres
 - 3 Foiled Polystyrene batten/joist panel (insulation) with pre-fitted aluminium diffuser and polyethylene film
 - 4 Joists with plastic 'L' brackets
 - 5 End panel (insulation)

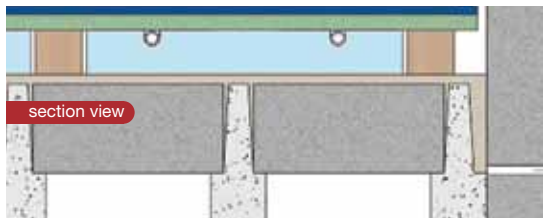


section view



Battened floors

- ### System construction (battened floors)
- 1 Timber floor deck
 - 2 16mm UFH pipe: placed into pre-cut channels at 200mm centres
 - 3 Foiled Polystyrene batten/joist panel (insulation) with pre-fitted aluminium diffuser and polyethylene film
 - 4 Battens
 - 5 End panel (insulation)



section view

Foiled Polystyrene for fully floating floors

Overview

Product

Insulation panels with factory-fitted heat diffuser and channels for UFH pipe.

Insulation panels overlaid/butted closely together over the whole heating area to form a continuous insulation layer.

Application

For new floating floor constructions or refurbishment of existing floating floors.

Features and benefits

Product

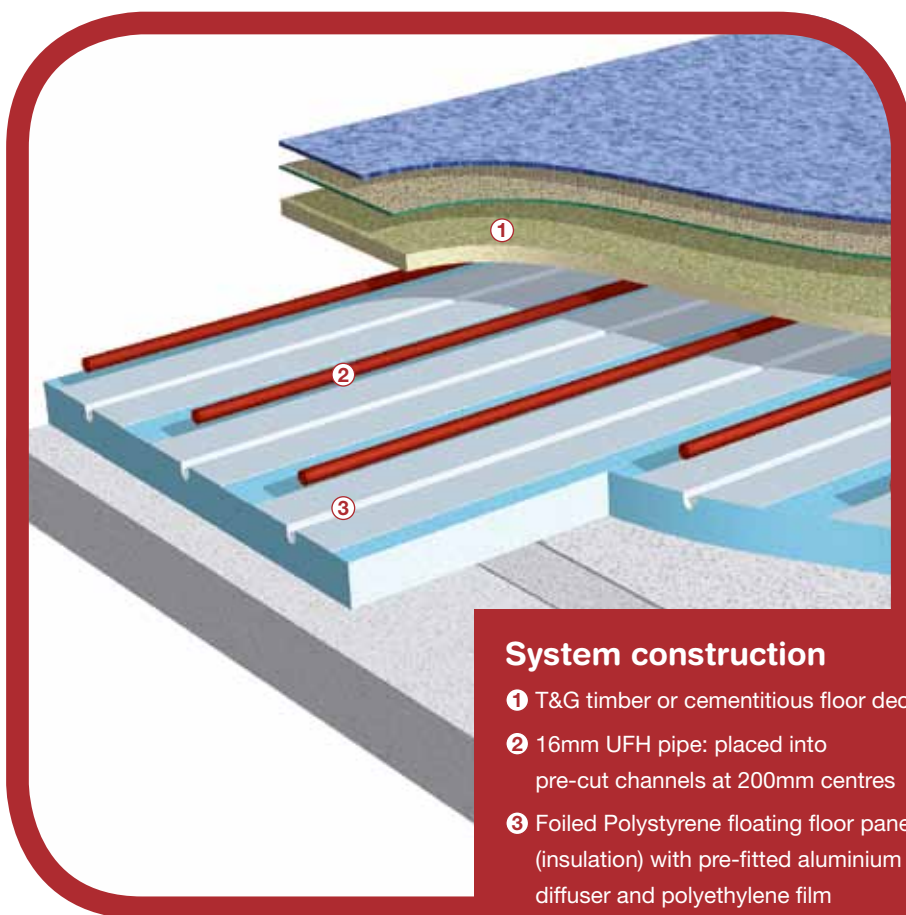
- Pipe integrated within insulation thickness: enables full diffuser contact with overlying floor deck
- Insulation thickness options: 25, 35, 50 and 75mm
- Supplied with integral PET film

Design/Installation

- Separate diffuser plate not required
- Easy/fast installation and pipe placement: similar timescale for installing non-heated floating floor
- Insulation and UFH pipe base installed simultaneously: saves labour time/costs
- Panels can be neatly trimmed using circular saw
- Pipe in serpentine pattern
- Plastic film shields pipe channels from dirt and debris, enabling better contact between the pipe and the aluminium heat diffuser

System Performance

- High power output
- Floor structure has low thermal mass = fast response to heat demand changes
- Fixed pipe centres ensure consistent thermal output
- Plastic film prevents floor ticking caused by the diffuser expansion and contraction



System construction

- 1 T&G timber or cementitious floor deck
- 2 16mm UFH pipe: placed into pre-cut channels at 200mm centres
- 3 Foiled Polystyrene floating floor panel (insulation) with pre-fitted aluminium diffuser and polyethylene film

NOTE: End panel not shown, but is required for installation.

System requires

- The subfloor construction to be level
If the planned floor finish is engineered or solid wood:
- The floor will need to be battened (see pages 12–13)

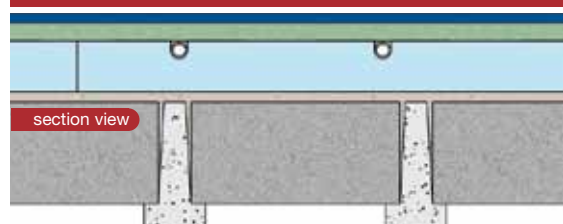
For existing fully floating floors:

Select this system if

- You are able/intend to lift the existing floor deck

Select an alternative system if

- *For existing fully floating floors*
Where lifting the existing floor deck is not planned/not possible: consider **Low-Build 15** (page 16) or **Low-Build 25** (page 17)



Transitional Areas

For transitional areas, dedicated channel panels are available which insulate the flow and return pipes reducing localised overheating.

Where pipes need to be supported and secured for run up wall to manifold: **Curved Pipe Supports** and **Clamps** are available (see page 27).

Modular Wood

Overview

Product

Tongue-and-groove (T&G) P5 chipboard or WBP plywood panels with integral UFH pipe.

Application

Placement over new or existing softwood or I-beam timber joisted and battened floor constructions. Ideal for non-standard/ inconsistently spaced timber floor constructions.

Features and benefits

Product

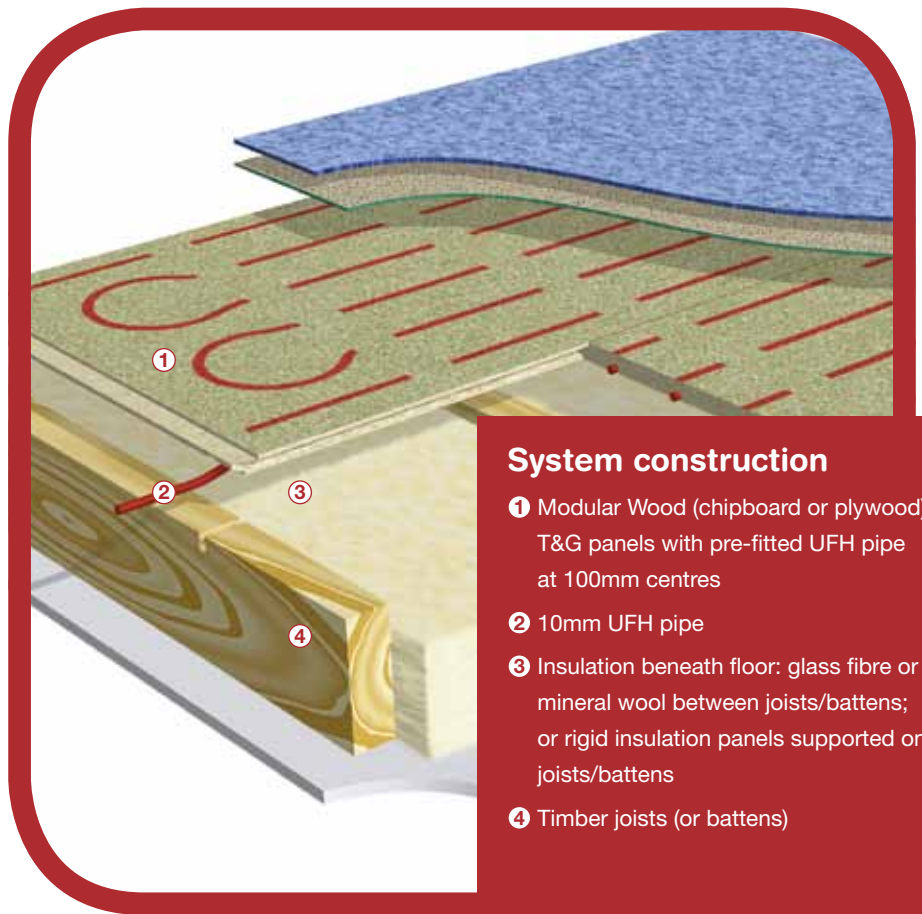
- UFH pipe integrated within floor deck
- 100mm pipe spacing provides efficient heat transfer

Options:

- 22mm thick panels available as chipboard (for joist centres up to 450mm) or plywood (for 600mm joist centres) or 24mm thick plywood panels
- Other sizes of panels with different pipe spacings can also be supplied, if required
- Panels with waterproof slip-resistant coating: allowing exposure of deck to external weather for up to 42 days

Design/Installation

- Enables easy, fast, simultaneous installation of pipe and floor deck
- Pipe location/layout depicted on panel surface to assist installer



System construction

- 1 Modular Wood (chipboard or plywood) T&G panels with pre-fitted UFH pipe at 100mm centres
- 2 10mm UFH pipe
- 3 Insulation beneath floor: glass fibre or mineral wool between joists/battens; or rigid insulation panels supported on joists/battens
- 4 Timber joists (or battens)

- Panels can be lifted at any time to gain access to floor void
- Pipe in serpentine pattern

System Performance

- Fixed pipe centres ensure consistent thermal output
- High power output
- Low floor mass = faster heat response



Transitional Areas

Where pipes need to be supported and secured for run up wall to manifold: **Curved Pipe Supports** and **Clamps** are available (see page 27).

Either this system, or Foiled Polystyrene, is suitable if

For new or existing joisted floors:

- The joists will be/are regularly spaced

For new or existing battened floors:

- The battens will be/are set out with regular spacing

For existing joisted/battened floors:

- You are able/intend to lift the existing floor deck

Select this system if

- The joists/battens are irregularly spaced for any reason
- Any part of the installation requires a weather-resistant floor deck

For new or existing battened floors:

- There will be major service pipes/cabling within the floor void

Panel options (plywood or chipboard)

- For wet rooms, use plywood
- For waterproof working floor deck choose Protectadek
- If joist spacing exceeds 450mm centres, use the plywood option

Select an alternative system if

- Room is irregular in shape and you want to ensure the entire floor area is heated: consider **Foiled Polystyrene** (page 12)

For new or existing joisted/battened floors:

- Joist/batten spacing exceeds 600mm: consider **Foiled Polystyrene** (page 12) or a **Low-Build system** (pages 16–17)

- Joists are engineered and regularly spaced: consider **Foiled Polystyrene** (page 12)

For existing joisted/battened floors:

- Where lifting the floor deck is not planned: consider a **Low-Build system** (pages 16–17)

Low-Build 15

Overview

Product

Ultra-slim insulation panels with pre-fitted heat diffuser and channels for 10mm UFH pipe.

Application

Direct placement over any existing floors.

Features and benefits

Product

- Pipe integrated within insulation thickness: enables full diffuser contact with overlying floor finish
- Low build up height: 15mm excluding optional load-bearing ply layer

Design/Installation

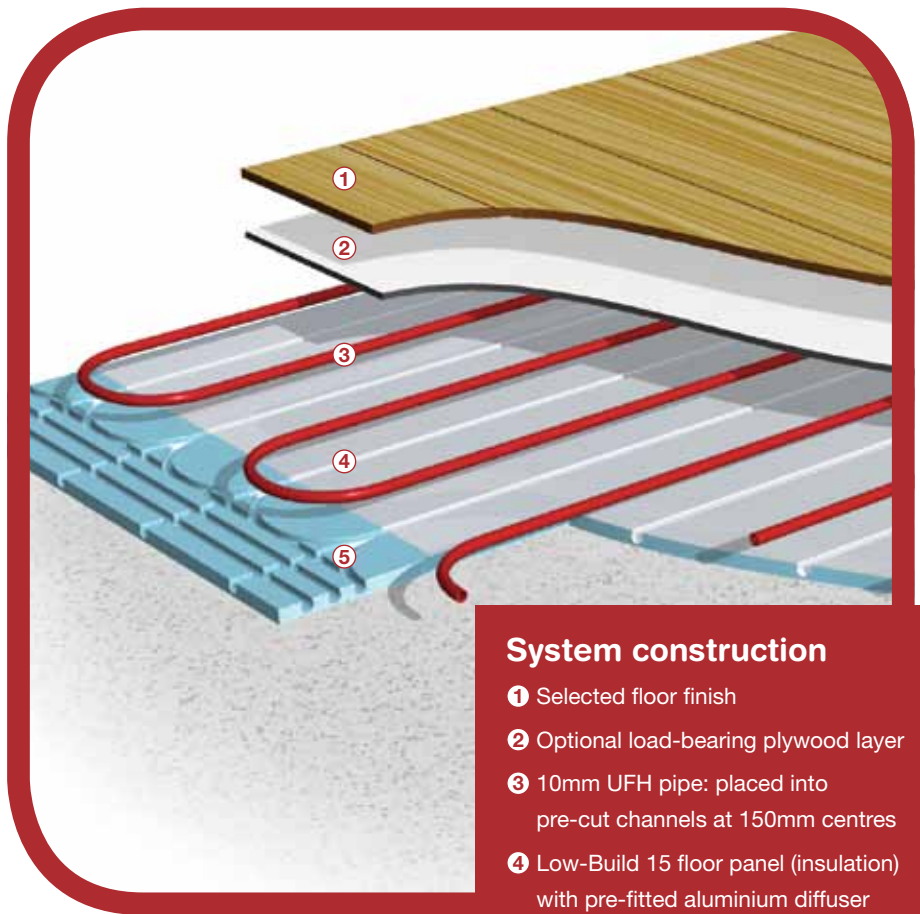
- Separate end return panel not required
- Separate diffuser plate not required
- Lightweight panel: easy to cut and install – only one person required*
- Very low build = minimal rise in floor level = less disruption to doors/skirting
- Pipe in serpentine pattern

System Performance

- Fixed pipe centres ensure consistent thermal output
- Robust: able to withstand point loading
- Energy-efficient: compared with electric UFH systems, saves up to two-thirds** of running costs
- Heating control is achieved with either of two specially-designed control systems: the Small Room Connection Pack (92UH006) for areas <6m² or the Single Zone Control System (88UH211 and 92UH101, plus 92UH103 (s) if required) for areas >6m².

* Qualified electrician required if mains-connected controls fitted.

** Based on using a SEDBUK A Rated gas boiler, and wet vs electric UFH systems at typical 2010 domestic energy prices.



System construction

- 1 Selected floor finish
- 2 Optional load-bearing plywood layer
- 3 10mm UFH pipe: placed into pre-cut channels at 150mm centres
- 4 Low-Build 15 floor panel (insulation) with pre-fitted aluminium diffuser
- 5 Integral end panel (insulation) with pre-cut end-return, flow and through-connect channels for pipe

Select this system if

- Floor area to be covered is less than 26m²
- Area is to be heated as a single zone

If area is greater than 26m², select this system if:

- Build height is critical
- You want to minimise disruption to existing fitted features including doors and skirting

For existing joisted/battened floors:

- You do not want to/intend to lift the existing floor deck

Select alternative system, Low-Build 25 (page 17), if

- Build height is important but NOT critical
- Existing skirting is to be replaced
- Existing doors are to be replaced, or removed and planed
- Where area is greater than 26m² and lowest cost option is sought



Transitional Areas

For transitional areas, dedicated channel panels are available which insulate the flow and return pipes reducing localised overheating.

Curved Pipe Supports and Clamps (see page 27) are supplied with the **Low-Build 15** system for places where pipes need to be supported and secured for run up wall to manifold.

Low-Build 25

Overview

Product

Slim (25mm depth) insulation panels with pre-fitted heat diffuser and channels for 16mm UFH pipe.

Application

Direct placement onto existing solid/screeded floors.

Features and benefits

Product

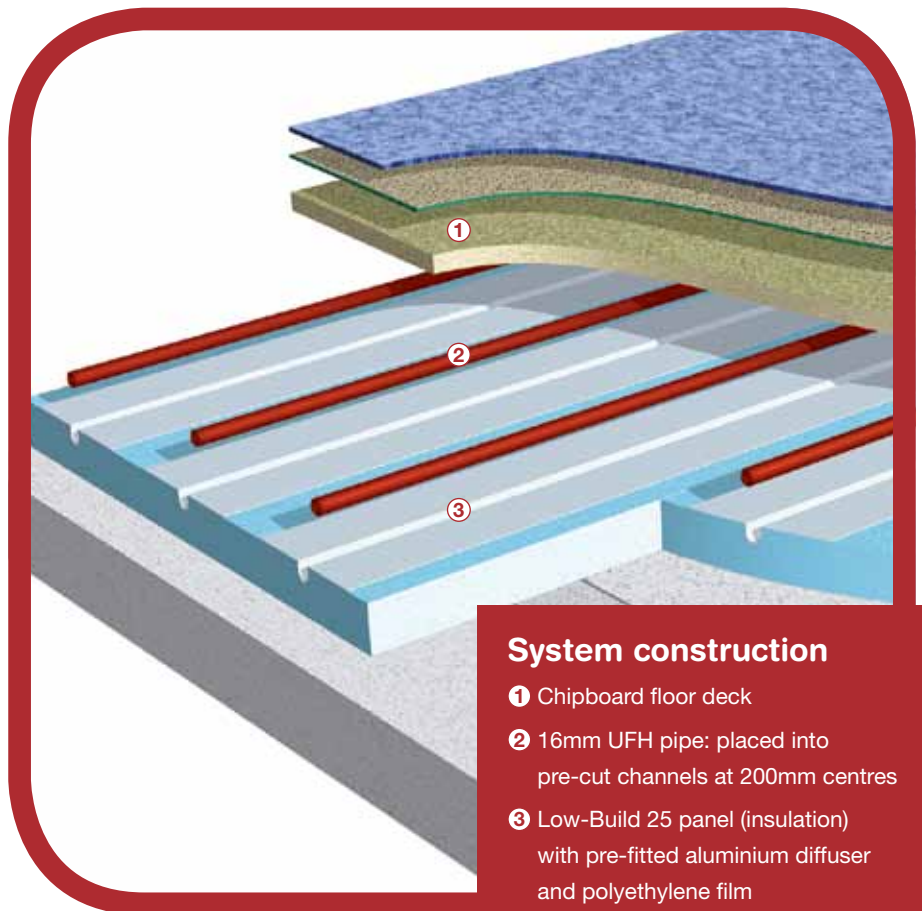
- Pipe integrated within insulation thickness: enables full diffuser contact with overlying floor deck
- 25mm insulation thickness
- Supplied with integral PET film

Design/Installation

- Separate diffuser plate not required
- Easy/fast installation and pipe placement: similar timescale for installing non-heated floating floor
- Insulation and UFH pipe base installed simultaneously: saves labour time/costs
- Panels can be neatly trimmed using circular saw
- Pipe in serpentine pattern

System Performance

- High power output
- Floor structure has low thermal mass = fast response to heat demand changes
- Fixed pipe centres ensure consistent thermal output
- Plastic film prevents floor ticking caused by the diffuser expansion and contraction



System construction

- 1 Chipboard floor deck
- 2 16mm UFH pipe: placed into pre-cut channels at 200mm centres
- 3 Low-Build 25 panel (insulation) with pre-fitted aluminium diffuser and polyethylene film

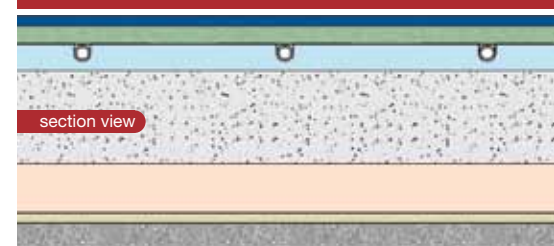
NOTE: 25mm end panel (insulation) also available

Select this system if

- Floor area to be covered is greater than 26m²
- Build height is important but NOT critical
- Existing skirting is to be replaced
- Existing doors are to be replaced, or removed and planed
- You require multiple heating control zones

Select alternative system, Low-Build 15 (page 16), if

- The area is less than 26m² and is to be heated as a single zone
- The area is greater than 26m² and build height is critical



Transitional Areas

For transitional areas, dedicated channel panels are available which insulate the flow and return pipes reducing localised overheating.

Where pipes need to be supported and secured for run up wall to manifold: **Curved Pipe Supports** and **Clamps** are available (see page 27).

Raised Access Floors (RAF)

Overview

Product

Modular system carrying UFH pipe on raised brackets.

Application

Integration into new RAF installations, or retrofitting to older types of RAF – for heating and cooling.

Features and benefits

Product

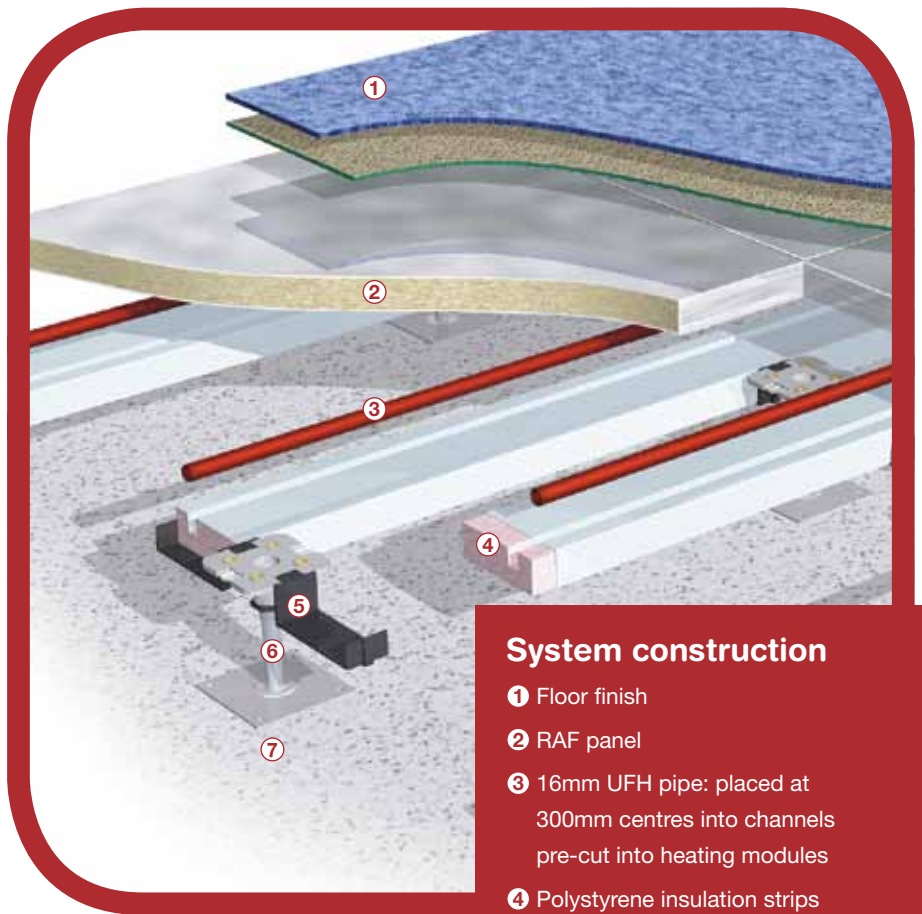
- Pipe integrated within insulation/heating module thickness: enables close contact with overlying RAF panels

Design/Installation

- RAF system/modules can be repositioned at any time in future
- Heating system has small footprint: leaves space for good access to underfloor void
- This void can be accessed at any time without disrupting the heating system

System Performance

- Galvanised steel surface of RAF panels acts as an additional heat diffuser increasing performance



System construction

- 1 Floor finish
- 2 RAF panel
- 3 16mm UFH pipe: placed at 300mm centres into channels pre-cut into heating modules
- 4 Polystyrene insulation strips
- 5 RAF bracket
- 6 Pedestal
- 7 Subfloor

For selection advice and guidance

Please contact Thermoboard on **01392 444122** or **info@thermoboard.co.uk**



Transitional Areas

Where pipes need to be supported and secured for run up wall to manifold: **Curved Pipe Supports** and **Clamps** are available (see page 27).

Acoustic Floors

Overview

UFH installations, incorporating Thermoboard systems, integrated into standard acoustic floor constructions.

Features and benefits

Design/installation

- Thermoboard systems can be easily incorporated into many Robust Standard Details
- For installations using Robust Details rather than pre-completion testing, Thermoboard can supply specific details of how to integrate UFH into the construction

System performance

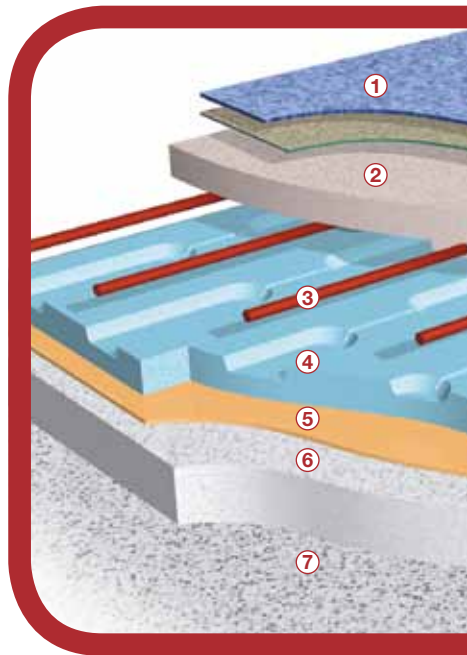
- There is no specified increase in acoustic performance when integrated into Robust Standard Details
- For proprietary systems requiring Pre-Completion Testing please refer to the suppliers of the acoustic products

For selection advice and guidance

Different criteria and considerations apply to selection and installation of UFH systems within acoustic floor constructions.

We encourage you to contact Thermoboard for additional advice about your specific project.

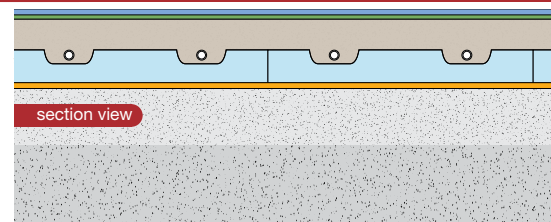
Please call **01392 444122** or email **info@thermoboard.co.uk**



System construction

Typical example: incorporating Pocketed Polystyrene system

- 1 Floor finish
- 2 Screed: 65mm sand:cement screed or 40mm proprietary screed with nominal 80kg/m² per unit area
- 3 16mm UFH pipe: placed at pre-determined centres
- 4 Pocketed Polystyrene panels (insulation – typically 25mm)
- 5 Resilient layer: 5-10mm foamed polythene, 30-36kg/m²
- 6 Solid sub-floor
- 7 Ceiling treatment



Suitable systems

Where UFH is fitted within acoustic floor constructions, the UFH system is subject to different selection criteria and installation procedures.

The type and position of the acoustic layer within the floor construction is one significant factor that may influence selection of the right Thermoboard system.

System options

For new screeded acoustic floors

- **Staples** (page 9), **System Plates** (page 10) or **Pocketed Polystyrene** (page 11), including bespoke panels, may be suitable

Selection will be influenced by:

- Whether separating construction includes thermal insulation less than, or greater than (or equal to), 0.75m²/kW
- Whether or not build height is critical

For existing screeded acoustic floors

- **Foiled Polystyrene** (page 12), **Low-Build 15** (page 16) or **Low-Build 25** (page 17) may be suitable

With selection influenced by:

- Whether a floor void is required
- Extent to which build height is critical
- Whether heated floor area is less or greater than 26m²

For new battened and floating acoustic floors

- **Foiled Polystyrene** (page 12-14) is suitable

For new joisted acoustic floors

- **Foiled Polystyrene** (page 12) or **Modular Wood** (page 15) may be suitable

With selection influenced by:

- Extent to which build height is critical

For existing dry construction acoustic floors

- If the **floor deck will be lifted**, the options are as those for new dry construction floors (see above – battened, floating or joisted)

- If the **floor deck will not be lifted**, **Low-Build 15** (page 16) or **Low-Build 25** (page 17) may be suitable

With selection additionally influenced by:

- Extent to which build height is critical
- Whether heated floor area is less or greater than 26m²

NOTE: the page references guide the reader to the System detail page for that product, but specific installation procedures or floor construction cross-sections may be different when that product is installed within an acoustic floor.

UFH pipe

Overview

Product

Flexiis polybutylene (PB) UFH pipe with integral oxygen barrier, for non-potable applications.

Application

Use as part of Thermoboard plumbed UFH systems. With most systems, UFH pipe is placed at time of installation (see *individual system pages*).

10mm version is integral to **Modular Wood** system (page 15) and is used in the **Low-Build 15** system (page 16).

16mm pipe is used for

- **Staples** system (page 9)
- **System Plates** system (page 10)
- **Pocketed Polystyrene** system (page 11)
- All **Foiled Polystyrene** systems (pages 12-14)
- **Low-Build 25** system (page 17)
- **Raised Access Floor** system (page 18)

10mm pipe is used for

- **Low-Build 15** system (page 16)

10mm pipe is pre-fitted in

- **Modular Wood** system (page 15)

Features and benefits

Product

- 16mm version available in choice of ten coil lengths from 25m to 120m (see page 27) for economic installation/ minimum waste
- 10mm version (for **Low-Build 15** system) available in 60m coils
- Incorporates fully-protected integral barrier to prevent oxygen permeation
- 100% recyclable material
- BSI kitemarked to BS EN ISO 21003:2008

Design/Installation

- Highly flexible, even at low temperatures, so it bends more easily at end-returns and leading to the manifold
- High impact strength: returns to original shape if crushed on site
- No recoil in use

System Performance

- Non-corrosive
- Stress-resistant
- **100-year guarantee***

*guarantee is for underfloor heating and cooling applications only

Fittings

Overview

Product

Where joints are needed, Thermoboard systems use 16mm Hep₂O push-fit fittings from Wavin.

Application

For joints where connections are required above the floor to connect to manifolds and boilers or alternative heat sources.

Also for below-floor joints when fitting **Modular Wood** system (page 15)

Features and benefits

Product

- Polybutylene with integral push-fit mechanism with pre-lubricated 'O' ring
- Range of elbows, tees and straight connectors (see page 27)
- All fittings are demountable
- Hep₂O fittings are guaranteed for 50 years

Design/Installation

- No flux or solder required
- Rotatable through 360°, even under pressure, for maximum versatility during installation



Composite Manifold

Overview

Product

Modular composite manifold for up to 12 ports.

Application

Designed to enable any manifold system to be configured, from simple flexible modules, to suit the size of the installation. Allows future retrofitting of additional circuits.

For UFH installations in residential and light commercial property – from small extensions to new build houses and flats and refurbishment projects.

Features and benefits

Product

- Main components include:
 - Starter pack, including inlets, pressure and temperature gauges, end caps, mounting brackets and installation kit
 - Control pack incorporating pump and mixing unit
 - One-port and three-port packs to allow assembly of required number up to 12 ports
- BBA certified for a 25 year service life

Design/Installation

- Lightweight: simple to assemble and easy to install
- No special tools required
- Can be assembled in either left or right configuration
- Ports can be assembled facing up or down as required to supply rooms above or below the manifold location
- Easily extendable: additional circuits can be added at any time
- Unique 'Memory Ring' enables individual circuit isolation, with quick and simple balancing without tools
- A single circuit can be isolated and balanced without unbalancing the system



Modular assembly

Key elements

- 1 Circulator pump
- 2 Flow watch protection thermostat
- 3 Flow temperature gauge
- 4 Balancing knob and memory ring
- 5 16mm pipe connectors
- 6 Thermostatic actuator
- 7 Mixing valve
- 8 Combined pressure/return temperature gauge
- 9 22mm isolation valves
- 10 Thermoelectric actuator

Service Performance

- A single manifold can supply up to 250m² at 75W/m²
- Allows circuit pressure testing using integral gauges
- Operates especially well with renewable technologies, which are at their most efficient at lower temperatures:
 - The smoother internal bore of the Thermoboard manifold arms allows a higher water flow than other manifolds. Therefore the average water temperature in the floor is higher
 - The three-port valve in the mixing unit allows either
 - 100% of the water to be taken directly from the heat source **or**
 - 100% to be re-circulated **or**
 - Any intermediate proportional mix of direct and re-circulated water.
 This allows the heat source to operate at the lowest possible temperature

NOTE: Single-circuit installations which require water temperature control will be connected to their heat source via a mixing unit, but will not require a full manifold.



Single circuit control pack

Overview

Product

This control pack is installed on a branch of the heating primary and wired in series with a room thermostat. The water mixing control unit incorporates a standard circulator with advanced mixing valve. This mixes floor return water with the incoming primary flow, to create the correct secondary flow temperature.

Features and benefits

Product

- Cost effective and safe
- Optimum use of primary flow during warm-up
- May be used to control any small UFH sub-system:
 - Single circuit up to 120m in length
 - With up to 24m² total active heating area
- Suitable for any floor type or finish
- The Single Circuit Control Pack consists of the following five Thermoboard products: 88UH211, 88UH511, 88UH311, 15UH236 and 15UH239 (see *Product Listing page 27*)



Standard controls

Overview

Product

Temperature controls and thermostat systems for up to 14 underfloor zones.

Options:

- Wired or wireless thermostats
- Programmable or non-programmable thermostats

Application

For control of single or multi-zone UFH systems in new build and renovation projects. Ideal for those involving installation of temperature controls in several phases.

Features and benefits

Product

- 7-day programmable thermostats available: each day can be separately programmed
- Wireless option uses secure digital RF communication with 868.5MHz band and encoded data transfer

Design/Installation

- No special tools required to install
- After installation, individual thermostats can be assigned to the relevant circuit and can be reassigned at a later date
- Any combination of wired and wireless, programmable and non-programmable thermostats can be enrolled into the standard control centre

Wired option only:

- All thermostats are wired into 2 central terminals in the Control Centre at first fix stage, then synchronised with the relevant circuit later, eliminating the chance of cross wiring

Wireless option only:

- No cable required between thermostat and control centre = no disruption to walls during installation
- For placement on walls, tables or shelves = increased room decor flexibility

Service Functions

- Simple to operate: convenient and comfortable temperature control
- Integral frost and fire alarms providing:
 - frost protection: default setting at 3°C (adjustable by installer from -10°C to +10°C)
 - fire alarm: default setting at +60°C (adjustable by installer between +50°C and +70°C). Electronic signal, not audible without connection to an alarm circuit
- Party mode option: boosts the temperature by 2°C above the comfort setting until the next programmed change
- Simple to use jog dial control
- Child/keypad lock
- Optimised start (programmable thermostats only) automatically starts heating system to achieve desired temperature at the programmed time

Standard or networked controls are suitable for

- Any Thermoboard UFH system

Select wired thermostats if

- You wish to future proof the installation for different thermostats
- You would prefer to use the domestic electricity supply instead of batteries

Select wireless thermostats if

- You wish/intend to avoid the need to install wiring in walls to connect thermostats with boiler controls
- You are likely to be installing temperature controls in separate phases

Select the networked control system if

- You wish to control all thermostats from a central location
- You want to control the heating system remotely via the internet
- You wish to control radiators and/or a hot water cylinder via a single control system

Also available

Single Zone Pack (52UH701)

Comprising one programmable wireless thermostat with 2-zone Control Centre.



Standard controls



Single zone pack

Networked controls

Overview

Product

12V network range of thermostats and an 8-zone control centre

Additional options (see right):

- 32-zone **Touch Pad control**
- **NetMonitor** internet connection for control via web-enabled devices

Application

Designed to work as part of a networked system with options to control remotely from your PC or by SMS.

Features and benefits

Product

- Programmable units
- Wiring Control Centres are safety fused
- Output available for conventional radiators/towel rail control

Design/Installation

- Control system can be tailored to each individual location: straightforward connections
- Easy wiring: no special tools required
- Keypad lock to prevent tampering with programmed settings

Service Functions

- Control Centres incorporate output control terminals for Boiler, Pump and Domestic Hot Water
- Circuits can be controlled separately or together as preferred

Options: Touch Pad control and NetMonitor

Overview

Products

Touch Pad: Control up to 32 thermostats on the heating system

NetMonitor: Plug-in unit for internet control

Application

Designed to provide multi-room touch control (or PC/internet control) for 12v networked thermostats

Features and benefits

Product

- (Touch Pad) 95x55mm widescreen colour display
- (NetMonitor) Self-contained plug-in unit

Design/Installation

- Up to 32 thermostats can be programmed remotely, and have their settings copied from one to another

Service Functions

- Temperature hold: retains desired temperature for fixed period
- Auto time: automatically synchronises all thermostat clocks, and adjusts for GMT/BST time changes
- Quick view: at-a-glance view of thermostats status
- Individual thermostats are selectable for control by central time clock and for frost protection temperature
- Hot water boost: to override timed settings
- Holiday frost protection mode
- Operational history review facility: past 4 weeks operational hours/ past 24 hours temperatures
- All thermostats lockable to prevent tampering with programmed settings
- (NetMonitor) All systems and settings controllable via internet, with email or SMS alerts if any alarm is triggered or programmed limits reached



Touch Pad control



Networked thermostat

Project design support

Planning and costing assistance

Thermoboard has the specialist expertise and support to help ensure every project achieves a completely successful installation. For installers, builders and specifiers, we can provide the full benefits of our experience.

Thermoboard expert assistance ranges from online system selection tools to dedicated project assistance. We have what you'll need whether it's for small projects or for larger, more complex schemes.

QuickCalc – Instant online project quotations

QuickCalc is an online tool that provides instant project quotations for typical UFH projects:

- For new **screeded** and **joisted** floors
- For any **existing** floor, up to 26m² total area, using Thermoboard **Low-Build 15** system

You can access QuickCalc via www.thermoboard.co.uk – or at your local stockist. A QuickCalc quote will generate:

- Project cost (at current Trade List Price)
- Project list of required materials
- Generic room layouts

NOTE: Each QuickCalc quotation is supported by Thermoboard product guarantees and step-by-step installation guides.

When using QuickCalc for **new-build** assignments, the project must:

- Use a standard boiler (not heat pumps, for example)
- Be built to current Building Regulations
- Have a single manifold

NOTE: The above criteria do NOT apply to UFH projects for existing floors using the **Low-Build 15** system.

For any other projects, our FullSpec service can ensure complete peace of mind.

FullSpec – Complete design and project support

Our FullSpec service can be applied to projects that involve larger or more complex schemes – whatever type of floor construction is involved.

Our specialist support includes:

- Dedicated Project Manager
- Heat loss calculations on request
- Fully-warranted design (see page 26)
- Complete CAD installation drawings
- Made-to-measure products where required
- Control options tailored to specific project needs
- Direct-to-site delivery of materials
- Call-off service for efficient project scheduling

This service can be applied to projects that have special needs, factors or circumstances. For example, we can help you plan for UFH installation schemes involving:

- Renewable heat sources (e.g. heat pumps, geothermal heating)
- Retrofit into old buildings that do not meet today's building regulations
- High ceilings and/or uneven floor surfaces
- Room-by-room tailored solutions
- Acoustic floor construction
- Raised access floors



Technical advice and assistance

Whether your project is large or small, routine or complex, Thermoboard UFH systems and services can help ensure you achieve exactly the right result.

If you require further information, answers to specific queries, or would like to request our FullSpec service, please contact us direct via:

Telephone 01392 444122
info@thermoboard.co.uk

or visit
www.thermoboard.co.uk

Warranties and guarantees

Quality and environmental management

All Thermoboard products are manufactured under exacting Quality and Environmental management systems:

- **BS EN ISO 9001:2008 and**
- **EN ISO 14001:2004 Certificate No.1473**

Product and system warranties

Provided that their installation has adhered to our published advice, Thermoboard and other Wavin products used within Thermoboard UFH systems are covered as follows:

- **Flexius UFH pipe**
100-year guarantee*; BSI Kitemark
- **Hep₂O push-fit fittings**
50-year guarantee*; BSI Kitemark
- **Composite Manifold**
25-year BBA certification No. 10/4738;
1-year warranty for its electrical components
- **Controls**
2-year warranty
- **Other Thermoboard items**
1-year warranty
- **FullSpec system designs**
covered by Professional Indemnity Insurance

* see pipe service conditions on website.



General information

Health and Safety

All projects involving Thermoboard systems should adhere to the latest version of all relevant legislation on site, including:

- CDM Regulations
- COSHH
- Health and Safety At Work Act
- Management of Health and Safety At Work Regulations
- Manual Handling Operations Regulations

Building Regulations

Reference should be made to relevant sections of the latest version of the Building Regulations including:

- Approved Document L (thermal)
- Approved Document E (acoustic)


















Supply

All products described in this Product Guide are supplied through a nationwide network of Merchant Distributors. Contact Thermoboard for details of your nearest stockist.




Conditions of sale

The Company will not accept responsibility for the malfunction of any installation which includes components not supplied by Thermoboard. Goods are sold subject to Wavin's standard terms and conditions of sale, which are available at www.wavin.co.uk.

Standard product list

Description	Nominal dia. (mm)	Catalogue number	Pack quantity
Screeded Systems			
Staples System (page 9)			
60mm staples for 16mm UFH pipe	16	15UH230	300
40mm staples for 16mm UFH pipe	16	15UH240	300
Staple Gun		15UH324	1
System Plate System (page 10)			
System Plate (1275 x 975mm)	16	16UH196	18
Low-Build Systems			
Low-Build 15 system (page 16)			
Coil 60m (for Low-Build 15 system)	10	10UH060	1
Universal Panel (1200 x 600 x 15mm)		92UH310	10
Universal Panel (1200 x 600 x 15mm)		92UH315	15
Manifold Pack – One Port		92UH101	1
Manifold Pack – Additional Port		92UH103	1
Connection Pack – Small Room		92UH006	1
UFH Pipe			
Coil 25m 	16	16UH025	1
Coil 40m 	16	16UH040	1
Coil 50m 	16	16UH050	1
Coil 60m 	16	16UH060	1
Coil 70m 	16	16UH070	1
Coil 80m 	16	16UH080	1
Coil 90m 	16	16UH090	1
Coil 100m 	16	16UH100	1
Coil 110m 	16	16UH110	1
Coil 120m 	16	16UH120	1
System Ancillaries			
Edge Expansion Foam 150mm x 25m		15UH153	1
16mm Pipe Supports	16	16UH320	50
10mm Socket 16mm Spigot 	10	16UH550	10
16mm Socket 10mm Spigot 	16	16UH560	10
16mm Elbow Connector 	16	16UH530	10
16mm Equal Tee 	16	16UH540	10
16mm Straight Connector 	16	16UH510	10
16 x 10 x 16mm Branch Reduced Tee 	16	16UH001	10
16mm Demountable Stop End 	16	16UH002	10
Fitting Repair Kit	16	16UH245	1
Pressure Test Connection Kit	16	16UH250	1
Air Vent Kit	16	16UH255	1

All other product details are available on request.

Description	Nominal dia. (mm)	Catalogue number	Pack quantity
Manifolds			
Composite Manifold (page 21)			
Control Pack		88UH211	1
Starter Pack 		88UH110	1
One Port Pack 	16	88UH111	1
Three Port Pack 	16	88UH113	1
Manifold Ancillaries			
Single Circuit Control Fittings Pack	16	88UH511	1
Pipe Clamps	16	15UH236	2
Curved Pipe Supports	16	15UH239	2
Composite Manifold 22mm isolation valves	22	88UH311	2
230V 2 Wire Actuator (for use with 52UH108)		52UH402	1
24V 2 Wire Actuator (for use with 52UH714)		52UH602	1
Manifold Cover (up to 4 ports) 570 x 500 x 220mm		69UH015	1
Manifold Cover (up to 8 ports) 850 x 500 x 220mm		69UH018	1
Manifold Cover (up to 12 ports) 1090 x 500 x 220mm		69UH021	1
Control Systems			
Standard Controls (page 22)			
2-zone Control Centre (incl. Wireless Programmable Thermostat)		52UH701	1
14-zone Control Centre		52UH714	1
Thermostat		52UH772	1
Programmable Thermostat		52UH773	1
Wireless Thermostat		52UH782	1
Wireless Programmable Thermostat		52UH783	1
Remote Sensor Probe		52UH795	1
Networked Controls (page 24)			
8-zone Control Centre		52UH108	1
Programmable LCD Thermostat		52UH873	1
Programmable Thermostat (with Touch Screen)		52UH863	1
Programmable Thermostat (with DHW)		52UH874	1
Remote Sensor Probe		52UH195	1
Remote Sensor Probe Cover		52UH194	1
Master LCD Touch Screen Unit		52UH891	1
Net Monitor		52UH892	1
Single Room Controls (page 22)			
230V Programmable Thermostat		52UH273	1

Symbols Key

British Standards Kitemark

Identifies pipe and fittings which are manufactured under the BSI Kitemark Certification Scheme.

British Board of Agrément

BBA Logo identifies non-Kitemarked fittings which are covered by a British Board of Agrément Certificate.

Thermoboard – ensuring the right solution

Under the Thermoboard brand Wavin offers solutions for surface heating and cooling for domestic and light commercial environments. Thermoboard systems and services are designed to enable speedy selection and correct installation of the right solution for each situation – ensuring project success, with complete peace of mind.

UFH
it's what
we do



Wavin operates a programme of continuous product development, and therefore reserves the right to modify or amend the specification of their products without notice. All information in this publication is given in good faith, and believed to be correct at the time of going to press. However, no responsibility can be accepted for any errors, omissions or incorrect assumptions. Users should satisfy themselves that products are suitable for the purpose and application intended.

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Wavin provides effective solutions for essential needs of daily life: safe distribution of drinking water; sustainable management of rainwater and waste water; energy efficient heating and cooling for buildings.

Wavin's European leadership, local presence, commitment to innovation and technical support, all benefit our customers. We consistently achieve the highest sustainability standards, ensure total reliability of supply to support our customers to achieve their objectives.

www.thermoboard.co.uk

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Solutions for Essentials