

Product and installation manual

# Hep<sub>2</sub>O

## Underfloor Heating



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## Underfloor Heating



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# Introduction

# Underfloor Heating

## Why Choose Underfloor Heating?

Underfloor Heating (UFH) using piped warm water is a modern and energy-efficient option for heating homes and other buildings. UFH also delivers comfortable warmth for occupants, as well as other practical benefits. With UFH, the floor is gently heated by piped warm water 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. The result is an all-round, more even warmth than is typically achieved by other space heating techniques. 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.



### Underfloor Heating Offers Many Benefits to The Homeowner

- ⌚ Lower water temperatures required for UFH mean better energy efficiency with fuel bills up to 20% lower
- ⌚ More even room temperature ensures all round comfortable warmth
- ⌚ Silent running – no expansion creaking or water flow noise
- ⌚ 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

### Why Hep<sub>2</sub>O UFH?

Hep<sub>2</sub>O is the leading plumbing brand in the UK, and has been manufacturing professional plumbing systems for over 30 years. Hep<sub>2</sub>O has a range of underfloor heating systems for new and existing floors and offers high quality, proven products which are widely available from plumbers and builders merchants nationwide. Our systems are easy to install and come with market leading guarantees.

### Benefits of Hep<sub>2</sub>O UFH

- ⌚ Online calculation tools to help you select the right products for your project
- ⌚ Clear, simple guidance from online guides, how to's and videos
- ⌚ Easy to order from plumbers and builders merchants and trade outlets nationwide
- ⌚ High quality products with industry leading guarantees

## Choosing a System – The Three Essential Elements

Our online estimating tool will help you select the products you need, but here is a summary of the basic elements of a system.



Plumbed UFH comprises of 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. Let's look at these in more detail.

### 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
- ⌚ The size and shape of the space to be heated
- ⌚ The type of floor finish that will be installed over the UFH

A solution to suit any combination of these factors, can be found within the Hep<sub>2</sub>O underfloor heating product range.



### Manifolds

A manifold is required wherever UFH is to be installed to serve two or more plumbed circuits from the boiler (or other primary heat source). When UFH is being connected to a high temperature heat source which also controls hot water or radiators, a mixing unit is connected to the manifold to mix the water to the required temperature for the system.

The Hep<sub>2</sub>O underfloor heating range includes manifold solutions that can be tailored to each situation. The composite manifold can be sized to serve the exact number of individual UFH circuits up to a maximum of 15 circuits. 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. See our video to find out more about what makes our manifold different from others on the market. Search Hep<sub>2</sub>O on YouTube.

### Controls

As with any type of heating, UFH operation requires time and temperature control. Hep<sub>2</sub>O have several options available, ranging from wired systems to fully networked systems that can be controlled on your mobile device. See page 8 for help in selecting the right solution for you.





# Floor Products

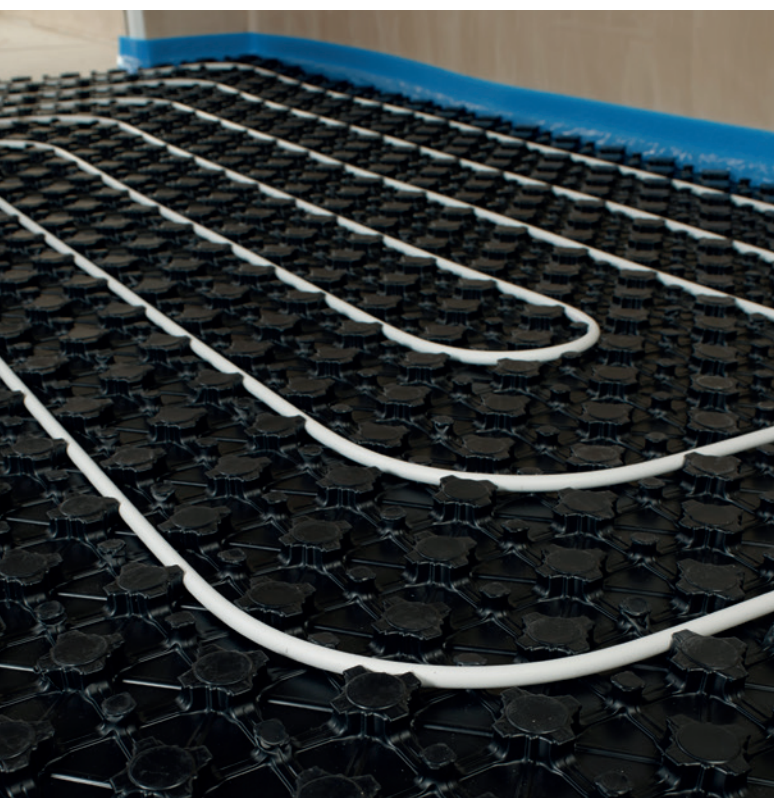
## Underfloor Heating



### Staples System

Staple systems offer a cost effective solution for screeded floors. Simply staple the pipe to the insulation panels before the screed is applied.

This option offers flexibility of design and is a great solution for installers who want to minimise cost and are comfortable in spacing and laying out pipework.



### System Plates

System plates are plastic sheets with pre-formed grips to hold the pipe in position. These are laid on top of insulation panels and hold the pipe in place before the floor is screeded.

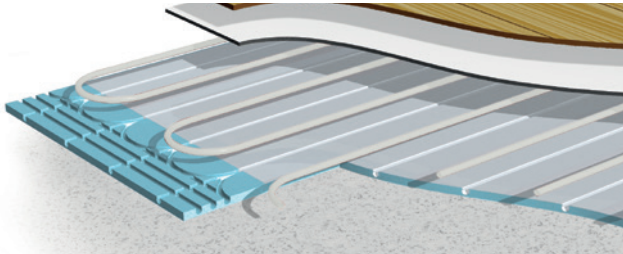
This solution allows fast installation and ensures even spacing of the pipe. The sheets can be cut to size with a utility knife and lock together to prevent any screed ingress under the plates. The sheets can support foot traffic, so will protect the pipe if other trades are on site.



## Dry Construction Panel System – Low-Build

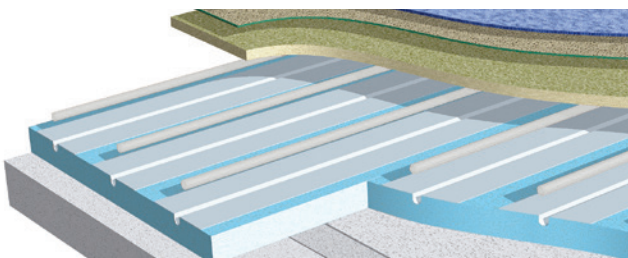
The Low-Build systems are for fitting on top of an existing floor and are a great solution for retro-fit projects, where build height is critical. Choose from:

- 15mm ultra slim insulation panels, with metal diffuser plates pre-fitted (10mm Hep<sub>2</sub>O pipe)
- 25mm floating floor option, for longer circuit lengths and multiple zones (15mm Hep<sub>2</sub>O pipe, order diffuser plates separately)
- 15mm Low-Build Max, no diffuser plates needed, durable - tile straight onto the panels (10mm Hep<sub>2</sub>O pipe)



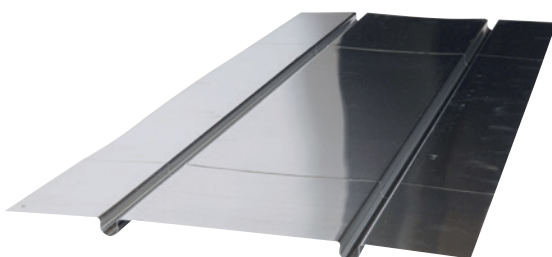
## Panel Systems – Joisted Floors

This system is suitable for joisted or battened floor constructions. The panels can be installed from above or below. The 340mm wide panel slots between evenly spaced joists at 400mm centres. Diffuser plates should be ordered separately.

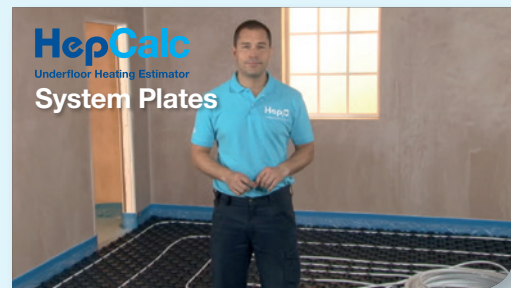


## Diffuser Plates

We also supply packs of Diffuser plates. These are metal plates with a channel for 15mm pipe, which are fitted over the insulation layer and disperse the heat from the pipe across the floor.



YouTube



### System Plates

See our video's for helpful advice and tips.  
[www.wavin.co.uk/video](http://www.wavin.co.uk/video)



### Staples System

See our video's for helpful advice and tips.  
[www.wavin.co.uk/video](http://www.wavin.co.uk/video)



### Low-Build – Diffuser Plates

[www.wavin.co.uk/video](http://www.wavin.co.uk/video)



# Manifolds Underfloor Heating

The unique Hep<sub>2</sub>O manifold is easy to install and gives you unrivalled flexibility. Main features;

- ▶ 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
- ▶ BBA certified for a 25 year service life

See the video to find out more.



You Tube



## Manifolds

See our video's for helpful advice and tips.

[www.wavin.co.uk/video](http://www.wavin.co.uk/video)



## Single Circuit Controls



A cost effective way to control a single room or smaller project is to use a single circuit control. This incorporates a standard circulator with an advanced mixer valve, to ensure the water flows at the correct temperature round the system. A single control is suitable for circuits smaller than 100m<sup>2</sup> with a heated floor area of 20m<sup>2</sup> or less. Simply use an adaptor and spigot elbow to connect to the pipe circuit to the unit. For rooms of up to 24m<sup>2</sup> you can split the coil and use a tee fitting to create 2 circuits.

# Controls Underfloor Heating



## Thermostats and Controls

Every project has different requirements so Hep<sub>2</sub>O underfloor heating controls have a choice of controls to choose from. Below is a summary which will help you select the right system. If you need more help our online quote tool, HepCalc will help you choose the right solution.

	Standard Controls	Networked Controls
		
Max no. of zones per control unit	16	8
Wiring options	Wired or wireless	Wired
Program options	Programmable or non programmable	Programmable
App control	No	Yes – with addition of NeoHub
Benefits	Simple, cost effective option where control via remote devices is not required	Control centrally either by the touchpad or via any remote device e.g. phone, tablet, PC. Sleek design available in black or white



# Room Packs Underfloor Heating

For smaller projects we have a range of room packs which contain everything you need for the job.

Available for rooms up to 12m, 18m and 24m, the packs come complete in a box with pipe, staples, thermostats and controls.

The packs are ideal for new screeded floors – for example if adding an extension or a conservatory to a property.

Simply order your pack from any Hep<sub>2</sub>O stockist – you can find a complete list of outlets on the stockist locator section of our website.

## Pack Contains

- ⌚ 15mm UFH Pipe Coil
- ⌚ 300 Pipe Staples
- ⌚ 25m Roll of Edge Expansion Foam
- ⌚ Programmable Thermostat
- ⌚ 2 x Isolation Valves
- ⌚ Flow Watch Thermostat
- ⌚ Control Pack
- ⌚ Single Circuit Fittings Pack

Packs and Codes	
Room Size Up To	Product Code
12m <sup>2</sup>	16UHPK1
18m <sup>2</sup>	16UHPK2
24m <sup>2</sup>	16UHPK3



## System Selection Guidance Underfloor Heating

### Advice, Tools and Guidance

Our online estimator, HepCalc can help you through every step of the process. Just enter your room dimensions, either manually or through the Magic Plan room planning link, and we will take you through the process step-by-step, and generate a list of materials and a list price quote. Simply take this to your stockist to place your order. Our products are available from plumbers and builders merchants nationwide and selected trade outlets. Visit the website for our full stockist locator.

Below we offer some general installation advice including layouts and heat outputs. More detailed advice for specific systems is available on our website [www.hep2o.co.uk](http://www.hep2o.co.uk). This includes installation guides, product literature and links to step-by-step videos. We also have a list of FAQ's and access to our quotation and calculation tool, HepCalc.

If you prefer to speak to someone in person, our technical team can offer help and advice, just give them a call on 0844 856 5165, or you can email the team at [technical@wavin.com](mailto:technical@wavin.com)

### General installation Advice:

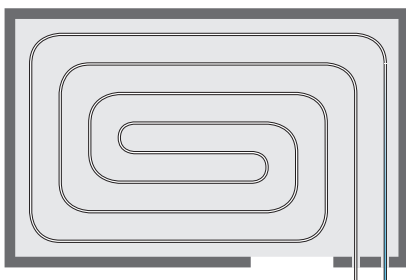
Recommended pipe centres.

For typical heat output, using 15mm 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

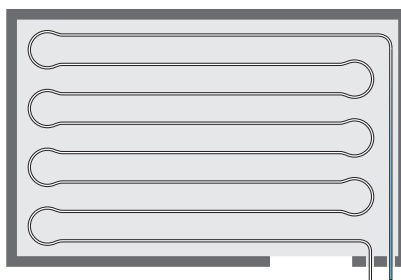
There are two typical patterns for laying UFH pipe:

#### Spiral:



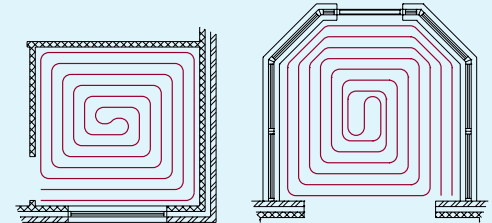
Initially at 400mm centres this layout follows the room shape in a spiral to the middle and is then reversed out from middle. This leaves pipe spacing at 200mm centres. This pattern is possible with two Hep<sub>2</sub>O underfloor heating systems – Staples and System Plates. With spiral patterns, close centres can generally be achieved without excessively tight turns.

#### Serpentine:



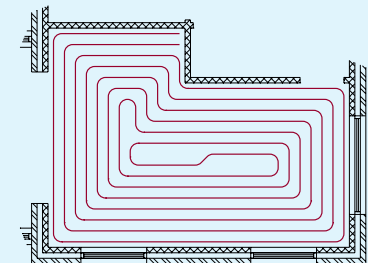
Pipe is laid in parallel runs up and down the room length, with loop turns at each end. Hep<sub>2</sub>O panel products all use the serpentine pattern and it can also be used with staples.

### Some Typical Room Layouts:

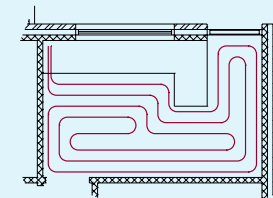


Basic Square

Conservatory

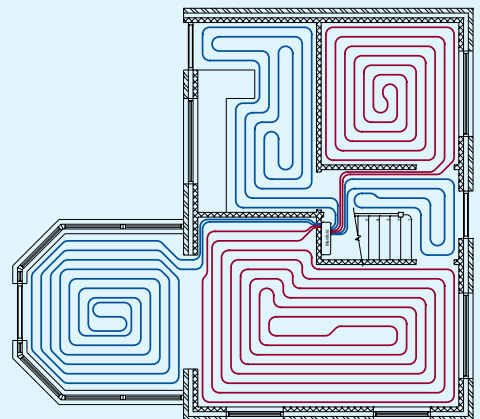


L-Shaped



Irregular Shape

### Typical multi-room layout – Spiral





# Typical Heat Outputs Underfloor Heating

The heat output is the result of a combination of factors including the UFH system installed, the floor finish installed over it, the UFH pipe spacing and the designed flow/return temperatures. Below is a guide to typical heat outputs based on different pipe centres and floor coverings.

Heat Source Efficiency		No Covering	10mm Tiles	25mm Stone	4mm Vinyl	7mm Laminate	6mm Carpet	18mm Timber	12mm Carpet	12mm Carpet + 4mm underlay
Hep <sub>2</sub> O UFH System	Pipe Centres	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 inc 65mm Screed	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 inc 65mm Screed	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
Low-Build 15*	150mm	3.99	3.86	3.72	3.71	3.30	2.95	2.61	2.34	2.06
Low-Build Max	150mm	–	4.80	–	–	–	–	2.84	–	–
Diffuser Plates covered by 18mm Chipboard	200mm	3.33	3.24	3.14	3.13	2.84	2.58	2.31	2.10	1.87

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

## Standards and Warranties

### Product and System Warranties

Provided that their installation has adhered to our published advice, Hep<sub>2</sub>O and other Wavin products used within Hep<sub>2</sub>O underfloor heating systems are covered as follows:

- ⦿ Hep<sub>2</sub>O barrier pipe when used in UFH applications: 100 year guarantee\*; BSI Kitemark
- ⦿ Hep<sub>2</sub>O push-fit fittings: 50 year guarantee\*; BSI Kitemark
- ⦿ Composite manifold: 25 year BBA certification; 1 year warranty for its electrical components
- ⦿ Controls: 2 year warranty
- ⦿ Other Hep<sub>2</sub>O underfloor heating items: 1 year warranty

\*See pipe service conditions on website.

### Quality and Environmental Management

All Hep<sub>2</sub>O products are manufactured under exacting Quality and Environmental management systems:

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

## Product Details Underfloor Heating

	Description	Nom dia mm	Cat N°
	<b>UFH – Polybutylene Pipe</b>		
	<b>Underfloor Heating Pipe</b>		
	<b>Coils – Barrier</b>		
	25m ▾	10	HXX25/10W
	50m ▾	10	HXX50/10W
	100m ▾	10	HXX100/10W
	25m ▾	15	HXX25/15W
	50m ▾	15	HXX50/15W
	80m ▾	15	HXX80/15W
	100m ▾	15	HXX100/15W
	120m ▾	15	HXX120/15W
	<b>UFH – Floor Systems</b>		
	<b>Staple System</b>		
	<b>Staples 60mm</b> for 15mm UFH Pipe	15	15UH231
	<b>Staple Gun</b> (40/60mm)	15	15UH237
	<b>System Plate System</b>		
	<b>System Plate</b> (1275 x 975mm)	15	15UH232
	<b>System Plate Tack Fastener</b>		15UH238
	<b>System Ancillaries</b>		
	<b>Edge Expansion Foam</b> (25.0m x 150mm)		15UH234



# Product Details

## Underfloor Heating

	Description	Nom dia mm	Cat N°
	<b>UFH – Manifolds</b>		
	<b>Manifolds</b>		
	Composite Manifold – Control Pack A Rated		15UH512
	Composite Manifold – Starter Pack ▲		15UH510
	Composite Manifold – One Port Pack ▲	15	15UH511
	Composite Manifold – Three Port Pack ▲	15	15UH513
	Composite Manifold – Euroconus Adaptor 15x1.8 (pair)	15	15UH529
	Composite Manifold – Euroconus Adaptor 16x1.8 (pair)	16	16UH529
	Composite Manifold 22mm Isolation Valves (pair)	22	15UH211

	Description	Nom dia mm	Cat N°
	1"x15mm Female Brass Adaptor	15	15UH607
	Cold Forming Bend Fixture Metal with passivate finish	15	HX75/15 GR
	Pipe Clips – Screw	15	HX85/15W
<b>UFH – Control Systems</b>			
<b>Digital Controls</b>			
	Single Zone Kit (c/w Programmable Thermostat)		15UH310
	16 Zone Control Centre (24V)		15UH316
	24V Actuator (for use with 15UH316)		15UH302
	Flow Watch Sensor (for use with 15UH316)		15UH334
	Wired Thermostat		15UH372



# Product Details

## Underfloor Heating

	Description	Nom dia mm	Cat N°
 	Wired Programmable Thermostat		15UH373
	Wireless Thermostat		15UH382
	Wireless Programmable Thermostat		15UH383
	Remote Sensor Probe		15UH395
<b>Mains Controls</b>			
  	8 Zone Control Centre (230V)		15UH408
	230V Actuator (for use with 15UH408)		15UH402
	Flow Watch Thermostat (for use with 15UH408)		15UH524

	Description	Nom dia mm	Cat N°
	neoStat (white)		15UH475
	neoStat (black)		15UH476
	Remote Sensor Probe		15UH495
	Remote Sensor Probe Cover		15UH494
	neoHub		15UH492
	<b>UFH Room Packs</b>		
	<b>Room Packs</b>		
	12m <sup>2</sup>	15	15UKPK1
	18m <sup>2</sup>	15	15UKPK2
	24m <sup>2</sup>	15	15UKPK3
			

# Product Details

## Underfloor Heating

	Description	Nom dia mm	Cat N°
	<b>UFH – Dry Construction Systems</b>		
	<b>Panel Systems</b>		
	Low-Build 15 Panel 15x600x1200mm	15	15UH601
	Low-Build Max – Straight Panel 15x600x1200mm – 10 pack 15x600x1200mm – 30 pack	15 15	15UH602 15UH603
	Low-Build Max – Return Panel 15x300x138mm	15	15UH604
	Low-Build Max – Channel Panel 15x600x150mm	15	15UH600
	Floating Floor Panel – 25mm 600x1200mm	15	15UH608



	Description	Nom dia mm	Cat N°
  	<b>Joist Panel – 50mm</b> 340x1200mm	15	15UH610
	<b>L Bracket – Inter Joist Panel</b>		15UH612
	<b>Screws &amp; Washers – Joisted Floor</b> M5x70mm		15UH613
	<b>Diffuser Plates</b>		
 	<b>Double Diffuser Plate – 15mm</b> 1000x390mm	15	15UH605
	<b>Single Diffuser Plate – 15mm</b> 1000x140mm	15	15UH606

# Notes

# Underfloor Heating

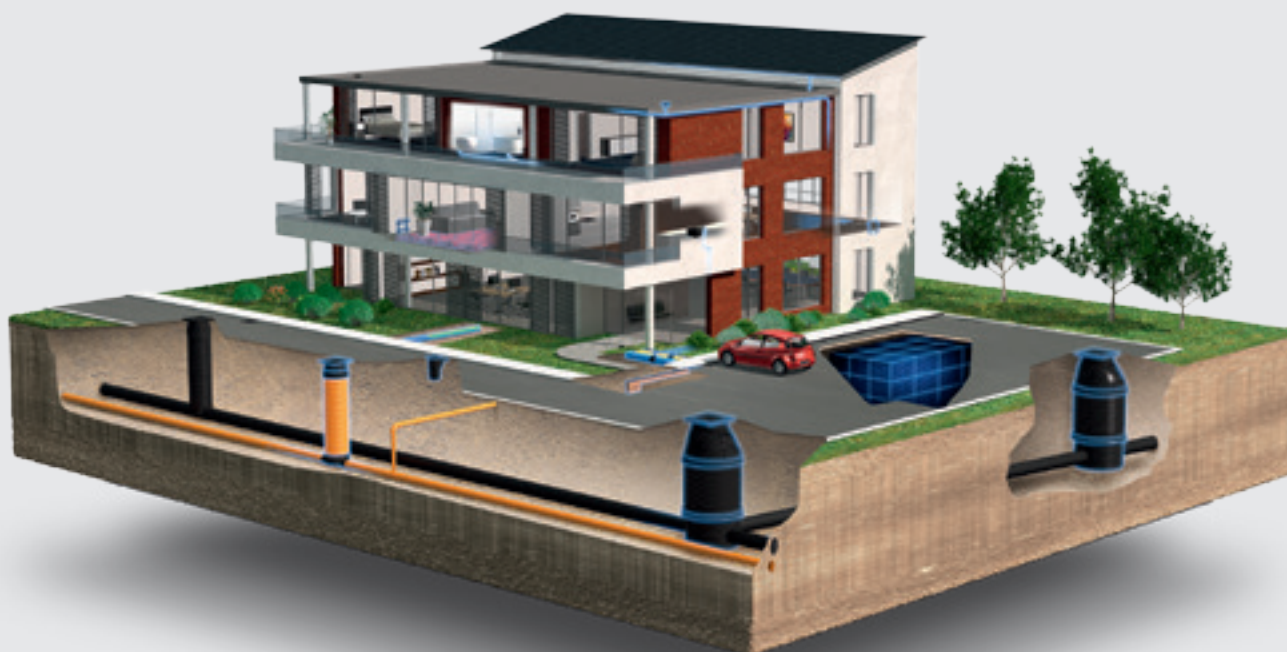




# Notes

# Underfloor Heating

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