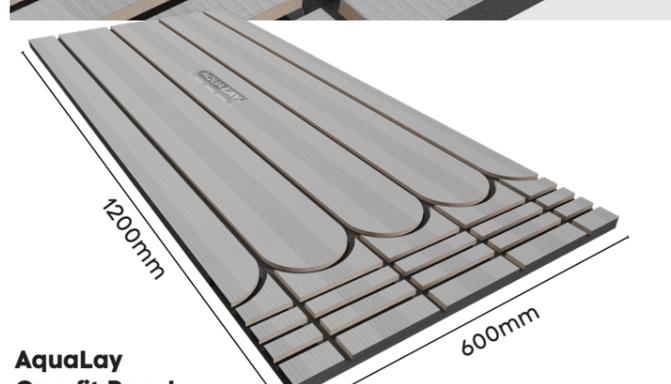
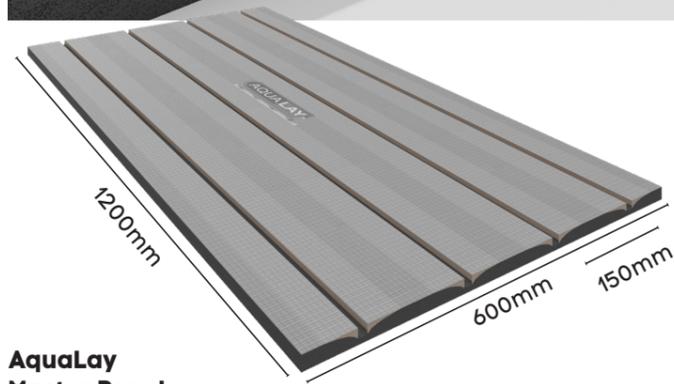
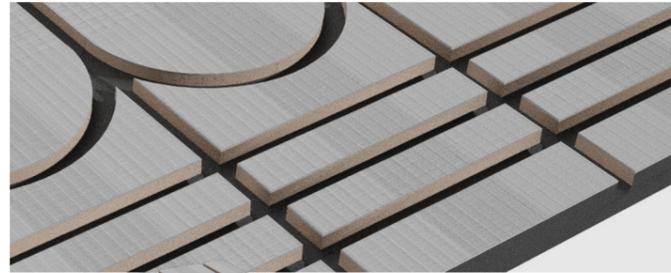
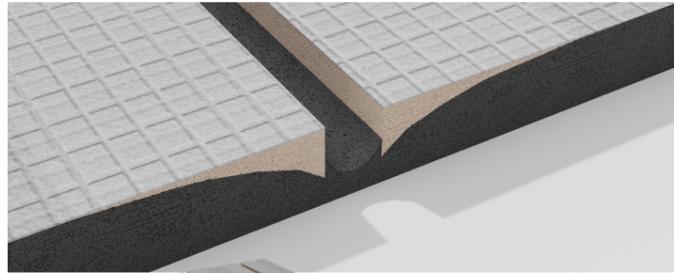


AquaLay

Data Sheet & Fitting Guide

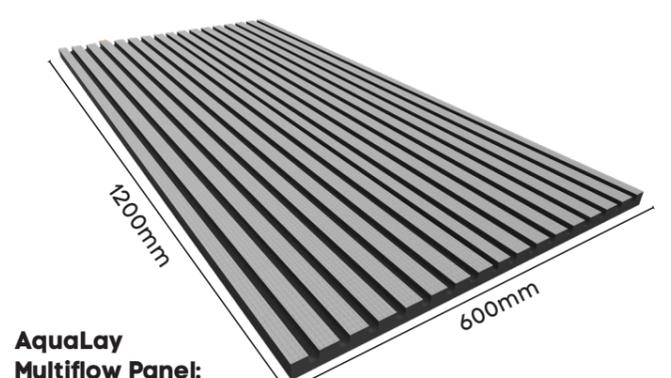
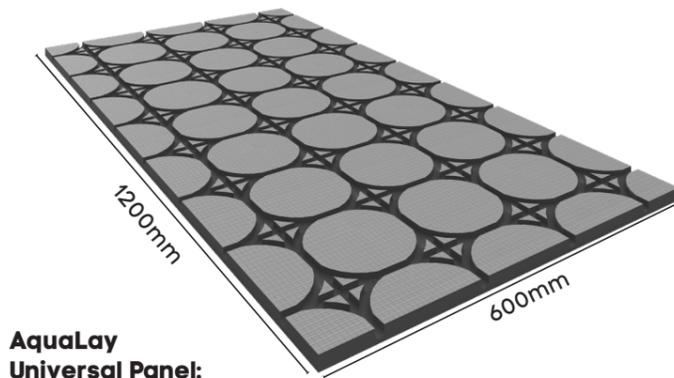
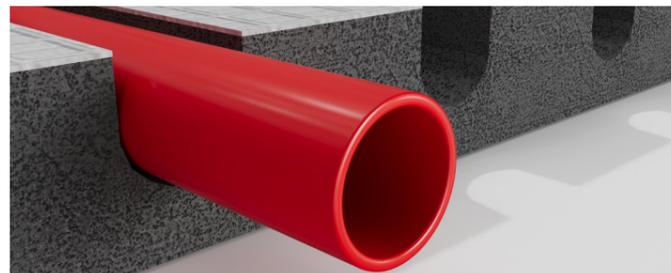
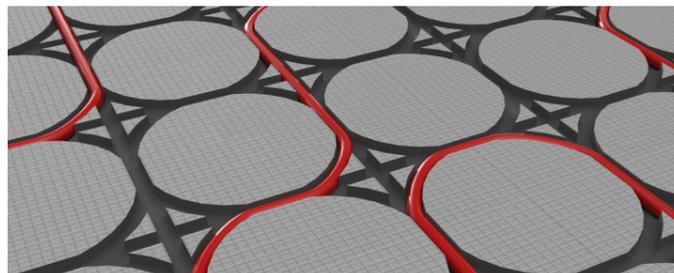
PCS High
Performance
Construction
Products

AquaLay® Panel Information



AquaLay Master Panel:
AQMP018
AQMP022

AquaLay One-fit Panel:
AQOP018
AQOP022



AquaLay Universal Panel:
AQUP018
AQUP022

AquaLay Multiflow Panel:
AQMF018
AQMF022

Product Details

	ID	Thickness	Size	Weight	Pipe Diameter	Pipe Centres
Master Panel	AQMP018	18mm/4 Channel	1200mm x 600mm	4.6kg	12mm	150mm
	AQMP022	22mm/4 Channel	1200mm x 600mm	5.2kg	16mm	150mm
One-fit Panel	AQOP018	18mm/4 Channel	1200mm x 600mm	4.6kg	12mm	150mm
	AQOP022	22mm/4 Channel	1200mm x 600mm	5.2kg	16mm	150mm
Universal Panel	AQUP018	18mm/4 Channel	1200mm x 600mm	2.6kg	12mm	150mm
	AQUP022	22mm/4 Channel	1200mm x 600mm	2.8kg	16mm	150mm
Multiflow Panel	AQMF018	18mm/16 Channel	1200mm x 600mm	2.6kg	12mm	35mm
	AQMF022	22mm/16 Channel	1200mm x 600mm	2.8kg	16mm	35mm

Technical Data

Properties	Thickness
Panel Thickness	18mm, 22mm
Pipe Centres	150mm
Pipe Channel Diameter	12mm, 16mm
Compressive Strength	300kPa
Thermal Conductivity of XPS core	0.031 W/m ² K
Thermal Conductivity of Heat Transfer Core	1.4 W/m ² K
Fire Performance	Euro class E

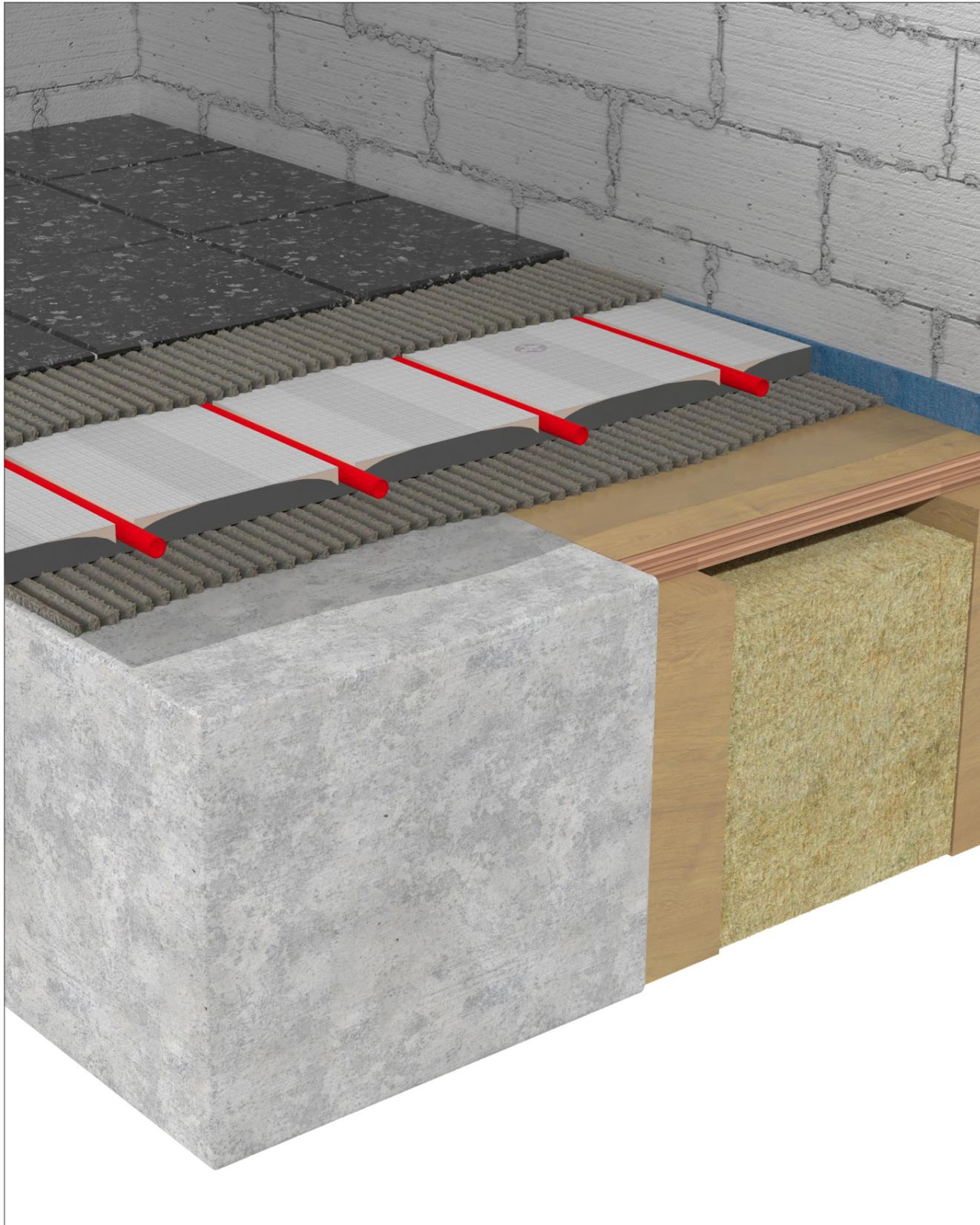
AquaLay Output

Table below shows indicative performance data for AquaLay master panel based upon BSEN 1264 Pt (2).

(calculations based on ambient room temperature at 20 degrees centigrade)

Mean Water Temperature (°C)	Pipe Diameter (mm)	Pipe Spacing (mm)	Output W/m ² (with 10mm thick Porcelain Tiles)	Output W/m ² (with 10mm thick Oak Flooring)	Output W/m ² (with 10mm Carpet)
40.5	12	150	101	58	54
40.5	16	150	105	60	53
45.5	12	150	130	74	69
45.5	16	150	135	77	69
50.5	12	150	159	91	85
50.5	16	150	165	94	85

Fixing AquaLay®



When designing your underfloor heating system, it is important to consider factors that affect performance, such as the heat loss of the room and the type of floor covering to be installed over the AquaLay system. Calculating the heat loss of the room and the thermal resistance of the floor covering, allows the system to be designed to produce the amount of heat required. Underestimating heat loss could result in a poor performing system.

Heat loss calculations for underfloor heating should be made in accordance with BSEN 12831.

The output table is given as a reference guide only. We highly recommend seeking advice from qualified heating specialists for the calculation and design of your underfloor heating system.

AquaLay Heat Transfer Panels work efficiently with most floor coverings.

Fixing to Concrete Floors with tile adhesive

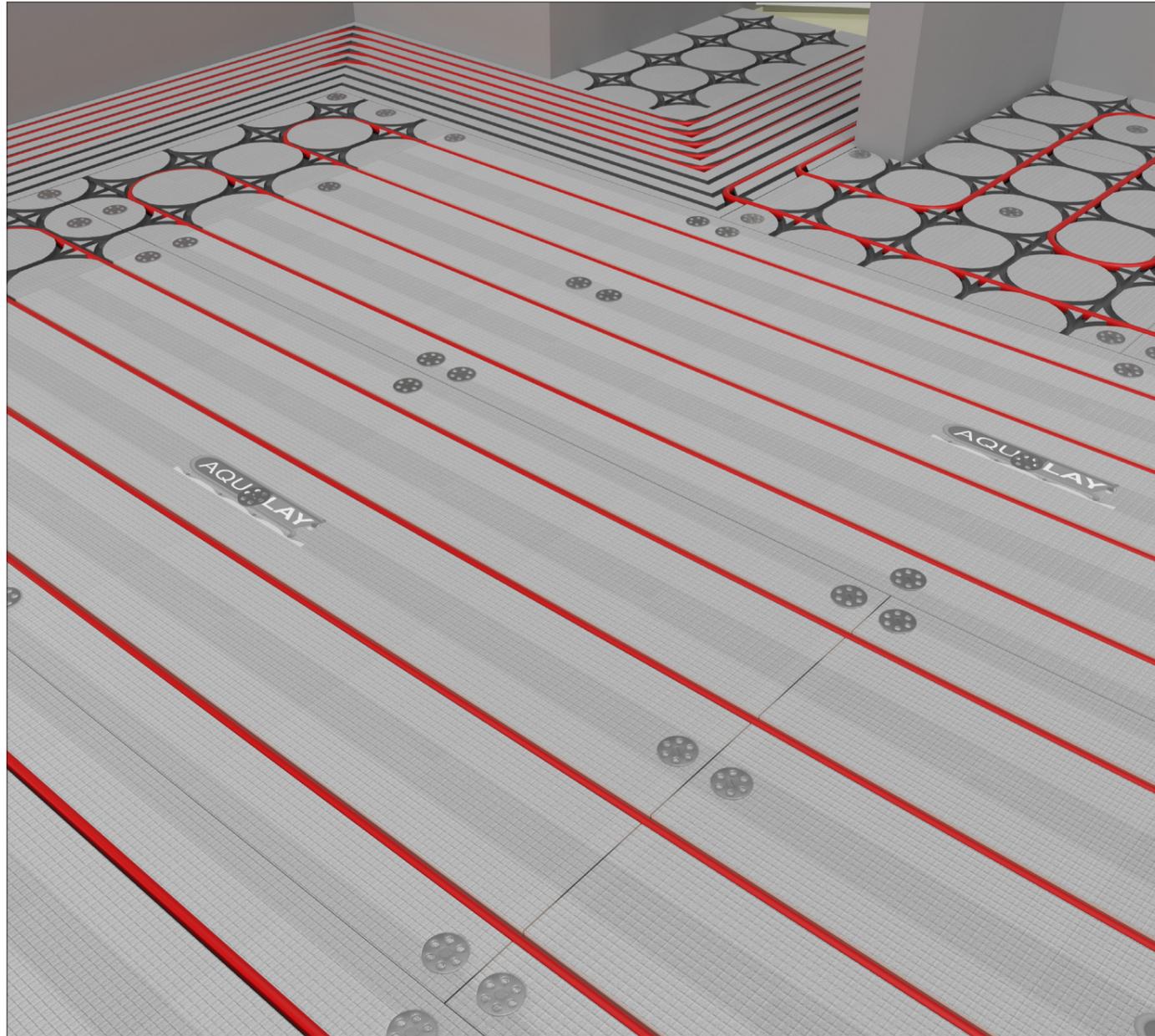
1. It is important to ensure that the floor structure is stable and structurally adequate to take the weight of the AquaLay Panels and floor finishes that will be applied.
2. Prime the floor using a suitable Acrylic or SBR primer.
3. Using a C2 S1 grade, flexible, rapid setting cement based tile adhesive, apply the adhesive using a large format notched tiling trowel.
4. Lay the panels into the wet adhesive and firm down. Apply suitable force to ensure full contact with the adhesive is achieved. Lay panels in a brick bond format.

Fixing to Timber Floors with VipaTek, screws and washers

1. Apply a bead of VipaTek to the underside of the AquaLay panel, at 200mm spacings and also at 10mm from the panel edge.
2. Secure AquaLay to the sub floor, using appropriate length screws and a 35mm diameter washer.
3. Ensure mechanical screws & washers are fitted to the AquaLay panels to prevent the VipaTek from expanding. 12 screws & washers are required for a 1200 x 600 panel.

Note: Washers should only be used on Multiflow Panels after the pipe work is fitted as they will restrict the fitting of the underfloor heating pipe.

AquaLay Panels are easily trimmed using a portable handheld disc cutter with a diamond tipped disc. Alternatively, a sharp hand saw can be used.



For rooms with square or rectangular geometry:

'A standard room layout would usually consist of AquaLay One-fit Panels or AquaLay Universal Panels, fixed to the floor at opposite ends of the room. AquaLay Master Panels would then be fixed between the AquaLay One-fit Panels / Universal Panels to cover the remaining floor area. Alternatively, AquaLay One-fit Panels can be used to cover the entire floor area.

For rooms with complex geometry:

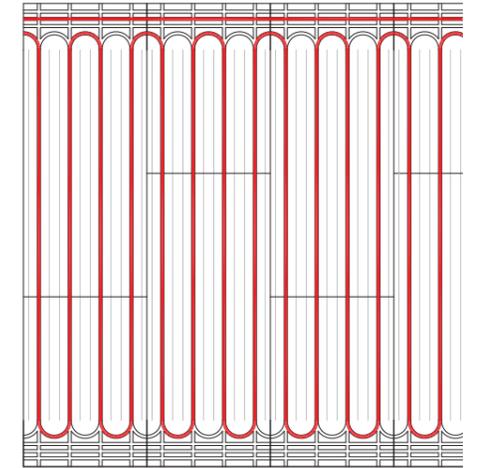
AquaLay Universal Panels are used for floor areas that require complex pipe layout routing and pipe direction changes.

Pipe Layout

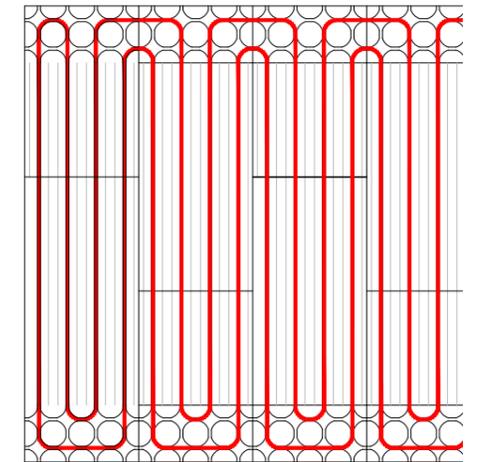
AquaLay Panels are designed for use with pipe diameters of 12mm & 16mm. There are 3 standard pipe layout patterns that are commonly used when setting out pipe work for underfloor heating.

The layout pattern use can be altered to suit the layout and geometry of the rooms to be heated.

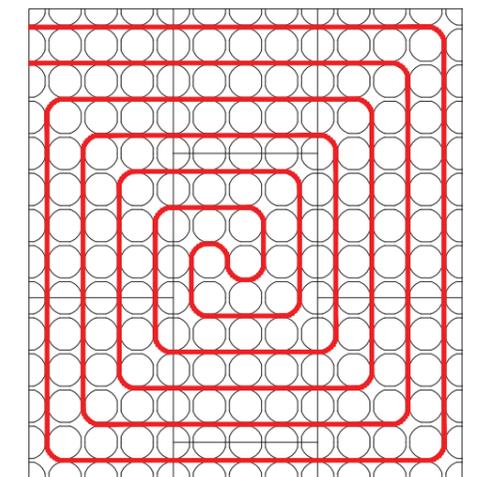
With the Linear pattern (diagram 1) and Meander/ Serpentine pattern (diagram 2), the pipe flow is directed to run back and forth across the length of the room at defined spacing, before returning to the manifold. The Bifilar/Snail/ Concentric pattern (diagram 3) differs slightly, allowing the pipe to flow in a decreasing circular pattern, until it reaches the centre of the floor area. The pipe then returns in the opposite direction and flows back to the manifold.



1. Linear Pattern



2. Meander/Serpentine Pattern



3. Bifilar/Snail/Concentric Pattern

Pipe Length/Maximum Loop Consideration

Pipe Diameter	Maximum Pipe Length Per Loop	Maximum Loop Area (based on 150mm centres)
12mm	80m	11.5m ²
16mm	120m	17.5m ²

Note:

6.6 metres of pipe covers 1m² at 150mm pipe centres.

10 metres of pipe covers 1m² at 100mm pipe centres.

When calculating the length of pipe required for each loop, it is important to allow for the connection into the manifold.



Floor Finishes

Depending on the floor finish that is to be applied and the types of AquaLay panels used, it will be necessary to screed over the surface of the AquaLay panels. The information set out in this guide will provide information for installation of AquaLay onto a range of substrates with common floor finishes applied. The information does not cover all floor build up types.

Self Levelling Screeds

To help achieve a flat and uniform level floor screed, we recommend backfilling any unused channels in the AquaLay Panels, with a self-levelling screed. Allow the back fill screed to set before applying a final levelling screed to the specified thickness.

Joint Reinforcement

Floors can be susceptible to movement through subsidence, vibration, thermal expansion and shrinkage forces. In certain cases, these forces can result in cracks appearing through the sub structure and across rigid floor finishes. Applying alkaline resistant reinforcing mesh over joints, abutments, pipe work etc, prior to applying screeds or tiles, will provide additional resistance to these forces.

AquaLay® with tiled flooring

Ensure the floor is structurally sound and compatible for its intended use. For domestic applications, if the floor is flat and level, tiles can be applied direct to the AquaLay Panels. For heavy foot traffic areas, and commercial projects subject to heavy loads, we recommend applying a cement-based fibre reinforced self-levelling screed, at a minimum 10mm thick over the AquaLay Panels, prior to fixing tiles. Tiles can be fixed using a good quality, flexible, cement based tile adhesive.

AquaLay® with Engineered Wood & Laminate flooring:

Back-fill all unused channels with a cement-based fibre reinforced self-levelling screed, leaving a smooth flat surface. Lay the engineered wood/laminate over the AquaLay, after fitting a thin layer of low thermal resistant foam underlay. For commercial projects that are subject to heavy loads, we recommend applying a minimum 10mm layer of cement based self-levelling screed over the AquaLay Panels, prior to fitting the underlay, engineered wood and laminate flooring.

AquaLay® with Carpet/Vinyl Flooring

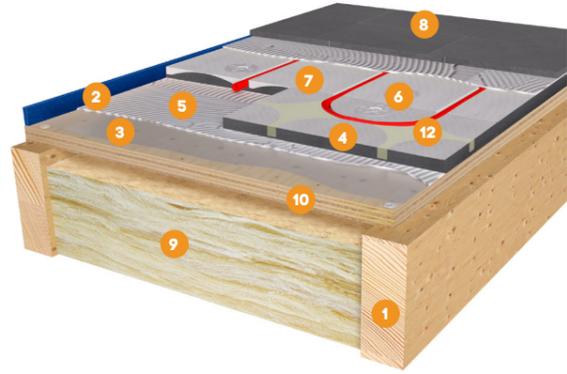
A minimum 10mm layer of cement based, fibre reinforced self-levelling screed, must be applied over the AquaLay, prior to fitting carpet or vinyl flooring.

Heat conductivity

values used in calculating output.

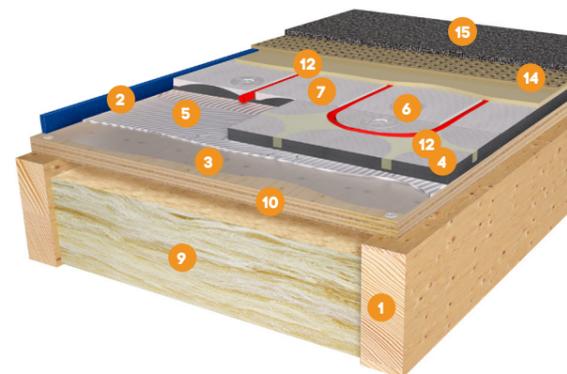
Overlay	W/mK
Porcelain Tile (with 3mm adhesive bed)	1.5
Oak Flooring	0.17
Carpet with Underlay (with 10mm levelling screed)	0.15

Fixing onto timber floors



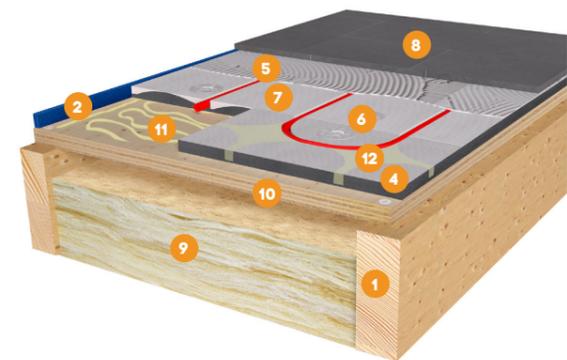
AquaLay with tile covering

Fixed to timber floors with flexible cement based tile adhesive.



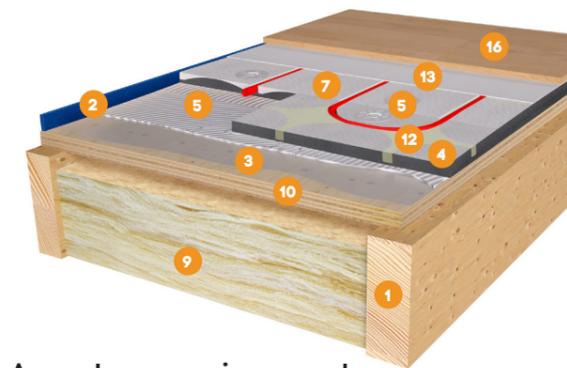
AquaLay with carpet/vinyl covering

Fixed to timber floors with flexible cement based tile adhesive.



AquaLay fixing to timber floor

Fixed to timber floors with flexible cement based tile adhesive.



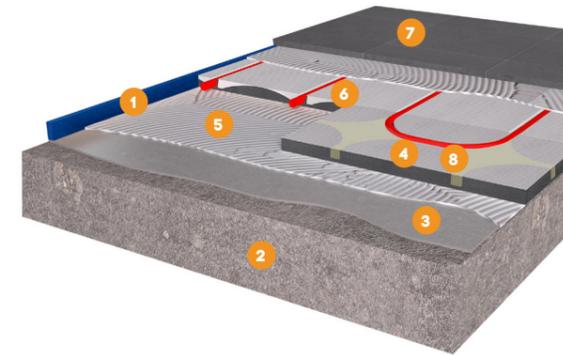
AquaLay engineered wood/laminate covering

Fixed to timber floors with flexible cement based tile adhesive.

Materials Key

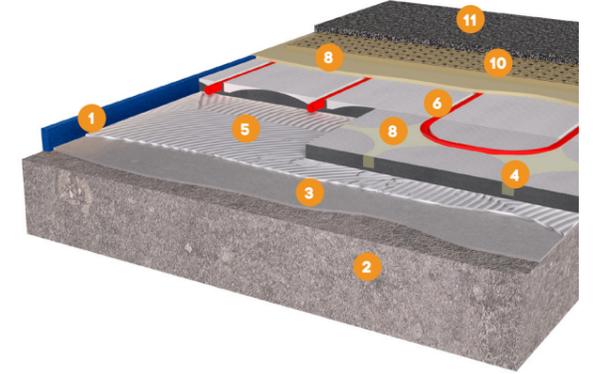
1 Joist	7 AquaLay Master Panel	13 Low Thermal Resistant Underlay
2 Perimeter Expansion Strip	8 Tiles	14 Carpet Underlay (0.5 Tog Max)
3 Primer	9 Insulation	15 Vinyl Flooring/Carpet (1.5 Tog Max)
4 AquaLay Universal Panel/One-fit Panel	10 Floor Boards	16 Engineered Wood/Laminate Flooring
5 C2 S1 Flexible Cement Based Tile Adhesive	11 VipaTek	
6 Screw with 35mm Diameter Washer	12 Levelling Screed	

Fixing onto concrete floors



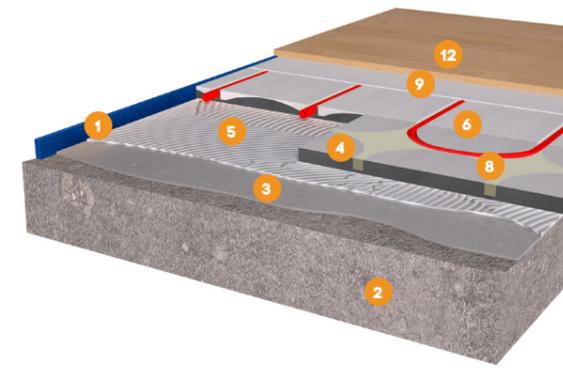
AquaLay with tile covering

Fixed to concrete floors with flexible cement based tile adhesive.



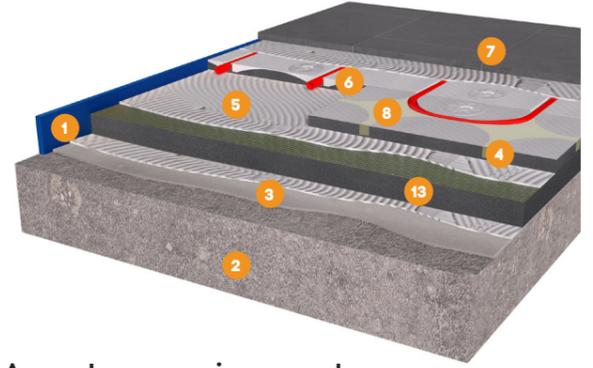
AquaLay with carpet/vinyl covering

Fixed to concrete floors with flexible cement based tile adhesive.



AquaLay fixing to timber floor

Fixed to concrete floors with flexible cement based tile adhesive.



AquaLay engineered wood/laminate covering

Fixed to concrete floors with flexible cement based tile adhesive..

Materials Key

1 Perimeter Expansion Strip	6 AquaLay Master Panel	11 Vinyl Flooring/Carpet (1.5 Tog Max)
2 Concrete Floor	7 Tiles	12 Engineered Wood/Laminate Flooring
3 Primer	8 Levelling Screed	13 VipaBoard
4 AquaLay Universal Panel/One-fit Panel	9 Low Thermal Resistant Underlay	
5 C2 S1 Flexible Cement Based Tile Adhesive	10 Carpet Underlay (0.5 Tog Max)	



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