

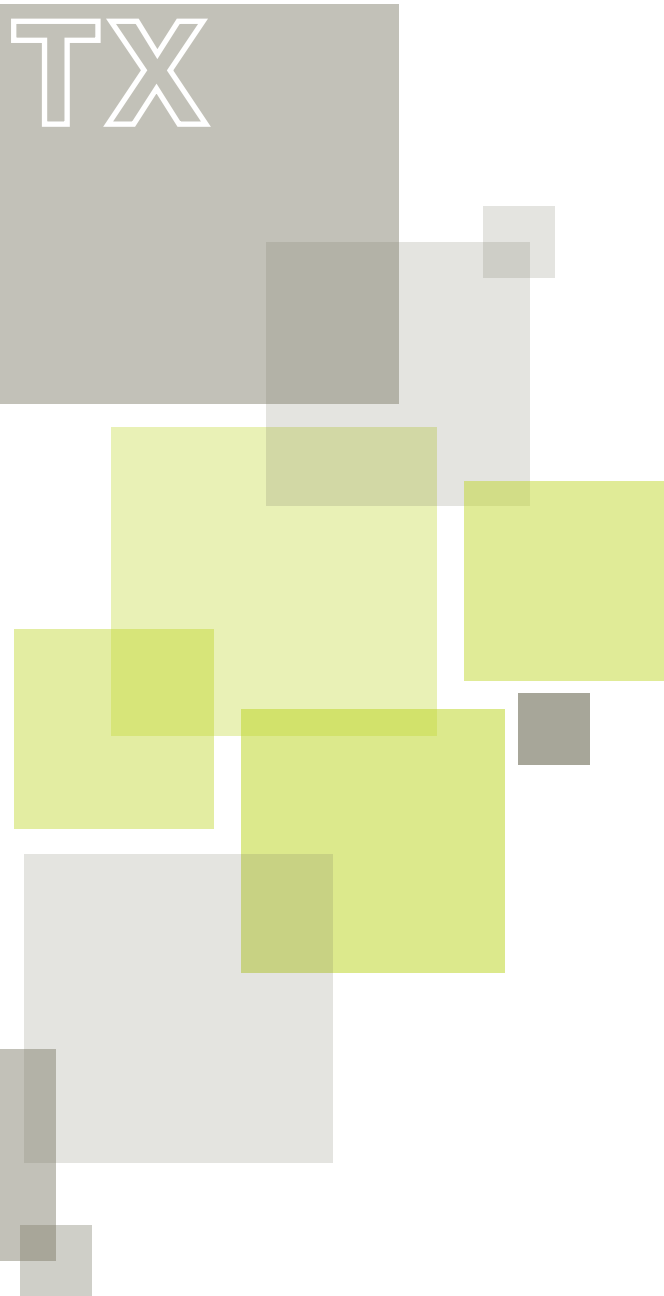


Installation Guides, Data Sheets & Technical Index's

## Screed Floor Constructions

TX 106

Detailed technical information on the use with underfloor heating.



# DESCRIPTION

The use of screeds in underfloor heating systems is common place. The screed that surrounds the pipe is a good conductor of heat making the system very efficient in transferring energy from the pipe to the floor finish. In many ways a heated screed can be treated in the same way as an unheated screed however consideration must be given to the initial warm up procedure (more information in the relevant installation guides) and to expansion.

## TYPES OF SCREED

- Traditional sand/cement – generally consisting of a 4 to 1 ratio of sand and cement mixed with water, laid by hand. Drying time will vary (rule-of-thumb 1mm per day) please refer to the manufacturer's instructions.
- Calcium sulphate (Anhydrite) - This screed is laid thinner than traditional screed i.e. approximately 40mm calcium sulphate screed is equal to 75mm sand/cement screed. The drying time is the same as sand/cement screed but is reduced as the screed is thinner. These screeds are especially suited to under floor heating because they fully encapsulate the pipes that in turn conduct the heat more efficiently. It is recommended that screed should cover the underfloor heating pipes by 35mm, giving a total build up of 50mm with a 15mm pipe. With any proprietary screed it is important to seek the manufacturers' instructions.
- Liquid Cementitious – Very similar to an Anhydrite screed but uses cement instead of calcium sulphate. This equates to a much shorter drying times allowing light foot traffic over the floor in hours rather than days. Good thermal conductivity and minimal thermal expansion. It is recommended that screed should cover the underfloor heating pipes by 35mm, giving a total build up of 50mm with a 15mm pipe.

Always refer to the screed manufacturer's instructions and screed layer's recommendations.

Liquid screed is generally more expensive than traditional sand and cement but if you project is larger than 100m<sup>2</sup> the costs start to become comparable as many liquid screed manufacturers can lay up to 1500m<sup>2</sup> of screed in one day, reducing labour time and costs compared to conventional screeds.

## PERIMETER STRIP/ EXPANSION FOAM

Prior to the laying of the screed, a perimeter strip/expansion foam strip is placed along all internal/external walls and any other building components that penetrate the screed and are secured to the sub floor, e.g. pillars, risers and door frames. The purpose of the edging foam is to allow expansion and contraction of the screed and to reduce thermal bridging.

## EXPANSION JOINTS

When using ceramic or stone floor finishes the joints areas must not exceed 40m<sup>2</sup> or have a run longer than 8m. Where pipes do cross expansion joints a flexible tube, 0.3m in length, should be used.

## VAPOUR BARRIER

Where screed is being poured over porous insulation such as polystyrene a vapour barrier is needed. This is usually a 0.15mm polythene layer. This does not replace or should be confused with the damp proof membrane that would be used with structural slabs.

## WARM-UP

The underfloor heating system should never be used to dry the screed. Once the screed has cured and dried and no earlier than 21 days after the screed has been laid the underfloor heating system can be switched on and commissioned. Initially the system should be switched on and run with a flow water temperature of 25°C for three days, the water temperature can be set with the mixing valve on the manifold or by the boiler. After this initial warm up period the flow temperature can be increased by 5°C per day until the design temperature is reached.

### IN THIS INDEX:

- Staple floor Construction & Datasheets
- ClipPlate Suspended floor Construction & Datasheets
- OgeeBoard floor Construction & Datasheets

# Staple system for Concrete & Screeded Floor Constructions

## INTRODUCTION

The staple system provides a quick, flexible and simple method of installing underfloor heating into a screeded floor. The pipe is easily fixed to the insulation using staples. The barbs on each staple fix into the insulation and hold the pipe in place. The Timóleon Gridded insulation has a laminated foil surface that provides an even stronger fix than plain insulation alone. The foil also provides a convenient grid guide that can easily help with the layout of the piping system. To speed up the process further a Pipe Stapler is available, making installation even easier and faster.

## INSTALLATION

1. Around the perimeter of the room lay 8mm expansion foam against the wall with the gaiter coming into the centre of the room.
2. Lay the Gridded Insulation (or plain insulation and polythene sheet if not using Gridded Insulation), covering the entire floor ensuring the gaiter of the expansion foam is sitting on the Insulation.
3. Lay the pipe to and from the manifold on the grid at the appropriate centres fixing with staples (by hand or using a Pipe Stapler).
4. Pressure test prior to the screed being laid. Keep under pressure whilst screed is being laid.

Note : Please refer to installation guides for full installation details

## SPECIFICATION

Timoleon Staple system using 15mm PB pipe to BS7291 Class S fixed using staples to Timoleon Gridded Insulation. The Gridded Insulation having a laminated film to aid the fixing of staples. Expansion foam to be installed to the perimeter of the room. The system to be designed, installed and commissioned to BS1264.

## TECHNICAL INFORMATION

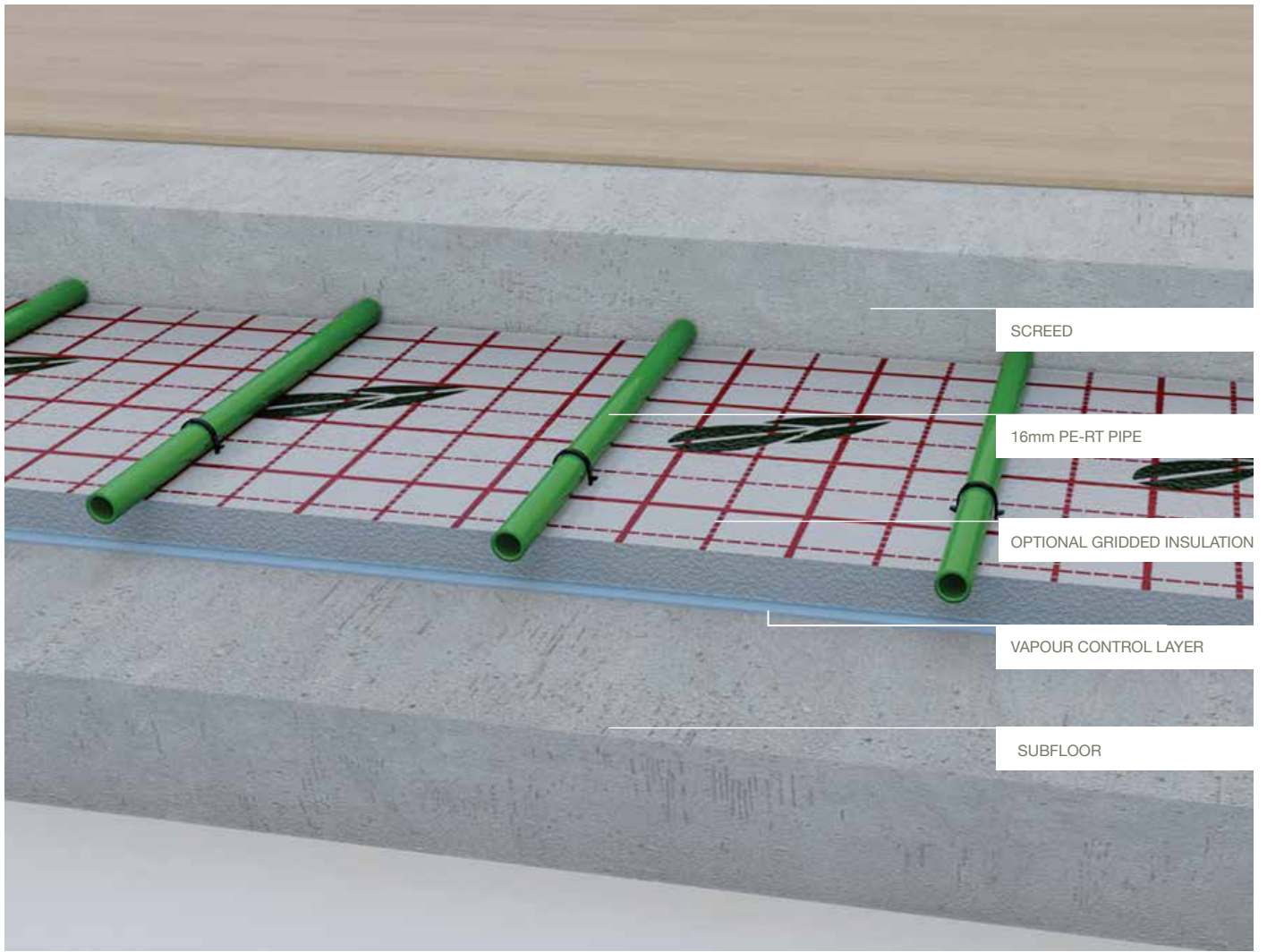
Pipe – 15mm x 1.7mm EVOH oxygen barrier PB pipe to BS7291 Class S.

Gridded Insulation – 25mm thick SDN expanded polystyrene (K=0.038 W/mK)

laminated to provide increased fixing. Heat outputs are dependent on the water temperature, floor construction, system dimensioning, floor finish & design conditions. Please call 01392 363605 for advice.

Heat Output Table (W/m <sup>2</sup> )	Flow & return water temperature (°C)		
	50/40	45/35	40/30
Tile Finish (0.01m <sup>2</sup> K/W)	118	94	69
15mm Wood Finish (0.1m <sup>2</sup> K/W)	83	66	48
Carpet & Underlay (0.15 m <sup>2</sup> K/W)	70	55	41

Based on 15mm PB pipe at 150mm centres with 65mm sand/cement screed laid over. 0.15 m<sup>2</sup>K/W = 1.5 TOG.



SCREED

16mm PE-RT PIPE

OPTIONAL GRIDDED INSULATION

VAPOUR CONTROL LAYER

SUBFLOOR



# ClipPlate System for Concrete & Screeded Floor Constructions

## INTRODUCTION

The ClipPlate system has been purposely designed to avoid using fixings and staples in the floor and to speed up the installation of underfloor heating systems.

ClipPlates are a series of interlocking sheets with an integrated 10mm expanded polystyrene insulation layer. The castellations in the panel provide grip for the pipe, whilst also providing protection from site traffic and the screed being laid.

ClipPlates can be installed over any subfloor. Where floor build-up is limited the integrated 10mm EPS provides some resistance when the product is laid over an un-insulated floor. The panel is designed to allow pipes to be installed at spacings as close as 50mm and at 45° & 90° bends, providing additional flexibility

## INSTALLATION

- 1 Around the perimeter of the room lay 8mm expansion foam against the wall with the gaiter coming into the room.
- 2 Lay the interlocking plates covering the entire floor ensuring the gaiter of the expansion foam is sitting on the plate.
- 3 Starting at the manifold, lay the pipe into the ClipPlate at the correct centres according to the design.
- 4 Pressure test prior to screed being laid.
5. Keep the pipework under pressure while the screed is laid.

Note : Please refer to installation guides for full installation details

## SPECIFICATION

Timoleon ClipPlate system using 15mm PB pipe to BS7291 Class S inserted into 1m x 1m ClipPlates with 10mm pre-bonded EPS. Expansion foam to be installed around the perimeter of the room. The system to be designed, installed and commissioned to BS1264.

## TECHNICAL INFORMATION

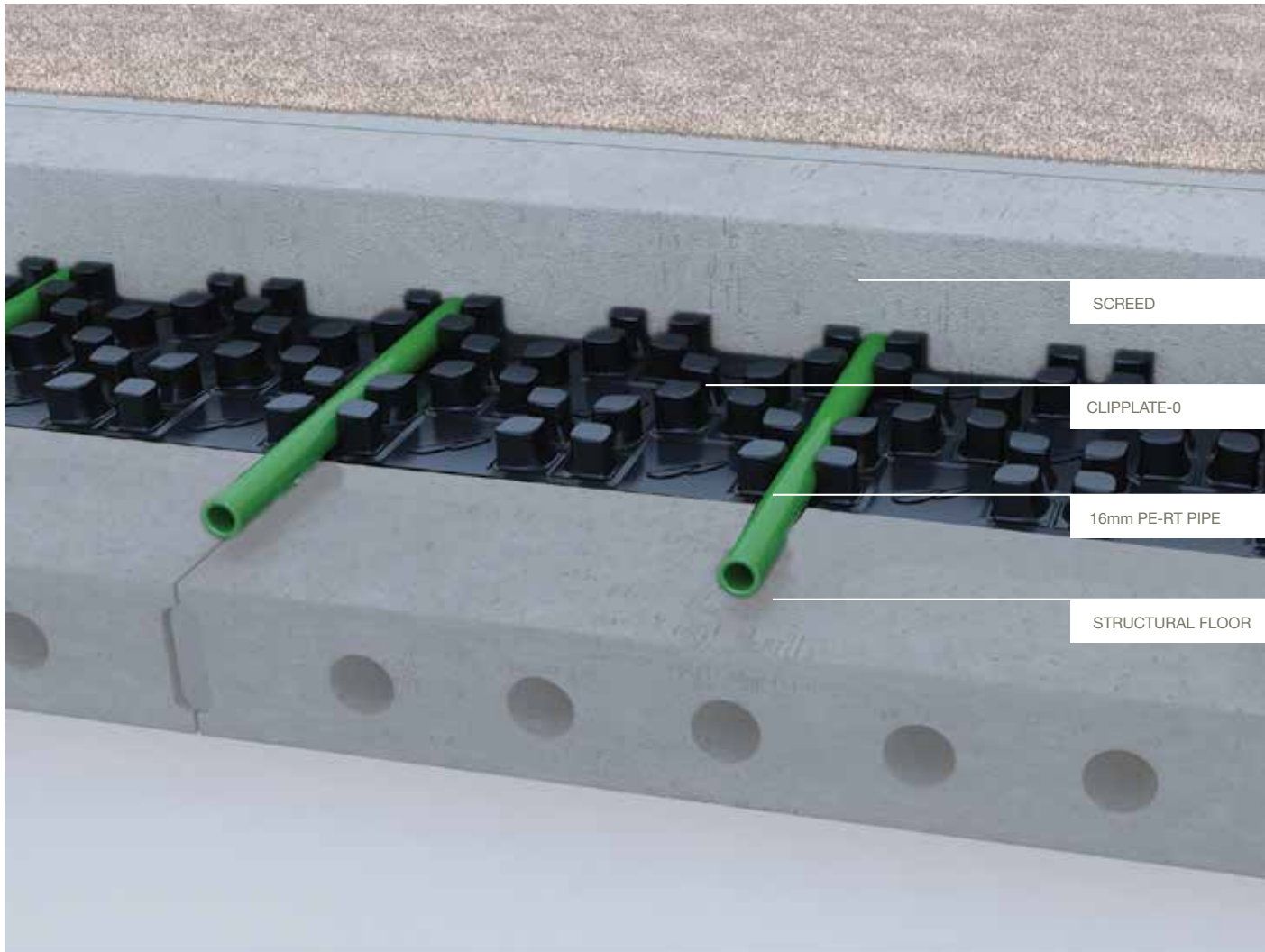
Pipe – 15mm x 1.7mm EVOH oxygen barrier PB pipe to BS7291 Class S.

ClipPlates – 29mm thick (including 10mm EPS pre-bonded insulation –  $K=0.038$  W/mK).

Heat outputs are dependent on the water temperature, floor construction, system dimensioning, floor finish & design conditions. Please call 01392 363605 for advice.

Heat Output Table (W/m <sup>2</sup> )	Flow & return water temperature (°C)		
	50/40	45/35	40/30
Tile Finish (0.01m <sup>2</sup> K/W)	118	94	69
15mm Wood Finish (0.1m <sup>2</sup> K/W)	83	66	48
Carpet & Underlay (0.15 m <sup>2</sup> K/W)	70	55	41

Based on 15mm PB pipe at 150mm centres with 65mm sand/cement screed laid over. 0.15 m<sup>2</sup>K/W = 1.5 TOG.



SCREED

CLIPPLATE-0

16mm PE-RT PIPE

STRUCTURAL FLOOR



# OgeeBoard Insulation for Screeded Floor Constructions

## INTRODUCTION

OgeeBoard is manufactured from polystyrene insulation and potentially replacing the insulation needed to comply with building regulations. The polystyrene boards are routed with channels into which the pipe is installed. With the pipe installed a screed is laid over.

The OgeeBoard Insulation panels are designed to hold the pipe within the thickness of the insulation reducing the possibility of damage from site traffic. No other fixings, staples or plates are needed to hold the underfloor heating pipe in place. The OgeeBoard Insulation panels are available in 35mm, 50mm and 75mm thicknesses enabling very fast installation of the screed underfloor heating, with assured pipe centres.

## INSTALLATION

1. With the sub floor even lay the edge foam around the perimeter of the room
2. Lay the OgeeBoards over the floor making sure there are no gaps between panels and ensure the plastic layer lies on top of the OgeeBoard
3. When using a liquid screed make sure the joints between panels are taped
4. Starting at the manifold, lay the pipe into the OgeeBoards according to the supplied design
5. Lay the screed to the required thickness
6. Pressure test and keep under pressure while the screed is being laid
7. Do not use the underfloor heating to dry the screed

Note: Please refer to the installation guide for full installation instructions

## SPECIFICATION

Timoleon OgeeBoard insulation panels using 16mm PE-RT pipe. The OgeeBoards are 35/50/75mm thick for a 65mm screed to be laid over. The system is to be designed, installed and commissioned to BS1264.

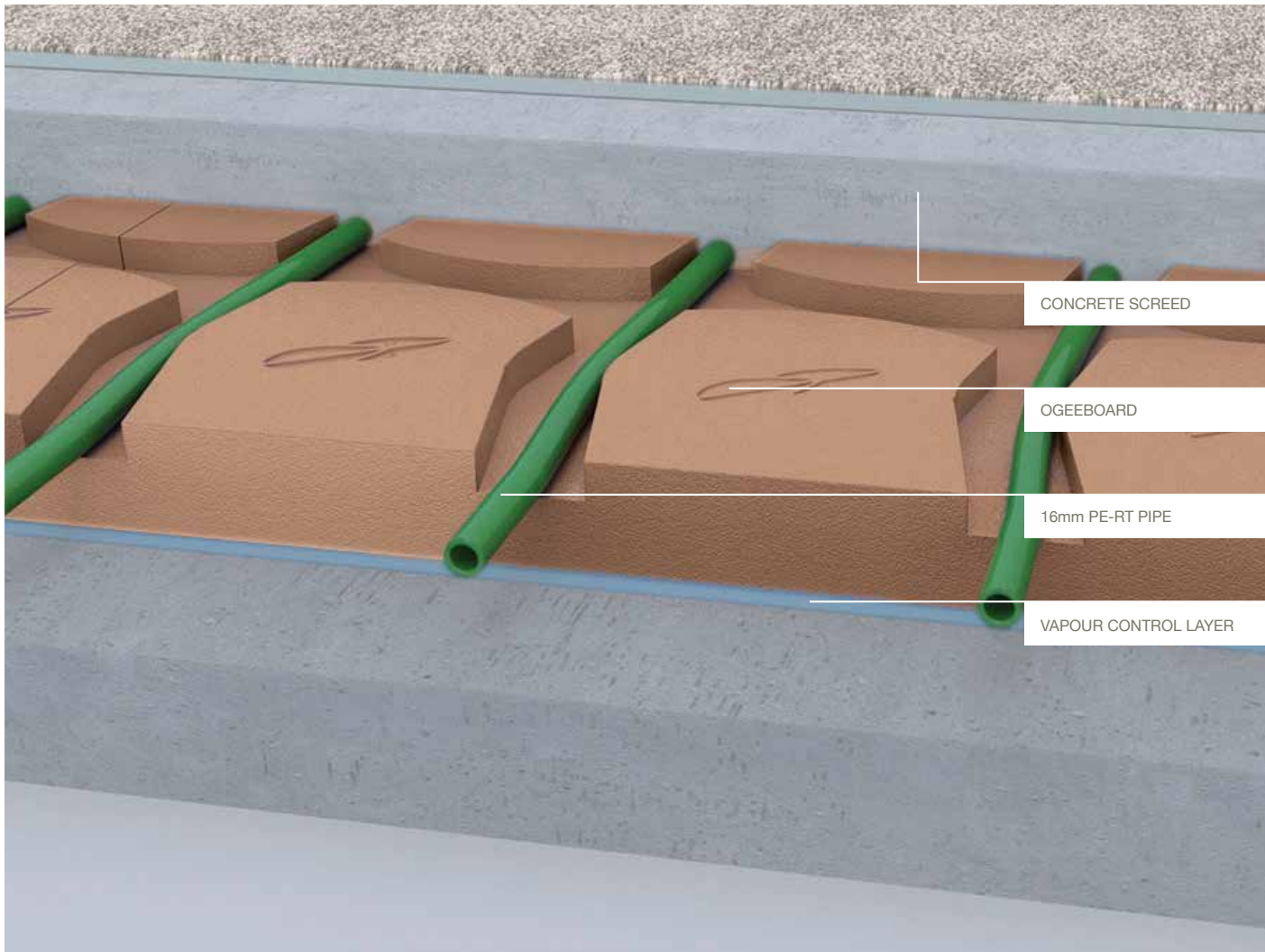
## TECHNICAL INFORMATION

Timoleon panel – XPS extruded polystyrene panels with routed channels to hold pipe ( $k=0.033\text{W/mK}$ ). Panels dimensions 1200x600mm.

Heat outputs are dependent on the water temperature, floor construction, system dimensioning, floor finish & design conditions. Please call 01392 363605 for advice.

Heat Output Table (W/m <sup>2</sup> )	Flow & return water temperature (°C)		
	50/40	45/35	40/30
Tile Finish (0.01m <sup>2</sup> K/W)	118	94	69
15mm Wood Finish (0.1m <sup>2</sup> K/W)	83	66	48
Carpet & Underlay (0.15 m <sup>2</sup> K/W)	70	55	41

Based on 16mm PE-RT pipe at 150mm centres with 65mm sand/cement screed laid over. 0.15 m<sup>2</sup>K/W = 1.5 TOG. Air Temperature = 20°C



CONCRETE SCREED

OGEEBOARD

16mm PE-RT PIPE

VAPOUR CONTROL LAYER



# streamline

## STREAMLINE - SERVICING & SUPPORT

Timóleon Streamline provides a specialist service that commissions, services and troubleshoots underfloor heating systems.

Underfloor heating systems have a well deserved reputation for reliability, but from time to time, can provide the owners with problems. Systems that develop problems, haven't been commissioned properly or have been poorly serviced will inevitably become less effective and less energy efficient.

A properly commissioned and maintained system will keep it working as efficiently as possible throughout its life time, will reduce energy bills and will maximise the life of its components.

To enquire about servicing or commissioning your underfloor heating system or for more information about any of our products, please call us on 0845 6803605.

## HELP & ADVICE

### Questions?

Call the project team on  
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**timoleon**

Change is coming.  
We are ready.  
We can help you face it.

