

## Installing **wundatherm 'Acoustic'** Overfloor Heating Boards

UKAS Accredited laboratory tested to BS EN ISO 10140 - 3 improvement in impact sound isolation

Manufactured to EN 13986 & EN 13171, **wundatherm 'Acoustic'** floor heating system combines lightweight Acoustic boards with rapid response 200 micron thick Aluminium foil. Engineered to provide a floor heating solution for any extension, renovation or new build with a need for acoustic improvement. **wundatherm 'Acoustic'** Acoustic Fibre boards are manufactured from wood fibres and the raw material has a density of 160Kg/m<sup>3</sup> and can provide an acoustic improvement of up to 59dB (Rw) Airborne sound and up to 58dB (Ln, w) Impact sound.



**wundatherm 'Acoustic'** 22mm overfloor boards use 16mm pipe with centres at 150mm and our 17mm boards use 12mm pipe with centres at 120mm and are suitable for all projects both large and small.

The boards are designed for super fast warm up times with low temperature water.

**wundatherm 'Acoustic'** boards are quick and easy to install, using simple practices and basic tools whilst avoiding the need to remove existing floors or the moisture, weight and mess of concrete/screed.

*Note: Advised max length for each pipe circuit is 100m for 16mm pipe or 60m for 12mm pipe.*

### You will need:

- Metal edge rule
- Craft knife
- Hand saw
- Eye protection
- Dust mask
- 2mm A2 spreader

### Also recommended:

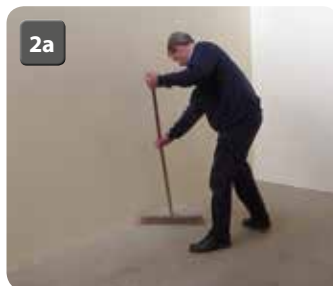
- Marker pen
- Pipe cutter
- Gloves
- Knee protection
- Router
- Pipe layout drawing

**Important:** we advise wearing gloves as the aluminium edges can be sharp.

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## 1 Handling of the Boards

Care must be exercised when lifting the **wundatherm 'Acoustic'** boards, do not lift panels by the corners, instead grip firmly with two hands along one edge **(1a)** lift and carry vertically.



## 2 Floor Preparation

**wundatherm 'Acoustic'** Overfloor Boards can be fixed to new or existing concrete/screed or wooden floors, which must be dry & level. Remove any loose paint and floor coverings. Floors must be free from oil, grease, damp, dust debris or any other substances that will prevent the Board from laying flat or the adhesive from adhering **(2a)**.

When fixing Acoustic Overfloor Boards to a concrete/screed floor ensure a damp proof membrane has been installed, if not then apply a liquid damp proof membrane and allow to cure fully before fixing any panels.

When fixing Acoustic Overfloor Boards onto an existing wooden/timber floor, ensure any loose flooring is secured, replace any missing or damaged boards. Ensure the floor is firm and level allow any adhesives to dry fully before fixing the Overfloor Boards.

When floor heating pipes need to pass through walls, drill the holes before laying and fixing the Boards to prevent damage. Protect and seal the pipe ends with tape, to prevent kinking one person should feed the pipe through the hole whilst another draws the pipe through.

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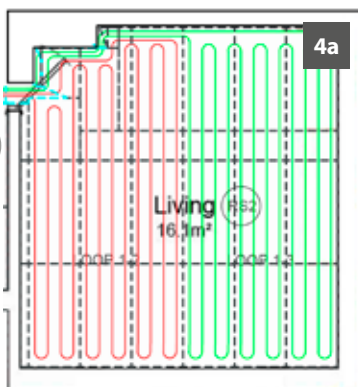
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### 3 Fitting perimeter strip

Before laying floor heating boards, remove skirting boards and any doors that will require trimming to accommodate the floor heating boards. Fit perimeter edge strip around the outside edges of the area to be heated using the sticky tape on the back (3a) or a hand staple gun. This will help reduce heat loss and allow for expansion. Any height excess can be trimmed off once final floor finish has been laid.

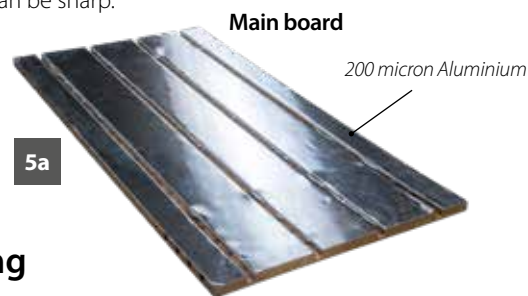


### 4 Study the pipe layout drawing



Before attempting to lay any floor heating boards, familiarise yourself with the system layout drawing, noting manifold position. The drawing will detail the orientation and position of panels (4a).

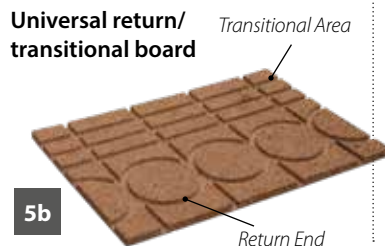
Plan transitional pipe runs. Some cutting of boards will be required we advise wearing gloves as the aluminium edges can be sharp.



### 5 Preparation and cutting

Our *wundatherm 'Acoustic'* system consists of 2 boards:- a main straight board (5a) laminated with 200 microns of aluminium and a plain universal return/transitional board (5b). The main straights are used in the centre of the floor area and return ends are used across opposite walls of the area to be heated. Standard 18mm chipboard flooring can be used under kitchen cabinets and baths etc, where floor heights need to be maintained (not supplied)

Universal return/  
transitional board



*wundatherm 'Acoustic'* Boards are designed for easy installation, cutting to shape where required. Transitional pipe runs, additional corners, bends and extra pipe channels will normally be required and are simply cut from a panel using a hand saw, electric jigsaw or a router to cut additional channels (5c, 5d).



When cutting and creating new bends into a board, keep the radius gradual and no sharper than in a main panel. The water flow around a pipe circuit should always go to potential cold areas first, for example external walls and areas of high glazing. We suggest wearing flat soled shoes or trainers whilst walking on the boards.

Pipe should be set back from walls to avoid future placement of carpet grippers etc. (5e). Ensure boards are dry and free from dirt, dust or any other contaminants before laying. Boards must be stored on a dry, flat, level surface, keep any off-cuts as they may be needed later on in the installation.

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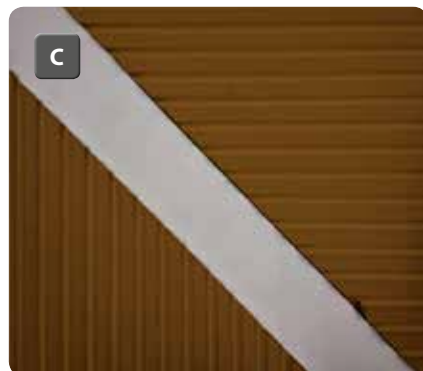
## Transitional areas

Wunda transitional pipe boards (A) are easily cut to suit any Overfloor project where there is a concentration on pipes or where a corner needs to be formed.

Straight pipe runs can be laid directly into the straight transitional board – cut to length and width as required (B).



Corners can be formed from a main transitional board, for example cutting two 45° will provide a 90° turn (C).

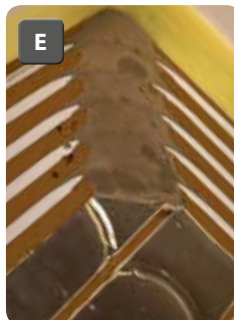


A

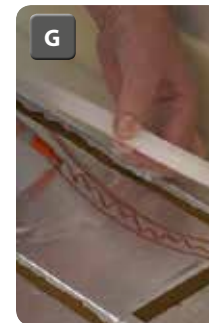


Do not push the 45° cut edges up against each other, leave a space approximately 120mm wide this will allow the pipe to be formed and bent as it changes direction from one straight channel to another. Take care not to form too tight a bend and kink the pipe. The open area between the boards can be backfilled with renovation screed, fixing the pipes with suitable nail clips to the subfloor if required before pouring renovation screed (D).

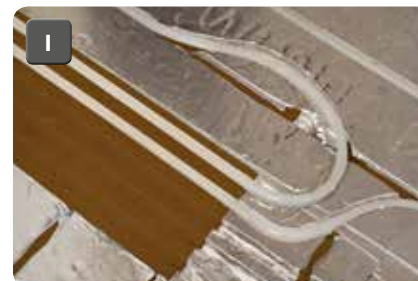
The screed should be applied and levelled off at the same height as the Overfloor board (E). Alternatively corners can be routed out from a main board once bonded to the floor.



Extra pipe channels can easily be cut using a suitable router and bit. In order that a smooth bend is formed lay and shape the pipe onto the area where a channel is required, gently bending the pipe to follow the curve. Once the lay of pipe has been established follow the curve with a marker pen, marking directly onto the board the route to be routed (F/G).



Using a router with bit set to 17mm depth gentle cut the new channel following the marker pen layout (H). Ensure the channel is clear and free from debris, if required the channel can be lined with aluminium tape. Lining with aluminium tape is not required in areas with highly concentrated/close floor heating pipes.



Where floor heating pipes are required to pass through walls suitable sized holes will be required at floor level, (18mm drill bit) (J). Take care to avoid any services hidden within the wall, the end of the pipe must be taped off to ensure no debris enters the pipe before passing through the wall. When passing pipe through the wall, lift any pipe laid in the Overfloor boards immediately before the hole, this will make it easier to pass the pipe through the wall and prevent any kinks occurring. The entry and exit around the holes will require backfilling with either offcuts of Overfloor or renovation screed.



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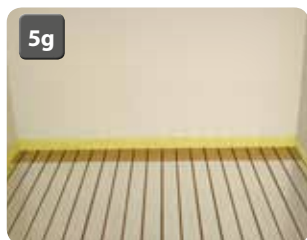
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Before laying any boards familiarise yourself with the system layout drawing noting the direction of panels, potential cutting required and transitional areas. If you are inexperienced in laying Overfloor heating we strongly suggest completing a 'dry' lay of all panels before attempting to use any adhesive to fix the Boards.



Identify joins between boards using a permanent marker (5f). Once you are satisfied that all panels have been cut and marked for an area (5g) they can be lifted in preparation of fixing the boards permanently in place (5h).

4

## 6 Fixing the boards to an existing or new floor

Boards must be **glued & screwed** to the sub floor to prevent future movement and potential 'floor squeak'.

### Using Acrylic adhesive

Ensure sub floor is dry, clean, stable, level and free from oil, grease, loose paint and any obstructions. Secure any loose boards, fill any holes, dips or low points in the floor. Ensure adequate ventilation, open windows and doors, do not use in confined areas. Wear suitable protective gloves, face mask and clothing.

Mapei ECO 380 (6a) is approved for creating a strong bond with Acoustic Overfloor Boards to all kinds of absorbent, stable and dry substrates, including concrete/screed and existing wooden floors.

Floors must be free from oil, grease, damp, paint & debris - or any other substances that will prevent the adhesive from bonding to the floor.

Eco 380 **must not be used to level uneven floors.**

6a



6e



## How the Universal End Return/Transitional board works



Universal End Return/Transitional board shown in 'Transitional' orientation with straight channels positioned nearest the wall (6a).



Universal End Return/Transitional board shown in 'Return' orientation with circular channels positioned nearest the wall (6c).

## Applying adhesive & laying boards on screeded floors

Starting with a few square meters at a time, apply an acrylic adhesive (6d). (Wunda recommends Mapei Ultrabond Eco 380 (6a) to the sub-floor only, using an A2 tooth spreader (6e).

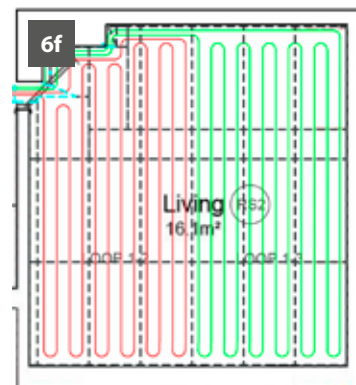
Leave the adhesive until it becomes tacky – generally 10-20 minutes. The boards can now be applied to the adhesive.



Working from the manifold location, start by laying end return and or transitional boards along one wall (6g) (working in conjunction with pipe layout drawing) (6f).

A single end return board can accommodate 1 additional flow and 1 return channel (5b), enough for one loop of pipe, areas with multiple loops will require extra end returns and transitional panels.

Ensure that main panels are laid flush against each other and that pipe channels are lined up (6h).



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6g



Once the first strip of end/transitional boards have been laid, apply more adhesive in a strip approximately 1250mm wide, parallel to the wall (6g), again leave adhesive to become tacky and commence laying main boards, working towards the opposite wall.

#### IMPORTANT...

Until boards are screwed down they may slip.

Keep all off cuts for future jobs.

5

6h

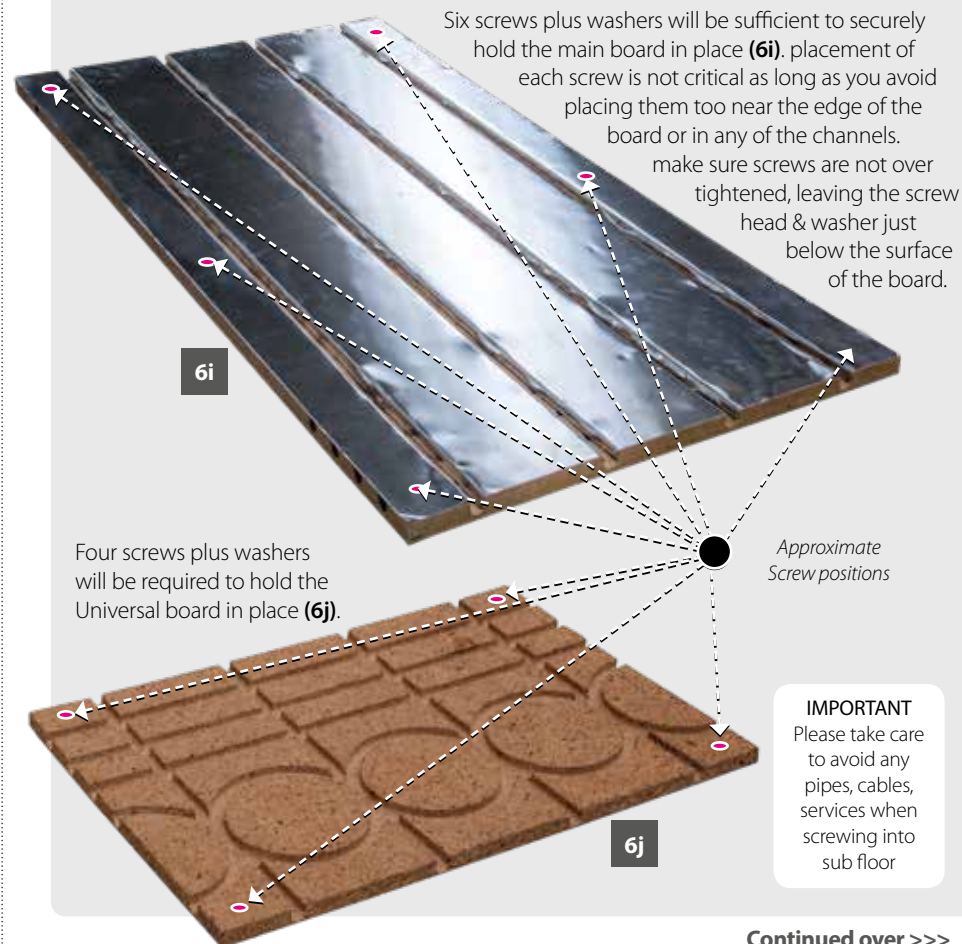


#### TIP...

To ensure pipe channels match up, a good tip is to insert short off-cuts of pipe into a couple of pipe channels where the boards meet (6h).

#### Fixing positions for wundatherm 'Acoustic' Boards:

In combination with adhesive, the Overfloor Boards will need to be screwed to the existing concrete or wooden floor using phosphate/zinc countersunk screws plus washers. The washers will prevent the screws from going too far into the board.



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## Fixing the boards to a wooden sub floor

Once the *wundatherm 'Acoustic'* Boards have been laid onto the adhesive, they will now have to be secured with phosphate/zinc countersunk screws & washers. First, drill pilot holes in each board as indicated previously (6j) making sure the surface of the boards have been countersunk (6k) to allow the screw head to sit below the surface of the board. Drive each screw home being careful not to over tighten (6l).



6

## Fixing the boards to a concrete sub floor

When fixing the boards to a concrete sub floor, they will have to be prepared for fixing **prior to the adhesive being applied to the floor.**

Dry lay each board in its final position, drill pilot holes as per the method above, making sure you clearly mark through each hole to the concrete below. Lift the panel, drill and fit appropriate plugs to the marked screw locations on the concrete floor.

Do this for each board, making sure you mark the board and its position on the concrete floor with a corresponding number so it can be returned to the correct position on the floor **after the adhesive has been applied**. The boards can then be secured with phosphate/zinc countersunk screws plus washers to their correct positions, again making sure the screws are not over tightened.

## 7 Installing pipe into the boards

Once the boards have been laid and secured in place with adhesive and screws, you are now ready to commence laying the pipe. Ensure all pipe channels are clear of debris. Check and familiarise yourself with the pipe layout drawing (4a) noting where to begin and pipe routes for each individual loop of pipe.

A pipe layout drawing will indicate each length of pipe required, do not cut pipe before laying (you may need to change the route due to unforeseen events).

Always begin laying pipe at the manifold allowing a bit extra for final connection to the manifold identify each loop flow, return and loop number using a permanent marker (7a).



Walk the pipe into the channels in the overfloor boards ensuring the pipe is pushed securely into the bottom of each channel (7b).

Continue to walk in the pipe on straight channels and shape the pipe by hand around end returns and bends (7c).

Wunda pipe is marked every meter so you will know when to start heading back towards the manifold.



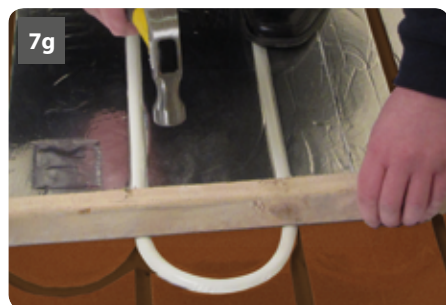
### TIP...

**Pert/Al/Pert pipe:** In the unlikely event of a kink in the pipe occurring, wrap the pipe in a cloth for protection and gently squeeze with pliers to re-shape

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Some cutting of the boards will be required, this can be simply done with a hand saw. Extra bends can be created by cutting curved sections from an end panel or alternatively by using a suitable router and bit (**7d - f**).



If pipes sit proud of the surface of the overfloor boards, make sure the channel below the pipe is clear from debris. The pipes can then be gently tapped down using a wooden batten laid across the board and pipe, then tapping with a hammer (**7g**).

Pipe can also be secured in place with aluminium tape where required (**7h**).

## Flooring with wood products (inc. Parquet, Solid and Laminate)

Wood is a material that is extremely influenced by its environment, specifically by the moisture content of the air above and below. Depending on the relative humidity of the air and moisture content, wood will naturally vary over the seasons – and so will its volume. Underfloor heating and cooling escalate the expansion and contraction of wood. It is therefore extremely important to install wood flooring with care. Flooring manufacturers often give instructions on how wood flooring should be laid, with a maximum floor surface temperature of 27°C. This can be achieved with a floor temperature probe & hard wired thermostat.

The easiest means of installing wooden flooring is by the 'Floating floor' method, special attention must be taken to follow instructions on expansion joints. With Underfloor heating wood will dry and shrink more during the winter season than if underfloor heating was not installed. So it is important to keep the supply temperature of the floor heating system as low as possible and to increase the size of the expansion joints by approximately 50% in the case of large floorboards, underfloor heating will give rise to larger gaps between the boards during dry winter months.

Generally for wood floating floors, it is important to have some form of vapour barrier underneath. Some wood flooring manufacturers require a polythene vapour barrier (0.2mm thick and age tested) to prevent vapour/moisture coming from below which could damage the wood flooring.

For floating floors, it is advisable to use suitable underlay (foam with an integrated vapour barrier) underneath, allowing the flooring to move freely when wood expands and contracts over the seasons and to some extent improves footstep noise reduction.

It is also important that wood flooring which has been kept in cold (outdoor) conditions to be taken into the room in which it will be fitted, so that it can acclimatise to the new (indoor) environment and this may take several weeks. Some large wood products unless kiln dried may need a longer acclimatisation period in order to dry to a sufficiently low moisture content before it can be laid.

Please note:

Maple and Beech are not suitable for use with underfloor heating, due to potentially large seasonal movements of contraction and expansion in these woods causing splitting.

## General recommendations for installing wood flooring

Flooring manufactures give instructions on how wood flooring should be laid and make reference to floor surface temperatures not exceeding 27°C. Wunda always recommends the use of our thermostats with floor probes to limit maximum floor surface temperatures. The maximum total thickness of wood floor covering should not exceed 25mm.

Install the wood flooring on top of a suitable underlay, remembering to leave adequate space at the expansion joints for the wood to expand and contract over the seasons, usually the space is made available along adjacent walls so that the space will be covered by skirting boards on the wall.

## Engineered or multi-layered flooring

Engineered or multi layered flooring should be installed according to suppliers instructions. Parquets of a laminated type (three layers) give smaller expansion and contraction movement over the seasons.

## Solid wood (floorboards)

Solid floor boards should be placed at 90° to the direction of floor heating pipe. If the floor boards are to be fixed rather than a floating floor, suitable advice should be available from your supplier, however fixing with a polymer based adhesive (**Mapei Ultrabond S955**) will allow for expansion and contraction of floor boards over the floor heating system.



## Laminate

Laminates are usually quite thin (7-10mm) which from an energy perspective is more efficient than other thicker wood floorings. They should either be glued or 'clicked' together according to the manufactures instructions. Several laminates are available with a vapour barrier and/or an acoustic layer attached to the underneath.

## Carpet

The use of 6mm plywood sheets screwed down with countersunk screws, paying close attention to the installed floor heating pipes below will provide a firm stable base for laying of suitable 'porous' underlay and open weave carpets that will work with floor heating. Combined TOG value of carpet and underlay should not exceed **2.5 TOG** maximum for the floor heating to be effective.

Alternatively 6mm plywood can be bonded to the overfloor boards giving a permanent fixture using a polymer based adhesive such as **Mapei Ultrabond S955**. For more information on floor covering suitability with use with floor heating please contact your chosen floor covering supplier.

## Resilient floor coverings

Vinyl, Linoleum, Cork, Polyurethane, Rubber and Asphalt composites are all in the category of resilient flooring, with Vinyl being the most common. These floor coverings cannot be placed directly on top of Acoustic floor heating boards and therefore require an intermediate layer that makes the surface level and load bearing.

A floating T&G chipboard floor with level joints which vinyl or linoleum is glued to is the simplest method of installing these coverings, alternatively follow the suggested methods for carpet..

## Bathroom/Wetroom

When installing into a wetroom or bathroom we recommend using our **wundatherm 'Ultimate'** boards which can be tiled directly onto, alternatively where **wundatherm 'Acoustic'** must be installed we suggest the following method.

- 1**, Install Wunda Acoustic boards as per installation instructions ensuring the subfloor is clean, dry, sound and level. The Acoustic board must be fixed securely to the subfloor using adhesive and suitable screw fixings.
- 2**, Install floor heating pipe into Acoustic boards and pressure test the floor heating system before commencing with next step, leave the system under pressure whilst fixing backer boards in step 3.
- 3**, once pipe floor heating pipe has been installed and pressure tested lay a **suitable rigid waterproof** tile backer board over the Acoustic floor heating - we recommend a 6mm Hardi backer board. Ideally the tile backer boards should be secured in place using suitable fixings and taking extreme care not to damage or pierce the floor heating pipes below.
- 4**, RE-check floor heating system pressure, if pressure has dropped investigate and remedy.
- 5**, The entire backer board system will require tanking with a suitable wet room system such as Instamatic Wet Room System.
- 6**, Once the tanking and sealer is fully dried tiling can commence directly onto the sealed backer boards using Ultra ProFlex S2 – no need for primer.
- 7**, Alternatively use Mapei Kerrabond and Isolastic 100% mix to bond tiles to sealed backer board.



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## wundatherm 'Acoustic' Overfloor Boards - installation guide for floor tiles

In all circumstances the Acoustic Fibre board must be bonded and screwed directly to the sub-floor and installed correctly and provide a sound, stable substrate. Additionally it must be clean and free from contamination or substances which could inhibit adhesion.

### Installing Ceramic, Vitrified, Quarry, Porcelain tiles and Natural Stone tiles.

#### Mapei method:

Lay Wunda backer boards as a floating floor with taped joints, cover the entire Acoustic Overfloor system. Bond your chosen tiles directly onto the backer board with **Mapei Kerabond T & Mapei Isolastic** (100%) or use **Mapei Elastorapid**.

### Mapei products overview

#### Ultrabond Eco 380

**Ultrabond Eco 380** is an adhesive approved for use with a quick and strong bond of Wunda Acoustic Fibre boards to all kinds of absorbent and stable substrates used in the building industry including screed/concrete and existing boards/chipboard floors.



#### Ultrabond Eco S955

**Ultrabond Eco S955** is approved for bonding ply or chipboard directly on to Wunda Acoustic Fibre boards.



#### Kerabond T and Isolastic

**Kerabond T** and **Isolastic** is an approved two part adhesive mix used to bond tiles directly on to a suitable, rigid non-insulating tile backer board used in conjunction with floor heating



### ULTRA Tile method:

Lay Wunda backer boards as a floating floor with taped joints, cover the entire Acoustic Overfloor system. Bond your chosen tiles directly onto the backer board using a combination of Ultrafloor PRIME IT & PROFLEX S2 as described below.

#### STAGE 1 - Ultra Floor PRIME IT multi surface primer

Prime It Multi-surface primer is used to prepare the surface of our backer boards prior to tiling directly onto using PROFLEX S2 tile adhesive.

Prime the entire surface of the backer boards with a neat coat of Prime IT using a suitable roller (1 tub = 50sqm coverage). Once the primer has fully dried tiles can be fixed using PROFLEX S2 tile adhesive.



#### STAGE 2 - PROFLEX S2 adhesive

PROFLEX S2 is a highly polymer modified single part S2 flexible tile adhesive designed for use with floor heating. Tried, tested & approved by ULTRA for tiling Ceramics, Slate, Quarries, Porcelain & Limestone directly onto Wunda backer boards after priming with Prime IT.

Coverage +/- 4 sqm per 20kg bag at 3mm depth with back-buttering.



Under no circumstances should the floor heating be used to aid or speed up the drying of any floor heating board adhesives or tile adhesives including grout. When heating the system for the first time, ensure any heat is introduced gradually to protect the floor from thermal shock.

**IMPORTANT: Movement/Expansion joints – should be incorporated as British standard recommendations.**

### Installing tiles in Bathrooms and Wetrooms

In bathrooms and wetroom areas we recommend using our **wundatherm 'Ultimate'** overfloor boards, tiles can be fixed as per tile instruction details in fact sheet **FO1b wundatherm overfloor heating boards**.

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## Technical Information

	Main Board 17mm/22mm	Universal Transitional/ End Return Board 17mm/22mm
Pipe dimension	12mm/16mm	12mm/16mm
Thickness	17mm/22mm	17mm/22mm
Length	1200mm/1200mm	400mm/400mm
Width	600mm/600mm	600mm/600mm
Weight	8.5kg/9kg	4.1kg/4.2kg
Pipe Spacing	120mm/150mm	120mm/150mm
Material	Wood Fibre	Wood Fibre
Aluminium Heat Diffuser Foil	200 micron thick	Plain
Acoustic suppression airborne (Rw)	up to 59db	up to 59db
Acoustic suppression impact (Ln, w)	up to 58db	up to 58db
Thermal resistance	R1.6	R1.6
Fire class in accordance to EN 13501 - 1 : E		

Produced in accordance with EN 13986 and EN 13171

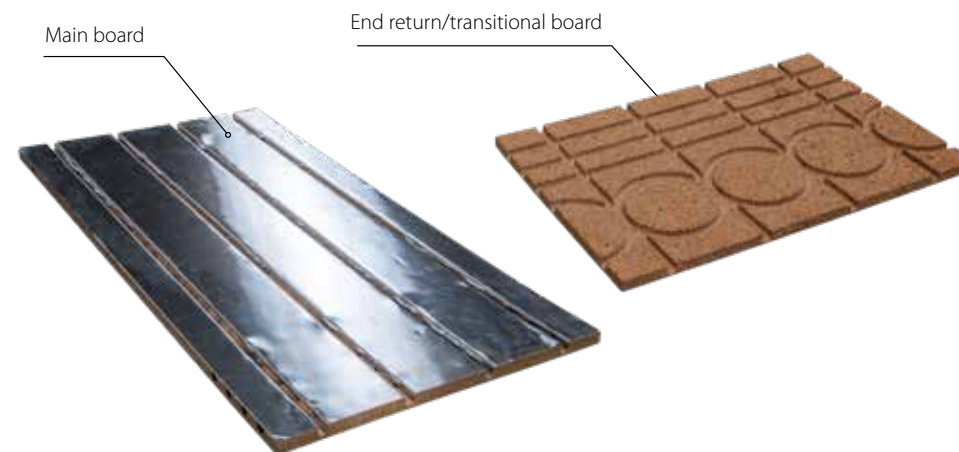
Wood sourced from effectively managed forests and certified in accordance with the FSC®

## Approximate heat input temperature 45°C

*Approximate heat output from <b>wundatherm 'Acoustic'</b> Overfloor system with 200 micron aluminium covering	Under ceramic tiles	Under wood/laminate	Under carpet (1.5 tog max)
	90w per m <sup>2</sup>	65w per m <sup>2</sup>	51w per m <sup>2</sup>

\* In a well insulated double glazed room

The output of **wundatherm 'Acoustic'** Boards will vary dependent on flow temperature, thermal conductivity of floor coverings, insulation levels double glazing etc.



**NOTE:** Good practice is to use 22mm feed from boiler to manifold. UFH manifolds should always be connected to 22mm flow and return heating pipe, rather than 15mm supply pipe

## Important Information

The heat output of this floor heating system must be limited to a maximum supply water 55 °C and a maximum floor surface temperature of 27°C when choosing wooden floor finishes. Floor heating cannot compensate for large heat losses of an inadequately insulated house. Please note that Acoustic Fibre Overfloor systems can give an approximate heat output of up to 100W/m<sup>2</sup> with ceramic and stone tile coverings and up to 65W/m<sup>2</sup> with wooden coverings (up to 16mm thick).

"When mixed floor solutions are being served from the same manifold, a floor probe must be used in the floor solution with the lower maximum supply temperature. This is to limit the temperature in these floor areas and prevent damage to the floor solution and/or floor finish."

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