

### Installing EPS 200 Overfloor Heating Boards

Wunda Rapid Response® EPS 200 Overfloor boards are suitable for use with Laminate, Engineered wood, Carpet, Vinyl and Karndean. (Carpet, Vinyl and Karndean will require an intermediate backer board)

**Factory fitted with 200 micron aluminium foil:**

**200 Microns of thick aluminium** – Super fast warm up – and rapid response, offering maximum comfort whilst using the lowest temperature water ideal for all property types.

EPS 200 Overfloor Boards have been designed for quick and simple fitting whilst avoiding the weight, mess and drying times of a traditional underfloor system that's buried in thick concrete.

Using basic tools and a Wunda system layout drawing, installation is easily achieved by systematically cutting, arranging and sticking the boards in place using Wunda quick drying board spray adhesive or Mapei Ultrabond ECO 380 adhesive.



### So what's a Micron?

**200 Microns** – is the optimum thickness aluminium that will give the best performance, with rapid response and even heating.

### You will need:

- Craft knife
- Metal edged rule

### Also recommended:

- Marker pen
- Fine toothed saw
- Pipe cutter
- Aluminium tape
- Pair of tough work gloves
- Knee protection
- Eye protection

### Floor preparation

**1** EPS Overfloor can be fixed to new or existing concrete/screed or wooden floors which must be dry and level remove any loose paint or coverings. Floors must be free from oil, grease, damp, dust and debris or any other substances that will prevent the adhesive from adhering. When fixing EPS Overfloor boards to a concrete or screed floor, ensure a damp proof membrane has been installed, if not or unsure then apply a liquid damp proof membrane and allow to cure fully before fixing any boards.

When fixing EPS Overfloor boards onto a 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 Overfloor boards.

If fixing EPS Overfloor to a non-porous substrate such as existing tiles, they will need thorough cleaning with a de-greasing agent, such as scrubbing with a combination of methylated spirits and wire wool. Coat the tiles with Wunda spray adhesive first and then coat the back of the EPS board with Wunda spray adhesive, allow both to become tacky and then bring the two surfaces together. (Test a small patch first to ensure compatibility)

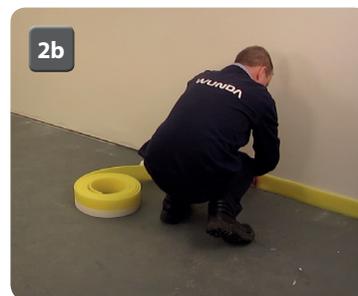
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### Fitting perimeter strip

**2** Before laying the floor heating boards, remove skirting boards and any doors that will require trimming to accommodate the floor heating boards and final floor finish (**2a**). Fit perimeter edge strip around the outside edges of the area to be heated using the sticky tape on the back or a hand staple gun. This will help reduce heat loss and allow for expansion (**2b**). Any height excess can be trimmed off once the final floor finish has been laid.

If intending to lay carpets with edge grippers fix a suitably sized batten up to same height as the Overfloor board

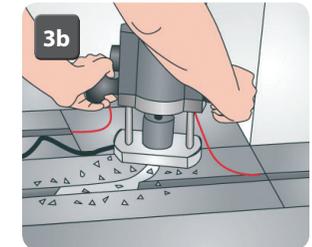
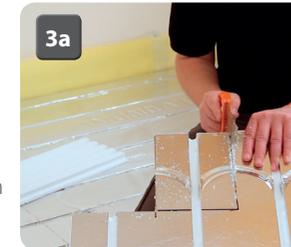
around the room perimeter. Lay the Overfloor boards flush against the batten when installing, this will allow fitment of carpet gripper at a later stage.



### Cutting boards

**3** Some cutting of boards will be required, this is easily achieved with a craft knife or fine toothed saw (**3a**).

Extra pipe channels and routes can be cut by hand or using an electric router (**3b**).



### Passing pipe through walls

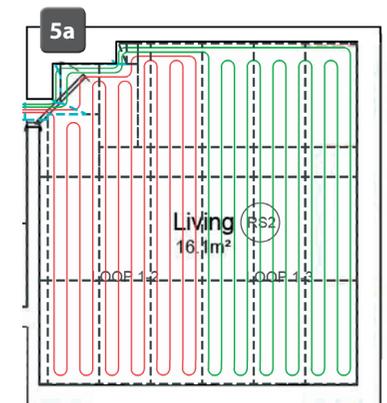


**4** When floor heating pipes need to pass through walls, drill the holes before laying and fixing boards to prevent any damage to the boards. Protect and seal the pipe ends with tape. To prevent kinking, one person should feed the pipe through the hole whilst another draws the pipe through from the other side (**4a**).

### Study the pipe layout drawing

**5** 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 boards (**5a**) Plan the routes for transitional pipe runs and transitional boards.

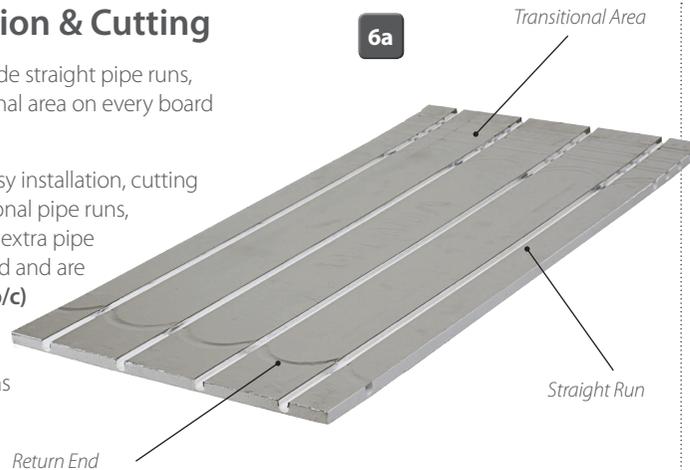
Some cutting of boards will be required this is easily achieved with a fine toothed saw or craft knife. We advise wearing gloves as the aluminium edges can be sharp.



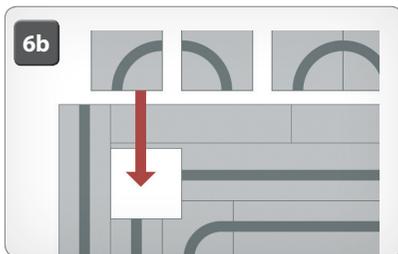
### EPS Board Preparation & Cutting

**6** Eps Overfloor boards include straight pipe runs, return ends and a transitional area on every board (**6a**).

These boards are designed for easy installation, cutting to shape where required. Transitional pipe runs, additional corners, 90° bends and extra pipe channels will normally be required and are simply cut from a main board (**6b/c**). These main boards should be used in conjunction with Wunda transitional boards in areas of high pipe concentration.



3



When cutting and creating new bends into a board keep the radius gradual and no sharper than in a main board. 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. (**6d**). Ensure boards are dry and free from dirt, dust or any other contaminants before laying. Keep any off-cuts as they may be required later on.

Before laying any boards familiarise yourself with the system layout drawing noting direction of boards, potential cutting required and transitional areas. If you are inexperienced in laying Overfloor heating we strongly suggest completing a 'dry' lay of all boards before using any adhesive. Identify joins between boards using a marker pen (**6e**). Once you are satisfied that all boards have been cut and marked for an area (**6f**) they can be lifted in preparation of fixing the boards permanently in place (**6g**).



### Fixing boards to an existing or new floor

**7 Board spray adhesive method.** Ensure subfloor 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. When using Wunda spray adhesive users must be aware of the environment in which the spray is to be applied.

Ensure adequate ventilation, open windows and doors, do not use in confined areas. Wear suitable protective gloves, face mask and clothing. Prior to use, check compatibility, spray a small test patch onto the substrate. Some non-porous floors such as existing tiles will need thorough cleaning with a de-greasing agent such as scrubbing with a combination of methylated spirits and wire wool. apply a coat of spray adhesive to the existing tile surface **and** the underside of the Overfloor board.

Allow both surfaces to become tacky before bringing together (we recommend testing a small patch to test compatibility). Place the board carefully onto the adhesive making sure you have selected the correct board and orientation. Apply an even and firm pressure, make sure the board is in full contact with the adhesive and floor below.

When using Wunda spray to bond EPS boards onto existing floor boards, both the floor boards and the underside of the EPS board will require a covering of Wunda spray adhesive. This is necessary as older floor boards often develop concave or convex surface due to distortions occurring in the wood over time (see illustration **7e** on pg 5) and this will potentially reduce the effective adhesion area. Coating both the floor boards and board will reduce this effect and create maximum contact between the two surfaces giving a firm and secure fixing. As before, always carry out a test area with Wunda spray and board before commencing with the rest of the install.

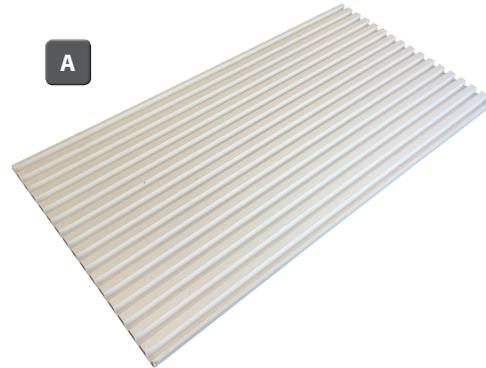
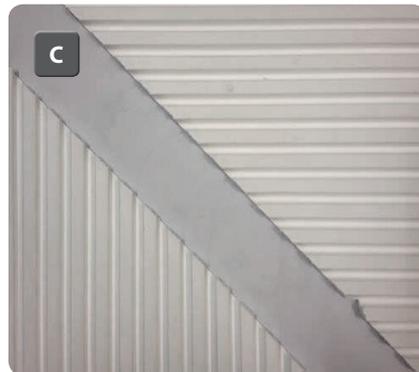
### Transitional areas

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)**.

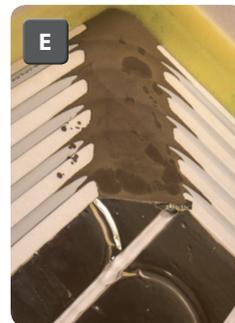
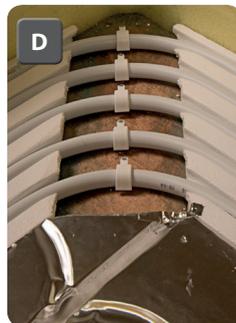


Corners can be formed from a main transitional board, for example cutting two 45° will provide a 90° turn **(C)**.



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.

**7** When bonding the boards in place, we suggest starting in a corner and work along the furthest outside wall first, when you reach the opposite corner start a new row. Ensure that the pipe channels line up as you lay each board.

A helpful tip is to mark around the board onto the floor with a marker pen before spraying adhesive. This will allow you to spray the adhesive right up to the board edges minimising overspray and wastage. **(7a)**

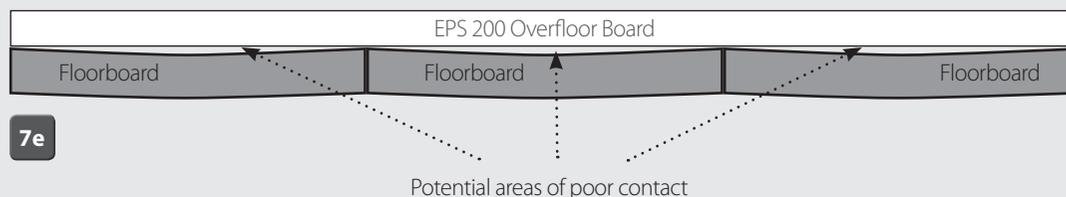
Spray at a distance of 10-20cm (4-8") towards the substrate surface, applying a uniform and even coat of adhesive, obtaining 80-100% coverage **(7b)** the spray is coloured to aid application. Allow the adhesive to tack off until no adhesive transfers to the knuckle when touched **(7c)**.

**5** Avoid over applying spray adhesive as this is not necessary with this type of adhesive. Ensure correct board or cut out section has been chosen before placing onto the spray adhesive, press down applying adequate pressure to achieve maximum contact and strength **(7d)**.



### Important: When Bonding onto older floorboards

When using Wunda spray to bond EPS boards onto existing floor boards, both the floor boards and the underside of the EPS board will require a covering of Wunda spray adhesive. This is necessary as older floor boards often develop a concave or convex surface due to distortions occurring in the wood over time (see illustration **7e**) and this will potentially reduce the effective adhesion area. Coating both the floor boards and board will reduce this effect and create maximum contact between the two surfaces giving a firm and secure fixing. As before, always carry out a test area with Wunda spray and board before commencing with the rest of the install. Seriously uneven floors may require levelling first.



### Using Mapei Ultrabond Eco 380 to bond boards to the floor

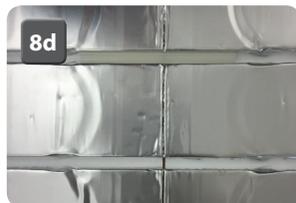
**8** As an alternative to using Wunda spray adhesive, Mapei Ultrabond ECO 380 is approved. With a strong bond of EPS Overfloor to all kinds of absorbent, stable, level substrates including concrete/screed and existing wooden floors. Floors must be free from oil, grease, damp, paint and debris or any other substances that will prevent the adhesive from bonding to the floor. ECO 380 must be allowed to fully cure before any foot traffic or laying floor heating pipes.



**8a** Starting with a few square meters at a time apply Mapei Ultrabond ECO 380 to the substrate using a 2mm (A2) tooth comb spreader (8a). Do not use Mapei Ultrabond ECO 380 as a filler to level out gaps, cracks or uneven substrates as this will greatly reduce the coverage achieved and increase drying times. Any uneven screed or concrete floors should be levelled with a renovation screed first.

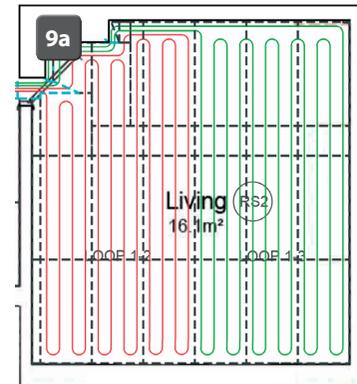
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Leave the Mapei Ultrabond ECO 380 to become tacky before laying any boards – generally 10-30 minutes dependant on the substrate, environment conditions and temperature. The boards can now be applied to the adhesive, starting with one board at a time, usually the furthest corner of the room (8b). Systematically work across the outside wall fixing each board in turn (8c). When you reach the opposite side of the room return to the beginning and start the next row ensuring that pipe channels line up.



A good tip is to insert a small off cut of pipe into the pipe channel where the boards meet (8d). After laying each board, carefully walk on the board applying adequate and even pressure ensuring the board has taken to the adhesive. Take care as boards may slip on the adhesive, if any boards squeak when walked on carefully lift the board, re-apply adhesive and repeat the above steps (8a-8d). Allow sufficient time for the Mapei Ultrabond ECO 380 to fully dry before allowing any foot traffic as boards may slip and move (generally 24-48 hours drying dependant on the substrate, environment conditions and temperature.)

### Installing floor heating pipe into EPS boards



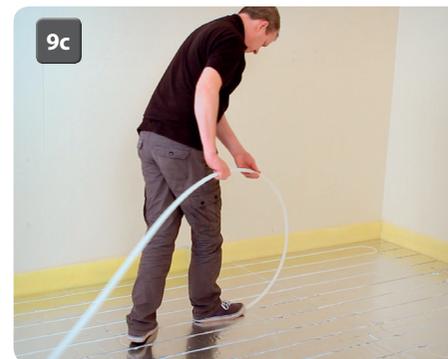
**9** Before laying pipe make sure all pipe channels are clear from debris, check and familiarise yourself with the pipe layout drawing (9a) plan where to begin and the pipe routes for each individual loop of pipe.

The layout drawing will indicate the length of each pipe loop required. Do not cut the pipe before laying as you may need to change the route due to unforeseen circumstances.

Wunda Pert/Al/Pert pipe is recommended for use in all Overfloor systems due to it's flexible, lightweight and easy to handle properties. 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 (9b).



If not using a pipe decoiler the pipe can be easily installed by two people, the first walks with the pipe coil and reels it out while the second person carefully walks along the pipe pushing the pipe down into the straight pipe channel (9c – 9d).



Continued over...

If laying pipe without the aid of a pipe de-coiler when you reach the end of a straight run employ the technique of rotating the whole coil through 180° towards the direction of the return channel (9d/e)



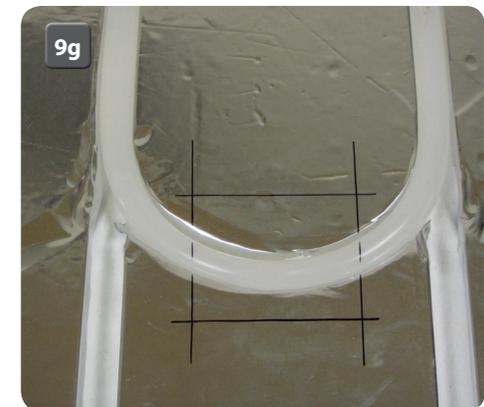
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This will help deter the pipe from trying to twist, ease the pipe around and into the bend. Lay the pipe into the return or corner gently forming and pushing the pipe gently into the channel as it forms around the bend (9d/e).

Do not try and form the bend before laying the pipe as this could potentially result in a kink in the pipe. If a kink occurs, wrap the pipe in a cloth for protection and gently squeeze with pliers to re-shape. Alternatively the pipe can be lifted out of the boards and moved backwards so the kinked section now lays in a straight channel.

Once all pipe has been laid into the boards, ensure each loop has been identified with flow, return and loop number (9b). This will help eliminate mistakes when connecting the pipe to the manifold at a later stage. Protect your newly laid floor heating system from site traffic by covering with boards where walking is necessary.

If pipe work is not installed correctly it may sit proud of the Overfloor board, it can be tapped down using a wooden batten across the board and gently tapped with a hammer (9f) or aluminium tape can be used to secure the pipe. Alternatively on bends simply remove a section of the EPS board and secure the pipe to the floor below using a suitable nail clip on wooden floors and replacing the nail for a raw plug and screw on screeded floors (9g-9i).



#### TIP:

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.

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

For floating Wooden and Laminate floors it is advisable to use Wunda XPS Underlay, allowing the floor to move freely when expanding and contracting and to help improve step noise reduction.

Wood is a material that is extremely influenced by its environment, specifically by moisture content of the air above and below. Depending on the relative humidity of the air, moisture content of the wood will naturally vary over the seasons – and so will its volume. Floor heating will escalate the expansion and contraction of wood. It is therefore extremely important to install wood flooring with care, following the manufactures guidelines.

Flooring manufacturers often give instructions on how wood flooring should be laid, with a maximum surface temperature of 27°C. This can be monitored and set using a Wunda thermostat and floor probe which will protect the floor.

The easiest means of installing wooden flooring is by the 'floating floor' method, special attention must be taken to follow manufactures instructions on expansion joints. With Floor heating wood will dry and shrink more during the winter season than if floor 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 joint by approximately 50% in the case of large floorboards, Underfloor heating will give rise to larger gaps between boards during winter months.

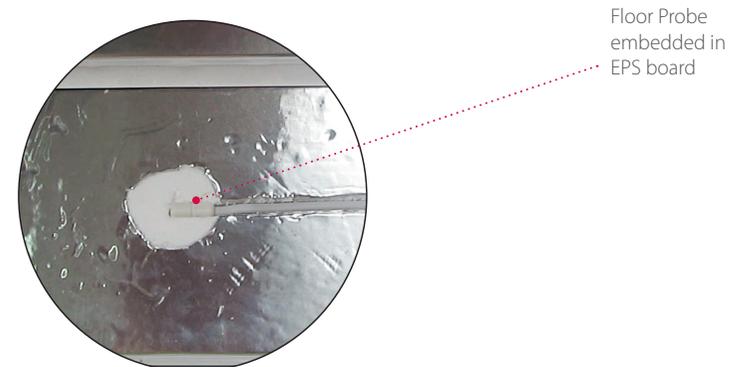
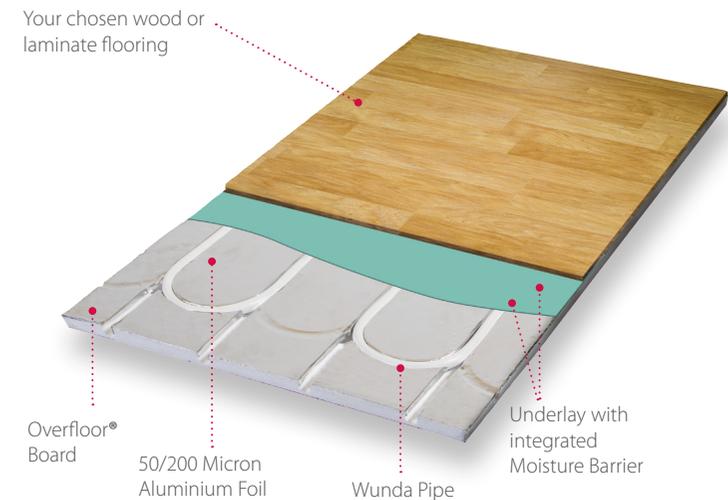
Generally for wood floating floors, it is important to have some form of vapour barrier underneath. Some wood flooring manufactures require a polythene vapour barrier (0.2mm thick and age tested) to prevent vapour moisture potentially coming from below which could damage the wood flooring.

It is important for wood flooring which has been kept in cold conditions to be taken into the room in which it will be fitted so that it can acclimatise to the new 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 fixed.

#### Please note:

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

### How the Overfloor board works with your chosen flooring



### General recommendations for installing wood flooring

Flooring manufacturers 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 thermostats with floor probes to limit 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 board on wall.

### Parquet

Parquet should be installed according to suppliers instructions. Parquets of a laminated type (three layers) give smaller expansion and contraction over the seasons. Solid parquets have larger moisture movements than laminated parquets.

### Solid wood (floorboards)

Solid floorboards should be placed so that the direction of the grain is at 90 degrees to the direction of the pipe. If the floorboards are to be fixed rather than a floating floor, suitable advice should be available from your supplier, however fixing with an acrylic adhesive will allow for expansion and contraction of floorboards over the system.

### Laminate

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

### Carpet

If intending to lay carpets with edge grippers fix a suitably sized batten up to the same height as the Overfloor board around the room perimeter, this will allow fitment of carpet gripper at a later stage.

The use of 6mm plywood sheets screwed down with countersunk screws, paying close attention to the floor heating pipes below will provide a firm stable base for laying suitable 'porous' underlay and open weave carpets that will work with floor heating.

MAXIMUM COMBINED TOG value of carpet, underlay and plywood/subfloors should not exceed 2 TOG for the floor heating to remain effective. Plywood sheets can be screwed and glued using

MAPEI ULTRABOND S955 if desired. For more information on floor covering suitability with floor heating please consult your chosen floor covering supplier.

### Vinyl, Linoleum, Karndean, Amtico, Cork

These floor finishes cannot be placed directly on the Overfloor boards and will require an intermediate layer that gives a level, sound and uniform surface.

The use of 6mm plywood sheets screwed down with countersunk screws, paying close attention to the floor heating pipes below will provide a firm stable base.

MAXIMUM COMBINED TOG value of floor finish and plywood/subfloors should not exceed 2 TOG for the floor heating to remain effective. Plywood sheets can be screwed and glued using MAPEI ULTRABOND S955 if desired. For more information on floor covering suitability with floor heating please consult your chosen floor covering supplier.

9



**Technical Information**

200 EPS Board	16mm	20mm
Length	1200mm	1200mm
Width	600mm	600mm
Aluminium Foil Thickness	200 microns	200 microns
EPS Density	20 kg/m <sup>3</sup>	20 kg/m <sup>3</sup>
Material	EPS 200	EPS 200
Compressive Strength	200 kPa	200 kPa
Board weight with 200 micron Aluminium	0.90 kg	0.95 kg
External Diameter of Pipe	12mm	16mm

**Please note: Advised maximum lengths for individual pipe circuits is 100 linear metres for 16mm pipe and 60 linear metres for 12mm pipe.**

**Important Information**

The heat output of this underfloor heating system must be limited to a maximum supply water temperature of 50°C and a maximum floor surface temperature of 27°C for wooden floors. Underfloor heating cannot compensate for large heat losses of an inadequately insulated house. Please note that underfloor heating systems can give an approximate heat output of 100W/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."*

**Please check our website for tech support videos**

**Approximate heat input temperature 50°**

Approximate heat output*	Under Wood Laminate or Engineered Watts per m <sup>2</sup>	Under Carpet/Underlay Watts per m <sup>2</sup> (max 2.0 tog)
200 Microns	100w	70w

\*In modern well insulated double glazed rooms.





