

ambiente[®]

more than underfloor

Installation Guide

AmbiChipboard 22

Customer:

Project:

Project Reference:

Date:



AMBICHIPBOARD INSTALLATION GUIDE

AMBICHIPBOARD SERIES

- + Turns a joisted floor into a UFH system
- + Pre-routed chipboard Panels
- + Rapid Installation
- + Simple, non Specialist Installation

The AmbiChipboard system is a unique combination of a structural floor solution, while incorporating underfloor heating. It consists of high grade moisture-resistant tongue/grooved chipboard panels, that are pre-routed to take 12mm UFH pipework. Pipework channels are routed typically at 150mm spacings, with radius returns and transit channels to facilitate installation. Often the tail/transit pipework is run beneath the floor in the joist void to minimise the need for any further routing of the boards.

Ambiente specify the use of a 6mm plywood (or cement-based alternative) to be laid over the system before laying the floor finish as follows:



2	AmbiChipboard system introduction
3	Technical data
4	Installation method
5	Manifold positioning
6	Commissioning the system step by step guide
7	Record and report

TECHNICAL DATA

Technical

- + Pipe 12mm x 2mm PE-RT pipe
- + Board 6mm

Heat Output Table - AmbiChipboard systems

Floor Finish	Flow and Return Water Temperatures °C		
	55/45	50/40	45/35
Ceramic Tile (0.10m²K/W)	47 w/m²	39 w/m²	29 w/m²
Wood/Carpet /1.5 tog (0.15m²K/W)	41 w/m²	32 w/m²	24 w/m²

6mm ply has been used as a sub floor layer in formulating the heat emissions shown above.

*Outputs based on 21 °C Room Temperature

This installation guide is suitable for the following AmbiChipboard Systems

Data sheets can be downloaded directly from our website.

www.ambienteufh.co.uk

AMBICHIPBOARD



Ambiente goes beyond just simply the supply of underfloor heating systems.

At every stage in the project, we offer advice to all parties, in order to assist in the swift, safe and supportive implementation of your project.

From project initiation to final commissioning, ambiente have every stage of underfloor heating covered.

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INSTALLATION METHOD

EXPOSED PIPE

- 1 AmbiChipboard 22 is designed to avoid the need for UFH pipe joints under the floor by utilising factory made, pre-routed panels and a manual routing process on-site. However, it may be necessary to install flow and return pipe in the joist space prior to completing the floor. Where flows and returns run through joists there must be a notch or hole. Notching and drilling in solid wood joists must be done in accordance with Building Regulations Part A such that:

Holes should be drilled through the neutral axis, and positioned between 0.25 and 0.4 times the joist span length and

Must not be less than 3 diameters (of the hole) apart.

Notches must not be greater than 0.25 times the joist depth.

LAYING AMBICHIPBOARD

- 2 When laying the boards, leave a minimum 10mm gap between the edge of the panel and the wall. Lay the first panel in a room into a corner, in accordance with industry best practice.
- 3 Panels should be cut to the centre line of the joist or be supported by a noggin. Use cut-offs from the previous row to start the next row. See UFH design drawing for exact positions of pipe for each installation.

Each tongue and groove must be glued using water resistant D3 Grade PVA adhesive to BSEN204/205. Ensure that adhesive is applied to both sides of the tongue and groove.

- 4 Panels must be screwed and glued to the top of the joist. Use four fixings per joist and ensure they are equidistant between each routed channel. Drill a pilot hole first and use No.8 particleboard screws to fix the AmbiChipboard to joist or batten. The screws should be 2.5 x panel thickness in length.
- 5 Ensure the grooves are free from any debris before installing the pipe - We recommend that the floor and grooves are swept and vacuumed prior to laying the pipes.

IMPORTANT

Store panels in a dry, weather tight area. Keep away from direct sunlight, away from sharp objects that can damage the surface areas and keep away from chemical spills.

When laying the AmbiChipboard System you will also require the following items:

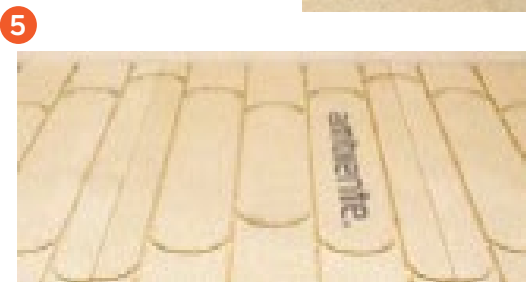
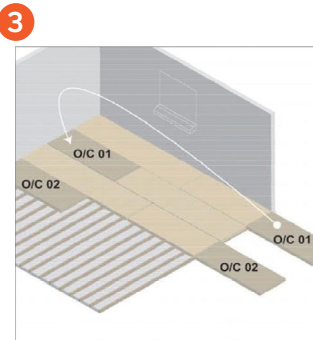
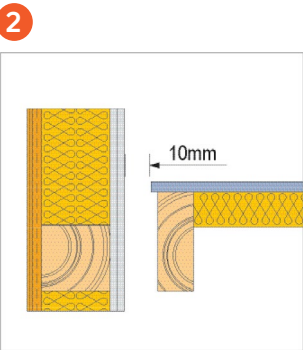
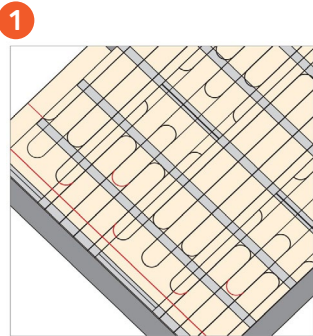
Required insulation for the floor.

Suitable glue or bonding agent.

No.8 particleboard screws.

6mm plywood (where an additional wood flooring is not fixed directly to the panels).

Suitable gluing materials are also required.



INSTALLATION METHOD

LAYING AMBICHIPBOARD

- 6 When the panels are laid, prepare for manually routing the panels in preparation for flow and return tails and pipe returns. Please refer to UFH design for pipe layout.

However, the flow and return tails can be installed underneath the AmbiChipboard for return to the manifold. Where there is no access from below or where the joists cannot be notched - use a hand router to create an additional channel in the AmbiChipboard for the pipe to pass over the joist.

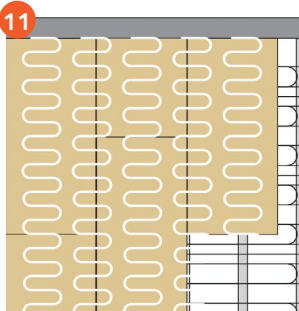
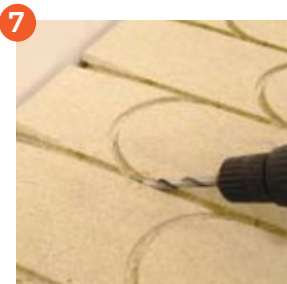
- 7 If access is only available from below, use the method described below to run your tails. Drill a 12.5mm hole through the chipboard where the pipe is required to drop into joist space. The hole must be drilled at 200 angle to allow the pipe to run smoothly into the space.

LAYING AMBIPIPE

- 8 Follow your design drawing and starting from the manifold, lay the pipe into the channels in the chipboard in a serpentine pattern and return back to the manifold. All flows and returns within the void beneath the floor must be insulated.
- 9 Terminate your flow and return at the manifold and connect using Ambiente manifold connectors.

PRESSURE TESTING

- 10 Once the system is installed the pipe work must be pressure tested and preferably kept under pressure while the covering deck is laid. If this is not possible, the pressure test must be carried out for a second time when the covering deck is laid. This is important as it ensures that the pipe has not been damaged during installation.
- 11 With the system installed and fully pressure tested, the 6mm overlaid plywood layer can be laid and fixed in the opposite direction to the panels. Overlay panels must be minimum of 6mm thick ply and should be glued and pinned to the top of the chipboard panels in such a way that each overlay panel overlaps the tongue and groove edges by 300mm. Apply PVA glue in a serpentine pattern across this exposed chipboard (as illustrated),



INSTALLATION METHOD

INSTALLING EXPOSED PIPE TONGUE AND GROOVED AMBICHIPBOARD | 22

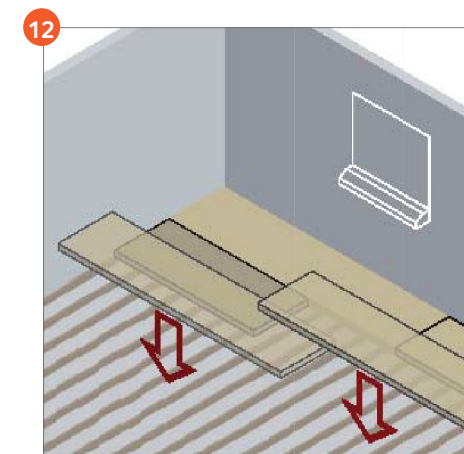
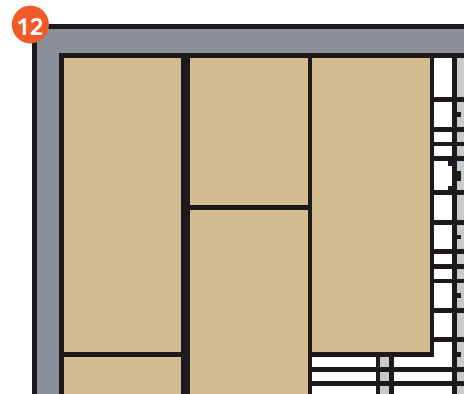
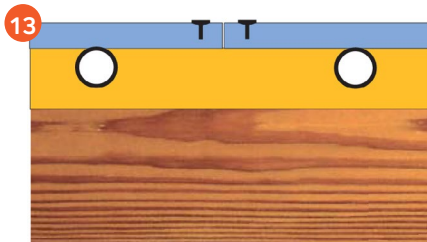
OVERLAY PANELS

- 12** The overlay panels should be pinned down in order to ensure the final cover board should remain flat and even. Be careful not to puncture the pipes with these pins. 25mm ring shank nails should be used.

Optional overlay panels :

- a) 6mm thick ply : glued and pinned on top of the AmbiChipboard panels.
- b) 18mm thick Knauf Brio screedboard, T&G with the laps glued and screwed. before laying the ply overlay.

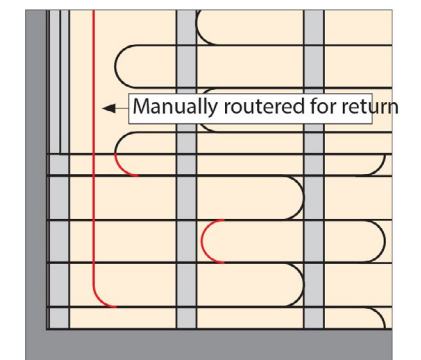
- 13** Overlay joints should be in the centre link between the grooves in the routed Ambi panels.



INSTALLING TONGUE AND GROOVED AMBICHIPBOARD

Ambiente panels are 2400mm x 600mm. So with joists/battens at 400mm, the panels work well but in many cases, joists/batten centres may vary. The panels should be cut to ensure that the cut edge is fully supported at the centre line of a joist/batten.

The diagram (above) illustrates the cut edge and the left hand side of the panel to enable the right hand side panel to be trimmed and both ends routed to take the panel. Some areas will need to be manually routed, to take the return pipe and smaller cut panel, where a return is required before laying the ply overlay.



Minimum Length Of Cut Panels When timing AmbiChipboard or plain T&G panels, TRADA recommends that the panel should be supported by a minimum of three battens/joists. That means that at 400mm centres, the shortest cut length will be 800mm.

This is to ensure that load and impact is spread over the three battens/joists equally. Installers should NOT fix short lengths which are only supported by two battens/joists unless supported by additional noggins.

Gluing of T+G Edges

When installing T+G decks it is important to optimise the structural strength and to minimise the risk of squeaking and loose joints. Therefore it is important to strictly follow the gluing instructions when laying the AmbiChipboard and overlaying sheets of ply or Brioboard.

Structurally, each timber floor must be installed to withstand the minimum concentrated loads and soft body impact loads that are specified in the domestic and residential guidelines.

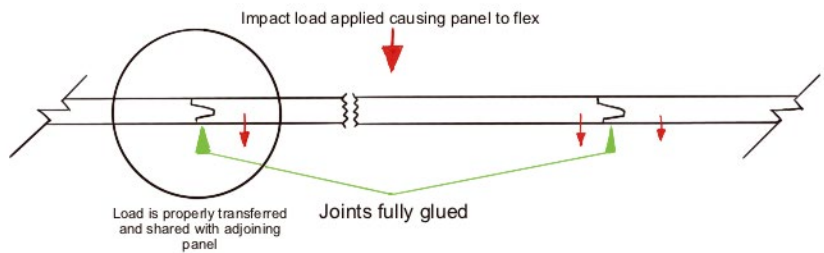
Poor installation practice can result in floors not meeting conformance standards.

Note: All parts of T+G joints must be fully coated with adhesive.

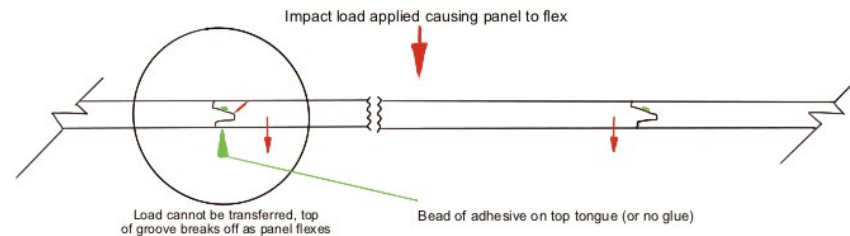
Please note:

Where alternative floor finishes are recommended by the manufacturer, these must be used.

GUIDANCE



To achieve this, it is important to place a generous bead of adhesive to both faces of the T+G joint and then spread it using a brush. When the T+G edges are fully glued, you can see that an impact load applied to one panel is shared with



If T+G edges are left unglued or if adhesive is only applied to the top of the tongue (a common practice), and hence to only one half of the T+G, you can see that flexing of the panel under impact load cannot be properly transferred to the adjoining panel. In this case, any impact load is taken entirely by the single panel under load and the top of its grooved edge can easily break off as it flexes. If the top of the groove would break off under the load it is required to take for its Service Class, such a floor might fail to satisfy minimum strength criteria, and be rejected.

Router Tip Specification
TCT Two Flute Box Cove Order reference Number:XC351-6.
D12mm x L25mm x R6mm x DL84mm.

Minimising The Risk Of Squeaks

Most floor squeaks are caused by a floor deck moving up and down and rubbing on a nail that has been used to fix the floor deck to the top of the joist. This can particularly occur if a timber joist should shrink as it dries, and then drop relative to adjacent joists.

The risk of squeaks can be minimised by avoiding nails and using screws instead. Screws should preferably be hand-tightened to ensure their heads do not puncture the surface of the chipboard. If powered screwdrivers are set with the torque-slip too high, screw heads can easily penetrate the chipboard and end up within the inner and softer chipboard core, where the fixing strength is greatly reduced.

The risk of squeaks can be further minimised by applying a generous bead of adhesive along the top of each joist and setting the chipboard onto this. Use a minimum number of screws to simply hold the chipboard panel in position and prevent it slipping after the T+G joint has been driven together.

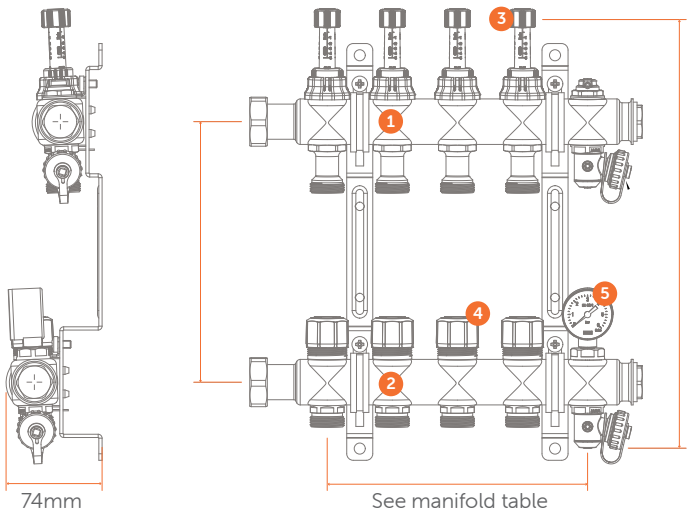
This type of glued joint is not only quieter but also stronger and some surveys suggest that it can be quicker and cheaper than using nails.

MANIFOLD POSITIONING

Ambiente manifolds are supplied ready assembled and simply need mounting on brackets prior to installation.

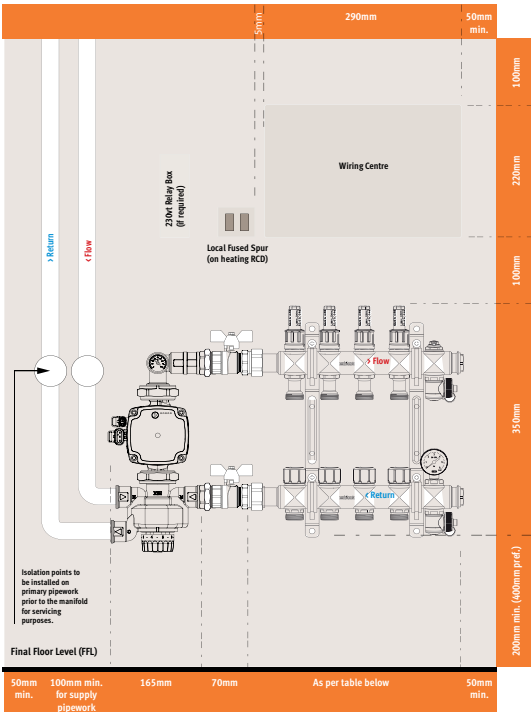
Note that the two manifold bars are offset so that the pipes can pass behind the lower bar for connection to the top bar – we recommend using the top bar as the flow and the bottom bar as the return. The manifold comes left-handed as standard, but can be changed, see opposite for ‘how to change the handing of Ambiente manifolds’.

Manifolds should be positioned where they are easily accessible to allow for future servicing and commissioning. We recommend allowing at least 200mm between the finished floor level and the bottom of the manifold, with 75mm clearance above and at least 50mm at either side.



- 1 Manifold flow bar
- 2 Manifold return bar
- 3 Flow meter
- 4 Actuator head (shown with pre-install caps)
- 5 Pressure gauge

Number of ports	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Manifold length (mm)	142	192	242	292	342	392	442	492	542	592	642	692	742	792



COMMISSIONING THE SYSTEM

RECORD

Filling and flushing the system		
Sequence	Checklist	Completed
1	Close the isolating ball valves that are connected to the manifold on both bars.	<input type="checkbox"/>
2	Isolate all zones by screwing down the blue caps on the bottom (return) bar and the flow meters on the top (flow) bar.	<input type="checkbox"/>
3	Open the first flow meter (start furthest away from the filling valve) on the top (flow) bar (use the red collar to turn the black section fully anti-clockwise, do not use grips – hand tight only). Ensure that all other flow meters are closed, except the loop that you are flushing.	<input type="checkbox"/>
4	Remove the black plastic blanking cap from the filling valve on the top (flow) bar and fit the hose connection/hose which should be connected to the mains water supply. Open the filling valve using the key on the reverse of the drain valve cap.	<input type="checkbox"/>
5	Fix a suitable hose to the drain valve on the bottom bar.	<input type="checkbox"/>
6	Fully loosen the blue protection cap on the bottom bar on the first zone to be filled.	<input type="checkbox"/>
7	Open the tap on the mains water supply and open the drain valve on the bottom bar using the key on the reverse of the blanking cap.	<input type="checkbox"/>
8	Run water through the loop until air is removed from the system, closing down the blue caps on each loop as it is purged.	<input type="checkbox"/>
9	This can now be repeated for each zone by opening the next zone, closing the flushed zone and repeating steps 3-8.	<input type="checkbox"/>
10	At this point the system can be pressure tested if required by closing the drain valve and unscrewing all the blue protection caps – the pressure should rise slowly – allow it to rise to 4 bar and then close the filling valve and close off the mains water. This should be left for 24 hours to check for any significant drops in pressure.	<input type="checkbox"/>

Pressure testing using an air compressor		
Sequence	Checklist	Completed
1	Close the isolating ball valves that are connected to the manifold on both bars.	<input type="checkbox"/>
2	Open all zones by unscrewing the blue caps on the bottom (return) bar.	<input type="checkbox"/>
3	Open all flow meters on the top (flow) bar – use the red collar to turn the black section fully anti-clockwise.	<input type="checkbox"/>
4	Open the filling valve using the key on the front of the blanking cap and connect the compressor hose up to it. Make sure the drain valve is closed.	<input type="checkbox"/>
5	Turn on the air compressor and allow the pressure to rise to 4 bar. Once the desired level has been reached, close the filling valve using the key on the blanking cap. This should be left for 24hrs to check for any significant drops in pressure.	<input type="checkbox"/>

Change the handing of Ambiente manifolds		
Sequence	Checklist	Completed
1	Reverse the handing of the two manifold bars on their brackets.	<input type="checkbox"/>
2	Remove the mixing valve from the base of the pumpset by undoing the nut that connects the two together.	<input type="checkbox"/>
3	Unscrew the blanking cap from the base of the mixing valve. Note: this has a left-handed thread.	<input type="checkbox"/>
4	Then unscrew the pump connection from the top of the mixing valve. Again, this has a left-handed thread.	<input type="checkbox"/>
5	Rotate the mixing valve through 180 degrees and swap the blanking cap and pump connection around.	<input type="checkbox"/>
6	Remount the mixing valve onto the pumpset, making sure you use the rubber washers provided.	<input type="checkbox"/>

Site details	
Site name	Date
Address	Reference
	Technician
	Floor level
	Pipe reference
	Manifold reference

Please tick the appropriate boxes				
<input type="checkbox"/> Installation	<input type="checkbox"/> Re-pressurise	<input type="checkbox"/> Repair		
Test method	Hydraulic (Water)	<input type="checkbox"/>	Period of test	Min 30 mins <input type="checkbox"/>
Test method	Co ² (air)	<input type="checkbox"/>	Test pressure	Min 4 bar <input type="checkbox"/>
Sufficient room to attach pumpset (minimum 250mm required)			<input type="checkbox"/> Yes	<input type="checkbox"/> N/A
Has the manifold label been fitted?				<input type="checkbox"/>

Description	Yes	No	Comments
System left drained	<input type="checkbox"/>	<input type="checkbox"/>	
System left full of water	<input type="checkbox"/>	<input type="checkbox"/>	
System left under pressure	<input type="checkbox"/>	<input type="checkbox"/>	

Ambiente recommends taking extra care when pressure testing in cold or sub-zero temperatures and would strongly advise against leaving any plain water in the system that may be at risk of freezing.

Signature of tester	Print name	Date
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Signature of witness	Print name	Date
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Need more information or advice?
Contact our team of highly trained experts today.

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