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CHECK LIST

Pre-Installation of Foreverbeech Solid Timber. Nitens Solid Timber or Engineered Timber Flooring.V3

NOTE: It is the responsibility of the installer to inspect their workplace prior to beginning the installation of the selected timber flooring to ensure the installed work will meet the supplier's requirements. Notify owner / general contractor of any concerns prior to installation.

Company Name:		JOB#
Address of Job:		
Name of Contractor:		
Date / /		

PRE – INSTALLATION

	DESCRIPTION	COMMENT &/OR RECORD
1.	As a rule of thumb, Hardwood Timber Flooring shall be one of the last steps performed on any construction or renovation project.	
2.	It is recommended that the owner, Installer, and project manager (or applicable individual) has viewed and checked the timber supplied to ensure it is the desired product. This includes the volume supplied, correct profile, grade, length specification and how the floor will be laid out. NOTE: Any concerns relating to the timber supplied MUST be communicated to the supplier within a 7-day period after receiving the timber.	
3.	The substrate MUST be free of cracks, dust, oil, wax, paint or any other surface contaminants. The substrate must also be flat, level and sound. Irregularities MUST not exceed 1.5mm every 1m.	
4.	Underfloor heating MUST be correctly commissioned and functional prior to installation. A minimum of 19mm for solid timber thickness & 15mm for HBB European Oak shall be used over under floor heating. A maximum surface temperature of 25 degrees Celsius for Solid timber flooring and 27 degrees Celsius for 15mm for HBB European Oak flooring applies. Alternatively, Magnum Board 9mm can be overlaid in conjunction with 10mm Foreverbeech Solid Timber Flooring.	



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5.	Air conditioning and heating systems shall be in place and operational. A consistent room temperature of 24 degrees Celsius and relative humidity of 40 – 60% RH shall be maintained in the installation site for 14 days prior, during installation and until occupied to allow for proper acclimatization.	
6.	Solid flooring shall be stored on site “in-strip” supported by clean dry timber fillets of an even thickness (10-20mm) placed directly in line above each other and above the bearers (allow at least 45mm space under the flooring for air circulation) at a maximum of 450mm centers. This shall be completed 7 – 14 days prior to installation at a consistent room temperature of 24 degrees Celsius and relative humidity of 40 – 60% RH.	
6.1	Engineered flooring shall be stored on site in their unopened cartons and place on bearers (allow at least 45mm space under the flooring for air circulation) at a maximum of 450mm centers. This shall be completed 48 hours prior to installation at a consistent room temperature of 24 degrees Celsius and relative humidity of 40 – 60% RH. Packaging shall only be opened just prior to the start of the installation.	
6.2	NOTE: If the above atmospheric limitations cannot be achieved prior to the placement of either flooring options on site, then it is recommended to rally the product into the environment just prior to installation. Installation shall be completed immediately. Finishing shall be complete directly after the completion of the installation. It is likely that some moisture uptake will take place in this instance. Some gapping of boards (especially Solid Timber) or normal seasonal movement may occur when air conditioning is commissioned, or normal living conditions take effect. This risk is the sole responsibility of the owner and installer.	
7.	Do not fit new T & G flooring to an existing T & G flooring substrate in the same direction. The new T & G flooring must flow in the opposite direct to the existing T & G flooring. Alternatively, Magnum Board (9mm) can be overlaid to the existing T & G flooring (Refer to Magnum Board installation procedures with the addition of 100% Traditional glue application methods) prior to installing the new T & G flooring.	
8.	Skirting must be left off and fitted after the floor is installed. It is recommended that the final floor coatings are applied prior to the skirtings being fitted and painted in. The owner, installer, and project manager (or applicable individual) can determine the process required.	
9.	Kitchen units (excluding waterfall side bench tops and kick boards) can be fitted prior to the flooring. It is recommended that bench tops and center islands are fitted after the flooring to enable them to be lined up with the floor and finished onto the finished floor in a similar manner to the skirting. Therefore, creating a more detailed finish.	

ALSO REFER TO INSTALLATION AND/OR SUBSTRATE PREPARATION VIDEOS



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Substrate preparation for Foreverbeech Solid, Nitens Solid or Engineered Timber Flooring

To be read in conjunction with installation videos & alternative substrate fixing video's

NOTE: It is the responsibility of the installer to inspect their workplace prior to beginning the installation of the selected timber flooring to ensure the installed work will meet the supplier's requirements. Notify owner / general contractor of any concerns prior to installation.

Company Name:		JOB#
Address of Job:		
Name of Contractor:		
Date / /		

SUBSTRATE PREPARATION

The "Substrate" is known as the structural surface to which the flooring will laid onto. The most common substrates are 18mm magnum board, raised floor joist systems, concrete, 18mm ply, particle or stand board or autoclaved aerated concrete (AAC) such as Hebel.

IMPORTANT

All surfaces must be level with-in a 1.5mm every 1m tolerance. Joist and board systems (where joist need to be planed for example) must be levelled by a registered builder. Concrete, Magnum Board, and timber board products can be levelled using the appropriate Mapei floor levelling compound (FLC) systems in accordance with the manufacturer's recommendations. Ultrabond S955 can be used directly over the FLC once cured. Notching, to level a joist substrate is an unsuitable way to approach levelling. Any reduction in the thickness of a substrate (especially joist) can place the substrate strength outside of the building code.



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1.	The substrate MUST be free of cracks, dust, oil, wax, paint or other surface contaminants. The substrate must also be flat, level and sound. Irregularities MUST not exceed 1.5mm every 1m.	
2.	Key the substrate surface & remove any contamination as per adhesive and subfloor manufacturer's recommendations. Use best practice methods. See guidelines below.	
3.	Use levelling compound to level the sub-floor in accordance with adhesive and subfloor manufacturer's recommendations.	
4.	The installer MUST check the moisture content (using appropriate equipment and manufacturer's recommendations) of the sub floor in a random fashion to ascertain an accurate understanding of the moisture content of the entire floor area. Record this information inclusive of images. This moisture content MUST not exceed the adhesive or moisture barrier manufacturer's limitations. Refer to this information when considering what products are to be applied or fitted to the substrate to manage the moisture content or moisture migration into the timber flooring.	

MAGNUM BOARD

1.	The substrate shall be installed as per the manufacturer's requirements and as per the requirements of the building code. This is the owner or builder's responsibility.	
2.	Ensure adequate ventilation throughout the crawl space is available to allow air flow. A moisture barrier of sealed black polythene or lime chip shall be laid on the ground in the crawl space below the installation area.	
3.	The substrate MUST be structurally sound, solid, stable with no visible standing water and dry to touch.	
4.	Key the substrate surface & remove any contamination using mechanical sander with approx. 80 grit sandpaper.	

Refer to Magnum Board preparation video: <https://vimeo.com/301943591>

JOIST SYSTEMS

If a joist system is **new**, then it can be considered that the substrate will have a moisture reading higher than that of the timber flooring, and therefore Magnum Board should be considered. Magnum Board should also be considered where insufficient airflow or dampness is apparent under the joist system. A combination of 9mm Magnum Board (non-structural) and 19mm T & G Flooring (Structural) or 18mm Magnum Board (structural) and 10mm T & G Flooring (Non-Structural) can be used. Magnum Board installation instructions and methodology shall be used.

It should also be known & considered that polystyrene underfloor insulation can contribute to moisture related issues when used in conjunction with solid timber floors and joist systems that have a moisture reading higher than that of the timber flooring. This will be especially prevalent when underfloor heating exists. Terra Lana Underfloor insulation is recommended.



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1.	The substrate shall be installed as per the manufacturer’s requirements and as per the requirements of the building code. This is the owner or builder’s responsibility. NOTE: Nogs should be present at the junction over the bearer as a minimum.	
2.	Sand or scrape the joist to key the surface and remove contamination. Check the Joist spacings are set at 450mm centers for 19mm Foreverbeech Flooring. Ensure adequate ventilation throughout the crawl space is available to allow air flow. A moisture barrier of sealed black polythene or lime chip shall be laid on the ground in the crawl space below the installation area. The joist system shall be between 8 – 12% moisture content prior to installing the flooring. Alternatively, Magnum Board can be fitted over the joist system with the moisture vapour control glue application system used.	

Refer to Joist preparation video: <https://vimeo.com/301943693>

SHEET BOARD (PLY/STRAND/PARTICLE ETC) & EXISTING T & G FLOORING

1.	The substrate shall be installed as per the manufacturer’s requirements and as per the requirements of the building code. This is the owner or builder’s responsibility.	
2.	The substrate MUST be structurally sound, solid, stable and between 8 – 12% moisture content prior to installing the flooring.	
3.	Key the substrate surface & remove any contamination using mechanical sander with approx. 80 grit sandpaper.	
4.	Ensure adequate ventilation throughout the crawl space is available to allow air flow. A moisture barrier of sealed black polythene or lime chip shall be laid on the ground in the crawl space below the installation area.	
5.	NOTE: New timber flooring should be fitted at 90 degree to the existing T & G flooring. Alternatively, magnum board can be fitted to the existing T & G prior to installing the new T & G flooring.	

Refer to Joist preparation video: <https://vimeo.com/301943653>



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CONCRETE

1.	The substrate shall be installed as per the manufacturer’s requirements and as per the requirements of the building code. This is the owner or builder’s responsibility.	
2.	The substrate MUST be structurally sound, solid, and stable with no visible standing water and dry to touch.	
3.	Key the substrate surface & remove any contamination using mechanical diamond grinder (dry grind only).	
4.	The concrete shall be treated with a moisture control system (moisture barrier) where the R/H reading excess adhesive manufacturers limitations.	

Refer to concrete preparation video: <https://vimeo.com/301943383>

Autoclaved Aerated Concrete (AAC) such as Hebel.

1.	The substrate shall be installed as per the manufacturer’s requirements and as per the requirements of the building code. This is the owner or builder’s responsibility.	
2.	The substrate MUST be structurally sound, dry, solid, and stable with no visible standing water and dry to touch.	
3.	For keying or preparation, Refer to manufacturer’s recommendations. Mapei recommend 2 coats of Primer MF to consolidate and prepare the surface	
4.	Install using the Mapei ECO 995’s, Tradition installation method in conjunction with two coats of primer MF. Details of these products can be found in the manufacturer’s product sheet. This information can be found in the technical documents of the product on WWW.healthbasedbuilding.com . This information shall be cross reference with the sub floor manufacturer’s recommendations.	

ALSO REFER TO INSTALLATION AND/OR SUBSTRATE PREPARATION VIDEOS & PRODUCT MANUFACTURERS RECOMMENDATIONS.

PROCEDURE TO INSTALL FOREVERBEECH SOLID TIMBER FLOORING

To be read in conjunction with installation videos & alternative substrate fixing video's



Foreverbeech solid timber flooring is kiln dried to a moisture content of 9 – 12%. Natural ambient relative humidity of the day or area will affect this moisture content. This is not a defect, yet a natural occurrence. The moisture content of the product shall be managed by the installer by way of preparing the room(s) in which the timber is to be laid in accordance with the PRE-INSTALLATION check list.

Ensure pre-installation and substrate preparation check lists have been completed and are held on record



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SOLID FLOORING OVER MAGNUM BOARD, PLYWOOD, PARTICAL BOARD, CONCRETE or DIRECT TO JOIST

Also see alternative fixing options when installing over a CONCRETE substrate
(Without in pad heating)

Refer to Video – Solid Timber Floor over Magnum Board: <https://vimeo.com/256873759>

- 1/ Undercut Door Jambs and other relative areas that require it.
- 2/ At each end of the starter wall, measure out pprox.. two board widths inclusive of the tongue plus 5mm.
- 3/ Snap a chalk line from these measured points parallel to the starter wall.
- 4/ Firmly secure a straight edge along the chalk line as a guide. This can be a series of 300mm pieces of flooring, pre-drilled, firmly fastened and with the tongue out.
- 5/ It is recommended to “dry lay” a “set” (a set is a series of rows) of boards prior to applying adhesive. This allows time to accurately place boards in a sequence enabling the installer to move boards until satisfied with the layout of the “set”.
- 6/ Vacuum the floor or joist. Place the groove of the first board neatly into the tongue of the straight edge. Boards should be square docked (unless they have been factory end matched). On starting the next row, always make sure to stagger the end joints by at least 300mm. Continue this process until boards cover a maximum of 800mm deep. **IMPORTANT:** In a wide room it is recommended to reduce the number of rows in each set. Each set must be able to be installed within 30 minutes after adhesive is applied.
 - 6.1/ NOTE: When installing direct to joist, Butt jointed boards shall be cut to join evenly over the joist and joints in adjacent boards shall be staggered. End-matched joints in adjacent boards shall not occur within the same span between joists.
- 7/ While the dry laid set is in place on the substrate, snap a chalk line across the front of the tongue of the boards to form a line in which the adhesive will be spread to.
- 8/ Uplift the boards, stacking each row on top of each other, starting with the last row first. Keep each row intact to ensure you do not mix up the sequence.
- 9/ Vacuum the floor or joist to remove dust and wood filings, pour enough adhesive onto the floor to cover the area of the first set. For direct to joist, apply a continuous bead (6mm – 10mm pprox..) of Mapei S9971K flooring adhesive to the joist.
- 10/ Using the correct trowel fitting, spread the adhesive using the correct angle. Always ensuring to cover 100% of the substrate. Trowel the entire area from the straight edge to the chalk line which represents where the “set” will finish.
 - 10.1/ NOTE: Foreverbeech 10mm Heritage Grade flooring, Use the specific notch trowel as seen on the installation video. **Refer to video: 10mm Foreverbeech heritage installation video**
<https://vimeo.com/290400316>



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11/ Place the first board of the first row, face up onto the adhesive and locate the groove firmly into the tongue of the straight edge by using a hammer and “Tap up Block” (The tap up block is a custom-made block to use to tap up joints without damaging the edge of the board. See images on page 1). Place the second board of the row and locate the groove firmly into the tongue of the straight edge. Tap the end of this board to ensure it butt’s up neatly to the previous board. Repeat until the row is complete.

12/ Mechanically, secret fix (using a 32-35mm flooring cleat, staple, or brad), the row along the tongue of the boards at approximately 450 – 600mm centers or to the joist. Fix 15 – 20mm from each end of the board, where joints are formed. Fix from one side to the other. Do not fix intermittently.

12.1/ NOTE: For 10mm thickness Foreverbeech flooring, use a finishing pin only with Pneumatic pin gun or similar, as seen on the installation video. **Refer to video: 10mm Foreverbeech installation video** <https://vimeo.com/281371878>

12.2/ NOTE: Direct to concrete does not enable secret fixing. Refer to direct to concrete fixing recommendations on page 4 of this document.

12.3/ NOTE: Direct to joist installation where boards are 85mm wide or under, a 50mm Flooring Cleat Nail can be used as an alternative to face fixing. Boards over 85mm wide (105mm & 128mm) shall be face fixed. Refer to direct to joist fixing recommendations on page 6 of this document.

13/ Starting from the end where the first row finished, Place the groove of the next board in the next row, into the tongue of the board in the previous row. Continue using the same technique as the first row. Install the rows from right to left &/or left to right in a zig zag format. This will reduce, or counter act any creeping that may occur.

13.1/ NOTE: When placing a board into the previous row, fold it in by sitting the groove against the tongue at a 45-degree angle and then drop it into place. This will help prevent excess glue build up when locating the tongue and groove together. The same methodology applies where end joints are concerned. If a large gap is left, prior to the boards being butted together, adhesive build up may prevent a tight fit. Adhesive will also squeeze up though the tongue and groove or end joints and onto the surface of the boards. In this case, wipe back immediately with pure white spirits.

14/ Secret fix the row mechanically in the same way the first row was fixed.

15/ Continue this process until the set is complete.

16/ Repeat the process using the last row of the last set as the start board to the new set.

When encountering pipes, dry lay the board into position and mark the diameter of the pipes. Drill hole(s) in the board to form the diameter of the pipe by using a 10mm or larger drill bit. Apply adhesive and fit the board in place.

Keep foot traffic to absolute minimum to allow the adhesive to cure for at least 24 hours

For a Full installation example, Refer to Video – Health Based Building, Engineered Oak & Provence Stain Video: <https://vimeo.com/259228960>



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DIRECT TO CONCRETE FIXING RECOMMENDATIONS

Foreverbeech 19mm T & G over Concrete: Secret Fixing.



When installing over a concrete pad (without in pad heating), use the same methodology as above with the exclusion of mechanical secret fixing. The secret fixing system will not penetrate the concrete and therefore will not hold the boards in place. **IMPORTANT: It is not recommended to use invasive fixing systems when in-pad heating system exist. In this instance, revert to the follow methods – excluding any surface penetration.**

1/ Boards shall be installed in the same sequence and tapped together as best possible with the Tap up block and hammer. Be aware that the boards will remain a loose fit until cramped at the end of the set. Once the last row is in place, measure 50 – 60mm out from each end of the row. Snap a chalk line parallel to the last row.

2/ Mechanically fix a straight edge to the chalk line. The straight edge can be a full length or a series of lengths of straight LVL framing to form a fence that runs the entire width of the row. Pilot holes can be pre-board into the LVL framing at 450 – 600 centers and 25-50mm from each end of each length, using a 12mm drill. Once in place, bore a hole in the concrete with a 10mm masonry drill bit in a hammer drill. Vacuum out particulate. Drop an M10 x 75mm coach screw & washer through the pre-boarded hole and mechanically screw the bolts into the concrete. Tighten to ensure the straight edge is secure.

3/ Using off cuts of the LVL framing, cut several folding wedges to allow cramping of the set at 450 – 600 centers. See video for an image of folding wedges.

4/ Place the wedges onto the concrete at 450 – 600 centers keeping away from joints to allow for secret fixing once tight.

5/ Cramp to take up the slack but do not over cramp at this point.

6/ Using a pry bar, pry all end joints up tight by gently prying off the adjacent wall. Continue to do this row by row until all end joints in the set are up tight with no gaps showing.

7/ Weight the floor. Use even weights across the floor. Custom made Railway Irons cut at 800 – 1m lengths are an efficient option for weights. Weights shall be paced across the row to ensure all rows are weighted evenly and at pprox.. 600 centers or spacing's.



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8/ Once weighted, begin tapping up the folding wedges which will cramp up the floor. This should be done evenly and in small increments to ensure the boards cramp up together evenly. During this process board gaps and end joints shall be constantly monitored as to ensure they remain tight. NOTE: when placing weights across the floor, be sure not to cover end joints which will result in end joint being missed, and a gap will be left after the process is complete.

9/ Once the cramping process is complete and the installer is satisfied with the set, a secret fix (**Refer to video: 19mm fixing to concrete** <https://vimeo.com/301943446>) can be added to the front boards which will allow for the removal of the folding wedges and the straight edge. Therefore, allowing another set to be completed.

9.1/ NOTE: When installing 10mm flooring, use the face fixing method. Refer to Foreverbeech 10mm T & G over concrete: Face Fixing.

10/ Take a 6mm drill bit and pre-bore a hole at the top of the tongue on a 45-degree angle. Be careful not to damage the micro bevel.

11/ Take a 6mm masonry drill and push it into the pre-bored hole in the timber. Be sure not to drill the masonry drill bit into the pre-board hole in the timber as it will over bore the hole.

12/ Once in place, bore a hole in the concrete on the 45-degree angle to approx.. 35mm deep.

13/ Vacuum out concrete particulate.

14/ Take the 32mm screw and locate it into the nylon lug by turning it with fingers.

15/ Gently tap the screw and lug into place with a hammer. Do not to tap the screw home. Leave the screw 8 – 15mm proud of the pre-board hole.

16/ With a drill and drive, bring the screw up tight until the head of the screw pulls onto the flooring timber. Do not over tighten and ensure the head of the screw is sufficiently embedded into the pre-board hole as to not to impede the next board to locate the tongue and groove properly.

17/ Release the pressure from the folding wedges, unscrew the coach bolts and remove the straight edge.

18/ Vacuum and repeat the process of laying out a set.

18.1/ NOTE: When applying adhesive to the next set, ensure that enough adhesive is applied to fill the holes from the straight edge fixing and to ensure the 100% screed of glue is obtained on the concrete surface between sets.

19/ Weights shall remain on this floor area until the glue has cured.

Refer to video: 19mm fixing to concrete <https://vimeo.com/301943446>

Foreverbeech 10mm T & G Over Concrete: Face Fixing.



When installing Foreverbeech 10mm solid timber flooring over a concrete pad, use the same methodology as the 19mm flooring with the exclusion of the secret fixing system. The thinner profile will not allow enough timber to use the same system. Therefore, a face fixing system can be applied to hold the last row of the set-in place.

1/ Once step 9 is complete, take several off cuts (pprox.. 85mm x 85mm square) and locate a 25 mm concrete nail into the center of the off cut without penetrating right through.

2/ At 450 – 600 centers, place the square off cut in the center of the boards in the last row of the set.

3/ Drive the concrete nail through the face of the last board and into the concrete. DO NOT drive the nail home. When you feel the nail is about to penetrate the concrete, give one or two good strikes of the hammer to make the concrete penetration.

4/ With the board secure from the hold of the nail the folding wedges and the fence can be removed as per the steps 18 & 19 in the 19mm installation Guide.

DO NOT REMOVE THE NAIL FIXING UNTILL THE GLUE IS FULL CURED.

Refer to video: 10mm fixing to concrete <https://vimeo.com/301943526>

INSTALLATION, DIRECT TO JOIST OVER RAISED FLOOR SYSTEMS



Face nails shall be 60 x 2.8mm, jolt head, bright nail. Pre-bore hardwood flooring only with a 2.5mm drill. Fixing nails shall be placed 15mm from the edge & 20mm from the end of the face of the board. Secret fixing would require a 50mm flooring cleat nail (Example – Primatch 50mm Hardwood Flooring Nails which can be purchased from HBB.com).

EXPANSION GAPS

Fitted floorboards require a minimum 10mm expansion gap between the floorboards and any internal or external wall structures. However, where board ends abut doorways, the gap may be reduced to a neat fit with a small gap (pprox.. 1mm) to prevent rubbing.

Floors up to 6m wide (measured at right angles to the run of the boards) shall not require intermediate expansion joints if it is in a normal in-service environment.

For floor widths over 6m or where extra allowance for expansion is required (e.g., moist locations), cramping pressure needs to be considered along with providing an intermediate expansion joint, or a series of smaller expansion gaps every 800mm – 1000mm to provide equivalent spacing. If cork expansion joints are used, the cork shall be installed level with the bottom micro bevel. It should however be noted that cork to aluminum door joinery can cause the joinery to bow under floor expansion and an aluminum angle as shown in figure 2 overcomes this. This angle may also be inverted, and adhesive fixed to the aluminum joinery or alternatively a small timber bullnose molding on the flat fixed to the flooring is being used. Refer to figure 2 for details.

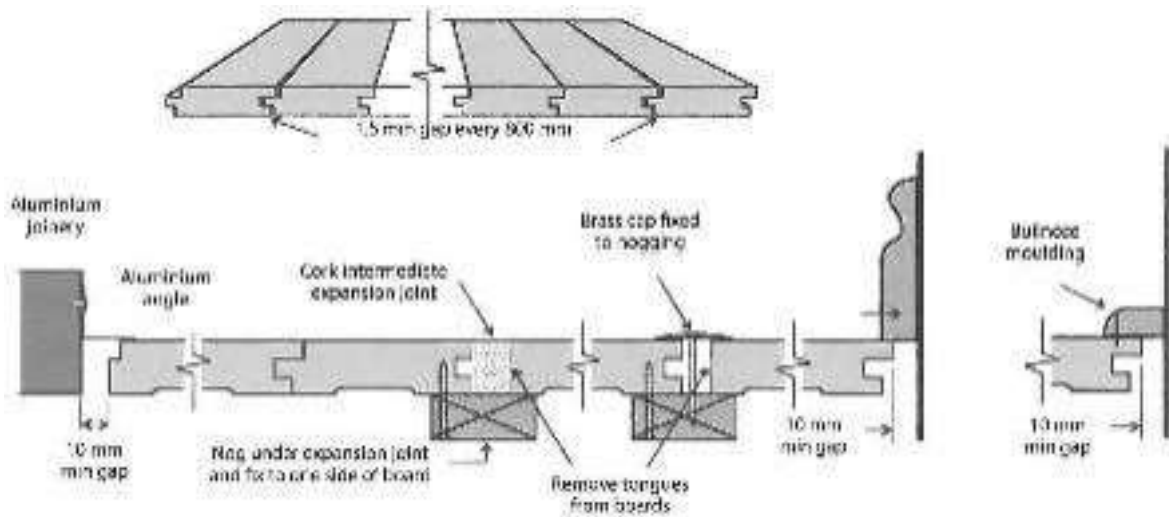


Figure 2 - Expansion gap details

FLOOR PROTECTION

The Installation contractor is responsible for keeping the decorative surface clean and free from glue and other contaminants during the installation as to not affect the finishing process. Clean up with 100% white spirit.

Floor coverings may be required to prevent soiling or damage to the decorative surface. It is the responsibility of that the owner, Installer, and project manager (or applicable individual) to determine the level of floor covers required. Use only specialized, breathable Floor covering such as recyclable cardboard products. Do not use synthetic, MDF or plastic floor covering as these will sweat and leach contaminate into the decorative surface effecting the Foreverbreathe Oil Coatings.