HAVWOODS

Havwoods Installation Guide: TreeAzzo

These guidelines are designed to complement the current Australian & Industry Standards.

Safety must be paramount on every installation. All electrical equipment must be tested and labelled, and all cutting tools such as jigsaws, circular saws, and bench saws must have guards fitted. Cutting should be carried out on a suitable bench, and appropriate personal protective equipment (PPE) should be worn. Safety is the responsibility of the installer.

The installer must be suitably trained and knowledgeable about wood flooring installations.

TreeAzzo must be installed fully bonded to the substrate when used as flooring or wall finishes.

Cement boards backed TreeAzzo products are designed for floor finishes and the plywood backed materials are designed for use as joinery systems.

The following topics are covered are covered by this document, for further information or for advice on any subject not covered here, please contact Havwoods:

Environmental Conditions
Substrate Preparation
Installation
Underfloor Heating
HVAC Heating/Climate Control
Floor Protection

Please note: Any fixings installed through the floor into the substrate must allow for expansion around the fixing point. Over-drill the fixing by 2mm and either leave an unfilled expansion gap or use a compressible soft gasket to accommodate any movement in the materials.

When being installed as a horizontal surface, such as a benchtop, tabletop, shelving, etc., it is recommended that an additional coat of Maintenance Oil or Hard Wax Oil be applied prior to initial use.

Important: *The final responsibility for the installation lies with the installer. It is the duty of the installer to inspect materials prior to installation and notify Havwoods of any potential material defects before installation.*

All Installed materials are deemed to have been accepted.

ENVIRONMENTAL CONDITIONS

The building must be watertight with all windows and doors fitted, and all wet trades completed before taking delivery of materials and before any wood flooring installation can take place.

Always check the ambient room temperature and humidity, which should be maintained at a constant level between 18°C and 24°C with a relative humidity between 45% - 65%RH prior to, during, and for the whole life of the TreeAzzo. Try to avoid extremes of low or high temperatures as this will negatively affect the stability of the Treazzo.

Acclimatise the TreeAzzo in the room where it is to be fitted for at least 72 hours before installation. The timber material should be maintained in its original packaging during this period. Only remove the materials from their packaging just before installation. The materials should be stored out of direct sunlight, away from walls and heaters, and placed on battens or pallets fully supporting the product to prevent heat buildup on the bottom boards.

Acclimatising is used to balance the TreeAzzo with the environment in the installation area.

If the temperature of the wood is at an equilibrium balance (the same as the room) and the moisture level of the wood is 8% (±2%), then you can assume that the timber does not require any further acclimatisation.

Keep the room temperature constant by setting the heating at a minimum of 15°C. If there are issues with permanent heating, other forms of heating such as electric or oil heaters can be used.

Avoid using gas-type heaters whenever possible, as they tend to generate extra moisture in the air. If gas heating is being used, it is important to monitor humidity levels throughout the timber installation process.

Infra-red type heaters generally warm only the person or item close to the heater, rather than warming the fabric of the room or the wood.

Low humidity can cause the wood to shrink, and high levels can cause expansion. Common causes of low humidity are using heating at too high a temperature, open fires, and wood burners. High humidity is commonly caused by poor ventilation.

We recommend using a Digital Gauge to monitor the humidity and temperature levels. These levels can be easily adjusted by either placing moisture in the room (such as regularly watering plants or using water receptacles) or ventilating the room to reduce high levels of humidity. A humidifier or dehumidifier can also be used to control the atmosphere.

As a rule, rooms and areas should be adequately ventilated to prevent a build-up of moisture. Care must also be given to rooms that are only heated when in use, with the heating switched off at other times. This can cause a build-up of humidity if the room is closed and not ventilated immediately after use. The build-up of humidity or moisture can increase the moisture level of the TreeAzzo. The next time the room is used, the heating can dry out the moisture on the surface of the wood, causing cupping.

Wood naturally changes in size during seasonal variations in temperature and humidity.

During summer, when humidity is generally at its highest level, the wood joins should be reasonably tight together. During winter, when heating is commonly used, and humidity levels are lower, small gaps may appear between the joins. This occurrence is not a manufacturing or installation fault.

SUBFLOOR MOISTURE CONTENT

The moisture content of solid subfloors must be checked in accordance with the Australian Standards AS1884.

The most accepted method of moisture testing is carried out using a in-situ probe test, this is completed by inserting a sleeve into the screed, capped, and left for 24 hours prior to completing reading. Refer to ASTM F2140.

Wagner is a renowned supplier of moisture reading technology and is widely recognised as a standard in Australia. For detailed product information and instructions on usage, please refer to the provided link. Wagner Meters Link

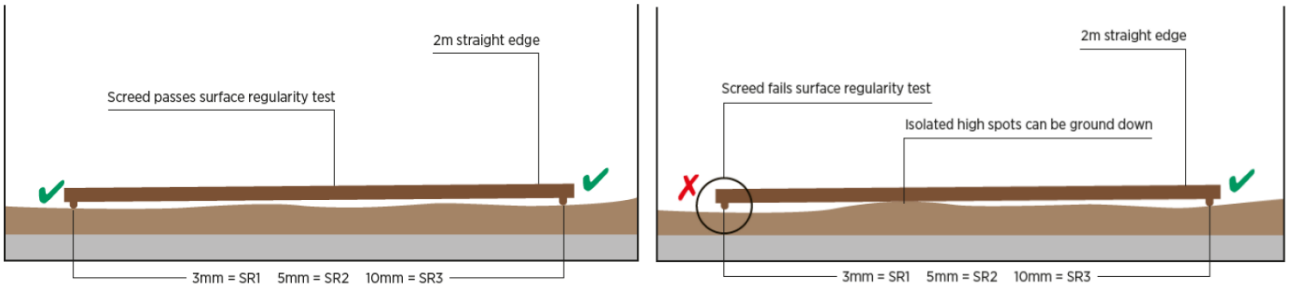
For screeded/cementitious substrates, the moisture reading must be less than 65% Relative Humidity for glued-down installations.

If the reading is above 75% RH and below 95% RH on a concrete substrate, we recommend the use of a fit for purpose moisture barrier in accordance with the manufacturer's instructions. Typically, 2 x cross coats of a topical moisture barrier are sufficient to treat a green sub floor.

SUBFLOOR PREPARATION

The Australian Standard AS 1884-2021 & AS 1684.2 2012 provides guidelines for timber flooring installation. The subfloor must be sound, dry, free from contamination, and flat to the Australian Standard SR1 tolerance: maximum 3mm of level variance under a 2m long straight edge at any point across the subfloor. In the absence of a nominated tolerance within the supplied timber Technical Data Sheet (TDS), the above deviations should be adhered to as the maximum allowable variation in the subfloor.

When installing a wooden floor using a glued-down method, a structural substrate of adequate compressive (minimum 20 MPa) strength must always be in place beneath the floor finishes. If you have any questions regarding substrate suitability, please consult Havwoods.



Screeded Substrates

Sand & Cement Screeds are **NOT** a suitable substrate for installation of timber flooring due to inconsistent compressive & tensile strengths achieved.

Engineered Screeds achieving minimum 20 MPa Compressive & 1.5MPa tensile Strength are suitable as a sub floor with the provision of the below.

- 2x cross coats of a topical sealer, moisture barrier/binder applied to the cured floor.
- Minimum 3mm levelling compound applied to the topical sealer/binder.

The subfloor should be smooth, clean, dry, and free from any contaminants that may affect the performance or adhesion of the flooring material.

A poured or pumped screed rarely achieves the required SR1 levels, and it is recommended to use a self-levelling compound before timber flooring installation. Self-levelling compounds also provide a more uniform surface for better adhesion to the flooring.

Structural movement joints in the concrete must be replicated in the finished timber floor using a suitable flexible expansion detail.

Note: For advice on the installation of Havwoods products over screeds with embedded or overlaid underfloor heating, please refer to the section on Underfloor Heating below.

Timber Substrates

The timber subfloor must be sound, tested for vertical movement (which should be less than 3mm), and tested using a pin-type meter to ensure that it is dry. The moisture content of the subfloor should be less than 14% and/or within ± 2% of the wood floor being installed.

All suspended wood floors must have suitable through ventilation, usually provided by vents installed to external walls.

Any wood subfloor with a higher moisture level than 14% should be further investigated. They must also be free of infestations such as wood-rotting, fungi, and wood-boring insects.

Suitable timber substrates for installing TreeAzzo include structural plywood and a structural grade particleboard. Note that some particle board products are produced with a protective wax coating, this coating must be removed mechanically prior to the installation of timber flooring. Timber substrates can be directly bonded to using a suitable MS Polymer adhesive (Havwoods recommends Hav:Bond Adhesive), provided they are sound, level to SR1 level requirements, and free from contamination.

For existing suspended timber floors where planks are securely fixed to joists/bearers, these can optionally be prepared with flooring-grade plywood of a minimum 6mm thickness. The plywood should be fixed at 300mm centres, staggered & perpendicular to the run of the existing planks. Any loose sections of the existing planks must be secured, and any repairs to the existing bearers should be completed before ply preparation can be considered.

Note: For advice on the installation of Havwoods products over timber substrates with underfloor heating, please refer to the section on Underfloor Heating below.

It is important to follow these guidelines to ensure a successful glued-down installation of Havwoods wood flooring. If you have any questions or need further assistance, please don't hesitate to contact Havwoods.

Hebel Sub Floors
Hebel Panels are a suitable substrate for installation of Havwoods timber flooring when the Hebel is correctly prepared. Currently there are only two approved systems suitable and guaranteed for this type of installation.

Havwoods Technical Department must be consulted for advice prior installation to Hebel sub floors.

Raised Access Floors
It is possible to install TreeAzzon adhered directly to an access floor. MS Polymer Adhesives are commonly known to be compatible. Always check with your adhesive manufacturer to confirm suitability. Havwoods recommends the use of Hav:Bond MS Polymer adhesive.

For powder coated access floors, it is recommended to prepare the surface mechanically by rough grinding or sanding. This process creates a textured surface that allows the adhesive to mechanically bond to the access floor, resulting in maximum bond strength.

Access floors are typically level and stable, each pedestal can also be levelled independently of each other. This characteristic often eliminates the need for any additional floor preparations.

If levelling is required, it is recommended to screed using a latex-based levelling product. Prior to levelling, it is advised to apply a primer with a sand/grit additive to achieve a mechanical bond.

Dependent on the condition and base plates of the access floors, it may be necessary to apply a metal etch primer before proceeding with preparation. This primer helps to improve adhesion and ensure optimal performance.

In the case of existing raised access panels, thorough cleaning and degreasing with suitable agents are necessary to remove adhesive residues and other contaminants before direct installation of Havwoods timber flooring. If complete removal of contaminants is not possible, the access panels may be prepared with flooring-grade plywood of at least 6mm thickness, securely fixed using a “glue and screw” method maintaining a maximum spacing of 300mm between fixings.

Gyprock/Plaster Substrates
These substrates are not suitable for installing TreeAzzo panels, as they do not have the necessary shear strength to support the panels on the wall or ceiling.

INSTALLATION TO FLOORS AND WALLS
In Australia, it is recommended to fully bond the panels to the prepared substrate using a suitable adhesive. Havwoods recommends the use of Hav:Bond MS Polymer adhesive.

Apply the adhesive using a ***5mm V-notched*** trowel when adhering timber will maximise adhesive transfer during the installation, minimising the occurrence of “drummy” spots. Check for at least 80% adhesive coverage on the back of the boards by occasionally lifting a board. Increase the notch size, if necessary, this is to only be done within the limitations of manufacturers adhesive specifications.

Ensure that the installation is done in workable areas within the open working time of the adhesive. If the adhesive starts to skin over, scrape it off the subfloor and apply fresh adhesive.

Avoid standing or kneeling on elements that are sitting on wet adhesive, as they may shift and create gaps in the finished floor.

Note: Do not use adhesive to level a sub-floor.

If the substrate you are installing to is flat and even, and the total installation area is less than 30m2, then TreeAzzo may be installed without any gaps between panels. On most substrates where installations are larger than 30m2, a 2mm spacing should be allowed between panels, joints should be levelled using a tile levelling clips at corners.

The levelling clips are inserted and adjusted while the adhesive is curing to ensure that lipping isn't present at the joins. It can be easily removed once the adhesive has set.

Gaps between panels can be sealed with and acrylic caulking after installation is complete and the adhesive is fully cured. Panels are produced with a micro bevelled edge allowing the joint to be filled neatly and excess caulking removed.

To achieve a harmonious blend of tones throughout the areas, materials should be mixed during installation. Mixing panels creates a blend of tones from the natural variation in the raw material. Keep in mind that colour variety is inherent in all wooden materials and adds to the appeal of real wood in interior design.

Maintain a constant atmosphere during and at least 24 hours after the installation, especially overnight when temperatures can drop and cause variations in the atmosphere. This will allow the adhesive to cure effectively in direct fixed installations. Always keep the internal temperature above 15°C.

Allowing the temperature or humidity to alter dramatically, particularly overnight when temperatures can drop, can cause excessive dimensional changes in the panels.

We recommend using alternative heat sources to maintain ideal conditions during the installation period.

Note: Under Floor Heating systems should remain off for the installation period and for at least 48 hours after the installation.

Be sure to create an unfilled perimeter expansion gap of at least 10mm for all areas where timber is being installed. Place spacers between the panels and the wall to maintain the expansion gap while the adhesive is curing.

If the installation takes more than one day, strap or wedge the last row to prevent movement overnight.

Note: Any variation in above mentioned expansion gaps must be approved by Havwoods to maintain product warranty.

Note: Consult Havwoods Technical Department if you are unsure before installation.

If skirting or scotia cannot be used, an alternative is to place a low-density foam strip (easily crushed between fingers) approximately 2mm below the height of the wood floor. Then, use a flexible acrylic filler or a similar product to bridge over the foam.

All thresholds must allow for the required expansion and contraction. Door frames and architraves can be undercut to allow the wood to slide underneath while still allowing for expansion.

Note: Never undercut newel posts, as they are structural sections of the stairs.

Cutting the TreeAzzo Panels
Panels backed with plywood can be cut using standard woodworking tools. Use a high tooth count fine finish blade (80 teeth or more) to achieve a clean cut and avoid chipping or splintering on the panel edge.

Panels with a fibre cement backing board should be cut using a specialised diamond-tipped or fibre cement Polycrystalline diamond (PCD) blade to achieve a clean cut and minimise chipping of the resin surface. For best results, cut with the finished side up, support the panel fully, and use painter's tape along the cut line.

UNDERFLOOR HEATING (UFH)
Prior to installation, it is important to ensure that your engineered timber flooring is suitable for installation above underfloor heating.

For timber flooring suitable to be installed over underfloor heating, it is advised to use a hydronic UFH system set into a screed, or an electric system set into a smoothing compound under the wood flooring.

Electric cable systems should have a minimum of 10mm coverage above the cables using a reinforced smoothing compound.

Heating elements (pipes or cables) should not be in direct contact with the reverse side of the plank or the underlay, this to avoid over-drying of the timber through direct heat transfer of heat into the wood. Electric mats or water pipes placed on top of screeds in routed panels must have a distribution board (typically a layer of plywood, yellow tongue, or dry-floor panel/Fermacell) fitted above them to ensure even heat distribution to the underside of the engineered board. Heat Emission plates placed below pipes do not provide separation of heating elements from the underside of the flooring.

Note: Some systems can create hot spots when rugs or other items not on feet are placed directly onto the wood floor, which can negatively affect the stability of the flooring.

To regulate the surface temperature and ensure it does not exceed 27°C, it is recommended to install temperature probes within the subfloor build-up. These probes should be located in each room/zone.

Note: Wall-mounted or free-standing thermostats placed more than 500mm off the floor surface may allow higher temperatures at floor level.

Embedded UFH (Under Floor Heating) Systems in Screeds
Before delivery of your flooring, the underfloor heating must be commissioned and operational for at least two weeks. Gradually increase the UFH temperature to the maximum level for the first five days, run it for 3-5 days, and then allow the heating to cool gradually to the off position.

Carry out at least two cycles to ensure any moisture is released. Switch off the heating and any artificial drying aids four days before taking humidity readings.

Note: Never take humidity or moisture tests with the heating or other drying aids on.

We recommend using alternative heat sources to the UFH during the installation period and that UFH systems should remain off for the installation period and for at least 48 hours after the installation.

When bringing the UFH back into operation, increase the temperature by a maximum of 2°C each 24-hour period until the normal room temperature is reached.

Note: This also applies when using the UFH after periods of not being used. We would also recommend a cool down period using the same formula 2°C each 24-hour period until switched off. Always set the heating to a frost temperature of minimum 12°C when not in full usage.

It is highly recommended to apply 2 x cross coats of a topical PU moisture membrane to protect flooring from residual moisture purging from sub floor.

COMMISSIONING & USAGE of HEATING, VENTILATION and AIR CONDITIONING (HVAC) SYSTEMS

This specifically relates to the transition from construction-phase environmental conditions to normal operating conditions when installing Havwoods timber floors. If this transition occurs too quickly, the timber may experience excessive stress, leading to surface cracking, gaps between timber elements, distortion, and other undesired issues.

Due to this, it is necessary to gradually introduce the heating/air conditioning system to allow the timber to adapt to the environment. The following steps should be followed:

- Measure and record the environmental conditions, setting the system's temperature to match the present environment.
- Allow the system to operate at this temperature for at least 24 hours, monitoring and recording the relative humidity (RH) during this time.
- Increase the system's temperature by no more than 2°C per day, with RH recordings.
- Gradually bring the system up to operating temperature over several days, documenting each stage and recording RH as well.
- Use an environmental measuring device (Digital Combined Thermometer & Hygrometer) to monitor RH, if RH levels drop below 40%, the introduction of moisture sources such as plants or humidifiers if necessary.

For optimal performance, the timber flooring should be maintained between 40-65% RH and between 18-24°C, considering its moisture content of 8% (±2%) at the time of manufacture.

This gradual process helps prevent failure of the timber flooring due to sudden exposure to altered environmental conditions.

It is generally accepted that seasonal gapping can occur in finished flooring, this is not considered an installation issue or product defect.

Temporary heating requirements (during construction phase) in colder months should be operational 24 hours a day. Every effort should be made to achieve temperatures of 18°C at the time of timber flooring installation and until project completion. If RH levels exceed 65% during installation, work should be postponed until suitable installation conditions can be provided through ventilation and/or dehumidifiers.

FLOOR PROTECTION

When installing Havwoods floors in a construction environment, adequate protection should be provided to prevent damage from subsequent trades.

Havwoods recommends installing a layer of Poly foam or another breathable membrane before an impact protection layer. The Poly foam should cover the entire floor area, taped at joints, and should not be taped to the wood floor surface.

A fire-retardant hardboard impact protection layer can be installed over the Poly foam, leaving a 50-100mm gap from the perimeter to allow moisture ventilation.

Caution should be exercised when using non-permeable corrugated plastic floor protection (e.g., Coreflute), as it can trap construction moisture in the panels, leading to excessive expansion or telegraphing on the floor surface. If this type of protection must be used, always install a layer of breathable material, such as Poly foam, first, and ensure that Coreflute is not left on the floor for an extended period. Any floor protection should be regularly lifted, ideally every 2-3 weeks, to allow floor ventilation in projects with extended periods between flooring installation and project completion.

Never tape floor protection directly to the panel surface, as the adhesive can cause irreparable damage to the floor finish. Install Poly foam and tape together or to walls and tape the impact protection layer to the Poly foam layer.

Never run underfloor heating systems while floor protection is in place, as the protective layers can trap moisture or generate elevated surface temperatures, potentially causing excessive expansion, over-drying, and shrinkage of the wood material, respectively.