Acoustic Panels: Installation and Maintenance Guide

Havwoods Material Guide: Acoustic Slatted Panels

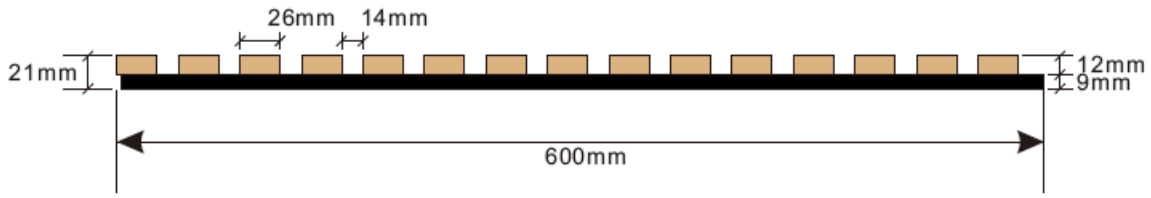
These guidelines are designed to complement the current British Standard or the relevant standards in the country of installation.

Safety must be paramount on every installation. All electrical equipment must be PAT tested and labelled and all cutting tools such as jigsaws, circular and bench saws must have guards fitted and cutting must be carried out on a suitable bench. You must also wear suitable work wear and remove or make safe any loose items such as jewellery. Safety is your responsibility.

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

Environmental Conditions
Cutting & Installing Panels
Finishing of Veneers After Installation
HVAC Heating/Climate Control

The Acoustic Panel Product consists of veneered MDF slats with a hardwood veneer facing mounted on non-woven fleece backing. Please refer to the Technical Data Sheet (TDS) of the relevant product for specific details.



Please speak to a member of the Havwoods team if your project has specific requirements for fire ratings or the installation will be in a humid environment such as domestic bathrooms or commercial leisure facilities.

N.B: The final responsibility 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 prior to installation. Installed materials are deemed to have been accepted.

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ENVIRONMENTAL CONDITIONS

The building must be watertight with all windows and doors fitted and all wet trades complete before taking delivery of materials and before any timber finish installation can take place.

Always check the ambient room temperature and humidity, which should be maintained at a constant level above 18°C (64°F) with a relative humidity between 40% - 60%RH prior to, during and for the whole life of the panels. Try to avoid extremes of low or high temperatures as this will negatively affect the stability of the panels.

For the storage of panels, the environment should be at an optimal 20°C and between 40-50%RH. Store away from sunlight and in original packaging.

Acclimatise the panels in the conditions they will be used for 48 hours prior to usage. The panels should be maintained in their original packaging in this period. Only remove the materials from their packaging just before installation. The wood should be stored horizontally and out of direct sunlight, away from walls and radiators and on rigid boards over battens fully supporting the panels and prevent a build of heat on the bottom boards.

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

Keep the room temperature constant by using the heating set at minimum 18°C (59°F) or if there are problems with the permanent heating other forms of heating such as convector heaters can be used.

Do not use gas-type heaters as these will generate extra moisture in the air.

Infra-red type heaters do not generally warm the fabric of the room or the wood, they tend to only warm the person or item close to the heater.

Low humidity can cause the wood to shrink and high levels can cause expansion. Common causes of low humidity are using the heating at too high 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 level that can be easily adjusted by either placing moisture in the room (plants that are watered regularly or receptacles of water) or ventilating the room to reduce high levels of humidity. A humidifier/de-humidifier can also be used to control the atmosphere.

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

Wood will naturally change in size during seasonal variations in temperature and humidity.
During summer the humidity is generally at its highest level, hence the wood joins should be reasonably tight together. During the winter, when heating is commonly used, the humidity levels are generally lower and can produce small gaps between the joins. This occurrence is not a manufacturing or installation fault.

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HOW TO CUT THE ACOUSTIC PANEL

For cuts across the width, we recommend a sharp fine-toothed saw to cut through the slats and felt.

To cut lengthways, a craft knife can be used to cut through the felt.

HOW TO INSTALL THE ACOUSTIC PANEL

There are three different options for installation:

1. Screwing the panels into timber battens to achieve Class A sound absorption in combination with Rockwool:

   To achieve optimum sound absorption, we recommend screwing timber batons to the wall at no greater than 400mm centers and then screwing the panels directly into the battens through the acoustic felt. When combined with mineral wood behind the panels in between the battens, this will achieve Class A sound absorption at a mineral wool depth of 100mm.

2. Screwing directly into the wall:

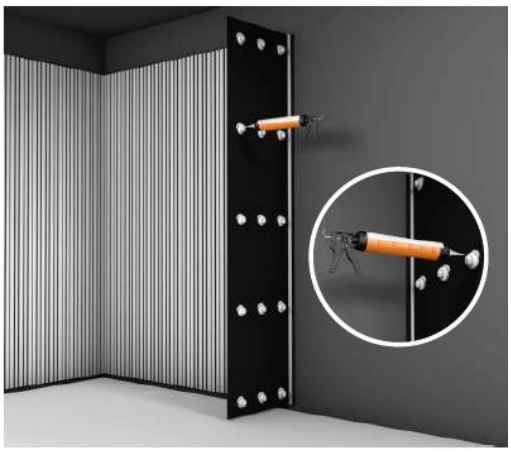
   By using Black Screws for the Black backing option or Silver or Grey screws for the Grey backed option (available on request). The panels can be screwed directly into the wall through the acoustic felt.

   We recommend a minimum of 8 screws per panel at 80mm intervals across the width and 400mm intervals down the length of the panel. If installing into ceilings, then make sure fixings are directly screwed into ceiling joists.

   Please make sure the appropriate fixings and plugs are used if fixing to plasterboard etc.

3. Gluing straight onto the wall

   Ensure that walls are dust-free and of an even porosity. If the surface is non-absorbent or has uneven porosity, use the appropriate primer prior to bonding panels to the wall. Use a suitable construction adhesive or contact adhesive to adhere panels to the wall. Apply adhesive to the panels (and substrate if using contact adhesive) with the appropriate trowel and ensure full adhesive contact with the panels while curing.



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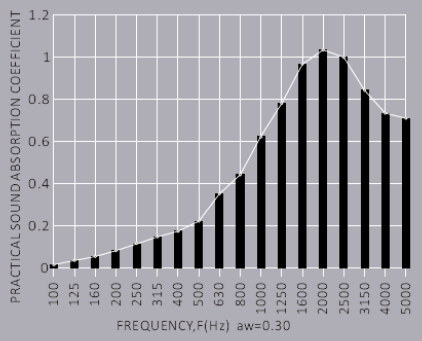
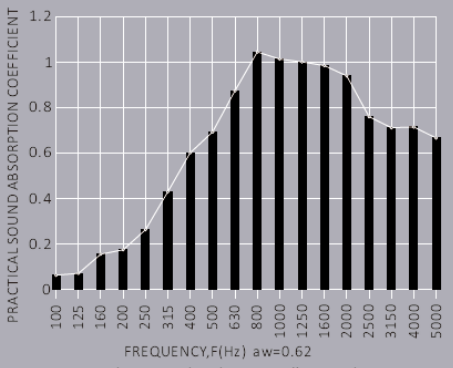
Laboratory measurements of sound absorption coeffcient were carried out in a reverberation room according to the test method of EN ISO 354:2003.

Panel mounted directly to the wall



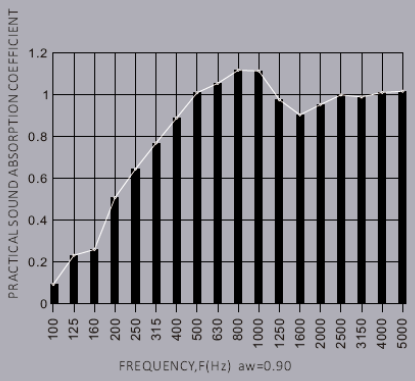
As seen in the graph, the 0.82" panel, mounted directly to the wall, obtains an absorption coefficient of 0.3 (MH).

Panel mounted with 1.8" timber batons spacing and mineral wool insulation



As seen in the graph, the 0.82" panel, mounted with 1.8"timber batons spacing and mineral wool insulation,obtains an absorption coefficient of 0.62 (MH).

Panels mounted on 3.94" pitch light steel joists and filled mineral wool insulation



As shown, the panels were mounted on light steel joists with 3.94" spacing from the wall and filled with mineral wool insulation for an absorption coefficient of 0.90 (MH).

FINISHING VENEERS AFTER INSTALLATION

We recommend adding a protective finish to the panels. Marldon Hard-Wax Oil is perfect as it protects and keeps the natural look and feel of the wood – please be aware that oil finishes may darken the wood slightly due to their wood-penetrating properties. Once this is applied, light dusting will prevent any dust build-up and damp cleaning with a suitable pH neutral cleaning solution for oiled wood surface scan be used. Always use pH neutral cleaning solutions for sealed wood surfaces and avoid excessive use of water when cleaning Elegante Veneer surfaces. If you choose to keep the panels without a finish, then a dry cloth can wipe the panels down. Please be aware that the open timber surface will be absorbent to dirt and spillages if no finish is applied.

N.B. Havwoods timber materials are designed to withstand the wear and tear of day-to-day life. Because wood is a natural material, it will react to the environment it is installed in – dry environments will cause a floor to lose moisture and humid environments will cause moisture to be gained. Using the correct cleaning products allows a wooden material to adapt to its surroundings while still looking and performing as required.

MATERIAL DESCRIPTION + TOLERANCES

Havwoods Acoustic Panels are an unfinished 12mm veneered MDF slat bonded to a 9mm non-woven fleece backing layer.

Detailed Technical Data Sheets are available for each product, the below is an overview of significant product features:

Elegante Veneer Dimensions:

Dimension	Measurement	Tolerance
Height	3000mm [94.5"]	±2mm [±5/64"]
Width	600mm [23.6]	±2mm [±5/64"]
Thickness	21mm	±1mm
Deviation of Squareness	-	±2mm/m
Moisture Content	-	5% - 9%

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

This relates specifically to the transition from construction-phase environmental conditions to normal operating conditions where Havwoods timber products are to be installed.

The concern relating to this project type is detailed in the expected Equilibrium Moisture Content (EMC) in the timber material as dictated by its environment:

Construction-Phase Environment Example
Temperature: 15°C
Ambient Relative Humidity (RH): 60%
EMC: 11.14%

Operational Environment Example
Temperature: 21°C
Ambient RH: 35%
EMC: 6.95%

Under the example transition above, the timber will lose over 4% of moisture content once the environmental control system is brought into operation. This equates to ~1% of dimensional contraction (typical 0.22% dimensional change per 1% change in EMC). If this transition is made too quickly, the timber will be subjected to a high level of stress and this can result in surface cracking, gaps between timber elements, distortion of timber elements and other undesired actions.

Because of this, there is a requirement to bring the heating/ac system into operation slowly in order to allow staged adaptation of the timber to the environment. This should be done as follows:

- Environmental conditions measured and recorded, and the temperature of the system set to that which is present in the environment at that time.
- The system should be allowed to operate at this temperature for at least 24 hours. RH should be monitored and recorded in the environment in this time.
- No more than 2°C increase in the system per 24-hour period with recordings to be made of RH.
- System brought up to operating temperature with each stage recorded and documented over several days with RH to also be recorded.
- An environmental measure should be in place (such as a LogTag temperature and humidity device) to monitor RH and provide an alert when RH levels fall below 30% so that plants or other moisture sources may be introduced.

The optimum performance of the timber will remain between 40-60% RH and between 18-30°C due to the 5%-9% moisture content at the time of manufacture. The above process is designed to prevent failure of the material under sudden exposure to altered environmental conditions.

Requirements for temporary heating (during the installation at construction phase) in colder months to be operational 24 hours a day remain. All efforts should be made to achieve temperatures of 18°C at the time of panel installation and until the project completion.

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