



## FOR TONGUE AND GROOVE ENGINEERED HARDWOOD FLOORING- INSTALLATION INSTRUCTIONS

Tongue and Groove Engineered Hardwood Flooring can be installed over most properly prepared subfloors and are engineered to be dimensionally stable, making them suitable for installation on all grade levels where general conditions meet requirements as outlined in this instruction and that all specific installation instructions are followed.

### 1. GENERAL GUIDANCE – BEFORE STARTING

#### Floorboard storage

The packs containing floorboards must be handled carefully during transport and unloading to avoid any mechanical damage. Floorboards in the original packaging should be kept in a dry place, in a horizontal position, on pallets or wooden beams to provide free space of at least 75 mm (3") between the boxes and the subfloor. Before the floor is delivered to a building provided with doors and windows, all "wet" works must be completed, e.g. plastering, construction of partition walls, screed application, skimming, painting, etc. These works must be finished and any wet materials must be at the same humidity level as during the normal use of the area. If there are any cellars below the floor installation area in the building, they must be dry and well ventilated. Multi-layer hardwood flooring should be kept in the original packaging in the room where it is to be laid for at least 48 hours to ensure the floor is acclimated. Additional air-conditioning systems installed in the house or dwelling should be activated at least 14 days before, during and after the installation of the floor. The relative humidity in the area where the hardwood flooring is stored and installed should be kept between 45% and 60%. The air temperature should be between +64.4°F and +75.2°F (+18°C to +24°C). The moisture content of the wooden substrate (wood-based panels) should not exceed 9%. The moisture content of the concrete substrate should not exceed 2% and that of the anhydrite substrate – 0.5%. The moisture content of the substrate should be measured using the carbide method. The measurement results should be recorded.

#### Responsibility

Before fitting the multi-layer hardwood floor, the developer/fitter or technician must ensure that the installation site meets all the applicable standards. Always comply with the recommendations of the building industry and local regulations. The manufacturer accepts no liability for improper working conditions on the installation site. Before installation the developer/ fitter or technician should inspect the multi-layer hardwood floorboards and confirm that they comply with the purchase order. The floorboards should be fully inspected and checked for the grade, quality, finish, gloss and color. The developer/fitter or technician is fully responsible for the final quality control of the multi-layer floorboards. If in doubt, the developer/fitter or technician should not use any of the boards considered to be unsuitable for installation and should contact the seller immediately.

When ordering the floor, a waste factor up to 7% should be taken into account. If the boards are to be laid diagonally or connected along a curved line with other floor types, a waste factor of up to 10% should be taken into account. The manufacturer accepts no responsibility if the floor is laid outdoors, in bathrooms, in areas exposed to relative humidity levels other than from 45% to 60%, in areas exposed to direct contact with water or other liquids, in areas where the temperature is other than from +64.4°F to +75.2°F (+18°C to

+24°C).

The final inspection by the end user should be carried out while in the standing position.

#### Important for fitters

Sawing, sanding and processing of hardwood products and wood-based materials can produce wood dust. Airborne wood dust can cause irritation of the respiratory system, eyes and skin. The International Agency for Research on Cancer (IARC) has classified wood dust as a human carcinogen.

#### Precautions

If electric saws are used for cutting boards or wood-based materials, they must be provided with dust extractors. The fitter should always use an appropriate NIOSH-certified dust mask and safety goggles during cutting operations. Always protect your eyes and skin against contact with wood dust. In case of irritation from wood dust, rinse the eyes or skin with clean water for at least 15 minutes.

If you have any questions about the installation and maintenance of the floor or you would like to receive a Safety Data Sheet, please contact your local retailer, or visit our website at [www.hardwood-installation.eu](http://www.hardwood-installation.eu).

IMPORTANT HEALTH INFORMATION ALL OF OUR NORTH AMERICAN PRODUCTS MEETS CURRENT TSCA TITLE VI STANDARDS AND ARE CARB 2 COMPLIANT AND FLOORSCORE CERTIFIED. THESE CONSTRUCTION MATERIALS CAUSE FORMALDEHYDE EMISSIONS. EXPOSURE TO FORMALDEHYDE HAS BEEN REPORTED TO CAUSE IRRITATION OF THE EYES, NOSE AND THROAT, HEADACHE, SICKNESS AND A VARIETY OF ASTHMA-LIKE SYMPTOMS, INCLUDING SHORTNESS OF BREATH. THE ELDERLY, OLDER AND YOUNGER CHILDREN, AND ANYONE WITH A HISTORY OF ASTHMA, ALLERGIES OR LUNG PROBLEMS MAY BE AT HIGHER RISK. RESEARCH INTO THE POSSIBLE EFFECTS OF LONG-TERM EXPOSURE TO FORMALDEHYDE ARE ONGOING. INSUFFICIENT VENTILATION MAY CAUSE THE ACCUMULATION OF FORMALDEHYDE AND OTHER AIRBORNE CONTAMINANTS INDOORS. FORMALDEHYDE LEVEL IN THE AIR TENDS TO INCREASE WITH HIGH TEMPERATURES INDOORS AND HIGH HUMIDITY. IF YOUR HOUSE IS EXPOSED TO EXTREME TEMPERATURES IN THE SUMMER, YOU MAY USE AN AIR-CONDITIONING SYSTEM TO CONTROL THE TEMPERATURE INDOORS. OTHER UNITS AND SYSTEMS DESIGNED FOR CONTROLLED MECHANICAL VENTILATION MAY ALSO BE USED TO REDUCE THE LEVEL OF FORMALDEHYDE AND OTHER AIRBORNE CONTAMINANTS INDOORS.

IF YOU HAVE ANY QUESTIONS ABOUT THE HEALTH EFFECTS OF FORMALDEHYDE, PLEASE CONSULT YOUR DOCTOR OR A LOCAL HEALTH CARE CENTRE.

#### WARNING:

IF THERE ARE ELASTIC FLOOR COVERINGS AND ASPHALT-BASED ADHESIVES IN THE HARDWOOD FLOOR INSTALLATION AREA, AVOID GRINDING, DRY SWEEPING, DRY SCRAPING, DRILLING, SAWING, SHOT-BLASTING AND USING MECHANICAL METHODS FOR REMOVING THE EXISTING FLOOR COVERINGS, FLOOR SUBSTRATES, ASPHALT-BASED ADHESIVES OR ANY OTHER ADHESIVES!

The existing materials should be presumed to contain asbestos and/or crystalline silica. Avoid the formation of dust. Inhalation of dust creates the risk of cancer and respiratory problems. If a product is not known to be free of asbestos, it should be presumed to contain asbestos. Smoking by people exposed to contact with asbestos fibers significantly increases the risk of serious injuries. Under regulations of law it may be



required to test materials for the asbestos content as well as to follow specific procedures for their removal and disposal. For guidance on the removal of resilient floor coverings, see the current edition of the guidebook published by the Resilient Floor Covering Institute (RFCI): 'Recommended Work Practices for Removal of Resilient Floor Coverings' or contact your distributor or retailer where you purchased the material.

Hardwood floorboards delivered in this pack DO NOT CONTAIN ASBESTOS.

## 2. STANDARDS REQUIREMENTS FOR SUBSTRATE

The purpose of the recommendations for the quality of the substrate is to ensure the correct installation of multi-layer floorboards. They are in no way intended to replace any federal, state or local building regulations.

Multi-layer floor can be laid on substrates which meet the following standard requirements:

**Flat** – the maximum unevenness of the substrate should not exceed 1/8" (3 mm) over 6.56 ft (2 m) when measured with a level. Any recesses or uneven areas should be filled with special materials designed for this purpose. The maximum horizontal offset over the entire floor area must not exceed 3/16" (5 mm).

**Dry** – concrete substrates should be cured for at least 60 days. The moisture content of the concrete substrate should be tested using the calcium carbide test (carbide method) and the result must not exceed 2 % for concrete substrates and 0.5% for anhydrite substrates. The moisture content of the wooden substrate (wood-based panels) should not exceed 9%. The measurement results should be recorded.

**Clean** – free of dirt, cement, putty, plaster, paint, oil, glue, plaster or other residues. Floors are not suitable for installation on substrates cleaned by chemical methods.

### WOODEN SUBSTRATE – REQUIREMENTS

Multi-layer boards can be fixed to the wooden substrate such as solid wood boards, OSBs or other boards specified below. This substrate should be permanently fixed to the subfloor (e.g. wooden beams) using staples or nails. Any "squeaky" areas should be fixed by nailing or screwing them down prior to installing the new floorboards. The spacing between the fasteners fixing the wooden substrate to the beams should be about 6" (15 cm). Any delaminated, swollen and damp panels should be replaced with new ones. The spacing between the beams under wood-based panels should be in accordance with the relevant building regulations. The moisture content of the wooden substrate should not exceed 9% when measured with needle meter. As a manufacturer of multi-layer hardwood floors, we are not able to assess every underlay on which the floor is to be installed. The responsibility for choosing the spacing and distances, and assessing the substrate lies with the developer, engineer, architect or consumer, who are in a better position to evaluate the expected result based on test results for the floor installation area. **Hardwood plywood** should be at least CDX class (display 1) and meet the US

Voluntary Product Standard PS1 or Canadian CAN/CSA 0325-0-92 performance standards. The optimum thickness is 3/4" (19 mm) for the substrate [at least 5/8" (16 mm) and 3/8" (9.5 mm) for the floor underlay.

**OSBs** should meet the US Voluntary Product Standard PS2 or Canadian CAN/CSA 0325-0-92 performance standard for structural coatings. Check the panel code on the underside. When used as the floor underlay, the panels should be tongue-and-groove boards laid with the impregnated side facing down. The minimum thickness is 23/32" (18 mm) for the substrate and 3/8" (9.5 mm) for the underlay.

**Waferboards and chipboards** should meet the US Voluntary Product Standard PS2 or Canadian CAN/CSA 0325-0-92 performance standards. The minimum thickness is 3/4" (19 mm) for the substrate and 3/8" (9.5 mm) for the underlay.

**Chipboards** should have a density of at least 40 pounds/cubic feet. (641 kg/m<sup>3</sup>).

**Solid wood underlay** should be fitted using glue-down or staple-down installation. Thickness min. 3/4" (19 mm) and width max. 6" (15 cm) at 45° with respect to the beams. Coniferous wood from density group 1 (pine, larch, green Douglas, etc.) No. 2 common dried wood, all board ends on beams.

A 3/8" (9.5 mm) floor panel of the approved type can be added for the glue-down installation procedure.

### CONCRETE SUBSTRATE – REQUIREMENTS

The glue-down procedure is not recommended for installation of multi-layer floor on lightweight concrete substrate. To check if the substrate is made of lightweight concrete, scratch the substrate surface with steel stylus (Fig. 1). If the surface is easy to scratch and the edges of the line crumble, the concrete does not have sufficient strength for gluing multi-layer boards.



The glue-down procedure should only be used with concrete grades 3,000 psi or higher. Glue-down installation on lightweight concrete (less than 3,000 psi) is not permitted.

Always perform the glue bonding test before starting glue-down installation.

The moisture content of the substrate should not exceed 2% when measured using the carbide method. The measurement should be performed out in areas which are most exposed to increased humidity – under stairs, in corners or areas with no direct exposure to sunlight.

### Installation over water underfloor heating

When fitting multi-layer floorboards over water underfloor heating, the screed heat-up procedure should be performed. The procedure involves heating up the floorboards at regular intervals to eliminate any residual moisture from the screed and to avoid the risk of

hazardous stress in the underlay.

For the screed heat-up procedure, see [www.hardwood-installation.eu](http://www.hardwood-installation.eu). Following the underlay heat-up process, you can start laying the floor.

For fitting the floor over underfloor heating use the glue down installation procedure.

### Underfloor heating

When fitting a glued floor, make sure that the glue retains its properties and flexibility even when exposed to significant temperature differences. Glue is not produced by the flooring manufacturer, and therefore you should use products designed for floor installation. There are special pictograms and information on the packaging to indicate if the specific glue can be used for floor installation over underfloor heating. Manufacturer recommends hiring a professional parquet floor company for glue-down floor installation.

#### Attention!

When checking the underlay using a 6.56 ft (2 m) level, the offset of the underlay from the horizontal must not exceed 1/8" (3 mm) over 6.56 ft (2 m) at any point on the surface.

### All multi-layer hardwood floorboards can be laid over water underfloor heating. Guidelines for fitters and users of hardwood

#### floors over water underfloor heating

1. To ensure the optimum floor covering for installation over underfloor heating, use ready-made three-layer hardwood boards.
2. Make sure that the glue you have chosen to use will retain its properties and flexibility throughout many years, even when exposed to significant temperature differences.
3. Installation of floorboards over underfloor heating can only be started after the heating subfloor heat-up report has been prepared and signed by a properly qualified installation team. If the heating
10. At the end of the heating season, the temperature should be gradually reduced by about 33.8°F (1°C) or 35.6°F (2°C) per day. **CAUTION: The temperature at the floor surface must never exceed 84°F (29°C).**

### 3. GLUE-DOWN INSTALLATION

#### Recommended tools and materials for floor installation:

- Safety goggles
- NIOSH-certified dust mask
- Wood/concrete moisture meter
- Appropriate glue for fitting multi-layer boards
- Primer system for glue – if required by the glue manufacturer
- Roller for primer application
- Putty knife for removing residues from the substrate
- Appropriate steel trowel recommended by the glue manufacturer
- Steel hammer 1.5lbs to 2.5lbs (800 g to 1000 g)
- Vacuum cleaner or sweeping brush
- Expansion wedges
- Tapping block
- Tape measure
- Pencil
- Mitre saw or table saw
- Trimmer
- Trowel for glue application
- Glue remover
- Cleaning cloths
- Knee pads

system is turned off during the screed heat-up process, the floor should be laid at this 70°F (21°C) for several days before starting the installation and the floor should be laid at this temperature. The screed heat-up process should also be performed in the summer. The screed heat-up procedure should only be used when laying floor over water underfloor heating.

4. To ensure the correct installation of the floor, make sure that the humidity level does not exceed the acceptable levels when the floor is being laid or later when it is used. The appropriate humidity level for flooring boards is 7% ± 2%.
5. To achieve the optimum temperature, it should be kept at 21°C (70°F) during the first 48 hours after installation, and then increased by 1-2 degrees per day. The heating level should not exceed 84°F (29°C) at the surface of the floorboards. The relative humidity in the area must be maintained at 45-60% throughout the year, whether the heating system is on or off.
6. The moisture content of the screed must not exceed:
  - 1.8% for cement screed when measured using the carbide method (CM),
  - 0.5% for anhydrite screed when measured using the carbide method (CM).
7. To prevent uneven expansion/contraction of wood, the entire floor area should be provided with heating. This will also help to ensure the best possible comfort of use (without any 'cold spots' over the floor surface).
8. Hardwood floor installed over underfloor heating must not be covered with professionally installed carpets, however small accent rugs are allowed. All furniture placed over under-floor heating, such as sofas, should have legs at least 4" (10 cm) high.
9. Small gaps may be observed between the boards during the heating season due to the minimum expansion/contraction of wood.

- Protective gloves
- Floor shunting tool
- Carpenter's square

#### General requirements:

Before starting the floor installation, the central heating and air-conditioning systems should remain switched on for 14 days. The boards in the original packaging should be acclimated in the room where they will be laid for at least 48 hours.

The floor should be laid at room temperature from +64.4°F to +75.2°F (+18°C to +24°C) and relative humidity between 45% and 60%.

Do not install the floor if the moisture content of the underlay and the relative humidity exceed the acceptable levels!

Always follow the instructions of the glue manufacturer during the installation. The glue coverage rate, the correct primer and trowel should be indicated by the glue manufacturer.

Choose the direction of boards in the installation area.

Work out of several boxes at a time to ensure an even color and shade distribution over the whole floor.

Do not use boards which show visible signs of damage! Return them to your retailer for replacement!

Complaints concerning boards with visible damage which have

been installed will not be accepted!

When working in rooms being renovated, remove all existing skirting boards/trim or plinths. Make an off-cut in the door frames. Remove the existing thresholds and strips from the frames. You can replace these elements after the floor has been installed.

When making an off-cut in the door frame, the fitter should make sure that there is the recommended expansion gap. The floor must have a clearance of 1/16 inch under the door frame to allow free lifting without vertical restrictions. The fitter should ensure that the board under the door frame can move freely.

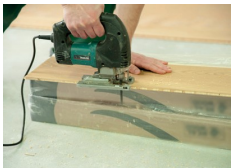
Do not use rubber hammers to avoid non-removable marks on the surface of the boards! Avoid walking on recently installed boards for at least 24 hours.

#### Floor installation procedure:

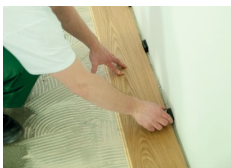
Before installation use a putty knife to remove any residues from the substrate. Vacuum or sweep the surface



Cut off the tongue in the boards to be installed in the first row.



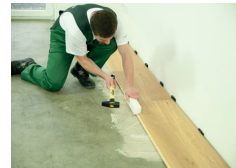
According to the manufacturer's instructions, apply the glue using a notched trowel recommended by the glue manufacturer. Glue should be distributed over a maximum of two rows of boards. The interval between applying the glue and laying the boards should not exceed 30-40 minutes. When fitting boards using expansion wedges, use expansion gaps at least 7/16" (11mm) wide. An expansion gap should be made along the perimeter of the room and around any other obstructions. Start the installation at the left side of the wall and continue towards the right side.



Fit in another board next to the first board. The boards should touch each other along the shorter edge. Begin the second row, starting with the off-cut from the first row. The recommended minimum length for the board starting the next floor row is 12" (300 mm). The recommended offset of connections between the boards along the shorter edge is 20" (500 mm). Continue laying the floor across the room.



During the installation use a tapping block and a hammer to fit in the boards together along the longer edge. Take care not to spread glue to the tapping block and the top layers of the boards. If the topping bar and boards are dirty, remove the glue residues using the agent recommended by the glue manufacturer. Glue hardened on the floor surface can cause damage to the walk-on floor layer.



Fit the last board against the wall by tapping it with parquet shunting tool. Remember to leave an expansion gap of at least 7/16" (11mm).



REMOVE ALL EXPANSION WEDGES BEFORE STARTING THE INSTALLATION OF SKIRTING

BOARDS / TRIM. If the floor is to be covered/secured, use breathable material such as regular or corrugated cardboard. Do not cover the floor with plastic materials, e.g. foil. For the product and the floor care and maintenance guide, see [www.wood-installation.eu](http://www.wood-installation.eu).

After the skirting boards / trim have been installed, the floor is ready for use.



#### 4. STAPLE-DOWN INSTALLATION

##### Recommended tools and materials for floor installation:

- Safety goggles
- NIOSH-certified dust mask
- Wood moisture meter
- Putty knife for removing residues from the substrate
- Steel hammer 1.5lbs to 2.5lbs (800 g to 1000 g)
- Vacuum cleaner or sweeping brush
- Pneumatic stapler
- Zinc-plated staples of length 1.5" (38 mm).
- Expansion wedges
- Tapping block
- Tape measure

- Pencil
- Mitre saw or table saw
- Trimmer
- Knee pads
- Protective gloves
- Floor shunting tool
- Carpenter's square

**General requirements:**

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Before starting the floor installation, the central heating and air-conditioning systems should remain switched on for 14 days.

The boards in the original packaging should be acclimated in the room where they will be laid for at least 48 hours.

The floor should be laid at room temperature from +64.4°F to 75.2°F (+18°C to +24°C) and relative humidity between 45% and 60%.

Do not install the floor if the humidity of the underlay and the air exceeds the acceptable levels! The moisture content of the wooden substrate should be 9% ± 2%.

Choose the direction of boards in the installation area. Work out of several boxes at a time to ensure an even color and shade distribution over the whole floor.

Do not use boards which show visible signs of damage! Return them to your retailer for replacement!

Complaints concerning boards with visible damage which have been installed will not be accepted!

When working in rooms being renovated, remove all existing skirting boards /trim or plinths. Make an off-cut in the door frames. Remove the existing thresholds and strips from the frames. You can replace these elements after the floor has been installed.

When making an off-cut in the door frame, the fitter should make sure that there is the recommended expansion gap. The floor must have a clearance of 1/16 inch under the door frame to allow free lifting without vertical restrictions. The fitter should ensure that the board under the door frame can move freely.

Do not directly use rubber hammers on the installed floor boards to avoid non-removable marks on the surface of the boards!