

Installation Instruction

Engineered Hardwood Flooring

Congratulations on the purchase of your new floor. We thank you for your excellent selection of a Twelve Oaks product that is designed to offer you years of use and enjoyment.

Twelve Oaks Engineered Hardwood floors can be installed above, on, or below grade.

IMPORTANT

- To ensure that your floor is installed properly, Twelve Oaks requires that you CAREFULLY READ AND FOLLOW the installation instructions BEFORE you or a hired authorized professional install Twelve Oaks products. FAILURE TO DO SO WILL VOID YOUR PRODUCT WARRANTY.
- It is the INSTALLER/OWNERS' RESPONSIBILITY to inspect all material carefully BEFORE installation, and ensure the product match what has been ordered/chosen. If you have any doubts or concerns in regards to the quality of Twelve Oaks flooring products, report to your retailer BEFORE installation. INTALLATION IMPLIES ACCPECTANCE. NO CLAIM AGAINST MATERIAL OR LABOR WILL BE ACCPETED BY TWELVE OAKS ONCE THE MATERIAL IS LAID OR INSTALLED.
- It is the INSTALLER/OWNERS' RESPONSIBILITY to ensure the job-site, the ambient, and the sub-surfaces conditions MEET all of Twelve Oaks' requirements.
- Wood is a natural product containing natural variations in color and grain configurations. Twelve Oaks hardwood floors meet the industry standards, which permits up to 5% of grading deficiencies. A 5% material waste allowance should be included within your total square footage (10% for diagonal installation is suggested)
- The selection of mechanical fasteners, such as nailer/stapler, varies by manufacturers. It is the INSTALLER'S LIABILITY to ensure that tools are properly set. Dimpling of the wood face, as a result of improper setting is NOT considered a manufacturing defect. It is recommended to test on a couple of pieces before full install. Particularly in installations of 90 degrees to outside walls, dimpling could be very apparent under direct sunlight.
- Do NOT use a rubber mallet to engage the tongue and groove. Use a tapping block instead. Rubber mallets will leave abrasive market (dull spots) and chipped edges on the floor
- Crawlspace or basement has to be cross-ventilated, and covered entirely with proper vapor barriers

(minimum 6 mil black polyethylene), in accordance with NWFA Installation Guidelines.

- End joint separation can result from uneven subfloors. Ensure the subfloor is level within **3/16" in 10' radius** (5mm in 3m).

TOOLS

Basic tools and accessories: broom/vacuum, chalk line, tapping block, wood flooring surface cleaner, hand or electric jam saw, miter saw, wood/concrete moisture meter, safety wear, straight edge, table saw, tape measure, square, utility knife, pry bar

Applicable to Glue-down method: moisture-cured urethane hardwood floor adhesive as warranted by professional installer

Applicable to staple/nail down method: Proper fastener, with the nailer/staplers set for the specific plank thickness.

Applicable to floating floor method: Twelve Oaks All-in-One Underlayment or equivalent

SAFETY - EXISTING FLOOR

Do not mechanically chip or pulverize existing resilient flooring, backing, lining felt, asphaltic "cutback" adhesives or other adhesives. These products may contain either asbestos fiber and/or crystalline silica. Inhaling such dust is a cancer and respiratory tract hazard. Always follow local health and safety regulations.

STORAGE AND HANDLING

It is important to not transport flooring product under raining and/or damp conditions. Handle and unload flooring product with care, and store in a dry and well ventilated place, being sure to provide at least a 4" (10 cm) air space under cartons. Flooring shall not be delivered until the building has been enclosed with windows, doors are in place, and cement work, plastering and all other "wet" work are completed and dry. HVAC systems must be in place and in operation at least 14 days prior, during and after installation of the flooring.

JOBSITE CONDITION & PRE-INSTALLATION REQUIREMENT

Exterior grading must be completed with surface drainage offering a minimum drop of 3" in 10' (7.6cm in 3m) to direct flow of water away from the building. All gutters and drainage spouts must be in place. The soil around the house must be treated or graded to provide sufficient drainage.

Do NOT install hardwood floors in areas exposed to excessive moisture. Acclimatize the hardwood flooring products on jobsite. Material is acclimated once it has reached moisture equilibrium consistent with the ambient temperature and relative humidity of the job site conditions listed below.

It is required to maintain the relative humidity level where floor is installed at between **35% and 55%**, and room temperature be consistently kept at **65-80°F (18-27 °C)**. These ambient conditions are specified as pre-installation requirements and must be maintained for the life of the hardwood floor.

SUBFLOOR CONDITIONS AND INSPECTION

Twelve Oaks hardwood engineered products are designed to perform on concrete, plywood, or O.S.B. subfloors.

IMPORTANT

- Installer/owner is responsible for determining if the jobsite, subfloor, other conditions are environmentally and structurally acceptable for wood floor installation. Twelve Oaks declines any responsibility for wood product failure resulting from or connected with subfloors, subsurface, jobsite damage or deficiencies after floors have been installed.
- Wall to wall carpeting must be removed before installing your new hardwood floor

1) STRUCTURALLY SOUND

Nail or screw down the subfloor (plywood or OSB) if there are any loose areas; otherwise, hardwood that are glued or nailed to the subfloor may squeak. It is recommended to install hardwood floor over plywood, CDX and/or concrete. Replace any water-damaged, swollen or delaminated subfloor/underlayment.

2) LEVEL & FLAT

Avoid subfloors with excessive vertical movement. Using a straight edge or level, check to ensure the subfloors is within **3/16" in 10' radius** (5mm in 3m) or **1/8" in 6' radius** (3mm in 2m). Use a cement leveling compound that has strength no lower than 3000 p.s.i. to patch/fill any low areas. Follow the cement leveling compound manufacturer's instruction to avoid overfill in deep voids.

3) CLEAN

Inspect to ensure the subfloor is free of any imperfections. Sweep or vacuum thoroughly to make sure there is no wax, paint spills, oil, debris, or anything that could impede adhesion to the subfloor.

4) DRY

Conduct appropriate moisture test from several different areas of the subfloors and record readings. Subfloor moisture content must not exceed 4% for concrete or 12% for plywood/OSB. It is the responsibility of the installer/owner to verify and ensure the moisture contents are within the requirements prior to installation.

Subfloors

PLYWOOD:

3/4" (19mm) CDX plywood subfloor is preferred, but minimum thickness of 5/8" is required.

O.S.B.:

3/4" OR 23/32" stamped exterior grade is approved. Install hardwood at 90 degree angle to joists only.

CONCRETE:

Allow a minimum of 60 days for new concrete to cure before installation. If moisture reading exceeds 4% from concrete moisture test, a calcium chloride test must be conducted to verify if moisture level exceeds 3 lbs /1000 sf. /24 hrs.

The following tests are required for commercial application. Both tests should be performance prior to installation.

- Calcium Chloride Test (ASTM F1869): Moisture less than 3 lbs/1000 sf./24 hrs.
- Relative Humidity Level in concrete using In-situ Probes (ASTM F2170-02): Not exceeding 75%

OTHER:

Glue-down and Floating installation allows hardwood to be installed over ceramic, Terrazzo, and other hard surfaces. It is the installer/owner's responsibility to ensure the surfaces are dry, clean, structurally sound, and level, as described in subfloor requirements.

RADIANT HEAT

When installing over radiant heat, precautions must be taken to ensure a gradual temperature change so that the hardwood flooring doesn't dry out too quickly. Prior to attempting install over radiant heat, ambient and subfloor requirements must all be met. The heating system must be inspected by a qualified heating installer.

Though not recommended, Twelve Oaks hardwood floors can be installed over in-floor radiant heating systems provided that the subfloor surface does not exceed **85°F** or (29°C) at any point. The initial floor temperature must not exceed 70°F for 24 hours prior to and 48 hours post

installation. Thereafter, the temperature should be gradually increased by no more than 5°F per day to the desired setting, never exceeding to 85°F. Relative humidity of between 35% and 55% must be maintained before, during, and after the installation.

NOTE: Seasonal gapping and face checking of your hardwood floor should be expected with radiant heat installation. Warranty will be voided if an improper installation over radiant heat system is demonstrated.

PREPARATION

Remove existing carpet, baseboards, moldings (if applicable), wall-base, and thresholds. Undercut all door castings with a hand or power jam saw using a scrap piece of floor plank as a guide. Ensure doors can still open and close after installing the floor (leave a minimum of 3/8" or 1cm clearance).

When installing wood floor with natural variations, be sure to blend the planks from several cartons to ensure a good mixture of grain and shading throughout the install. Always stagger planks 8" between end joints of adjacent plank rows for aesthetic and structural stability purposes. Avoid "H" patterns and other discernible patterns in adjacent rows. Discard any pieces shorter than 8" at the end of any row.

Sufficient expansion gaps (13mm or 1/2") must be always respected between flooring and any vertical rise.

Do not allow foot traffic or heavy furniture on newly installed floor for at least 24 hours.

GLUE DOWN INSTALLATION

IMPORTANT

- Use only moisture-cured urethane adhesive, trowel size, and spread rate specified for hardwood floors. Temperature and humidity can affect the flash and working time of the adhesive. Follow the adhesive manufacture’s instruction carefully, and spread out a small amount on subfloor to test for adhesion bonding. Warranty may be voided when there is improper use of adhesive or trowels.
- Always hold the trowel 45° angle, pressing firmly. Replace trowel when teeth are worn for an even and permanent bond
- Clean any adhesive off floor surface before it cures, using only products specified by the adhesive manufacturer
- Always allow for adequate cross ventilation when working with flooring adhesives

Step 1: Install planks parallel to the exterior wall, which is usually the longest and straights. Allow 1/2" expansion space, and snap a chalk line parallel to the wall. For instance, for hardwood plank width 5", add 1/2", and snap a chalk line 5 1/2" from the exterior wall.

Step 2: Evenly apply a full-spread of adhesive with a trowel, up to the chalk line. Be mindful of the specified flash time and working time.

Step 3: Once set, place the planks into the adhesive with the groove side on the chalk line with tongue side facing exterior wall. Ensure the first row exactly align with the chalk line. If you choose to top nail the first row, make sure to use finishing nails for wood subfloor, and pin nails for concrete.

Step 4: Cut off the last piece in the starting row, leave 1/2" gap from all vertical rises. Place tongue into groove of plank and press firmly. Never drag planks along wet adhesive, use tapping block to fit the planks together instead. The planks along the wall may have to be scribed and cut to fit in order to maintain appropriate expansion space. Continue remainder of the install in the same manner.

Step 5: Remove expansion spacers only after the adhesive has properly cured. Reinstall base and/or quarter round moldings to cover the expansion space. Install transitions pieces such as reducer strips and T-moldings as needed*.

STAPLE/NAIL DOWN INSTALLATION

IMPORTANT

- The selection of nailers/staplers varies by manufacturers. Therefore, it is the installer’s liability to ensure depth gauge is appropriate for the thickness of the flooring. Dimpling as a result of improper setup is NOT considered a manufacturing defect. It is recommended to test a couple of pieces beforehand.
- For planks wider than 4", we strongly recommend gluing the bottom and ends of the plank with adhesive, in a "lazy S" pattern, prior to stapling the flooring down.
- It is recommended to run hardwood planks perpendicular to the joist (at 90°)
- Must follow the fastener schedule below

<i>Plank thickness</i>	<i>Stapler size to be used</i>
1/2"	≥1 3/4", 18 gauge staples with 1/4" crowns
5/8"	≥2", 16-18 gauge staples with 1/4" crowns
3/4"	≥2", 16-18 gauge staples with 1/4" crowns

Step 1: Install planks parallel to the exterior wall, which is usually the longest and straights. Allow 1/2" expansion

space, and snap a chalk line parallel to the wall. For instance, for hardwood plank width 5", add ½", and snap a chalk line 5½" from the exterior wall.

Step 2: Place the tongue side on the chalk line and the groove side facing the exterior wall. (This placement is the opposite of Glue-down installation method). Ensure the first row exactly align with the chalk line.

Step 3: Blind nail on a 45° angle into plank's tongue at approximately every 4-6" interval. Complete the entire first row along the chalk line, and check to ensure that you can maneuver your nailer without hitting any walls/objects. A second row of blind nailing may be required. Do not face nail on the second row.

Step 4: Nail/staple planks at 4"-6" interval and 1" on both ends. Install the rest of the space in the same manner.

Step 5: If it is necessary to cut trim the width of a plank to fit, measure and cut plank on a table saw. Be sure to leave appropriate expansion space when installing. Remove expansion spacers. Reinstall base and/or quarter round moldings to cover the expansion space. Install transitions pieces such as reducer strips and T-moldings as needed*.

FLOATING FLOOR INSTALLATION

IMPORTANT

- ½" expansion gap must be respected between flooring and all vertical rises.
- When installing any moulding, ensure it does not inhibit the floor's ability to move. The drywall should be undercut to obtain the necessary expansion space.
- Do not install cabinets or walls on top of the flooring when using Floating Installation Method.

Step 1: To ensure optimal acoustic and stable performances, use Twelve Oaks All-In-One Underlayment. For ease of installation, roll out the underlayment in the same direction as the engineered planks. Tape edges of underlayment together, without overlapping

Step 2: Make sure the starting wall is straight and perpendicular to the room. Place first row of planks with the groove side facing starting wall. Use wedges/spacers to help keep the flooring from shifting/moving during installation.

For Tongue-and-Groove Engineered collections only:

Step 3: Apply hardwood adhesive to the grooves of each plank (sides and ends). Follow adhesive manufacturer's instruction carefully. Tap the tongue and grooves together. Do not hit planks directly with rubber mallet, as it may chip the edges or leave abrasion marks on the floor.

For Click Engineered collections only:

Step 3: Align planks, click the end joints into place against the end of the previous plank. Carefully interlock the click profile (tongue and groove) by pushing down. Slight adjustment of the planks may be required to ensure a proper fit. Do not hit planks directly as it may chip the edges or leave abrasion marks on the floor.

Step 4: Continue to complete the install area in the same fashion. On the last row, use a pull bar, if necessary, to install the last planks in place. Leave spacers in until the adhesives have cure according to manufacturer's instruction. Install transitions pieces such as reducer strips and T-moldings as needed*.

* Twelve Oaks carry color-coordinated moulding for each of our engineered hardwood SKUs.