



Essential Oak Engineered Wood Flooring

Installation

IMPORTANT

Please read the following information and instructions in their entirety before proceeding with installation.

- To ensure the full benefit of warranties, these instructions and maintenance procedures must be followed.
- Hardwood flooring is a beautiful product with natural variations in color, tone and grain. We cannot warrant against color variations within a floor nor variations between samples and the installed floor.
- Subfloors must be dry, level and clean.
- Both room and flooring must be properly acclimated to temperature and humidity conditions.
- Installers: Inform your customers of the details in section: "Installers - Advise Your Customer of the Following."
- Do not open flooring packages until you are ready to begin installation.
- Work out of several cartons at the same time to ensure color and shade mix.
- This flooring may be laid over radiant heating provided there is effective and uniform heat distribution over the entire floor. The floor's surface temperature must never exceed 80°F. in any place. Maple, Beech, Ash and Asian Jatoba expand and contract more than other wood species. There is a greater risk of gaps occurring with these species especially when installed over radiant heating systems. Such gaps are NOT manufacturing defects and are not covered by the warranty.
- Do not use water based adhesives over sheet vapor barriers or sound insulation.
- Do not nail or staple 5/16" thick flooring planks.
- Not recommended for bathroom or other high moisture installations.
- Use of stain, filler or putty stick for defect correction during installation should be accepted as normal procedure.

INSTALLER/OWNER RESPONSIBILITY

Beautiful hardwood floors are a product of nature. This flooring is manufactured in accordance with accepted industry standards, which permit a defect tolerance not to exceed 5%. The defects may be manufacturing or natural.

- When flooring is ordered, **5% must be added to the actual square footage needed** for cutting and grading allowance.
- **The installer assumes all responsibility for final inspection of product quality.** This inspection of all flooring should be done before installation. Carefully examine flooring for color, manufacturing, factory finish and quality before installing it. The installer must use reasonable selectivity and hold out or cut off pieces with defects, whatever the cause. If material is not acceptable, do not install it and contact the seller immediately.
- Prior to installation of any hardwood-flooring product, the installer must **determine that the job-site environment and the subfloors involved meet or exceed all applicable standards** and recommendations of the construction and materials industries. These instructions recommend that the construction and subfloor be dry, stiff and flat. The manufacturer declines any responsibility for job failure resulting from or associated with sub-surface or job-site environmental deficiencies.

ATTENTION INSTALLERS, CAUTION: WOOD DUST

Sawing, sanding and machining wood products can produce wood dust. Airborne wood dust can cause respiratory, eye

and skin irritation. The International Agency for Research on Cancer (IARC) has classified wood dust as a nasal carcinogen in humans.

Precautionary Measures: If power tools are used, they should be equipped with a dust collector. If high dust levels are encountered, use an appropriate NIOSH-designated dust mask. Avoid dust contact with eye and skin.

First Aid Measures in case of Irritation: In case of irritation, flush eyes or skin with water for at least 15 minutes.

Material Safety Data Sheets are available at 1-800-318-0316

TOOLS NEEDED FOR INSTALLATION

- Handsaw, circular saw or jigsaw
- Chalk line
- Hammer
- Tape measure
- Pull bar
- Tapping block
- Wooden or plastic spacer wedges
- Moisture meter (wood, concrete or both)

For glue-down installations, use DriTac® 6200, DriTac 9200, Parabond® Millennium 2002, Bostik Best®, Taylor 2071 or equivalent flooring adhesive (See your distributor for adhesive recommendations.) Follow manufacturer's guidelines and tool recommendations when using adhesive. Do not use water based adhesives over sheet vapor barriers or sound insulation.

For nail-down or staple-down installations, use the proper nailer. See Nail-Down or Staple-Down Installation.

For floating installations use white wood glue (PVAC). CAUTION: By not using proper tools, "puckering" may result on the face of the plank. The manufacturer is not responsible for problems caused by use of improper tools. See your distributor for tool recommendations and use.

Note: Never hit the planks directly with a hammer. Always use a wooden block to protect the edges of the boards.

INSTALLERS - ADVISE YOUR CUSTOMER OF THE FOLLOWING:

SEASONS: HEATING AND NON-HEATING

Recognizing that wood floor dimensions will be slightly affected by varying levels of humidity within your building, care should be taken to control humidity levels within the 30-50% and 60°-75° Fahrenheit temperature range. To protect your investment and to assure that your floors provide lasting satisfaction, we recommend the following:

- **Heating Season (Dry)** - A humidifier is recommended to prevent excessive shrinkage in wood floors due to low humidity levels. Wood stoves and electric heat, in particular, tend to create very dry conditions.
- **Non-Heating Season (Humid, Wet)** - Proper humidity levels can be maintained by use of an air conditioner, dehumidifier, or by turning on your heating system periodically during the summer months. Avoid excessive exposure to water from tracking during periods of inclement weather. Do not obstruct in any way the expansion joint around the perimeter of your floor.

RADIANT HEATING

See the "Installing Over Radiant Heat" and "Exclusions To Warranty: Radiant Heat" sections for specific details to inform your customers about radiant heating.

FLOOR REPAIR

Minor damage can be repaired with a touch-up kit or filler. Major damage will require board replacement, which can be done by a professional floor installer.

PRE-INSTALLATION PROCEDURES

ACCLIMATING THE HARDWOOD FLOORING

HVAC systems should be fully operational at least 14 days prior to flooring installation, maintaining a consistent room temperature between 60° - 75° Fahrenheit and relative humidity between 30 - 50%. This not only stabilizes the building's interior environment, but also is essential when acclimating hardwood flooring to the job site. Hardwood flooring should be unloaded and handled with care and stored within the environmentally controlled site. Flooring stored upon "on-grade" concrete floors should be elevated at least four inches to allow air circulation under cartons. Cartons should be spaced out, not stacked or stored on pallets. **Leave hardwood flooring in closed cartons during acclimation period.** Typical applications require at least a 48-hour acclimation period.

ROOM PREPARATION

Remove existing baseboards, quarter rounds, thresholds and undercut door jambs, using a piece of flooring material as a guide. Door frames and other wooden elements should be sawed off at the bottom in order to be able to push the panels under them.

PRE-INSTALLATION INSPECTION

It is the responsibility of the installer to **inspect each board for visible defects before installation**. Any board with visible defects will be replaced at no cost. If the defective board has been installed, no cost of labor will be paid for repair or replacement of defect.

SUBFLOOR TYPE

The manufacturer can be installed over the following subfloors if properly prepared. For other types of subfloors please contact your distributor.

- **Concrete:** On, above or below grade installations are acceptable. Must be clean, dry and smooth within 3/16" over 10'.
- **Acoustic Cork:** Must be bonded to the surface. Density must be between 11.4 and 13 lbs/cubic foot. Cork must be a maximum of 1/4" thick, made from pure cork with polyurethane binders.
- **Terrazzo and Ceramic Tile:** Should be lightly sanded and cleaned with mineral spirits. Allow the mineral spirits to dry prior to spreading the adhesive. If grout lines are too deep they need to be filled and allowed to dry before installation.
- **Wood Type Subfloors:** Includes plywood, OSB and underlayment particle board and tongue and groove boards. Must be smooth and dry. Squeaks and popping areas should be screwed prior to spreading adhesive.
- **Vinyl:** Includes sheet and vinyl tile. Vinyl must be securely fastened to the subfloor with full spread adhesive. Loose laid or perimeter glued sheet vinyl must be removed. Lightly sand vinyl, clean with mineral spirits and allow to dry prior to spreading adhesive.

SUBFLOOR PREPARATION

Subfloor must be:

- clean and free of wax, paint, oil, and debris. Scrape smooth and sweep.
- subfloor should be flat to 3/16" over 10'.

If subfloor prep work is required, "hills" should be sanded down and "valleys" filled with an underlayment patch, developed by a reputable manufacturer for use with hardwood flooring. Do not sand subsurfaces such as vinyl or synthetic tiles that may contain asbestos. For depressions less than 1/4", it is possible to use dry sand as a leveler.

- structurally sound prior to installation. Screw loose areas to reduce squeaking and replace water damaged or delaminated sub-flooring or underlayments.

WOOD SUBFLOOR MOISTURE TESTING

Check moisture content of subfloor especially adjacent to exterior walls and plumbing fixtures. **Moisture content of subfloor must not exceed 12% or have more than a 4% difference than moisture level of product being installed.** If more than a 4% difference, determine the source of moisture and remedy prior to installation.

CONCRETE SUBFLOOR MOISTURE TESTING

Several tests are outlined below. These tests do not guarantee a dry concrete slab year round. With that in mind, a moisture barrier using a minimum of 6 mil poly film should have been installed between the ground and concrete. See "Moisture Barrier System" below.

- **3% Phenolphthalein in Anhydrous Alcohol Solution** Do not apply solution directly to concrete surface. First, chip 1/4" deep into concrete test area and apply several drops of the solution. If any change in color is observed, further testing is required.
- **Calcium Chloride** Moisture transfer should not exceed 3 lbs/1,000 square feet with this test. One test must be performed every 250 square feet.
- **Tramex Concrete Moisture Encounter Meter** Moisture readings using a metering device should not exceed 4.5 on the upper scale.

MOISTURE BARRIER SYSTEM

If the above tests reveal unacceptable moisture levels, install sheet vinyl (PVC) directly to concrete slab. Follow instructions from sheet vinyl manufacturer, using a premium grade alkaline resistant adhesive and full spread application system to bond vinyl to subfloor. Do not use water based adhesives over sheet vapor barriers or sound insulation.

SET UP

- In order to have sufficient material on hand, **calculate area and add 5%** of material to allow for cutting waste and minor natural or manufacturer's defects.
- **Work out of several cartons at the same time** to ensure color and shade mix.

LAYOUT

- Layout should be designed to save labor and materials as well as to enhance the appearance of the floor. The floor will be stronger and more stable if you lay it so that the joints in the rows are staggered at least 10 inches. Staggered or irregular joints mean less material waste and a better overall appearance. Stair stepping and "H" joints are not as visually pleasing as randomly staggered end joints and will waste labor and material.
- Plan the layout so that the last row of flooring (which usually needs to be cut lengthwise) is not too narrow. In some cases, it may be necessary to cut the first row as well as the last row. Measure across the entire room to calculate the width of the last board. The last board cannot be less than 2" wide. If necessary, rip your first row (remove tongue edge) so last board can be at least 2" wide.
- **Allow 3/8" expansion space along all walls.** Flooring should be laid at right angle to the floor joist and, if possible, in the directions of the longest dimension of the room.
- The greater the surface area, the greater the room for expansion required. For rooms larger than 1,000 sq. ft. or exceeding 25' in any direction the perimeter expansion space must be increased 1/16" for every additional 3'. Also, additional expansion joints must be added in the middle of the room or in appropriate doorways and archways. The expansion space should be covered with transition moldings (T-moldings). Do not fill the expansion gaps.

INSTALLATION OVER RADIANT HEAT (Floating installation only)

Note: Special care should be taken into consideration when choosing a wood species to be installed over radiant heat. Maple, Beech, Ash and Asian Jatoba expand and contract more than other species. There is a greater risk of gaps occurring especially when installed over radiant heating systems and may void the warranty. See the "Warranty Exclusions: Radiant heat" for more detail before installing these species over radiant heat.

INSTALLERS – ADVISE YOUR CUSTOMER OF THE FOLLOWING:

- Maximum allowable wood surface temperature is 80° Fahrenheit. Note that rugs can increase surface temperatures 5° Fahrenheit or more.
- Maintain 30 - 50% humidity at all times. If necessary, use humidifiers. • Room temperature should not vary more than 15° Fahrenheit season to season.

HEATING SYSTEM REQUIREMENTS

- Only low temperature radiant heating systems with accurate control systems that assure that the floor's surface temperatures never exceed 80°F are permitted.
- The entire floor area must be evenly heated. Even with perimeter heating systems the floor's surface temperature must never exceed 80°F.

SETTING THE HEATING SYSTEM FOR INSTALLATION

- System must be fully operating at normal temperature for a minimum of 21 days prior to floor installation.
- The heating system must be turned off 24 hours prior to installation and must remain off for 24 hours after installation.
- Starting 24 hours after completion of installation, turn on the heating system and gradually increase the temperature over a 7-day period to normal operating level. Never allow the floor surface temperature to exceed 80° Fahrenheit.

SUBFLOOR

- The floor construction should have a heat dissipating layer that provides an even temperature across the entire floor area and avoids high temperatures in any area. Under plywood subfloors heat transfer plates or insulation must be in place.
- The subfloor should be completely dry. Moisture on a dry weight basis must not exceed 1.5% for concrete, 0.3% or less for gypsum and 6–12% for wood subfloors.
- A vapor barrier should be installed on all concrete, stone, mineral or wood subfloors. It must be directly under and as close to the flooring as possible.
- Heating pipes must be covered with 1" of concrete or be a minimum of 1/8" below bottom of plywood subfloor.
- The wood floor must lie tight against the sub-surface without an air gap that can cause considerable drying out of the wood.

LAYOUT

- Separate adjoining radiant heated and non-radiant heated areas with expansion joints.

FLOATING INSTALLATION

INSTALL UNDERLAYMENTS

Install 6 mil Polyethylene vapor barrier over entire flooring surface. Overlap sheets of Polyethylene 16" and tape together creating an airtight seal. Using 1/8" foam padding, roll out one roll at a time over vapor barrier being careful not to poke holes or otherwise damage material during installation. Run padding up walls 1" to 1.5" and secure in place with tape. Join padding sections with tape strip. Tape down any additional loose edges. A "2-in-1" foam padding /moisture barrier may be substituted for Polyethylene.

INSTALLING THE FLOOR

Boards are installed left to right with the groove side facing the wall. A stair-step pattern will be repeated throughout installation. Stagger the ends of the boards a minimum of 8 inches. **Leave a minimum 3/8" expansion around all vertical objects** such as walls, poles, and stairs. If starting wall is uneven, trace the contour of wall, using a scribe, onto first row of planks and cut to size.

APPLICATION OF ADHESIVE

To secure a durable wood floor the boards must be bonded with adhesive in the tongue and groove. We recommend waterproof PVAC glue. The glue must be applied in a continuous 1/8" bead on the inside top of the groove on both the long and short edges.

GLUING AND TAPING

Dry fit first row using stair-step pattern. Number each plank in the order of installation. When you reach the last plank in first row, turn plank 180° so tongue is flush against tongue of previous plank. Mark the plank and cut to length. Dry fit final plank of row.

Begin dry fitting second row, starting with (if possible) left over piece from previous row. Be sure to stagger end of boards at least 10" to achieve effective stair step pattern.

Floating installation is completed by gluing and taping flooring profiles together. Separate first two rows noting installation order. Holding the first board with the tongue resting in the palm of your hand, apply a thin bead of glue in the groove on the side and end of the board. Repeat process with subsequent planks. Press each board firmly together, tapping profiles lightly with a block and hammer if necessary. **Clean excess glue from between boards with a damp cloth.** Tape each board together at side and end seams. Often the last row will not end with a full plank. When this happens, place a full row of planks on top of the last row installed. Insert a 3/8" spacer against wall, and using a full width plank, trace distance from wall onto final row. Cut planks for final row to designated width. Apply glue and fit into place. **Tape may be removed within one hour.** Allow 12 hours before placing furniture on floors and 24 hours before introducing heavy objects or full traffic.

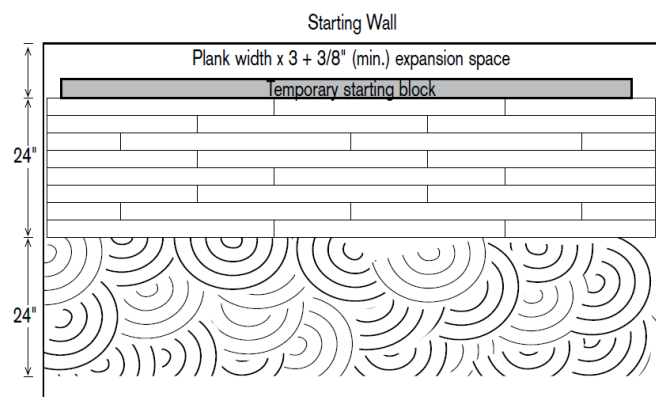
Note: Do not install cabinets or walls on top of floating floors

GLUE-DOWN INSTALLATION

GLUING THE PLANKS

- To determine a straight first starting row, use a snap line the width of a few boards plus 3/8" expansion space from the wall. To keep first rows straight and in place, nail a straight 1" x 2" or 1" x 4" holding board on the first snap line.
- Make another snap line at about 24" from the holding board.
- Spread adhesive in first working area. Do not spread more adhesive than can be covered within 20 minutes.
- When the first section is complete, strike another parallel snap line from the last row installed, spread the adhesive and complete the section.

- Repeat section by section until the job is finished. Remove the starting board, spread adhesive and complete the area from the starting board to the wall.
- To fit the last piece, lay it upside-down with the tongue edge parallel to the tongue edge of the piece next to it, the short end butting up against the wall. Mark the cutting line on the back of the board and cut it to the correct width (save the cut off piece for the second row). Turn it over, fit it and glue in place.



NAIL-DOWN OR STAPLE-DOWN INSTALLATION

Note: Do not nail or staple 5/16" thick flooring planks.

SUBFLOOR PREPARATION

Remove all dirt and rough areas by thoroughly cleaning, sanding and leveling. **Note: particle board is not a suitable subfloor** for nail- or staple-down installation. The clean subfloor should be covered wall-to-wall with 15 lb resin paper, overlapping 4" along the edges.

GENERAL INFORMATION FOR PNEUMATIC FASTENING MACHINES

Note: Use pneumatic staplers with correct shoe base for thickness of the product.

Improper pressure settings and failure to use proper adapters can cause severe damage to the flooring. The correct adapter and air pressure setting will properly set the fastener in the nail pocket. Low air pressures may fail to properly set the fastener and damage adjoining boards. Air pressures set too high may cause damage to the tongue which may dramatically reduce the holding power of the fastener causing loose, squeaky floors. Make certain that the compressor has a regulator in-line with the air hose for proper adjustment.

Set the compressor pressure to recommended PSI and adjust accordingly using a "practice" board. Check for surface and tongue damage before proceeding with installation. Manual Model 250 Power nailer can also be used.

INSTALLATION

To determine a straight first starting row, use a snap line the width of a few boards plus 3/8" expansion space from the wall. To keep first rows straight and in place, nail a straight 1" x 2" or 1" x 4" holding board on the first snap line. For nailer or stapler use correct shoe based on thickness of flooring. **(See illustration under glue-down installation.)**

Begin installation with several rows at a time, tightening boards as necessary to reduce gaps before fastening. Attach each board with fasteners every 6"-8" and 3" from the ends.

The last 1-2 rows will need to be face nailed where clearance does not allow blind nailing with stapler or brad nailer. Brad nail or face nail on tongue side. Rip the final row to fit and face nail. If the final row is less than 1" width, it should be edge-glued to the previous row, before installation. The two joined rows can be face nailed as one board. Go back to the starting wall, remove the starting block and complete final rows using 6d nails, counter sunk and filled.

ALL INSTALLATIONS: COMPLETING THE JOB

- Remove spacer wedges.
- Cover all expansion gaps along walls and vertical protrusions with base board, quarter round or pocket moldings. Nail moldings to wall, never to the flooring.
- Clean, sweep and vacuum installed flooring before use.
- Use of stain, filler or putty stick for defect correction during installation should be accepted as normal procedure.
- If the floor is to be covered, use a breathable material such as cardboard. Do not cover with plastic or any other material acting as a vapor barrier.