

ENGINEERED HARDWOOD FLOORING

PLEASE READ BEFORE INSTALLATION

INSTALLATION WARNING

INSTALLATION CONDITIONS — INCLUDING TEMPERATURE, SUN EXPOSURE AND HUMIDITY — WILL AFFECT THIS PRODUCT'S PERFORMANCE OVER TIME. FOR BEST RESULTS, ROOM TEMPERATURE AND HUMIDITY OF INSTALLATION AREA MUST BE KEPT CONSISTENT WITH NORMAL, YEAR-ROUND LIVING CONDITIONS FOR A MINIMUM OF ONE WEEK PRIOR TO INSTALLATION. ALL PRODUCTS REQUIRE A SPECIFIC TEMPERATURE RANGE OF 60°F TO 80°F WITH 30% TO 55% RELATIVE HUMIDITY. INSTALLATION OUTSIDE OF THESE RECOMMENDED RANGES OR OVER A WET SUBFLOOR WILL LIKELY CAUSE MOVEMENT IN THE FLOORING, INCLUDING POTENTIAL SHRINKAGE, TIP-RAISING, GAPPING BETWEEN PIECES, CUPPING AND FACE-CHECKING. WE STRONGLY RECOMMENDS GLUE-DOWN TO BE THE BEST METHOD TO INSTALL ENGINEERED HARDWOOD FLOORING AND ENGINEERED HARDWOOD FLOORING MUST BE INSTALLED ACCORDING TO THE NATIONAL WOOD FLOORING ASSOCIATION'S (NWFA) INSTALLATION GUIDELINES IN ORDER FOR THE LIMITED WARRANTIES TO BE VALID. THE MOST CURRENT PUBLICATION OF THE NWFA GUIDELINES IS AVAILABLE TO ALL NWFA MEMBERS, AND CAN BE FOUND AT WWW.NWFA.ORG (800-422-4556)

INSTALLER'S / OWNERS RESPONSIBILITY

As a natural product, hardwood contains inherent variations in color, grain, appearance and other visual imperfections. Engineered Hardwood Flooring is manufactured in accordance with industry standards which permit a defect tolerance not to exceed 5%. These defects may be the result of manufacturing or naturally occurring characteristics of the material. It is recommended additional 5-10% to be added to the total square footage for cutting or grading allowance when calculating the quantity of flooring required. For diagonal flooring installs, please add additional 15% for cutting or grading allowance. It is the sole and joint responsibility of the installer and owner to conduct a quality inspection of all flooring materials prior to installation. All flooring materials should be examined for quality of manufacture, finish and color. If the product quality is deemed unacceptable, the flooring should not be used for installing. Flooring that has been installed

will be deemed to have been inspected and accepted by the installer and owner. It is the sole responsibility of the flooring installer to ensure the job site, subfloor, installation tools and materials meet or exceed industry standards. We suggest using a NWFA certified flooring installer or consult the dealer you made your purchase from for an authorized installer. We void all responsibility for any problems arising from incorrect or improper site preparations or installations procedures.

JOBSITE CONDITIONS & PRE-INSTALLATION PLANNING

GENERAL INFORMATION

- › The building must be structurally completed and enclosed. All outside doors and windows must be in place and have latching mechanisms. All concrete, masonry, plastering, drywall and paint must be completed. Allow adequate drying time as to not raise moisture content within the building. All texturing and painting primer coats should be completed.
- › HVAC systems must be fully operating at least 14 days prior to flooring installation. Maintain a consistent room temperature between 60-80°F and relative humidity between 30-55% is recommended and this should remain at this level all year round. This is to stabilize the building's interior environment, but also is essential when acclimating hardwood flooring to the job site. Wood is a hygroscopic material that expands and contracts depending on the relative humidity level of the environment. Flooring must be stored in a climate-controlled area, which is equal to the environment that will be installed 5-7 days prior to the installation. DO NOT OPEN the cartons until you are ready to install.
- › Exterior grading, directing drainage away from the structure, as well as gutters and down-spouts should be completed. Floors may be installed on, above, or below grade level and are not recommended in full bathrooms.
- › It is essential that basements and crawl spaces are well ventilated and dry. Crawl spaces must be minimum of 24" from the ground to underside of joists. A vapor barrier must be established in crawl

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spaces using 6-mil polyethylene film with joists overlapped and taped.

- › During the final pre-installation inspection, Subfloor must be checked for moisture content using the appropriate metering device for the wood and concrete.
- › Work out of several different cartons at the same time to obtain the best distribution of color, grain and shade mixture.
- › Undercut door casings to avoid difficult scribe cuts, and remove all existing wall base, shoe molding, quarter round or doorway threshold. These items can be replaced after installation but should be replaced in such a way to allow at least 1/2" room for expansion. Please see NWFA Installation Guideline for details.
- › Hardwood flooring will expand and contract with changes in ambient temperature and humidity. Allow floor to expand and contract, during installation leave an 1/2" expansion space around the entire perimeter of the floor between the flooring and the walls. Also leave an 1/2" expansion space where the flooring will meet a vertical obstacle, such as stairs, pipes, door sills, tiles, cabinets, etc. In climates with extreme variations in humidity, it may be necessary to leave a larger expansion space.

Subfloor Preparation

The installer and owner are jointly and solely responsible for ensuring that the subfloor is suitable for the flooring application and properly prepared for installation.

Subfloor Conditions

- › Clean, free of wax, paint, oil, plaster and debris. All previous or existing glues or adhesives must be removed completely before the start of installation. #3 1/2 grit open coat paper may need to be used to grind a concrete sub-floor. This will loosen any dirt, concrete or contaminants. Sweep or vacuum thoroughly.
- › Flat to 3/16" per 8' radius or 1/8" per 6' radius. If a sub-floor prep work is required, "hills" should be sanded down and the "valleys" filled with an underlayment patch. Subfloor irregularities and undulations may cause any wood flooring installation to develop hollow spots between the flooring and sub-floor. These hollow spots are NOT the result of any wood flooring manufacturing defect and are NOT covered under warranty.
- › Structurally sound and properly secured with nails or

screws every 6" along joists to reduce the possibility of squeaking after installation. Nail or screw any loose areas that squeak or reveal movement and replace any damaged sub-floor or underlayment.

- › Wood sub floors should be dry and should be covered, wall-to-wall, with 15lb asphalt saturated felt. Lap edges of this felt 4" when positioning it. Double the felt around heat ducts in the floor. It is essential that basements and crawl spaces are well ventilated and dry. Crawl spaces must be minimum of 24" from the ground to underside of joists. A vapor barrier must be established in crawl spaces using 6 mil polyethylene film with joists overlapped and taped. ALL sub-floors must be tested for moisture. See below for an appropriate moisture testing.

Acceptable sub-floors

- › 5/8" minimum thickness, preferred 3/4", or thicker exterior plywood installed with long edges at right angle to floor joists and staggered so end joints in adjacent panels break over different joists.
- › 1" x 4" to 6" wide, square edged, kiln dried coniferous lumber, laid diagonally over 16" on center wooden joists. The ends of all boards are to be cut parallel to the center of the joists for solid bearing.
- › 3/4" inch minimum O.S.B. on 19.2" center floor joists system properly nailed. When joist space is greater than 19.2", flooring may exhibit minimum performance. Adequate and proper nailing as well as soundness of the sub-floor should be ascertained.
- › Concrete sub-floors must be at least 60 days old, clean, level, sound and of sufficient compression strength (3000 lbs. P.S.I.) being sure that the surface is not slick. Any sections not leveled such as waviness, trowel marks, etc. are to be eliminated by grinding or the use of a leveling compound.
- › Appropriate moisture test must be done prior to installation – Always document your readings.

Wood Subfloors

Plywood sub-floors must meet local building code requirements. They must be secure to the joists, free of squeaks and protruding fasteners. Check the moisture content of both sub-floor and hardwood flooring with a quality calibrated pin moisture. Wood sub-floor moisture must not exceed 12% moisture content, or 3% moisture content difference between hardwood flooring and sub-floor. If sub-floor moisture exceeds the amount aforementioned, the source of the moisture must be

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located and eliminated before installation.

Concrete Subfloors

Concrete subfloors must be fully cured, at least 60 days old, and should have minimum 6-mil poly-film between the concrete and ground. Lightweight concrete can hold more moisture and may take longer to dry out to an acceptable moisture content. A moisture barrier is required over all concrete subfloors. Installations over concrete require the use of a Calcium Chloride test per ASTM F 1869, or ASTM F2170 in-situ Relative Humidity test using probes inserted into holes drilled into the concrete. Test all areas where wood will be installed. The results of the Calcium Chloride test should not exceed 3 lbs per 24 hours per 1000 square feet and in-situ test results should not exceed 75% RH. Carefully record all testing results. These tests give a snapshot of moisture conditions at the time of the test, but do not reflect the permanent year-round condition of the substrate. If gluing down on concrete that is on or below grade, it is highly recommended to use a concrete sealer approved by the manufacturer from the adhesive you have chosen, even if you believe the concrete is dry. A concrete slab on or below grade that measures dry today may become moist in the future and cause floor failure. We are not responsible for site related moisture issues.

NAIL DOWN/STAPLE INSTALLATION GUIDELINES

NOTE: For planks wider than 6.5" less than 7.5", follow the 'Nail + Glue Assist' Installation Instructions. Nail down installation is not recommended.

NOTE: Nailing planks wider than 7.5" without a full spread adhesive will void all warranties. Nail down installation is not recommended.

Recommended Nail/Staple Systems:

Power Nail pneumatic Model 50P Flex: 18 gauge
Porta Nail pneumatic Model 4614: 18 gauge
Bostitch pneumatic Model EHF1838K: 18 gauge
Primattech pneumatic Model Q550R: 18 gauge

ENGINEERED WOOD RECOMMENDED FASTENER SELECTION

Board thickness ½" - 5/8"
18 or 20 gauge engineered flooring staples or cleats
1-1/4" or 1 -1/2" long

Board thickness 3/8"-7/16"
18 or 20 gauge engineered flooring staples or cleats
1" or 1-1/4" long

Nail Down/Staple Installation Instructions

- › Make sure to properly test subfloor before installation, following subfloor preparation instructions previously discussed.
- › A 15 lb. felt paper moisture barrier should be applied to the plywood subfloor with 6" overlaps before installing the new wood floor per ASTM D-4869.
- › Create a working line parallel to the starting wall, in multiples of our engineered plank width, to set up the baseline of installation.
- › Starter Rows requires that installation be done by leading with the tongue. When starting at the wall, trim groove off the back of the boards being used for the starting row. Face nail the back edge of the board with 18-gauge nails. Then blind nail into the pocket above the tongue with one of approved nail/staple systems.
- › Install the second row by sliding the groove side on to the tongue of the first row. Blind/edge nail it into place, with fasteners every 4" to 6" and 2" to 3" from each end joint. Stagger end joints at least 8". Continue nailing and gluing 2-3 rows at a time in this manner across the room. Avoid creating "H" patterns (where an end joint is adjacent to another end joint in the second to last row installed). Use cut ends to start the subsequent row, discarding any pieces shorter than 8".
- › Use adjustable pneumatic power hammer or nailing machine with 1 1/2" – 2" nails as is required and make sure nailing foot is appropriate to the nails/staples used. To avoid damage to the tongue be sure to adjust for proper pressure on the compressor.
- › Add each additional row of flooring, watching the pattern repeat and offset or stagger the joints as desired. (Generally, joints should either match in a specific pattern or be staggered by no less than six inches). Finished areas should be covered with a breathable protective paper, NEVER PLASTIC, immediately after installation to prevent damage. Do not tape protective paper to the finished surface of the wood for extended periods of time.
- › Install molding and trim. (Always fasten moldings to the wall, not the flooring.)
- › Do not allow foot traffic on finished floor for 24 hours after installation is completed.

Disclaimer

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Our Harwood Flooring products are not warranted against squeaking, popping or crackling when using nail down/staple installation methods. Squeaking, popping or crackling is normal, and these symptoms may be aggravated in arid areas or during dry conditions.

Nail + Glue Assist Installation Instructions

NOTE: Nail + Glue Assist installation is recommended when nailing down/staple planks over 6.5" wide and less than 7.5" wide.

There are two recommended methods for glue assist.

Method one: Glue applied to subfloor This option can be used on most products and is the most efficient to employ. Select the area of substrate on which you'll be installing. As with any glue application, select an area that can be worked comfortably within the adhesive's open time. Apply beads of adhesive directly to the subfloor perpendicular to the direction of the flooring boards. Place beads maximum of 12" apart. Place boards onto glued area as normal and set fasteners. Clean up any excess glue immediately according to glue manufacturer's instructions.

Method two: Glue applied directly to floorboards. This glue assist option is recommended for products with long fixed length boards. Apply adhesive to the underside of each board. Apply an 1/4" bead parallel to each end, approximately 1" from the end. Apply in an 1/4" bead a serpentine pattern down the length approximately in the center of the board, keeping the glue 1" in from the edges of the board. Carefully set the board in place (to avoid getting glue on other surfaces) then nail in as normal. Clean up any excess glue immediately according to glue manufacturer's instructions. Glue end joints certain wide plank products also requiring gluing of the end joints for added stability.

- › Make sure to properly test subfloor before installation, following subfloor preparation instructions previously discussed.
- › Create a working line parallel to the starting wall, in multiples of our engineered plank width, to set up the baseline of installation.
- › Trowel spread the adhesive on the subfloor along the chalk line wide enough to allow the first row of flooring to be installed, being careful not to cover the line. Follow the adhesive manufacturer's recommendations for wet lay times before proceeding to the next step.
- › Starter Rows requires that installation be done by leading with the tongue. When starting at the wall,

trim groove off the back of the boards being used for the starting row. Face nail the back edge of the board with 18-gauge nails. Then blind nail into the pocket above the tongue with one of approved nail/staple systems.

- › Trowel spread enough adhesive to install 2-3 more rows.
- › Install the second row by sliding the groove side on to the tongue of the first row. Blind/edge nail into place, with fasteners every 4" to 6" and 2" to 3" from each end joint. Stagger end joints at least 8". Continue nailing and gluing 2-3 rows at a time in this manner across the room. Avoid creating "H" patterns (where an end joint is adjacent to another end joint in the second to last row installed). Use cut ends to start subsequent row, discarding any pieces shorter than 8".
- › Use adjustable pneumatic power hammer or nailing machine with 1 1/2" – 2" nails as is required and make sure nailing foot is appropriate to the nails/staples used. To avoid damage to the tongue be sure to adjust for proper pressure on the compressor.
- › Add each additional row of flooring, watching the pattern repeat and offsetting or staggering the joints as desired. Generally, joints should either match in a specific pattern or be staggered by no less than six inches. Finished areas should be covered with a breathable protective paper, NEVER PLASTIC, immediately after installation to prevent damage. Do not tape protective paper to the finished surface of the wood for an extended period of time.
- › Install molding and trim. Always fasten moldings to the wall, not the flooring.
- › Most adhesives require the installer clean adhesive off the flooring boards during installation. Follow adhesive manufacturer's recommendations for this procedure.
- › Do not allow foot traffic on finished floor for 24 hours after installation is completed.

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GLUE-DOWN INSTALLATION GUIDELINES

Recommended Adhesive:

Bostik's Best, Greenforce, or Vapor-Lock
Dri-Tac Golden Bullet, or Supreme Green
Sika T-35
Titebond 771, or 811

Suggested Trowels:

Consult with adhesive manufacturers to confirm the trowel size.

Glue Down Installation Instructions

- › We strongly recommend glue-down to be the best way to install engineered flooring.
- › Make sure properly test subfloor before installation, following subfloor preparation instructions previously mentioned.
- › Apply a moisture barrier to slab. Bostik, Dri-Tac, Sika or Titebond are recommended.
- › A urethane-based adhesive should be used exclusively. Bostik, Dri-Tac, Sika or Titebond is recommended.
- › Create a working line parallel to the starting wall in order to set up the baseline of installation.
- › Follow the spread rate and curing time suggested by the glue manufacturer. Spread glue evenly on the subfloor to cover an area appropriate to the number of planks that can be laid in time for best result of the glue.
- › Lay one row of floor planks along the entire length of the work line. Add each additional row of flooring, while watching the pattern repeat and offsetting or staggering the joints as desired. Generally, joints should either match in a specific pattern or be staggered by no less than six inches.
- › An 1/2" expansion space should be left around the perimeter. Roll whole floor with an 150 lb. roller within 3-6 hours after installation. Finished areas should be covered with a breathable protective paper, NEVER PLASTIC, immediately after installation to prevent damage. Do not tape protective paper to the finished surface of the wood for extended periods of time.
- › Clean wet adhesive from the surface of the floor frequently using the manufacturer's recommended

remover. Use clean towels, changing frequently to prevent haze and residue. Contact the adhesive manufacturer for adhesive removal remedies.

- › Do not allow foot traffic on finished floor for 24 hours after installation is completed.

FLOATING INSTALLATION GUIDELINES

Recommended Poly-form Underlayment:
Eternity's Seal Guard Zero VOC
MP Global's Sound Buffer or Quiet Walk

Floating Installation Instructions

- › Make sure to properly test subfloor before installation, following subfloor preparation instructions previously mentioned.
- › If needed, apply a moisture barrier to slab. Bostik, Dri-Tac, Sika or Titebond are recommended.
- › After the moisture barrier has cured and dried apply a floating floor poly-foam underlayment, Eternity's Seal Guard Zero VOC, MP Global's Sound Buffer or Quiet Walk are recommended. Please follow manufacturer's installation instructions.
- › Floating floors is generally a more difficult installation to start, as the boards will move. It is imperative the first few rows be straight and gap free.
- › Create a working line parallel to the starting wall, in multiples of our engineered plank width, to set up the baseline of installation. A bead of adhesive should be applied all along the TOP groove of each plank, any PVA glue meeting European DIN EN 204 D3 standard is recommended.
- › Lay one row of flooring planks along the entire length of the work line. Work with the tongue side outward. NEVER engage material by striking the groove edge, use a tapping block against the tongue or board puller to avoid edge damage while engaging plank. At each additional row of flooring, watching the pattern repeat and offsetting or staggering the joints as desired. Generally, joints should either match in a specific pattern or be staggered by no less than six inches.
- › A minimum 1/2" expansion space should be left

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around the perimeter.

- › Finished areas should be covered with a breathable protective paper, NEVER PLASTIC, immediately after installation to prevent damage. Do not tape protective paper to the finished surface of the wood for extended periods of time.
- › Do not allow foot traffic on the finished floor for 24 hours after installation is completed.

Disclaimer

Upon completion of the floating installation of a random length engineered wood floor, the floors surface may not appear as continuously flat as compared to a traditional long strip floating floor. Hollow sound and squeaking should be expected since the flooring is not secured to the subfloor by means of chemical fastening (gluing) or by mechanical fastening (staples, cleats or nails). Hollow sound is NOT a defect caused by manufacturing, but rather the result of the way in which the floor is put together.

RADIANT HEAT SYSTEMS

Our Hardwood Flooring is not warranted and shouldn't be installed over radiant heat systems.

See Warranty & Maintenance for more information. For more general installation instructions, see NWFA Installation Guideline for more details. www.nwfa.org (800-422-4556)

WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to www.P65Warnings.ca.gov/wood.