TECWOOD ESSENTIALS | SELECT | PLUS INSTALLATION INSTRUCTIONS

Before You Begin

Engineered hardwood floors 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 excessive moisture conditions do not exist. We continuously make technological advancements that improve product performance or installation techniques and methods. To confirm you have the most recent installation instructions, please visit our website at mohawkflooring.com or contact Technical Services at 888-387-9881.

Caution: Wood Dust

Cutting, sanding or machining wood products produces wood dust. While wood products are not hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200), the International Agency for Research on Cancer (IARC) and the State of California have classified wood dust as a human carcinogen.

Precautionary measures: Airborne wood dust can cause respiratory, skin and eye irritation. Power tools should be equipped with a dust collector. Use an appropriate NIOSH-designated dust mask. Avoid dust contact with skin and eyes.

First aid measures in case of irritations: In case of irritation, flush eyes with water. If needed, seek medical attention. If dermatitis occurs, seek medical attention. To request Safety Data Sheets, contact Technical Services at 888-387-9881.

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, visit www.P65Warnings.co.gov/wood.

WARNING! DO NOT MECHANICALLY CHIP OR PULVERIZE EXISTING RESILIENT FLOORING, BACKING, LINING FELT, ASPHALTIC "CUTBACK" ADHESIVES OR OTHER ADHESIVES.

Previously installed resilient floor covering products and the asphaltic or cutback adhesives used to install them may contain either asbestos fibers and/or crystalline silica. These products DO NOT contain asbestos or crystalline silica. Avoid creating dust. Inhalation of asbestos or crystalline dust is a cancer and respiratory tract hazard. Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious bodily harm. Unless absolutely certain that the product is a non-asbestos containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content and may govern the removal and disposal of material. See current edition of the Resilient Floor Covering Institute (RFCI) publication Recommended Work Practices for Removal of Resilient Floor Coverings for detailed information and instructions on removing all resilient covering structures.

IMPORTANT HEALTH NOTICE FOR MINNESOTA RESIDENTS ONLY: These building materials emit formaldehyde. Eye, nose and throat irritation, headache, nausea and a variety of asthma-like symptoms, including shortness of breath, have been reported as a result of formaldehyde exposure. Elderly persons and young children, as well as anyone with a history of asthma, allergies or lung problems, may be at greater risk. Research is continuing on the possible long-term effects of exposure to formaldehyde. Reduced ventilation may allow formaldehyde and other contaminants to accumulate in the indoor air. High indoor temperatures and humidity raise formaldehyde levels. When a home is located in an areas subject to extreme summer temperatures, an air conditioning system can be used to control indoor temperature levels. Other means of controlled mechanical ventilation can be used to reduce levels of formaldehyde and other indoor air contaminants. If you have any questions regarding the health effects of formaldehyde, consult your doctor or call your local health department.

Installer/Owner Responsibility

It is the responsibility of the installer/owner to ensure that job site environmental, subfloor and subsurface conditions meet or exceed all requirements as outlined in installation instructions prior to installation. Manufacturer declines all responsibility for product performance or installation failure due to subfloor, substrate or environmental deficiencies or job site conditions.

All wood continually expands and contracts until it reaches moisture equilibrium with the environment in which it's installed. As with all wood flooring, expansion and contraction will be minimized if the interior relative humidity is consistently maintained year-round. Humidification and/or dehumidification systems may be necessary to maintain your home environment to prescribed relative humidity conditions.

The owner/installer assumes all responsibility for final inspection of product quality. Examine flooring for color, finish and style PRIOR TO INSTALLATION. If material is unacceptable, contact the seller immediately. Wood is a natural product and contains characteristics such as variations in color, tone and graining. Flooring is manufactured in accordance with industry standards which allows manufacturing and natural deficiency tolerances up to 5% of the total installation.

Installer should work from minimum of three cartons at a time to ensure good color and shade blend. The installer must use reasonable selectivity and set aside or cut off pieces with deficiencies. Do not install undesirable pieces. Flooring warranties DO NOT cover materials with visible defects once they are installed. Installation is acceptance of product quality. Check carton labels for lot numbers. Lot numbers should not be mixed.

All work involving water or moisture (e.g. plumbing, masonry, painting, plastering, etc.) must be completed prior to flooring being delivered. Building envelope must be complete and exterior doors and windows installed. Exterior grading and gutter downspouts should be completed and permanent HVAC systems in operation.

Precautions should be taken to protect floors from other trade work. Do not cover floors with plastic, red rosin, felt or wax paper or previously used cardboard. Instead, use a breathable material such as clean, dry, plain, uncoated cardboard or construction paper. Inks from printed cardboard could damage the hardwood floor. The floor should be thoroughly cleaned before covering to remove grit and debris that would damage the finish. The floor must be completely covered to eliminate uneven ambering from exposure to UV light. Do not allow flooring to remain covered for an extended period of time. The reduction in air exchange creates a greenhouse effect and will damage the flooring.

Permanent HVAC should be on and operational for a minimum of 5 days and maintained between 65° and 75°F with a relative humidity of 35% to 55% prior to delivery and during and after installation of the flooring for the life of the product. If HVAC is not possible at time of installation, the environmental conditions must be at or near normal living conditions between 60° and 80°F and at the average yearly relative humidity for the area.

Building interiors are affected by two distinct humidity seasons–heating and non-heating. Care should be taken to maintain humidity levels between 35% and 55% year-round.

Heating season, low humidity, dry. All heating methods create dry, low-humidity conditions. Humidifiers are recommended to prevent excessive shrinkage or permanent gapping in wood floors due to seasonal periods of low humidity.

Non-heating season and coastal or waterfront areas, high humidity, wet. During the non-heating season or in areas with high humidity year-round, proper humidity levels should be maintained through the use of an air conditioner or dehumidifier.

Manufacturer warranties do not cover natural expansion and contraction that results in separation between planks or damage caused by excessively low or high humidity. Seasonal gapping is not considered a manufacturing defect.

Purchase an additional 5% of flooring to allow for cuts and an additional 10% if installing diagonally. Any excess material should be left with the homeowner.

WARRANTY NOTE: Installer should provide owner with one carton end label from installed product along with the pre-installation moisture content readings for warranty purposes. Owner should retain carton end label and copy of invoice with product style name and style number for their records. Owner should retain excess flooring and store in a climate-controlled area for future repairs in the event of damaged flooring.

The use of stain, filler or putty for correction is considered a normal practice and a routine part of installation and for touch ups over the life of the product.

Basic Tools Needed

- Safety glasses
- Wood pin moisture meter
- Concrete in-situ moisture meter
- Chalk line
- Uniclic tapping block
- Tape measure
- Jamb saw
- Table saw
- Appropriate adhesive trowel
- Coordinating stain, filler or putty
- Mineral spirits (odorless)
- Thick felt protectors
- Putty knife
- Broom or vacuum
- Starting row wedges
- Pry bar or trim puller
- Pencil
- Miter saw
- Utility knife
- Low-adhesion painter's tape
- Plastic scraper
- Clean white cloths or towels
- Pull bar
- Carpenter's square
- NIOSH-approved dust mask
- 75 lb smooth roller

Accessories Needed

- 15 lb felt or rosin paper
- Flooring adhesive
- Performance Accessories Floorcare Essentials Hardwood and Laminate Floor Cleaner
- Performance Accessories Underlayment
- Coordinating transition strips or molding

Pre-installation and Job Site Conditions

Do not install wood flooring until appropriate temperature and humidity conditions have been achieved. Flooring should be delivered and stored inside the HVAC, controlled portion of the job site. Flooring should be stacked with at least a 4-inch airspace under the cartons. Remove any and all plastic wrap that may have been used to ship the material. Make certain that the room temperature is set to normal living conditions as described above.

All Mohawk Wood Floors must be acclimated a minimum of at least 72 hours before installation of the flooring and after the HVAC, windows and building envelope has been completed and is in operation. The purpose of acclimation is to allow the moisture content of the wood to adjust to "normal living conditions" at the site; these are the temperature and humidity conditions that will typically be experienced once the structure is occupied.

To reduce the risk of moisture-related failures, the subfloor and wood flooring must be of similar moisture content. Test the subfloor by taking a minimum of 20 moisture content readings per 1,000 square feet of subfloor using a pin-type moisture meter. Average these readings and include on the data sheet on Page 10 of these instructions. Likewise check the wood flooring moisture content and record on the same sheet. These moisture readings are to be left as a permanent record of testing with the homeowner. When both the subfloor and flooring are below 12% moisture content and the flooring is within 4% of the subfloor moisture, the product can be installed. A moisture test is strongly recommended to determine if high moisture exists in the subfloor. When using a calcium chloride moisture test for concrete subfloors (ASTM F1869), values must be ≤ 5 lbs/1000ft²/24 hrs or < 80% RH with an in-situ probe (ASTM F2170-19a). Moisture readings of wood subfloors must be ≤ 12%.

NOTE: *Needs to be made that for all product under 6" wide need to be within 4% of the subfloor and all products 6" or wider need to be within 2% of the subfloor when acclimating.*

Mohawk does not recommend installing flooring under cabinets or other permanent fixtures. If islands, cabinets or other permanent fixtures are installed on top of the flooring, it could cause gapping in the floor planks.

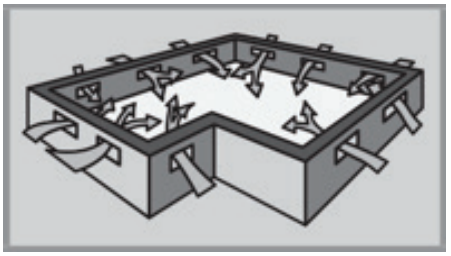
Subfloor Requirements on Above or Below Grade

These recommendations are not intended to supersede federal, state or local building codes but, as with many other interior finish products, may require modifying existing structural components for a successful installation. Hardwood flooring is not a structural component. The product warranty does not protect against loss caused by inadequate subfloors, flooring substructures or improper installation of said substructures.

Engineered hardwood floors may be installed over any structurally sound subfloor that is flat, clean and dry on all grade levels. All subfloors should be:

- **Clean:** Subfloor must be clean and free of dirt, curing compounds, drywall mud, wax, paint, oil, sealers, adhesives and other debris. These may be removed mechanically. Do not install glue down floors over chemically cleaned substrates.
- **Flat:** Subfloor must be flat within 3/16 inch in a 10-foot radius (5 mm in 3 m) and 1/32 inch in 12 inches. Sand high areas or joints. Fill low areas with a high compressive strength (min. 3,000 psi) portland cement-based compound. Vertical deflection must not exceed 3/16 inch.
- **Dry:** Wood floor moisture should be evaluated using the guidance supplied above under the heading Job Site Conditions. Concrete subfloors must be cured for a minimum of 60 days. When using a calcium chloride moisture test for concrete subfloors (ASTM F1869), values must be ≤ 5 lbs/1000ft²/24 hrs or < 80% RH with an in-situ probe (ASTM F2170). Moisture readings of wood subfloors must be ≤ 12%. Test results must be recorded on Page 10 of these instructions and left as a permanent record of testing with the homeowner. If moisture levels exceed these limits, DO NOT INSTALL the flooring until appropriate corrections are made or select the appropriate moisture mitigation adhesive listed on Pages 5-6.

NOTE: *Basements and crawl spaces must be dry. Use of a 6-mil black polyethylene membrane is required to cover 100% of the crawl space earth. Crawl space clearance from ground to underside of joist should be no less than 18 inches and perimeter vent spacing should be equal to 1.5% of the total square footage of the crawl space area to provide cross ventilation. To increase reliability, appropriate subfloor moisture testing should be performed after the HVAC system has been in operation for a minimum of 5 days. Excess moisture on any flooring substrate, if not identified and corrected prior to installation, will cause floor covering failure. Our Warranties DO NOT cover any problems due to moisture levels that exceed these guidelines.*



Structurally sound wood subfloor: Nail or screw any areas that are loose or squeak. Vertical deflection must not exceed 3/16 inch. Wood panels should exhibit an adequate fastening pattern, glued, screwed or nailed as system requires, using an acceptable nailing pattern, typically 6 inches (15 cm) along bearing edges and 12 inches (31 cm) along intermediate supports. Flatten edge swell as necessary. Replace any water damaged, swollen or delaminated subflooring or underlayment.

Building codes establish requirements for structural support components of flooring systems which may not provide adequate rigidity and support for proper installation and performance of a hardwood floor. Whenever possible, install flooring perpendicular to the floor joists for maximum stability.

NOTE: When joist spacing exceeds the traditional 16 inches on center, Mohawk recommends you apply a thin bead of Performance Accessories Tongue & Groove D3 glue to the bottom side of the groove to lock the tongue and groove profile in place. This will reduce the potential for movement of the tongue and groove which may contribute to squeaking or crackle. When using this method of installation, you may continue to choose to staple or nail down the hardwood depending on your preference. Using a D3 tongue and groove glue with the staple reduces movement as the subfloor deflects.

Structurally sound concrete subfloor: Concrete substrate should be at least 60 days old and constructed in accordance with ASTM E1745. Level substrate and fill all cracks, holes and low spots with a polymer-modified portland cement patch or leveling compound. Burnished or steel troweled concrete substrates must be inspected for porosity by placing a few drops of water on the surface. If the water is not absorbed within 3 minutes, the substrate should be considered non- porous. Abrade the surface with 30-grit sandpaper until porosity is achieved. After abrading, remove all debris before proceeding with installation. Glue down floors may be applied to concrete with a rating of 3,000 psi or greater. Glue down application over lightweight concrete (less than 3,000 psi) is not permissible.

Approved subfloor panels should meet or exceed the following guidelines:

- **Plywood:** Must be minimum CDX EXP 1 grade and conform to U.S. Voluntary Product Standard PS1-19 performance standard or Canadian performance standard CAN/CSA 0325 (NIST PS 2-10).
- **Oriented Strand Board:** Strand board (OSB) must conform to U.S. Voluntary Product Standard PS 2-18 or Canadian performance standard CAN/CSA 0325 (NIST PS 2). The panels must be tongue and groove and installed sealed-side down.
- **Particleboard:** (Floating installation only.) Must be a minimum 40-lb density, stamped underlayment grade and 3/4 inch (19 mm) thick.

Floor joist/truss spacing will determine the minimum acceptable thickness of the subfloor panels. Joist/truss spacing of 16 inches on center or less for single panel subflooring requires a minimum 5/8-inch (19/32 inch, 15.1 mm) CDX (EXP 1) 4-feet x 8-feet subfloor panels. Joist/truss spacing of greater than 16 inches up to 19.2 inches (488 mm) on center, requires a minimum nominal 3/4-inch (23/32 inch, 18.3 mm) tongue and groove CDX (EXP 1) plywood or OSB PS2-18 4-feet x 8-feet subfloor panels, glued and mechanically fastened. Floor systems with joists/truss spaced greater than 19.2 inches (488 mm) on center up to a maximum of 24 inches (610mm) require minimum 7/8-inch tongue and groove CDX (EXP 1) plywood or OSB PS2-18 4-feet x 8-feet subfloor panels, glued and mechanically fastened. Installation over joist spans greater than 24 inches on center is not recommended. For installation over joist spans greater than 24 inches on center, consult NWFA (National Wood Flooring Association) for panel thickness guidance.

Solid Wood Subfloor – Direct Glue or Staple Down Applications

- Minimum 3/4 inch (19 mm) thick with a maximum width of 6 inch (15 cm) installed at a 45° angle to the floor joists.
- Group 1 dense softwood (pine, larch, Douglas fir, etc.) No. 2 common, kiln dried with all board ends bearing on joists.
- For direct glue down applications, add 3/8-inch (9.5 mm) approved floor panel underlayment.

Existing Wood Flooring – Direct Glue or Staple Down Applications

- Existing engineered flooring must be well bonded/fastened. When gluing over existing wood flooring, the surface finish must be abraded or removed to allow adequate adhesive bond.
- Existing solid hardwood flooring that exceeds 6 inch (15 mm) in width must be covered with 3/8-inch (9.5 mm) approved underlayment and fastened as required.
- Do not install over solid or engineered flooring attached directly to concrete. Instead remove existing wood flooring and follow instructions for installation over concrete.

Wood subfloors should be well nailed or secured with screws. Nails should be ring shank and screws need to be counter sunk. The wood subfloor must be structurally sound, without loose boards, vinyl or tile. If subfloor panels are a single layer, less than 3/4 inch thick, add another single cross layer for strength and stability, minimum 3/8 inch.

Underlayment floor panels must be installed sealed-side down. When used as a subfloor, allow 1/8-inch (3.2 mm) expansion space between each panel. If spacing is inadequate, cut in with a circular saw. Do not cut an expansion space on tongue and groove panels. When installing parallel to the floor joists, it may be necessary to increase rigidity of the structural subfloor system by installing an additional minimum of 3/8-inch (9.5 mm) approved underlayment floor panel.

NOTE: Avoid subfloors with excessive vertical movement no more than 3/16-inch (4.7mm) deflection. If the subfloor exhibits excessive vertical movement (deflection) before installation of the flooring, it will likely do so after installation of the flooring is complete. Indications of excessive deflection are uneven finish wear, fastener release, squeaking, compromised or damaged locking systems, sectional contours such as bowing or dipping in floors and uneven flooring material.

Radiant Heat

Mohawk engineered flooring can be used in combination with many types of thermostatically controlled floor heating. The heating system can be cast in a concrete floor or in a thin layer of filler on the surface of a concrete subfloor. It can also be installed under a wood subfloor or installed on the surface of the subfloor as an electrical matting, provided it meets the floor flatness requirements.

- Follow the instructions from the supplier of the floor heating system.
- Concrete subfloors must be installed and cured with no heat transfer for a minimum of 60 days.
- The heating system must be in operation for at least two weeks before installation.
- Prior to flooring installation, the system should be set to a suitable installation temperature (65° to 72°F).
- Following installation, temperature should be raised slowly, 2°F, every day until desired temperature is reached.
- The flooring surface temperature, which is the surface of the subfloor or the heat radiating from electric heating mats, should not exceed 84°F (29°C).
- Do not use area rugs on top of engineered flooring installed over radiant heat systems. Area rugs trap heat, creating elevated temperatures capable of damaging engineered flooring.

Lightweight concrete: Engineered wood flooring is not recommended for glue down installation over lightweight concrete subfloors. To test for lightweight or acoustical concrete, scrape a coin or key across the surface of the subfloor. If the surface powders easily or has a dry density of 100 pounds per cubic foot, or less, foot, the engineered flooring should not be installed using the glue down method. Product can be installed using floating installation method. For leveling and repair of lightweight concrete, contact the lightweight concrete manufacturer to ensure correct methods are used.

Existing perimeter glued resilient vinyl and rubber tiles are unacceptable underlayments and must be removed. Terrazzo, vinyl, resilient tile, cork and linoleum or hard surfaces that are dry, structurally sound and level are suitable as a subfloor. As above, the surface must be sound, tight and free of paint, oil, existing adhesives, wax, grease and dirt. Terrazzo and ceramic tile must be scuffed to ensure proper adhesion.

WARNING: Do not sand existing resilient tile, sheet flooring, backing or felt linings. These products may contain asbestos fibers that are not readily identifiable. Inhalation of asbestos dust can cause asbestosis or other serious bodily harm. Check with local, state and federal laws for handling hazardous material before attempting the removal of these floors.

Direct glue installation: Make sure the floor covering materials are well bonded to the subfloor or underlayment with full spread adhesive and no more than two layers thick, not to exceed 3/16 inch (4.7 mm). With approved wood or wood composite subfloors, if vinyl or tiles are loose, broken or in poor condition, install a 3/8-inch (9.5 mm) approved underlayment grade subfloor panel directly over the flooring materials. Clean the flooring materials as necessary to remove waxes, sealers or cleaning residues to allow a good adhesive bond. Cork floor sealers and surface treatments must be removed. Always perform a bond test prior to beginning direct glue installation.

Before You Start Any Installation Method

To correct any subfloor conditions concerning moisture, either wait until the subfloor dries to meet specifications or use an appropriate moisture barrier. For more information concerning moisture conditions, contact Mohawk Technical Service Department at 888-387-9881.

NOTE: DO NOT INSTALL FLOORING IF MOISTURE TESTS RESULTS EXCEED RECOMMENDED LIMITS.

- Plan your layout and determine the direction of the installation in the room. Planks installed parallel to windows accent the hardwood best.
- To achieve a uniform installation appearance, preselect and set aside hardwood planks that blend best with all trims and moldings. Install these planks next to best-blended moldings.
- Remove all wall-mounted moldings such as base and quarter round.
- Floor should be installed blending planks from a minimum of three cartons to ensure good color and shade blend throughout the installation.
- Be attentive to staggering the ends of the boards at least 6 inch, or longer for wider-width products, in adjacent rows.

NOTE: USE OF A RUBBER MALLET TO INSTALL FLOORING IS NOT RECOMMENDED AS STRIKING THE SURFACE WITH A RUBBER MALLET MAY CAUSE IRREPARABLE DAMAGE TO THE PLANK.

Glue Down Installation Guidelines

Adhesive Selection

Selection of your adhesive, Silent Bond, M92X or TimberStrong, will vary depending on the subfloor moisture condition. Adhesive moisture requirements are not interchangeable between adhesives and vary dependent upon the subfloor type and conditions. The subfloor moisture requirement and test for each adhesive is outlined in the following guidelines.

Concrete: If an excess subfloor moisture situation exists, it is recommended that Silent Bond Ultratack Advanced 3-in-1 Adhesive be applied using the 1/4" x 1/4" v-notch trowel designated on in the chart for Adhesive, moisture and sound control. Use of these products or products with equal or greater specifications are necessary for warranty compliance.

Silent Bond Ultratack Advanced 3-in-1 Adhesive:

A low VOC silane terminated polymer adhesive designed for use over on-grade or above-grade concrete substrates where excessive moisture may be present.

- Up to 99% RH levels in concrete. When the "Moisture Control" installation method is not used, moisture tests must be performed on all concrete subfloors regardless of grade level or age. Moisture testing must be performed in accordance to ASTM F-1869 – Calcium Chloride Test, or ASTM F-2170 – in situ RH Probe Test.
- Test for sealers and curing compounds as they will limit bond and cause the adhesive to take longer to cure.
- Trowel should be replaced every 3,000 square feet or sooner as wear dictates.
- Product must be used in its entirety when opened. Lid cannot be re-sealed.
- Temperature and humidity will affect the curing time. The higher the temperature and humidity, the faster the cure.

FLOORING	MVER OR RH%	TROWEL	COVERAGE
5/16" Fingerblock parquet	< 3 lbs/1000 ft2 per 24 hours or 75%RH	1/8" x 1/8" x 1/8" square-notch	55-65 ft2/U.S. gal
Engineered plank or bamboo < 1/2" and less than 7" wide	< 3 lbs/1000 ft2 per 24 hours or 75%RH	1/4" x 1/2" x 3/16" v-notch	60-70 ft2/U.S. gal
Engineered plank or bamboo > 1/2" or wider than 7"	< 3 lbs/1000 ft2 per 24 hours or 75%RH	3/16" x 3/16" x 3/16" square-notch	35-45 ft2/U.S. gal
Solid wood plank, shorts or plywood	< 3 lbs/1000 ft2 per 24 hours or 75%RH	1/4" x 1/4" x 1/4" square-notch	25-30 ft2/U.S. gal
Parquet, engineered plank, bamboo or solid plank	Adhesive, moisture Adhesive, moisture	1/4" x 1/4" v-notch	30-35 ft2/U.S. gal

IMPORTANT: Only the above specified trowels and application methods are to be used with this adhesive; otherwise, the product performance warranties and liabilities will be made void. Use of these products or products with equal or greater specifications are necessary for warranty compliance.

Wood

Wood substrates should test less than 12% using a pin moisture meter.

Concrete

Coverage is based on application to a clean, smooth concrete substrate. Application rate may vary depending on substrate conditions.

Uses

- Will not etch the finish on a pre-finished board.
- May be used on properly prepared concrete or wood substrates.

M92X Modified Moisture Cured Urethane Adhesive:

A trowel-applied moisture curing adhesive for the installation of glue down flooring installations over concrete and wood substrates.

Concrete

- Up to 90% RH levels in concrete using in-situ probes in accordance with the latest version of ASTM F 2170
- Test for sealers and curing compounds
- Use the trowel from the below chart based on the conditions of the job

FOR CRACK ISOLATION, SOUND REDUCTION AND WOOD ADHESION

FLOORING TYPE	TROWEL	COVERAGE
For solid flooring up to 3/8" thick & engineered flooring greater than 9/16" thick For Wide/Long Plank	1/2" x 15/32" V-Notch (12.7 mm x 11.9 mm V-Notch)	Up to 20 Sq Ft/Gal
For solid flooring up to 3/8" thick & engineered flooring less than 9/16" thick	1/4" x 1/4" V-Notch (6.35mm x 6.35mm V-Notch)	Up to 30 Sq Ft/Gal

FOR ONLY WOOD ADHESION

FLOORING TYPE	TROWEL	COVERAGE
Dry-back wood parquet flooring	1/8" x 1/8" x 1/8" Sq. Notch (3.2mm x 3.2mm x 3.2 mm Sq-Notch)	60-70 Sq Ft/Gal
For solid & engineered flooring	3/16" x 1/4" x 5/16" V-Notch (4.8mm x 6.4mm x 7.9 V-Notch)	50-60 Sq Ft/Gal

Coverage is based on application to a clean, smooth concrete substrate; therefore, application rate may vary depending on substrate conditions.

Please contact Technical Services at 888-387-9881 with any questions.

NOTE: Do not apply over self-stick tile, sheet vinyl, old adhesives, metal, linoleum, laminate, particleboard or strip wood subfloors without first covering with an approved wood or wood composite underlayment. Air temperature must be between 50°F and 100°F for applying M92X Urethane Adhesive.

- Product must be used in its entirety when opened. Lid cannot be re-sealed.
- Temperature and humidity will affect the curing time. The higher the temperature and humidity, the faster the cure.

TimberStrong Urethane Adhesive:

A low VOC urethane adhesive designed for use over on-grade or above-grade concrete substrates where excessive moisture may be present.

- Up to 99% RH levels in concrete when the "Moisture -Vapor Membrane" installation method is used.
- Test for sealers and curing compounds as they will limit bond and cause the adhesive to take longer to cure.
- Trowel should be replaced every 3,000 square feet or sooner as wear dictates.
- Product must be used in its entirety when opened. Lid cannot be re-sealed.
- Temperature and humidity will affect the curing time. The higher the temperature and humidity, the faster the cure.

ADHESIVE & MOISTURE-VAPOR MEMBRANE INSTALLATION METHOD

FLOORING TYPE	TROWEL	COVERAGE
Engineered hardwood flooring >5/8" thick, or plywood	1/2"x15/32" v-notch 1/4"x3/8"x1/4" sq-notch	20 Sq Ft/Gal

ADHESIVE ONLY INSTALLATION METHOD

FLOORING TYPE	TROWEL	COVERAGE
Engineered hardwood flooring	3/16"x5/32" v-notch	50 Sq Ft/Gal
Plywood >1/2" thick	1/4"x1/4"x1/4" sq-notch	40 Sq Ft/Gal
Plywood >1/2" thick	1/4"x1/4"x1/4" sq-notch	35 Sq Ft/Gal

IMPORTANT: Only the above specified trowels and application methods are to be used with this adhesive; otherwise, the product performance warranties and liabilities will be made void. Use of these products or products with equal or greater specifications are necessary for warranty compliance.

Wood

Wood substrates should test less than 12% using a pin moisture meter.

Concrete

Coverage is based on application to a clean, smooth concrete substrate. Application rate may vary depending on substrate conditions.

Uses

- Etching of the finish on a pre-finished boards will occur if the adhesive is not cleaned off completely and rapidly with mineral spirits.
- May be used on properly prepared concrete or wood substrates.

Glue Application

1. Regulate temperature and humidity 72 hours before, during and after installation.
2. Spread adhesive using recommended trowel, ensuring 95% to 100% adhesive contact.
    - Wet lay method: Press flooring firmly into adhesive immediately after troweling.
    - Walk on method: Press flooring firmly into adhesive after it has developed its initial grab, typically after 15 to 20 minutes.
3. Remove any adhesive smudges or drops immediately, as adhesive is very difficult to remove once allowed to dry. Clean tools while adhesive is fresh using a urethane adhesive remover or mineral spirits.
4. Avoid light/regular foot traffic for at least 12 hours. Avoid heavy foot traffic for at least 24 hours.

Use clean white cloth with mineral spirits to clean as you go. Adhesive that has cured on the surface of the flooring can be difficult to remove.

Getting Started – Direct Glue

CAUTION: Follow all guidelines set by the adhesive manufacturer as well as the flooring manufacturer. Failure to adhere to the guidelines may void your flooring warranties.

General Information for Glue Down Installations

1. Use Portland cement-based patch, skim coat leveling products to correct substrate imperfections. Do not use on lightweight concrete unless instructed by that manufacturer.
2. Regulate temperature and humidity 72 hours before, during and after installation.
3. Install and secure starter row.
4. Spread adhesive using recommended trowel, ensuring 95% to 100% adhesive contact. Wet lay method: press flooring firmly into adhesive immediately after troweling. After the flooring is in place, follow the rolling instructions of the adhesive being used.
5. Inspect the installation and remove any adhesive smudges or drops immediately. For Modified Urethanes and Silanes, a wet rag with water or mineral spirits can be used. For Urethane adhesives only mineral spirits can be used. NOTE: Urethane adhesive will chemically etch prefinished wood surfaces and. Make every effort to prevent adhesive from getting on the flooring surface. For best results, keep a urethane adhesive cleaner or mineral spirits nearby to remove any adhesive smudges or drops during installation.
6. Clean tools while the adhesive is still wet with the appropriate cleaner defined by the instructions of the adhesive used.
7. Avoid light/regular traffic for at least 12 hours. Avoid heavy traffic for at least 24 hours.
8. See adhesive manufacturer's guidelines for open time on the adhesive container.
9. Proper ventilation within the room must be provided. An electric fan is helpful.

Wet Lay Method

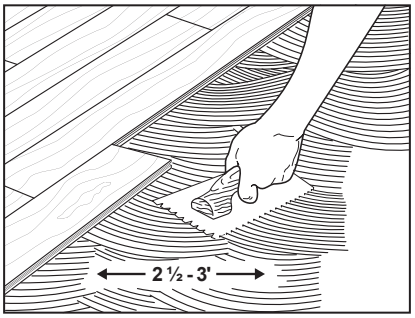
Step 1: Select a starter wall. It is recommended to start the installation along an exterior wall. An exterior wall is more likely to be straight and square with the room. Measure out from the wall the width of two planks plus the plank thickness, mark each end of the room and snap your chalk line.

Step 2: Spread adhesive from the chalk line to the starter wall using the recommended trowel size. It is important to use the correct trowel at a 45° angle to get the correct adhesive spread rate to produce a proper and permanent bond. Improper bonding can cause loose or hollow spots.

NOTE: Change the trowel every 2,000 to 3,000 square feet, or sooner as needed, due to trowel wear. This ensures the proper adhesive spread rate.

Step 3: Install the first row of starter planks with the tongues facing the starter wall and secure into position. Alignment is critical and can be achieved by securing a straight edge along the chalk line (a two-by-four works well), or by top nailing the first row with finishing nails (wood subfloor) or adjustable spacers (concrete subfloor). This prevents slippage of the planks that can cause misalignment.

NOTE: The planks along the wall may have to be scribed and cut to fit in order to maintain a consistent expansion space since most walls are not straight. Try to maintain at least 2 inch on the scribed plank.



Step 4: Once the starter rows are secure, spread 2-1/2 to 3 feet of adhesive the length of the room. Never lay more adhesive than can be covered in approximately 1 hour. Place tongue into groove of plank or strips and press firmly into adhesive. Never slide planks or strips through adhesive. Use Uniclic tapping block if necessary to fit planks snug together at side and butt ends. Clean any adhesive off the surface of the flooring before it cures with a damp cloth.

NOTE: Never work on top of the flooring when installing. If you must work on top of the newly laid flooring, use a kneeling board.

Secure your starter rows with a straight edge. Once the remainder of the floor has been installed, go back to the beginning and remove the straight edges and spread adhesive on the remainder of the open subfloor. Remember, planks closest to the wall may have to be scribed and cut to fit due to irregularities along the wall.

Final Touches

Install or re-install any transition pieces, reducer strips, T-moldings, thresholds, bases and/or quarter round moldings. Trims and moldings should be nailed into the wall or subfloor, not the floor. Install the proper trim molding at the doorways to achieve the transition and along the walls to cover the edges of any gaps along the wall due to irregularity.

Complete the job by using the InstaMatch wood filler kit that coordinates with the installed engineered flooring for minor corrections or areas where brad nails were used in the trim or the flooring. Clean the finished floor with Performance Accessories Floorcare Essentials Hardwood and Laminate Floor Cleaner.

To prevent surface damage, avoid rolling heavy furniture and appliances on the floor. Use plywood or appliance lifts if necessary. Use protective castors/castor cups or felt pads on the legs of furniture to prevent damage to the flooring.

IMPORTANT: If the floor is to be covered, the floor should be thoroughly cleaned prior to covering to prevent grit damage to the finish. Do not cover with plastic, red rosin, felt or wax paper or previously used cardboard. Inks from printed cardboard could damage the hardwood floor. Instead use a breathable material such as clean, dry, plain uncoated cardboard or Kraft paper.

A common reinforced builder's paper is a good choice. Any covering should be taped with a low-adhesion tape to base or shoe moldings. Avoid taping to finished flooring. When taping paper or sheets together, tape them to each other, not to the floor. The floor must be completely covered to eliminate uneven ambering from exposure to UV light. Flooring should not be covered for an extended period of time to prevent moisture related issues from trapped condensation

Staple Down Installation Guidelines

Thickness	Fastener Guage	Side Spacing	End Spacing
3/8″	20	4"-6"	1"
1/2″	18 not less than 1 1/2″ in length	4"-6"	1"
5/8″	18 not less than 1 1/2″ in length	4"-6"	1"
3/4″	15.5 g staple or 16 or 18 g cleat	4"-6"	1"

Tongue and groove Enhanced Engineered Core hardwood floors may be installed over wood subfloors with the exception of Parquet or Masonite. When installing engineered wood planks, it is necessary to use the proper type of flooring stapler made for or properly adjusted to the thickness of the engineered wood flooring that is being installed.

NOTE: In order to reduce squeaks and noises created by the opposing floors, in addition to the ground cover in the crawlspace, a 15 lb felt or rosin paper, or equivalent underlayment must be installed over the subfloor prior to the installation of the engineered wood flooring.

For all products 5 1/2 inches wide or greater, a serpentine glue assist (urethane-based glue) needs to be applied under the boards.

Layout the Job

Measure out from the ends of your starting wall the width of the plank, plus plank thickness, for expansion and mark both ends. Where possible, lay the flooring at 90° angles to the floor joists. Make a chalk line along the starting wall using the marks you made.

NOTE: For jobs needing to be started in the center and worked both directions, add a spline to the bayside of your starter row along with a bead of D3 glue or a substitute such as Titebond 3 and then staple. This will allow you to work both directions.

Getting Started – Staple Down

NOTE: Expansion space is required along the perimeter of the room(s) of intended installation. Expansion space is dictated by the thickness of the product; for example, 3/8-inch thick floor requires 3/8-inch expansion space, 1/2-inch thick floor requires 1/2-inch expansion space, etc.

Place the planks along your chalk line with the groove side facing the wall. Use brads or small finishing nails to secure the first starter row along the wall edge 1 inch to 2 inches from the ends and every 4 to 6 inches along the side. Counter sink the nails and fill with the wood filler that blends with the flooring installed. Place the nails in a dark grain spot in the board. The base or shoe molding will cover the nails when installed after completion of the installation.

Blind nail at a 45° angle through the tongues. It will be easier if holes are pre-drilled in the tongues. Nail 1 inch to 2 inches from the ends and every 4 to 6 inches along the sides. It will be necessary to blind nail the next two rows. A brad nailer with 1-inch to 1 3/8-inch brads can also be used to blind nail and no pre-drilling is needed. Continue the installation using an engineered wood flooring stapler, using recommended staples. Staple flooring 1 inch to 2 inch from ends and every 4 to 6 inches along the edge tongues. See notes in floating section for end joint spacing and starting additional rows.

Recommended Pneumatic Floor Fastener

Staple 1 inch to 2 inches from the ends and every 4 to 6 inches along the tongue side of the engineered wood product to help insure a satisfactory installation. It is recommended to initially set the compressor at 80 to 85 PSI and adjust the pressure as needed in order to properly set the fastener and prevent the fastener from going through or breaking the tongues.

Improper stapling techniques can cause squeaks and/or surface dimpling of the floor. Adjustments may be necessary to provide adequate penetration of the nail or staple into the nail pocket. Fasteners should be flush in the nail pocket and not beyond. Use a scrap piece of flooring material to set tools properly before installation. Always use flooring installation tools with the factory designed floor plate attached to ensure proper fastener penetration angle.

For any product over 7 inches wide, an additional glue assist needs to be applied for installation. A urethane glue needs to be applied to the subfloor in a serpentine manner every 8 to 10 inches going vertical to the boards horizontal direction.

Floating Installation Guidelines (Preparation)

Undercut Door Casings

Undercut all door casings 1/16 inch higher than the thickness of the flooring materials to be installed. Use a scrap piece of flooring as a guide. Lay the scrap on the substrate and cut the casing with a handsaw or use a power jamb saw set at the correct height. Remove all moldings and wall base and undercut all door casings.

Underlayment

Use Performance Accessories Underlayment or equivalent with equal or better specifications. Underlayment requirements are critical to a floating installation. Excessive pad compression or compaction is a common cause of seam failure. Lay the underlayment on the floor with the moisture barrier facing up. The direction of the underlayment should lie parallel to the direction of the floor being installed.

For the first row of flooring, the underlayment should be placed so that approximately 1 inch overlaps onto all perpendicular walls. Place the following row next to the first row on top of the lower moisture barrier overlap. Remove the adhesive strip and fold back the upper overlap on the second row. Make sure the underlayment fits together tightly; don't leave gaps. On the last row, place the underlayment 1 inch up the wall. To join rolls on the short side of the underlayment, use a moisture-resistant tape to connect the two pieces so water cannot penetrate the underlayment.

Expansion Space

An expansion space equal to the plank thickness must be maintained around the perimeter of the room, all pipes, counters, cabinets, fireplace hearths, doorframes and any other fixed vertical objects in the room. Doorways or archways 48 inches or less and rooms larger than a 26 feet x 33 feet are required to have a T-Molding.

Glue and Glue Placement

The recommended glue for floating installation is Performance Accessories Tongue & Groove D3 Rated Floating Floor Glue. The glue must be placed on every plank along the topside of the groove and bottom side of the tongue for the full length of the side and end. Apply only a 3/32-inch bead of glue. If the groove is filled with glue, it will be difficult to close the seam, preventing a tight fit.

Gettting Started – Floating Floor

The installation begins with three rows of flooring glued together and held in place with low-adhesion, delicate surface, painter's tape with the groove side facing the wall. Spacers must be used to establish the expansion space from the walls equal to the plank thickness. These three rows must be straight, square and in rack because they establish the alignment of the rest of the floor. After putting these three rows together, allow the glue to set 15 to 45 minutes before proceeding with the installation.

With the tongue facing out, the planks can be tapped together with a tapping block on the tongue to make a snug fit. After installing 8 or 10 rows of flooring, stand back and check for crowning or heaving due to tension strapping or any damage caused by improper taping.

Row 1: It is necessary to work from right to left when installing tongue and groove engineered hardwood flooring. Plank 1 should be a full-length board, laid in the right hand corner of the room. Lay the plank with the groove of the long side facing the wall. Use wood wedges to maintain spacing around the perimeter of the room equal to the plank thickness. Place each plank firmly against the wood wedges. Slide the end tongue of the board to be installed into the end groove of the board previously installed. After setting the first row and making sure you're working against a firm starting point, lay out three to four rows before starting to install. Lay the rest, plank after plank, in this manner until you have completed the first row. Cut the last plank accordingly. Ensure that this first row is straight using the wedges to maintain proper expansion space from the wall. Planks may require scribing and cutting to fit wall curvature if present.

Row 2: When possible, use a leftover plank from the first row to begin the second row to minimize waste. Initial layout of material will allow you to check your end seams to ensure they are not too close. End joints on adjoining rows should be offset by no less than 6-inches. Align this plank and lock the side into place against the first plank in row 1. The next plank is aligned with the end joint first into the previous plank in row 2. The side of plank is then tapped lightly against the previously laid row. Continue laying in this way across the entire row. Remove the fitting wedge and press in the row of planks with a light pressure on the long side. The Uniclic Tapping Block may be required to ensure a tight fit of all long-side joints. The planks are now laid row after row in this sequence.

Row 3 and remaining rows: Move rows if necessary to ensure that you are not showing any undesirable joint patterns. The rest of the row's end joints should be random throughout the floor. Your first three rows are staggered, ensuring that offset of previous row with end joints are no closer than 6 inches, or longer for wider width products, from one another. When the planks are being placed, use a non-random pyramid or stair step pattern to ensure the planks remain engaged through the force of the tapping. Stretch and stick low-adhesion, delicate surface painter's tape across every 3 to 5 rows of planks approximately 2 feet apart from each other to hold the floor in place until the glue sets. Remove tape within 24 hours.

Glue Clean Up

If any tongue and groove adhesive squeezes out of the seam between the planks, allow it to dry for 10 to 15 minutes and then lightly scrape it away with a plastic scraper or putty knife.* Any glue left may be cleaned with a damp cloth. Do not allow the glue to dry on the face of the flooring; it will be very difficult to clean off. *If using Timberstrong, you must clean up immediately with mineral spirits before it dries.

Installer's Responsibility

Warranty for separation of planks and damage caused by the use of incorrect tape or length of time tape remained on the floor is the responsibility of the installer.

Final Touches

Trim excess underlayment (floating installation only) and install or re-install any transition pieces, reducer strips, T-moldings, thresholds, bases and/or quarter round moldings. Trims and moldings should be nailed into the wall or subfloor, not the floor. Install the proper trim molding at the doorways to achieve the transition and along the walls to cover the edges of any gaps along the wall due to irregularity.

Complete the job by using the InstaMatch wood filler kit that coordinates with the installed engineered flooring for minor corrections or areas where brad nails were used in the trim or the flooring. Clean the finished floor with Performance Accessories Floorcare Essentials Hardwood and Laminate Floor Cleaner.

To prevent surface damage, avoid rolling heavy furniture and appliances on the floor. Use plywood or appliance lifts if necessary. Use protective castors/castor cups or felt pads on the legs of furniture to prevent damage to the flooring.

IMPORTANT: If the floor is to be covered, the floor should be thoroughly cleaned prior to covering to prevent grit damage to the finish. Do not cover with plastic, red rosin, felt or wax paper or previously used cardboard. Inks from printed cardboard could damage the hardwood floor. Instead, use a breathable material such as clean, dry, plain, uncoated cardboard or Kraft paper. Do not allow flooring to remain covered for an extended period of time. The reduction in air exchange creates a greenhouse effect and will damage the flooring.

A common reinforced builder's paper is a good choice. Any covering should be taped with a low-adhesion tape to base or shoe moldings. Avoid taping to finished flooring. When taping paper or sheets together, tape them to each other, not to the floor. The floor must be completely covered to eliminate uneven ambering from exposure to UV light. Flooring should not be covered for an extended period of time to prevent moisture related issues from trapped condensation.

Cleaning & Maintenance

Engineered Hardwood Floors are very easily maintained. No wax, no mess.

The best way to care for your new floor is to schedule routine maintenance, which includes sweeping the entire floor at least once a week to remove dirt and debris that may scratch the floor. High traffic areas such as entrances and doorways will require cleaning more frequently, depending upon of the amount of concentrated foot traffic. Following these easy steps is the key to keeping your new floor looking beautiful for years to come.

Step 1: Routinely sweep your floor with a soft bristle broom or use a vacuum designed for use on hardwood floors.

WARNING: Vacuums with a beater bar or power rotary brush head can damage a wood floor and should never be used.

Step 2: Apply Performance Accessories Floorcare Essentials Hardwood and Laminate Floor Cleaner to a clean cloth or microfiber mop; do not spray directly onto the floor. DO NOT USE CLOTHS THAT HAVE BEEN EXPOSED TO FABRIC SOFTENER. IT COULD CAUSE STREAKING. Use a back and forth motion with the mop. When the cloth or microfiber cover becomes soiled, simply replace it with a clean one. Cleaning the floor with a soiled cover could cause streaking.

Most microfiber mop covers are re-usable and can be cleaned using a standard washer and dryer. Refer to the manufacturer's cleaning instructions when washing cloth or microfiber covers. DO NOT USE CLOTHS THAT HAVE BEEN EXPOSED TO FABRIC SOFTENER. IT COULD CAUSE STREAKING.

Tips and Warnings

- Sweep regularly with a soft bristle broom.
- Remove spills promptly and use Performance Accessories Floorcare Essentials Hardwood and Laminate Floor Cleaner.
- Use felt protectors under heavy pieces of furniture and chairs.
- Use transition mats at all exterior entrances.
- Never use rubber or latex backed rugs on your floor. Rug pads should extend all the way to the edges of the rug to work properly. Any rug pad selected should be soft, non-staining and non-abrasive. Regularly clean under rugs and rug pads.
- Spiked heels or shoes in need of repair or cleated athletic foot wear can severely damage floor.
- Replace hard plastic or metal casters or wheels on furniture with soft rubber casters or use a protective mat under the casters.
- Never wet mop or use damp mop methods that allow moisture to puddle on the floor surface.

- Never use steam cleaners on your floor. This will force moisture into the finish and cause damage to your floor.
- Never use oil soaps, wax, liquid or any other household products, surface cleaners or polish not formulated specifically for use with hardwood flooring to clean your floor. Don't use 2-in-1 cleaners that contain acrylics or urethane polish to restore gloss. These products could damage your floor.
- Keep pet nails trimmed as recommended by your veterinarian.
- Protect your floor by using a dolly with clean, soft rubber tires when moving furniture or appliances.
- Use protective window coverings to protect hardwood floors from excessive heat during periods of direct sunlight.

Avoiding Scratches and Dents

With today's active lifestyles it is important to note that hardwood flooring can, and will, scratch and dent. See Tips & Warnings for protecting your hardwood floor. In order to prevent excessive abuse, the use of strategically placed mats and area rugs as well as floor protectors on chair and table legs are a must.

Transition Mats

Non-rubberized Transition Mats should be used at all exterior entrances to minimize tracked-in soil and reduce moisture during inclement weather. Ideally, the purchase of two sets of transition mats for each exterior entrance will allow a fresh mat to replace the soiled mat during routine weekly cleaning. This will prevent the transition mat from becoming a soil source.

Exterior Mats should be placed at all exterior entrances. Exterior mats should be constructed of dual fibers: soft fibers capable of absorbing moisture and coarse fibers to remove dirt and grim from shoe soles. Purchase two sets of exterior mats for each exterior entrance. Place one mat into service at all exterior entrances to reduce the amount of dirt, grit and moisture tracked in the home. During routine cleaning remove the first mat for cleaned and replace with second mat. Routinely clean exterior mats to prevent them from becoming a soil source.

Protection From Sunlight

Hardwood contains certain types of acids in its cellular structure. With exposure to sunlight, these acids begin to amber. The color change is referred to as patina. The wood will reach its own natural warm patina level and stop ambering. The amount of patina is directly related to the species, amount of acids and the level of sunlight. This effect is often noticed after a rug is removed and the floor underneath is noticeably different in color. If you remove the rug and expose the entire floor to the same amount of light, it will even out over time and become uniform in color.

Warranty

Mohawk warrants that the factory-applied finish will not wear through or will not lack finish adhesion as a result of normal use. Additional structural warranty and moisture warranty may be applicable to this engineered hardwood. See your retailer for specific details and duration of warranty.

Pre-installation Subfloor Moisture Testing

Installer should use this section to record pre-installation moisture content readings. This completed form along with at least one carton end label, receipt of purchase and the floor care maintenance instructions should be provided to the owner for owner's records.

Wood Subfloor	
Date:	
Installation company:	
Moisture readings taken by:	
Moisture Content:	% Average moisture content of subfloor % Average moisture content of hardwood % Difference between subfloor and flooring

Concrete Subfloor	
Date:	
Company performing concrete moisture readings:	
Moisture readings taken by:	
Test Method Used:	Calcium Chloride (*ASTM F1869*) RH (*ASTM F2170-02*) Electronic Meter
Moisture Readings:	