



# Engineered Hardwood Flooring

## INSTALLATION

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MohawkGroup.com

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Multi-Layered Core Engineered Hardwood Flooring can be installed over most properly prepared subfloors and are engineered to be dimensionally stable, making them suitable for installation on all grade levels where 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 [www.mohawkgroup.com](http://www.mohawkgroup.com) or contact the Technical Services Department at 888-833-6954.

### **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 the Technical Services Department at 888-833-6954.

PROPOSITION 65 WARNING: This product contains chemicals known to the State of California to cause cancer and/or reproductive harm.

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. The products in this carton 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 positively 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 to be located in 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

### Installer/Owner Responsibility

It is the responsibility of the installer and owner to ensure that job site environmental, subfloor and subsurface conditions involved 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 jobsite conditions.

Manufacturer requires Engineered Hardwood products to be acclimated prior to installation. Acclimation allows flooring to achieve equilibrium moisture content (EMC) with the installation environment. 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 3 cartons at the same time to ensure good color and shade blend. The installer must use reasonable selectivity and hold out or cut off piece 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.

All work involving water or moisture (plumbing, masonry, painting, plastering) 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.

Room temperature should be 60 - 80°F, with relative humidity between 35 - 55%. These environmental conditions are specified as pre-installation requirements and must be maintained for the life of the product. The HVAC system must be in operation for a minimum of 14 days prior to performing moisture tests or installation.

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

- Heating season – Low Humidity, Dry. All heating methods create dry, low humidity conditions. Humidifiers are recommended to prevent excessive shrinkage or 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 proper humidity levels should be maintained by using an air conditioner or dehumidifier.

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

Do not install this product in full bathrooms.

Purchase an additional 5% of flooring to allow for cuts and additional 10% if installing diagonally.



WARRANTY NOTE: Installer should provide owner with one carton end label from product installed 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 flooring is damaged.

The use of stain, filler or putty for correction is considered a normal practice and a routine part of installation.

## Basic Tools Needed

- Safety Glasses
- Wood/Concrete Moisture Meter Chalk Line
- Tapping Block Tape Measure Jamb Saw Table Saw
- Appropriate Adhesive Trowel Coordinating Stain, Filler or Putty Mineral Spirits (Odorless)
- Thick Felt Protectors Putty Knife
- NIOSH Approved Dust Mask Broom or Vacuum
- Starting Row Wedges Pry Bar or Trim Puller Pencil
- Miter Saw Utility knife
- Low Adhesion Painter Tape Plastic Scraper
- Terry Towels Pull Bar
- Carpenters Square

## Accessories Needed

- 15 lb. Felt or Rosin Paper
- Coordinating Transition Strips or Molding
- Performance Accessories Underlayment Flooring Adhesive

Direct Glue Installation: Use Performance Accessories Adhesives and Sealers or products that meet or exceed manufacturer's adhesive and sealer specifications as specified in Adhesive Selection section below. Refer to container labels for specifics on trowel size, etc.

## Pre-installation and Jobsite Conditions Acclimation

Do not deliver wood flooring to the jobsite or 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 jobsite for a minimum of 72 hours prior to installation to allow for the product to acclimate. Flooring should be stacked with at least a four-inch (4") 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 where the product is acclimated is set to normal living conditions as described above. 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 for per 1000 square feet of subfloor using a pin type moisture meter. Average these readings and include on the data sheet on the last page 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, acclimation is complete. The flooring is acclimated and ready for installation only when it has reached a moisture content level consistent with the jobsite and normal living conditions. Do not install the floor until these moisture conditions are met.



## 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 over chemically cleaned substrates.
- Flat – Within 3/16" in 10' radius (5 mm in 3 m) and/or 1/8" in 6' radius (3 mm in 2 m). Sand high areas or joints. Fill low areas with a high compressive strength (min.3000 psi) Portland base compound.
- Dry – Wood floor moisture should be evaluated using the guidance supplied above under the heading "Acclimation". Concrete subfloors must be cured for a minimum of 30 days. The moisture content of a concrete subfloor should be tested using a Calcium Chloride test (ASTM-F-1869 or ASTM F-710) and show no greater than 3 pounds per 1000 square feet in 24 hours or in accordance with ASTM F2170 latest version RH in-situ probe. Test results must be recorded on the last page 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.

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" and perimeter vent spacing should be equal to 1.5% of the total square footage of the crawl space area to provide cross ventilation.

NOTE: To increase reliability, subfloor appropriate moisture testing should be performed after the HVAC system has been in operation for a minimum of 14 days. Excess moisture on any flooring substrate if not identified and corrected prior to installation will cause floorcovering 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. Wood panels should exhibit an adequate fastening pattern, glued/screwed or nailed as that system requires, using an acceptable nailing pattern. Typical: 6" (15 cm) along bearing edges and 12" (31 cm) along intermediate supports. Flatten edge swell as necessary. Replace any water- damaged, swollen or delaminated subflooring or underlayment.

Approved underlayment floor panels should meet or exceed the following:

- Plywood: Must be minimum CDX grade (exposure 1) and meet US Voluntary Product Standard PS1 performance standard or Canadian performance standard CAN/CSA 0325-0-92. The preferred thickness is 3/4" (19 mm) as a subfloor [minimum 5/8" (16 mm)] or 3/8" (9.5 mm) as floor panel underlayment.
- Oriented Strand Board (OSB): Conforming to US Voluntary Product Standard PS2 or Canadian performance standard CAN/CSA 0325-0-92 construction sheathing. Check underside of panel for codes. When used as a subfloor, the panels must be tongue and groove and installed sealed side down. Minimum thickness to be 23/32" (18 mm) thick when used as a subfloor or 3/8" (9.5 mm) as floor panel underlayment.



- Wafer board and Chipboard: Conforming to US Voluntary Product Standard PS2 or Canadian performance standard CAN/CSA 0325-0-92. Must be 3/4" (19 mm) thick when used as a subfloor and 3/8" (9.5 mm) thick when used as floor panel underlayment.
- Particleboard: Must be a minimum 40-lb. density, stamped underlayment grade and 3/4" (19 mm) thick. (Floating installation only)

#### Solid Wood Subfloors – Direct Glue or Staple Down Applications

- Minimum 3/4" (19 mm) thick with a maximum width of 6" (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" (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" (15 mm) in width must be covered with 3/8" (9.5 mm) approved underlayment and fastened as required.
- Do not install over solid or engineered flooring attached directly to 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 needs to be structurally sound (meaning subfloors without loose boards, vinyl or tile). If subfloor panels are a single layer, less than 3/4" thick, add another single cross layer for strength and stability (minimum 3/8").

Underlayment floor panels must be installed sealed side down. When used as a subfloor, allow 1/8" (3 mm) expansion space between each panel. If spacing is inadequate, cut in with a circular saw. Do not cut in 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" (9.5 mm) approved underlayment floor panels.

Building codes establish requirements for structural support components of flooring system, 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 on center, manufacturer 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 D3 T&G glue with the staple reduces movement as the subfloor deflects.



### Structurally Sound Concrete Subfloor

Concrete substrate should be at least 30 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. Glued down floors may be applied to concrete with a rating of 3000 psi or greater. Glued down application over lightweight concrete (less than 3000 psi) is not permissible.

Lightweight Concrete: Performance Core Engineered wood flooring is not recommended 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 or less per cubic foot, the Performance Core Engineered flooring should not be installed.

### Radiant Heat Subfloor

For Multi-Layered Core products, it is important to follow these guidelines strictly. Failure to follow these guidelines may produce unsatisfactory results.

Before installing hardwood over radiant heat subfloors, determine if the radiant heat system is rated to be compatible with hardwood flooring. It is highly recommended the radiant heat system be designed specifically to accept hardwood flooring. Radiant heat systems designed for floor coverings with a higher resistance to heat transfer, such as carpet, will damage wood flooring. Single heat circuit systems designed for use with multiple floor covering products must be adjusted to work at temperatures suitable for hardwood flooring. Use of an in floor temperature sensor as well as a separate thermostat for the individual room is required. An outdoor temperature sensor should be used to adjust water temperature according to anticipated heat loss.

NOTE: When radiant heat is installed in concrete, mortar beds, or gypsum cement, it is very important to operate the radiant heat system until these are completely dry before you install your hardwood flooring on top. This may take several weeks. Also operate the HVAC system to allow humidity levels in the area to stabilize (35- 55% RH) for the area in which the hardwood floor will be installed. Allow hardwood to acclimate to this humidity level before installation. This will minimize dimensional changes due to moisture.

Before installing over a radiant heat floor turn off heat and wait until the floor has reached room temperature (70° - 75°F). After installing the floor, gradually return the heat in 5-degree increments. CAUTION: The floor surface must never exceed 85°F.

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.

### Subfloors Other Than Wood or Concrete

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 assure 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/underlayment with full spread adhesive and no more than two layers thick, not to exceed 3/16" (5 mm). With approved wood or wood composite subfloors, if vinyl or tiles are loose, broken or in poor condition, install a 3/8" (9.5 mm) approved 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.

## General Guidelines for Before and During Installation

- Plan your layout and determine the direction of the installation in the room. Planks installed parallel to windows accent the hardwood best.
- Blending of Cartons: 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 the moldings they blend best with.
- Remove all wall mounted moldings such as base and quarter round.
- Floor should be installed blending planks from several cartons to ensure a good color and shade mixture throughout the installation.
- Be attentive to staggering the ends of the boards at least 4" - 6" (10 - 15 cm) when possible, in adjacent rows.
- Do not install in areas of high moisture, such as bathrooms.

NOTE: DO NOT USE A RUBBER Mallet TO INSTALL FLOORING. STRIKING THE SURFACE WITH A RUBBER Mallet MAY "BURN" THE FINISH, CAUSING IRREPARABLE DAMAGE.

## Direct Glue Installation

Subfloor Moisture Requirements per Adhesive Acceptable subfloor moisture condition requirements will vary dependent upon your selection of M1000 or M908 adhesive. 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:

### M1000 Ultratack Advanced 3 in 1 Adhesive (Concrete Only)

- Up to 95% RH levels in concrete using in-situ probes in accordance with the latest version of ASTM F 2170
- A pH test up to 11.0
- Test for sealers and curing compounds





### **M908 Pro-Tack Urethane Adhesive (Wood or Concrete Subfloor) Wood:**

- Wood substrates should test less than 12% using a wood moisture meter

Concrete:

- Less than 3 lbs/1000 sq. ft./24 hrs. Calcium Chloride Test (ASTM F1869)
- Up to 75% RH levels in concrete using in-situ probes in accordance with the latest version of ASTM F 2170
- Test for sealers and curing compounds

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 the Technical Services Department at 888-833-6954.

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

### **Direct Glue Installation: Adhesive Application Guidelines**

Select adhesive based on the subfloor and moisture guidelines provided above.

NOTE for Concrete Subfloors: If excess subfloor moisture exists, it is required that M1000 Ultratack Advanced 3 in 1 Adhesive be applied using the provided clip-on trowel. Use of this or products with equal or greater specifications are necessary for warranty compliance.

Engineered Flooring – Moisture/Sound Suppression Method Application (trowel clip on top of bucket): M1000 Ultratack Advanced 3 in 1 Adhesive: A low VOC saline terminated polymer adhesive designed for on- or above-grade concrete substrates where excessive moisture may be present.

For concrete substrates with RH readings up to 95%, use the clip-on trowel blade provided and attached to the top of each pail. Clip on trowel blade must be replaced with each pail of adhesive used or more frequently as wear dictates. Floor pH must not exceed 11. Approximate coverage 35 sq. ft. per gallon.

For concrete substrates with RH readings less than 80%, use a 3/16" x 1/4" x 1/2" Flat V-notch Trowel. Trowel should be replaced every 3000 square feet or sooner if excessively worn. Floor pH must not exceed 11. Approximate coverage 55 sq. ft. per gallon.

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

Uses:

- For protection from concrete moisture up to 95% RH
- Sound reduction in multi-story buildings
- Crack suppression for in-plane cracks up to 1/8" wide

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 or products with equal or greater specifications are necessary for warranty compliance.

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



Use a 3/16" x 1/4" x 1/2" Flat V-notch Trowel. Trowel should be replaced every 3000 square feet or sooner as wear dictates. Approximate coverage is 200-220 sq. ft. per 4 gallons.

For concrete substrates that test less than 85% RH, use a 3/16" x 1/4" x 1/2" Flat V-notch Trowel. Trowel should be replaced every 3000 square feet or sooner as wear dictates. Approximate coverage is 200-220 sq. ft. per 4 gallons.

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

Uses:

- For protection from concrete moisture up to 85% RH
- Will not etch the finish on a pre-finished board
- May be used on properly prepared concrete or wood substrates

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.

M908 Pro Tack Urethane Adhesive: A trowel-applied, moisture-curing urethane adhesive for the installation of glue down flooring over concrete and wood substrates.

Typical Trowel and Approximate Coverage: 3/16" x 1/4" x 1/2" V-notch trowel, 50 to 65 sq. ft. per gallon. Coverage is based on application to a clean, smooth concrete substrate; therefore, application rate may vary depending on substrate conditions.

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 M908 ProTack 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.

## Direct Glue Installation Process

There are two ways to install when using a moisture-cured urethane wood flooring adhesive: wet lay, meaning to lay directly into wet adhesive, and dry-lay, meaning to allow the adhesive to flash or tack up.

Caution: Whether you choose to install using the dry or wet method, follow all guidelines set by the adhesive manufacturer as well as the flooring manufacturer. By not adhering to the guidelines you can void your flooring warranties.

### General Process for Wet-Lay and Dry-Lay Direct Glue Installations:

1. Use cement-based patch, skim-coat leveling products to correct substrate imperfections.
2. Regulate temperature and humidity 72 hours before, during and after installation.
3. At least 48 hours before installation, place cartons of wood flooring in the installation area.
4. Install and secure starter row.
5. Spread adhesive using recommended trowel, ensuring 95 to 100% adhesive contact.



6. Wet Lay method: press flooring firmly into adhesive immediately after troweling. After the flooring is place, roll the entire installation with a 75 lb. smooth roller.  
  
Dry-lay method: Press flooring firmly into adhesive after it has developed its initial grab (typically after 15 to 20 minutes).
7. Make every effort to prevent adhesive from getting on the flooring surface, and clean as you go: remove any adhesive smudges or drops immediately using clean white terry cloth towels with mineral spirits. Adhesive that has cured on the surface of the flooring can be difficult to remove.
8. Inspect the installation and remove any adhesive smudges or drops immediately using clean white terry cloth towels and mineral spirits.
9. Clean tools while adhesive is fresh using a urethane adhesive cleaner or mineral spirits.
10. Avoid light or regular traffic for at least 12 hours. Avoid heavy traffic for at least 24 hours.
11. See adhesive manufacture guidelines for OPEN TIME on the adhesive container.
12. Proper ventilation within the room must be provided. An electric fan is helpful.

#### **Specific Process for Wet-Lay Direct Glue Installation:**

1. Select a starter wall. It is recommended to start the installation along an exterior wall. It's more likely to be straight and square with the room. Measure out from the wall the width of two planks plus 3/8" expansion and mark each end of the room and snap your chalk line.
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 proper spread of adhesive applied to the subfloor, which will produce a proper and permanent bond. Improper bonding can cause loose or hollow spots.

NOTE: Change the trowel every 2000 to 3000 square feet (or sooner as needed) due to wear down of the dimples. This ensures you always get the proper spread of adhesive.

3. Install the first row of starter planks with the tongue facing the starter wall and secure into position. Alignment is critical and can be achieved by securing a straight edge along the chalk line (2x4s work 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" on the scribed plank.

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 hr.)

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 before it cures using clean terry cloth towels and mineral spirits.

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 (2x4's). 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. When using Mohawk's M908 Pro-Tack Urethane Adhesive it is not necessary to roll the floor.

Avoid light or regular traffic for at least 12 hours. Avoid heavy traffic for at least 24 hours.

## Staple Down Instructions: Tongue and Groove

NOTE: Engineered wood flooring products that are 5/16" thick are not approved for staple or nail down installation. The recommended method of installation is direct glue only.

Multi-ply Tongue and Groove Engineered hardwood floors may be installed over wood subfloors (with the exception of Luan, Parquet or Masonite) using staples or cleats. 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 addition to the ground cover in the crawlspace, a 15lb felt or rosin paper must be installed over the subfloor prior to the installation of the engineered wood flooring, in order to reduce squeaks and noises created by the opposing floors.

### Staple Down Installation Process

When possible lay the flooring at 90° angles to the floor joists.

1. Measure out from the ends of your starting wall the width of the plank plus the expansion space and mark both ends. 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" thick floor requires 3/8" expansion space, and 1/2" thick floor requires 1/2" expansion space.
2. Make a chalk line along the starting wall using the marks you made.
3. Place the planks with the groove side facing the wall and along your chalk line. Use brads or small finishing nails to secure the first starter row along the wall edge, 1" to 2" from the ends and every 4" to 6" 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.
4. Blind nail at a 45° angle through the tongues. It will be easier IF HOLES ARE PRE-DRILLED IN THE TONGUES. Nail 1" to 2" from the ends and every 4" to 6" along the sides. It will be necessary to blind nail the next 2 rows. A brad nailer with 1" to 1-3/8" brads can also be used to blind nail and no pre-drilling is needed.
5. Continue the installation using an engineered wood-flooring stapler, using recommended staples. Staple flooring 1" to 2" from ends and every 4" to 6" along the edge tongues. See notes in Floating Installation section for end joint spacing and starting additional rows.



### Recommended Pneumatic Floor Fastener

Use 20-gauge fastener at least 1" long, on 3/8" thick multi-layered core products. Use 18-gauge 1 1/4" fastener on multi-layered core products 1/2" thick. Staple 1" to 2" from the ends and every 4" to 6" along the tongue side of the engineered wood product; this will help ensure 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 keep the staples from going through or breaking the tongues. Improper stapling techniques can cause squeaks in the floor. Adjustments may be necessary to provide adequate penetration of the nail or staple into the nail bed. Staples should be flush in the nail pocket and not beyond. Use a scrap piece of flooring material to set tools properly before installation.

### Floating Installation Preparation

**Undercut Door Casings:** Undercut all door casings 1/16" higher than the thickness of the flooring materials being installed. To do this, use a scrap piece of flooring as a guide. Lay it 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 Accessory Underlayments or equivalent with equal or better specifications. Underlayment requirements are very 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 be 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 2 pieces so water cannot penetrate the underlayment.

**Expansion Space:** An expansion space of at least 3/8" 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. Doorway or archways 48 inches or less and rooms larger than a 26 X 33 are required to have a T-Molding.

**Glue and Glue Placement:** The recommended glue for floating installation is Performance Accessory 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, not allowing a tight fit.

### General Process for Floating Installation

The installation begins with three rows of flooring glued together and held in place with low adhesion delicate surface painters tape with the groove side facing the wall. Spacers must be used to establish the minimum 3/8" expansion space from the walls. 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.



## Clean as You Go

If any glue 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.

## Specific Process for Floating Installation

Row One: Plank 1 should begin in the right hand corner of the room. Spacing around the wall perimeter of 3/8" can be maintained by using wood wedges. The planks are laid with the groove side facing the wall. The first row starts with a full-length board; working from right to left will be required when installing T&G engineered hardwood flooring. Slide the end tongue of the board being installed into the end groove of the board you previously installed. Place each plank firmly against the wood wedges. After setting the first row and making sure you are 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 3/8" expansion space from the wall. Planks may require scribing and cutting to fit wall curvature if present.

Row Two: When possible use leftover plank from the first row to begin the second row. The leftover piece from the first row should be considered for this starter piece 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". 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 Three 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" from one another. When the planks are being placed, a non-random pyramid or stair step pattern is used to ensure the planks remain engaged through the force of the tapping. Stretch and stick low adhesion delicate surface painters tape across every 3 to 5 rows of planks approximately 2' apart from each other to hold the floor in place until the glue sets.

Light foot traffic is allowed after 12 hours, but wait 24 hours after installation to remove the Low Adhesion Delicate Surface Painters Tape. Once the tape is removed, clean any adhesive residue left from the tape using mineral spirits on a clean white terry towel.

Warranty for separation of planks and damage caused by the use of incorrect tape or length of time tape was allowed to remain 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 transitions and along the walls to cover the edges of any gaps due to wall irregularity.

Complete the job by using the wood filler 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 Cleaner.

### Protect Newly Installed Floors

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.

Measures should be taken to protect floors from other trade work. If the floor is to be covered, use a breathable material such as clean, dry, plain uncoated cardboard or kraft paper. A common reinforced builder’s paper is a good choice. The floor should be thoroughly cleaned prior to covering, to remove grit and debris that would damage 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.

Any covering should be taped, using 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.

## 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 and the floor care maintenance instructions should be provided to the owner for their records.

Wood Sub-floor	
Date:	
Installation Company:	
Moisture readings taken by:	
Moisture Content:	<input type="checkbox"/> % Average Moisture Content of Sub-floor <input type="checkbox"/> % Average Moisture Content of Hardwood <input type="checkbox"/> % Difference between sub-floor & flooring
Concrete Sub-floor	
Date:	
Company performing concrete moisture readings:	
Moisture readings taken by:	
Test Method Used:	<input type="checkbox"/> Calcium Chloride (ASTM F1869) <input type="checkbox"/> RH (ASTM F2170-02)1869 <input type="checkbox"/> Electronic Meter (Tramex or equivalent)
Moisture Readings:	