

MONT ROYAL

ENGINEERED FLOORING INSTALLATION GUIDE

STABLE • STABLE PLUS

OWNER INSTALLER RESPONSIBILITY

Hardwood flooring is a natural product; therefore, each piece of wood will have its own unique grain texture, color and irregularities. Stable and Stable Plus Engineered hardwood flooring is manufactured in accordance with recognized standards, which permits a natural or manufacturing defect tolerance not exceeding 5%. The purchaser/owner/installer assumes full responsibility for the inspection of this product; inspection should be done prior to installation. Inspection should include colour factory finish and grade. If the product is not acceptable, do not install it. Contact your supplier immediately for assistance.

Before commencing installation, the purchaser/owner/installer of this product must certify that the area/environment planned for installation is suitable for hardwood flooring and that all sub-flooring requirements are met.

The purchaser/owner/installer must allow for defects and accordingly plan an additional 5% of material for cutting, waste and grading allowance. When in doubt a questionable piece of wood should not be installed. Pieces of wood with noticeable defects are traditionally used for installation in non-visible areas such as closets or areas covered by furniture.

The use of putty, stain and filler to hide or correct defects is considered as normal and accepted procedure.

If your installation is for a newly built home and construction, ensure that all windows and doors are installed and that wall and floor boards are completely dry.

It is recommended that hardwood flooring be the last stage in a construction project.

PREPARATION: STORAGE AND HANDLING

Handle and unload with care. Store in a dry place, and make sure to provide at least four-inches (10cm) of air space under the cartons which are being stored upon "on-grade" concrete floors.

Flooring should not be delivered until the building has been closed in with windows and doors in place until cement work, plastering and all other "wet" work is complete and dry. Although it is not necessary to acclimate Mont-Royal Hardwoods Engineered flooring, it is best to store it in the environment in which it is expected to perform prior to installation.

JOB-SITE CONDITIONS

The building should be closed in with all outside doors and windows in place. All concrete, masonry, framing members, drywall, paint and other "wet" work should be dry. The wall coverings should be in place and the painting should be complete except for the final coat on the base moulding. When possible, delay installation of base mouldings until flooring installation is complete. Basement and crawl spaces must be dry and well ventilated.

Exterior grading should be complete with surface drainage offering a minimum drop of 3" in 10' (8 cm in 3 m) to direct flow of water away from the structure. All gutters and downspouts should be in place.

Stable and Stable Plus Engineered flooring may be installed below, on or above grade level. Do not install in full bathrooms. Crawl spaces must be a minimum of 18" (45cm) from the ground to underside of the joists. A ground cover 6-10 mil black polyethylene film is essential as a vapor barrier with joints lapped six inches (15cm) and taped. The crawl space should have perimeter venting equal to a minimum of 1.5% of the crawl space square footage. These vents should be properly located to foster cross ventilation. When necessary, local regulations prevail. Permanent air conditioning and heating systems should be in place and operational. The installation site should have a consistent room temperature of 65-80°F (16-24°C) and humidity of 35-70% for 14 days prior, during and until occupied.

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SUBFLOOR CONDITIONS

If using the floating installation method, insure that the surface is simply clean, level, flat and structurally sound.

- **CLEAN** – Subfloor must be free of wax, paint, oil, sealers, adhesives and other debris.
- **LEVEL/FLAT** – Within 3/16" in 10' (5mm in 3m) and/or 1/8" in 6' (3mm in 2m). Sand high areas or joints. If the floor is to be glued down, fill low areas with a latex cementitious leveling compound of 3000-PSI (20000 kPa) minimum compressive strength. Follow the instructions of the leveling compound manufacturer but make certain that the leveling compounds are completely DRY before beginning installation. When nailing the floor down, flatten low spots with layers of #15 builders felt, plywood or shims (not leveling compounds). Leveling materials must provide a structurally sound subfloor that does not affect the holding power of the fastener.
- **DRY** – Check moisture content of the subfloor with the appropriate moisture test.
- **STRUCTURALLY SOUND** – Nail or screw any areas that are loose or squeak. Wood panels should exhibit an adequate fastening pattern, glued/screwed or nailed as system requires using an acceptable nailing pattern. Typical: 6" (15cm) along bearing edges and 12" (30cm) along intermediate supports. Flatten edge swell as necessary. Replace any water-damaged, swollen or delaminated subflooring or underlayment.

NOTE: Avoid subfloors with excessive vertical movement. Optimum performance of hardwood floor covering products occurs when there is little horizontal or vertical movement of the subfloor. If the subfloor has excessive vertical movement (deflection) before installation of the flooring it is likely it will do so after installation of the flooring is complete. As flooring manufacturers are unable to evaluate each engineered system, spacing and spans, as well as engineering methods are the responsibility of the builder, engineer, architect or consumer, who is better able to evaluate the expected result based on site-related performance.

SUBFLOORS WITH RADIANT HEAT

Note: Stable and Stable Plus Engineered is recommended over radiant heat.

- System must be operational and heated for at least 7 days prior to beginning the installation. Use a control strategy, which may include an external thermostat that brings the floor through temperature changes gradually.
- Turn off heat and let subfloor cool down to room temperature 3-4 hours prior to starting the job.
- **BEFORE** installation begins, ascertain that the heating system is designed and controlled for wood flooring and that the circuit does not include other floor covering types. Failure to do so may cause excessive heat damage and shrinkage.

NOTE: Refer to radiant heat system manufacturer's precautions for staple-down installation. Beware of stapling through radiant tubing or mesh.

- After installation, turn system back on immediately. The finished floor surface must not exceed 85°F(29°C throughout the life of the floor.
- Radiant heating systems normally create dry heat that can lower interior humidity levels. It may be necessary to add humidity with humidifiers to maintain the recommended levels (35-70%) and prevent damage to the floor.
- The flooring should be end-glued over radiant heat to reduce longitudinal shrinkage. Apply a bead of good wood glue to the groove end then insert the tongue. Wipe excess adhesive away immediately.

TOOLS AND ACCESSORIES NEEDED - ALL INSTALLATIONS

Broom - Tape Measure – Hammer – Chalk Line and Chalk – Hand Saw or Jamb Saw Recommended Hardwood Flooring Cleaner – Electric Power Saw – Eye Protection – Moisture Meter (wood, concrete or both) – Transition and Wall mouldings – NIOSH-designated Mask

ADD FOR NAIL-DOWN

We recommend the use of a 1/2" flooring nailer or stapler along with 1 1/2" flooring cleats or staples for 1/2" Stable and a 3/4" nailer along with 2" cleats or staples for Stable Plus.

ADD FOR GLUE-DOWN

Recommended Adhesive and Adhesive Remover – 3/16" X 1/4" X 1/2" X 5/6" Trowel – 3M ScotchBlue 2080 Tape.

SUBFLOOR / UNDERLAYMENT REQUIREMENTS**RECOMMENDED SUBFLOOR / UNDERLAYMENT SURFACES****• Glue-down and Floated**

Concrete, Ceramic, Tile, Terrazzo, Stone and Marble, Masonite, Acoustic Cork

• Glue-down, Nail- Down and Floated

Wood subfloor, wood structural panels and underlayment

Fully adhered existing wood floors

Fully adhered vinyl sheet, resilient tile, cork flooring and linoleum

Concrete (Glue-Down and Floated)

The flooring can be glued to concrete with a minimum compressive strength of 3000 PSI (20000 kPA).

Do not glue-down over a concrete sealer or painted concrete; if present remove by grinding or sanding.

Do not install over slick, heavily troweled or burnished concrete. Roughen the surface as necessary by sanding or grinding. Use an appropriate NIOSH-designated dust mask.

CONCRETE MOISTURE TESTS FOR GLUE-DOWN

All concrete subfloors should be tested for suitable moisture content. Visual checks may not be reliable. Test several areas, especially near exterior and plumbing walls. Acceptable test methods for subfloor moisture content include:

- A 3% Phenolphthalein in Anhydrous alcohol solution. Chip the concrete at least 1/7" (6mm) deep (do not apply directly to the concrete surface) and apply several drops of the solution to the chipped area. If any colour change occurs, further testing is required.
- Tramex Concrete Moisture Encounter meter, Moisture readings should not exceed 4.5 on the upper scale.
- Polyfilm test: Apply 3' X 3' (90cm X 90cm) pieces of polyethylene film to the subfloor and leave in place for 24 hours. Assure all edges are completely sealed with water-resistant tape. Darkened concrete or condensation on the film indicates presence of moisture and requires additional measurements with the Tramex meter. Calcium Chloride or RH test.

NOTE: The following tests are required in commercial applications; either or both tests are acceptable.

- Calcium Chloride test: The maximum moisture transfer must not exceed 3 lbs/1000 square feet (1.43 kg/100 m²) in 24 hours with this test.
- RH Levels in Concrete Using In-situ Probes (ASTM F2170-02) should not exceed 75%

"DRY" CONCRETE, AS DEFINED BY THESE TESTS, CAN BE WET AT OTHER TIMES OF THE YEAR. THESE TESTS DO NOT GUARANTEE A DRY SLAB. ALL CONCRETE SLABS SHOULD HAVE A 6 MIL (10 mil preferred) POLYFILM MOISTURE BARRIER BETWEEN THE GROUND AND THE CONCRETE.

Moisture Barrier System: If moisture is present or anticipated, inexpensive sheet vinyl or "slip-sheet" (felt-backed with vinyl wear layer) may be installed. Use a premium grade, alkali-resistant adhesive and a full-spread application system to properly bond the vinyl to the subfloor. Follow the sheet vinyl manufacturer's instruction for installation procedures. A bond test may be required as an adhesion test. Install several small areas (3' X 3') (90cm X 90cm) and allow the vinyl to set for 72 hours.

Remove the vinyl; if the backing remains attached to the concrete, the subfloor should be acceptable for sheet vinyl installation. Install the sheet vinyl and allow the adhesive to cure 24 hours prior to beginning installation. Always check for adequate adhesive bond.

Acoustic Concrete (Glue-Down and Floated)

Acoustic concrete may contain large quantities of gypsum or other acoustic materials that can inhibit the adhesive bond. Acoustic concrete must be primed with the concrete manufacturer's primer/surface hardener. Test the concrete by scraping the surface with a nail or other sharp object. If the concrete powders or crumbles it is not sound and not suitable for direct application of hardwood flooring and may require the use of the floating floor method. Always check for adequate adhesive bond.

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Lightweight Concrete (Glued-Down and Floated)

Concrete must have a density exceeding 100-pounds/cubic foot (1600 kg/m³). Always check for adequate adhesive bond.

Ceramic, Terrazzo, Slate and Marble (Glue-Down and Floated)

All grout joints and broken corners that exceed 3/16" (4mm) must be filled with a cementitious leveling compound. If gluing-down, the surface should be cleaned and abraded to create a good bonding surface for the adhesive. Loose tiles must be re-adhered to the subfloor or filled as above. Remove all sealers and surface treatments. Always check for adequate adhesive bond.

Masonite (Glue-Down and Floated)

May be used as an underlayment only and must be tempered.

Wood Subfloors and Underlayment (Nail-Down, Glue-Down and Floated)

General: The wood sub-flooring materials must not exceed 13% moisture content. Measure the moisture content of both subfloor and wood flooring to determine that proper moisture content exists. Utilize a reliable wood moisture meter. The difference between the moisture content of the wood subfloor and the wood flooring must not exceed 4% (If it does, lay down a 6 mil poly vapor barrier and use the floating method). When installing parallel to the floor joists it may be necessary to stiffen the subfloor by installing a minimum of 3/8" (10mm) approved underlayment. Applicable standards and recommendations of the construction and materials industries must be met or exceeded.

Solid Wood Subfloors (Nail-Down, Glue-Down and Floated)

- Minimum 3/4" (19mm) thick with a minimum width of 6" (15mm) 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 of joists.
- For glue-down applications add 3/8" (10mm) approved underlayment.

Wood Structural Panel Subfloors and Underlayment (Nail-Down, Glue-Down and Floated)

Structural panels/underlayment must be installed sealed side down. When used as a subfloor; allow 1/8" (3mm) 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.

- Plywood: Must be minimum CDX grade (exposure 1) and meet US Voluntary Product Standard PS1-95 performance standard or Canadian performance standard CAN/CSA 0325-02-92. The preferred thickness is 3/4" (19mm) as a subfloor (minimum 5/8" (16mm)) or 3/8" (10mm) as underlayment.
- Oriented Standard Board (OSB): Conforming to US Voluntary Product Standard PS2-92 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" (18.5mm) thick when used as a subfloor or 3/8" (10mm) as underlayment.
- Wafer board and chipboard: Conforming to US Voluntary Product Standard PS2-92 or Canadian performance standard CAN/CSA 0325-0-92. Must be 3/4" (19mm) thick when used as a subfloor and 3/8" (10mm) thick when used as underlayment.
- Particleboard: Must be a minimum 40-LB density, stamped underlayment grade 3/4" (19mm) thick.

Existing engineered wood flooring (Nail-Down, Glue-Down and Floated)

- Existing engineered flooring must be well bonded. When gluing over existing wood flooring of any thickness the finishing materials must be abraded or removed to foster an adequate bond. When flooring is to be nailed-down to the existing engineered wood flooring must be a minimum 3/8" (10mm) thick installed over approved wood/wood composite underlayment that has been properly fastened. When installing over engineered flooring that is glued to concrete, the minimum thickness of that flooring must be 1/2" (13mm) to allow for the length of the fastener.
- Existing solid wood flooring that exceeds 6" (15cm) in width must be covered with 3/8" (10mm) approved underlayment and fastened as required. Do not install over flooring attached to the concrete.

Vinyl, Resilient Tile, Cork Flooring and Linoleum (Nail-Down, Glue-Down and Floated)

- Make sure the floor covering materials are well bonded to the subfloor/underlayment with full-spread adhesive and are no more than two layers thick not to exceed 3/16" (5mm).

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Vinyl, Resilient Tile, Cork Flooring and Linoleum (Nail-Down, Glue-Down and Floated)

- If vinyl or tiles are loose, broken, or in poor condition, install a 3/8" (10mm) approved underlayment directly over the flooring materials.
- Clean the flooring materials as necessary to create a good adhesive bond using abrasive materials. If a maintenance material is present on the floor covering or a gloss is present degloss with a flooring pad and a commercial available stripper, then rinse completely. Allow ample drying time. (Note: Do not sand any resilient products for they may contain asbestos fibers, which may be harmful).
- Cork floors must have all sealers and surface treatments removed before installation begins.
- Always check for adequate adhesive bond.

IF Nailed-Down:

- Do not install over floors that exceed one layer as the thickness of the flooring materials will prevent an adequate mechanical bond.
- Make certain that the subflooring materials meet minimum requirements.
- Some tile products may be brittle for staple penetration. Always test an area for breakage before proceeding.

INSTALLING THE FLOOR

NAIL-DOWN METHOD

General Installation Tips (Nail-Down)

- Although you can staple, it is best if cleats are used.
- Floor should be installed from several cartons at the same time to ensure good colour and shade mixture.
- When possible, pre-select and set aside boards that blend best with all horizontally mounted mouldings to assure a uniform final appearance. Install these boards adjoining the mouldings.
- Be attentive to staggering the ends of boards in adjacent rows at least 4-6" (10-15cm) when possible. This will help ensure a more favorable overall appearance of the floor.
- Always allow a minimum 1/4" (6mm) expansion around all vertical obstructions.

STEP 1: Doorway and Wall Preparation (Nail-Down)

- Undercut door casings and jambs. Remove any existing base, shoe mold or doorway thresholds. These items can be replaced after installation. All door casings and jambs should be undercut to avoid difficult scribe cuts.

STEP 2: Establish a Starting Point (Nail-Down)

- Installation parallel to the longest wall is recommended for best visual effects; however, the floor should be installed perpendicular to the flooring joists unless subfloor has been reinforced to reduce subfloor sagging.
- When possible, always begin layout or installation from the straightest wall, generally an outside wall.
- In at least two places and at least 18" (45cm) from the corner, measure out equal distance from the starting wall and snap a chalk line. The measurement must be a multiple of the width of the flooring plus an additional 3/4" (19mm) to allow for 1/2" (12mm) expansion space and the width of the tongue.

STEP 3: Installing First and Second Rows (Nail-Down)

- Use the longest, straightest boards available for the first two rows. For random and alternate width products, use the widest plank for the first row. Align tongue of first row on chalk line. The groove should be facing the starting wall. Pre-drill 1/2" (13mm) from back (groove) edge, 1-2" (25-50mm) from each end, and at 6" (150mm) intervals when possible. Fasten using 4 or 6d finishing nails or 1" (25mm) pneumatic finish nails. Countersink the nails.
- Pre-drill and blind-nail at a 45° angle through the tongue of the first row every 1-2" (25-50mm) from the ends and spaced in 3-4" (75-100mm) intervals. Countersink nails to ensure flush engagement of groove with the following row(s). Continue blind nailing using this method with following rows until a nailer can be used. Alternatively use a pneumatic finish nailer and install nails/brads at the same intervals with a minimum length of 1" (25mm).
- End-joints of adjacent rows should be staggered a minimum of 4-6" (100-150mm) when possible to ensure a more favorable overall appearance.

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STEP 4: Installing the Floor (Nail-Down)

- **Always use a recommended 1/2" nailer that drives a 1½" cleat for Stable and 5/8" nailer that drives a 2" cleat for Mont-Royal's Engineered.** Fasten 2-3" from the end of every board and every 8-10" along their length.
- Set compressor at 70 PSI (480 kPa). If tongue damage occurs, lower air pressure.
- Fasten several sacrificial boards to the floor. At least two boards, stapled side by side, must be used to indicate proper machine adjustments.
- Check for surface damage, air pressure setting, tongue damage, edge blistering, etc., before proceeding. Make all adjustments and corrections before installation begins. Once proper adjustments have been made, removed and destroy the boards.
- For the final few rows pre-drill and face-nail or pneumatically nail on the tongue side following the nailing pattern used for the first row.

STEP 5: Complete the Installation (Nail-Down)

- Clean floor with the recommended wood flooring cleaner. (See adhesive container for specific information).
- Install or re-install any transition pieces that may be needed, such as Reducer Strips, T-mouldings, or Thresholds. - Install or re-install all baseboards and/or quarter round mouldings. Nail mouldings into the wall, not the floor. Inspect the floor, filling all minor gaps with the appropriate blended filler.
- If the floor is to be covered, use a breathable material such as cardboard. Do not cover with plastic.
- Leave warranty and floor care information with the owner.
- To prevent surface damage avoid rolling heavy furniture and appliances on the floor. Use plywood, hardboard or appliances lifts if necessary. Use protective castors/castor cups or felt pads on the legs of furniture to prevent damage to the flooring.

FLOATED METHOD

General Installation Tips (Floated Method)

- Floor should be installed from several cartons at the same time to ensure good color and shade mixture.
- Be attentive to staggering the ends of boards in adjacent rows at least 6" when possible. This will ensure a more favorable overall appearance of the floor.
- DO install from closed/sealed cartons. DO NOT remove materials from their sealed container prior to installation.
- DO tighten panels by tapping against the tapping block with a hammer. DO NOT tighten panels by striking directly with the tapping block or a hammer.
- DO glue all joints with floating floor adhesive when using a floating system. The glue **MUST** be applied to the top of the tongue, **DO NOT apply adhesive in the groove, except for Stable.**
- DO use a starter board that is adequately fastened to a straight starting line.
- DO use 6mil polyurethane sheeting over any subfloor which you may suspect as having or developing any excess moisture.
- DO use a 1/8" recommended underlayment or a sound deadening acoustic membrane on all floating floors over sub floors that require it.
- DO NOT use tapping blocks that can damage the edge. DO NOT use lightweight wooden tapping blocks. DO NOT use grooved tapping blocks.

STEP 1: Doorway and Wall Preparation (Floated)

- Undercut door casings and jambs. Remove any existing base, shoe mold or doorway thresholds. These items can be replaced after installation. All door casings and jambs should be undercut to avoid difficult scribe cuts.

STEP 2: Installing the underlayment (Floated)

- Roll 6mil polyurethane sheeting in the same direction that the wood flooring is to be installed.
- Extend the underlayment a few inches up the wall. Excess will be trimmed off prior to installing trim or mouldings.

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- Firmly bond the sheet together to cover the entire floor. It is recommended to tape the overlapping seems with red duct tape.
- Roll out 1/8" underlayment foam in order to cover the entire area. DO NOT overlap the seams.
- If using an acoustical membrane which incorporates a vapor barrier, you may eliminate the use of the 6 mil polyurethane.

STEP 3: Installing the floor (Floated)

- Select your first board; apply a continuous 1/8" glue bead to the top of the tongue on "the end of the board". Do not apply glue to the side-tongue at this time.
- Lay the first board with the grooves facing the edge of the starter board and the left wall of the room. (Always leave expansion space).
- Complete the first row. Cut the last board allowing for 1/2" clearance between the wall and the floor. (Use the remaining end of the cut board as a starter board for any row after row three.) Use an installation bar to pull the last board into place. Install wedges into the gap and tighten.
- If any glue gets on the surface of the flooring, wipe it off immediately with a damp cloth.
- Start the second row by applying a bead of Avant Guard Engineered adhesive along the top side of the tongue of row one.
- In the remaining rows, stagger the end joints at least 6" apart. When installing boards together, use a tapping block against the tongue, not the groove. Apply a bead of Avant Guard Engineered adhesive to the top of the tongue on the end and side. Tap the boards into place by tapping with a hammer. Install the rest of the floor. Be sure all joints are tight. Use spacers on the long and butt walls. Use an installation bar to tighten the joints from the ends. Remove excess adhesive with a damp towel.
- To eliminate minor shifting or gapping of product during installation, use 3M Scotch-Blue™ 2080 Tape to hold the planks together. After installation is complete, remove all the 3M Scotch-Blue™ 2080 Tape from the surface of newly installed flooring. Do not let tape remain on flooring longer than 24 hours. Avoid use of masking or duct tape, which leaves an adhesive residue and may damage the finish.
- The final row of boards, in most installations will need to be ripped lengthwise to fit. The cut has to compensate for uneven walls and the expansion clearance or gap necessary between the wall and the flooring. First lay up the last row, face-up over the top of the last row permanently installed. Now using a stub of a board and a pencil scribe the proper guide lines and cut.
- Use an installation bar to pull in the last row and install the wedges.
- Remove the starter board and install the final row using the installation bar as above.
- Allow the completed floor to rest undisturbed (no foot traffic) for a minimum of 8 hours before removing the wedges.
- Always use a transition moulding at doorways to allow for proper expansion space.
- Before leaving the job site, check the floor under proper lighting for any trace of glue on the surface. Use paint thinner to remove stubborn glue.

STEP 4: Complete the Installation (Floated)

- Clean floor with a recommended wood flooring cleaner.
- Install or re-install any transition pieces that may be needed, such as Reducer Strips, T-mouldings, or Thresholds.
- Install or re-install all baseboards and/or quarter round mouldings. Nail mouldings into the wall, not the floor. Inspect the floor, filling all minor gaps with the appropriate blended filler.
- If the floor is to be covered, use a breathable material such as cardboard. Do not cover with plastic.
- Leave warranty and floor care information with the owner.
- To prevent surface damage avoid rolling heavy furniture and appliances on the floor. Use plywood, hardboard or appliances lifts if necessary. Use protective castors/castor cups or felt pads on the legs of furniture to prevent damage to the flooring.

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GLUE DOWN METHOD

General Information (Glue-Down)

- Maximum adhesive working times: Urethane adhesive – 60 minutes; Polymer resin adhesive – 90 minutes. When not in use, keep the adhesive container tightly closed to prevent thickening. Thickening will cause difficulty in spreading the adhesive.
- Open times and curing times of ALL adhesives vary depending upon subfloor porosity, air movement, humidity and room temperature. Urethane adhesive has a shortened working time in high-humidity environments whereas polymeric resin adhesive working time will be lengthened. In areas of low humidity open time will be longer with urethane adhesives and shorter with polymeric resin adhesives. Adjust the amount of adhesives spread on the subfloor accordingly. The adhesive should not be applied if subfloor or room temperature is below 65°F (18°C). WORKING TIME WILL VARY DEPENDING ON JOB-SITE CONDITIONS.
- Hold trowel at a minimum 45° angle firmly against the subfloor to obtain a 40-60 sq. ft. per gallon (1.32m²/liter) spread rate. The trowel will leave ridges of adhesives and very little adhesive between the ridges. This will allow you to still see the chalk lines between the ridges and provide the recommended spread rate.
- For additional application instructions, follow the recommendations on the adhesive container.
- Proper ventilation within the room must be provided. An electric fan is helpful.
- Rolling is not required, but if desired do not do so until adhesive has cured for 2 hours.
- ALWAYS defer to the adhesive manufacturer's recommendations.

STEP 1: Doorway and Wall Preparation (Glue-Down)

- Undercut door casings and jambs. Remove any existing base, shoe mold or doorway thresholds. These items can be replaced after installation. All door casings and jambs should be undercut to avoid difficult scribe cuts.

STEP 2: Establish a Starting Point (Glue-Down)

- Installation parallel to the longest wall is recommended for best visual effects; however, the floor should be installed perpendicular to the flooring joists unless subfloor has been reinforced to reduce subfloor sagging.
- When possible, always begin layout or installation from the straightest wall, generally an outside wall.
- In at least two places at least 18" (45cm) from the corner, measure out equal distance from the starting wall and snap a chalk line. The measurement must be a multiple of the width of the flooring plus an additional 3/4" (19mm) to allow for 1/2" (12mm) expansion space and the width of the tongue.

STEP 3: Spread the Adhesive (Glue-Down)

- Spread sufficient amounts of recommended adhesive with the recommended trowel in an area that can be covered in 30-90 minutes (see adhesive information).
- If necessary, nail a sacrificial row with 1" (25mm) nails on the dry side of your chalk line to help hold the first row in place.

NOTE: Avoid installing from the surface of the flooring. If necessary distribute weight using a kneeler board.

STEP 4: Installing the Floor (Glue-Down)

- Use the longest boards available for the first two rows. For random alternate width products, use the widest plank for the first row. The first row of planks should be installed with the edge of the groove lined up on the chalk line. The tongue should be facing the starting wall. The first row must be aligned and seated in the adhesive, as all additional rows will be pushed back to this original row. Remove tongue to allow for expansion space if necessary on row adjoining wall.
- When installing the product apply a bead of PVA wood glue to all of the end grooves prior to installing into the adhesives.
- When installing pieces, engage the end-joint first as close to side (long) tongue and groove as possible and then slide together tightly to engage side (long) joint tongue and groove. To avoid adhesive bleed-through and memory pull-back, avoid sliding pieces through the adhesive as much as possible when placing them in position.

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- During the installation occasionally remove a piece of flooring from the subfloor and inspect the back for proper adhesive transfer. Adequate adhesive transfer is necessary to ensure sufficient holding strength.
- If the adhesive skins over and fails to transfer, remove and spread new adhesive to achieve proper bonding.

NOTE: Clean adhesive from the surface of the floor frequently using the recommended adhesive cleaner. Urethane adhesives become extremely difficult to remove when cured. Do not use blue tape before adhesive is removed from the surface. Use clean towels, changed frequently, to prevent haze and adhesive residue.

- Check for a tight fit between all edges and ends of each plank. End-joints of adjacent rows should be staggered 4-6" (100-150mm) when possible to ensure a more favorable overall appearance.
- To eliminate minor shifting or gapping of product during installation, use 3M Scotch-Blue™ 2080 Tape to hold the planks together. After installation is complete, remove all the 3M Scotch-Blue™ 2080 Tape from the surface of newly installed flooring. Do not let tape remain on flooring longer than 24 hours. Avoid use of masking or duct tape, which leaves an adhesive residue and may damage the finish.
- Be sure not to spread adhesive too far ahead of your work area.
- Complete the installation using this same technique for the remainder of the floor.
- Avoid heavy foot traffic on the floor for at least 24 hours. Lift the furniture and fixtures back into place after 24 hours.

STEP 5: Complete the Installation (Glue-Down)

- Clean floor with a recommended wood flooring cleaner.
- Install or re-install any transition pieces that may be needed, such as Reducer Strips, T-mouldings, or Thresholds.
- Install or re-install all baseboards and/or quarter round mouldings. Nail mouldings into the wall, not the floor. Inspect the floor, filling all minor gaps with the appropriate blended filler.
- If the floor is to be covered, use a breathable material such as cardboard. Do not cover with plastic.
- Leave warranty and floor care information with the owner.
- To prevent surface damage avoid rolling heavy furniture and appliances on the floor. Use plywood, hardboard or appliances lifts if necessary. Use protective castors/castor cups or felt pads on the legs of furniture to prevent damage to the flooring.

TRANSITION & WALL MOULDINGS

- **Reducer Strips:** A teardrop-shaped moulding used around fireplaces, doorways, as a room divider or as a transition between wood flooring and adjacent thinner floor coverings. Fasten down with adhesive, small nails or double-faced tape.
- **Threshold:** A moulding undercut for use against sliding door tracks, fireplaces, carpet, ceramic tile or existing thresholds to allow for expansion space and to provide a smooth transition in height difference. Fasten to subfloor with adhesive and/or nails through the heel. Pre-drill nail holes to prevent splitting.
- **Stair Nosing:** A moulding undercut for use as a stair landing trim, elevated floor perimeters and stair steps. Pre-drill and nail to the vertical surface, not into the floor.
- **Quarter Rounds:** A moulding used to cover expansion space next to baseboards, case goods and stair steps. Pre-drill and nail to the vertical surface, not into the floor.
- **T-Mouldings:** A moulding used as a transition piece from one flooring to another of equal height or to gain expansion spaces. Fasten at the heel in the center of the moulding. Additional support may need to be added to the heel of the moulding depending upon the thickness of the goods covered.

CONGRATULATIONS on your successful engineered flooring project. We wish you many years of service and enjoyment with our product and offer our most sincere thanks for choosing a Mont-Royal Engineered product.