INSTALLATION INSTRUCTIONS FOR HARTCO® VALENZA™ 5/8" (16 mm) ENGINEERED FLOORING

FOR STAPLE-DOWN, MECHANICALLY FASTENED AND GLUE-DOWN METHODS

MODE D'INSTALLATION DES PLANCHERS PRÉFABRIQUÉS HARTCO[MD] VALENZA[MC] 16 mm (5/8 po)

POUR POSES AVEC AGRAFES, ATTACHES MÉCANIQUES ET COLLE

INSTRUCCIONES DE INSTALACIÓN PRODUCTOS DE INGENIERÍA DE HARTCO® VALENZA™ 5/8"

PARA MÉTODOS DE ENGRAMPADO, FIJACIÓN MECÁNICA Y ENCOLADO.

I. GENERAL INFORMATION

Owner/Installer Responsibility

Beautiful hardwood floors are a product of nature and, therefore, not perfect. Our wood floors are manufactured in accordance with accepted industry standards, which permit grading deficiencies not to exceed 5%. These grading deficiencies may be of a manufacturing or natural type. When flooring is ordered, 5% must be added to the actual square footage needed for cutting and grading allowance (10% for diagonal installations).

- The owner/installer assumes all responsibility for final inspection of product quality. This inspection of all flooring should be done before installation. Carefully examine flooring for color, finish and quality before installing it. If material is not acceptable, do not install it and contact the seller immediately.
- Prior to installation of any hardwood-flooring product, the owner/installer must determine that the job-site environment and the sub-surfaces involved meet or exceed all applicable standards. Recommendations of the construction and materials industries as well as local codes must be followed. These instructions recommend that the construction and subfloor be dry, stiff, structurally sound and flat. The manufacturer declines any responsibility for job failure resulting from or associated with subfloor and substrates or job-site environmental deficiencies.
- Prior to installation, the owner/installer has final inspection responsibility as to grade, manufacture and factory finish. The installer must use reasonable selectivity and hold out or cut off pieces with deficiencies, whatever the cause. Should the individual piece be doubtful as to grade, manufacture or factory finish, the installer should not use the piece.
- Use of stain, filler or putty stick for touch-up and appropriate products for correcting subfloor voids is accepted as part of normal installation procedures.

ATTENTION INSTALLERS

⚠ CAUTION: WOOD DUST

Sawing, sanding and machining wood products can produce wood dust. Airborne wood dust can cause respiratory, eye and skin irritation. The International Agency for Research on Cancer (IARC) has classified wood dust as a nasal carcinogen in humans.

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

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

If you have any technical or installation questions, or to request a Material Safety Data Sheet, please call
1 800 233 3823.

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.

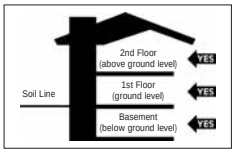
IF YOU HAVE ANY QUESTIONS REGARDING THE HEALTH EFFECTS OF FORMALDEHYDE, CONSULT YOUR DOCTOR OR LOCAL HEALTH DEPARTMENT.

II. PREPARATION

Storage and Handling

Handle and unload with care. Store in a dry place being sure to provide at least a four-inch (10 cm) air space under cartons which are stored upon "on-grade" concrete floors. Flooring should not be delivered until the building has been closed in with windows and doors in place and until cement work, plastering and all other "wet" work is completed and dry. Although it is not necessary to acclimate engineered flooring, it is best to store it in the environment in which it is expected to perform prior to installation. Check adhesive label for adhesive storage limitations.

Job-Site Conditions



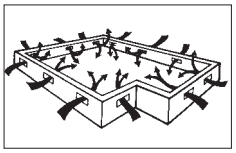


Figure #1

- 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 thoroughly dry. The wall coverings should be in place and the painting completed except for the final coat on the base molding. When possible, delay installation of base molding until flooring installation is complete. Basements 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.
- 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˝ (45 cm) from the ground to underside of joists. A ground cover of 6-10 mil black polyethylene film is essential as a vapor barrier with joints lapped six inches (15 cm) 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 (see figure #1). Where 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 60-75° F (16-24° C) and humidity of 35-55% for 14 days prior, during and until occupied.

⚠WARNING! DO NOT SAND, DRY SWEEP, DRY SCRAPE, DRILL, SAW, BEADBLAST OR MECHANICALLY CHIP OR PULVERIZE EXISTING RESILIENT FLOORING, BACKING, LINING FELT, ASPHALTIC "CUTBACK" ADHESIVES OR OTHER ADHESIVES.

These products may contain either **asbestos fibers** and/or **crystalline silica**. Avoid creating dust. Inhalation of such 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 nonasbestos-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.

Subfloor Conditions

- CLEAN – Subfloor must be free of wax, paint, oil, sealers, adhesives and other debris.
- LEVEL/FLAT – Within 3/16˝ in 10´ (5 mm in 3 m) and/or 1/8˝ in 6´ (3 mm in 2 m). Sand high areas or joints. If the floor is to be glued down, fill low areas with a latex additive cementitious leveling compound of 3,000-PSI (20000 kPa) minimum compressive strength such as Armstrong S-194 patch, underlayment and embossing leveler with S-195 latex underlayment additive. Follow the instructions of the leveling compound manufacturer but make certain that the leveling compounds are completely DRY before beginning installation. When mechanically fastening 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˝ (15 cm) along bearing edges and 12˝ (30 cm) along intermediate supports. Flatten edge swell as necessary. Replace any water-damaged, swollen or delaminated subflooring or underlayments.

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 we are unable to evaluate each engineered system. Spacing and spans as well as their 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: Always make certain the product selected is recommended for this type application.

- 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 (35-55%) and prevent damage to the wood 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 & Chalk • Hand Saw or Jamb Saw
- Recommended Hardwood Flooring Cleaner • Electric Power Saw • Eye Protection
- Moisture Meter (wood, concrete or both) • Transition and Wall Moldings • NIOSH-designated Dust Mask

Add for Glue-Down

- Recommended Adhesive & Adhesive Remover
- 3/16˝ x 1/4˝ x 1/2˝ x 5/16˝ Trowel (figure #2)
- 3M ScotchBlue™ 2080 Tape

Add for Staple-Down

- Stanley-Bostitch SX150-BHF-2 with LHFADJ adjustable foot, or Senco SLS20HF or equivalent
- 1-1/4˝ (31.75 mm) 18-19 ga. Staples (minimum)
- Compressor and Hose • Nylon/Plastic Tapping Block • In-Line Regulator

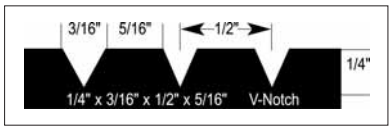


Figure #2

III. SUBFLOOR/UNDERLAYMENT REQUIREMENTS

Recommended Subfloor/Underlayment Surfaces

Glue-Down Only

- Concrete • Ceramic Tile, Terrazzo, Slate & Marble
- Masonite • Acoustic Cork

Glue-Down and Stapled or Mechanically Fastened

- Wood subfloors • Wood structural panels and underlayment
- Fully adhered existing wood floors
- Fully adhered vinyl sheet, resilient tile, cork flooring and linoleum

Concrete *(Glue-Down Only)*

The flooring can be glued directly to concrete with a minimum compressive strength of 3000 PSI (20000 kPa). Do not install 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

All concrete subfloors should be tested for 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 1/4˝ (6 mm) deep (do not apply directly to the concrete surface) and apply several drops of the solution to the chipped area. If any color 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˙ (90 cm x 90 cm) 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 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 (1,46 kg/100 m^2) 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 MINIMUM OF 6 MIL (10 mil preferred) POLY FILM 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 instructions for installation procedures. A bond test may be required as an adhesion test. Install several small areas (3˙ x 3˙) (90 cm x 90 cm) 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 for 24 hours prior to beginning installation. Always check for adequate adhesive bond.

Acoustic Concrete *(Glue-Down Only)*

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 recommended 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 a floating floor/subfloor system. Always check for adequate adhesive bond.

Lightweight Concrete *(Glue-Down Only)*

Must have a density exceeding 100-pounds/cubic foot (1600 kg/m^3). Always check for adequate adhesive bond.

Ceramic, Terrazzo, Slate and Marble *(Glue-Down Only)*

All grout joints and broken corners that exceed 3/16˝ (4 mm) must be filled with a cementitious leveling compound such as Armstrong S-194 patch, underlayment and embossing leveler with S-195 latex underlayment additive. 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.

Acoustic Cork Underlayment *(Glue-Down Only)*

The flooring can be glued directly over full-spread, permanently bonded acoustic cork. The cork should have a density of no less than 11.4 lbs./cubic foot (180 kgs/m^3). The cork, in general, should be pure cork combined with a polyurethane or resin binder. Install cork in accordance with cork manufacturer's recommendations. Always check for adequate adhesive bond.

Masonite *(Glue-Down Only)*

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

Wood Subfloors and Underlayment *(Stapled/Mechanically Fastened or Glue-Down)*

General: The wood subflooring materials must not exceed 13% moisture content. Measure moisture content of both subfloor and wood flooring to determine proper moisture content with a reliable wood moisture meter. The difference between the moisture content of the wood subfloor and the wood flooring must not exceed 4%. When installing parallel to the floor joists it may be necessary to stiffen the subfloor system by installing a minimum of 3/8˝ (10 mm) approved underlayment. Applicable standards and recommendations of the construction and materials industries must be met or exceeded.

Solid Wood Subfloors *(Stapled/Mechanically Fastened or Glue-Down)*

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

Wood Structural Panel Subfloors and Underlayment *(Stapled/Mechanically Fastened or Glue-Down)*

Structural panels/underlayment 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 circular saw. Do not cut in 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 0325-0-92. The preferred thickness is 3/4˝ (19 mm) as a subfloor (minimum 5/8˝ [16 mm]) or 3/8˝ (10 mm) as underlayment.
- Oriented Strand 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˝ (18.5 mm) thick when used as a subfloor or 3/8˝ (10 mm) as underlayment.
- Waferboard and chipboard: Conforming to US Voluntary Product Standard PS2-92 or Canadian performance standard CAN/CSA 0325-0-92. Must be 3/4˝ (19 mm) thick when used as a subfloor and 3/8˝ (10 mm) thick when used as underlayment.
- Particleboard: Must be a minimum 40-LB density, stamped underlayment grade and 3/4˝ (19 mm) thick.

Existing Engineered Wood Flooring *(Stapled/Mechanically Fastened or Glue-Down)*

- 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 adhesive bond. When flooring is to be mechanically fastened the existing engineered wood flooring must be a minimum 3/8˝ (10 mm) 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˝ (13 mm) to allow for the length of the fastener.
- Existing solid wood flooring that exceeds 6˝ (15 cm) in width must be covered with 3/8˝ (10 mm) approved underlayment and fastened as required. Do not install over solid flooring attached directly to the concrete.

Vinyl, Resilient Tile, Cork Flooring and Linoleum

Glue-Down:

- 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˝ (5 mm).
- If vinyl or tiles are loose, broken or in poor condition, install a 3/8˝ (10 mm) 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 de-gloss with a flooring pad and a commercially 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.

Mechanically Fastened/Stapled:

- 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 too brittle for staple penetration. Always test an area for breakage before proceeding.

IV. INSTALLING THE FLOOR

General Installation Tips

NOTE: When installing UNFINISHED engineered flooring, allow a minimum of 72 hours adhesive curing time before applying seals, stains and finishes to unfinished flooring. Test the moisture content of the wood in accordance with the stain/finish manufacturer's recommendations.

- Floor should be installed from several cartons at the same time to ensure good color and shade mixture.
- When possible, preselect and set aside boards that blend best with all horizontally mounted moldings to assure a uniform final appearance. Install these boards adjoining the moldings.
- Be attentive to staggering the ends of boards in adjacent rows at least 4-6˝ (10-15 cm) when possible (figure #3). This will help ensure a more favorable overall appearance of the floor.
- When installing engineered products of uniform length begin the rows with starter boards cut to various lengths. Avoid staggering the rows uniformly to prevent stair-stepping. Boards cut from the opposite end of the row may be used for the next starter boards.
- Always allow a minimum 1/4˝ (6 mm) expansion around all vertical obstructions.

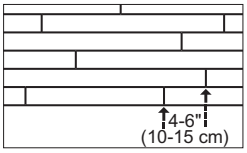


Figure #3
Preferred Alignment

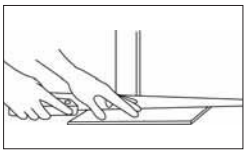


Figure #4

STEP 1: Doorway and Wall Preparation *(all installations)*

- 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 (figure #4).

STEP 2: Establish a Starting Point *(all installations)*

- 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˝ (45 cm) from the corner, measure out equal distance from the starting wall (figure #5) and snap a chalk line. The measurement must be a multiple of the width of the flooring plus an additional 3/8˝ (10 mm) to allow for 1/4˝ (6 mm) expansion space and the width of the tongue.

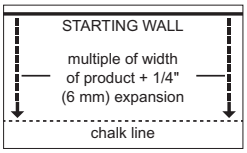


Figure #5

STEP 3: Installing First and Second Rows *(Mechanically Fastened/Stapled Only)*

- 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˝ (13 mm) from back (groove) edge, 1-2˝ (25-50 mm) from each end, and at 6˝ (150 mm) intervals when possible (figure #6). Fasten using 4 or 6d finishing nails or 1˝ (25 mm) pneumatic finish nails/brads. Countersink the nails.
- Pre-drill and blind-nail at a 45° angle through the tongue of the first row every 1-2˝ (25-50 mm) from the ends and spaced in 3-4˝ (75-100 mm) intervals. Countersink nails to ensure flush engagement of groove with the following row(s). Continue blind nailing using this method with following rows until stapler can be used. Alternatively use a pneumatic finish nailer and install nails/brads at the same intervals with a minimum length of 1˝ (25 mm).
- End-joints of adjacent rows should be staggered a minimum of 4-6˝ (100-150 mm) when possible to ensure a more favorable overall appearance (see figure #3).

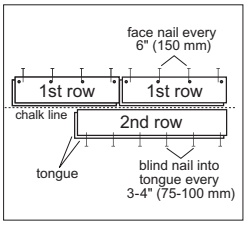


Figure #6

STEP 4: Installing the Floor *(Mechanically Fastened/Stapled Only)*

- Always use the recommended stapler for the specific product being installed (see "Installation Applications"). Use minimum 1 1/4˝ (31.75 mm) recommended by the stapler manufacturer 1-2˝ (25-50 mm) from the ends spaced at 3-4˝ (75-100 mm) intervals.
- Set compressor at 70 PSI (480 kPa). If tongue damage occurs, lower air pressure (see figure #7).
- 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, remove and destroy the boards.
- Install the remainder of the floor working from several cartons.
- The last 1-2 rows will need to be face-nailed when clearance does not permit blind nailing with stapler or brad nailer. Pre-drill and face-nail or pneumatically nail on the tongue side following the nailing pattern used for the first row.

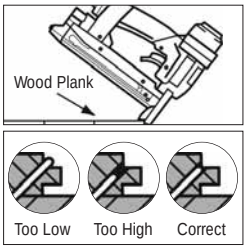


Figure #7

General Information for Glue-Down Applications

- Maximum adhesive working times: Urethane adhesive – 60 minutes; Polymeric resin adhesive – 90 minutes. ProConnect™ – 60 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 ProConnect™ and polymeric resin adhesives working time will be lengthened. In areas of low humidity open time will be longer with urethane adhesives and shorter with ProConnect™ and polymeric resin adhesives. Adjust the amount of adhesive 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 (figure #8) firmly against the subfloor to obtain a 40-60 sq. ft. per gallon (150 m²/litre) spread rate. The trowel will leave ridges of adhesive 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 the adhesive has cured for 2 hours.

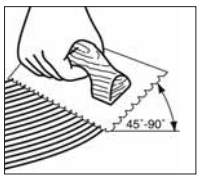


Figure #8

STEP 3: Spread the Adhesive *(Glue-Down Applications Only)*

- Spread sufficient amounts of recommended adhesive with the recommended trowel (see figure #2) in an area that can be covered in 30-90 minutes (see adhesive information).
- If necessary, nail a sacrificial row with 1˝ (25 mm) 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.

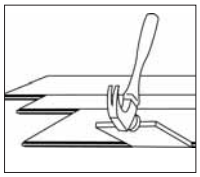


Figure #9

STEP 4: Installing the Floor *(Glue-Down Applications Only)*

(Figure# 10a-10d)

- 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. 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 products wider than 3-1/4˝ (82 mm), apply a bead of PVA wood glue to all of the end grooves prior to installing into the adhesive.
- 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.
- 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.

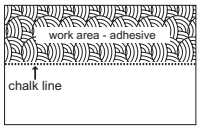


Figure #10a

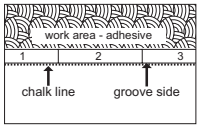


Figure #10b

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˝ (100-150 mm) when possible to ensure a more favorable overall appearance (see figure #3).
- It may be necessary to align product with a cut-off piece of scrap as shown (figure #9 – keep scrap angle low to avoid edge damage).
- 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 ScotchBlue™ 2080 Tape from 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.
- If necessary, use weights to flatten boards with bows until adhesive cures in order to prevent hollow spots. Boards that cannot be flattened should be cut in length to reduce the bow or not used.

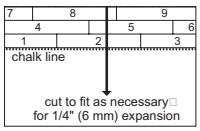


Figure #10c

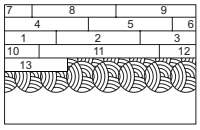


Figure #10d

- 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 or fixtures back into place after 24 hours.

STEP 5: Complete the Installation *(all installations)*

- 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-moldings, or Thresholds. The products are available pre-finished to blend with your flooring (see below).
- Install or re-install all base and/or quarter round moldings. Nail moldings 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. Advise them of the product name and code number of the flooring they purchased.
- To prevent surface damage avoid rolling heavy furniture and appliances on the floor. Use plywood, hardboard or appliance lifts if necessary. Use protective castors/castor cups or felt pads on the legs of furniture to prevent damage to the flooring.

V. TRANSITION AND WALL MOLDINGS

- Reducer Strip: A teardrop-shaped molding 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 molding 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 molding undercut for use as a stair landing trim, elevated floor perimeters and stair steps. Fasten down firmly with adhesive and nails or screws. Pre-drill nail holes to prevent splitting.
- Quarter Round: A molding 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-Molding: A molding 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 molding. Additional support may need to be added to the heel of the molding depending upon the thickness of the goods covered.


Reducer Strip


Threshold


Stair Nosing


Quarter Round


T-Molding