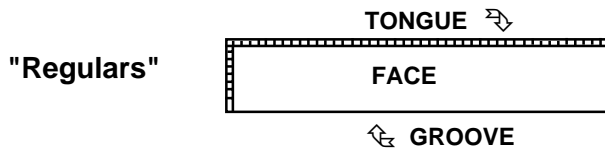


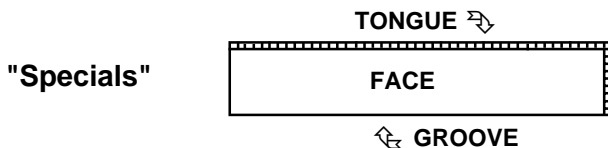
Installation Recommendations for Hartco Pattern-Plus, Hartwood 2-ply Plank and Westlin 2-ply Plank Using ProConnect™ or Hartco 57 Urethane Adhesive.

I. GENERAL INFORMATION

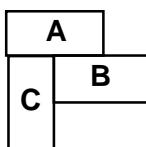
- A.** Use either ProConnect™ or Hartco 57 adhesive when installing these floors.
- B.** Hartco Wood Flooring can be installed on concrete, existing wood floors, plywood, particleboard, resilient tile, existing sheet goods, terrazzo, or ceramic tile as long as they are structurally sound, clean, level, dry and will remain dry.
- C. HARTCO PATTERN PLUS, HARTWOOD 2-PLY PLANK AND WESTLIN 2-PLY PLANK ARE NOT RECOMMENDED FOR BELOW GRADE OR BATHROOM INSTALLATIONS. THE MOISTURE FREQUENTLY ASSOCIATED WITH SUCH LOCATIONS MAY PREVENT SATISFACTORY RESULTS.**
- D.** To prevent damage, wood floors should be installed after all other construction is completed.
- E.** Satisfactory performance of wood floors is greatly influenced by its environmental conditions. A temperature of 70° F and a relative humidity between 35-50% are ideal. Temperatures of the subfloor, adhesive and flooring should be over 60° F (16° C) during installation.
- F. STORAGE:** Store Hartco Wood Flooring in a dry place. If stored on-grade, at least a four-inch space must be provided under and around all cartons. Do not store directly upon on-grade concrete or next to outside walls.
- G. EQUIPMENT NEEDED:** Saw, chalk line, jigsaw, tape measure, and a 1/8" x 1/8" x 1/8" Hartco square-notched trowel. NOTE: For installation over metal or sheet vinyl with ProConnect™ use a 3/32" x 3/32" x 3/32" Hartco square notch trowel with an approximate spread rate of 70 s.f./gal.
- H. CAUTION:** Adding another finishing or maintenance material over the existing material that was applied during manufacturing may produce unsatisfactory results. Results obtained by applying any type of materials (other than those recommended by Hartco for maintenance purposes) are beyond our control.
- I. WOOD SWELLS AND EXPANDS WITH ANY INCREASE IN MOISTURE CONTENT. ALWAYS LEAVE AT LEAST 1/2" EXPANSION SPACE BETWEEN THE FLOORING AND THE WALLS AND NEXT TO ALL VERTICAL OBJECTS TO ALLOW FOR EXPANSION OF THE FLOORING.**
- J.** To meet different pattern requirements, Hartco manufactures Pattern-Plus units which have tongues and grooves on opposite ends. "Regulars" (see below) have a tongue along the top and left edges. **Specials are not available in Hartwood or Westlin Plank.**



"Specials" (see below) have a tongue along the top and right edges.



"Regulars" are used in the majority of patterns. "Specials" are used in some patterns. For example, any pattern (see below) where two units A and B are parallel but offset and a third unit is perpendicular to A and B, like C- then that pattern requires specials. Using C as a special, all specials will run parallel to C. Using A and B as regulars, all regulars will run parallel to A and B.



Pattern-Plus specials are packed in cartons marked SPCL on the ends of the cartons while regulars have no special identification on the carton.

K. Do not cover a new installation with protective paper or material for at least two weeks or until the adhesive has fully cured.

L. These floors are sealed in a polyethylene bag to help maintain the proper moisture content. **DO NOT REMOVE FROM THE BAG UNTIL READY TO INSTALL.** Any unused pieces should be returned to the bag and resealed until ready for use.

II. SUBFLOORS - GENERAL

- A.** When installing over existing floor coverings, make sure that floor covering is completely secured to the subfloor. No perimeter laid sheet goods are acceptable. Urethane sheet goods less than one year old need the surface abraded so the adhesive will adhere to it.
- B.** Wood subfloors should be plywood, underlayment grade particle board, OSB board, or tongue and groove boards not over 3 1/4" wide and nailed down. Any existing squeaks in the subfloor must be eliminated before spreading adhesive. Wood subfloors should not be over 11% moisture content, 8% moisture content is best.
- C.** Concrete slabs containing antifreeze chemicals, admixtures or curing compounds that are hygroscopic are not acceptable.
- D.** Hartco adhesives should not be spread over subfloors that have had a sealer applied. Any existing sealer should be ground off. Also remove all previous or existing adhesives.
- E.** Pattern-Plus, Hartwood 2-ply Plank and Westlin 2-ply Plank **should not** be installed over light-weight concrete (3000 P.S.I. or less), radiant-heated subfloors or cork.

III. CONCRETE SUBFLOORS

A. MOISTURE TEST

1. To determine if moisture is present in the slab, use the following methods:
 - a. Chip the surface of the concrete at least 1/4" deep, the diameter of a dime, in various areas of the slab, particularly around the perimeter next to the outside walls. Apply two drops of 3% phenolphthalein solution in anhydrous ethyl alcohol into each of the chipped areas. If no color change occurs in the solution, there is not enough moisture to affect the installation. You may proceed. If a slight pinkish or reddish tint appears within 5 minutes, moisture is present and further testing must be done with a moisture meter (see Step b). If a moisture meter is not available, proceed to Step c.
 - b. Use a reliable moisture meter, such as the **TRAMEX CONCRETE MOISTURE ENCOUNTER**. Following the manufacturer's instructions, take moisture readings in several locations within the installation area. If in any area the moisture content is greater than 4.5%, excessive moisture is present. Do not install wood directly over the concrete. Instead, get the concrete dry or install a moisture barrier (see step c).
 - c. Sheet vinyl may be used as an effective moisture barrier if it can be installed properly.

Adhesive bond and moisture test - Use this test (or the one recommended by the sheet vinyl manufacturer), to determine if the concrete is sufficiently dry as well as to determine the compatibility of the vinyl flooring adhesive to the concrete subfloors. Remove old adhesives, curing agents, dust inhibitors, oil, grease, paint, varnish, and other special surface treatments. Using the vinyl material, install 2 1/2' x 2 1/2' panels in the suspected or usual moisture areas throughout the subfloor area. Install the panels with the adhesive to be used in the actual sheet vinyl installation. If the panels are securely bonded after a period of 72 hours, it may be concluded that the subfloor surface is dry and sufficiently clean of foreign materials for satisfactory installation of the vinyl flooring. Panels can be considered "securely bonded" if removal of the panels requires enough force to delaminate the vinyl.

2. If the Adhesive Bond and Moisture Test, as described in step c, is a failure (the sheet vinyl will not stay), **DO NOT INSTALL THESE FLOORS.**
3. If excessive moisture is not detected as a result of test described in 1a and 1b above, nor anticipated in wetter seasons, proceed to installation Step 1-Preparation below.
4. If moisture was detected, but the adhesive bond and moisture test proves the vinyl installation will be successful, install the sheet vinyl as recommended by the sheet vinyl manufacturer. Continue with Step B, SHEET VINYL INSTALLATION.

B. SHEET VINYL INSTALLATION

1. If new sheet goods are to be installed as a moisture barrier, **DO NOT** use a urethane product for it may not produce satisfactory results.
2. When excessive moisture is detected, but step A1-c above produces a secure bond, vinyl sheet goods should be installed as a moisture barrier prior to installing these floors. Vinyl sheet goods can be identified in the following manner:
 - a. Apply a few drops of iodine solution (USP) on the surface. Allow the iodine to remain on the surface for about 30 seconds, then wipe it off with a damp cloth. If the iodine stains the surface, the vinyl sheet goods are unacceptable. Do not use it. If the iodine does not stain the surface, the sheet goods may be used.
3. If the moisture in the slab is too high for proper use of vinyl, install the sheet vinyl in accordance with the manufacturer's specifications. **LOOSE LAID OR PERIMETER TYPE INSTALLATIONS OF SHEET GOODS ARE NOT ACCEPTABLE.** Vinyl sheet goods should generally be installed at least 1 day (24 hours) prior to the installation of Hartco Flooring.
4. Test the sheet vinyl adhesive to be sure it is cured before installing the wood flooring over the vinyl.

C. HARTCO PATTERN-PLUS, HARTWOOD 2-PLY PLANK AND WESTLIN 2-PLY PLANK INSTALLATION

Install these floors by following the installation instructions as follows.

IV. INSTALLATION

Step 1 - Preparation

- Check subfloor to make sure no excessive moisture is present. Do not install wood flooring over wet surfaces.
- SUBFLOORS SHOULD BE LEVEL TO WITHIN 3/16" IN 10 FEET OR 1/8" IN 6 FEET. FILL LOW SPOTS WITH PATCHING OR LEVELING COMPOUND. HIGH SPOTS SHOULD BE GROUND LEVEL. LATEX LIQUID AND POWDER LEVELING COMPOUND CAN BE USED UP TO 1/8" IN THICKNESS. LEVELING OR PATCHING COMPOUNDS USED IN AREAS THICKER THAN 1/8" NEED TO HAVE A COMPRESSIVE STRENGTH OF AT LEAST 4000 P.S.I. PATCHING COMPOUNDS MUST THOROUGHLY DRY BEFORE INSTALLING ON THEM.
- Existing floor covering should be surface treated to remove maintenance materials, finishes, or glaze by scouring, sanding, or grinding.
- Door casings and jams or existing moldings should be undercut 7/16" above the subfloor so the flooring can be installed beneath them for expansion purposes.
- Thoroughly sweep and/or vacuum the entire area.

Step 2 - Layout

Layout varies with the type of pattern and each installation, but it should be designed to save labor and materials as well as to enhance the appearance of the installation. All Pattern-Plus units are 3/8" thick and 4 1/2" wide. Lengths available are 9", 18", 27" and 36". Westlin and Hartwood Planks are random length only. Room for expansion space of at least 1/2" must be considered when laying out working lines. Only one working line is needed for some patterns. Some patterns require two working lines 90° to each other.

Certain patterns look best when the borders are balanced (symmetrical with the room). These floors can be installed parallel to the room or on a diagonal, whichever is preferred. Once the working lines and starting point are established, they can be checked for accuracy by installing some of them dry before spreading adhesive.

Installation may begin next to a wall or in the center of the room. An outside wall (which is normally the straightest) is a better reference for establishing a working line as opposed to any interior wall. Large installations can be broken into quarter or half sections to further assure proper alignment of the flooring units throughout the entire installation.

- When only one working line is needed, establish the line by measuring an equal distance from the starting wall at both ends as in Figure 1. This distance should be multiple of 4 1/2" plus 1/2" for an expansion space.

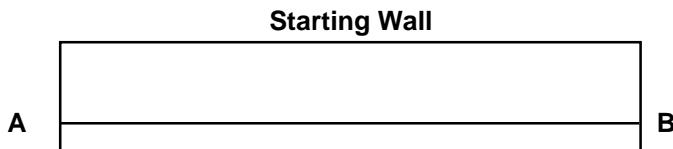


Figure 1

- When installing begins in the center of the room, strike a line (AB-Figure 2) connecting points AB which are located at the center of the narrowest dimension of the room. Find the center of the line AB and strike a 90° line through the center by the 3-4-5 triangle method.

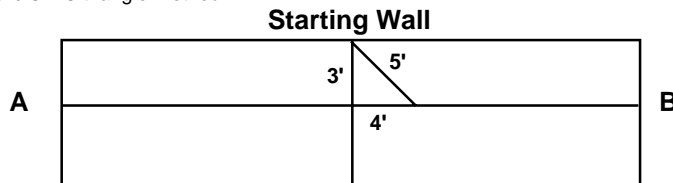


Figure 2

- For diagonal patterns, the diagonal working line is formed by striking a line through the center of the room that bisects the 90° angles as formed in Figure 2. See Figure 3.

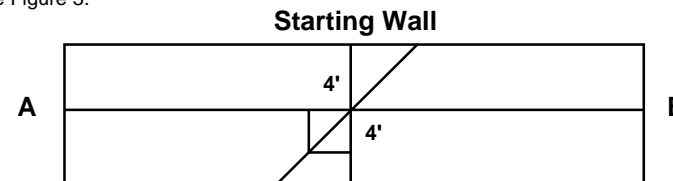


Figure 3

Step 3 - Spreading Adhesive

- Use a 1/8" x 1/8" x 1/8" Hartco square notched trowel. NOTE: For installation over metal or sheet vinyl, use ProConnect™, but DO NOT use the 1/8" x 1/8" x 1/8" trowel recommended for wood installations. Instead DO use a 3/32" x 3/32" x 3/32" Hartco square notched trowel with an approximate spread rate of 70 sq. ft. per gal.
- Hold the trowel at a 45° angle to the subfloor to obtain the proper ridges and a spread rate averaging 50sq. ft. per gallon, depending upon the subfloor surface.
- Spread only enough adhesive as can be covered in about 1 hour. Provide good ventilation until adhesive is cured.

- Keep the adhesive container closed when not using.
- Spread the adhesive along the working line, making sure not to cover the line.
- Any adhesive spills or adhesive on any tools, can be removed with Hartco Wipe Clean when fresh. Cured Adhesive 57 can be removed with Hartco Adhesive Cleaner.

Step 4 - Laying these floors.

- These floors should always be laid in wet adhesive. Do not lay the units in cured adhesive. If the adhesive develops a skin on the surface, there will not be a good transfer to the flooring. It is always wise to check and make sure the adhesive is transferring. If the adhesive develops a skin, scrape up the old adhesive and spread more adhesive. Installing wet adhesive eliminates rolling the floor with a heavy roller.
- Proper placement of the first flooring unit is very important. The groove side of the flooring unit should be directly lined up on the working line or lines.
- Continue laying the floor until all adhesive spread is covered. Make sure all units along the working lines are properly aligned or else the entire installation will be out of alignment. If they scoot out of alignment, realign them before going any further.
- Complete the installation, area by area, just like the first. All cutting and trimming against vertical objects should be done for each area as you continue.
- MAKE SURE THERE IS AT LEAST 1/2" EXPANSION SPACE NEXT TO ALL VERTICAL OBJECTS.
- The installer can walk on the floor as soon as the adhesive becomes cured enough to prevent the units from scooting out of position. Furniture, equipment, or traffic should not be allowed onto the installation until the adhesive becomes firmly set, which is normally 24 hours.
- The flooring units installed at the perimeter, or where no tongue and groove interlock exists, may require weights on them until the adhesive develops enough strength to hold them down.
- Do not roll the floor. Rolling is time-consuming, hard work, and it may create an unsuccessful installation by destroying the adhesive ridges.
- Install the units slightly snug to loose without leaving obvious cracks. Do not use a rubber mallet or the units may be installed too tight and it may also destroy the adhesive ridges.

V. PREFINISHED HARTCO MOLDINGS

- Reducer Strip** - a teardrop shaped molding 3/8" thick x 1 1/2" wide x 78" long. Used around fireplaces, doorways, as a room divider, or as a transition between Pattern-Plus and adjacent floor coverings that are less thick. Fasten down with adhesive or double-faced tape.
- Threshold** - a molding undercut 3/8" x 2" wide x 78" long. Used 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 down with adhesive and/or nails (must be predrilled to prevent splitting).
- Stair Nosing** - a molding undercut 3/8" x 2 3/4" wide x 78" long. Used to trim stair landings, elevated floor perimeters, and stair steps. Fastened down firmly with adhesive and nails (must be predrilled to prevent splitting).
- Quarter Round** - 3/4" x 3/4" x 78" long. Used to cover expansion space next to baseboards, case goods, and stair steps. Pre-drilled and nailed to the vertical surface, not to the floor.
- Combination Base and Shoe**-3/4" wide x 2" high x 78" long. Used to cover expansion space between the floor and walls. Must be predrilled and nailed into the wall, not the floor.
- T-Molding** - 3/8" x 2" wide x 78" long. Used as a transition piece from one hard surface flooring to another or to gain expansion spaces.

The above suggested recommendations for the installation of Hartco Pattern-Plus, Hartwood Plank and Westlin Plank Wood Floors are predicated on tests believed to be reliable; however, since each application and use is beyond our control, we do not guarantee the results to be obtained.

Hartco
Quality Wood Flooring
An Armstrong Company

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