



Spyglass Hill Engineered Floors - Installation Instructions

Installation is the responsibility of the Owner and Installer. 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 a defect tolerance not to exceed 5%. The defects may be of a manufacturing or natural type.

This guide should be carefully followed in order to ensure proper installation of your new floor. Only a qualified professional hardwood floor installer should perform the installation. Prior to installation, the Installer/Owner should perform a final inspection of the grade, manufacturing and factory finish of the purchased products. The Installer must use reasonable selectivity and hold out or cut off pieces with defects, whatever the cause.

The manufacturer shall not accept responsibility for the installation of flooring with visible defects. Before installing floors, the Installer and Owner should ascertain that the jobsite and sub floor meet all necessary requirements of Manufacturer's Installation as outlined in the instructions. The warranty does not cover flooring failures resulting from poor jobsite and/or sub floor conditions.

OWNER/INSTALLATION TECHNICIAN RESPONSIBILITIES:

Order Quantity: When the flooring is ordered, a minimum of 5% (recommended 7% - 10%) must be added to the actual square footage to allow for overage (cutting) and selection (grading) allowance (recommended 15% for diagonal/45 degree angle installations). The allowance for overage depends on the complexity of the space the flooring will be installed in.

Job Site inspection: Before any hardwood flooring is installed, the installer must make sure that the job-site environment and the condition of the sub-surface involved meet or exceed the standards and recommendations as outlined in the SUB-FLOOR and JOB SITE PREPARATION sections below.

The owner/installation technician assumes final responsibility for inspecting product quality. Carefully examine each board for quality, color and finish prior to installation – using reasonable selectivity to hold out or cut off pieces with defects. If an individual piece is questionable in regards to the grade, color, or finish, the installer should not install that piece. The Manufacturer is not responsible for boards/floors installed with visible defects.

Controlled Environment: Manufacturer strongly advises to keep these products in controlled conditions with humidity within the 35%-55% range 72 hours before installation and continuously thereafter.

Sub-floor moisture content: Engineered floor can be glued directly to concrete. Do not use a concrete sealer nor install over one. The concrete must be high compressive strength. All concrete sub-floors should be tested for moisture content. Visual checks are not reliable. It is VITAL that the concrete is within safe moisture parameters (determined via moisture test/Calcium Chloride Test).

Acceptable test methods for sub-floors moisture content include:

- **Calcium Chloride test.** The maximum moisture transfer must not exceed 3lbs./1000 square feet with this test.
- **Tramex concrete moisture encounter meter.** Moisture reading should not exceed 4.5 on the upper scale.
- **Relative Humidity probe test with a maximum reading of 75%.**

A "dry" slab, 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 poly film moisture barriers between the ground and the concrete.



Correcting a minor defect during installation using filler, stain, or a putty stick is a normal procedure.

Installer Notation: *The Manufacturer is not responsible for damage caused by negligent installation practices or misuse of installation tools. It is CRITICAL to use the proper adhesives and ensure that the groove is filled adequately with it. If the wrong adhesive is used, or not enough of it applied to the groove of the product, it will create problems - such as board separation after installation. Also, it is completely normal for a newly installed, glued hardwood floor to cup or peak slightly after installation. This is caused by the moisture in the adhesive or concrete. The floor will settle flat over time (generally within a few weeks) as the moisture evaporates into the air. Generally accepted industry procedures and methods can be obtained from the National Wood Flooring Association (NWFA) at www.nwfa.org.*

Engineered Hardwood Floors can be installed on, above, or below grade, although they are not recommended for full bathroom installations.

Handling and Storage:

Engineered hardwood flooring should be protected from moisture at all times during transportation, storage and installation. The flooring must be stored in a dry place prior to installation. All work involving water or moisture should be completed prior to the installation of hardwood flooring. In fact, for any new construction or remodeling project, hardwood flooring should be one of the last items installed. The wood floors must not be stored directly on concrete or near outside walls. Be sure to provide a 4" air space between the flooring cartons and the on-grade concrete sub-floor to ensure proper airflow and to prevent flooring from absorbing moisture from the concrete sub-floor.

SUB-FLOORS

WOOD SUB-FLOOR:

The wood sub-floor moisture content should not exceed 11% and **MUST NOT** exceed 13%. Use a reliable wood moisture meter to measure and document the **moisture content** of both the wood sub-floor and the wood flooring. The difference between the moisture content of the wood sub-floor and the wood flooring should not exceed 2% and **MUST NOT** exceed 4%. Hardwood flooring should be **acclimated to the environment** in which it is expected to perform. Open cartons without removing the flooring and allow the flooring to acclimate to live-in, jobsite conditions prior to installation.

Wood sub-floor must be:

- Clean, dry and well secured.
- Nailed down or screwed down every 6 inches along the joist to avoid squeaking.
- Installed with adequate gap around perimeter.
- Leveled by sanding down high spots and filling in low spots with an underlayment patch as necessary.

WARNING: 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 on Cancer (IARC) has classified wood dust as a nasal carcinogen in humans.

CONCRETE SUB-FLOOR MUST BE:

- Fully cured for at least 60 to 90 days.
- Installed properly with minimum 6-mil Poly film between concrete and ground.
- Dry all year round. Do not install over concrete if you are not sure it will remain dry.
- Tested for moisture by using moisture meter.
- Moisture content must not exceed 3.5% for concrete.

Precautionary Measures: If power tools are used, they should be equipped with a dust collector. If high dust levels develop, use an appropriate NIOSH-designed dust mask. Avoid dust contact with eyes and skin. First Aid Measures: In case of irritation, flush eyes and skin with water for at least 15 minutes. If irritation persists, contact a physician.



Preparing for Installation

Undercut or notch-out door casings to fit flooring underneath by placing a piece of flooring on the sub-floor as a height guide for sawing. Remove door thresholds and base moldings and replace after flooring installation. Always leave at least $\frac{3}{4}$ " expansion space between flooring and all walls and vertical objects. Use a hammer and tapping block and tap against the tongue to pull planks together. Never tap against the groove of the plank. When near a wall, use a crow or pull bar to close end joints. Be careful not to damage flooring edge.

Starting Installation

For esthetical purposes, wood flooring is often laid to the longest wall. However, the owner upon the advice of the professional installer should make the final decision which direction the planks will run. Most professional installers will begin installation next to an outside wall, which is usually the straightest wall and used as a reference point in establishing a straight working line. A good way to establish a working line is to measure an equal distance from the wall at both ends and snapping a chalk line. Measure distance from the wall at the width of the plank plus another $\frac{3}{4}$ " (minimum) for expansion space for establishing your working line. It is advisable to dry lay a few rows before actually using glue to confirm your directional layout decision and work. Adjustment of the working line may be necessary if the outside wall or other working line reference is out of square. Scribe cutting the first row of planks to match the wall and creating a straight working line can do this.

Radiant Heated Sub-floors: Use only with Hydronic Radiant Heat Systems.

Prior to the installation of engineered hardwood flooring over a radiant heated flooring system, the following guidelines must be followed in order to prevent unsatisfactory results for the flooring: Previously noted concrete sub-floor requirements apply.

Relative humidity of the jobsite must be maintained between 35 – 55%. Use of a humidification system may be required to maintain the proper humidity level. Failure to maintain the humidity range noted could result in excessive drying of the flooring, which may lead to surface checking.

The radiant heat system should be set to run at 2/3 maximum output for a minimum of 2 weeks prior to installation of flooring to further allow moisture dissipation from the concrete slab. This must be done in both warm and cold seasons. Before installation (5 days) reduce the temperature to 65° F and maintain temperature range of 64 -68° F during the installation. After completion of the installation, wait 48 hours and then gradually raise the temperature of the heating system 2 -3° F per day over a five-day period until the preferred setting is reached.

Caution: The floor surface must never exceed 80° F in temperature.

Room temperature should not vary more than 15° F from season to season. Seasonal gapping should be expected.

Required Tools

GENERAL INSTALLATION - TOOLS AND/OR ACCESSORIES NEEDED:

- Pencil
- Hammer; Rubber Mallet (Light Colored)
- Floating Floor Engineered Hardwood Adhesive
- Broom
- Finish Nails (if installing trim and molding)
- 3-M Blue Painter's Tape
- Terry Cloths (for wiping off adhesive squeeze-out)
- Nail Punch
- Floating Floor Foam Underlayment
- Tape Measure
- Pry/Pull Bar
- Hand/Jamb Saw (for undercutting door trim)
- Moisture Meter
- Tapping Block
- Circular or Hand Saw; Miter or Table Saw
- Safety Equipment (Goggles and Mask)
- Utility Knife
- Hardwood Flooring Cleaner
- Wood or Plastic Spacers
- Carpenter's Square



FLOATING INSTALLATION - TOOLS AND/OR ACCESSORIES NEEDED:

- Floating Floor Foam Underlayment
- 3-M Blue Painter’s Tape
- Terry Cloths (for wiping off adhesive squeeze-out)
- Finish Nails (if installing trim and molding)
- Floating Floor Engineered Hardwood Adhesive
- Urethane or Polymer Hardwood Plank Adhesive as warranted by the Distributor

NAIL/STAPLE-DOWN - TOOLS AND/OR ACCESSORIES NEEDED:

- Stapling Machine
- Chalk Line and Chalk
- Pneumatic Nailer - suitable for crowned staples with minimum length of 1 inch.
- Glue Coated Staples
- 15 lb. Asphalt Saturated Felt
- Duct Tape
- 6 mil Polyethylene Film (if installing over a concrete sub-floor using screed/sleeper system)

GLUE-DOWN INSTALLATION - TOOLS AND/OR ACCESSORIES NEEDED:

- Terry Cloths (for wiping off adhesive squeeze-out)
- Urethane or Polymer Hardwood Plank Adhesive as warranted by the Distributor
- Chalk Line and Chalk
- Adhesive Trowel

INSTALLATION INSTRUCTIONS

FLOATING, NAIL/STAPLE-DOWN AND GLUE-DOWN

STEP 1: Pre-Installation Jobsite Inspection:

Prior to installation, the building must be structurally complete and enclosed. All exterior windows and doors must be installed. Any “wet” work inside the house (masonry, drywall, and paint) must also be complete – allowing adequate drying time to eliminate unnecessary moisture content within the building. Concrete should be at least 60 days old, but preferably 120 days old (it takes 4 months generally for a newly poured concrete slab to completely dry out). Permanent HVAC (heating/air conditioning) systems must be operating for at least 14 days before installation, maintaining a constant room temperature between 60-75 degrees Fahrenheit and a relative humidity of 35-55%. Exterior drainage – including gutters and downspouts, must be in place and drain away from the building.

Engineered hardwood floors can be installed on, above, or below grade, although they are not recommended for full bathroom installations. Basements and crawl spaces must be dry. Crawl spaces must be a minimum of 24” from the ground to the underside of the joists. A vapor barrier (6-8 mil black polyethylene film) must be put in crawl spaces with joints overlapped and taped.

Sub-floors must be checked for moisture content using the appropriate metering device for concrete or wood. Examples of calibrated concrete moisture meters that work very well: the Delmhorst Moisture Meter Model G and the Tramex Concrete Encounter.



Performing Moisture Tests:

WOOD SUBSTRATES: Test the moisture of the wood sub-floor using a calibrated moisture meter approved for testing wood moisture according to the meter manufacturer. The reading should not exceed 13%, or read more than 5% different than the moisture content of the product being installed.

CONCRETE SUBSTRATES: There are multiple ways to test for excess moisture in concrete.

- Use an approved, calibrated moisture meter such as the Delmhorst Moisture Meter Model G or the Tramex Concrete Encounter. On the Tramex Concrete Encounter Meter, moisture readings should not exceed 4.5 on the upper scale.
- Perform a Polyfilm Test. Tape down 2' x 2' Polyfilm squares (a clear garbage bag or plastic drop cloth will do) in several places on the floor. Wait 24-48 hours, and then check for the appearance of condensation on the inside of the bag or plastic and for a darkening on the concrete in that area. Either occurrence signals the likely presence of excess moisture, requiring a mandatory Calcium Chloride Test.
- Once you have determined the moisture content and if excess moisture is indeed present, a Calcium Chloride and pH Alkalinity Test must be performed to determine moisture emissions and alkalinity from the concrete slab.
- Perform a Calcium Chloride test. The maximum acceptable reading is 3 lbs./24 hours/1000 sq. ft. for moisture emissions.
- Perform a pH Alkalinity Test (a 3% Phenolphthalein in Anhydrous alcohol solution). Chip the concrete at least ¼" 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. Using the number method on the test, a pH reading of 6-9 on a pH scale of 1-14 is considered acceptable.
- If the tests results exceed this number, the concrete slab should be sealed with an appropriate sealer, such as Bostik's MVP4 (Moisture Vapor Protection) Sealer, prior to installation. The manufacturer is not responsible for Hydrostatic, Hygrostatic, or Thermal Dynamics resulting from an improper concrete slab installation.

STEP 2: Storing the Material Prior to Installation

Once the building meets the above conditions, the material can be delivered to the site. Handle and unload the flooring with care and store within the area in which it is expected to perform. Flooring stored on concrete floors should be elevated at least four inches to allow circulation under the cartons. Cartons must be stored horizontally (parallel to the ground). Never store them standing on end.

Leave all boxes SEALED while they are acclimating (this way all boards will acclimate within the boxes at the same rate).

Engineered Hardwood Floors must acclimate for 72 hours prior to installation.



STEP 3: Recommended Sub-floor Types (Wood and Concrete)

Floating Installation:

- Can be installed over any sound, flat structural surface meeting or exceeding building codes.

Nail/Staple-Down or Glue-Down Installation:

- Minimum: APA Approved 5/8" (15mm) CDX Grade Plywood; minimum 40 lb. density
- Preferred: 3/4" (19mm) CDX Grade Plywood or 3/4" (23/32") OSB Underlayment Grade (PS2 Rated) on 16" center floor joists properly nailed
- If installing over a sub-floor that is directly on the floor joists, install perpendicular to the floor joists
- Existing wood floors (installed using floating floor method)
- Resilient Tile or Vinyl
- Nailing over concrete: Must have a minimum of 3/4" plywood installed as a screed/sleeper system with a minimum of 6 mil polyethylene film vapor barrier secured to the slab. All concrete sub floors should be tested for moisture content.

WARNING: Do not nail/staple over particle-board or radiant heat sub-floors!

WHEN NAILING/STAPLING: Using improper adapters and pressure settings can cause severe damage to the flooring while using a nail/staple-down installation. Using the correct adapter and pressure will set the nail/staple correctly in the tongue. It is vital that the tool is adjusted properly so the nails/staples/cleats are being positioned at the proper angle. Air pressures set too high can cause damage to the tongue, putting blisters on the face of the flooring and making it difficult to install adjoining boards. A good test is to set the pressure initially at 70 PSI and adjust it until the staple properly sets in the tongue.

The **Manufacturer is not responsible for damage caused by mechanical fasteners**. If you need to remove a nail/staple/cleat that has gone in crooked, do not pull straight up from the tongue. This will damage the surface of the board. Instead, pull out the staple from the tongue at the front of the board with all pressure from the hammer's head directed into the sub-floor.

Glue-Down and Floating Installation Only:

- Concrete Slab
- Acoustic Concrete
- Cork (acoustic)
- Ceramic, Terrazzo, Marble, or Slate
- Resilient Vinyl or Tile
- Metal

STEP 4: Preparing the Sub-floor

All Sub-floors must be:

- **CLEAN:** scraped, sanded, or swept; free of wax, grease, paint, oil, and other debris.
- **SMOOTH/FLAT:** within 3/16" in 10' and/or 1/8" in 6'. Sand high areas or joints. Fill low areas (no more than 1/8") with a suitable cement type filler.
- **STRUCTURALLY SOUND:** Replace any water-damaged, swollen or delaminated sub-flooring or underlayment, as they are unable to properly hold staples or fasteners. Plywood sheets should be laid with grained outer plies at right angles to joists; adjacent rows staggered four feet and nailed every 6" along each joist with 7d or larger nails. When installing directly over old wood or strip floor, sand any high spots, re-nail old floor to eliminate squeaks or loose boards, and install new planks at right angle (perpendicular) to the old floor, or overlay old floor with 1/4" plywood underlayment. Leave a 1/8" gap at the edges and nail with 7d or larger nails every 6" at the edges and every 12" in both directions and through the interior of each sheet of plywood. It is normal for mechanically (staple/nail/cleat) fastened floors to make minor occasional noises such as popping, squeaking, or crackling which can change as environmental changes occur. This is not a manufacturing defect. You can help reduce popping, squeaking, or crackling by being sure that the sub-floor is secured properly (as explained above) and is structurally sound, that there are no loose joists or decking, and that the sub-floor is swept very thoroughly prior to installation.
- **DRY:** Moisture content of sub-floor must not exceed 14% prior to installation of wood flooring. All moisture testing must be done before wood has been acclimated 72 hours and job-site requirements met.



STEP 5: Installing the Floor

GENERAL Installation TIPS:

- Open 4 to 5 separate cartons at one time and mix the pieces to maximize the color and shade variations.
- Install the product parallel to the longest wall to provide the most appealing visual effect.
- Stagger the ends of the boards at least 6" in adjacent rows for a more appealing overall look.
- **Allowing for a minimum ¼" expansion gap** around all vertical obstructions is CRITICAL! Wood expands and contracts with changes in humidity. Wood will buckle and/or cup if an adequate expansion space is not allowed for. ALWAYS allow for expansion space when making cuts around or beside vertical objects (i.e. walls, pipes, etc.).

DOORWAY/WALL PREPARATION:

- Undercut or notch-out door casings 1/16" higher than the thickness of the floor being installed.
- Remove existing base and shoe molding on wall as well as doorway thresholds. These can be reapplied after the installation is complete.

ESTABLISH A STARTING POINT: FLOATING, NAIL/STAPLE-DOWN AND GLUE-DOWN INSTALLATION

An exterior wall is usually the straightest and best reference line to start the installation from. If possible, the direction of the flooring being installed should be at right angles to the floor joists. Establish a starting line by leaving a **minimum ¼" expansion gap** around all vertical obstructions. In at LEAST 2 places, measure out equal distances from the starting wall. It is recommended to measure 3-1/8" out from the starting wall and 12" – 18" in from the corners. Mark these points and snap a working chalk line parallel to the starting wall allowing the required expansion space between the starting wall and the edge of the first row of flooring. Plan the floor layout (width-wise) so you don't have to rip the last row **NARROWER** than 1". You may have to rip the **FIRST** row to ensure the **LAST** row is **AT LEAST 1"** wide.

INSTALLING THE FOAM UNDERLAYMENT: FLOATING INSTALLATION ONLY

- Install your first row in the **SAME** direction you will be installing the hardwood flooring.
- Extend the underlayment a few inches up the wall on either side.
- Trim this excess underlayment off **AFTER** installing the hardwood, but **BEFORE** you install trim or moldings.
- If a non-adhesive underlayment (on the seams) is used, tape all seams together.

INSTALLING THE VAPOR BARRIER: NAIL/STAPLE-DOWN INSTALLATION ONLY

- Install 15 lb. Asphalt Saturated Felt Paper on the wood sub-floor prior to installation – roll out the material in the same direction as the flooring will be installed; allowing the Felt Paper to extend 3"- 4" up the walls.
- Position the Felt Paper so that the chalk line can be seen clearly (you may need to cut the Felt Paper back from the wall just enough to see it).
- Staple or tape at the corners to hold the Felt Paper in position.
- Overlap the Felt Paper by 1' and duct tape the seams

NOTE: While 15 lb. Asphalt Saturated Felt Paper is an excellent vapor barrier; it is **NOT** considered a moisture barrier. If a moisture barrier is needed (if floating or nailing over concrete using the screed/sleeper system), a 6 mil polyethylene film is required – with the edges overlapped 18" and taped.

INSTALLING THE 6 MIL POLYETHYLENE FILM: FLOATING INSTALLATION ONLY (if needed)

- Install your first row in the **SAME** direction you will be installing the hardwood flooring.
- Extend the underlayment a few inches up the wall on either side.
- Trim this excess underlayment off **AFTER** installing the hardwood, but **BEFORE** you install trim or moldings.
- Overlap the 6 mil Polyethylene Films 18 inches and tape them together to form an adequate moisture barrier (if installing over a concrete sub-floor).



INSTALLING THE FIRST ROWS: FLOATING INSTALLATION ONLY

- Install the first 4 rows together initially, allowing them to dry before installing the rest of the floor. This will ensure that the remainder of the floor is straight while installing.
- Select your first board. Remember to take boards from multiple boxes while installing. Do not install 2 pieces from the same box in a row – mix the colors and shades while installing to get a more favorable overall look. Also, remember to stagger the end-joints of adjacent rows at least 6" to create a more appealing look for the floor.
- The groove of the boards should be facing the starting wall. Use the longest boards available for the starter row. Apply a continuous bead of adhesive to the top portion of the groove on the end of the board. Products with the end tongue on the LEFT should be installed right to left; if on the RIGHT they should be installed left to right.
- Complete the first row. Remember to **keep a ½" expansion space** on all sides touching the wall. Install wedges all along the wall against your first row to maintain that expansion space while you're installing. AVOID installing any boards shorter than 16" in the first four rows.
- Due to the length of the boards, allow a minimum of 10" to 12" separation between end seams in the adjacent rows. Move any rows, if necessary, to ensure you are not showing any noticeable joint patterns.
- Use the pull/pry bar to install the last board in the row. Install wedges into the expansion space and tighten.
- As you install, cut the last boards in each row allowing a ½" for expansion space. After measuring, cut the board with a table saw, hand saw or jig saw. Use the pull bar to place the board into position. Leave all wedges in the floor for a minimum of 8 hours so that the adhesive will set properly.
- Once boards are installed, wipe off glue squeeze-out immediately with a clean, damp (not dripping wet – just damp) cloth.
- Using the 3-M Painter's Tape, tape the boards together after they have been glued and tapped together. This also ensures that the boards will remain tightly connected to each other while they dry.
- Start the second row by applying a continuous bead of adhesive to the inside groove on the length and end of the boards.
- Tap the boards together using a TAPPING BLOCK. Do NOT hammer directly on the tongue of the product – this will smash the end of the tongues making it impossible to install the next board to it.
- Install the remaining 3 rows the same way. Allow setting and drying before installing the rest of the floor.
- Remember to insert the wedges on the ends (as necessary) to restrain the movement of the floor while you are installing.

COMPLETING THE INSTALLATION: FLOATING INSTALLATION ONLY

- Complete the floor, gluing the wood together as described above, and tape the boards together after you have cleaned up the squeeze-out to ensure a tight fit.
- After you have finished and the floor is dry, remove all of the tape and clean the floor using a hardwood flooring cleaner.
- Trim all of the floating floor underlayment and install (or re-install) any trims or moldings as may be needed. Remember to nail the moldings into the WALL, not the FLOOR.
- Inspect the floor closely, filling in any gaps with a hardwood filler or matching putty.
- If further construction is necessary after the hardwood is installed, you can protect the installed floor by laying a quality rosin paper or other paper that allows the floor to breathe, taping it to the baseboards. NEVER use plastic, solid rubber, or polyethylene film to cover the installed floor since they both trap moisture and will damage the installed hardwood (creating cupping or swelling issues).
- Finally, allow at least 8 hours before traffic and 24 hours before furniture is replaced.
- Remove expansion spacers. Reinstall base and/or quarter round moldings to cover the expansion space. Install transitions pieces such as reducer strips and T-moldings as needed. Clean and remove all dirt and debris on floor by dust mopping. Follow floor care and maintenance guide to ensure longevity and lasting beauty of your new hardwood floor.



INSTALLING THE FIRST ROWS: NAIL/STAPLE-DOWN INSTALLATION ONLY

Make sure to use the straightest, longest boards available when installing the first two rows.

REMINDER: Take boards from multiple boxes while installing. Do not install 2 pieces from the same box in a row – mix the colors and shades while installing to get a more favorable overall look. Also, remember to stagger the end-joints of adjacent rows at least 6” to create a more appealing look for the floor.

- Sub-floor **preferred** is a CDX plywood underlayment or at a minimum, 5/8" CDX plywood. (Particleboard is not an acceptable underlayment). In the case of either staple or nail (cleat), a 1½" length is recommended.
- Line up the tongue of the first row with the starting point chalk line. The groove of the boards should be facing the starting wall.
- Using a pneumatic brad nailer, face-nail the groove side of the boards (first row only) from the edge at 4” - 6” intervals and 1” – 2” from each end; then at a 45 degree angle down through the nailing pocket on top of the tongue. Another option is to pre-drill the face-nail holes from the groove edge of the first row, 1” – 2” from each end, and at 4”- 6” intervals. Pre-drill at the same intervals at a 45-degree angle down through the nailing pocket on top of the tongue. Face-nail the groove side where it is pre-drilled. When the face nailing is complete, blind-nail at a 45-degree angle using 4d or 6d nails. Countersink all nails to ensure the next boards install smoothly. Make sure to use a nail set to countersink the nails – failure to do so can damage the surface of the wood. Keep blind-nailing the following rows until the stapler can be used.
- It is also recommended to glue the butt ends of the boards to insure a proper and firm joint.
- As listed above in General Tips, make sure the end-joints of adjacent rows are staggered at least 4” - 6” to have a more appealing overall look (which is called a “stair-step” pattern).

Nail or staple down installations may be successful over existing vinyl providing:

- That the sub-floor is properly attached to the joists.
- That the penetration by either method is not significantly lessened.

INSTALLING THE REST OF THE FLOOR: NAIL/STAPLE-DOWN INSTALLATION ONLY

- Make sure you are using the correct staple gun, adapter, fasteners, and PSI setting on the compressor.
- Practice installing on an extra piece of wood. Check for any damage to the board (surface damage, tongue damage, etc.). Make any adjustments and corrections BEFORE you start installing the rest of the floor. Once you have made your adjustments, destroy the “practice” board.

REMINDER: Take boards from multiple boxes while installing. Do not install 2 pieces from the same box in a row – mix the colors and shades while installing to get a more favorable overall look. Also, remember to stagger the end-joints of adjacent rows at least 6” to create a more appealing look for the floor.

- Begin installing with several different rows at a time, securing each board with at least two fasteners. To avoid splitting the board, put the fasteners 3” – 4” apart and 1” – 2” from the ends. Make sure you press firmly together before fastening to eliminate gaps between the boards.
- The last one or two rows will need to be installed similar to the first two rows. They will need to be face-nailed where blind nailing is not possible. Brad-nail or pre-drill and face-nail on the tongue side matching the nailing pattern used in the first row.
- The final row should be ripped to size and face-nailed. If it is less than 1” wide, it should be glued to the previous row BEFORE that row is installed and the two joined pieces should be face-nailed as one board.

INSTALLING WITH ADHESIVE: GLUE-DOWN INSTALLATION ONLY

WARNING: Actual working time with adhesive varies depending on the environmental conditions of the structure. The Manufacturer will not be responsible for improper application of adhesives.

NOTE: Urethane adhesive can sometimes be difficult to clean off if you do get some on top of the hardwood you are installing. Make sure to have a Urethane Adhesive Remover or Mineral Spirits and a Terry Cloth readily available to remove excess adhesive.



INSTALLING THE REST OF THE FLOOR: GLUE-DOWN INSTALLATION ONLY

- Make sure to use the straightest, longest boards available when installing the first two rows.

REMINDER: Take boards from multiple boxes while installing. Do not install 2 pieces from the same box in a row – mix the colors and shades while installing to get a more favorable overall look. Also, remember to stagger the end-joints of adjacent rows at least 6” to create a more appealing look for the floor.

- Use only moisture cured urethane or polymer adhesive specifically manufactured for hardwood plank installation. Use the recommended warranted adhesive for your hardwood floors; other brands of glue will result in the void of manufacturer’s warranty. Again, refer to the above instructions on the use of a Moisture Based Adhesive and make sure you have the correct conditions to use it.
- Follow instructions for the adhesive carefully. Always allow for adequate cross ventilation when working with flooring adhesive. Follow adhesive instruction regarding proper set time before affixing wood floor planks.
- Make sure to use the appropriate trowel to get the correct coverage rate with the adhesive. It is recommended to use a V-Notch trowel with these dimensions when using a Urethane Adhesive: 1/4” D x 3/16” W x 1/2” SP x 5/16” Foot. This trowel will leave the correct ridges of adhesive on the floor (with very little adhesive between the ridges).
- With a trowel at a 45-degree angle, spread as recommended by the adhesive instruction. Start at the outside wall. Once adhesive has set per instructions, lay the first row of flooring with the groove facing the wall. Line up the groove of the first row with the starting point chalk line. The tongue of the boards should be facing the starting wall. Align and securely seat the first row in the adhesive – all additional rows will be pushed back to this row. It must be straight! Be careful not to move the installed floor on the wet adhesive.
- Do not apply the adhesive if the room temperature or sub-floor is colder than 65 degrees Fahrenheit.
- Remember to always check the alignment with the working line.
- When installing individual pieces, connect the end-joints first as close to the long tongue and groove as possible. Then slide (push) the long tongue and groove together as tightly as possible. Try to avoid sliding the pieces through the adhesive as much as possible – this will help negate memory pull back (boards pulling apart once they are in position) and adhesive bleed-through (excess adhesive squeezing out vertically through the joints). You may need to use a scrap piece of the same product as a tapping block to help align the product.
- If the first row needs help staying in place, you can nail a board (using 1” concrete nails) on the dry side of your starting chalk line to stabilize it. When required use weights to hold the flooring planks on the perimeter until adhesive cures enough.
- Double-check the edges and ends of your installed planks – they should all have a tight fit.
- Remember to stagger the end-joints of adjacent rows at least 6” to create a more appealing look for the floor.
- Be sure not to spread your adhesive too far ahead of your work area! If the adhesive skins over and starts to dry, preventing a proper bond between the floor and the wood, remove the old and spread new adhesive. You must have adequate adhesive transfer to ensure the floor will be installed correctly. You can double check the holding strength of the adhesive by occasionally lifting a board and checking the transfer of the adhesive.
- Once the boards are tightly fitted together, use the 3M 2090 Blue Painter’s Tape to hold the planks together while the adhesive dries. Make sure to clean any urethane adhesive off of the surface of the wood with mineral spirits or urethane adhesive remover BEFORE you apply the tape! If the adhesive dries on the surface of the wood it is VERY difficult to remove. After the installation is complete, remove all of the Blue Painter’s Tape from the surface of the flooring. Remove the tape within 24 hours. **NOTE:** Do not use Masking Tape! Masking tape leaves a sticky residue on the surface of the wood, which is very difficult to remove.
- Continue with this method while installing the rest of the floor. Rip the final boards (last row) to fit and allow at least ½” of expansion space.

COMPLETING THE INSTALLATION: NAIL/STAPLE-DOWN AND GLUE-DOWN INSTALLATION

- After all excess adhesive and tape are removed; thoroughly clean the floor using a hardwood cleaner.
- Re-install any moldings, door trim, end caps, etc. to complete the job. Make sure to nail any moldings into the wall – do not nail molding into the floor!
- To prevent surface damage to the floor avoid rolling heavy appliances and furniture across it. Use cardboard, plywood, or airlifts if possible.
- If further construction is necessary after the hardwood is installed, you can protect the installed floor by laying a quality rosin paper or other paper that allows the floor to breathe, taping it to the baseboards. NEVER use plastic, solid rubber, or polyethylene film to cover the installed floor since they both trap moisture and will damage the installed hardwood (creating cupping or swelling issues).



GENERAL TIPS: FLOOR REPAIR

If the floor becomes scratched or dinged, it can be repaired with a putty, filler, or touch-up kit. If a board is severely damaged, it may need to be replaced, which can be done by a qualified flooring technician.

GENERAL TIPS: HARDWOOD AND SEASONS

Once the floor is installed it is critical to keep it well maintained. The Manufacturer is not responsible for improper maintenance of the floor. Wood floors will be slightly affected by varying levels of humidity within your building. To make sure the floors are protected for as long as possible, it is VITAL for you to keep the relative humidity levels within 35% - 55%. Below are some recommendations on how to achieve that in the different seasons:

Wet/Humid (wood expands): Heaters are not generally used during these months. Therefore the floor holds in the humidity and expands. To maintain a proper humidity level, use a dehumidifier or air conditioner. You can also turn on your heater every once in a while during the summer months – this will help lower the humidity in the building. Make sure the expansion space is not blocked in any way!

Dry (wood contracts/shrinks): Wood-burning stoves and electric heating systems are used a lot during winter months – creating very dry conditions indoors. The low humidity causes the wood to contract and shrink – leaving gaps between individual boards. To prevent this, use a humidifier to keep the humidity level within 35% - 55%.

MULTI BLOCKER & MULTI BLOCKER MB UNDERLAYMENT INSTALLATION

Do not use this underlayment directly under ceramics, parquet, vinyl tile or vinyl sheet or solid hardwood (nail down).

Multi Blocker Installation Instructions:

1. Before starting the installation, you must ensure the sub-floor is dry and clean. If the sub-floor is bare concrete, you must install a vapor barrier first, or install Multi Blocker MB.
2. The sub floor must be leveled. If area requires leveling, it must be fixed by a professional contractor.
3. Crumb Rubber Pad should be laid rubber-side down*. All seams must be placed tightly together and use duct tape for seaming.
4. If the flooring is engineered or laminate (floating floor), the Crumb Rubber Pad is loose laid and does not get glued to the sub-floor.
5. For glue down engineered flooring**, the Crumb Rubber Pad is glued to the sub-floor using a premium multipurpose adhesive. The engineered wood is glued to the pad using a moisture cured urethane based adhesive.

Recommended Kraus Adhesives:

Underlayment to sub-floor: KPA-302

Hardwood to underlayment: KPA-401

The referenced adhesives should be applied with a 1/16" x 1/16" x 1/16" square notched trowel. After troweling, the adhesive must be provided the appropriate dwell time to become tacky [before placing the cushion/underlayment]. The adhesive must transfer to the cushion/underlayment. The adhesives should not be allowed to dry before placing the cushion/underlayment.

* Always install black side face down when using Crumb Rubber Pad.

**The flooring Manufacturer's specifications must be followed.



Multi Blocker MB Installation Instructions:

1. Before starting the installation, you must ensure the sub-floor is dry and clean.
2. The sub floor must be leveled. If area requires leveling, it must be fixed by a professional contractor.
3. Multi Blocker MB is only to be installed under floating floors**, and the pad must be loose laid. Pad should be laid rubber-side down*.
4. All seams must be placed tightly together and use a 2" vapor barrier tape to join seams.
*Always install black side face down when using Crumb Rubber Pad.
**The flooring Manufacturer's specifications must be followed.

MAINTENANCE:

INITIAL TREATMENT & OCCASIONAL MAINTENANCE

Spyglass Hill is a ready-oiled product and, as such, does not require oil treatment directly after installation. After the flooring has been installed, and before it has been used, gently coat the surface of the floor with the Kraus recommended oil maintenance product. This product is intended for use on naturally and color oiled floors, and is offered in specific coloring to match your flooring. Ensure you use the correct color specified maintenance product. For example, use the white maintenance product on white oiled flooring, use the natural color maintenance product on naturally and colored oiled floors.

These products combine gentle and effective cleaning agents with a slight re-oiling. The product will seep into the wood flooring and provide a protective surface layer.

Directions:

1. Shake bottle well before use.
2. Sweep and/or vacuum dust and dirt from the floor.
3. Mix the Kraus recommended oil maintenance product into room temperature water using the following measurements:
 - a. *Traditionally oiled floors (1:20 ratio)*
 - i. 8 oz (250 ml) of oil maintenance product with 1.25 gallons of water (5 L)
 - b. *UV oiled and oil-waxed floors (1:40 ratio)*
 - i. 4 oz (125 ml) of oil maintenance product with 1.25 gallons of water (5 L)
4. You will need 2 buckets – one for mixing and one for rinsing.
 - a. Dip the mop/cloth into the mixture bucket, lightly wringing out the excess.
 - i. **NOTE:** do not use a microfiber product, we recommend a cotton string mop.
 - b. Working lengthwise across the floor, gently run the mop/cloth across the floor.
 - c. Rinse the mop/cloth in the clean water – wring out as much excess water as possible.
 - d. Dip the mop/cloth back into mixture – wring out as much excess as possible.
 - e. Clean the rest of the floor lengthwise, repeating this process.
 - f. We recommend 10-meter sections at a time to maintain the mixture ratios.
 - g. Change the rinse water as needed.
 - h. Leave as little moisture as possible on the floor.
5. Let dry for approximately 2 hours before use.
6. For a light shine, polish the dry floor with a dry cloth – *optional*.



COMMERCIAL

Occasional Maintenance – Re-Oiling:

Kraus suggests re-oiling your floor with our recommended maintenance oil, according to the degree of wear of the floor. This will maintain the look of the floor, strengthen the oiled surface and provide ongoing durability and dirt resistance.

Preparation:

1. Mix 4 oz (125 ml) of the Kraus recommended wood cleaner with 1.25 gallons (5 L) of water.
2. Use two buckets – one for mixing and one for rinsing.
3. Clean the floor using the mixture, rinsing every 10 meters.
4. Leave as little moisture on the floor as possible.
5. Let dry for a minimum of 8 hours before use.

NOTE: For stubborn spots, scrub using a cloth or pad (no microfiber products) and wipe clean using a mop/cloth. Always wipe a second time to ensure as little water remains as possible. Repeat cleaning as needed.

Application

1. Ensure floor is completely dry prior to application of Kraus recommended maintenance re-oil product.
2. Shake container carefully before use.
3. Apply 3 oz (100 ml) of oil with a pad, paint roller or cotton cloth (no microfiber products).
4. Work in sections of 40 sq. ft. (4 sq. m).
5. Polish into the wood until the appearance is consistently saturated across the floor surface.
6. For larger surfaces, a polishing machine may be used.
7. Using a dry cotton cloth, wipe floor clean before proceeding to the next section. There should be no excessive oil left on the surface after polishing.
8. Let dry for at least 24 hours before use if manually polishing. If using a machine, the floor may be used after 4 hours at 20°C/68°F. After 24 hours, the floor surface will have hardened.

NOTE: Do not expose the floor to water during the drying time. Continue normal cleaning after 5 days.



RESIDENTIAL & COMMERCIAL

Regular Cleaning of Oiled Flooring

Kraus suggests the use of our recommended products for cleaning and maintenance of your oiled floor. Ensure you use the proper colored product – natural for naturally oiled floors, white for white oiled floors. These products provide sustainable properties, which close the pores of the wood for protection against dirt and spills.

Directions:

1. Shake bottle carefully before use.
2. Mix 4 oz (125 ml) of product with 1.25 gallons (5 L) of room temperature water.
3. Use two buckets – one for mixing, one for rinse water.
4. Using a minimal amount of water, clean floors.
5. Leave soap water on the floor to dissolve dirt.
6. Using a dry mop/cloth, remove soap water and rinse in rinse bucket (no microfiber products).
7. Wring out mop/cloth as much as possible and repeat cleaning process for the remainder of the floor.

NOTE: Wring out mop/cloth as much as possible to maintain the cleaner’s protective coating. Excessive dirt may be cleaned with our recommended wood cleaner in addition to our recommended regular cleaner. Heavily worn areas may be maintained with our recommended maintenance oil product after cleaning with our recommended wood cleaner.

Tips & Tricks

To ensure the longevity of your wood floors, follow these tips:

- Maintain indoor temperatures of 18-21°C (64-69°F) and humidity levels of 50-60%.
- Use felt protectors on the feet of all furniture.
- Avoid spiked footwear use on flooring.
- Use non-marking floor mats and footwear trays.
- DO NOT use microfiber mops/cloths; always use cotton products.
- Follow Kraus installation and care instructions.

Spyglass Hill Reference Guide:

Colour Name and Product Number	Initial Treatment and Occasional Maintenance	Regular Cleaning	Maintenance and Care
Ashbrooke KPHASHBSHI	Kraus Oil Maintenance Product - Natural	Kraus Cleaner - Natural	Kraus Wood Cleaner and Maintenance Oil - Natural
Pembleton KHPPEMBSHSI	Kraus Oil Maintenance Product - Natural	Kraus Cleaner - Natural	Kraus Wood Cleaner and Maintenance Oil - Natural
Canterbury KPHCANTSPHI	Kraus Oil Maintenance Product - Natural	Kraus Cleaner - Natural	Kraus Wood Cleaner and Maintenance Oil - Natural
Revelstoke KPHREVESPHI	Kraus Oil Maintenance Product - Natural	Kraus Cleaner - Natural	Kraus Wood Cleaner and Maintenance Oil - Natural
Byron Bay KPHBYBASPHI	Kraus Oil Maintenance Product - White	Kraus Cleaner - White	Kraus Wood Cleaner and Maintenance Oil - White
Yorkshire KPHYORKSPHI	Kraus Oil Maintenance Product - White	Kraus Cleaner - White	Kraus Wood Cleaner and Maintenance Oil - White
Crownsnest KPHCROWSPHI	Kraus Oil Maintenance Product - White	Kraus Cleaner - White	Kraus Wood Cleaner and Maintenance Oil - White