

**Glue-Down and Floating Installation Instructions  
Prefinished Engineered 5/16" x 3" or 5/16" x 6 1/4"  
(Length – 48" with occasional 24" pieces)**

Thank you for choosing BR-111™ Exotic Hardwood Flooring. Protect your investment; thoroughly review and adhere to the following installation instructions.

Please note that these are instructions for the experienced hardwood flooring installer. For more detailed information on the basics of installing hardwood flooring, please contact the National Wood Flooring Association (NWFA) at 1-800-422-4556 or visit [www.nwfa.org](http://www.nwfa.org)

### **Installer/Owner Responsibility**

Hardwood flooring is a natural product; therefore defects in the flooring can occur in the manufacturing process or naturally as a characteristic of the wood. BR-111™ 5/16" Engineered hardwood floors are manufactured within accepted industry standards, allowing for up to 5% defective product based on the original hardwood flooring purchase order. Order 5% additional flooring product above actual square footage requirements to allow for cutting and grading of material.

**Prior to installation, the installer assumes all responsibility for final inspection and quality of the product.**

Flooring should be carefully examined for finish and quality. Do not install hardwood flooring that is unacceptable; contact seller immediately.

**The installer must determine that the jobsite environment and sub-floor surfaces meet applicable construction and material industry standards.** BR-111™ declines any responsibility for job failure resulting from deficiencies associated with sub-floor or job-site environment.

The installer must hold out or cut off defective flooring material during installation. Filler or putty stick may be used to correct minor flooring defects during installation and is considered a normal procedure.

### **Basic Tools and Accessories**

- |  |  |                |
|--|--|----------------|
| ■ Rubber mallet  | ■ 3-M Blue Tape                              | ■ Broom        |
| ■ Chalk line   | ■ Pencil                                     | ■ Tape measure |
| ■ Table saw or band saw  | ■ Jamb saw or hand saw                       | ■ Hammer       |
| ■ Calcium Chloride Test (may be needed)  | ■ Leading brand of hardwood flooring cleaner |                |
| ■ Quality moisture meter with manufacturer's relevant exotic species calibration figures |  |                |

**DO NOT NAIL OR STAPLE THIS PRODUCT.**

**Additional Tools for Glue-Down Installation****Warranted Adhesives**

- StrateStuff Urethane Adhesive (extra Moisture Protection Warranty if used in conjunction with StrateStuff Substrate Safeguard; see product label and literature for details)

**Other Approved Urethane-Based Adhesives Warranted By Their Manufacturers**

- Bostik's Best, Bostik's Fast Tack, Bostik's BST Urethane, or Bostik's Ultra-Set
- Franklin 811 or Franklin 811 Plus Urethane Adhesive
- DriTac 7600
- Parabond 4002 PBM 4002
- Trowel (If using StrateStuff Urethane Adhesive use 1/4" x 1/8" x 1/4" square notch trowel; **do not** use V-notch trowel. For all other adhesives, refer to adhesive manufacturers' recommendations for trowel size.)
- Urethane Adhesive Cleaner

**DO NOT USE WATER-BASED ADHESIVES WITH THIS PRODUCT.****Additional tools for floating installation**

- Pull Tool or Crowbar
- Tapping Block (used with care)
- 1/8" Foam Padding (if foam padding includes a vapor barrier backing, 8 mil polyethylene film may not be required)
- Moisture Barrier (recommend StrateStuff Safeguard, minimum 8 mil polyethylene film)
- Glue — Franklin Titebond II or Equivalent PVA-2 (poly vinyl acetate) adhesive

**STEP 1: PRE-INSTALLATION****Site Inspection**

Prior to installing hardwood floors, the building must be structurally complete and enclosed, including installation of exterior doors and windows. Concrete, masonry, drywall, and paint must also be complete, allowing adequate drying time as to not raise moisture content within the building.

HVAC systems must be fully operational at least 14 days prior to flooring installation, maintaining a consistent room temperature between 60-75 degrees Fahrenheit and relative humidity between 35-55%. This not only stabilizes the building's interior environment, but also is essential when acclimating hardwood flooring to the job-site.

Exterior grading, directing drainage away from the structure, as well as gutters and downspouts should also be completed. Floors may be installed on, above, or below grade level and are not recommended in full bathrooms.

It is essential that basements and crawl spaces are dry. Crawl spaces must be a minimum of 24" from the ground to underside of joists. A vapor barrier must be established in crawl spaces using 6 mil polyethylene (poly) film with joints overlapped and taped.

During the final pre-installation inspection, sub-floors must be checked for moisture content using the appropriate metering device for wood and/or concrete.

## STEP 2: EQUALIZING HARDWOOD FLOORING

Wood is a porous material with a natural cellular structure that expands and contracts depending on the amount of relative humidity present in the surrounding atmosphere. Equalizing moisture content to the job-site equilibrium point before installation is paramount to stabilizing movement after installation.

Handle and unload hardwood flooring with care and stored within the environmentally controlled site in which it is expected to perform. Flooring stored upon "on-grade" concrete floors should be elevated at least four inches to allow air circulation under cartons. Hardwood flooring must acclimate for as long as necessary to meet minimum installation requirements for moisture content. Using the equilibrium moisture content chart below, determine the proper moisture content for the installation. Always use a moisture meter to determine where the flooring and present job-site conditions are in relation to the projected final equilibrium point taking into account seasonal changes.

### Equilibrium Moisture Content Chart

Temp. Relative Humidity, Percent

	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	98
30° F	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3	26.9
40° F	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3	26.9
50° F	1.4	2.6	3.6	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.3	11.2	12.3	13.4	14.8	16.4	18.4	20.9	24.3	26.9
60° F	1.3	2.5	3.6	4.6	5.4	6.2	7.0	7.8	8.6	9.4	10.2	11.1	12.1	13.3	14.6	16.2	18.2	20.7	24.1	26.8
70° F	1.3	2.5	3.5	4.5	5.4	6.2	6.9	7.7	8.5	9.2	10.1	11.0	12.0	13.1	14.4	16.0	17.9	20.5	23.9	26.6
80° F	1.3	2.4	3.5	4.4	5.3	6.1	6.8	7.6	8.3	9.1	9.9	10.8	11.7	12.9	14.2	15.7	17.7	20.2	23.6	26.0
90° F	1.2	2.3	3.4	4.3	5.1	5.9	6.7	7.4	8.1	8.9	9.7	10.5	11.5	12.6	13.9	15.4	17.3	19.8	23.3	26.0
100° F	1.2	2.3	3.3	4.2	5.0	5.8	6.5	7.2	7.9	8.7	9.5	10.3	11.2	12.3	13.6	15.1	17.0	19.5	22.9	25.6

From the U.S. Dept. of Agriculture "Wood Handbook — Wood as an Engineering Material"

Monitor the flooring and job-site conditions as they acclimate. If the wood is neither gaining nor losing moisture, an equilibrium condition has been reached.

**NOTE: Equilibrium points vary dramatically throughout the country, from the dry desert areas of the Southwest to moist areas along the Gulf of Mexico. In addition, a wide range of relative humidity can be experienced between individual job-sites within the same basic locale. Different heating/air conditioning systems can also dramatically alter on-site relative humidity. As a result, no one fixed moisture content is right for all situations, and it is up to the individual installer to establish the proper moisture content for each installation.**

Additional information regarding equalizing exotic hardwood flooring to specific geographic regions is available upon request, or may be obtained from our reference manual posted on-line at [www.br111.com](http://www.br111.com).

**STEP 3: RECOMMENDED SUB-FLOORING**

**Preferred** – 3/4" (19mm) CDX Grade Plywood or 3/4" (23/32") OSB PS2 Rated Underlayment with a minimum 40 lbs. density

**Minimum** – 5/8" (15mm) CDX Grade Plywood, existing wood flooring, 3/4" Chip, Waferboard, or Particleboard with a minimum 40 lbs. density underlayment grade.

- Concrete Slabs
- Acoustic Concrete
- Resilient Tile or Vinyl
- Cork (Acoustic)
- Ceramic, Terrazzo, Slate, Marble

**THIS PRODUCT IS DESIGNED FOR GLUE-DOWN OR FLOATING INSTALLATIONS ONLY.**

**STEP 4: SUB-FLOOR PREPARATION****All Sub-floors Must Be:**

- Dry and free of wax, paint, oil, and debris. Replace any water-damaged or delaminated sub-flooring or underlayments. Scrape smooth and sweep prior to installation.
- Level/flat within 3/16" over 10' and/or 1/8" over 6'. If sub-floor is concrete and a leveling compound is needed, use Portland based leveling compounds such as Parabond or Ardex. Follow the manufacturer's recommendation for applying the leveling compound. Any area containing the leveling compound must be completely dry before proceeding with the installation of the wood floor. If sub-floor is plywood or equivalent, high areas or joints can be sanded flat.
- If plywood or equivalent, sub-floor must be structurally sound prior to installation. Sub-floor must be properly secured with nails or screws every 6 inches along joists to reduce the possibility of squeaking after final installation.
- Appropriate moisture tests must be performed as outlined in the "Step 5: Testing for Moisture Content" section listed below.

**STEP 5: TESTING FOR MOISTURE CONTENT****For Wood and Other Sub-Floors Types:**

Using a quality moisture meter, measure the moisture content of both the sub-floor and the hardwood flooring. **Sub-floors must not exceed 12% moisture content and the difference between sub-floor and hardwood flooring cannot exceed 4%.** If sub-floors exceed this amount, an effort should be made to locate and eliminate the source of moisture before further installation. **A moisture barrier (StrateStuff Safeguard is recommended; 8 mil polyethylene film minimum) is required in the floating applications of BR-111™ 5/16" Engineered hardwood flooring products.**

**For Concrete Sub-Floors:**

Concrete sub-floors should always be checked for moisture content prior to the installation of wood flooring. Please note that these tests do not guarantee a dry concrete slab year round. The two most common moisture tests include:

- **Calcium Chloride Test** – Moisture transfer should not exceed 3 lbs/1000 square feet with this test. One test must be performed every 250 square feet. Calcium chloride tests can be found in flooring retail stores or retail websites on the internet such as [www.taylor\\_tools.com](http://www.taylor_tools.com) or [www.moisturetestkit.com](http://www.moisturetestkit.com) 1-888-216-TEST (8378).
- **Tramex Concrete Moisture Encounter Meter** – Moisture readings using a metering device should not exceed 4.5 on the upper scale ([www.tramexltd.com](http://www.tramexltd.com)).

**STEP 6: MOISTURE BARRIER SYSTEMS**

**StrateStuff Substrate Safeguard** — Protects against moderate to high moisture emissions from the sub-floor. Recommended for use with BR-111™ flooring, apply StrateStuff Substrate Safeguard following manufacturer's instructions. When used in conjunction with StrateStuff Urethane Adhesive, BR-111™ extends a 15-year moisture protection warranty to the original purchaser of the installation. Please see product label and literature for full details.

**STEP 7: PREPARATION FOR SPECIFIC SUB-FLOOR TYPES****Sub-Floor Type: Concrete Slabs**

**Float or Glue-Down Application** — BR-111™ 5/16" Engineered can be glued directly to high compression strength concrete slabs or floated using the appropriate adhesive. If glue-down application, BR-111™ recommends using StrateStuff Adhesive in conjunction with StrateStuff Substrate Safeguard for an added moisture protection warranty. See StrateStuff product labels and literature for details. Please carefully read and follow the manufacturer's instructions. If floating application, a moisture barrier is required (StrateStuff Safeguard is recommended; 8 mil polyethylene film minimum) along with the appropriate foam padding.

Unless using the StrateStuff system (StrateStuff Urethane Adhesive and StrateStuff Substrate Safeguard), do not use any other concrete sealer or install over existing sealers.

All concrete sub-floors must be tested for moisture content, especially adjacent to exterior walls and plumbing fixtures. Visual checks are not acceptable. Please refer to the "Step 5: Testing for Moisture Content" section. Regardless of current moisture readings, BR-111™ recommends applying StrateStuff Substrate Safeguard to protect against future sub-floor moisture fluctuations.

**Sub-Floor Type: Acoustic Concrete**

**Float or Glue-Down Application** — Acoustic concrete sub-floors must have a minimum compressive strength of 2500 PSI. Because acoustic concrete contains large quantities of gypsum, the surface must first be coated with a primer/surface hardener as recommended by the concrete manufacturer. If floating application, a moisture barrier is required (StrateStuff Safeguard is recommended; 8 mil polyethylene film minimum) along with the appropriate foam padding. Perform appropriate moisture tests.

**Sub-Floor Type: Plywood (or equivalent) Over Concrete**

**Float or Glue-Down Application** — A suitable moisture barrier (recommended StrateStuff Substrate Safeguard, minimum 8 mil poly film) must be established over concrete with joints overlapped 18" and taped, followed by installation of 3/4" (preferred) plywood or equivalent (see "Recommend Sub-Flooring" section).

Allow 1/2" expansion space with the plywood (or equivalent) around all vertical objects and sub-floor panels should be spaced 1/8" apart to allow for expansion. Using pneumatic or power-actuated fasteners, attach sub-flooring to concrete with a minimum of one fastener per square foot. Perform appropriate moisture tests.

**Sub-Floor Type: Plywood (or equivalent) Over Wood Structural Panel**

**Glue-Down Application** — In glue-down applications, a moisture barrier is not required unless moisture readings from the sub-floor are at unacceptable levels (please refer to "Step 5: Testing for Moisture Content").

Minimum thickness sub-floor material recommendations are satisfactory for 16" on center joist spacing. Thicker sub-floor recommendations will allow up to 19.2" joist spacing. When joist spacing is greater than 19.2" on center, flooring will exhibit minimum performance. Minimum performance may result in movement, gaps, and/or noises. A second layer of sub-flooring material bringing the overall thickness to 1" – 1 1/8", will provide optimum results when joist spacing exceeds 19.2" on center. Hardwood flooring should, whenever possible, be installed perpendicular to flooring joists. Perform appropriate moisture tests.

**Floating Application** — If floating application, a moisture barrier is required (StrateStuff Safeguard is recommended; 8 mil polyethylene film minimum) along with the appropriate foam padding. Perform appropriate moisture tests.

**Sub-Floor Type: Resilient Tile or Resilient Sheet Vinyl**

**Glue-Down Application** — Vinyl or tile must be in fair condition, level, and permanently bonded to the sub-floor with full spread adhesive. Do not glue-down hardwood floors on resilient floors that exceed two layers. Clean surface thoroughly with a good quality household detergent and de-gloss flooring as necessary to create a good adhesive bond using an abrasive pad. If necessary, remove wax coating when present on vinyl, using an appropriate stripper. Perform appropriate moisture tests.

**Floating Application** — Vinyl or tile must be in fair condition, level, and permanently bonded to the sub-floor with full spread adhesive. If floating application, a moisture barrier is required (StrateStuff Safeguard is recommended; 8 mil polyethylene film minimum) along with the appropriate foam padding. Perform appropriate moisture tests.

**Sub-Floor Type: Cork (Acoustic)**

**Glue-Down Only Application** — Make sure cork is level and permanently bonded to the sub-floor with full spread moisture cured urethane adhesive. The minimum density required for cork is 11.4 lbs./cubic foot; maximum density should not exceed 13 lbs./cubic foot. The cork should be no more than 1/4" thick and constructed of pure cork with polyurethane binders, installed to the manufacturer's specifications. Cork must be rolled into adhesive. Cork is not a moisture barrier. Before application of cork, concrete must be sealed (StrateStuff Substrate Safeguard recommended).

**Floating Application** — Make sure cork is level and permanently bonded to the sub-floor with full spread adhesive. If floating application, a moisture barrier is required (StrateStuff Safeguard is recommended; 8 mil polyethylene film minimum) along with the appropriate foam padding. Perform appropriate moisture tests.

**Sub-Floor Type: Ceramic, Terrazzo, Slate, or Marble**

**Glue-Down Only Application** — The above tile products should be level and permanently bonded to the sub-floor by the appropriate methods. Clean and abrade surfaces to remove any sealers or surface treatments to insure a good adhesive bond. Loose tiles must be re-adhered to the sub-floor, and grout joints that exceed 1/16" must be filled with a leveling compound. Follow the manufacturer's recommendation for applying the leveling compound. Any area containing the leveling compound must be completely dry before proceeding with the installation of the wood floor. Perform appropriate moisture tests. A moisture barrier may be required.

**Floating Application** — The above tile products should be level and permanently bonded to the sub-floor by the appropriate methods. A moisture barrier is required (StrateStuff Safeguard is recommended; 8 mil polyethylene film minimum) along with the appropriate foam padding. Perform appropriate moisture tests.

## STEP 8: INSTALLING THE FLOOR

### Helpful Tips

- Remove flooring from several different cartons to maximize color and shade mixture.
- Stagger the ends of boards at least 6" in adjacent rows. For floating application, use 4 foot, 3 foot, 2 foot, and 1 foot stagger pattern as specified in the "Floating Installation" section listed below.
- Installation parallel to the longest wall provides the best visual effect.

### Doorway and Wall Preparation

Undercut or notch-out door casings 1/16" higher than the thickness of the flooring being installed to avoid difficult scribe cuts during installation. Also remove existing base and shoe molding as well as doorway thresholds; each can be replaced after installation is complete.

### INSTALLING THE FLOOR: Glue-Down Installation

An exterior wall is usually the straightest and best reference line to start the installation. Direction of finished flooring should be at right angles to the floor joists whenever possible. Establish a starting point by leaving a minimum 5/16" expansion gap around all vertical obstructions. Measure this distance from the starting wall (in at least two places) close to the starting wall's opposite 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. To maintain the expansion gap throughout the installation, cut several boards into small pieces to use as spacers between hardwood flooring board and wall or other object.

Apply recommended urethane adhesive with a 1/4" x 1/8" x 1/4" square-notch trowel if using StrateStuff Urethane Adhesive (if other adhesive, use suggested trowel as recommended by the adhesive manufacturer). Follow manufacturer's recommendations for the application of the adhesive. **DO NOT USE A WATER-BASED ADHESIVE WITH THIS HARDWOOD FLOORING PRODUCT.**

Boards should be installed left to right with the edge of the groove lined up against the chalk line, side-tongue facing out to the left. Whenever possible, the tongue along with width and length of the board should be facing out so that the tapping block or pull tool always uses the tongue of the flooring. If the groove is facing out and a tapping block or pull tool is used, the edge of the board may be damaged.

Firmly seat the first row in the adhesive, as additional rows will be pushed back to this original row. When installing boards, avoid sliding materials through adhesive when placing them in position. Engage the end joint first, as close as possible to side tongue-and-groove, and fit boards together. Check for a tight fit between all edges and ends of each board. Occasionally lift a board to check for adequate adhesive transfer. Stagger the ends of boards at least 6" in adjacent rows creating a stair-step pattern (see figure 1).

3-M Blue Tape should be used to hold planks tightly together and reduce minor shifting of floors during installation. Remove all adhesive from the surface of the flooring with urethane adhesive remover or mineral spirits as

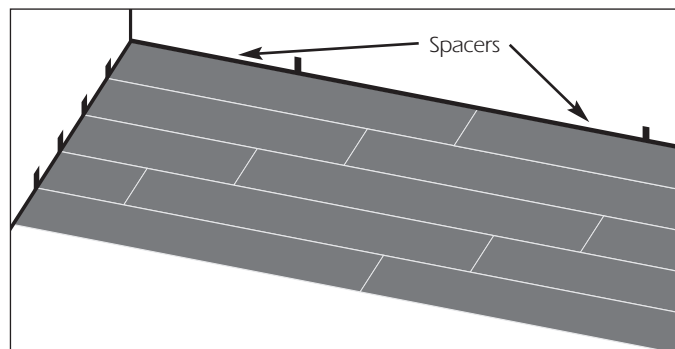


Figure 1.



you go. Adhesive is very difficult to remove from prefinished hardwood floors if allowed to dry and may damage finish on flooring. All adhesive must be removed from flooring surfaces prior to applying 3-M Blue Tape. Remove 3-M Blue Tape within 24 hours.

Allow a 5/16" minimum expansion gap around all vertical obstructions. Wood expands and contracts with changes in humidity. Wood will buckle and/or cup if an adequate expansion space is not provided. Always allow for expansion when making end or side cuts around vertical objects.

Continue across the room until finished; remember to provide adequate spacing for expansion gap. Once completed install molding and trim. Thoroughly clean, sweep, and vacuum installed floor before further use. If floor is to be covered, use a breathable material such as cardboard or rosin paper. Do not cover with plastic.

### **INSTALLING THE FLOOR: Floating Installation**

Install a moisture barrier (StrateStuff Safeguard is recommended; 8 mil polyethylene film minimum) over entire sub-floor surface. If using StrateStuff Safeguard, carefully apply following the manufacturer's instructions on label. If using polyethylene film, overlap sheets 18 inches and tape together creating airtight seal. After moisture barrier is installed and set, install 1/8" foam padding by rolling out one roll at a time over vapor barrier. Be careful not to poke holes or otherwise damage material during installation. Run padding up walls 1" to 1.5" and secure in place with tape. Join padding sections with tape strip and tape down any additional loose edges.

An exterior wall is usually the straightest and best reference line to start the installation. Direction of finished flooring should be at right angles to the floor joists whenever possible. Establish a starting line by leaving a minimum 5/16" expansion gap around all vertical obstructions. Measure this distance from the starting wall (in at least two places) close to the starting wall's opposite 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. To maintain the expansion gap throughout the installation, cut several boards into small pieces to use as spacers between hardwood flooring board and wall or other object.

Boards should be installed left to right with the edge of the groove lined up against the chalk line, side-tongue facing out to the left. Whenever possible, the tongue along with width and length of the board should be facing out so that the tapping block or pull tool always uses the tongue of the flooring. If the groove is facing out and a tapping block or pull tool is used, the edge of the board may be damaged.

For the best performance of your floating floor, use a 4 foot, 3 foot, 2 foot, 1 foot stair-step pattern style installation (see figure 1). By using this installation style, you will have a minimum of 12 inches between end-joints. Dry fit first row using stair-step pattern by starting with a 4 foot piece and continue row with additional 4 foot pieces. Cut last plank of every row to fit, remembering to allow for expansion gap. Dry fit second row by starting with a 3 foot piece and then continue row with additional 4 foot pieces. Dry fit third row by starting with a 2 foot piece and then continue row with additional 4 foot pieces. Dry fit fourth row by starting with a 1 foot piece and then continue row with additional 4 foot pieces.

Install first two rows by applying a thin bead of glue in the groove on the side and end of each board (see figure 2). Press each board firmly together and lightly use a tapping block if necessary. Clean excess glue from between boards with a damp cloth or mineral spirits. Tape each board together at side and end seams using 3-M Blue Tape. Allow glue to set before continuing installation of subsequent rows.

After fourth row, start fifth row using a 4 foot piece and then repeat stair-step pattern throughout the rest of the installation. Always remember to allow for the expansion gap and clean excess glue from between boards. Often the last row will not end with a full plank. When this happens, place a full row of planks on top of the last row installed. Insert a 5/16" spacer

against wall, and using a full width plank, trace distance from wall onto final row (see figure 3). Cut planks for final row to designated width. Apply glue and fit into place. Trim excess polyethylene film and/or padding so it will not be visible once moldings are installed. Tape may be removed within one hour. Allow 12 hours before placing furniture on floors and 24 hours before introducing heavy objects or full traffic.

### STEP 9: COMMON SENSE CARE

It is important to keep your hardwood floors free from dirt, water, food, grease, and other spills which can damage the floor or finish.

Periodically clean floors using a leading brand of cleaner made for prefinished hardwood floors (follow directions on bottle). Do not use ammonia or oil-based wax, polish, abrasive cleaners, or furniture cleaners. Make sure to install floor protectors under furniture, chairs or other items that may sit directly on your hardwood floor to help prevent scratches, scarring, and dents. Regularly, sweep, dust mop and/or vacuum to keep dirt and grit from dulling the shine and scratching the

finish. Wipe up all spills promptly with a soft, dry cloth. Avoid walking on floors with sharp, stiletto high heel shoes or shoes with soles in need of repair.

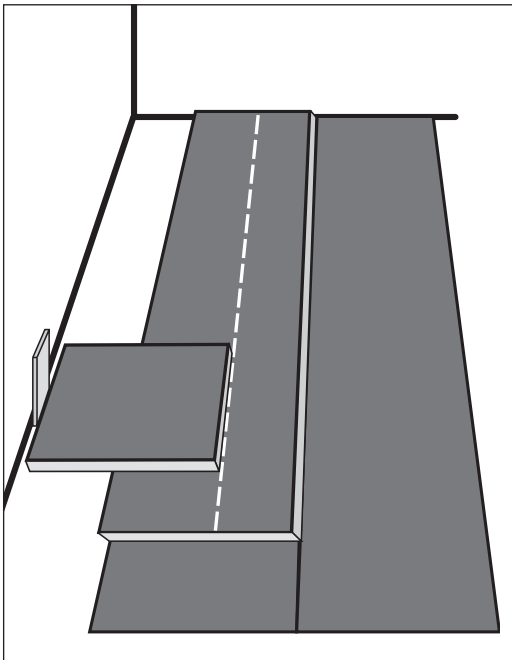


Figure 3.

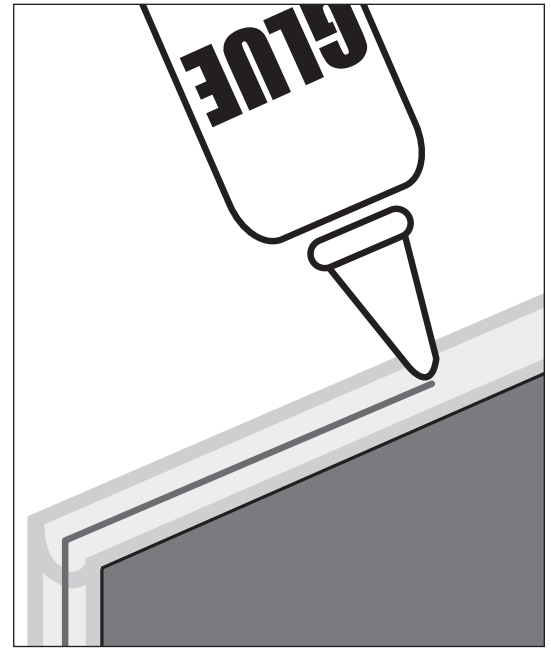


Figure 2.

**CONGRATULATIONS on your new BR-111™ hardwood floor!**  
**If you have any further questions or comments regarding exotic hardwood flooring, please contact our technical department toll-free at 1-800-525-BR111 (2711).**