



## INSTALLATION INSTRUCTIONS

### ECOfusion 1/2" & 3/8" Engineered Hardwood Flooring

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PLEASE READ THOROUGHLY BEFORE BEGINNING INSTALLATION. THESE INSTALLATION INSTRUCTIONS ARE SPECIFICALLY INTENDED FOR USE WITH ECOFUSION ENGINEERED HARDWOOD FLOORING W/STANDARD TONGUE AND GROOVE PROFILE ONLY. VISIT OUR WEBSITE AT [WWW.ECOFUSIONFLOORING.COM](http://WWW.ECOFUSIONFLOORING.COM) FOR OTHER ECOFUSION FLOORING PRODUCTS AND RECOMMENDATIONS. 082413

Glue, Staple/Nail Down, or Floating Installation: ENGINEERED WOODS can be installed over most sub-floors, and are engineered to be very dimensionally stable, making them suitable for installation over all grade levels. (See information and installation guidelines below.)

If you take care to install this flooring correctly, taking all precautions suggested in this guideline, Your ECOfusion floor will give you many years of satisfaction. While it is not necessary to use a professional to install this flooring, a professional can advise you of existing or past conditions that may affect the long term performance of the flooring. This is only a guide and cannot supply all the details you may encounter regarding the installation. Detailed preparation and installation procedures are outlined by the National Wood Flooring Association's Hardwood Flooring Manual (NWFA) 1-800-422-4556 or <http://www.nwfa.org>. ECOfusion cannot be responsible for the installation under any circumstances. Please remember it is the responsibility of the person installing the floor to determine the suitability of the application, materials, and conditions before beginning the installation.

#### **PRE-INSTALLATION JOBSITE REQUIREMENTS**

**Carefully examine the flooring prior to installation for grade, color, finish and quality. Ensure adequate lighting for proper inspection. If flooring is not acceptable, contact your distributor immediately to arrange for replacement. Manufacturer cannot accept responsibility for flooring installed with visible defects.** Prior to installation of any flooring, the installer must ensure that the jobsite and subfloor meet the requirements of these instructions. Manufacturer is not responsible for flooring failure resulting from unsatisfactory jobsite and/or subfloor conditions.

Flooring should be one of the last items installed in any new construction or remodel project. All work involving water or moisture should be completed before flooring installation, including painting as this will create an artificially high humidity level in the room. Installing onto a wet subfloor may cause permanent damage to the flooring.

Permanent HVAC should be on and operational and maintained between 60-75°F with relative humidity of 30%-60% for a minimum of 14 days prior to delivery, as well as during and after installation of the flooring. When installing over radiant heat, additional restrictions apply – see below.

#### **ATTENTION – INSTALLER/OWNER RESPONSIBILITY**

Inspect "all" materials carefully before installation. Wood is a natural product containing variations in color, tone and graining. Some variation in color is to be expected in a natural wood floor. Beautiful hardwood floors are a product of nature and therefore not perfect. These floors are manufactured in accordance with accepted industry standards, which permit a defect tolerance of 5%. Even though our product goes through many inspections before it leaves the plant, it is the responsibility of the customer and installer to perform a final inspection prior to installation. Our warranties do not cover materials with visible defects once they are installed.



### **CAUTION: WOOD DUST**

The International Agency for Research on Cancer has classified wood dust as a nasal carcinogen. Sawing, sanding, and/or machining wood products can produce wood dust that can cause respiratory, eye, and skin irritations.

Wood machining power tools should be equipped with a dust collector to reduce airborne wood dust. Wear an appropriate NIOSH designated dust mask to reduce exposure to airborne wood dust. Avoid contact with eyes and skin by using proper safety glasses and protective clothing. In case of irritation, flush eyes or skin with water for at least 15 minutes. *For further technical or installation questions or to request a Product Specification Data Sheet contact the manufacturer.*

**Attention California Installers & Consumers**

### **WARNING**

Installation of this product and any wood product may create wood dust, which is known to the State of California to cause cancer.

### **TOOLS**

Basic tools and accessories: broom or vacuum, chalk line, tapping block, wood cleaner, hand or electric jamb saw, miter saw, moisture meter, safety glasses, straight edge, table saw, tape measure, 3M blue tape, square, utility knife, pry bar. Use urethane wood flooring adhesive, towels and trowel if gluing or a Bostitch Floor Runner (S3297-LHFZ) with 1" staple (SB97), Bostitch Floor Stapler with 1 1/2" or 2" staples or a 50C Power Nailer for nailing with a 1 1/2" power cleat. (Note: use a 1/2" adapter). Caution: Improper use of a power nailer can mark the surface of the flooring.

### **JOB SITE CONDITIONS**

It is the responsibility of the installer/owner to determine if the job site sub floor and job site conditions are environmentally and structurally acceptable for wood floor installation. We decline any responsibility for wood failure resulting from or connected with sub-floor, subsurface, job site damage or deficiencies after the hardwood flooring has been installed.

### **SUB-FLOOR PREPARATION AND RECOMMENDATIONS FOR ALL INSTALLATIONS**

#### **Concrete Sub-Floors**

New concrete slabs require a minimum of 60 days drying time before covering them with a wood floor.

#### **Lightweight Concrete**

Lightweight concrete has a dry density of 100 pounds or less per cubic foot and is only suitable for engineered wood floors when using the floating installation method. Many products have been developed as self-leveling toppings or floor underlayments. These include cellular concrete, resin reinforced cementations, underlayments, and gypsum-based materials. Although some of these products may have the necessary qualifications of underlayment for wood flooring installation, others do not. To test for lightweight concrete, scrape a coin or key across the surface of the sub-floor. If the surface powders easily or has a dry density of 100 pounds or less per cubic foot, use only the floating installation method. All Concrete sub-floors must be dry, smooth (level with 3/16" in a 10 foot Radius – 1/8" in 6") and free of structural defects. Hand scrape or sand with a 20 grit #3-1/2 open face paper to remove loose, flaky concrete. Grind high spots in concrete and fill low spots with a Portland based leveling compound (min. 3,000 psi). Concrete must be free of paint, oil, existing adhesives, wax grease, dirt and curing compounds. These may be removed chemically or mechanically, but do not use solvent-based strippers under any circumstances. The use of residual solvents can prohibit the satisfactory bond of flooring adhesives. It is important to ensure a proper bond between the adhesives and concrete and wood panels. Engineered Hardwood flooring may be installed on grade, above grade, as well as below grade where moisture conditions do not exist. To ensure a long lasting bond, make sure that the perimeter of the foundation has adequate drainage and vapor barrier.

#### **Wood Sub-Floors**

- Acceptable Panel Subfloors: Truss/joist spacing will determine the minimum acceptable thickness of the panel subflooring:
  - ✓ On truss/joist spacing of 16" (406mm) o/c or less, the industry standard for single-panel subflooring is minimum 1 5/8" (19/32", 15.1mm) CD Exposure 1 Plywood subfloor panels (CD Exposure 1) or 23/32 OSB Exposure 1 subfloor panels, 4' x 8' sheets.
  - ✓ On truss/joist spacing of more than 16", up to 19.2" (488mm) o/c, the standard is minimum 3/4" (23/32", 18.3mm) T&G CD Exposure 1 Plywood subfloor panels, (Exposure 1), 4' x 8' sheets, glued and mechanically fastened, or minimum 3/4" (23/32", 18.3mm) OSB Exposure 1 subfloor panels, 4' x 8' sheets, glued and

- mechanically fastened. When possible, check the back of the subfloor panel for American Plywood Association (APA) rating.
- ✓ Truss/joist systems spaced over more than 19.2" (488mm) o/c up to a maximum of 24" (610mm) require minimum 7/8" T&G CD Exposure 1 Plywood subfloor panels, (Exposure 1), 4' x 8' sheets, glued and mechanically fastened, or nominal 1" OSB Exposure 1 subfloor panels, 4' x 8' sheets, glued and mechanically fastened – or two layers of subflooring. Or brace between truss/joists in accordance with the truss/joist manufacturer's recommendations and with local building codes. Some truss/joist systems cannot be cross-braced and still maintain stability.
    - For double-layer subfloors, the first layer should consist of nominal 3/4" (23/32", 18.3mm) CD Exposure 1 Plywood subfloor panels (CDX), 4' x 8' sheets or nominal 3/4" (23/32", 18.3mm) OSB Exposure 1 subfloor panels, 4' x 8' sheets. The second layer should consist of nominal 1/2" (15/32", 11.9mm) CD Exposure 1 plywood subfloor panels, (Exposure 1) 4' x 8' sheets. The 1/2" plywood should be offset by 1/2" panels in each direction to the existing subflooring. The panels may also be laid on a diagonal or perpendicular, with 1/8" spacing between sheets. Nail on a 12" minimum grid pattern, using ring-shanked nails or staples.

Wood sub-floors need to be well nailed or secured with screws. Nails should be ring shanks and screws need to be counter sunk. The wood sub-floor needs to be structurally sound and dry. It should not exceed 14% moisture prior to installation. If the sub-floor is single layer, less than 3/4" thick, add a single cross layer for strength and stability (minimum 5/16" thick for a total 1" thickness). This is to reduce the possibility of squeaking. Wood sub-floors must be free of paint, oil, existing adhesive, wax, grease, dirt, urethane, varnish, etc. Underlayment grade OSB (not the wax side) is also a suitable sub-floor. Particleboard is not an acceptable sub-floor for staple or nail down installation but can be used as a sub-floor in glue-down installations. When installing over existing wood flooring, install at right angles to the existing floor.

#### **Sub-floor Moisture Check**

Wood Flooring Adhesive may be used for above, on, and below grade applications and on all common substrates. On and below grade applications are susceptible to moisture and should be tested for moisture prior to installation in several locations within the installation area. Acceptable conditions for above, on and below grade applications are:

- Less than 3 lbs. /1000 sq. ft. /24 hrs. on calcium chloride test
- Less than a reading of 5.0 on a Tramex Concrete Moisture Encounter (moisture meter)

To correct any sub-floor problems concerning moisture, either wait until the sub-floor dries to meet specifications or use appropriate moisture barrier.

#### **Sub-floors Other Than Wood or Concrete**

Note: Perimeter glued resilient vinyl and rubber tiles are unacceptable underlayments and must be removed. Terrazzo, tile and any other hard surfaces that are dry, structurally sound and level, as described above, are suitable as a sub-floor for engineered wood.

#### **ENGINEERED HARDWOOD FLOORING INSTALLATION**

As above, the surface must be sound, tight and free of paint, oil, existing adhesives, wax, grease and dirt. Terrazzo and ceramic tile must be abraded to assure adhesion. **Warning!** Do not sand existing resilient tile, sheet flooring, backing, or felt linings. These products may contain asbestos fibers that are not readily identifiable. Inhalation of asbestos dust can cause serious bodily harm. Check with local, state and federal laws before handling hazardous material and before attempting the removal of these floors.

#### **Radiant Heated Sub-floors**

Before installing over a radiant-heated floor turn off heat and wait until the floor has reached room temperature. After installing the floor return the heat to the previous setting, slowly 2° at a time. Caution: The slab surface must never exceed 85° F. in temperature.

#### **Preparation**

Remove all moldings and wall-base and undercut all door casings with a hand or power jamb saw using a scrap piece of flooring as a guide.



### **“Racking the Floor”**

Whether you choose to install the floor with glue, nails, or staples start by using random length strips from the carton or by cutting four to five strips in random lengths, differing by at least 6”. As you continue working across the floor be sure to maintain the 6” minimum stagger between end joints on all adjacent rows. Never waste material; use the left over pieces from the cuts to start the next row or to complete a row. **Note:** When installing a pre-finished wood floor be sure to blend the wood from several cartons to ensure a good grain and shading mixture throughout the installation.

### **Glue Down Installation Guidelines**

There is one way to install when using wood adhesive (wet lay, that is, to lay directly onto wet adhesive). **Caution:** When installing using the wet method, follow all guidelines set by the adhesive manufacturer. By not adhering to the guidelines you can void your flooring warranties.

#### **Step 1: (Wet Lay Method)**

Select a starter wall. It is recommended to start the installation along an exterior wall; it’s more likely to be straight and square with the room. Measure out from the wall the width of two strips plus 1/4” and mark each end of the room and snap your chalk line.

#### **Step 2:**

Spread “adhesive” from the chalk line to the starter wall using the recommended trowel (1/4” x 1/4” x 1/8” square notch). It is important to use the correct trowel at a 45° angle to get the proper spread of adhesive applied to the sub-floor, which will produce a proper and permanent bond. Improper bonding can cause loose or hollow spots. **Note:** Change the trowel every 2000 to 3000 square feet due to wear down of the notches. This assures you always get the proper spread of adhesive.

#### **Step 3:**

Install the first row of starter strips with the tongue facing the starter wall and secure into position. Alignment is critical and can be achieved by top nailing the first row with finishing nails (wood installation instructions: engineered floor sub-floor), or sprig/pin nails (concrete sub-floor). This prevents slippage of the strips that can cause misalignment. **Note:** The strips along the wall may have to be cut to fit since most walls are not straight, and leaving an expansion space is not necessary with engineered strips.

#### **Step 4:**

Once the starter rows are secure, spread 2-1/2 to 3 feet of adhesive the length of the room. (Never lay more adhesive than can be covered in within recommended open time). Place the tongue into the groove of the strips and press firmly into adhesive. Never slide strips through adhesive. Use a tapping block to fit strips together snugly at side and butt ends. Test for proper bond by occasionally lifting a board and looking for good coverage (90%), and then replace it into the adhesive. Clean any adhesive off the surface before it cures using water. Use mineral spirits after it cures. Use 3M Blue Masking Tape to hold strips securely in place as you are installing and continue the process throughout the installation. Caution when using a rubber mallet to butt material together, it can burnish the finish and cause marring. **Note:** Never work on top of the flooring when installing with the wet lay method. Light foot traffic is allowed after 12 hours but wait 24 hours after installation to remove the 3M blue masking tape. Once the tape is removed clean any adhesive residue left from the tape.

### **Staple or Nail Down Installations**

ENGINEERED HARDWOOD floors may be installed over wood sub-floors using staples or nailing cleats. When installing engineered wood strips or strips by nailing or stapling, it is necessary to use the proper type of flooring stapler or nailer.

#### **Recommended Staplers and Nailers**

We have tested and recommend the following staplers and nailers:

- The Bostitch Floor Runner (S3297-LHFZ) with the Bostitch 1” staple (S1397)
- The Bostitch Floor Stapler with 1 1/2” or 2” staples.
- The Bostitch Power Nailer – 50C nailer using a 1 1/2” power cleat. (Note: use the 1/2” adapter)

**Caution:** Other staplers, staples, nailers and cleats may work as well and it is up to you to test their use. If their use damages or fails to properly secure the flooring it is the responsibility of the installer/owner.

#### **Step 1:**

You must staple or nail 1”–2” from the ends and every 4”–6” along the edges. This will help ensure a satisfactory installation. It is best to set the compressor PSI at 80 – 85 lbs. to keep the staples from going through or breaking the tongues. Improper stapling techniques can cause squeaks in the floor. Adjustments may be necessary to provide adequate penetration of the nail or staple into the nail bed. You want it flush in the nail pocket. Use a scrap piece of flooring material to set tools properly before installation. 15lb roofing felt or resin paper may be substituted for the polyethylene and installed as below.

**Layout the job:**

Measure out from the ends of your starting wall 2 3/4" when installing 2 1/4" strip flooring or 3 1/2" when installing 3" strips and mark both ends. Where possible lay the flooring at 90° angles to the floor joists. Make a chalk line along the starting wall using the marks you made.

**Beginning installation:**

Place the strips with the tongue facing away from the wall and along your chalk line. Use brads or small finishing nails to secure the first row along the wall edge 1"–2" from the ends and every 4"–6" along the side. Counter sink the nails and fill with filler that blends with the flooring installed. Place the nails in a dark grain spot in the board. The base or shoe molding will cover the nails when installed after completion of the flooring installation. Blind nail at a 45° angle through the tongues. It will be easier IF YOU PREDRILL THE HOLES IN THE TONGUES. Nail 1" – 2" from the ends and every 4" – 6" along the sides. It will be necessary to blind nail the next two rows. A Stanley BT35 brad nailer with 1" – 1/38" brads can also be used to blind nail and no pre-drilling is needed. Continue the installation using an engineered wood flooring stapler and the recommended staples or nails. Nail or staple the flooring 1" – 2" from the ends and every 4" – 6" along the edge

**Floating Installation:** 1/2" x 3" strips, (5-ply or more can be floated but this method is recommended only for installations over lightweight concrete). In a floating installation, a 1/2" expansion gap must be maintained around the perimeter of the room.

**Final Touches:**

Install the proper trim molding at the doorways to achieve the transition and along the walls to cover the edges of any gaps along the wall due to irregularity.

**MAINTENANCE**

ENGINEERED HARDWOOD FLOORS are very easy to maintain. Simply use a wood cleaner and a specialty terry cloth flooring duster, which is available from most flooring retailers. NEVER WET MOP YOUR WOOD FLOORS.

To clean the factory urethane finish it is best to use a quality hardwood floor cleaning solution such as ECOfusion CLEAN Hard-surface Cleaner. To remove hard-to-clean substances such as glue and grime, use ECOfusion SPOTLESS Glue Remover. To help reduce the appearance of surface scratches in the finish, we recommend ECOfusion REFRESH. Floor waxes, oil soaps, and petroleum-based cleaners should not be used under any circumstances.

**STEP 1:**

Vacuum or sweep your floor to remove any particles that could scratch your floor. **Warning:** Vacuums with a beater bar or power rotary brush head can damage a wood floor and should never be used.

**STEP 2:** Apply the specialty wood cleaner directly to the terry cloth flooring duster, not to the floor.

**STEP 3:** Use a back and forth motion with the duster. When the terry cloth cover becomes soiled, simply replace it with a clean one. Cleaning the floor with a soiled cover could cause streaking. The covers are reusable so simply throw the cover in the wash and dry it as you would any towel.

**Tips & Warnings:**

- Never wet or damp mop your wood floors. Water can damage them.
- Vacuum or sweep regularly.
- Remove spills promptly using a wood cleaner and a clean white cloth.
- Use felt protectors under heavy pieces of furniture and chairs.
- Use protective mats at all exterior entrances.
- Spiked heels should not be worn on hardwood floors and shoes in need of repair can damage your floor.
- Never use oil soaps, wax or other household products to clean your floor.
- Wood is a natural product that is affected by the sun. Expect that over time the sun's UV rays can change the color of your floors.
- Keep animal nails trimmed.
- Protect your floor when using a dolly for moving furniture or appliances. Never slide or roll heavy furniture or appliances across the floor.
- If your floor becomes scratched or dull, repairs can often be made using repair accessories.