

air⁴ installation instructions

Read these instructions thoroughly before beginning installation. In addition to these instructions, we recommend that the installer follow all installation guidelines set forth by the national wood flooring association (www.Nwfa.Org). Where these instructions differ from nwfa guidelines, this document takes precedence. These installation instructions do not apply to any products other than long-strip 'click' flooring. 050208

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 supplier immediately and arrange for replacement. Manufacturer can not 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.

Hardwood 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. Water and wood do not mix. Installing flooring onto a wet subfloor will most likely cause cupping, tip & edge raising, telegraphing of core and subsequent gapping.

Permanent HVAC should be on and operational and maintained between 65-75 degrees Fahrenheit with relative humidity of 35%-55% **for a minimum of 7 days prior to delivery**, as well as during and after installation of the flooring.

When installing over radiant heat, additional restrictions apply – see below. Humidity levels below 35% will most likely cause movement in the flooring, including gapping between pieces and possible cupping and checking in the face.

Store the wood flooring in the **unopened** boxes at installation area for 24 -72 hours before installation to allow flooring to adjust to room temperature. Do not store the boxes of flooring directly on concrete. These engineered wood floors **do not** need any moisture equalization prior to installation and should be installed from just-opened boxes.

Do not open more than a few boxes in advance of installation and only the number of boxes that will be installed within the next few hours. Only open enough boxes to ensure a good mix of lengths and color.

This flooring is not warranted for installation over electric radiant heat systems. Only hydronic systems are approved. Please carefully read the "Radiant Heat" section below before finalizing product selections.

When installing this flooring over radiant heat, use the floating installation method only, and always use 1/8" thick underlayment pad made of high density pressed synthetic fiber or cork.

pre-installation subfloor requirements

Acceptable subfloor types:

- CDX plywood - at least 5/8" thick for joist spacing up to 16" on center, minimum 3/4" thick for joist spacing greater than 16" on center (19.2" maximum)
- Underlayment grade particleboard (minimum 40 lb. density)
- OSB - at least 3/4" thick, PS 2-92 rated or PS 1-95 rated
- Concrete slab
- Existing wood floor - must be smooth, level, well-adhered (and unfinished if gluing new flooring)
- Ceramic tile - floating only
- Resilient tile & sheet vinyl - for glue-down tile/vinyl must be new and non-urethane-coated

Please Note

lightweight concrete (gypcrete) is **not** an approved subfloor for glue-down installations

All Subfloors must be:

- Dry and will remain dry year-round. Moisture content of wood sub floors must not exceed 10%, wood flooring moisture content must be within 3% of wood subfloor moisture content, and concrete must not exceed 3 lbs. per Calcium Chloride Test (test method ASTM 1869-89), or 2 lbs. if installing over radiant heat.
- Structurally sound
- Clean: Thoroughly swept and free of all debris. For glue-down installations, subfloor must be free of wax, grease, paint, sealers, old adhesives, etc., which can be removed by sanding.
- Level: Flat to 3/16" per 10-foot radius

Wood subfloors must be dry and well secured. Nail or screw every 6" along joists to avoid squeaking. If not level, sand down high spots and fill low spots with an underlayment patch.

Concrete subfloors must be fully cured, at least 60 days old, and should have minimum 6-mil polyfilm between concrete and ground. Subfloor should be flat and level within 3/16" per 10' radius. If necessary grind high spots down and level low spots with Ardex® K-15 Portland Leveling Compound.

All concrete should be tested for moisture, using a Calcium Chloride Test (test method: ASTM 1669-89), and the result must not exceed 3 lbs. (2 lbs. if installing over radiant heat). Ceramic tile, resilient tile and sheet vinyl must be well-bonded to subfloor, in good condition, clean and level. Do not sand existing vinyl floors, as they may contain asbestos.

If gluing down on concrete (even if you believe it is dry) which is on or below grade, it is highly recommended to use a concrete sealer approved by the manufacturer of the adhesive you have chosen. Remember, a concrete slab on/below

grade that measures dry today may become moist in the future due to rising groundwater. Installing a moisture barrier now may be viewed as an insurance policy against concrete becoming wet in the future. This will lead to subsequent floor failure. Manufacturer is not responsible for site related moisture issues.

When installing this flooring over radiant heat, use the floating installation method only, and always use 1/8" thick high density pressed synthetic fiber pad or cork for your underlayment.

installation tools

For all installation methods:

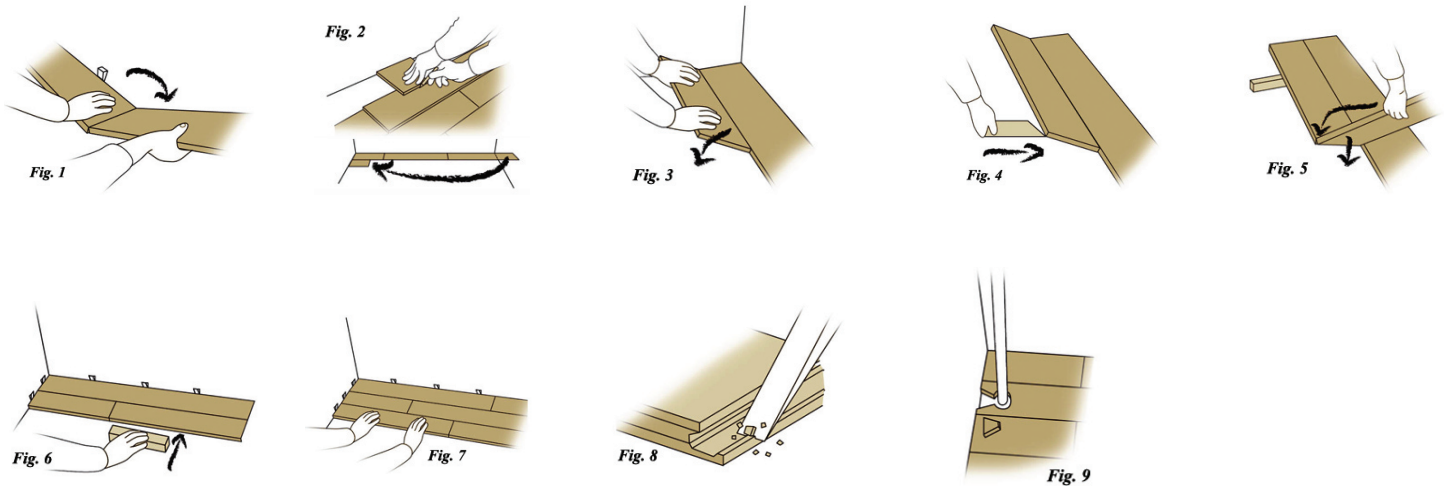
- Tape measure
- Wood or plastic spacers (1/2" inch)
- Chalk line
- Tapping block
- Crosscut power saw
- Pull bar
- Pencil
- Hammer

For glue-down installation method, you'll also need:

- Flooring adhesive: Bostik® Best
- On concrete slabs that are on/below grade, we strongly recommend using a concrete sealer approved by the adhesive manufacturer.
- Trowel per adhesive manufacturer's recommendations.

For floating installation, you'll also need:

- 1/8" thick high-density pressed synthetic fiber pad or cork underlayment. Do not use foam underlayment.
- 6-mil polyfilm (if installing on or below grade)
- Clear waterproof packing tape



general instructions – all methods

Make sure subfloor is tested for moisture first and is properly prepared.

Since wood expands with any increase in moisture content, always leave at least a 1/2" expansion space between flooring and all walls and any other permanent vertical objects, (such as pipes and cabinets). This space will be covered up once you reapply base moldings around the room. Use wood or plastic spacers during installation to maintain this 1/2" expansion space.

No area of connected flooring can span greater than 30 feet across the width of the planks or 40 feet along their lengths. For larger spans, install T-moldings or other transition pieces that allow the flooring to expand and contract.

Begin installation next to an outside wall. This is usually the straightest and best reference for establishing a straight working line. Establish this line by measuring an equal distance from the wall at both ends and snapping a chalk line. The distance you measure from the wall should be the width of a plank plus about 1/2" for expansion space. You may need to scribe cut the first row of planks to match the wall in order to make a straight working line, as most walls are not straight.

Work from several open boxes of flooring and "dry lay" the floor before permanently installing it, **but never open more than a few boxes in advance**. This will allow you to select the varying grains & colors and to arrange them in a harmonious pattern. The actual floor may differ in grain and color from the samples used in selecting the product. This is not a product defect. It is the installers' responsibility to work with the end user to determine the expectations of what the finished floor will look like. If the range of color in the shipment does not appear satisfactory after opening a few boxes, do not begin installation. Contact your dealer immediately to arrange a return.

Start with the groove edge of the flooring toward the wall. Form the first row by holding each plank at an angle (**fig. 1**) and inserting its end into the end of the previous plank before pressing down flat to the subfloor. Make sure that the planks are properly butted together and the lock tongue and groove is fully engaged before proceeding with the next plank. Cut the last board of the row to size and install it in place. Use the cut piece of the previous row to start the next (**fig. 2**). If the cut piece is 12" in length or less, discard it and instead cut a new plank at a random length (greater than 12") and use it to start the next row.

When laying flooring, stagger end joints from row to row by at least 20". Always begin each row from the same side of the room. Check to make sure that the groove edge of each board to be installed is free from debris.

Press the first board of the second row at an angle (**fig. 3**) against the board in the first row and lay it flat. If a gap remains between the boards, tap the joint with your hand until it fits snugly. Place an installation wedge underneath the end of the installed board (**fig 4**). With the next board, first install the short end at an angle (fig 5) and then the long edge. Remove the wedge and **gently** tap the board into place with a tapping block (fig 6). After three rows have been completed, it's a good idea to check and adjust your spacers/wedges to make sure that at least " of expansion space is still being maintained on all sides (**fig 7**).

In case the last row of boards has to be installed under a door frame or similar obstruction, use a chisel to cut away the locking edge (**fig 8**), apply glue on the groove, and install the board.

When installing around a pipe, drill a hole with a diameter 1" larger than the pipe. Saw out a section of flooring as shown (**fig 9**). Once the board is in position, glue the section back into place. When installing using the floating method, glue only the edges of the sawn-out section.

glue down installation

Lightweight concrete (gypcrete) is **not** an approved subfloor for glue-down installations

please note

Some adhesives require that you allow 'flash time' between when you trowel out the adhesive and when you lay the flooring. This 'flash time' allows moisture from the adhesive to evaporate before the adhesive makes contact with the wood. **Failure to allow adequate flash time will result in cupping/buckling.** Carefully review the adhesive manufacturer's instructions for proper trowel size, minimum temperature, adhesive set/flash time, and open time before beginning installation of flooring.

Make sure subfloor is tested for moisture content and is properly prepared. On concrete subfloors that are on or below grade (ground level), always assume the worst. Even if they measure dry, we recommend the application of a concrete sealer approved by the manufacturer of the adhesive you have chosen. Carefully follow the manufacturer's recommendations for application/installation.

Once the spread adhesive has setup sufficiently per adhesive manufacturer's instructions, lay the first row of flooring with groove facing the wall, and continue laying flooring as detailed above (p. 3). Always check your working lines to be sure the floor is still aligned. Be careful not to let installed floor move on the wet adhesive while you are working. Use spacers/wedges between the flooring and walls to maintain position.

When first section is finished, continue to spread adhesive and lay flooring section by section until installation is complete. Use a damp cloth to **immediately remove any adhesive from the flooring surface.** If adhesive cannot be completely removed with a damp cloth, use the manufacturer's recommended adhesive remover. Never let flooring adhesive dry completely on the finished surface. Manufacturer is not responsible for finish damage that might be caused by adhesive that has been allowed to dry completely.

Within the adhesive working time, walk each section of flooring in order to make sure it is well bonded to the subfloor. Flooring planks on the perimeter of the room may require weight on them until the adhesive cures enough to hold them down.

floating installation

When installing over radiant heat, always use the floating installation method, and always use 1/8" thick high-density pressed synthetic fiber pad or cork as your underlayment. See below for special instructions regarding radiant heat installations.

Heavy objects such as counters, kitchen islands, and large stoves or refrigerators should be in place prior to the installation of a floating wood floor. Compressing a floating floor against the subfloor with excessive weight could inhibit the floor's ability to move in response to changes in humidity and may result in gapping or cupping. Make sure subfloor is tested for moisture content and is properly prepared prior to installation.

When using an underlayment pad with a pre-attached moisture barrier and installing above grade, no additional moisture barrier is necessary. When installing on or below grade, Polyfilm is required.

Laying Polyfilm: lay 6-mil Polyfilm with seams overlapped 8". Fasten seams every 18-24" with clear waterproof packing tape. Run the outside edges of Polyfilm up perimeter of each wall 4". Trim after flooring installation is complete.

Laying pad: lay underlayment by butting edges, not overlapping. Tape full length of the seam with clear waterproof packing tape. Leave 1/2" space between pad and all walls and permanent vertical fixtures. Installing the wood floor: proceed laying planks as detailed above (p. 3).

please note

when installing base moldings over a floating floor, be sure that they are not pressed too tight against the flooring, as this will cause noise during use and will inhibit the floor's ability to move.

radiant heat

When installing over radiant heat, follow all directions above for floating installations in addition to the directions below, and always use 1/8" thick high-density pressed synthetic fiber pad or cork underlayment.

This flooring is not warranted for use over radiant heat systems heated by electric elements. Only hydronic systems are approved. Hydronic systems must include in-floor temperature sensors and an outdoor thermostat that allows the system to adjust the water temperature according to anticipated heat loss. Flooring installed in multi-unit projects where the water temperature is not regulated separately in each unit is not warranted.

All concrete must be allowed to properly cure and dry for a minimum of 4 weeks prior to the operation of the radiant heat system. The system should then be operated at 2/3 maximum output for a minimum of 2 weeks prior to installation of flooring to further allow moisture from the concrete to dissipate and reach equilibrium. This procedure must be followed regardless of the time of year. Four (4) days prior to flooring installation, reduce thermostat to 65°F.

Prior to installation over radiant heat moisture testing must be conducted and documented per ASTM 1669-89 (Calcium Chloride Test) or, for wood subfloors, using a pin type meter. **The moisture content for concrete subfloors must not exceed 2.0 lbs. per 1000 square feet per ASTM 1669-89 (Calcium Chloride Test).** If it exceeds these limits, do not install the flooring.

As always, relative humidity of the jobsite must be maintained between 35% and 55%. **Use of a humidification system may be required to maintain the proper humidity level, particularly over radiant heat.** Failure to maintain proper humidity levels can result in excessive dryness and will void all warranties.

Beginning 48 hours after installation, slowly raise the temperature of the heating system to its preferred operating level over a period of 5 days. **The surface temperature of the subfloor must never exceed 82°F in any location. The temperature setting must always remain within 15°F of normal operating level, and should never be turned completely off.** Excessive heat, rapid heating, and/or failure to maintain humidity levels between 35% and 55% are likely to cause cracking, cupping and other forms of floor failure. **Slight surface checking (cracking), particularly at the ends of planks, should be expected in installations over radiant heat and does not constitute a product failure.**

after installation

- Flooring should be one of the last items installed in a project. In order to protect the floors while other trades are finishing their work prior to final cleanup and turnover to the owner, use rosin paper and only use 3M® 2080 Blue Tape to hold the rosin paper to the floor (other blue tapes may damage the finish). Clean the floor thoroughly before laying the rosin paper to ensure that no debris is trapped underneath. **Do not use** plastic film or other non-breathing coverings as this can cause the floor to become damaged from humidity buildups.
- Remove expansion spacers and reinstall base and/or quarter round moldings to cover the expansion space.
- Dust mop or vacuum the floor thoroughly to remove any dirt or debris.
- Buff the floor with lambs wool pads in order to remove any loose splinters, residues, foot prints, etc.
- Install any transition pieces that may be needed (reducers, T-moldings, nosing, etc.).
- If using glue-down installation method, do not allow foot traffic or heavy furniture on floor for 24 hours.
- Place walk-off mats at all entrances to help collect dirt and debris that could damage or dull the flooring finish.
- Install felt floor protectors underneath all furniture.
- In areas such as bathrooms, kitchens, and spaces where food service occurs, top-coating the floor will help prevent against moisture damage. In heavy food service areas such as restaurants, two to three top-coats are recommended. See below under "Top-coating/Re-coating" for specific instructions.

cleaning & maintenance

Prevent Scratches

There is no such thing as a "scratch-proof" wood floor, but following these basic procedures will reduce the likelihood and frequency of scratches:

- Felt padding should be permanently affixed to the legs of all furniture before it is moved into the space.
- Do not allow people to wear spiked heels on the floor, which will severely damage even the hardest wood floors and finishes.
- Pet claws should be properly trimmed at all times.
- Work boots and shoes that may have pebbles lodged in the soles should be removed prior to entering.

Remove Grit

Care should be taken to prevent dirt, sand and grit from accumulating on the surface of your floor. They will act like sandpaper and abrade the finish. Walk-off mats should be placed inside and out at all exterior exits, and the floor should be swept or vacuumed frequently. All mats or rugs should be cleaned and/or replaced on a regular basis. They should also be moved occasionally to allow natural color changes caused by light to occur evenly in all areas.

Use Proper Cleaning Products

To clean the ecofinishes® air⁴ factory urethane finish, we recommend the Bona-X Swedish Formula Hardwood Floor Cleaner (www.bonakemi.com, 800-574-4674). Vinegar mixed with water (applied with a slightly damp mop – never wet-mop) is also effective at removing scuffs, dried spills, and dust film. To remove hard-to-clean substances such as chewing gum, use Goof-Off or Goo-Gone, available at most hardware stores and supermarkets. Floor waxes, oil soaps, and petroleum-based cleaners should not be used under any circumstances.

Avoid Standing Moisture

Water and hardwood floors don't mix. Never wet-mop your floor, and always clean up spills and standing water as soon as possible. With water or any other cleaning agent, be sure to thoroughly ring out the applicator or mop prior to applying it to the floor. A damp mop is fine as long as the moisture is limited to an amount that will evaporate almost immediately. Moisture that is allowed to seep into the seams between the planks may cause damage to your flooring. Do not allow soiled mats or rugs to stay on the floor as they can trap moisture on the surface.

Top-Coating/Re-coating

In areas such as bathrooms, kitchens, and spaces where food service occurs, top-coating the floor immediately after installation will help prevent against moisture damage. In heavy food service areas such as restaurants, two to three top-coats are recommended. Periodic recoating in any area will help prolong the life and restore the new appearance of your floor. By recoating the floor at the first signs of wear, you will be able to bring your floor back to new condition with relatively little cost and inconvenience. To top-coat or recoat your ecofinishes® air⁴ floor, lightly screen (abrade) the top surface of the factory finish and then apply Bona Traffic floor finish by Bonakemi (www.bonakemi.com, 800-574-4674). Bonakemi also offers the Bona Prep system that allows top-coating without screening or sanding. Follow all BonaKemi application instructions carefully.