LUDAIRE
fine crafted hardwood flooring

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Engineered Flooring Installation (Floating)

Floating Installation Instructions

As of May 1, 2006, Ludaire warrants floating installation of all Ludaire prefinished floors that are over 3 inches wide. This includes Silver (3 9/16" and 4 3/4" wide) products, as well as Specialty Flooring products (offered in 5 1/2", and 7 1/2" widths). We do not recommend nor warrant floating installation for our Pro Line unfinished, square edged products as the heavy vibrations from flooring sanders could possibly break the glue line. Maximum width allowed without a transition is 20 feet and maximum length is 40 feet. Proper use of 1/2" expansion gaps at all vertical objects and proper use of T moldings to break up total width if over the maximum allowed 20 feet is mandatory.

NOTE: Warranty coverage may be lost due to failure to strictly follow all installation instructions and recommendations and/or the use of improper materials or tools. While the floating method offers some advantages, there are some things of which you should be aware: (1) The floor may have a hollow sound when walking on it. (2) The wood rests on the subfloor with its own weight, which may cause the floor to have slight vertical movement. (3) A damaged plank cannot be replaced as simply as in a staple down, nail down, or full glue down installation.

Subfloor Specifications

The subfloor surfaces must be level to within 1/8" in an 8 ft. radius. Check this using a 6 foot or longer straight edge to find high and/or low spots. To fill excessive voids or variations in the subfloor, use leveling compounds approved for your application. Consult the compound manufacturer to be sure it is appropriate. Allow the compound to dry thoroughly before beginning wood floor installation. Fifteen-pound felt or roofing paper is also appropriate to level a floor for a float-in installation. Cut small pieces to fit the shape of the depression and then stack as many sheets as necessary to level the area. DO NOT use this method to fix large depressions - improperly filling large depressions like this will void the warranty as chance for excessive movement will be very large. For concrete subfloors use a leveling compound. Sand or grind off any high spots.

Concrete subfloors must be under 3 lbs moisture/1000 sf over 24 hours on a dry-weight basis according to a properly done calcium chloride test. Testing kits are generally available through your distributor or call the

NWFA at 1-800-422-4556 (or 1-800-848-8824 in Canada) for the source nearest you. Follow test kit manufacturer's instructions for conducting test and measuring results. If calcium chloride results read over 3 lbs. but do not exceed 8 lbs. (and no obvious source of the moisture can be eliminated) you must use a moisture sealer approved for hardwood floors and do the calcium chloride test again to make sure you are under 3 lbs/1000 sf over 24 hours after installation of the moisture sealer.

Moisture content of wood subfloors must be under 13% MC.

Subfloor must be clean and smooth.

Relative humidity (RH) at the job site must be and remain between 40% and 60%. The temperature setting in the room must be and remain within 15 deg. F of normal operating range.

Inspect the job site

Before installing your Ludaire floor, inspect the job site thoroughly. Floating installation works over almost all existing floors (as long as they are level and there are no moisture problems) except for carpet.

Exterior: Carefully inspect the outside surroundings for improper drainage and predictable or obvious sources of moisture. The yard should be graded to slope away from the foundation. Be sure gutters and eaves sufficiently prevent rain from penetrating the foundation.

Under the house: In homes with crawl space or pier-beam foundations, foundation vents must provide cross-ventilation with no dead air space. Vents should be located throughout the foundation with opening area equal to 1.5 % of the square footage within the crawl space. For example, a 1000 sf crawl space requires at least 15 sf of vents that remain open all year. If excessive moisture exists underneath the house, you must lay a 6 mil black polyethylene moisture barrier on the ground in the crawl space below the installation area.

Interior: Check the moisture content of the subfloor. See item "B" above as well as "Moisture" at the end of this section. Room conditions can also indicate high moisture and relative humidity. Look for water stains, peeled paint near windows and doors, and rusty metal, especially nails.

Preferred requirements for wood subfloors: 3/4" (23/32", 18.3 mm) CDX grade plywood subfloor/underlayment (Exposure 1) 4' x 8' sheets OR 3/4" (23/32" 18.3mm) OSB subfloor/underlayment grade, with joint spacing 19.2" (475mm) on center joint construction or less.

Minimum requirements for wood subfloors: 5/8" (19/32", 15.2mm) CDX plywood subfloor/ underlayment (Exposure 1) 4' x 8' sheets, maximum 16" (400mm) on center joint construction. Follow panel manufacturer recommendations for spacing and fastening. Typical panel spacing for joint systems is 1/8" (3.2mm) around perimeter and fastened every 6" (150mm) on bearing edges and every 12" (300mm) along intermediate supports. Door casings should be notched or undercut to avoid difficult scribe cuts.

Concrete Subfloors: Lightweight and standard-density concrete subfloors are ideal applications for a Ludaire floated floor. Concrete subfloors are generally acceptable for float-in installation if the subfloor appears to be dry (i.e. no standing water or discoloration of concrete) and a 6 Mil Poly sheet and 1/8" high compression or compaction rated floating foam underlayment or a 2 in 1 floating floor underlayment is used and installed properly. Be sure that, as a minimum, any concrete subfloor is at least 50-60 days old before installing a wood floor over it.

Moisture

To curb the adverse effects moisture will have on a Ludaire wood floor and to determine the source of moisture problems, use the following checklist:

- Inspect the gutters, drains, and down spouts outside the house. Clear out any clogs caused by leaves, dirt, or other substances. Down spouts should transport water away from the foundation.

- Check the landscaping surrounding the home to be sure the yard is sloped away from the foundation (at least 6" in 10 ft.).
- Check windows and doors for proper drainage and waterproof caulking.
- Inspect concrete subfloor for cracks or buckling. Sometimes the water table may rise and force water up through the concrete floor with hydrostatic pressure.
- Check the ventilation system in the crawl space, basement, and attic. Moisture will collect on walls and floors if dead air (i.e. little or no ventilation) is present. As a rule, total vent surface area in a crawl space should equal 1.5% of the square footage of the area in question.
- Inspect pipes, water heater tank, dishwasher, and any other plumbing fixtures in the affected area for leaks and repair any such leaks.
- Remember to take seasonal changes in relative humidity into consideration.
- Signs that the moisture content is too high include discolored (darker) concrete and evidence of actual water droplets.
- In high humidity areas (such as Louisiana, Florida, etc.), make sure homeowner knows that setting the temperature extremely low on their air conditioner can results in slabs "sweating" if the dew point is reached. This can add excessive moisture in the flooring which is not covered under any warranty.

Underlayments

Concrete subfloors require a 6 Mil Poly sheeting with 4 inch overlap and seams sealed with plastic tape and a 1/8 inch high compression or compaction rated foam underlayment. A floating floor 2 in 1 underlayment may be substituted. Follow underlayment manufacturer's instructions for installing the underlayment. Over a wood subfloor, the 6 Mil Poly sheeting is not necessary unless directly over a crawl space which might release moisture. Run the underlayment up the perimeter walls approximately 2". This provides a secure enclosure for the flooring. After the floor is installed and before the installation of the baseboards, trim the excess underlayment to the height of the floor surface using a fine trimming blade.

Do not open packages until ready to begin installation! Opening cartons to acclimate the flooring (as with some solid strip flooring) could result in a difficult installation as our T&G fit is very precise and acclimation can lead to the tongue swelling slightly and becoming hard to fit into the groove. Also, there is more chance of the unfinished back side of the flooring taking on more moisture than the prefinished top face, resulting in slightly bowed boards that are harder to install. This is only an issue of ease of installation. You may still use pieces that have acclimated if necessary, they just might be hard to install.

As an installer, it is your responsibility to be aware of the grade, Relative Humidity of the room, and moisture content of the subfloor. You should check that each plank is free of damage or manufacturing defects. Any unusable boards should not be used, and any boards that you find visibly objectionable should either be used in an inconspicuous place or not used at all.

Installation

Always begin a floating floor installation with the grooves facing the wall!

Leave expansion space at all walls and all vertical obstructions, e.g. (fireplace, doorjambs, etc.)

Sweep or vacuum subfloor thoroughly. Use rated floating underlayments.

Tools and Materials Required

Tape Measure

Chalk Line

Last Board Puller

Hammer

Knocking Block

Floating Floor Adhesive, for example Franklin Titebond II or III or their Floating Floor Glue

Expansion Shims

Floor Protectors

Router Bit

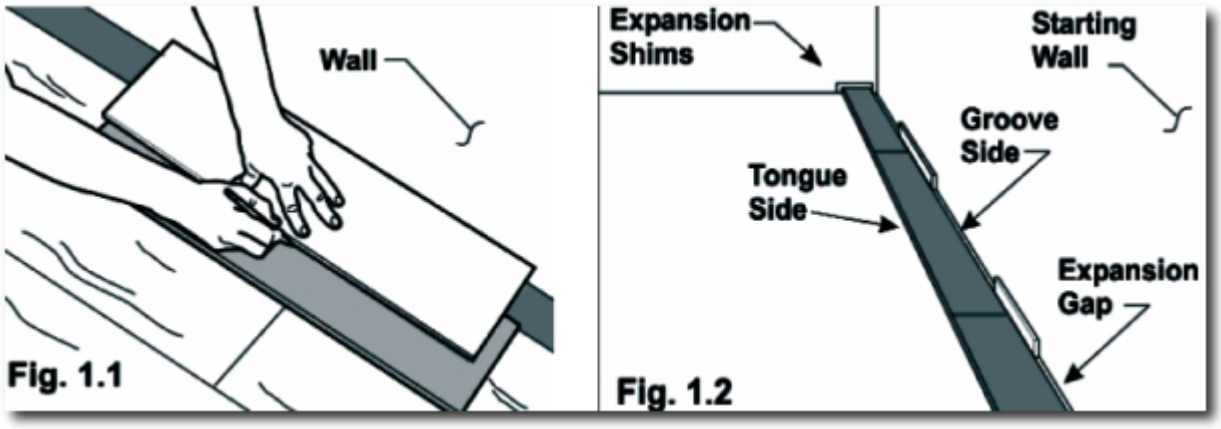
Splines

Step 1: First Row

1-1. Start with groove side of boards facing starting walls. If starting wall is not square or is otherwise irregular, scribe the first row (Fig. 1.1), then cut boards to match variation in wall.

Important: The first row must be square to ensure a true, fixed base from which to build entire floor.

1-2. Always leave 1/2" expansion gap between boards and walls (Fig. 1.2). Use expansion shims spaced every 12" along all walls to help prevent avoidable movement during remainder of installation. Ensure at least one end joint is in each row, regardless of row width (e.g., hallways).



1-3. Apply floating floor adhesive to upper inside of grooves on board (Fig. 2.2). Because this is a floating floor system the glue placement is very important. The glue should be placed along the topside of the groove and the full length of the groove (sides and ends). This can be accomplished by inverting the plank and applying a bead of glue (3/32") on the upper side of the groove. When the plank is turned back over the glue will run down the back of the groove to create total coverage. If the groove is totally filled with glue it could hinder the closing of the seams because of excessive glue squeezing out thus not allowing a tight fit.

Note: Since first row boards lie with their groove side against the starting wall, only apply adhesive to board ends.

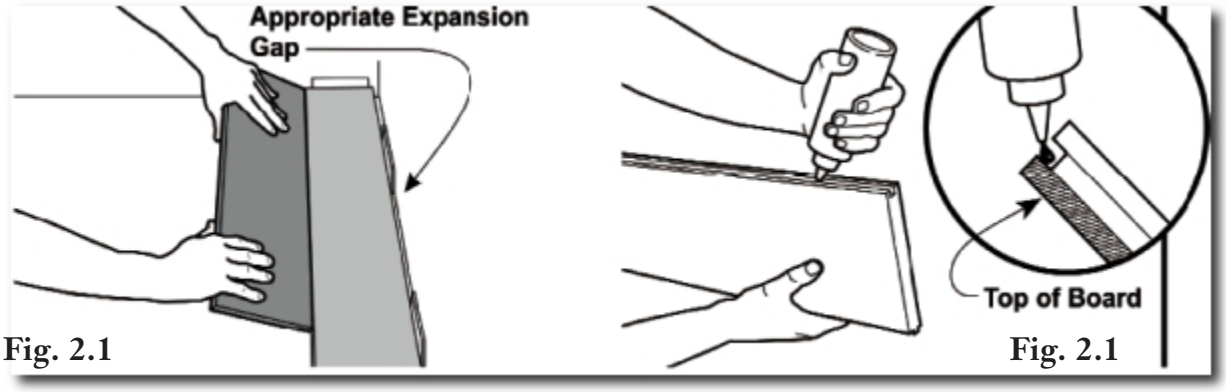


Fig. 2.1 Fig. 2.1

Step 2: Subsequent Rows

2-1. Start each subsequent row with cut off end of last board from previous row (Fig. 2.1). Such cut off piece must be longer than 12 inches. Beginning at left, stagger end joints by minimum 6" (8" is preferred).

2-2. Apply adhesive to upper inside of grooves on board (Fig. 2.2).

2-3. Procedure for installing each board: Set cut-off board from previous row, as described in Step 2.1. Remember to allow for expansion gap and shim accordingly. Work from left to right. If needed, use Last Board Puller or Knocking Block to ensure proper end joint and side joint fit. If end joint has slight gap, knock other end, making sure side joints stay properly engaged as well. This is probably your last chance to make sure this is right! Finish setting board by placing Knocking Block against tongue side and gently tapping board flush to previous row. Never tap groove side or top surface layer!

2-4. At end of row, cut board to appropriate length (allowing for expansion gap), apply adhesive and install as above. If necessary, use Last Board Puller to gently pressure board into place.

2-5. Check all seams for tight fit and move on to next row.

Changing Directions:

If necessary to continue floor in reverse direction (e.g. through doorway), or away from groove, use a spline which you can make yourself on your table saw with some scrap flooring. Apply glue to groove and insert spline tongue, converting groove into tongue.

Step 3: Last Row

Since last row will generally not fit perfectly, scribe row as shown in Fig. 1.1, remembering to allow adequate expansion gap. Engage all seams with Last Board Puller. Ensure last row is over 1.5 inches wide.

After Installation

Remove expansion shims and use required moldings and/or trim pieces to cover expansion space. Always nail moldings to wall, never to flooring!

Clean Up

Immediately clean any adhesive spilled on wood flooring during installation.