

**Installation Instructions for 3/4" thick
Ten Oaks Sealed Unfinished Solid Hardwood Floors**

At Ten Oaks, we strive to do our part to make a floor that will give you the best performance possible from any product in the market today. We have added a moisture resistant barrier to all sides of your flooring. This is not a moisture PROOF barrier however. Therefore, **for proper performance of the product, it is your responsibility to handle and install this product properly.**

1. PROPER HANDLING.

- a. Never unload or transport flooring in rain, snow, excessive moisture. Cover with a tarp.
- b. Do NOT store flooring where there is no climate control (no heat, no A/C, in a shed).
- c. Make sure job site conditions are good BEFORE delivering flooring to job site.
- d. Follow proper installation procedures for best flooring performance.

2. JOB SITE CONDITIONS. Inspect the jobsite carefully before allowing flooring to be delivered to it. Jobsite conditions must be 'ready' to receive hardwood flooring. For a detailed list of items to check at the jobsite, go to the National Oak Flooring Manufacturers' Association's website www.nofma.org, click on **Installing Hardwood Flooring**, and then click on **Jobsite Conditions**. A brief summary of these points follow:

- a. Ground surface grade or slope should direct water away from house.
- b. Basements must be poured and dried out BEFORE flooring is delivered or installed.
- c. Crawl spaces should be dry and well-ventilated. Vents should be properly located to allow good cross-ventilation.
- d. 6 mil polyethylene should cover the ground surface of the crawl space with seams lapped 6" and taped.
- e. Concrete slabs must be dry.
- f. The building should be 'closed in' with all outside doors and windows in place. Drywall, paint, and other masonry work should be thoroughly dry before delivery of flooring.
- g. In warm or cold seasons, the building should have heat or cool maintained in the structure at occupancy levels (at least 60° F) five days before the flooring is delivered and until finishing is complete. Relative humidity must be between 35-55% before delivering flooring.
- h. Delay delivery of flooring if there is moisture buildup in the structure, until it is abated.
- i. If jobsite conditions are acceptable, Ten Oaks flooring may be delivered and installed on the same day. Do not sand the product, until you are ready to apply the first coat of finish.
- j. Temperature and humidity should continue to be maintained at occupancy levels from the time the flooring is delivered.

3. SPECIAL SITUATIONS. For a detailed list of special installation situations, see the National Oak Flooring Manufacturers' Association's website www.nofma.org, click on **Installing Hardwood Flooring**, then click on **Special Construction Situations**. A brief summary of these points follow:

- a. For detailed installation of flooring over a radiant heated concrete slab, visit www.nofma.org and click on **Special Construction Situations**. Note: water temperature must be controlled to a maximum of 125 degrees; heating system must be on for 4-5 days prior to delivery of flooring.
- b. For a wood plenum system where the crawl space is completely closed and used as a circulation area for heating and cooling air, a ground cover of polyethylene is essential.

4. SUBFLOORS. For a detailed list of special installation situations, go to the National Oak Flooring Manufacturers' Association's website www.nofma.org, click on **Installing Hardwood Flooring**, and then click on **Job Site Conditions** where there is a discussion of subfloor systems. A brief summary of these points follow:

a. Concrete Slab-vapor barrier types and installation.

- i. 6 mil polyethylene should be used as a vapor barrier between the gravel fill layer and the slab.
- ii. A concrete slab should be 60-days old or older and dry before using it as a subfloor for hardwood flooring. See www.nofma.org, **Installing Hardwood Flooring, Job Site Conditions** for tests to determine whether or not a slab is dry enough to install flooring.
- iii. Grind off any high spots or fill low spots to make the slab flat. Clean or sweep up any debris or contaminants.
- iv. Choose which 'nailing base' you will use for the flooring over the concrete. You can use 3/4" sheathing grade exterior plywood or a screed system.
- v. A proper vapor barrier with a U.S. perm rating of less than 1 perm must be used.
- vi. For the plywood system, 6 mil polyethylene film has a 0.04 perm rating, and may be used by covering the entire slab, overlapping the edges 4-6" and leaving enough poly to extend under the baseboard on all sides.
- vii. If asphalt felt or building paper is used for the vapor barrier (with the plywood system), two layers must be used. Apply cold cut-back asphalt mastic with notched trowel at a rate of 50 SF/gallon. Let set 2 hours. Roll out 15 lb asphalt felt/building paper, lapping edges 4". Butt ends; do not lap. Repeat process for second layer, laying in the same direction but staggering the overlaps.
- viii. Severely damp climates require cold-type cut-back asphalt mastic to be applied at a rate of 100 SF/gallon with a straight edge or fine tooth trowel over the slab. Allow to dry 1 hour. Lay 4-6 mil polyethylene film over the mastic, lapping edges 4-6" and walk it in. You must step on every inch of the floor to insure proper adhesion. This can also be used with the plywood system.
- ix. The vapor barrier for the screed system includes laying 4-6 mil poly over the screeds after they are put into mastic on the slab. Poly should be lapped 4-6" at edges.

b. Concrete slab – plywood subfloor installation

- i. After vapor barrier is in place, loose lay 3/4" or thicker sheathing grade exterior plywood over the vapor barrier. Laying it on a diagonal will help prevent cracks.
- ii. Further stagger plywood joints by alternating the beginning of the plywood runs with half and full sheets. Leave 3/4" space at walls and 1/4" to 1/2" between panels.
- iii. Alternative methods can be found at www.nofma.org.

c. Concrete slab – screed subfloor installation

- i. Screeds or sleepers are random length (18" to 48") pieces of 2"x4"s which are treated with a preservative for interior installation. After treatment, screeds must be dried to 12% or less moisture content.
- ii. Slab must be cleaned. Apply an asphalt primer and allow to dry.
- iii. Apply hot (poured) or cold (cut-back) asphalt mastic in rivers 12" on center.
- iv. Imbed screeds in the mastic (on 12" centers), staggering joints and lapping ends at least 4" with 1/2" space between lapped ends.
- v. Make sure screeds are completely pressed into mastic. Leave 3/4" between screed ends and wall.
- vi. Lay 4-6 mil poly over screeds, lapping edges.
- vii. For flooring thinner than 3/4" or wider than 4", plywood or softwood boards must be used over the screeds.
- viii. No other subfloor is needed for 3/4" flooring, however, subfloor plywood or softwood boards may be placed over screeds. If so, allow 1/2" between boards.

d. Wood joist – subfloor installation

- i. Make sure there is good crawl space ventilation and a crawl space surface cover of 6 mil polyethylene film.
- ii. For 3/8" flooring, adequate subfloor materials include: 3/4" (or thicker) kiln dried No.1 or No. 2 Common Pine or 3/4" (or thicker) performance rated sheathing grade plywood or 3/4" OSB rated underlayment with a maximum 19.2 o.c. joist span. For a bigger joist expansion, additional subfloor material must be added.
- iii. If using boards, choose flat, dry dressed boards no wider than 6". Lay diagonally across joists, leaving 1/4" to 3/8" space between boards. Nail to every bearing point with two 8d common nails. Make sure sub floor surface is smooth and flat.
- iv. Mark location of joists so flooring can also be nailed into them.

5. **LAYING THE FLOOR.** For a detailed list of special installation situations, go to the National Oak Flooring Manufacturers' Association's website www.nofma.org, click on **Installing Hardwood Flooring**, and then click on **Laying and Fastening the Flooring**. A brief summary of these points follow:
- Secure any loose areas of the sub floor, sand off high places, and cover the floor with a good grade of 15 lb. asphalt felt/building paper, lapped 2"-4" where the edges overlap.
 - Flooring should be laid perpendicular to the floor joists.
 - Determine the longest continuous wall and prepare to begin laying your floor along this wall.
 - At both ends (corners) of the long wall, place a mark on the floor that is ¾" plus the width of the floor (ex. 2 ¼") from the wall and insert nails at these marks.
 - Pull a string between the two nails. Lay the first row of flooring against this string (or chalk line), tongue out. Use 6d or 8d (depending on thickness) flooring or casing nails to fasten down. The gap will be hidden by shoemolding. Remove the string after the first row is laid.
 - For installation in existing construction, remove base molding, shoemolding and thresholds adjoining installation. Re-install after flooring installation.
 - Racking the floor. Lay the flooring end to end in rows side by side. Stagger the end joints at least 6". Lay out 7 or more rows at a time. Be sure to evenly distribute short and long pieces.
 - Remove any flooring pieces that are not appealing or have an objectionable defect. Place these pieces in areas which will not be viewed, such as in closets. **DO NOT INSTALL OBJECTIONABLE PIECES OF FLOORING.**
 - Carefully nail the floor using recommended nailer or stapler (Powernail Model 200 or 250 or Stanley Bostitch LHF 97125-2).
 - Nail over supporting joists or screeds, near ends of strips, and according to appropriate nailing schedule. Blind nail flooring on the top of the tongue.

Size Flooring	Size Nail*	Spacing
¾" x 2 ¼"	2" barbed flooring cleat or 7d or 8d flooring nail or 2" 15 gauge staples w/ ½" crowns	8"-10" apart and 1"-2" from ends
¾" x 1 ½"	same	same
¾" x 3 ¼"	same	same

*If using nailing machine on plywood over slab, reduce length of nail to 1 ½".

- Continue nailing strips all the way to the opposite wall, leaving ¾" space at walls. You may have to rip a strip to end ¾" away from wall.
 - Face nailing can be used for final strips too close to the wall to use nailer. Sink nails in a grain line and fill with matching wood putty.
6. **FINISHING THE FLOOR** For detailed instructions on finishing a hardwood floor, go to the National Oak Flooring Manufacturers' Association's website www.nofma.org, click on **Finishing Hardwood Flooring**. A brief summary of these points follow:

a. Sanding

- Jobsite conditions were corrected and a living environment should have been established before installation of the flooring. Check again to make sure these things are complete.
- For Ten Oaks six side seal unfinished product, no acclimation time before installation is necessary. Your floor's protective moisture barrier provides protection for job sites which meet NOFMA job site conditions.
- Finishing the hardwood floor should be the last job of a construction project.
- Do not begin sanding the floor unless you are ready to quickly follow with a coat of finish ON THE SAME DAY.
- Always wear personal protective equipment when sanding.
- Vacuum or sweep the floor clean immediately before sanding.
- Inspect the floor carefully and tighten any loose board by face nailing.
- Counter-sink or remove any protruding nails.
- For a natural polyurethane finish: Sand with 60 grit, then with 80 OR 100 grit (your preference) followed by an optional 100 grit screen (only if the sanding job requires it).
- For a natural water based or stain finish: Sand with 60 grit, then 100 grit, followed by a 100 grit screen (or a 120 or 150 grit per your preference). Then coat or stain the floor.
- Load the drum sander with the appropriate grit and place machine along the right hand wall about two-thirds of the length of floor in front of you.
- Start the motor with the drum raised off the floor, and walk slowly forward at an even pace while easing the drum to the floor.
- As you near the wall at the end of the pass, gradually raise the drum off the floor. (Practice this before turning on the machine.)
- In the same way, ease the drum to the flooring while pulling the sander backwards over the same part of the floor. When you reach your original starting place, ease the drum up.
- Move the sander to the left about 3 to 4 inches and repeat the forward and backward sanding pass. Continue until you have reached the opposite wall.
- Turn the machine toward the other end of the room and follow the same procedure with the 1/3 of the floor that has not been sanded.
- After the sanding 'cut', use the edger to sand along the baseboard area, corners, in closets, and in places the sander did not reach. Be sure to overlap the edger area with the drum sanded area by 4-6" to blend. Keep the edger level. Use a finer level of sandpaper on the edger than on the drum sander. If you are sanding twice, do all fill work after the first sand. Allow fill to dry completely before sanding a second time.
- Hand scrape and sand all areas that need it, including corners, filled character, edges, etc

b. Finishing

- After sanding, sweep and vacuum the floor. Wipe up all dust on windows, sills, doors, door frames, light fixtures and baseboards.
- Check to see if any further filling needs to be done. Fill, allow to dry, hand sand with fine paper.
- Use a finish which is compatible with the Ten Oaks six side seal. A list follows: most Duraseal and Bonakemi products.
- Read manufacturer's entire label before applying finish to your floor.
- If applicable, apply stain according to stain manufacturer's directions.
- Apply surface coats according to finish manufacturer's directions.