

## General Recommendations

Engineered Wood floors require care during storage and handling. It is important to store flooring products in a dry, temperature controlled interior area. The temperature range should be between 65° F and 85° F and the relative humidity should be controlled and maintained between 30% to 70%. If it is not possible to provide these storage conditions, you must make provision to have the material conditioned for at least 48 hours before beginning the installation.

The cartons of Click Wood must also be stored properly. These cartons must be kept squarely positioned on the pallet to prevent distortion of the contents and to be fully supported. Stored cartons are to be protected from forklift and other traffic that can damage carton corners. Never double stack pallets of flooring products.

## Product Inspection

Wood is a natural product, containing natural variations in color, tone, and grain. A slight color variation between planks, however, is to be expected in a natural wood floor. Muchsee cannot guarantee against natural variation in each plank, nor minor differences between samples and the color of the floor. Do not install planks that have defects. Muchsee will replace any defective planks BEFORE they have been cut or installed.

We urge you to inspect for color, finish, and graining BEFORE installation. Care should be taken during installation to remove or repair particular characteristics you do not desire.

Furthermore, we recommend that you examine cartons to determine those that contain random length planks and those that contain full length planks. Plan the layout accordingly so that a consistency is maintained throughout the installation

**NOTE:** Muchsee Hardwood Floors accepts no responsibility for costs incurred when a floor with visible defects has been installed.

## Jobsite Conditions

In addition to the general instructions, Muchsee Hardwood has some category specific requirements.

Muchsee engineered wood flooring does not need to be ac-climated to the jobsite unless the flooring will be transported from one extreme temperature into another. If there is a severe temperature difference, make sure to condition the cartons of wood flooring and Endurance™ adhesive, if being used, 24 hours before the installation.

## Structural Requirements

The structural integrity of the jobsite is critical for a satisfactory wood installation. The type and method of construction, grade level, and flooring system components all impact the installation of wood flooring products. Many times local building codes establish only minimum requirements for flooring systems.

These minimum requirements may not provide sufficient rigidity for successful installation and continued performance of wood flooring products.

Subfloor must be clean. Remove all oil, dirt, grease, wax, sealers, paint, adhesives, or any other substance that would hinder installation.

Subfloor must be level to 1/4" per 10' span. To check, just stretch a 10' string or lay a 10' straightedge over subfloor. If the subfloor dips or crowns 1/4" or more in the span, it must be leveled. Use a Portland cement patching/leveling material to level low areas in the subfloor. If the floor has a crown or rise, level it by sanding or grinding to meet 1/4" specifications.

There are additional concerns an installer must take into consideration for each different type of subfloor (wood, concrete, lightweight concrete, etc.) other than the requirements stated above. You may find existing subfloors that do not meet industry standards, in that case, do not proceed until repair or replacement of the subfloor is completed so your hardwood floor installation will be successful.

## Temperature Requirements

As a general rule, the jobsite in a wood flooring installation must be climate-controlled. If you are transporting wood flooring from one extreme temperature into another, however, make sure to condition the cartons 24 hours before installation. Wood flooring performs best in climate controlled interior environments. (Temperature and humidity should be controlled for the life of the flooring.)

Endurance Adhesive has a minimum working temperature of 65°F. Never use Endurance Adhesive below this requirement. Open time for Endurance Adhesive is affected by temperature and humidity. As a general rule, the higher the temperature and humidity, the shorter the open time.

## Moisture Requirements

Wood subfloor moisture content must never exceed 14% moisture content when measured with a dependable moisture meter. The difference between the wood subfloor system moisture content and that of the hard wood flooring must not be greater than 4%.

Concrete subfloors must be visibly dry, with no history of or show any evidence of excessive moisture vapor transmission. As a frame of reference, Calcium Chloride test results should be at 5 pounds or less moisture vapor transmission.

## Wood Subfloors

All wood subfloors must be structurally sound, dry, at least 3/4" in thickness, solidly fastened to appropriately spaced floor joists, and in compliance with all local building codes. First, make sure subfloor is dry. Subfloor wood moisture content cannot exceed 14% prior to installation. To determine wood moisture content use a quality moisture meter.

Next, determine if subfloor is structurally sound; both floor joist spacing and subfloor panel selection must be considered. Use the following requirements as a guide:

- Planks may be installed (floated) to a single layer of 3/4" thick, tongue-and-groove plywood or 3/4" structural grade oriented strand board (OSB) substrate over appropriately spaced floor joists.

- If the subfloor is plywood or OSB less than 3/4" thick, add a second cross layer for strength and stability (minimum 5/16" thick to total 1" in thickness). To reduce the possibility of squeaking, install the underlayment per the manufacturer's guidelines.
- 19.2" and 24" on center joist spacing may be acceptable if the subfloor system is designed in accordance with local building codes and is free of deflection.

**CAUTION:** Wood substrates directly fastened to concrete are not satisfactory for the installation of wood floor coverings. This non-ventilated construction practice will result in deterioration of the wood substrate system and may cause problems such as underlayment joint telegraphing. Muchsee will accept no claims regarding performance of our wood products installed over this subfloor construction.

For concrete slabs that are on- or below-grade it is recommended that they are constructed so that ground water vapor cannot penetrate. Suspended, above-grade concrete subfloors often require extended drying time to lose initial moisture. Curing and drying time will vary depending on the type of concrete mix and the environment in which it is placed. New concrete slabs require a minimum of 6 weeks' drying time before covering them with a wood floor.

## Radiant-Heated Subfloors

Muchsee Engineered Wood may be installed over radiant-heated subfloors provided the surface temperature of the system does not exceed 90°F. Before installing Muchsee Engineered Wood over newly constructed radiant-heating systems, operate the system at maximum capacity to force any residual moisture from the cementitious topping of the radiant heating system. Then set the thermostat to a comfortable room temperature for the installation.

## Concrete Subfloors

All concrete subfloor systems must meet or exceed local building code specifications.

## Existing Flooring Coverings

You may install Muchsee Engineered Wood over existing resilient floor coverings, wood flooring, and ceramic tile (grout joints must be 3/16" (5mm) or less or must be leveled. Do not install Muchsee Engineered Wood over carpet. Remove all carpet before proceeding with a Muchsee Engineered Wood installation and examine the subfloor underneath.

Make any repairs to the subfloor, if necessary, prior to installation. Muchsee 3N1 Underlayment must be used over the entire installation area when installing over below- or on-grade concrete subfloors. Muchsee 3N1 Underlayment combines an underlayment cushion with a moisture barrier film in one sheet. This saves time during installation because there is only one sheet to install, not two.

## Blend Cartons

To provide for a uniform appearance throughout the entire installation, open sufficient cartons to blend planks for both shade and length variations.

Plank length can vary from (12" to 42"). Make sure your work area is well-lit. Good visibility ensures that color is consistent and that visually defective planks are detected and removed. Please keep in mind; it is always a good idea to retain a few planks in case a repair is ever required.

## "Racking" the Floor

This process is essential to achieve a random appearance. Start by either using random length planks found in the carton or by cutting four to five planks in random lengths, differing by at least 9". When starting these first few rows or courses, make certain to always measure from the tongue end of the plank when cutting. As you continue working across the floor be sure to maintain the 9" minimum between end joints on all adjacent rows. Randomly install different lengths to avoid a patterned appearance. Never waste materials; the ends cut from starter rows should be used at the opposite side of the room to complete rows or used to start the next row.

**NOTE:** As stated earlier, it is extremely important to blend planks from several cartons to ensure a good balance of color, graining, and plank length.

As with all strip wood flooring the long dimension of the plank should be installed in the long dimension of the work area. Measure the width of the work area to ensure a "balanced" layout of plank width on opposite long walls of the work area. If the planks have been cut down in width and the locking mechanism has been damaged apply a thin bead of MegaGlue in the head seams, this should only be necessary on the first and perhaps last rows of planks.

Once the starting wall has been determined, lay the first plank using 5/16" spacers to maintain the expansion gap. Align and lock the head seam of the second and consecutive planks in the first row. Cut a starter plank or use a random plank of at least 9" to begin the second row. Maintain a random stagger of the head seams across the entire installation. Place the tongue of the plank into the groove of the plank in the first row. Align the second plank of the second row over the head seam of the adjoining plank, then insert the tongue into the groove of the plank in the first row and lock into place. Drop the head seam into place ensuring that the seam is tight. Be certain to maintain the 5/16" expansion gap at all fixed vertical objects through out the entire installation. Continue installing planks, clicking the side seam and locking the head seam in to place, until reaching the last row.

More than likely, this last row will need to be cut to fit. Scribe the last row of planks to fit the opening, being certain to provide the 5/16" expansion gap, and cut along the scribed line with a scroll or jig saw. When fitting around door casings or other obstacles that prevent angling the tongue into the groove, it may be necessary to plane the tongue and groove to permit the panels to be slid into position rather than angled in. When the side click profile is modified in this manner it will be necessary to apply a bead of MegaGlue into the groove to bond these planks together.

Remove all spacers and cover expansion joint with wall base or quarter round. Be certain to fasten into the wall and not in to the flooring product. Use the appropriate transition moldings at doorways, etc. Again be certain not to nail or staple through the finished flooring product when fastening transition moldings.