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INSTALLATION AND MAINTENANCE INSTRUCTIONS FOR THE FOLLOWING SPECIES:

Alder	Hemlock	Oak	All prefinished strip block flooring is tongue and grooved, with the exception of mesquite.
Fibre [B]lock II	Mesquite	Redwood	
Fir			

! PLEASE READ THE ENTIRE SPECIFICATION BEFORE STARTING THE INSTALLATION.

BEFORE STARTING THE INSTALLATION

All jobsite conditions should comply with Kaswell specifications, including but not limited to humidity levels and sub-floor conditions. Be sure that our end grain strip blocks meet your expectations. When possible, we suggest loose-laying several square feet of flooring in the general location where they will be installed. If the visual appearance, color, sheen, or manufacturing quality does not meet your expectations, do not proceed with the installation. The placement of Kaswell flooring into mastic for adhering purposes constitutes your acceptance of the materials.

CHECK HUMIDITY

With a reliable hygrometer, sling psychrometer, or electronic monitoring device, check the humidity in the space where the flooring is to be installed. Humidity should read between 35-55% assuming a 65°-75° temperature. If humidity is not normal, postpone installation until conditions are normal.

CONDITIONING

Do not install unless heating, air conditioning, and humidity controls are in full operation and room conditions are normal. Prefinished End Grain Strip Blocks are available ¾" and 1" depth, kiln-dried to 6-8%. All flooring strips must be allowed to adjust to your specific room condition. Only after HVAC systems are operating normally and assuming a room temperature between 65° and 75°, remove packaging and space strips apart so that the air reaches both top and bottom of the strips. Allow them to acclimate for 4 days or longer. Do not store flooring where humidity is abnormal.

ACCLIMATION FOR ALL KASWELL INTERIOR WOOD FLOORING PRODUCTS

The purpose for acclimating wood block is to allow the moisture content of the wood to adjust to normal conditions; the temperature and humidity that will be typical once the facility is opened, and the permanent Heating, Ventilating and Air Conditioning (HVAC) system is up and running.

Before wood blocks are delivered, the job site must be checked to determine if it is ready. The structure should be fully enclosed, with doors and windows in place, and interior climate controls operational for at least 48 hours to stabilize the moisture conditions of the interior. Wood flooring should not be delivered until all wet-work is completed. Acclimation must include de-palletization or scattering of all individual blocks, open stack strips, or removal of panels from cartons or boxes. Acclimation will be faster if the pile is low and more spread out.

If conditions are not stable, acclimation may be harmful to the installation. For example, acclimation could dry the block too low if the humidity were too low. In so doing, you might install the block too dry during the heating season, and have problems during the more humid months.

If you know the Equilibrium Moisture Content (EMC) of wood in your region, the wood brought to a job site might already be at the proper moisture content, and acclimation for any length of time may not be necessary. The installer should have a clear understanding of the EMC in order to determine the length of acclimation. This requires knowing and recording the moisture content of the wood at the time of delivery, and what the expected moisture content will be at equilibrium.

At equilibrium the moisture content of the wood neither gains nor loses water because it has reached equilibrium with the vapor pressure of the surrounding atmosphere. Changes in relative humidity and temperature of surrounding air cause both seasonal, long term, and daily short-term changes in the moisture content. Long-term changes are gradual as moisture slowly penetrates the wood, while short-term fluctuations influence only the wood surface. Protective coatings slow the changes in moisture content, but ultimately the wood will be in equilibrium.

We are often questioned about the humidity being too high or too low. Humidity maintained above 60-70% at normal residential temperatures can adversely affect wood



Open stack acclimation of prefinished strip blocks

components. Humidity sustained at or above this level can result in an EMC of 12% or more with associated expansion. Humidity maintained at or below 25-30% can adversely affect wood components and result in an EMC below 6%. This condition can cause greater than normal shrinkage with associated cracks. (Source: *Wood Handbook U.S. Department of Agriculture, Forest Products Laboratory*)

Ideal conditions for the all wood flooring would be to acclimate and install at the average of the high end and the low end of the humidity spectrum, which we hope would be in the 35-50% range. We would be pleased to discuss with you length of acclimation for your particular installation.

NOTE: We always recommend at least 2 days of acclimation prior to installation. We never deliver and install block flooring on the same day.

CHECK CONCRETE SUB-FLOOR

The sub-flooring should be depressed corresponding to the depth of the block specified. If cork or rubber underlayment is specified for added resiliency, allow for extra depth. A vapor barrier or reliable water resistant concrete sealer (i.e. Bostik's MVP or an equivalent) should be used when moisture from below is of concern. New concrete slabs must be cured (at least 50 days) and dry. Below grade installations are not recommended. Be sure the concrete sub-floor is smooth and level. Tolerance should not exceed 3/16" on a 10 ft. straight edge in any direction. Check floor level with straight metal strip on edge, double check edges and corners. Eliminate any washboard irregularity. All rough spots or gravel protruding must be ground smooth and low areas filled with leveling compound. If tolerance is not as specified, flooring contractor shall INSIST masonry contrac-

tor make necessary corrections. Concrete should be tested for moisture content, and be no greater than 3 lbs. per 1,000 sq. ft. per 24 hours (ASTM F-1869), or 75% RH (ASTM 2170). We recommend a bond test before spreading mastic and installing blocks. A test should be made with your chosen adhesive and several of our blocks before beginning the installation. Check with us about your particular condition.

WOOD SUB-FLOOR

Wood strip block may be installed directly over wood or plywood sub-floors, which are solid, level, and well ventilated below. There should not be any cupped area, or projecting nails. If blocks are to be installed on an existing synthetic floor or raised computer floor system, ½" minimum plywood or hardboard underlayment should be added, glued and screwed to the synthetic surface.

EXPANSION VOID

Cork strips ½" to 1-½" should be used against all walls and columns, unless concealed by shoe moldings or other base. Place temporary wooden strips along the walls and columns equal to the width of the void to be created. After installing blocks flush to the strips, and at the end of the day remove the temporary strips, leaving a uniform void for expansion. In aisle ways and other narrow areas where blocks meet carpet or other flooring, the expansion void can be omitted. Schluter strips should be used at block edges against carpet or other adjacent flooring materials.

APPLYING MASTIC

NOTE: Be sure flooring has been accepted before gluing in place. For older sub-floors, be sure the surface is clean and free from dirt, oil, or grease. Store all mastic/adhesive for 72 hours at room temperature. For individual blocks and strips: Use a 3/16" V notched trowel. If the coverage is less than 50 sq. ft. per gallon, change trowel angle or file down trowel to reduced depth. For all species with the exception of treated pine blocks we suggest Bostik's Best Urethane or Mapei 980 adhesive. **DO NOT:** use mastic or adhesive that contains water or a mastic that combines vapor barrier quality within the adhesive, such as Bostik's "Single Step". This type of adhesive/vapor barrier product requires a spread of approximately 20 sq. ft. per gallon. This is too much adhesive for our block flooring. Blocks would sink into the Single Step product during installation, creating significant high and low blocks. Also, the mastic could

ooze up between the blocks during installation, and stick them together. We suggest Bostik's MVP if a vapor barrier is needed. Allow MVP to dry and apply Bostik's Urethane Adhesive the next day. For treated pine blocks, use Kaswell S2705 White Adhesive. Adhesive open time up to 2½ hours, but read labels. Always use with adequate ventilation.



Fir Strip tongue and groove with spline



Close up of Fir Strip tongue and groove

INSTALLING BLOCKS IN STRIPS UNFINISHED OR PREFINISHED

Prefinished end grain blocks in strip block form are shipped with grooves on both sides of every strip to accommodate a slip tongue. The slip tongues or splines are shipped separately. The splines must be installed into the grooves during installation. Prefinished strip blocks are shipped with Woca oil and wood flour for filling.

Strips should be well mixed before beginning installation. Determine the direction of the rows. Snap a chalk line parallel or perpendicular to a straight wall to start the installation. Determine the number of rows to be installed comfortably, and spread mastic to a chalk line the full length of the laying line corresponding with the number of rows to be installed. Make sure to maintain square-ness with the room. Work to chalk lines for each section, and continue to check square-ness to the room as the strips are installed.

Place the first full strip (approximately 33" length) in a corner, parallel and tight to either pre-molded cork (if to be left exposed), or to a temporary lumber filler to create a space, (to be concealed later by base molding). The lumber filler must be removed later in the same day it was installed. For prefinished strips, install the wooden splines provided before placing the strip on to the mastic. Extend the spline slightly beyond each strip so it catches the next strip. Strips without spline can easily be snapped into shorter pieces. The aluminum is soft. However, if the strips are snapped, be sure to tap the ends to flatten the elongated aluminum caused by snapping. Begin every other row with a shorter strip, perhaps even one half of a full strip. Every other row should also begin with a half block to create a laped joint from strip to strip. Place adjoining strips as close as possible to the next strip. Avoid crowding mastic between strips.

STRIPS ARE TO BE GLUED DOWN AND NOT TO EACH OTHER. All mastic must be kept off exposed surfaces. Do not pound directly on block edges. Suggest a short section of a 2 x 4 on edge and snug against the last row. Tap the 2 x 4 as needed with a mallet (avoid edge damage) to snug the rows. If the installation is not complete, use a backer along the entire last row at the end of the day to keep the rows in position. Continue to snap lines to maintain square-ness. Keep lines straight. Strip ends will be square when received. When you reach a wall or column and need shorter lengths, be sure your end cut is exactly square to the strip length, and no piece should be less than 1/3 block. **NO SLIVERS!** You may need to cut the next to last block back slightly so a larger piece can be used to "cut in", rather than installing a sliver. Occasionally some blocks within the strips are slightly angled. Removing blocks without cutting square to strip length can cause one end to be out of square and create a space in the floor. The blocks within the strips will vary such that maintaining a perfect lap joint will be difficult, although every effort should be made to do so. **DO NOT** attempt to install strips so that blocks are in straight rows in two directions. Straight lines or rows in two directions cannot be created with blocks in strips. Blocks within strips appear to all be the same size, but there is slight variation that would adversely affect your ability to maintain straight lines or rows in two directions. For prefinished strips, be sure to fill the groove that was made for the splines when the last row abuts another surface. Do not leave a void below

the surface. Fill the void with either 1/2 of the tongue, or cut off the groove.

CAUTION

Since prefinished end grain strip block is manufactured and shipped with grooves on both sides for a slip tongue to be installed during installation, and since there is only a thin wearing surface of end grain above the groove, (5/8" on the 3/4" depth strip, and 7/16" on the 1" depth strip), no voids can be left below the surface. All voids must contain slip tongue. When installing the first strip up against tile or concrete, etc., you must first either cut off the groove, thus removing the void, or install the tongue and cut one half off, so that there is no void once installed.

If a void is left after installation, the entire top edge of the end grain surface can break and drop below the surface into the void, requiring replacement. If there are any questions about this subject, please contact us before starting your installation.

APPLYING WOCA OIL

End grain strips will be prefinished with Woca Oil on arrival, UV oil added on request. For more information about WOCA Finishes, see WoodcareUSA.com. After strips have been installed, you might have some slight cracks or voids between strips. They can be left this way, or filled. If filling is desired, mix Woca in the chosen color with wood flour to a soft paste, and then paste fill the entire floor using rags or a sponge trowel. We include wood flour and additional oil with the strips. Buff the surface with a soft pad to complete the installation or polish with white pads and Kaswell patina discs. We can send patina discs via UPS or FEDX at any time. The floor should appear silky, with an even look, with no oil spray or droplets visible. Pour more oil onto the floor as needed and continue polishing. Overlap work areas to ensure an even finish with no spray residue from previous passes. Oil coverage should approximate 2,000 sq. ft. per liter or less. Allow to harden in 4-6 hours.

ALLOW THE WOCA PREFINISHED STRIP BLOCK FLOORING TO CURE 48 HOURS BEFORE PLACING RUGS AND FURNITURE ON THE FLOOR.

Optional (choose only one):

1. Polish with a soft cloth under a buffer. Continue to spread oil and polish as you pass the buffer back and forth across the work area. The floor should appear silky, with an even look, with no oil spray or droplets visible. Pour more oil onto the floor as needed and continue polishing. Overlap work areas to ensure an even finish with no spray residue from previous passes. Repeat the process until the floor is finished. Coverage should approximate 1,250 sq. ft. per liter. The Master Oil will usually pre-harden in 4-6 hours. Allow the oil to cure 24 hours before placing rugs and furniture on the floor. For a fourth application, repeat the process of the previous application(s).
2. Woca Hard Oil Wax, Woca Maintenance Gell, Rubio Pure, or Osmo may also be added for more sheen.
3. Urethane finish top-coating can be applied over Woca Oil finished flooring. Consult with us when choosing a urethane finish.

QUESTIONS AND CONCERNS

If there are any questions or concerns, please do not hesitate to contact us before or during installation and finishing. Call or e-mail for technical support. Kaswell Flooring Systems cannot be responsible for results of installations made by others. **We reserve the right to change specifications without notice.**

WOOD BLOCK FLOOR CARE & MAINTENANCE

To protect your investment, and to ensure that your KASWELL FLOORING SYSTEM maintains its beauty with years of lasting service, we offer the following recommendations for care and maintenance.

For Oil Finished Flooring: Lightly clean with Woca Commercial Oil Cleaner or Refresher Oil. Re-oil by spray, towel off immediately, and buff with standard buffer with soft pads. We can supply 3M pads if needed. Keep the flooring free from dirt and abrasive particles by daily sweeping or vacuuming. Use a treated flat mop or regular dust mop. Soft buffing at will. The resins in the oil will become harder over time, which will densify the wood. Wax can be added for higher gloss. *Woca videos are available on request.*

For Urethane Finished Flooring: Keep the surface free from dirt and abrasive particles by daily sweeping, using a treated flat mop or regular dust mop. Under no

circumstances should water be permitted to remain on the flooring more than 10 minutes, either from spills or from washing. Routine cleaning is best accomplished with a damp mop. Be sure no puddles are created or left on the surface. Soft steel wool buffing and waxing can be added. However, if waxes are used, they will make future re-coating with urethane more difficult. An acrylic “after market” product can be used to “dress up” the surface. To refinish with the same urethane used originally will first require screening by rotary disc type sanding machines. tack-ragging to remove dust and the recoating.

ANNUAL MAINTENANCE

For Woca oil finishes, see WoodcareUSA.com. For other oil finishes after thorough cleaning, apply finishing oil lightly again, being sure penetration is 100%. Buff as usual. Disregard oiling if it does not penetrate. As the oils age, they will harden, and dry buffing will increase luster. Urethanes will require screening before re-application. Check with the chosen manufacturer for maintenance products.

KASWELL FLOORING

Top 10 maintenance tips:

1. Maintain proper humidity conditions, ideally in the 35-55% range.
2. Vacuum lightly or sweep daily to remove sand and grit.
3. Apply carpet or felt protection to chair legs.
4. Wipe spills promptly.
5. Use walk off mats at entrance doors.
6. Reapply finish at the appropriate time.
7. For urethane finish:
Use damp mops. Never use wet mops.
8. For urethane finish:
Avoid using wax or oil soap products.
9. Use only maintenance products furnished and recommended by the finish manufacturer.
10. Call or e-mail Kaswell regarding your flooring.

KASWELL END GRAIN BLOCKS GRADING AND SIZE TOLERANCE

The National Wood Flooring Association does not provide grading information/rules or size tolerance requirements for end grain block flooring, as they do for conventional hardwood flooring. And so, we offer the following information, and believe it to be an accurate description of our block flooring products.

Wood is a natural product, subject to numerous variations in grain, color, hardness, and dimensional stability. Machine tolerances are measured by us during manufacturing only, with tolerance of +/- .02". Moisture can enter and exit rapidly through the end grain. And so, after manufacturing, the blocks can gain or lose moisture, thus changing their measurement. Our blocks, as well as other wood items, change in moisture content and dimension during and after fabrication, while awaiting shipment, in transit, and at the jobsite. For this reason, as well as others, it is important that the installer measure and record the moisture content of the blocks at time of delivery. Doing so is necessary to determine the length of acclimation time for your project. The target moisture content for all of our wood flooring products is 8-10%, with a 5% allowance for pieces outside that range up to 13%.

There is a grading allowance for hardwood flooring shipments of not greater than 5% of the pieces mis-graded or off graded. However, end grain blocks are not graded at all, and therefore no description that we can make, and no sample that we can make, could encompass all possible variations. However, there is an ASTM specification D1031-86 for industrial pine blocks, which includes block description and size tolerance. The ASTM size tolerance was written as follows: "Permissible variations from the specified dimension shall not exceed 1/16". We recognize that this is for industrial application, and may not be appropriate for high end commercial and residential applications. ASTM does not grade pine blocks but they do describe them in detail, and we have adopted their standard for all of our end grain species for commercial and residential applications as follows: "Blocks should be sound and well manufactured, square butted, and square edged, and shall be free from unsound, loose or hollow knots, knot holes, and other defects such as shakes and checks that would be detrimental to their performance". In most cases, normal season checks in end grain blocks are not detrimental to their performance and so we do not consider checks to be a defect.

We can produce blocks in many species that are check-free, sap-free, knot-free, pitch pocket-free, blueing-free, and the number of annual growth rings per inch can even sometimes be part of a specification. These natural conditions should be addressed when ordering. We encourage you to speak with us about your particular project and specie choice.

Although our logs are kiln dried to 8-12% +/-2%, square blocks can go "out of square" after fabrication because radial and tangential expansion and contraction is different. Even rectangular blocks can "go out of rectangle" with a change in moisture content. We recommend our blocks not be installed tightly together side by side. Our installation instructions advise the blocks should be slightly spaced apart to accommodate slight irregularity of size and shape. The space can allow for some growth as well and the net affect will be that "out of square" or "out of rectangle" blocks can appear below the JND, the "Just Noticeable Difference" (in size and shape). If slightly irregular squares, rectangles, or hexagon blocks are installed tightly together, the blocks might appear slightly above the JND, and you might deem them un-useable or unacceptable for your project.

Running bond patterns of both rectangles and squares can easily be created below the JND. However, due to slight size variation, you should "open an installation of square blocks" even slightly if a tile pattern is required. The four points of the four blocks must meet. Therefore, square blocks must be carefully placed during installation. All voids created from spacing can be easily filled during the finishing process.

KASWELL LIMITED WARRANTY

Seller warrants for a period of two years from date of delivery that Kaswell flooring is free from defects, which makes the flooring not fit for use for which they are normally intended. Seller's only obligation during this warranty period is, at its sole option, to either repair, replace, refund or credit the purchase price of the flooring, or part thereof, found to be so defective. At the conclusion of this warranty period, Seller shall be under no further obligation whatsoever. This warranty is void in the event of negligence, abuse, abnormal usage, misuse, accidents, improper installation, improper maintenance, or any circumstances or conduct beyond the control of the Seller, most particularly job-site conditions. Seller is not liable for consequential damages arising out of or in connection with the sale or use of the blocks, including, but not limited to, all labor and/or material charges or loss of income or profit relating to the goods in any way whatsoever.

CONDITIONS OF SALE

All pricing is per sq. ft. or surface measure with no milling or cutting waste figured.

All orders are subject to availability of stock for prompt delivery.

Special orders are non-cancelable and non-refundable.

A 15% restocking and handling charge is applicable on all authorized returns.