



## End Grain Master Field Finish

Eric Carle Museum,  
Amherst, MA

Revised February 22, 2024

### INSTALLATION, FINISHING, AND MAINTENANCE INSTRUCTIONS FOR THE FOLLOWING SPECIES:

Acacia	Cherry	Hornbeam	Maple-Curly	Oak-Parquet Fumed	Teak
Alder	Cypress	Iroko	Maple-Bird's Eye	Oak-Parquet Natural	Tigerwood
Ash	Elm	Kaleidowood	Maple-Spalted	Pine	Walnut
Birch	Fir	Larch	Mesquite	Plytype	Walnut Burl
Black Locust	Hemlock	Mahogany	Oak-Red	Redwood	Wenge
Butternut	Hickory	Maple	Oak-White	Sandlewood	

### ! ATTENTION INSTALLERS:

We suggest you start a log for your project. Measure and record the moisture content of the wood block on arrival at your facility. For accurate readings probe into the side of the blocks, and not on the end grain of the blocks. Measure and record the environmental conditions in your storage area as well. Please read the following specification in its' entirety before starting the installation. With controls in place, if the temperature and humidity at the project is consistent with the specifications, deliver and record the moisture content of the flooring again. Measure and record the temperature and humidity conditions in the space daily, but at least weekly. You'll need to know this information to determine the length of acclimation needed, if any, before spreading mastic and installing blocks.

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 blocks, planks, strips or panels 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 an acceptance of the materials.

### CHECK HUMIDITY-CONDITIONING

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 degree temperature. If humidity is not normal, or not consistent w/humidity conditions planned for occupancy, postpone installation until conditions are normal. **Do not install unless heating, air conditioning, and humidity controls are in full operation and room conditions are normal.**

### PRODUCTS

End Grain blocks are available as individual pieces (unfinished only), wired into strips (unfinished or prefinished), on panels (factory sanded only), and on engineered planks (unfinished or prefinished).

Please note, Engineered End Grain planks have separate installation instructions. Individual blocks are available from ½" to 4" in depth. Blocks in strips are available from ¾" to 3" in depth. Blocks on panels are available from ½" depth. Most individual blocks are kiln dried to 10-12%. Most strips and panels are dried to 8-10%. All blocks must be allowed to acclimate or adjust to your specific room conditions. Only after HVAC systems are operating normally and assuming a room temperature between 65°F and 75°F, then open the palletized strips and open-stack them (see middle picture) so that both top and bottom is exposed, or scatter individual blocks in a loose pile (top picture) in the room where the flooring will be installed, or open cartons of panels and spread panels. Do not store individual blocks, strips, planks or panels where humidity is abnormal.

## ACCLIMATION FOR 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 running and balanced.

Before wood blocks are delivered, the jobsite 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/scattering of all individual blocks, open stacking strips, or removal of panels from cartons or boxes. Acclimation would be faster if loose piles are 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 jobsite might already be at or near 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 time of delivery, and what the expected moisture content will be at equilibrium.



*Acclimation of individual blocks*



*Acclimation of strip blocks*



*Acclimation of panel blocks*



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 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 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 all wood flooring would be to acclimate and install at the average level of humidity in your particular facility, which should be in the 35-55% range. (Source: *National Wood Flooring Association Wood Flooring Installation Guidelines and Methods, revised 05/2012, page 10, article B-1 Wood's Comfort Zone. As a general rule, with geographic exceptions, wood flooring will perform best when the interior environment is controlled to stay within a relative humidity range of 30-50%, and a temperature range of 60° to 80° F. In some climates the ideal humidity range might be higher or lower, for examples 25-45% or 45-65%. 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, Mapei PMB, or equal) 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 flat 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/flushed. We recommend low areas be filled with the chosen mastic, and not with a cementitious material. If tolerance is not as specified, flooring contractor shall INSIST masonry contractor 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 blocks 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, 1/2" minimum plywood or hard-board underlayment should be added, glued and screwed to the synthetic surface.

## EXPANSION VOID

Cork strips 1/2" to 1-1/2" wide 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 aiseways 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. For individual blocks, non tongue and grooved strips, and all panels **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, especially for our individually placed blocks. Blocks would sink into the Single Step product during installation, creating significant high and low blocks. Also, the mastic would ooze up between the blocks during installation, and stick them together. For treated pine blocks, use Kaswell S2705 White Adhesive. Adhesive open time up to 2½ hours, but read mastic labels. Always use with adequate ventilation. For panel blocks apply mastic with caulking gun to each hole in the membrane below, and then place the panel on to the sub-floor.

## INSTALLING INDIVIDUAL BLOCKS

Blocks should be well mixed before beginning installation. If blocks are not mixed some clustering may result where several blocks from the same log may be installed next to each other and might appear in a cluster as a different color section than the surrounding pieces. So, be sure to mix them when they are scattered loose on arrival, and continue to mix them during installation. Blocks are to be glued down, and **NOT TO EACH OTHER**. Working to straight lines, or from a straight wall, spread mastic the entire length of the laying line, then place blocks in the desired pattern. We suggest blocks be spaced apart slightly, allowing for some later growth, and so the flooring will look and feel like individually placed blocks. Tape can be used during installation to help maintain rows.

## INSTALLING BLOCKS IN STRIPS UNFINISHED OR PREFINISHED

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. If the installation does not start at a straight wall, requiring a chalk line in an open area of the space, it may help the installer to use pneumatic pins to hold the strips in place, keeping them from moving or creeping before the adhesive sets up.

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.

### Common errors made when installing end grain block flooring:

- Concrete moisture is too high, or flash patch used prior to installation is not dry enough.
- Improper acclimation
- Installing blocks too dry during the dry heating season
- Hard grout filling
- Leaving oil on the surface of an oil finished floor, or not applying enough oil to protect the wood from becoming soiled.
- Too many applications of urethane over the joints
- Too much or too little adhesive
- Wrong grits of sandpaper, no disc sanding or insufficient disc sanding to remove fiber pull.
- Installing blocks from cartons.
- Not mixing blocks or strips before installation

Call Kaswell with any questions or guidance.



### 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  $\frac{1}{2}$  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 install 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  $\frac{1}{2}$  tongue, or cut off the groove.

### INSTALLING BLOCKS IN PANELS

Be sure panels are well mixed before beginning installation. If panels are not mixed some clustering may result. Continue to mix panels. Place panels with mastic on to subflooring, maintaining square-ness. Place the first panel in a corner parallel and tight to a temporary lumber filler. Precision manufacturing will allow placement of adjoining panels as close as possible to the next panel. The lines created from each panel must be kept straight and parallel, and an effort should be made to create a lap of at least 3-4 blocks. Straight lines in two directions can be created with square blocks on membrane. We suggest rolling the surface with a 70-100 lb. wood floor roller during installation.

### SUGGESTED SANDING

For individual blocks or unfinished strips use a drum or belt sander with suggested 60, 80, and 100 grit drum paper. **SAVE SAWDUST FOR FILLING.** Disc sand with 100 grit paper, and 120 to 180 grit screens, making sure sanding is uniformly performed, and all drum lines and disc lines are removed. Vacuum clean. Be absolutely sure no liquids (i.e. paint, coffee, water, mud etc.), touch the flooring at this point. Keep everyone out of the room until the surface is protected. If there is a time lag between sanding and finishing, resin spots might appear in some species. They will disappear once finished. After the flooring has been screened and vacuumed; make the first application of oil finish. We recommend Woca Oil, or another VOC compliant oil finish.

See [WoodcareUSA.com](http://WoodcareUSA.com) for more information about Woca  
See [Procoatinc.com](http://Procoatinc.com) for more information about Uroil

DO NOT USE TUNG OIL.

### FILLING

Fill voids, cracks, or spaces between individual blocks, strips, planks, and panels. Filler materials can include stain accepting patch compound, granulated cork, wood flour, a mixture of granulated cork and wood flour, Permachinck (see [Permachinck.com](http://Permachinck.com)), or Rompox (see [Romex.com](http://Romex.com)), or a mixture of wood flour and the chosen finish. For detailed information on product and technique of application for filling voids and cracks, please request our “[Filling Voids and Cracks](#)” information sheet. Refer to Woca second application instructions. Make sure paste filler is the same color or darker than the wood. It should not be lighter in color.



*Filling process*



## WOCA OIL FINISHING INSTRUCTIONS

### APPLYING WOCA OIL FINISH

Woca oil finishes, available in natural or in colors, are NOT top coatings like urethane. They must be applied, and then thoroughly wiped off from the surface. Oil finishing is a PROCESS of applying oils to penetrate deeply into the wood, then wiping and/or buffing all excess from the surface after each application. You may need only make 3 applications, but this will depend on the wood specie. The oil is applied and re-applied until the blocks will not take on any more oil. After each oiling and wiping off excess, the floor MUST be buffed and re-buffed with absorbent towels or other soft cloth so that there is NO oil left on the surface. You cannot overbuff. Continue buffing until no oil is left behind.

Softwoods, like pine and fir, will require more oil than hardwoods, like oak and mesquite. Depending on specie, a fourth or fifth application may be needed to create the uniform hold-out necessary. Inspect the surface at different angles after each oil application, wiping, and buffing. If there remains an uneven or starved block appearance, the flooring must be re-oiled until the uniform holdout is achieved. When a uniform silky, matte surface has been achieved, then no further oiling is needed at that time. However, weeks later the flooring may appear dry and dull. This is normal and to be expected. Resins in the oil will shrink slightly, and the wood will then take on more oil. Re-oiling and re-buffing will return the surface to a "like new" condition.

Oil finishes can be re-applied at any time without surface preparation. If you re-apply oil and it is not penetrating the wood, it means the wood is essentially full. Just remember to wipe off ALL excess oil. And wipe and buff again!

If you prefer a higher sheen/luster, apply a very thin application of Woca Maintenance Gel, then polish with Woca polishing cloths or other soft cloths. Hardwax oils and patina discs will improve luster as well.

**! DO NOT USE TAPE PRODUCTS ON THE FLOOR AFTER SANDING, DURING SANDING, OR AFTER OIL FINISH IS COMPLETE.**

**DO NOT ALLOW WATER OR WATER SOLUBLE PRODUCTS OVER AN OIL FINISHED FLOOR.**



*Buffing Woca Oil*



*Applying Woca Oil using lambswool applicator*

### WE RECOMMEND ONLY ONE APPLICATION OF WOCA OIL PER DAY

#### 1st Application:

Woca Master Oil is considered the primer application. Its role is to act as a base for subsequent oil applications. Choose your starting area and pour the oil into a paint tray. Spread the oil with a 1/4" nap paint roller and extension pole or lambs wool applicator. Roll the oil as if you are painting the floor. Continue to spread oil until finished. Do not buff the oil into the floor, as this forces too much oil into the floor and the oil will be too deep. This may cause later bleed back and prolonged drying. When finished, rest your roller in the paint tray or on cardboard. Inspect for shiny spots. Within 30 minutes buff or wipe the entire surface with clean white towels to remove any shiny spots and/or excess oil.



Coverage may approximate 130-170 sq. ft. per liter. It is best to let this (primer) application dry and harden for 24-48 hours.

 **ALL FURTHER OIL APPLICATIONS MUST BE THOROUGHLY WIPED OFF FROM THE SURFACE. DO NOT ALLOW THE OIL TO BUILD.**

### 2nd Application and Filling:

The second application can be made with a mixture of Woca Master Oil and wood flour to fill joints and spaces between blocks, if they are to be filled. The oil is mixed with the sanding dust that accumulates in the drum sander bag during drum sanding. This filler mixture can be forced into the voids with a sponge trowel or rags, then buffed clean with a towel to remove excess. Buff with white towels to remove excess oil. You can not over buff. Let this application dry and harden before commencing with the third application.

### **BEFORE THE 3RD OIL APPLICATION (URETHANE OVEROIL OPTION):**

Urethane can be applied over Woca Master Oil. If a urethane is to be applied, it must be applied after the second application of Woca Master Oil. If urethane is to be applied you must allow the first and second application of Master Oil to dry thoroughly and cure a minimum of 3 days. **Warning:** No further oil applications can be made after urethane finish has been applied unless the floor is re-sanded back to bare wood.

### 3rd Application

If you proceed with Woca Oil, the third, fourth and fifth applications, if needed, are to be made using Woca Diamond Oil Active. We suggest removal of the small center hold of a 3M white pad. Pour a cap-full of Woca Diamond Oil Active into the hold. Place the buffer over the pad and buff and polish the oil into the floor with or without Kaswell green patina discs. Continue polishing as you pass the buffer back and forth across the work area. Coverage should approximate 300-400 sq. ft. per liter depending on specie. Buff the surface with a new clean 3M white pad, then buff with soft white towels to remove all excess oil. You cannot over buff. The Diamond Oil Active will usually pre-harden in 4-6 hours.

However let this application dry and harden 24 hours before commencing with any additional applications for a higher sheen, a very very thin application of Woca

Maintenance Gell can be applied and buffed off. Allow the oil to cure 72 hours before placing rugs and furniture on the floor.

### **ADDITIONAL APPLICATIONS IF NEEDED:**

#### 4th Application:

The fourth application is made using Woca Diamond Oil Active, repeating the process of the third application with or without green patina discs. After the fourth application the floor should appear silky, with a uniform appearance. Pour more oil onto the floor if needed and continue polishing and buffing. Overlap work areas to ensure a uniform finish with no spray residue from previous passes. Always buff to remove excess oil. You cannot over buff. Coverage should now approximate 1,250 sq. ft. per liter. The Diamond Oil Active will usually pre-harden in 4 to 6 hours. However, let this application dry and harden 24 hours before commencing with any additional applications. Allow the oil to cure 72 hours before placing rugs and furniture on the floor.

#### 5th Application:

A fifth application will repeat the process of the fourth application, but WITHOUT green patina discs.

### **WOCA DRYING TIME**

Drying time for careful walking could be after 6 to 8 hours without issue. However, drying time is affected by temperature, humidity, air movement, and exchange. Therefore, we suggest hospital booties be used to protect against damage from footprints, especially from construction boots with a grid bottom. Best to wait until the next day before walking. For Woca applications the HVAC system should be running with good airflow, between 60°F and 86°F, and within 30-60% RH. Full cure after all applications have been made will be 3-5 days after the last application, depending on temperature and humidity. **Caution:** DO NOT INTRODUCE WATER DURING CURE TIME.

Woca Oil finished flooring can be covered if necessary within 12-18 hours after the last oil application. Use breathable covers such as brown kraft paper, RAM board, or a combination of both, or Finished Floor Guard by Pro Tect ii. DO NOT EVER cover the flooring with polyethylene plastic.

### **HOW TO INCREASE THE LUSTER AND/OR SHEEN LEVEL OF WOCA OILS:**

Standard Woca Oils provide a low matte sheen level. We suggest three methods to increase the sheen level.

**Option one (preferred method):** Apply a thin layer of Woca Maintenance Gel. This product is supplied in tubes with coverage approximately 1,000 sq. ft. per tube. Woca Maintenance Gel is to be applied sparingly and consistently. Buff on and off with 3M white pads and polishing cloths. LESS IS MORE.

**Option two:** Apply one or two applications of a hard wax oil to the surface. (Call us for product suggestions). Since very little hard wax oil is to be used, spreading product must be done carefully and sparingly. We suggest using a squeegee applicator with a sharp edge with lots of downward pressure on the squeegee. Pour a small bead of a hard wax oil on to the floor, and carry the bead back and forth from one side of the area to the other using the sharp edged squeegee. Only a very small amount of hard wax oil will be left behind, and that is correct. Work small areas. No worries for overlap marks. Once the spread is complete, buff the hard wax oiled surface with new clean 3M white pads. You cannot over buff. We suggest the last buffing be done with a soft cloth or felt. This will polish the surface slightly. Allow to dry overnight.



Patina Discs on a 3M white pad

**Option 3:** Use patina discs, available in 400, 600, and 800 grit. They are edger type discs that adhere to 3M white pads with velcro. Start with 400 grit patina discs. The resulting luster may be sufficient. If not, try 600 grit patina discs, etc. The procedure is as follows: Apply Woca Diamond Oil Active to the surface. Disc the oil on and off with the patina discs/white buffing pads. Towel buff off all excess, then re-oil without patina discs and towel buff off all excess again. The last buffing should be done with a soft cloth or felt. This will slightly polish the surface. Allow to dry overnight before using. **BE SURE NOT TO ALLOW** the hard wax oil to build on the surface. If you are not sure of the results, dry buff again. The results should be the same as before, but with a slightly higher sheen.

**Woca Oils** are Volatile Organic Compound FREE. In 2007, new regulations were introduced in the European Union regarding VOC levels in coating materials. All Woca Products fulfill these regulations.

Woca VOC free oils have the following features:

- Positive influence on the working area and living environment. Improvement of product characteristics and application methods. No effect on indoor-air quality.
- Woca products are certified by independent laboratories, the German Institute for Biological Building Materials, and are in accordance with DIN-Norm 53-160. Woca WoodCare Denmark products meet or exceed the most stringent US standards for volatile organic compounds.

Woca Leed Rating: Woca is a plant-based non-emitting finish, which complies with South Coast Air Quality Management standards and always qualifies for the following LEED credits in the chart below.

**! AVOID SPONTANEOUS COMBUSTION WATER-SOAK ALL OILY CLOTHS AFTER USE AND PLACE OUTSIDE OF BUILDINGS AND AWAY FROM COMBUSTIBLE MATERIALS.**

### DIRECT APPLICATION FOR URETHANE FINISH

For urethane application directly on the wood surface, either water based or solvent based, we recommend Bona Woodline Satin or Bona Traffic water based urethane. Visit [Bonakemi.com](http://Bonakemi.com) for instructions. Solvent-based urethanes are preferable, but water-based urethanes can be applied with care. Four applications of urethane may be needed. Always apply thin coats until the surface is uniformly sealed. NOTE: There are many excellent urethane finishes for wood flooring, including Bonakemi. In all cases the finishes should be a commercial or industrial brand. Coverage rates on finishes will vary depending on the wood specie. We suggest checking with us before purchasing your chosen 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.**

Environmental Feature	Leed Credit	Lead Points
Rapidly Renewable Materials	Materials and Resources (MR) Credit 6	1
Low-Emitting Adhesives and Sealants	Indoor Environmental Quality (EQ) Cr. 4.2	1



## Monthly/quarterly maintenance procedures using Woca Cleaning Oil

### CARE & MAINTENANCE INFORMATION PREPARED BY WOCA FOR THEIR OIL FINISH ON KASWELL WOOD FLOORING

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

#### Daily Maintenance

For dirt, drips spots etc., sweep/dust/vacuum regularly using brooms or a cotton cover on a swifter style mop. Woca

Natural Soap is available in a spray bottle for easy, touch up wipe ups. Using this light fine mist spray is an excellent way to prevent future stains. Please be sure to wipe away all liquid. Excessive water will damage wood flooring.



The care and maintenance schedule for this type of cleaning may need to be adjusted based on the look of the floor from water, traffic, etc.

**Objectives:** To leave large floor areas clean of dirt and free of scratches from foot traffic.

**Items needed:** Slow speed buffer, WOCA Commercial Cleaning Oil, Woca green patina discs (optional) for under a white buffer pad, and absorbent cloths around white pads.

**Working Method:** Spray WOCA Cleaning Oil on the surface area. using 3 green patina discs (optional) with 3M white polishing pads. Wet buff the WOCA cleaning oil on the floor. A second pass with the buffer, with WOCA polishing cloths or cotton rags wrapped around a new 3M white pad must be used to remove the excess oil. The results may be dependent on the use of patina discs, which add abrasion to the process.

**Drying Time:** The oil is dry on the surface within 1 hour. A further dry burnishing is recommended to remove latent film on the floor that is attractive to dust. Any oil that remains damp at the start of the dry burnishing stage should be quickly buffed with patina discs beforehand. This serves to convert the oil into a past and ensure it is picked up by the burnishing pads.

**Productivity:** A 2-man squad should complete at least 700 sq. ft. per man per hour. After 2 hours of drying, one man should dry burnish the area before traffic begins walking on the floor.

**Pros:** Cures all the ills the floor may accumulate. Cleans the floor without using water. Keeps the floor saturated with oil helping to keep dirt on the surface instead of deep into the wood grain. Sections can be done at regular intervals. No building closed. Work can be done in the evening and walked on in the morning.

**Cons:** Areas cleaned with oil must be dry burnished during the same shift (no later than 4 hours). If not, a film may be left on the floor that will attract dirt and dust.



Woca Commercial Oil Cleaner



## UnoCoat® Uroil Finishing Instructions

UnoCoat® is an all in one color and finishing system, available in 34 colors. UnoCoat® is an oil finish, modified with urethane, recommend in 3 applications that protects the wood from within. The results are a natural looking floor with low maintenance and excellent abrasion resistance.

### Floor Preparation and Mixing

Vacuum and tack thoroughly to remove all dust before starting the application process. Shake or stir the UnoCoat® Part A container. UnoCoat® Activator Part B may then be added directly into the Part A Container. The proper mix ratio is 10:3. Allow the Activator Part B to react with Part A for 5 minutes before use. Once Part A and Part B have been combined, the pot life is 3 to 4 hours.

**Do not flood the floor with UnoCoat®.** Use just enough to spread across the surface and achieve thorough coverage. UnoCoat® does not have to penetrate deeply, nor build a film at the surface. It will generate an advanced fiber bond.

Excess UnoCoat® must be removed within 10 minutes of application. We recommend working in 50-100 sq ft sections, (or any size you can finish within 10 minutes of application).

**Warning: Oil saturated cloths, pads, and sawdust/wood flour can spontaneously combust, and must therefore be placed in water or kept in a sealed metal container.**

### Application Procedures

#### Estimated Coverage Rates

One quart of UnoCoat® will have an approximate coverage of 300 sq. ft. This coverage may vary with wood species, sanding methods, and materials.

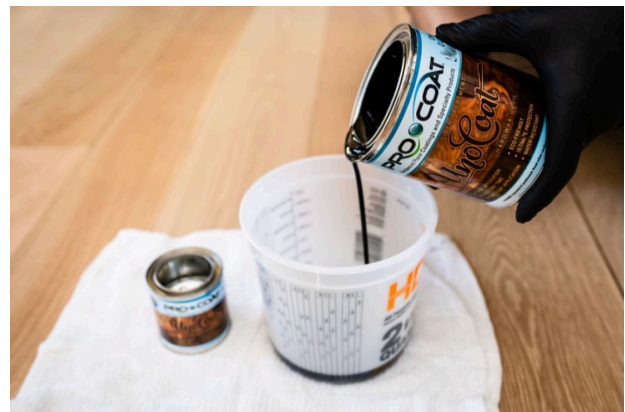
Estimated:

- 1st Application: 200-300 square feet, recommended let dry overnight/12 hours.
- 2nd Application: 300-400 square feet, recommended let dry overnight/12 hours
- 3rd Application: 400-500 square feet, recommended let dry overnight/12 hours

No abrading needed between applications.



UnoCoat® Colors



Mixing UnoCoat®



## Drying and Cure Times:

Light Use: 12 Hours  
Normal Use: 24-48 Hours  
Full Cure: 3 days

Begin spreading UnoCoat® along the walls and corners of your section. You may use a brush or the 4" center of a buffer pad. UnoCoat® will immediately begin to bond with the wood fibers. Within 10 minutes of application remove all excess UnoCoat® with a clean terrycloth. Once you have finished the perimeter of your section, it is time to begin field application.

## Buffing Method:

Remove the center piece of a red buffer pad. Place the pad on the floor and pour UnoCoat® into the center hole. Place the buffing machine on to the pad and begin buffing your section. Buff section until it appears to ensure an even application before adding more UnoCoat®. Once UnoCoat® is evenly spread over your section you can begin removing the excess. Replace the red pad with a clean white pad. Begin buffing/removing excess UnoCoat® Buff with the white pad until the floor appears dry. Once completed, add a clean white terry cloth under a white pad. Begin buffing/polishing your section one last time. Double check that no excess UnoCoat® remains on your section prior to moving on.

## Trowel Method:

Using a stainless steel trowel to apply a uniform this coat to the surface. Achieve appropriate coverage. Resume buffing method recommended for UnoCoat Application.

Drying and Cure Times:

Light use: 12 hour  
Normal Use: 24-48 hours  
Full Cure: 3 days

## Maintaining UnoCoat Finished Flooring



For routine cleaning use ProCare Citrus Floor Cleaner. This cleaner will not produce streaking residue, nor create film build. ProCare Oil Refresher may be used up to four times per year when the flooring begins to appear dull. This maintenance oil will enhance the richness of the flooring while providing increased protection and water resistance.

Note: Refrain from using all-purpose cleaners, waxes, vinegar, or polishes. These will degrade finishes over time. Please write to [kaswellflooringsystems@gmail.com](mailto:kaswellflooringsystems@gmail.com).



*Applying UnoCoat® using the trowel method.*



*Removing excess UnoCoat® with a standard buffer and white pad.*

Buff with 3M white pad until floor appears dry. Once that is completed, add a clean white terrycloth under the white pad. Begin buffing/polishing your section one last time. Double check that no excess UnoCoat® remains on your section prior to moving on.

Repeat perimeter application and field application for each section until floor is completed.

## CARE & MAINTENANCE FOR URETHANE FINISHED WOOD FLOORING

By following these basic instructions, you can ensure your urethane finished wood floors remain clean and well maintained without risking damage from excess water or abrasive particles.

1. **Frequent Sweeping or Vacuuming:** Regularly remove dirt and debris by sweeping or vacuuming with a soft-bristled broom or a vacuum cleaner with a floor-brush attachment.
2. **Avoid Excess Water:** Always use a PH neutral cleaner (such as Bona Hardwood floor cleaner) when cleaning urethane finished wood floors to prevent damage to the finish and/or wood flooring. Bona mist mop/swifer type applicators are recommended.
3. **Spill Cleanup:** Promptly clean up spills to prevent staining or damage to the flooring. Use a damp cloth or recommended Bona hardwood cleaner in misting applicator.

For more detailed information on care and maintenance for end grain wood flooring products contact a Kaswell representative.

## 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. Use mist mops. Never use string mops.
8. 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 with questions.

## 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. 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 job site. 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 also 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 Kaswell wood flooring, 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.