

2015 FABRICATION GUIDE

Richlite® is a versatile material that can be used in numerous applications and multiple fabrication settings. The following document describes how Richlite paper composite is received, handled, and fabricated. The guidelines should ensure that your experience with Richlite is informed and positive. Richlite is not like any other material available. By following the instructions below, it is not difficult to fabricate and the results are tremendously rewarding.

Provided only as a sheet-good with a factory surface and factory rough edge cuts, Richlite can be fabricated with stone, solid surface, and wood tooling. For more detailed answers to any questions or information below, please contact your local distributor.

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DELIVERY, HANDLING, & STORAGE

DELIVERY OPTIONS

Richlite is shipped from the distributor's warehouse or drop-shipped from the Richlite Company factory (Tacoma, WA). You may also 'will call' shipments at your local distributor's warehouse. Please contact your distributor for additional freight options and policies.

- All orders, including drop-shipments, must be placed through distributors.
- Richlite material is shipped on heat treated pallets, covered in plywood and/or Cor-X.
- A forklift will most likely be required at the receiving location. Full pallets are approximately 3,000 Lbs.
- Consider accessibility to site or shop, including hours of operation.
- There will be additional charges for Limited Access Deliveries, Lift Gate, Residential Delivery, Notification/Appointment Required. These must be noted prior to shipping. A charge will be incurred from the freight company if not notified prior to shipping.

INSPECTION

Every effort has been made to provide high quality material, free of defects. However, you, the fabricator, must:

- Inspect material immediately upon receipt or at time of will-call.
- Conduct a final inspection prior to fabrication.
- List of what to look for:
 - Color: Color, shade and grain of the panel may vary from samples. Patina and oxidation will affect product color (lighter colors in particular). See attributes for details.
 - Striations: Striations are normal in the product. Striations appear as mottling running in a grain pattern following the length of the panel. Occasionally, slightly darker straight lines will appear running the length of the panel. These are normal lines from the paper making process
 - Wrinkles: These will generally appear as a very dark jagged line running diagonally across the panel. This is not normal and should be returned as warranty.
 - Surface Conditions: Most marring or light scratches can easily be cleaned up with a wet rag. Please contact your distributor if you see bigger bumps or divots.
 - Thickness: Tolerance is +/- 4%.
- If the material is defective or flawed you can either:
 - Avoid flaws via part placement on sheet.
 - Order replacement material and initiate a request for credit.
 - Please be aware that Richlite warranty does not cover labor so pre-fabrication inspection is very important.
- Selecting the side to use:
 - Evaluate both sides of the sheet to determine which side is more desirable to use. There is no "A" or "B" side to Richlite.

REPLACEMENT MATERIAL

Do not notify the factory. Notify your Richlite distributor by sending an e-mail message which includes:

- Photos of the material in question
- A copy of the invoice for the effected material (PO#, SO#, Invoice#, Etc.) should be listed on the invoice.
- A written description of the defect.
- Any other pertinent information.

Your distributor will respond with either a return authorization and/or approval or denial of a credit. Credit memos will typically include the original cost, plus freight for the replacement material and freight for the returned material (if applicable). The credit memo will be issued upon confirmation the warranty material was returned.

NOTE: Richlite does not supply credits for fabrication or material handling costs. Pre-fabrication inspection is critical to insure that defective material is not fabricated.

STORAGE & HANDLING

- Do not store Richlite uncovered. Place a piece of plastic 7mm or the Cor-x® that came with the shipment on top of the Richlite.
- Richlite weighs 6.5 lbs per square foot at 1" thick.
- Store between 40-80 degrees Fahrenheit.
- Do not over stack.
- Store flat, do not store on edge.
- Stone forklift edge clamp can be used.
- Anver® vacuum lift VPF-57-DC is ideal for forklift or gantry material handling.

CUTTING

ROUGH CUTTING

Rough cutting Richlite is a quick way to process panels that do not require a finished edge. Some examples include exterior paneling, non-visible fabricated edges, and mating assemblies and industrial applications. Due to the weight of the material, stationary cutting with a circular saw, panel saw or CNC router is preferred over table saws. While CNC routers are a good tool for certain operations as noted below, rough cutting and routing by hand is a very efficient way to process Richlite. The factory rough cut edge is to exact stated dimension and not oversized.

- Festool® track saw is ideal cutting setup.
- Standard circular saws can be used but will often leave saw marks due to less stable nature and lower rpm motors.
- Single pass cutting can be achieved if the proper blades are used. Appropriate feed speeds are critical in this situation and will be a function of thickness, and even in some cases color.

FINISH CUTTING

Finish cuts can be made with a high quality circular saw like a Festool® track saw or worm drive high horsepower unit. Feed speeds and high rpm's will ensure a clean cut. Taking a very light pass with a sharp proper blade can provide a cut that can be minimally sanded to achieve a quality edge treatment.

- An even rate of speed will prevent burn marks which can be routed off, but are difficult to sand off.
- For mated seams, routing or finish cutting will result in a tighter seam.
- Sliding table saw speeds between 3,450 RPMs and 4,000 RPMs
- Jig saws and hole saws are not recommended as a tool for Richlite as the blades tend to wear out very quickly.

EQUIPMENT

Saws

- Festool® model TS 75 or TS 55
- Circular saw
- Sliding table saw

Saw Blades

- Festool® #495387 10" 80 tooth, negative 5 degree hook. Kerf 2.5 mm
- Festool® #495386 Solid Surface/Laminate Blade For The Kapex Miter Saw - 64 Tooth
- Amana Tool® Double Sided Melamine and Laminate Blade Line "MB" series
- FS tool 7.25 x .115 x 5/8 x 40T, triple chip negative hook
- Laminate and melamine blades from various manufacturers that follow general specifications of the above blades.

ROUTING

Routing is recommended as saw marks can be very difficult to remove with palm sander and a proper routing setup can often provide a very high quality finish that minimizes sanding and finish work. Rough cuts to be routed should be made as close as possible to finished dimensions, leaving only enough material to make a final pass or to finish with a router or sander.

FINISH EDGE ROUTING

After cutting with a saw, a finished edge can be cut with a router.

- 1/64" of material or less for finish pass.
- Large diameter bits and larger horsepower routers will provide a smoother finish cut.
- Smooth and consistent feed speeds without hesitation will avoid burning the edge.

PLUNGE ROUTING

For inside shapes and large holes, plunge routing is the best solution.

- Large shapes and interior cutouts can be cut using templates.
- Use a stepped cut and do not plunge all the way through the material. A good rule of thumb is to use no more than the diameter of the bit as your depth of cut per pass.
- When cutting out a small hole, make multiple passes and use a jig to ensure a safe operation.

PROFILE ROUTING

Any standard wood or stone decorative, round-over, or chamfer router bit profile can be cut into Richlite. Route the edge detail or round-over per client specification. Use a sharp carbide bit and an even rate of speed to prevent burning. Multiple passes may be required for removing large amounts of material and deep profile shapes. Sand the edge detail by hand or with sponge sanding blocks. Due to the way Richlite is manufactured, sharp square edges can be achieved but are prone to impact damage. At minimum, a 1/16" chamfer or radius is suggested.

EQUIPMENT

Routers

- 3 ¼ Horsepower minimum
- Variable speed
- Solid carbide straight flute bits
- Standard carbide profile bits
- Festool® track Saw

CNC MACHINING

Richlite is a very dense product. It is very important to have a specific router bit for cutting it to protect the machine, the router bit and the safety of the operator. CNC machining is an excellent way to fabricate curves and large cutouts. Feed rates with CNC routers and machining centers vary depending on the tool. Please consult your machine tool sales person for more information regarding the specific application of cutting cellulose sheet phenolic resin panels.

The following technique is a good baseline to start:

- Machine example is MultiCam® 5000 Series.
- 1" to 2-1/4" – rough cut with Her-Saf® 1/2"+.015", or Vortex 5853, leaving an "onion skin" vacuuming out the dust from each pass, and finish with 1/2" compression. Feeds and speeds are 175 ipm (inches per min. or 4400mm/min.) and 16000 RPM for both.
- 1/4" to 3/4" – rough cut with 2 flute 3/8" down cut spiral or Vortex 4250 at 18000 RPM and 300 ipm leaving an "onion skin" vacuuming out the dust from each pass, and finish with 2 flute 3/8" compression bit at 18000 RPM and 200 ipm.
- Max depth of cut is 1/4" per pass. Rough cuts are 1/64" over-sized from final dimensions. Final pass cuts the 1/64" at full depth in a single cut, and the length of lead in (and lead out) of the cut are twice the thickness. Typically for all parts processed we do not cut all the way through the material until the finish cut. Leave a small "onion skin" (about 0.02" thick) at the bottom to help hold smaller pieces in place. Always lead in and out of cuts at a 45 degree angle with a 1.5" lead in.
- Drilling: Rotation 4000 RPM, lowering speed for 5mm bit is 1500mm per minute, slower for larger bits.

RECOMMENDATIONS / OTHER EXPERIENCE

Her-Saf® bits are good to use for the roughing process. These bits are designed with a removable down cut head 5/8" in length. The cost of the head is about half of the solid carbide spirals, and are interchangeable with other sizes. Primary bit is the #H-0515 (1/2"+.015") on a 1/2" shank. The extra .015" is intended to make a full dado cut in a single pass for 1/2" material. That extra size also makes a good amount of clearance for the rest of shaft when cutting deeper than the cutting head. One can use two different lengths of 1/2" shanks to mount the bits. The #HA-50AL is a 2-3/8" shank that is good for material up to 1-1/4" thick, and the #HA-50AT at 3-1/4" length works for material up to 2-1/4" thick. (www.hersaf.com)

When using the Her-Saf® bits (or any downcut bit) to cut Richlite – Remove the dust from each pass. Vacuum it or blow it out with compressed air – removing the dust from the cut on each pass will double the life span of your downcut bits. Spraying bits with Bostik® Bladecote™ (formerly known as DRICOTE®) will also lengthen tool life considerably.

For the finish bit use Onsrud® #60-172 1/2", 2 edge compression bit, 1 5/8" cutting edge to remove the final 1/64" at 16,000 rpm and 4,400 mm/minute. This gives a very good finished edge for material 1" to 1 1/2" thick material, and lasts much longer. This bit will not work on 3/4" or thinner material because of its cutter configuration. For the 3/4" material use Onsrud® #57-320 (3/8" 2 edge downcut spiral) for rough cuts and Onsrud® #60-123MW (3/8" 2 edge Compression bit 7/8" cutting edge) for the finishing cut.

DRILLING/TAPPING

THROUGH-HOLE DRILLING

Through-hole drilling is very similar to drilling into wood or MDF. Speed rate should be set to avoid burning or polishing the inside of the hole. Holes drilled completely through Richlite should consider tolerances of overall parts being fabricated. Part assemblies that are casework construction, attached to metal or wood, or exterior applications such as cladding should have oversized holes to accommodate the expansion and contraction of the materials. Richlite is very stable and strong and the other materials can be damaged if not considered for movement.

PILOT HOLE WITH NO TAPPING

Drill a pilot hole that is slightly smaller than the screw thread. Because of its density, Richlite is nearly impossible to screw into without a pilot hole. The pilot hole should be slightly longer than the screw. You may not be able to penetrate the hole further after your screw reaches the end of the pilot hole, and there is a possibility of damaging the product or pushing through the other side.

- Pilot holes for pan head sheet metal screws:
- #8: 9/64" – 5/32"
- #10: 11/64" -3/16"
- #12: 7/32" -1/4"

PILOT HOLE FOR TAPPING

Richlite is able to be drilled and tapped and has very good screw holding ability with this process. Plastic expansion inserts are not recommended as they tend to be engineered for soft compressible material and will not grip properly in Richlite. Standard tap drill specifications for metals can be used on Richlite.

EQUIPMENT

- For small holes use titanium or cobalt bits
- Step drilling up from smaller sizes to larger will insure accurate hole dimensions and location accuracy.
- Hole saws are not recommended for use on Richlite. Due to its density and heat retention, hole saws do not remove enough material to work effectively before wearing out.

SEAMING / GLUING / FASTENING

BISCUITS

Do not use traditional wood biscuits as they will not expand nor provide a mechanical advantage. Place Lamello® K20 clamping plate every 6" starting with the first biscuit 1" from the side. It is important to do a dry fit because if it is not tight fit during the dry fit, it will not be a tight fit once epoxy is used. Cut a slot in the center of the material, indexing from the top as Richlite may have slight thickness variation. Biscuits are engineered with a directional "tooth" that will be difficult to remove in the direction opposite the tooth. To remove the biscuit after dry fit, grab the tip or point end of the biscuit and pull in an arc away from the opposite end.

SPLINES

1/4" Richlite splines are an excellent choice for strength. Cut so that when installed in the slot, the grain (paper layers) in the spline follows the same direction as the grain in the sheet.

TIGHT JOINT FASTENER or "DOG BONES"

For use in non-structural situations only, these are ideal for field installations by sub-contracted or remote site installers.

EPOXY ONLY

Make sure that the joint gluing surfaces are roughed-up, 100 grit or less, for better glue adhesion. Do not over-tighten clamps to keep enough glue in the seam. Vacuum clamp fixtures work well for surface alignment.

MECHANICAL FASTENERS

Mechanical fasteners are acceptable for situations where there is access to install them.

BUILT UP ASSEMBLIES

Richlite is currently being specified in applications where stack laminations are required. Examples include mold and die units, part assemblies, extra thick design elements, and countertop or casework built up edges. Please note the following guidelines when fabricating these assemblies.

- It is critical for this application to have the mating surfaces of the material to be abraded before being glued together. This applies to both stack laminations as well as mitered or butt-joined fabrications.
- If the surface is not abraded sufficiently, with 100 grit sandpaper prior to glue up, there will most likely be failure in the joint at some point due to moisture or impact. The mill finish and machine cut edge are both highly resistant to proper adhesion regardless of adhesive due to the low porosity of the material.
- The built up edge needs to be at least 1-1/2" deep to insure enough surface area for the mating parts to adhere and not create an imbalance on the front edge of the material. Any edge less than this will be prone to movement and instability.
- Mitered edges are acceptable and require the same abrasion technique on all mating surfaces. Any mitered edges less than 3/4" should be backed by a support block of Richlite.
- The edge of Richlite is not the same as the face of the panel and a built up/stacked edge will not look the same as a mitered edge.
- There are no maximum build-up dimensions.

- Built-up or mitered material must be ½” thick or more.
- Two part water resistant epoxies formulated for thermoset resins or phenolics are recommended for this application. Most other countertop adhesives WILL NOT be appropriate for use with Richlite. We suggest System Three® T-88 for any structural bonding. Loctite® E-30CL or Devcon® DEV-20845 5 minute epoxy are also acceptable.
- Screw clamps must be used to set the built-up edge to ensure a good bond with structural epoxies. SPRING CLAMPS WILL NOT WORK.
- These are general guidelines and it is recommended that any fabrication techniques be tested by the individual fabricator as each situation may have differing parameters that will affect the performance of the joints and laminations. These guidelines do not imply any warranty of work provided by independent fabrication companies and are superseded by the Richlite material warranty.

EQUIPMENT

Clamps

Traditional mechanical screw type and vacuum clamps. Screw clamps are required to ensure a good bond with structural epoxies.

Biscuit Cutter

DeWalt® 3751-5 minimum power- 6.5 amps

Two-Part Epoxies

- Industrial Epoxy formulated for Thermoset Resin or Phenolic Resin
- 5 Minute General Purpose Epoxy: Devcon® DEV-20845
- Loctite® E-120HP, Hysol
- 3M™ Scotch-Weld™ Epoxy Adhesive DP125
- System Three® T-88 for anything structural (Available for purchase at systemthree.com)

Edge connectors

- 1/4” Richlite splines
- Lamello® K20 Clamping Plate
- Mechanical Joint Fasteners such as KV 516 Tite Joint Dog Bone Fastener or draw bolts.

NOTE: Do not use standard #20 biscuits. Lack of water in epoxy does not expand biscuit.

MATERIAL SURFACE OPTIONS

Surface Preparation

Richlite is provided from the manufacturing facility with a “mill surface.” Some applications will require an applied surface treatment for the best long term performance, both visually and functionally. The three options for how the surface of the product can be provided are described below.

OPTION 1: Mill Surface

The “mill surface” has a slight texture that is created in the manufacturing process and acts like a light skin over the faces of the panel. No finish is applied as a surface treatment.

For exterior applications, a dry factory finish is recommended. If sanded and placed in an exterior environment, the surface will oxidize rapidly and appear chalky and dry.

Pros: more durable, no additional work for surface preparation or finishing; scratching and wear are less apparent over time.	Cons: material that has been handled may have slight abrasions, not repairable or restorable to exact finish from factory. Top surface alignment critical and requires additional attention.
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Examples: industrial parts and sub-assemblies, exterior cladding, interior wall panels, benches and seating, high wear area assemblies and furniture, and interior and industrial work surfaces.

OPTION 2: Leathered

Any of the finishes listed in the applied finishes section can be applied to a Richlite panel with factory surface. The surface is slightly more durable as this skin from pressing has not been removed or altered. The mill surface cannot be reproduced and seaming is more critical since the seams cannot be sanded or feathered like they can be with a sanded finish.

Pros: more durable, no additional work for surface preparation; scratching and wear are less apparent over time.	Cons: material that has been handled may have slight abrasions, not repairable or restorable to exact finish from factory. Top surface alignment critical and requires additional attention.
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Examples: interior wall panels, seating, high wear area assemblies and furniture, work surfaces and countertops. When used with Osmo® finish, very good for high water use areas. Enhancer is more appropriate for dry applications. See applied finish application for detailed instructions below.

OPTION 3: Honed

Any of the finishes in the applied finishes section can be applied to a Richlite panel to achieve a honed finish which will have light 150 grit sandpaper swirls evident. The honed finish is a more “satin” finish that is very nice for millwork and countertop applications. It is not recommended for exterior applications and does require an applied finish to be put on after sanding to achieve proper performance. If sanded with no applied finish, the surface will start to appear “chalky” and will also pick up oils from fingerprints, food, etc. While Richlite can be polished to a high finish, this is not recommended as it will show scratches and wear very quickly from use.

Pros: more polished and satin finished look and feel, good abrasion and wear resistance, paper patterns and natural look more pronounced, can be refinished and surface repairs are easy.	Cons: slightly less durable surface finish prone to abrasions and hard material wear.
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Examples: interior wall panels, seating, high wear area assemblies and furniture, work surfaces and countertops. When used with Osmo® finish, very good for high water use areas. Enhancer is more appropriate for dry applications. See applied finish application for detailed instructions below.

MATERIAL SURFACE OPTIONS

Surface Preparation Process and Techniques

Leathered (Preparation for an applied finish)

Scotch-Brite™ Only Technique

1. Sand with Scotch-Brite™ on a random orbital sander in 12" circular motion to mildly abrade the mill finish and to remove marring or surface imperfections.
2. Leave any scratches alone as most will disappear with finish and aggressive machining will make a more polished spot in your final overall surface.
3. Clean with soap and water.
4. Apply finish.

Honed (Preparation for an applied finish)

Sanding and Scotch-brite Technique

1. Using a random orbital sander with 150 grit sandpaper, go over the surface area lightly and evenly. There is no need to apply pressure, just enough to keep the sander on the surface.
2. Sand the length of the sheet first.
3. Turn 90 degrees and sand perpendicular to the initial pass.
4. Follow with Scotch-Brite™ in 12" circular motion to even linear sanding pattern.
5. Clean with soap and water.
6. Apply finish.

TROUBLESHOOTING

FIELD VERSUS SHOP WORK

Richlite can be a dusty fabrication process and fabricating or finishing in the field is not recommended. Both the dust created and the Richlite Color Enhancer in a home can create air quality issues that can pose a problem for end-users. Sealing will require the use of blue tape on seams to ensure that overflow of adhesive does not compromise the surface finish.

OVERSANDING

Richlite is made with cellulose fibers (layers of paper). If you sand too aggressively in one area for too long, you will create something to the effect of a "topography" map by burning through a layer of paper. It is most noticeable in darker colors. Be cautious with seams and uneven surface areas (bumps or divots). After applying finish, these may even out, but the lines will never disappear. The contouring is especially noticeable in the Slate Black product and is less so in the Black Diamond.

SANDING TOO AGGRESSIVELY

Will develop an extremely mottled pattern; especially noticeable on Black Diamond.
Use only a random orbital sander on the finish surface with no added pressure.

REPAIR

- Use router dust mixed with epoxy in thick paste form to do small spot repairs. Depth of repair may need to be made deeper for repair to take.
- Use melamine or laminate patch for very small spot repairs.

APPLIED FINISHES

OSMO POLYX

PolyX, PolyX Professional, or Top Oil from Osmo® is a great choice for all around applications. The finish is a hard wax-oil combination that is highly refined so that it does not separate. It performs like an air cured wood finish and does not stay waxy or soft like most oil-wax products. It also acts as a better repellent to water marks, stains, etc. This is the preferred finish for residential use as it has low VOCs and can be field applied. It is compatible with the Richlite enhancer and can be used to spot repair on top of both enhancer and itself. The cure times are longer than a solvent-based product but will set up to the hardness of such finishes at full cure.

Applying Osmo PolyX

DO NOT USE THE INSTRUCTIONS ON THE OSMO® CAN. These instructions are for the floor application of the product and not for Richlite.

When selecting to finish the surface with Osmo®, first abrade the surface as detailed above. Apply the finish as desired, including the edges. The Osmo® has a much longer dry time so you can work at a normal speed compared to the Richlite Enhancer product. Follow with clean dry rags, wiping in a large circular motion to remove excess finish. Buff to an even, matte finish. When the rag becomes saturated, use a fresh rag to avoid streaking.

Osmo® will blend into previous coats and can be used as spot repair for both itself and Richlite Enhancer in the field. Apply one coat, allowing 12-48 hours for curing. It can be put into use sooner but it is best to leave it as long as possible. Full cure is after 48-72 hours. A second coat can be applied for a slightly higher sheen but is not required.

RICHLITE COLOR ENHANCER

Richlite Color Enhancer is a food safe polyurethane finish. It is recommended for both residential and commercial projects and should be applied in a shop environment. It has a very quick flash time which is an advantage for turnaround, but does require skilled application and training to apply correctly. For high water exposure applications, it is not recommended as it tends to show water rings.

Applying Richlite Color Enhancer

When selecting to finish the surface with Richlite Color Enhancer, first sand the surface as detailed above. Although not recommended, if the surface is being finished in the field, it is important to mask adjacent edges and walls to protect them from the finish. Apply the finish liberally across the entire surface, including the edges. Work quickly to avoid streaking. Warm or circulating air will speed the drying time, so these conditions should be avoided. Follow with clean dry rags, wiping in a large circular motion to remove excess finish. Buff to an even, matte finish. When the rag becomes saturated, use a fresh rag to avoid streaking.

If streaks are visible, let the surface dry and Scotch-Brite™ again to attain an even surface. Clean with soap and water and reapply the finish. Color Enhancer will not blend or “burn” into previous coats. Apply two to three coats, allowing 20 minutes between coats. Sanding is not required between coats.

OTHER FINISHES / TEAK OIL / MINERAL OIL

Many finishes have been used successfully by fabricators and installers. Richlite can be painted or finished with most wood or stone finishes. Teak oil, urethanes, and stone finish products have been used by customers with success in the field.

Mineral oil can be used as a “finish” but requires frequent maintenance. Because Richlite is non-porous the oil does not penetrate the surface and water marks may appear from glasses and tableware. Paper products left on a desk surface will pull oil from the surface and leave dry areas. If you are using soap and water to clean your countertops, be aware the soap will expedite the removal of oil and the countertops will start to appear dry and chalky.

EQUIPMENT & SUPPLIES

FINISH MATERIAL

Richlite Color Enhancer. Available through Richlite distributors.

OSMO® PolyX

- PolyX-Oil 3054
- Top Oil 3058
- PolyX Professional Oil 5125
- Any of the above work well. Last one has faster dry time. Use enhancer instructions and not what is on the can. Really need dry time if shipping packaged product. Takes 24-48 hours to set up and cure.

TOOLING and ABRASIVES

Sanders

- Electric or pneumatic random orbital sanders (5"-6" diameter recommended).
- Belt sanders are not recommended! Heat retention will burn Richlite edge surfaces.

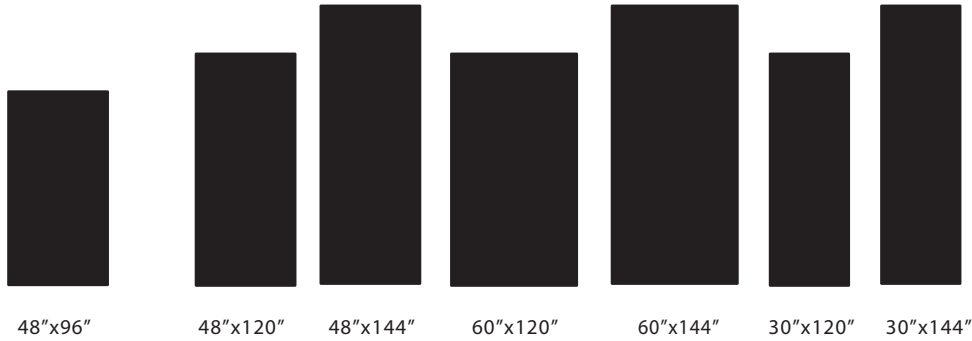
Abrasives

- 150 grit sand paper. This is very important as higher or lower grit will not provide the finish to match the manufacturer provided samples in the specifier boxes.
 - Maroon Scotch-Brite™ Pads (Scuff and Buff Disc, Item # P04-7447)

Other materials

- Clean cotton rags for applying and buffing Richlite Enhancer and Osmo® PolyX.

SIZES, WEIGHTS & THICKNESS



RICHLITE PANEL WEIGHTS

Thicknes	48x96	48x12	48x1	60x12	60x1	30x12	30x1
in.	Weight						
1/4	53	66	79	83	99	Thickness Not Available in These Sizes	
1/2	105	131	157	164	197	Thickness Not Available in These Sizes	
3/4	155	194	232	242	291	121	145
1	206	257	309	322	386	161	193
1 1/4	259	324	389	405	486	202	243
1 1/2	312	390	468	487	585	244	292
1 3/4	359	449	539	561	673	Thickness Not Available in These Sizes	
2	418	522	627	653	783	Thickness Not Available in These Sizes	
2 1/2	520	649	779	812	974	Thickness Not Available in These Sizes	
3	623	778	934	973	1168	Thickness Not Available in These Sizes	

RICHLITE THICKNESS TOLERANCE RANGE

-4%	Fraction	Decimal	+4%
0.24"	1/4"	0.25"	0.26"
0.48"	1/2"	0.50"	0.52"
0.72"	3/4"	0.75"	0.78"
0.96"	1"	1.00"	1.04"
1.20"	1 1/4"	1.25"	1.30"
1.44"	1 1/2"	1.50"	1.56"
1.68"	1 3/4"	1.75"	1.82"
1.92"	2"	2.00"	2.08"
2.40"	2 1/2"	2.50"	2.60"
2.88"	3"	3.00"	3.12"

CARE & MAINTENANCE

EXTERIOR

General Precautions

- For exterior applications, flashing and proximity to metal or water may require additional attention or maintenance.
- Graffiti/Spray Paint: paint and graffiti removal products can be used. Pressure Washing can be used for extreme situations but may alter the factory surface slightly. A more matte finish will be left by this process. Over time the variation will blend with the natural oxidation process.
- Applied finishes or sealers are not recommended as they will tend to flake and deteriorate from UV exposure.
- Normal wear and tear due to elements will change the surface over time and oxidize in a similar way to cedar siding.

INTERIOR

General Precautions

- Richlite is stain resistant to most common substances on interior applications.
- In residential applications, some raw meat juice (such as liver), high-alkaline fruit or vegetables (such as papaya and red beets), red wine and high-alkaline soaps (such as automatic dishwasher powder and oven cleaners) may cause staining when left in contact for a prolonged time.
- The lighter colors in the Richlite color range will show stains more than the darker colors. Additionally, grout (high alkaline) will lighten darker-colored Richlite counters and darken the lighter tones.
- Avoid using bleach products or abrasive powdered cleaners. It is good to avoid using the abrasive side of sponges as this may also scratch the surface of a Richlite countertop.
- Generally speaking, Richlite resists stains quite well. As with most any material, there is a potential for some staining. With stubborn stains, try a nonabrasive household cleaner. A unique stain remover is plain yogurt, applied only on the stain area. Let sit over night for 3-4 applications, wiping away in the mornings, to lighten stains.

Mill Surface

- Often requires very little maintenance due to textured surface.
- Wet rag (soap & water) for other applications.
- Cleaning agents may affect the surface which is not protected by an applied finish.
- Repairs – very difficult to repair as the textured surface will show any changes and cannot be reproduced.

Leathered Surface

- Warm water and sponge for daily cleaning. Mild soap can be used if needed.
- Howard Naturals Wood Cleaner and Polish or mineral oil can be used to renew the look and feel of the finish.
- Repairs – OSMO® PolyX is a very good spot repair product that can be applied by the end user. Wipe on a small amount and buff into adjacent areas. Allow to dry 24-48 hours before full use. It is compatible with Richlite enhancer and blends very well to a similar finish.
- Do not sand the surface as it will disturb the Factory Surface which cannot be reproduced. Minimal Scotch-Brite® work can be done prior to applied finishes.

CARE & MAINTENANCE (con't)

Sanded Finish

- Warm water and sponge for daily cleaning. Mild soap can be used if needed.
- Howard Naturals Wood Cleaner and Polish or mineral oil can be used to renew the look and feel of the finish.
- Repairs –
- Finish: OSMO® PolyX-Oil. See instructions above.
- Refinishing should be advised by the dealer or fabricator who installed the counter. In most cases, it is preferable if the trained installer refinishes the surface.
- Light scratch marks and burn marks can be refinished using a Scotch-Brite™ pad (#7447/Red Color) on a random orbital sander.
- It is important to note, the refinished area will noticeably lighten compared to the surrounding surface area. Richlite surfaces are made of paper which, like wood, patinas – or darkens – over time, especially in the lighter colors other than Black. The area will eventually patina and match the remainder of the counter surrounding it. In order to avoid affecting one spot, a full sanding and refinishing the entire counter is required, but this is an intensive and not an inexpensive process versus spot treatment.