



## **Kirei Board Fabrication Tips and Tricks**

*(\*Note: these fabrication suggestions are offered as guidelines and suggestions only. Kirei Board is a natural material with variation in raw materials as well as surface look and finish. This may cause variation in color, surface finishing and edges. Final design, fabrication, finishing and installation of Kirei Board should take this variation into account, and be done by qualified professionals.)*

*Kirei Board mills and finishes much like wood. The same tools, adhesives and finishes used for wood also work for Kirei in nearly every situation. However, as a straw-based material, Kirei Board is softer and more porous than wood, so it is important to note this and change fabrication techniques accordingly.*

**Cutting:** Kirei Board can be cut cleanly when cut with care and high-quality equipment. (Standard plywood/composite wood finish saw blades). The edges of Kirei Board have a tendency to chip when cut. Also these edges can be a bit “flaky” if left unfinished. To ensure clean cuts we recommend finishing the sheets with a coat of sealer before cutting, then sanding and finishing the edges once cut. This will minimize chipping and flaking, and result in cleaner cuts and finish.

### *Chipping and Putty*

If chipping does occur, it can easily be filled using standard wood putty. We generally recommend darker putty to keep the putty areas less visible after finishing. On large areas multiple colors can be blended to match the natural pattern of Kirei Board.

### *Routing*

Due to the friable nature of Kirei Board edges routing can be difficult - but not impossible. Use a high speed (20,000 RPM) double-fluted bit and be sure to have putty available to finish the edges. Bits with intricate details, such as an Ogee with a Fillet are discouraged as the friable edges won't take the detail uniformly. Prefinishing the edge with a urethane-type finish can also keep the edge cut cleaner.

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### *Joining*

#### *Adhesives*

Most standard wood adhesives work with Kirei Board. Kirei Board is very porous and may soak in some adhesive, so it's best to test out the join on a sample before final joining is done. Kirei Board takes biscuits and splines and can be mitered for a waterfall edge if care is taken to prevent as much chip out as possible, but an easier method is to cut a rabbet joint. Kirei board is laid in roughly 5mm plies on the surface, so the rabbet's depth can be set to match these breaks between plies. This method can be more desirable as it requires cutting a joint in only one of the boards, increases the glue surface, provides support and alignment for the boards, and the heavily figured Kirei Board does well to hide the joint.

#### *Nails/Screws*

Kirei Board is made from sorghum straw and a small amount of poplar wood. Kirei screw holding power is less than wood or plywood of comparable thickness. Screws hold better on the face when they go through at least one layer of poplar rather than on the edges where they do not engage any poplar. In high traffic areas or where more screw hold is required small plates of plywood should be attached to provide a secure mounting plate for hinges or pulls. Finish/Brad nail holes are easily hidden by the figure of the Kirei Board with by using wood filler or putty.

### *Finishing*

#### *Natural Material, "Natural Surface"*

Kirei Board is a natural material with a rough or "Natural" surface and color variations within sheets and from sheet to sheet. This will result in a variation of surface on finished products.

#### *Test First!*

*Kirei Board is a porous material made from sorghum straw and poplar wood. The end and edge grain of the straw make up the face of the material. This results in varying absorption of finishes and stains. To ensure the desired finish, select your finish and test first on an unfinished scrap of Kirei Board. This will help avoid surprises as you finish your project.*

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### *Finishes*

Nearly all standard wood finishes can be used on Kirei Board. Oils, waxes, urethanes, conversion varnishes and polyester/epoxy resins all have been used on Kirei Board with success. Follow manufacturer directions for successful finishing results. We recommend low or zero-voc finishes. Kirei will not be responsible for improperly finished materials.

### *Stains*

Nearly all wood stains can be used on Kirei Board. Kirei Board is more porous than wood and stains soak in faster than on wood. This can result in overstaining or uneven staining if stains are not applied carefully. Many finishers apply stain and immediately wipe off the excess to leave a thin coat of stain that enables the color to be seen along with the grain pattern. To ensure the desired finish, select your finish and test first on an unfinished scrap of Kirei Board. This will help avoid surprises as you finish your project.

### *How do I get a smooth surface on Kirei Board?*

Kirei Board has a rough unfinished surface. For many this is the appeal of the material. For other applications such as tabletops or countertops a smooth, more solid and waterproof surface is desired. This type of surface can be achieved with multiple coats of a grain-raising sealer, sanding between coats to achieve uniformity between the poplar bonding layers and sorghum material. Coats of varnish or an appropriate finish following manufacturer directions can then be applied for the desired finish. Grain filler can also be used as a first coat to fill the voids in the surface. One coat applied by rag across the grain, followed by another applied with the grain tends to be the best method, with care taken to work the filler into the deeper pores. Some fabricators coat the entire surface with putty, then sand off the putty to a smooth surface before finishing to fill the voids and give an more even surface. Voids will typically remain on a finished surface unless a grain filler or thick resin is used. Polyester or epoxy resin create a thicker finish that fills the voids and is durable enough to handle high-traffic or hospitality/transaction counter applications

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### *Countertops*

Kirei Board can be used for countertops in appropriate settings with appropriate finishing. Kirei Board has been used in Kitchens, bath vanities, bars, tabletops, transaction counters and other horizontal applications with success. Be sure to use an appropriate finish for expected traffic and water exposure. For use in water-exposed areas be sure to seal all edges and maintain a waterproof finish on the surface and underside.

### *Flooring - Can Kirei Board be used for Flooring?*

Kirei Board has been used in many flooring applications. Generally we recommend low- to medium-traffic applications with limited water exposure.

#### Flooring Installation

For flooring we recommend the 20mm Kirei Board material. It can be laid down as full sheets or cut into tiles/lengths of varying sizes. Users have created 18"x18", 1'x3' and 3'x3' floor segments. We recommend a vapor barrier beneath a plywood underlayment, then glue or nail down the Kirei Board to the plywood underlayment. Often the planks are biscuited together to link the pieces into a unified floor. Then finish the surface with a commercial flooring finish - multiple coats. The Bona Kemi Traffic or Eon 70 flooring finishes have been used in successful applications but most commercial flooring finishes may be used. Finish with enough coats to achieve the desired finish and/or durability needs. *\*\*\*Test first!\*\*\**

*Fire Rating* Kirei Board has a Class C fire rating unfinished. However with application of commercial flame retardants a higher fire rating may be achieved. Fire Kote 100 by Universal Fire Shield has a proven Class B rating..