



## **TorZo Products Fabrication Guidelines 3.2**

### **Fabrication Basics**

Included in this document are guidelines for standard material machining techniques such as cutting, sanding, routing and gluing for the TorZo surface products.

We welcome suggestions from experienced fabricators as they work with the TorZo materials, and will incorporate new techniques and information in future updates.

### **Material Composition and Handling**

All TorZo based boards (Indure, Orient, Seeta and Durum) are infused with an acrylic resin material that can be cut, machined and sanded with standard tooling. This is because even after the infusion process, the material composition is still over 65-75% wood or cellulose based.

Similar to other surface materials, including wood, rock, granite, and all other 100% acrylic resin based materials, we the manufacturer recommend that the fabricator wears a dust mask to prevent inhalation of any fine particles. The MSDS is available online at [www.torzosurfaces.com](http://www.torzosurfaces.com) or can be provided by the distributor.

Material should be kept flat at all times to prevent the introduction of “bowing” to the sheets.

Material should be kept clean from particles that could cause small nicks or scratches to the material surface during the fabrication process, and/or be included into a surface coating if coating is to be conducted post fabrication.

Material should be kept from direct contact with water, especially if the sheets do not have a finished top coat. This will prevent any potential discoloration due to water spot damage.

### **Material Properties**

All boards are sanded to 220 grit, and have a tolerance of +/- 5,000 inch. Hence material thickness is relatively very uniform.

TorZo materials that are less than 1” thick have a certain amount of flex associated with the material sheets. Thus it is recommended that when fabricating tabletops and countertops with the thinner materials that the fabricator glued or screw the material to a ¾” plywood template backer board in order to insure a flat surface. This also significantly reduces the costs associated with the thicker (1” and greater) material.

Currently, sheets come standard in 36" x 10' dimensions (Indure & Seeta) and in 36" x 8' dimensions (Orient & Durum). They come from the manufacturer in the following forms;

- Indure (MDF): sanded to 220 grit, both sides
- Seeta (Sun Flower Seed Shell): UV filled and sanded to 220 grit
- Orient (OSB): fill and sanded to 220 grit
- Durum (wheat): filled and sanded to 220 grit

**INDURE Characteristics:** TorZo Surfaces purchases a formaldehyde free and now FSC base MDF board material from a local supplier. These MDF boards are made from natural wood fiber and therefore contain some variation across the board, *which is normal and should be expected*. A percentage of these un-infused raw boards have "watermark" looking spots. TorZo QC's the boards to the best of it's capabilities before the infusion process in order to prevent boards that have watermarks on both sides from being processes. Our procedure states that we can have these watermarks on one side but not both. Therefore, the Indure boards will always have a "good" side, and then a side that will have visible "watermarks" on it. Sometimes the board will be good on both sides. Make sure to inspect the board before fabrication in order to verify the visible side is facing up.

**Orient, Seeta & Durum:** TorZo Surfaces purchases these other composite board materials Timber Strand (Orient), Sunflower Seed Hull (Seeta) and Wheat (Durum) from other respective suppliers. Like the MDF board used in the Indure product, these composite board materials will have some natural variation across the board, and from board to board. However because of the different texture and overall wide variation, it is not noticed. But the 4" samples do not do a good job of showing the wide variation that can exist. The good news is that to date there has not been a complaint relating to this variation. It is more seen as a positive and adds wow power.

## **Cutting**

Material can be cut using standard carbon tip blades. Avoid feeding the material too fast to prevent binding or too slow to prevent burning.

## **Machining**

Material can be routed using standard carbide router tips. Material can be hand routed or routed on a C&C machine. Also, standard V-groove units with carbide based tips can be used for dropped edge applications.

Following the fabrication process the material should be sanded (ref: below) before the coating process.

## **Sanding**

We recommend that the material be sanded using a random orbital sander to a 400 grit finish. This will fully eliminate sanding marks left by the belt sanding process.

These marks are more visible on the **Indure** material. The Indure product can be sanded as much as desired, as long as it is sanded evenly across the board. The TorZo infusion process is a density based process, and therefore as you sand more and more into the Indure product it will become slightly darker. This is because there is a density gradient (higher to lower) going from the face to the center of the board. More of the polymer gets infused in the center compared to the face of the board which causes the material to take on more of the actual polymer color.

Care should be taken NOT to over sand the **Seeta, Orient** or **Durum** material. If too much material is sanded off, then the filler material that has been processed into the material to fill voids during a manufacturing step will be removed resulting in surface cratering. Once this occurs the only way to eliminate these craters is to apply clear epoxy filler, followed by a sanding step. *However, if possible it might be easier to reverse the board side and re-fabricate the piece.*

If material has been over sanded, no amount of sanding will eliminate or remove the voids associated with the material. A clear epoxy resin application step is required to fill these voids.

## **Gluing**

Due to the water resistance of the material, the manufacturer does not recommend any moisture cure adhesive.

Titebond II or III can be used for gluing all TorZo based materials. However for lighter based material colors, this glue appears darker after it dries and has a tendency to show glue lines. Hence, for V-groove application, a solid surface 2-part solid surface epoxy system that best matches the TorZo materials color is recommended. In addition, the epoxy system dries within 15-30 minutes, which is faster than a Titebond II or III adhesive which requires a much longer cure time.

## **TorZo Fabrication Recommendations**

TorZo recommends using ½" thick TorZo material, and plywood template, that incorporates a V-groove drop edge for best edge results and economics. A built up edge can work and look good, but does require significantly more time filling in the voids that are present on the edges of the Orient, Seeta and Durum surface products. In this case, fabricators can fill in these voids using multiple!!! Top spray coats, or use a clear epoxy before applying a final top coat. The plywood template also provides a stable backing and allows it to be moved and installed safely.

## **V-Grooving Application**

All TorZo Surfaces solid surface products are capable of being V-grooved using standard V-Groove techniques used for V-Grooving any other type of solid surface acrylic surface materials. CNC machines are great for this application, especially for larger jobs.

A solid surface 2-part epoxy system that best matches the TorZo materials color is recommended to eliminate or minimize glue lines.

## **Seaming Application**

All TorZo Surface products can be seamed using standard techniques with a great result. These techniques include straight edge-edge gluing, and incorporates either biscuits or splines. The template backing should come just short of the edge seaming that is to be done.

A “dog bone” clamp assembly, similar to what is used for prefab counters tops, can be used to butt the edges up. A solid surface epoxy, using a best match color, can be used to glue the edges together. Once the fabrication and seaming has been completed, the seams should be sanded smooth. Once this is done, the sealing and top coat spray application can be done.

For cases where the seaming has to be done in the field at installation, then the following is recommended. Using the same dog bone assembly clamps mentioned above, bring the edges together without applying the adhesive to the edges. Sand the seamed area smooth, and then complete the sealer and top coat spray coats. Once the fabricated piece has dried, then it can be transported to the installation site in pieces and glued on site. In this case, the fabricator can apply the solid surface adhesive to the edges and then using the dog bone clamps butt the edges together. Once dried, the adhesive acts as both the sealer to the edges and the bond of the edges.

## **Finishing**

Before applying any coating, it is important to wipe the material clean with a damp rag using mineral spirits. This will remove residual sanding dust and other type particle. TorZo recommends all of the coatings specified below, however many other coating brands and types have been successfully used. The advantage of the TorZo products is that they are very hard. This allows the fabricator to use very hard coatings, which is better for high wear applications.

Most any type of acrylic based coating can be applied successfully, however please check with manufacturer before applying. Just remembered, the harder the coating the better the wear.

For polyurethanes and conversion varnishes, we recommend a minimum of three coats for top side high wear applications such as countertops, vanities and tabletops.

Spray UV coatings requires a more complex spray system and hence is not an option in many cases. However, the UV coating material is probably the hardest coating material available. Also, the UV sprayed material is harder to fix in the field. Most any type of acrylic based coating can be applied successfully, however please check with manufacturer before applying. Just remembered, the harder the coating the better the wear.

Conversion Varnish: Chemcraft, Sherwin Williams, Valspar

Polyurethane: Sherwin Williams, Chemcraft

Urethane: Sherwin Hesse (#DG-4733 Sealer, DE-552 Top Coat)

UV Filler & Top Coat: Chemcraft

Note: In order to ensure product performance, TorZo Surfaces requires a single coat spray application for the back side of any fabricated projects. The reason for this is two fold. During our process, we make sure to keep the boards balanced. What we do to one side, we automatically do to the other. This includes sanding step and the fill and sand step (when applicable) as well. Second, the idea is to seal all six sides. This is regardless of the application being low wear vertical or high wear horizontal.