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General Information

Scintilla®, Jali®, Reflections™, Zari Reflections™, Lumina™, SLIM™ and VAPOR™, are propitiatory polymer panels, manufactured exclusively by Sensitile Systems. These materials are of a layered composition and are manufactured to the specified color and layer composition.

In general, most woodworking equipment and tools are quite suitable for working with these products, however proper selection of bits, blades and correct techniques will produce the best results.

Scintilla®, Jali®, Reflections™ and Lumina™ panels all have a grain direction which is important to keep in mind when processing the material. Just like wood, these materials will have a distinctly different response to machining and fabrication based on the direction of the layers within the material. The grain direction does also affect the aesthetics of the product and may be a quality specified by the designer or owner, thus it is important to note this when fabricating or installing these panels. Typically, panels can be ordered with the grain running in either the short or long direction and this may be noted on the shop drawings.

SLIM™ and VAPOR™ panels do not have a grain direction but do have an orientation of the pattern within the panel. This pattern is usually not symmetrical and this orientation of the panel may be important to take note of during the planning of any fabrication.

GLASS panels – Sensitile panels are available in glass versions as well. These panels are not designed for fabrication and must be ordered to final finish size and shape.

Receiving and Handling:

Crating and shipping: Sensitile panels usually ship in foam lined wooden crates in within which they are placed on their edge. Unless otherwise arranged, orders will ship via common carrier and will need a forklift, pallet jack along with a commercial receiving dock in order to safely unload. For residential deliveries and deliveries to a job site without a loading dock or forklift, a truck with a lift gate may be requested at the time of placing the order.

Inspection: When the order is received, we do recommend that the crate be inspected for any visible signs of shipping damage – in the rare event that there is obvious visible damage to the crates please do not accept the shipment and notify us immediately. If no damage is noted on the crate, please accept shipment and inspect the material promptly to ensure that they meet the specifications of the order. If any discrepancies or concealed damage is found, we need to be notified immediately.

Handling: The panels should be allowed to come to room temperature before any fabrication or installation takes place. Panels will ship with protective masking film or paper, this protective film may be left on during any fabrication or installation work. We recommend handling and carrying panels on edge as is typically for glass or stone. Please note that panel edges may be

sharp and it is recommended that textured rubber gloves be used to avoid injury. Alternatively, panel carrying clamps or vacuum clamps may also be used. All clamps should be padded and it is recommended that the pads be wiped clean of any foreign bodies that may leave marks or scratches on the panel's surface. For interior transport, carpet lined drywall carts are commonly used. Panels can be temporarily stored in the original crates that they were shipped in. They can also be stored lying down on a flat surface.

Storage:

Sensitile manufactures products that are finish materials and typically ordered and installed when the project is in this final stage. However, if the project schedule is such that long term storage, lasting several weeks or months is deemed necessary then it is crucial that the materials be stored properly.

Storage conditions should be indoors, in a clean, dry, temperature and humidity controlled environment that does not have wide and sudden temperature fluctuations, void of condensation and or leaks. When stored for a long term, the protective masking that is applied on the panels may before more difficult to peel. For this reason it is recommend that stored materials be periodically inspected with particular attention to the masking.

Fabrication guidelines:

ALWAYS WEAR APPROPRIATE CLOTHING AND SAFETY GLASSES DURING ALL FABRICATION OPERATIONS

Cutting

Table saws are very appropriate for most straight line cutting operations. For the thicker panels (3/4" and above) a higher horsepower saw is better suited. Proper blade selection is crucial – we always recommend a carbide tipped blade with a high number of teeth for the given diameter. A special blade (triple chip design or similar) designed for acrylic cutting produces the best results. However, a "cabinet" blade designed for woodworking may be used quite successfully.
For precision cutting and especially for miter and bevel cutting, we recommend a sliding table or panel saw – when used properly, these tools can provide excellent results.

When cutting with any type of saw and saw blade, we recommend that a blade guard be in place and full face protection be worn. Due to the fractured internal geometry of the material, small chips can come loose from the material during this process. For repeated and prolonged cutting, the saw blade should be inspected periodically and any build-up on it removed with compressed air. Compressed air can also be used to cool the blade between cuts in order to produce a better finish with less build up of heat.

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Drilling

For the best results when drilling a hole in Scintilla®, Jali®, Reflections™, Lumina™, SLIM™ or VAPOR™ panels, we recommend the use of a drill bit designed for acrylic or plastic drilling – these bits have a sharper point and when used correctly are less likely to produce cracks or chips along the edges. Alternatively, a carbide "end mill" or acrylic routing bit can also be used in conjunction with a plunge router or drill press. It is always best to ease gently into the material and to let the tool do the work. Care must also be taken when exiting the panel. When drilling thicker panels, the operation may need to be stopped intermittently allowing the hole to be cleaned up with compressed air and to cool down the tool. For larger diameter holes, a "forstner" type bit can also be used with good results. Standard wood working and metal bits will also generally work, but care must be taken not to create localized stress or cracking can occur, especially when entering and exiting the panels.

Routing

Routing is definitely a very versatile way to finish and shape Scintilla and Jali panels. Always use sharp bits at above 18,000 rpm. For most operations, a spiral bit with 2 or more flutes works very well, based on fixturing, either an "up" or "down" spiral configuration can be used. Higher speeds and more flutes can help achieve high edge quality. However, care must be taken so as not to overheat the material.

Our panels also respond very well to CNC router machines. The feed rates, tooling and RPM will be machine specific, however based on our experience and those of our fabrication partners:

Typical feed rates are 150 to 250 inches per minute for a 7.5 HP or larger spindle. Spindle RPM should be as high as possible to produce the smoothest finish. For best results a "climb" cutting action should be selected. Specialty acrylic cutting "O" Flute down spiral router bits from Onsrud and Belin produce very good results for both straight line cutting and also shape cutting. To produce better edges, we recommend 2 passes, one for rough cutting and then another finish pass at high RPM to 'burnish" and polish the edge.

Finishing

Edges and other surfaces of the panels can be sanded and finished much like wood with successively finer grit sandpaper using traditional sandpaper. If edges have rough saw cut marks, then it is appropriate to start with a 120 grit paper in order to remove the saw cuts, in other cases 220 grit will be a good starting. Subsequently, 400 and 600 grits will produce a matte finish while higher grits will have a polishing action.

For fine finishing and polishing of edges or surfaces, we recommend the use of Novus products. This is a 3 step micro finishing system designed specifically for plastic materials.

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Sealed and finished edges

Sensitile panels are a multilayer composition and thus the edges may not have the same aesthetic properties as the face and in addition the edges are porous and must be sealed for applications where the product may get exposed to high humidity and wetness.

Sensitile panels can also be thermoformed into curves, and may be line bent and made into complex shapes. These advanced processes, should only be attempted by an experienced plastics fabricator. For additional information regarding these processes please contact us.

Gluing and cementing

For applications that may be exposed to moisture, panel edges must be sealed.

For many common sealing, seaming and bonding applications a clear, neutral cure 100% silicone can be used. Recommend types are:

CRL RTV 408
Tremsil 600
GE Silicone Silglaze SCS 2800

These products will also bond the panels to various common substrates like plywood, stone, metal and other common building products. They are appropriate where a sealed, waterproof yet flexible joint is necessary. A clear version may be used to minimize the appearance of the joint. For bonding panels to themselves or other acrylics with a high strength and permanent bond, we recommend a polymerizing cement like Weld-On 40 (or Weld-on 42), Acrifix 190 and 192 which when used properly, will create a transparent yet very strong bond. Polymerizing cements as noted above, are also the best product to use in order to create finished edges that will be sealed. In order to create such an edge, we recommend applying a couple of quick coats to the edge of a panel with a roller, brush or gloved finger. This will seal the porous edges of the panel. Once these initial seal coats are dry, a heavier layer may be built up. Once dry this will yield a very strong, clear and machinable edge which may be sanded, buffed and polished like the face of the panels. This polymerizing cement may also be tinted with liquid pigments in order to create matching or high-lighting materials.

Structural bonds between the panels and metals like aluminum, for example to attach “Z” clips, are best done with structural adhesives. An appropriate choice for many applications is Weld-On SS3015. It must be kept in mind though, that these are not transparent adhesives and will be opaque black or white.

We have also had great success using 3M VHB (Very High Bond) tapes for panel-to-panel and panel to metal bonding. Especially useful are the 3M VHB 4905 and 4910 tapes which are very high strength and have the added advantage of being nearly colorless.

As with any 3rd party product, we always recommend that you experiment with the adhesive and always follow the manufacturer’s instructions.

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