



STOLLER METALS TM

Fabrication Guide

Pre-Order Considerations

Variations in Pattern and Color

Stoller Metals are manufactured by hand; therefore, there will be variation in pattern and color between sheets and any order may vary in color range from a previous order. This is similar to different hues in "Dye Lots" when manufacturing carpet.

To insure the greatest consistency, order material for all phases of construction at once. Because we cannot guarantee an order will match old samples, request new metal samples for submittal before placing an order.

Choosing the Right Coating

Polyurethane is our standard coating. It can be curved to a 5" radius. It is the most durable option; however, due to the hardness of the coating, smaller radii require our Inctalac coating.

Inctalac coating can be curved or bent to a minimum radius of 3/16".

NOTE: Unless specified when ordering, our Polyurethane coating will be supplied.

Recommended Uses

Stoller Metals are designed for interior or protected exterior use on vertical and light-duty horizontal surfaces. Exterior installations should be protected from rain and salt air.

NOTE: In tropical oceanfront areas, Pewter surfaces are not recommended for use in covered open-air settings. An air-conditioned interior area with permanently closed windows is suitable.

Handling the Metal

When picking up Stoller Metals sheets, handle at the short ends. Keep the sheets flat and do not bend them to avoid kinks.

Laminating to a Substrate

Substrate Selection

Substrates should be dimensionally stable (resistant to shrinkage or expansion from changes in humidity and temperature) and have a smooth surface that will not telegraph imperfections. Recommended substrates are:

- 45# Industrial Grade Particleboard
- 45# Medium Density Fiberboard (MDF)
- High Density Fiberboard (HDF)
- Plywood with one A-Grade Face (hardwood-faced plywood)
- Kerfkore (for forming applications)

NOTE: Typically a baker sheet is applied to the back of the substrate as a moisture barrier to insure balance and prevent warping.

Adhesive Selection

Stoller Metals can be bonded to a substrate using contact adhesives that are compatible with bonding of metal-to-wood such as 3M Fastbond 10 or SCAQMD 1168 compliant 3M Scotch-Weld Hi-Strength 94 CA Adhesive.

Always check with your adhesive supplier before bonding to determine the compatibility of the adhesive with the metal and substrate.

Expansion Joints and Seams

Sufficient spacing must be provided between and at each end of sheets or strips to accommodate linear expansion from the ambient temperature range at the installation site. Spacing of 1/32" is sufficient for most applications but a more accurate determination can be made by allowing 1/100" for each 8 ft. of metal surface for each 10° Fahrenheit of anticipated temperature change.

V-Grooves are recommended to de-emphasize joints and seams between two sheets. A V-Groove is created by filing the adjacent edges at 45° angles to create a "V" shape at the seam. Place the sheet of metal on a substrate and butt the edge to be filed flush with the edge of the substrate. Clamp the sheet down with a C-clamp. File the edge at a 45° angle with a smooth mill bastard file.

NOTE: Creating a V-Groove will expose unfinished metal! Exposed edges must be darkened and re-sealed with a lacquer. Refer to the section titled: **"Treating Cut Edges."**

Preparation

It is recommended that all Stoller Metals sheets and substrates be stored at room temperature for at least 48 hours prior to lamination. Lamination performed in cold temperatures may affect long-term results.

Before laminating, prepare the back of the metal by following these steps:

1. Wash it with soap and water. CAUTION: Do not use solvents!
2. Dry it with a towel and allow it to air dry.
3. Scotch Brite and clean the dust off.

NOTE: Make sure both surfaces are smooth and free of grease, wax, dust, chips and other foreign matter.

Laminating

To ensure a good bond, consult and follow the adhesive manufacturer's instructions on preparation of substrates, surfaces and adhesive application. All types of adhesive must be applied evenly and uniformly. Globules may transfer through the surface during laminations, and starvation areas may cause long-term delamination.

To bond a sheet to your substrate after gluing, pressure must be firmly and evenly applied over the entire surface using a pinch roller or hand roller (J roller.) There must be no bridging, and positive bonding pressure must be applied uniformly and progressively over the entire surface.

When laminating, follow all directions on the adhesive:

1. Apply glue evenly to both surfaces.
NOTE: Make sure that the glue is thoroughly mixed.
2. Allow glue to dry fully.
3. Starting at one end, press the two surfaces firmly together.
CAUTION: Once the panel comes into contact with the bonding surfaces, it is difficult to remove; therefore, take care to position the components correctly.
4. Once the panel is pressed into position, roll a clean rubber lamination roller from the middle out toward the edges over the entire surface. A pinch roller works well.
RESULT: This removes any air pockets and obtains a firm bond.

The completed parts should be stored for at least 48 hours before exposure to extreme temperature and humidity changes. (Most contact adhesives require this minimum time to reach initial bond strength.)

Cutting The Metal

Preparation

The metal is more easily cut if laminated to a substrate first. Prior to working the metal, steps should be taken to protect the surface using contact paper or masking tape. When sawing or routing the metal, it is advised to wear hand, arm, and face protection as well as safety glasses as the metal shavings can be very sharp and hot.

Tools

Stoller Metals are easily worked using methods and tools similar to those used for HPL's (high pressure laminates). Cutting to size can be done with the following tools:

- Metal Shear
- Table Saw with triple-chip carbide tipped blade
- Router with a carbide tipped bit

NOTE: For clean edge cut-outs it is recommended to use a router.

Sawing

When sawing, it is preferred that material is laminated to a backing material. Otherwise sandwich the metal between two pieces of stiff material.

General rules for selecting saw blades for 3450 RPM table saw:

- Sharp carbide tip blade
- Blade diameter: 8" to 14"
- Number of teeth: the more teeth per inch the better the results
- Pitch: 0.417" or less
- Rake angle: 10 degrees or less (zero degrees works well)
- Kerf: the thicker the blade the less chatter
- Grind: uni-chip or triple-chip

Do not force material through saw. A constant feed rate will produce smoother cuts. Blade wax will promote better cuts and longer tool life.

NOTE: Dull or damaged blades will tear, scorch, melt or even delaminate laminated material. The use of a carrier sheet during cutting may be a viable option.

Routing

Routing may be done using electric or air powered routers. Sharp multi-fluted carbide cutters are necessary. The larger the diameter of the cutter the better the results will be. The speeds recommended are the same as those used in standard woodworking practices. It is important to use a router having adequate horsepower to maintain cutting speeds. It is also important that the cutter travel direction be against the cutter rotation.

For edge trimming, high speed trimmers should be used (approximately 22,000 RPM) and will produce smooth burr-free edges. The less material cut, the smaller the burr: 1/8" of material should be the maximum. Use special care at corners to avoid tearing or bending of the metal. Protect the surface from scratches by riding the router base on a strip of .020" backing sheet or equivalent. If a bearing guide is to roll on the surface, it must be completely free rolling. Use a smooth mill bastard file to feather all corners and remove burrs from machined edges.

Treating Cut Edges

After cutting the metal or creating a V-Groove, unfinished metal will be exposed. All finishes except Natural Pewter and Light Etched Pewter must have their exposed edges darkened. ALL FINISHES must be re-sealed with lacquer.

A mitiquing solution appropriate to the particular finish can be provided by Stoller Metals to darken the edges. Apply the mitique repeatedly with a paper towel until desired color is achieved. Clean solution off with damp paper towel then dry thoroughly. Re-seal by applying a clear satin sheen lacquer to the edge with a fine artist brush.

A black tinting color by Sherwin Williams or Mohawk can be applied to the cut edges of Stoller Metals. India Ink or enamel water-based paint can also be used. Apply with a fine artist brush, and then re-seal by applying a clear satin sheen lacquer to the edge with a fine artist brush.

NOTE: A darkening agent can be mixed directly with the lacquer before applying the mixture to the edge.

Break-Forming and Curving the Metal

Polyurethane coated sheets can be curved to a 5" radius. Sheets to be break-formed must be ordered with the Incralac coating. Break-formed sheets must have a radius of at least 3/16".

We suggest the metal be preformed to the desired radius prior to lamination. Use hand-held pressure or rolling tools to have the metal conform to the substrate contours. Although these metals have very little "spring back," extra-firm laminating pressure must be applied just in front of and following the corner, and on curved areas.

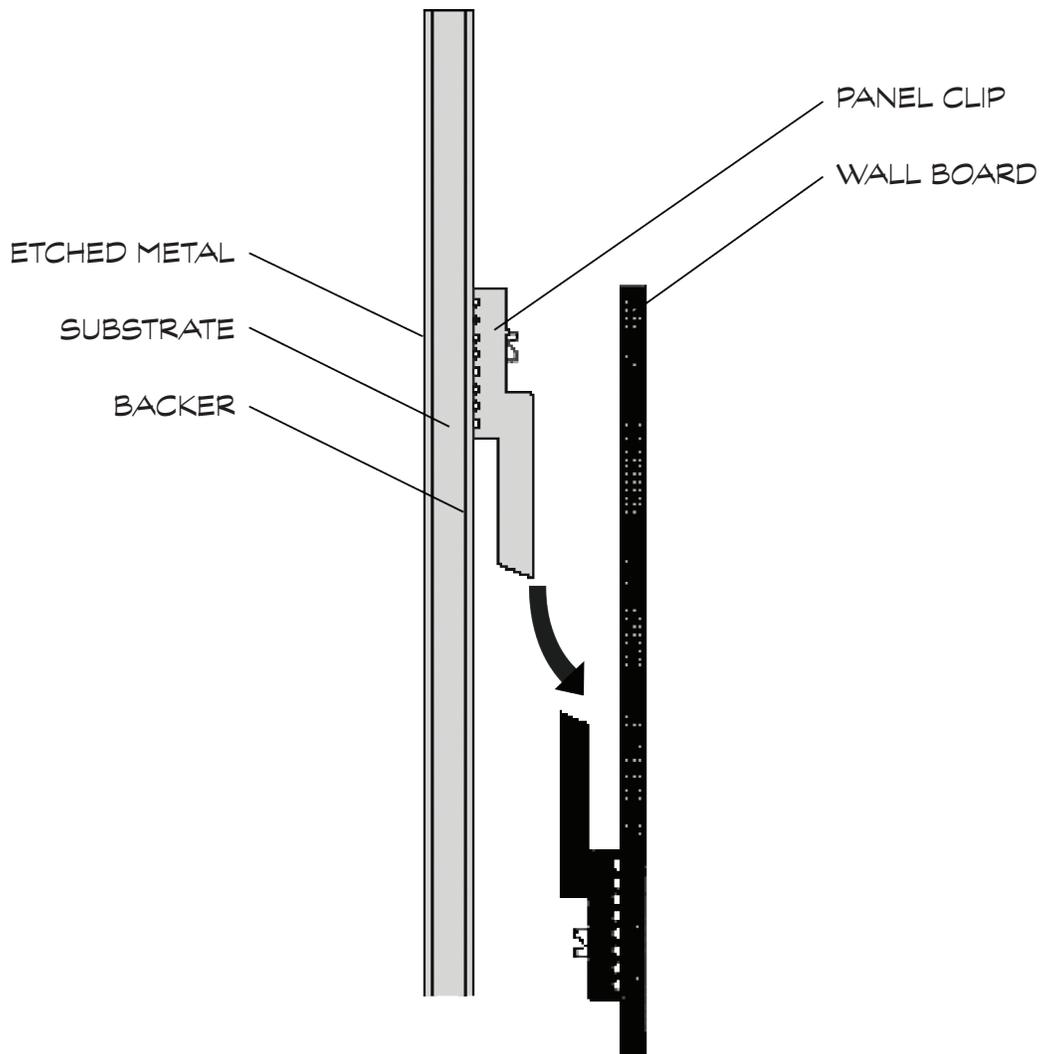
Mounting Pre-Laminated Panels

Using Contact Adhesive

A pre-laminated panel may be fixed to a wall or other surface using contact adhesive. A bead of adhesive is applied to the back of the panel, and the panel is pressed on the wall, then removed. The adhesive should be allowed to dry to a tack, then the panel is reapplied and should adhere.

Using Panel Clips

Panel clips can also be used when mounting to a wall. If this mounting method is used, the substrate should be at least 1/2" thick to insure that the screws will hold.



Maintenance and Repair

NOTE: Please remember that this is a metal product. Without proper care, metal products are subject to scratching and wear.

Stoller Metals' finishes are easy to maintain. Warm water and mild liquid detergent will remove most spills and scuffs. For spills that are not water-soluble, (i.e., grease or oil) a minimal amount of lacquer thinner (polyurethane coating only) or garment spot remover can be used.

A gouge or scratch in the polyurethane coating can sometimes be repaired or hidden using a clear, dull-finish lacquer such as varathane clear satin finish. This lacquer should be dabbed into the gouge with an artist's brush and sanded very lightly with steel wool or 600-grit sandpaper.

If scratches extend into the metal, artist stains can be used to match the existing color. Using an artist brush dab stain into the scratch, then repeat the above process. Another method of repairing scratches that extend into the metal is using a color-base, matte-finish lacquer. Match the lacquer color to the existing finish of the damaged area, and then apply the same repair techniques.

CAUTION: Ceramic pots contain an unknown material and have, on occasion, left a stain that is not removable. For this reason, we advise the use of a protective underliner or felt tabs placed between highly fired clay pots and metal tabletops.

Warranty Disclaimer and Liability

Because Stoller Metals has no control over end products fabricated with the materials sold, no warranty is expressed or implied.

The information in this Fabricator's Guide and all related documents released by Stoller Metals is believed to be reliable; but Stoller Metals disclaims the creation of any expressed or implied warranty including the warranties of merchantability and fitness for a particular purpose with respect to Stoller Metals products. In all cases, users must determine the suitability of such products for any particular use and shall assume all risk and liability whatsoever in connection herewith. Since we exercise no control in handling, storage, application and use of these products or the products of others with which they are used in combination, no warranty, express or implied, is made as to the results and effect of their use. User must also establish his or her own procedures and verify the finish of any product to be as ordered before use. We recommend testing all procedures before beginning production or installation. In no event shall Stoller Metals be liable for any special, incidental, consequential or exemplary damages.