

Chemical welding makes assembly of aluminum signs, like these, faster and easier

Step-by-step: Building a post and panel sign

by Bobby Lint

Aluminum directional signs are an everyday product in many sign shops. Some build them from kits; some buy completed signs from a wholesaler. Still others build their own. Making them in-house is a lot easier if you use chemical welding for assembly.

We build loads of directional signs like these for sign shops. I've also used chemical welding for over twenty years. It lets you do things that you simply couldn't

do if you had to use conventional welding. It's a very workable, practical system. If there's any secret to it, it's making sure the surfaces are all clean.

The frame for the basic post and panel sign you see going together in the photos was welded from 2-by-2-in. .093 tubular aluminum. There are other assembly options for the frame, but we're set up to weld. Aluminum screen enclosures are done without welding, though,

so it's possible to do this another way.

The face was cut from .090 aluminum sheet. We cut the face slightly oversize—no more than $\frac{1}{8}$ in. over—then trim it to fit with a router after bonding. It makes assembly easier and gives a more professional fit-and-finish.

Thorough cleaning is essential when bonding. Almost all aluminum sheet and extrusions have an oily residue on the surface from the manufacturing process. This must be removed for proper bonding and painting. We begin by wiping the surface with wash lacquer thinner. You can also use any of the products designed for this purpose, such as Aluma-Prep.

Next we use an air-sander to etch the surface to be bonded—both the tubular frame and the face. This is actually part of the cleaning process. After sanding, wipe the surfaces down with a clean rag.

For this sign we used Lord 204 Adhesive's (formerly Versilok®) which we get from R. Olson Associates/Ellsworth Adhesive Systems (3100 N.W. Boca Raton Blvd., Suite 114, Boca Raton, FL 33431; 561-368-1845). Chemical bonding is a two-step process. First, an activator is brushed on both surfaces, then the adhesive is applied. We lay a bead of adhesive down on one of the surfaces, then spread it



Sanding the frame



Fitting the panel



Sanding the panel

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with a squeegee.

If the activator runs down on edges that will not be bonded, it's not a problem. It will sand off easily later on. Excess adhesive that

squeezes out or runs should be wiped off with a rag dampened with lacquer thinner, though. Once it hardens it is difficult to remove.

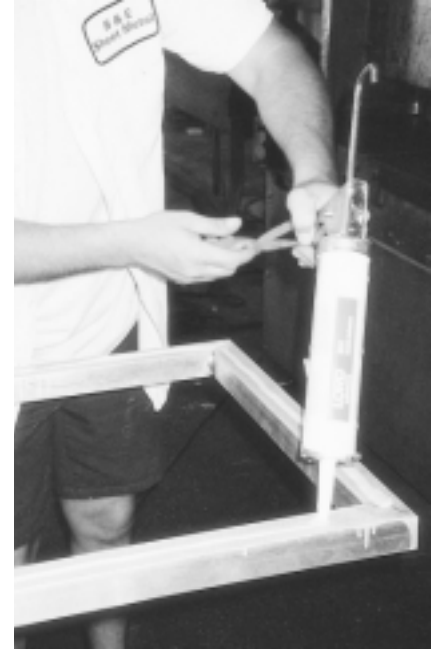
Now the face is positioned on the frame and clamped in place. The adhesive sets rather quickly, but you do have a few minutes to get it in position—that's the beau-



The panel gets a final cleaning



Applying the activator



Applying the adhesive



Spreading the adhesive



Positioning the panel



Clamping the panel

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ty of chemical welding. A piece of angle is clamped or held in position to serve as a stop for the bottom edge. The face is butted against the stop, then slid left or right if necessary.

We use Vise-Grips or other quick release clamps to clamp it in place. A piece of aluminum angle is used between the clamp and surface to distribute the clamp's pressure. The sign is then set aside while the bond cures. For small pieces like this sign, you can remove the clamps in about 20 minutes. The

bond is strong enough for us to continue fabricating the sign.

Next the face is routed off flush with the frame on the top, right and left edges. A 1/2-in. flush-cut bit in a 1/2- or 3/4-horsepower router is used for this. This approach makes a much easier, neater job than trying to position the face perfectly on the frame.

Finally the sign is cleaned thoroughly and painted. We finish aluminum with a Lacryl [Spraylat Corp., 1701 E. 122nd St., Chicago, IL 60633; 773-646-5900] primer

and several coats of either automotive acrylic enamel or Matthews [Matthews Paint Co., 8201-100th St., Kenosha, WI 53142; 414-947-0700] acrylic enamel. We like the Matthews mixing system since most of our customers are familiar with it. Once painting is complete, the sign is ready for graphics. □

Bobby Lint's shop, B&E Sheet Metal, does wholesale sign fabrication, and is based in Lake Worth, Florida.



The completed, primed post and panel sign



This sign has a welded frame, but all the panels were attached with Lord Adhesive.

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