LARGE SIGNS
CUT DOWN TO SIZE

BY DAVID MCDONALD

Get perfect seams when creating dimensional signs larger than the table or material allows.

OFTEN WE ARE FACED with the task of making dimensional signs that are larger than the standard 4x8 materials that can easily be purchased from the sign supplier, local mill or lumber yard. When faced with this issue it might seem intimidating but it doesn't have to be!

Recently we did a dimensional job that involved two signs over 10 feet long and one that was just over 12 feet. I will include some pictures for you to view though the content of this article will be focused on piecing together long signs, touching lightly on setting up the design and generating router paths to achieve a no-brainer assembly.

When working with a CNC router table there are a few choices one has in dealing with this dilemma. To get the job done, one could simply laminate the necessary sheets together and utilize the open gantry that most tables are equipped with to facilitate a *pull-down* technique.

The pull-down technique requires you to generate all necessary tooling paths before running the job. The oversized panel is placed on the table and the router will run its course, and when finished the operator is instructed to pull the material down to a specific mathematical distance. At this point the router can continue to cut the remaining end of the job. The pull-down (tiling) method works fine for simple designs but can become confusing on jobs that are more elaborate.

Another solution to consider is to simply design the sign so that it can be installed in pieces and these pieces together would create the whole sign. To put this reasoning to work will usually
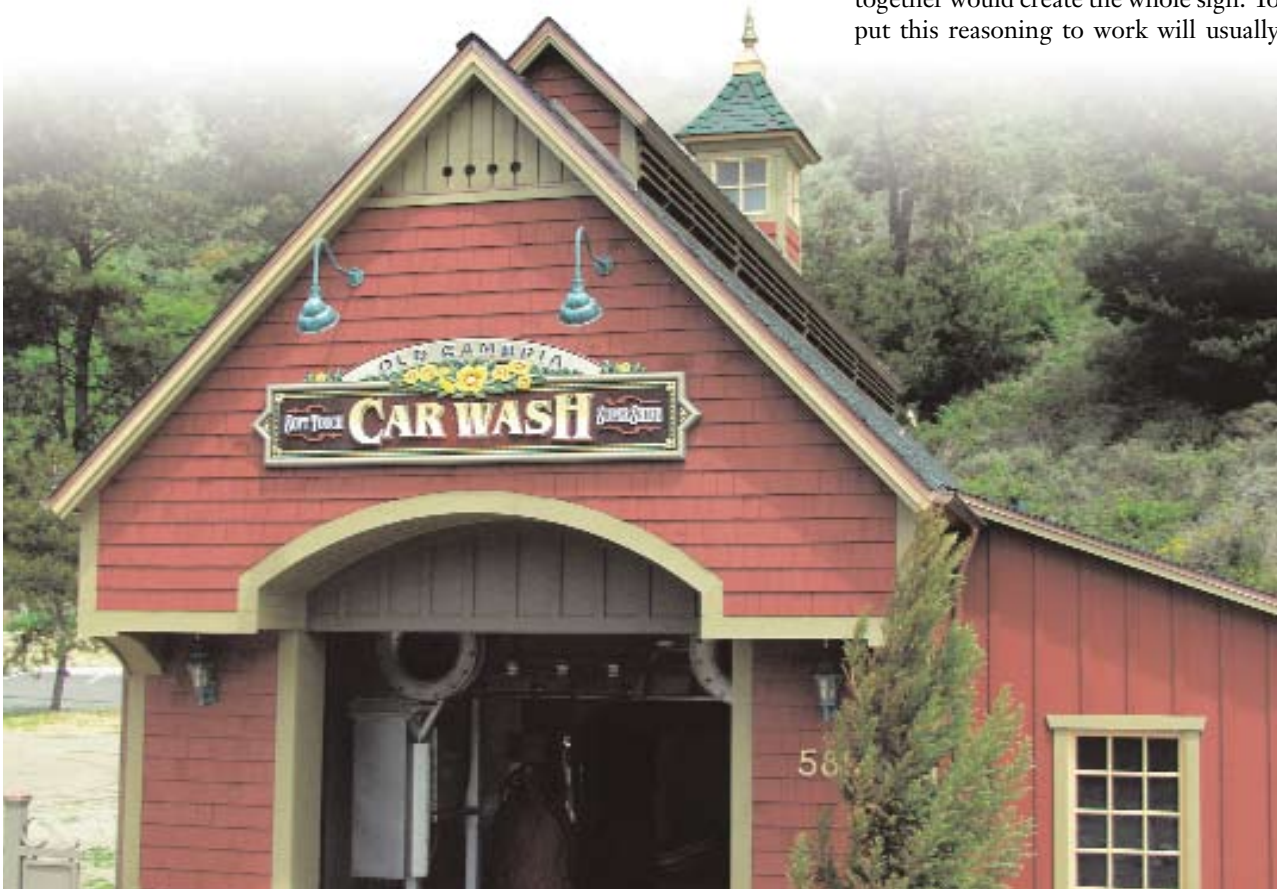
One of three signs for a recent project. Because of length they required at least one seam. I chose to do the "crown" portion separate as well, which in this case was a better use of material.

require an installation on an existing wall or surface. This method is not going to solve the problem most of the time, though it will work fine for individual letters that are installed to read as one thought or message.

Most signs will require a design that needs to be created as one piece. The method we use most often will be the focus of this article and a simple overview is as follows... Design the oversized job in your signmaking software and cut the design apart where needed to facilitate the material available.

The required space is allocated to allow room for the necessary tooling bits to perform what's required of them after which the ends are trimmed to create a perfect matching seam for joining the pieces together. The finished pieces are then laminated to a structural background. In this example 1/2'' plywood is used.

METHOD TO MY MADNESS

The key element to this method is the backing material because it serves three purposes. First, it allows me to remove the background of the Sign Foam (HDU) blank almost entirely and still leaves plenty of rigidity after it is laminated to the backing. Second, it provides a good source of thread strength at the time of installation. And last but not least, it makes the profile of the sign thicker.

For example there have been cases where I needed to hog (remove) the background of 1'' HDU, leaving only 1/8'' of material to hold the elements together. The sign on its own merit was, of course, too fragile for any practical application but became very stable after laminating to the structural background.

Using 1/2'' plywood the sign boasted a 1 1/2'' profile with a 7/8'' depth before any appliqués were involved. As you can see this method allows me to use thinner material and still achieve a very dimensional sign.

CONTINUED

Reprinted from • SIGN BUSINESS • July 2002

GH²⁴ **Imaging**

THE **Digital Specialists**

WHOLESALE TO THE TRADE

In A Pinch? Got A Hot Job And Need It Fast?

Because we're so production oriented. We can offer super fast turn around, in as little as 24 hours, if needed. Graphics House is happy to help. Just give us a call.

24 HOUR TURNAROUND SERVICE

2 Scitex Grandjets, the v5 & v3
Computer-to-Print 16' Wide by Any Length

HP Design Jet 2500CP
Computer-to-Print Inkjet Printer

Xerox 8936 II Electrostatic Printer
Computer-to-Print 36 Inches Wide

2 Raster 5442 Electrostatic Printers
Computer-to-Print 54 Inches Wide

Xerox 8954 III Electrostatic Printer
Computer-to-Print 54 Inches Wide

Sample Pricing

Vinyl Banners
$5.50 - $1.50*
per sq ft in*qty

Full Color Site Sign Decals
4'x8' only $112

Laminated Posters
as low as $1.50*
per sq ft in*qty

Vehicle Wraps
as low as $5
per sq ft

Graphics House Features: Computer-to-Print Digital Devices and the expertise to help you improve the SPEED and ACCURACY of all your printing projects.

Large Format and Grand Format Printing

Printing on Permanent Vinyls, Repositionable Adhesive Vinyls, Mesh, Canvas and Backlit Transparencies, Flex Face, Wall Paper, and more...

CALL TODAY
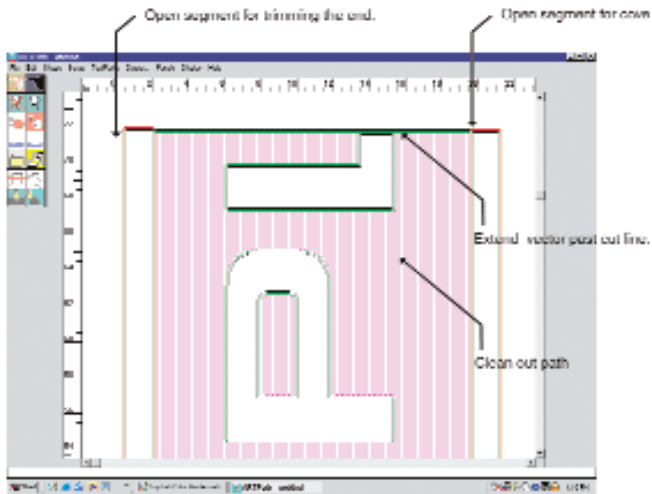**800-678-4041**
www.ghimage.com

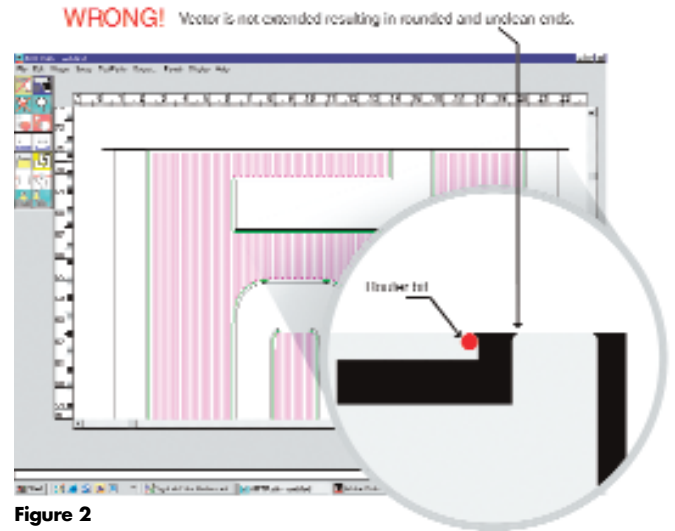Use *FAST* #203

Figure 1

Figure 2

Working on the backside of the sign, epoxy is spread on to this precut seam plate that when applied will straddle the seam. 15 lb. Sign Foam is used in these examples, but the techniques will apply to other densities and brands of HDU.

The plate is carefully screwed down to give this sign its length and strength. Extra plates are attached to the back to keep the sign flat when installed.

After the backing is together we flip it over so the face is up. Epoxy resin is poured over the entire surface and spread evenly with a roller.

CUT IT IN HALF

The artwork is too big to fit on the material so we need to cut the design somewhere so that it will fit. On a simple layout it might be wise to run the cut line between letters or elements if possible. This will make the process of setting up the router paths much easier.

However, if I am going to apply letters as an add-on (appliqué) I will run the seam right through the letter because the letter will hide more of the visible seam.

I use SignLab for my signmaking software and it makes quick work of slicing the design into two discreet pieces. After the pieces are separated I create an open segment exactly at the cut, which will act as the trim cut when the router has finished tooling the job. The trimmed ends will be a perfect match when the finished pieces are assembled and laminated to the backing structure.

MANIPULATING THE VECTORS

Because we know that the open path (cut line) serves as the absolute end of the finished piece we need to manipulate or edit the closed paths to extend past this point. These closed paths would be for male, female and cleanouts.
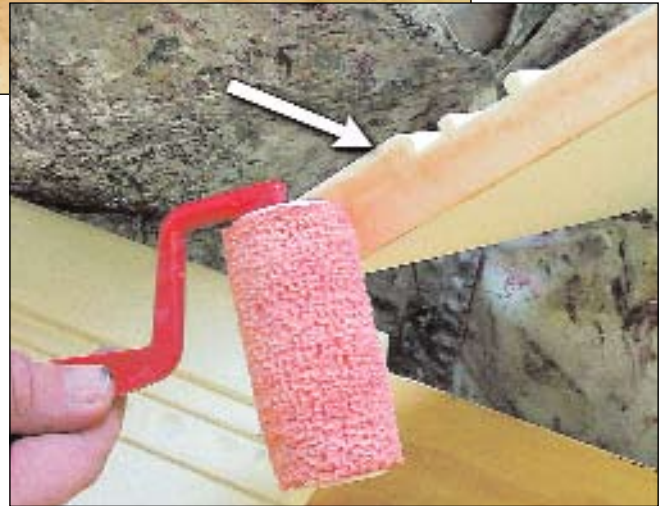
The amount that we extend past the cut line will usually depend on the size of the bit used. What this means is that if we don't move the line far enough beyond the cut line we will not achieve square or matching ends (see **Figure 1** and **Figure 2**).

Because we have extended the closed vectors beyond the cut line we could in all probability still get away with running cove and round-over passes to the characters needed but we prefer to set these up as open vectors. This is mainly because they are easier to identify when set up in this fashion and we don't have to worry about ruining the clean edge if we didn't go far enough beyond the cut.

The HDU is laid into the epoxy bath. One end is coated with epoxy while taking care not to cover the surface edge. This will eliminate any excess from oozing out onto the face.

The first piece is clamped into position. This allows us to apply pressure to close the seam tightly with the second piece (we added color to the epoxy to better illustrate how we intentionally stay away from the surface).
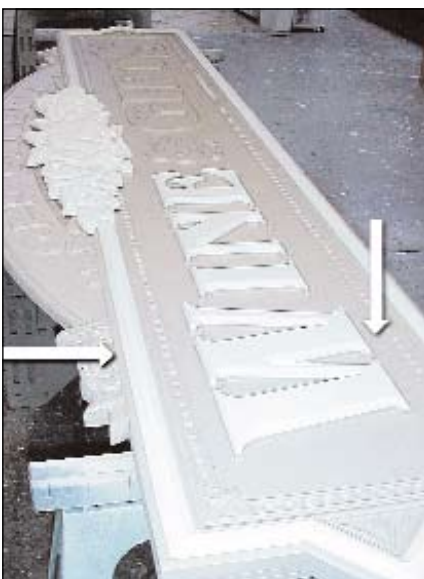

Using a brad nail gun, we nail the perimeter of the sign to hold the HDU in place while the epoxy cures.

The various pieces that make up this sign system, most of which will be covering the seams to "disguise" their whereabouts.

Here I am shaping the HDU to create the floral design. I use a lamp at a low level to help me see better and make faster work of this process.

The arrows indicate where the seams are. The appliqués will do a good job of hiding most of their visibility.

On a completely different job notice how I chose to run the seam down the edge of the paneled grooves. The sign will also receive appliquéd letters and bamboo border treatments to further hide the seam.

Using the open vector for coves and specialty treatments lets us keep the router bit from traveling across the seam at all, eliminating this concern.

PUTTING IT ALL TOGETHER

When the router has finished cutting the HDU, the backing material is cut. I like to have the plywood seam on the opposite side of the HDU seam so that both seams are not stacked on top of each other.

A plywood plate is cut to connect the two opposing plywood panels. This plate is epoxy glued and screwed from behind to secure the two pieces as one. A series of plates are cut and distributed across the back (usually around 24'' on center) to keep the finished sign flat at the time of installation.

After completing the background structure the plywood is flipped over and a bath of epoxy resin is applied to the face for laminating the HDU.

At this point we simple float the HDU onto the plywood, and when in position it is clamped in place. The second piece is given a thin coat of epoxy on the edge

staying away from the top surface so that we don't get any squeeze out of glue on the face.

The second piece is then floated tightly against the seam and clamped. We pepper the border of the sign from the under side with the brad-nailing gun to keep all edges down tight while the epoxy sets up.

Years ago when we had to seam an oversized job it would require a lot of sanding, filling and carving which added up to a lot more labor hours. I have been exercising the technique described in this article for some time with great success and the time saved is definitely worth it. Give it a try!

Until next time, thanks for listening.

David and Robin McDonald own and operate Avila Sign & Design, a custom sign shop in Grover Beach, Calif. They may be found on the Internet at www.avilasigndesign.com.

ⓈⒷ

With the smalt background, border treatment, floral design, applied letters and marbles one would be hard pressed to see the multiple seams in this job!

Look Ma... No seams!