



Routed!

How CNC routers are being utilized by sign shops.

Television legend Rod Serling used to

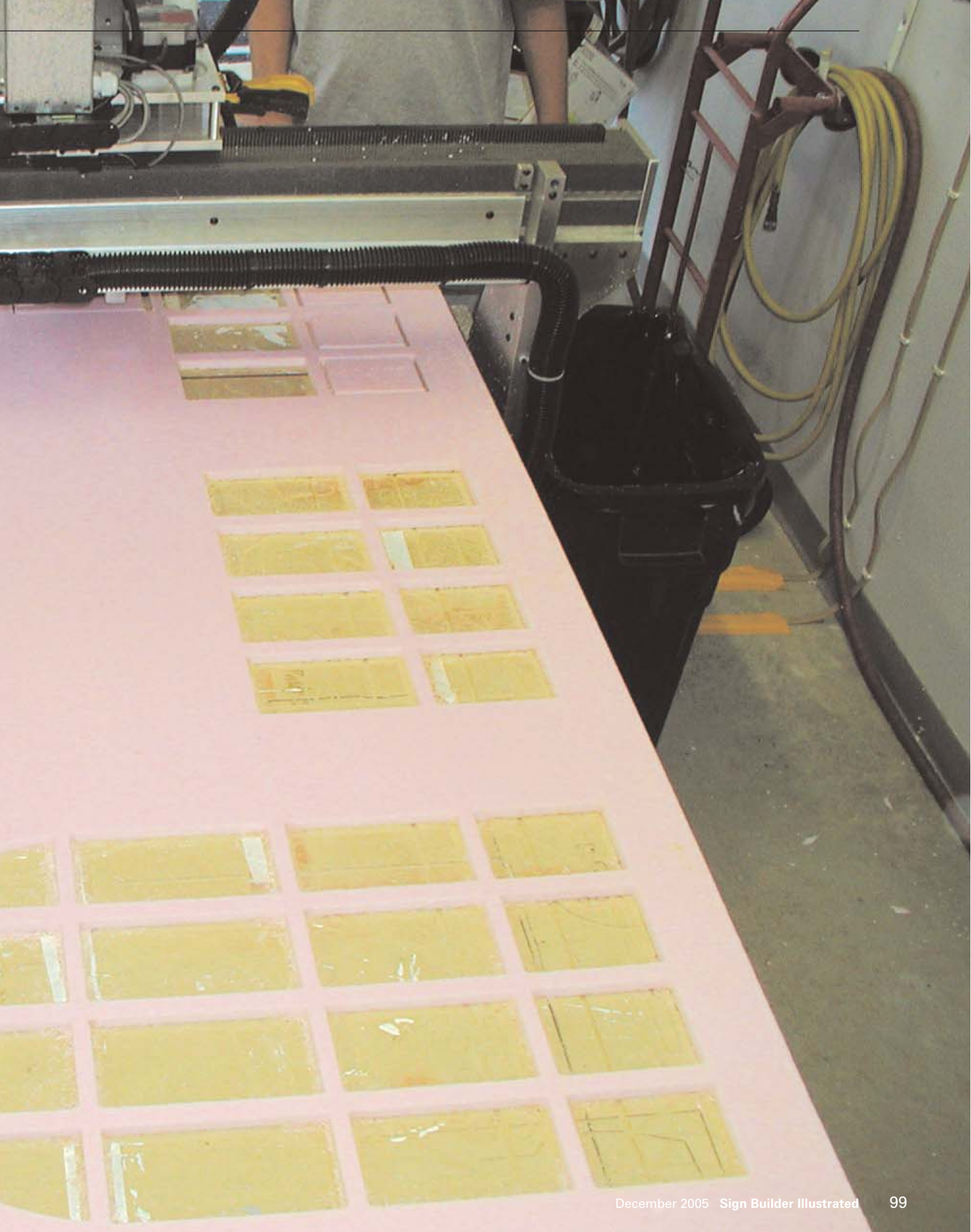
open each week's installment of *The Twilight Zone* by explaining to viewers the appeal of the "fifth dimension, one that was as vast as space and timeless as infinity." For many of today's sign makers, it is all about the "third dimension" and many are realizing the "vast and infinite" number of projects that are possible thanks to the power of Computer Numerically Controlled (CNC) routers and tools.

These machines are being used to cut a number of materials—hardwoods, softwoods, HDU, MDF, PVC, acrylic, aluminum, etc.—in order to realize a sizable number of potentially profitable sign projects.

"We have customers who do virtually everything," says Greg Jenkins, product development manager for CNC router and ToolPath™ software manufacturer XYZ Automation, Inc., of Burlington, Ontario, Canada. "Full-fledged electric shops are using the larger CNC routers to produce channel letters, aluminum backs, and flex faces, while commercial shops are doing routed wood, foam, PVC, etc. Some of these shops are CNC-routing Corian® for golf course signage, and we have a lot of users cutting Dibond® and plastic."

"One of our sign-making customers—Rodney's Custom Cut Sign Company in Apex, North Carolina—is finding that there is a big market for router-cut PVC mail-

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boxes,” continues Jenkins. “The owner tells us that PVC carves better than wood and has better longevity.”

“The key to machining any material with CNC is matching the appropriate cutter with the right feed rates and spindle speeds,” says Ted Hall, president of CNC router manufacturer and tool provider ShopBot Tools, Inc., of Durham, North Carolina. The company states that there are almost 4,000 three-dimensional capable ShopBot CNC tools in the field, many of them being used by sign makers.

“Our ShopBot CNC routers are being used around the world to produce commercial, residential, two-dimensional, three-dimensional, plastic, wood, and aluminum signs,” says Hall. “Signs with carved features made from foam and wood are becoming increasingly popular. Customers using plasma cutters are cutting all kinds of material, including steel.”

(Television viewers may have had the opportunity to see ShopBot’s products in action. In October, the company’s two-by-three-foot BenchTop tool was featured on the DIY Network’s *Tools and Techniques* program hosted by David Thiel, and last spring, Norm Abrams used a ShopBot CNC to make carved signs on PBS’s *New Yankee Workshop*.)

“A CNC router brings the production in-house for a lot of guys, which allows them to reduce the lead times in terms of developing a project,” says Jenkins, explaining the appeal of CNC routers. (Jenkins notes that dimensional letters available from Gemini, Inc., have been cut on XYZ routers.) “Producing prototypes and samples for your customer base is also easier. You can tell an account that you can work up a dimensional sample for them right at that moment instead of waiting for a vendor to do it for you. Shops can retain a lot more profit this way.”

One of the reasons for the high-quality results being produced by today’s CNC routers can be attributed to the professional sign-making software designed for them—more specifically, the fact that these types of program continue to improve.

“Three-dimensional [designing and cutting] is now easier and more powerful, and tool paths are increasingly efficient and clean-cutting,” says Hall. “We recommend that sign makers get good training on their software right from the start. Make sure you learn about the CAM (tool pathing)



PHOTO COURTESY OF SHOPBOT TOOLS.

functions, as well as information on good tooling and the appropriate parameters and use for the tooling. Most sign makers are skilled in design but are new to the machining aspects of materials.”

As far as advancements in the area of CNC routing, Hall offers, “There is better software and faster tools, at much more affordable prices. These three factors make CNC router right for sign shops of all types and sizes. Three-dimensional CNC automation gives smaller businesses the same capabilities as larger production operations.”

(Hall indicates that his company offers advanced training on three-dimensional sign-making software and a CNC training DVD/video, detailing how to use CAM/CAD function for the basic design software that comes with their tools.)

One of the major appeals for sign makers concerning CNC routers is their longevity. “Fairly intelligent owners looking for a return on investment are coming to us saying, ‘We are looking to pay off the machine in three years or less,’ which is a high level of investment,” says Jenkins. “However, it is important to note these machines are hardly broken in by three years. We still have customers who have owned models for eleven years and are still using them proficiently without any trouble.”

Hall states that ShopBots, like other CNC tools, are designed for production and require very little maintenance. “Cutters are the single consumable on a CNC tool, and cut quality depends on the sharpness and quality of tooling,” he says.

“The squareness of the tool can be periodically checked and adjusted as necessary. We occasionally grease our rack and pinion drive system. Over the years, pinions may wear and require replacement.”

For the XYZ Series Router Tables, Jenkins says his company offers a schedule of recommended maintenance tips. “For the Z-Lift lead screw, apply white lithium grease to it every month—or every 200 hours of operation,” he says.

“You should inspect the X and Y transmissions every 2,000 hours of operation,” Jenkins continues. “Adjust the tension, if necessary. The pinion should be inspected quarterly for excessive wear, and shoulder bolts should be inspected quarterly (and tightened, if necessary). The entire transmission should be checked quarterly to ensure proper operation. The Z transmissions should be inspected every 2,000 hours of operation, as well, and its tension should also be adjusted, if necessary.

“Also, be sure to inspect the racks on a weekly basis to check for any materials that may have built up on them. Racks should be cleaned with a wire brush to remove any imbedded shavings and should be greased with bearing grease every 100 hours of operation.”

Following these tips—and recognizing the various dimensional signage opportunities that are available—will ensure that your CNC routing efforts will last longer and pay off sooner. b

For further details about ShopBot Tools, visit www.shopbottools.com.