

■ Kitchen & Bath

High-Tech Countertop Templating

by Dave Holbrook

Savvy entrepreneurs sometimes make their mark not by inventing something new, but by adding to or improving on an existing technology. In that category are two innovations in solid-surface fabrication. If this material doesn't soon dominate residential countertop installations, don't blame these guys.

Highway Jobbery

There probably isn't a solid-surface countertop fabricator worth his sawdust — or whatever that stuff is — who hasn't run into some kind of costly error working from a template made at the job and brought to the shop. Over his 15-plus years as a fabricator, Paul Dubuc has seen his share of problems, from multiple site visits required to finalize measurements to templates that fall apart in transit, or some vital detail that got overlooked in an all-too-human moment of distraction. It doesn't take much to delay a countertop delivery by days or even weeks.

Dubuc has analyzed his missteps and benchmarked every step of the entire process. The result, six years in development, is the MobileFab System (Rissco Fabrication, Warren, R.I.; 401/247-7700, www.rissco.com), a rolling fabrication plant available for hire or franchise (see Figure 1). Bringing a fully equipped, highly efficient shop right to the job site effectively closes the biggest gap in the process — the one between shop and site.

Seeing is believing. I watched two skilled fabricators turn blank, 1/2-inch sheet stock into a fully finished and installed L-shaped sink deck, complete with integral basin, dropped edge, and backsplash. The entire job took four hours, clocked from the moment the truck pulled up to the site.



Figure 1. The only thing missing from this solid-surface fabricating shop is inefficiency.

The totally tricked-out, 26x10-foot box truck contains its own diesel-fueled generator, furnace, electrical system, heat-recovery ventilation and climate control, vacuum, and filtered evacuation system, along with every other tool needed to produce a top-notch installation. As a result of exhaustive time-and-motion studies, the cargo bay interior is detailed down to the smallest amenity, maximizing efficiency and



Figure 2. Task-specific tools are within easy reach on the above-bench racks (above). The topless, flip-up bench arms can be configured to suit various jobs. Vacuum ports above the bench provide efficient dust control (left), while blowers below the bench warm the material for rapid glue-ups. The table saw folds down out of the way when not in use (below).



putting many far roomier shops to shame (Figure 2).

The blank sheet goods are precisely scribed and marked in place on the cabinets, eliminating measurement and transfer errors. Countertop seams are typically prepared in the truck and completed during installation (Figure 3, next page). Because the guesswork is eliminated, there's no compromise in quality



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— like the difference between an off-the-rack suit and a tailor-made tux.

And fabrication isn't limited to countertops; MobileFab commonly handles shower surrounds, tub decks, and vanity tops, too. Pricing varies by fabricator, from competitive to premium, depending on area demand. Currently covering New England and New York State, franchisees are coming on line in Chicago and Jacksonville, Fla., early this year. A training area at the com-

pany's headquarters exactly reproduces the vehicle's interior, providing interested fabricators with first-hand observation and training in the system. A MobileFab truck can also be deployed to a demonstration site anywhere in the contiguous U.S.

By the way, I also witnessed a great trick for cleaning up silicone caulk squeeze-out after bonding an applied backsplash. Don't touch it until you've misted the seam area with Windex (also used to clean solid surface between polishing grit step-downs). Then use a plastic scraper and paper towels to completely wipe up the excess without a smear.

A Picture Is Worth a Thousand Measurements

Digital countertop templating is an exceptionally precise method that does away with all temporary materials,

conventional measuring, awkward and fragile stick assemblies, and as-built dimension drawings. Instead, the fabricator simply photographs the installation site. Columbus, Ohio, builder David Schaeffer described the first solid-surfacing installation he ordered from Randy's Countertops (Powell, Ohio; 740/881-5831) as scribe-perfect right off the truck; it settled into place with a whoosh of displaced air.

How does it work? Measurements are derived from photos taken with a digital camera that's been precalibrated to proprietary ETemplate Photo software program standards (ETemplate Systems, Raleigh, N.C.; 919/676-2244, www.etablettemple.com). The photos not only provide a visual record of site conditions, but supply all the measurements necessary for countertop production.

The "measurer" places "Intelli-Marks," or graphically coded plastic markers, at key locations on the cabinets and supporting walls to define the countertop borders and backsplash areas (Figure 4). Each marker's code informs the software of its significance in the general layout. For example, codes 72 and 73 might indicate a sink base, 68 and 69 a flush edge, and 80 a backsplash or vertical marker. (With two axes — X and Y — defined, the third, Z, is a simple mathematical deduction.) A gauge bar of known



Figure 3. Sheet blanks for large or complicated countertops are scratch-marked in place on the cabinets. Complex countertop shapes are then produced in segments to be assembled and seamed in place.



Figure 4. Proprietary plastic "Intelli-Mark" markers center target dots on cabinet edges. User-defined graphic codes inform the software of each marker's significance in the pattern.



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dimension is also placed with the markers and is used by the program to establish accurate scaling between points. The software compensates for distortions created by the view angle.

By comparing multiple, overlapping photo images shot from different angles, the program can triangulate the relative distances and produce a descriptive, three-dimensional file of the marker points in drawing interchange, or DXF, format (Figure 5). The software can define the Intelli-Mark centers down to the sub-pixel level — a lot sharper than your pencil. That file can then be exported to virtually any CAD program. The file initially looks like a constellation of unconnected dots on screen, requiring some human interpretation and refinement (Figure 6). The CAD operator connects the dots

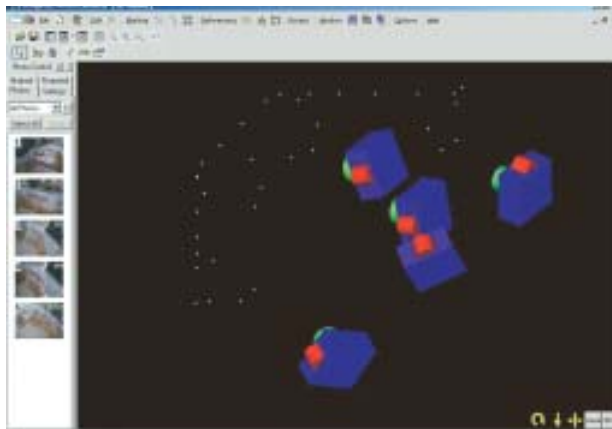


Figure 5. The software reverse-calculates the camera's position and shot angle. Overlapping camera views enable the program to recreate a contiguous, panoramic layout perspective.

into a line drawing, then closes and chamfers corners as needed, places sink and cooktop cutouts, and determines the countertop overhang distance. Digital templates for sinks and ranges can typically be imported from a manufacturer's DXF component catalog.

The refined CAD file can be used to drive a CNC (computer numeric controlled) router, automating the cutting process. Because CNC technology typically represents a minimum six-figure invest-

ment, CNC-equipped countertop fabricators are few and far between. Alternatively, ETemplate Systems also offers ETemplate Maker, a program that sends the data to a roll-feed vinyl cutter to produce an accurate, full-size template. Sign makers use similar equipment to create vinyl lettering and graphics.

Digital templating can faithfully reproduce every nuance of plumb, level, and dimension to an almost excessive degree of accuracy, enabling truly custom remote fabrication. And remote means remote — the digital photos or ETemplate file or finished CAD design can be e-mailed to a fabricator in the next town or on the other side of the world without loss of detail.

ETemplate technology, which includes the camera, software, and technical support, costs \$10,000, so small builders and remodelers aren't likely to jump on board. But to an everyday fabricator or sophisticated cabinet shop, the technology could prove compelling. Most solid-surface fabricators are mom-and-pop businesses whose proprietors would be hesitant to tackle a strange new method of operation, with its attendant high cost and learning curve. While a couple of hundred fabricators have made the switch to digital templating, around 130,000 others are still looking askance.

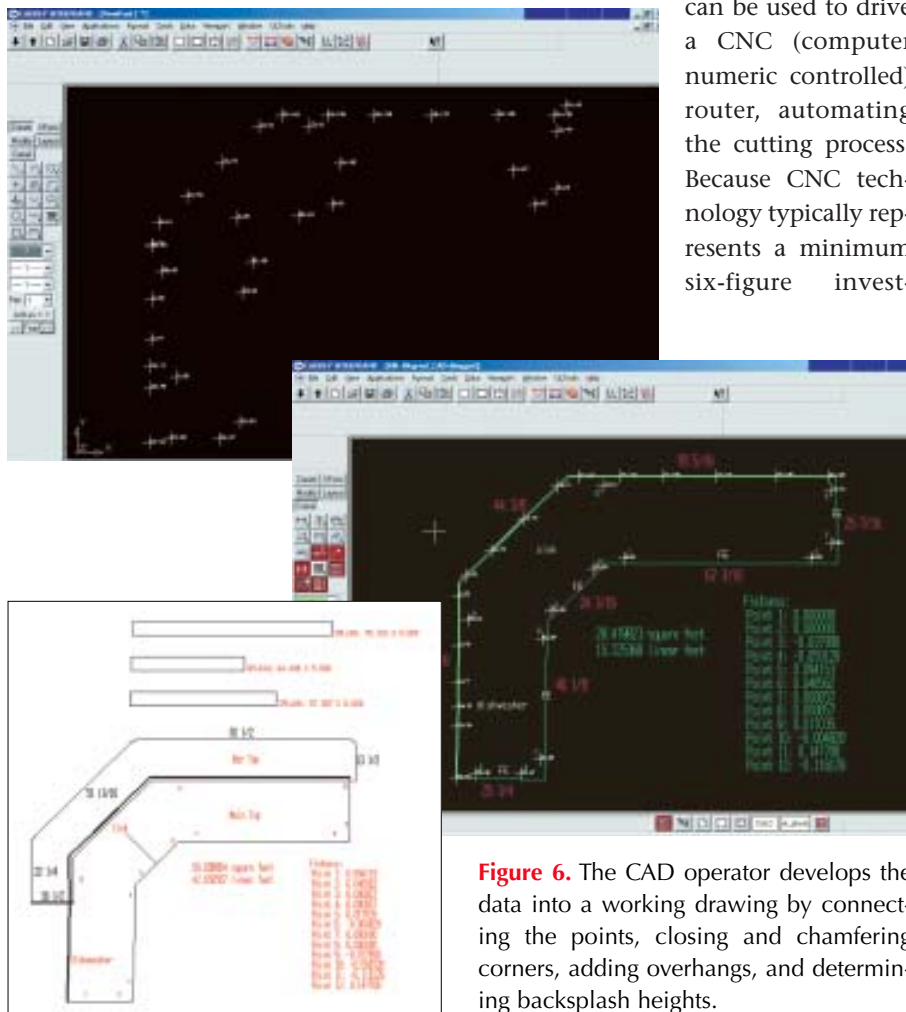


Figure 6. The CAD operator develops the data into a working drawing by connecting the points, closing and chamfering corners, adding overhangs, and determining backsplash heights.

JETTED TUBS



Don't Let the Bath Bugs Bite. A hot bath is supposed to help you relax, not make you sick. Strange as it seems, certain unhealthful bacteria can thrive in the active piping of a whirlpool tub. Advise your concerned clients that *StayClean* antimicrobial action is available as an option in most American Standard whirlpools. The technology is incorporated into the piping, eliminating the need for chemical or topical treatments. Price varies by unit.

American Standard, 800/442-1902, www.americanstandard-us.com.



Party Line. Good taste constrains us from showing this tub in an occupied state. But once installed, it's unlikely to remain empty. A six-seat capacity, 3-hp dual-speed pump, and 41 jets driving 310 gallons of water crazy bring health club conviviality to the privacy of home sweet home. Built-in head cushions in the corner seats and shoulder-directed jets are among the creature comforts provided. The MSRP for the *Dream HP* is \$6,695.

Dimension One Spas, 800/345-7727, www.d1spas.com.



Bubble Jets. With a fill level of 21 inches, this tub makes it easier than ever for your clients to go soak their head. And the freestanding *Serenity X* claw-foot tub, at 72x40 inches, would look great in their traditionally styled bathroom. Sixty air jets deliver thousands of heated air bubbles with three different intensity settings at variable blower speeds. Separate colors may be specified for the interior basin and exterior surround; in the case of the *Serenity XI* pedestal base, a tri-tone tub becomes possible. Either model, in eight standard colors, costs \$4,975. Twenty-two premium colors are available for a \$322 upcharge.

Aquatic Industries, Inc., 800/555-5324, www.aquaticwhirlpools.com.



Remodel Whirlpool. Not every bathroom can accommodate a big built-in jetted tub. But average-sized bathrooms need not be left out. The remodel-sized *Bella* fits in a standard 5-foot alcove; it's 32 inches wide, with a floor-to-rim height of 18¹/₄ inches. The acrylic tub has a reinforced integral skirt and a tile flange for those who don't want to sacrifice the convenience of a tub-and-shower combo. Five jets deliver authentic whirlpool action for \$1,949.

MTI Whirlpools, 800/783-8827, www.mtiwhirlpools.com.

UNDERCOUNTER APPLIANCES



Practical Oven. The oven doesn't have to be attached to the cooktop to occupy the same slot in the cabinetry. Whirlpool's Gold *model GBS307PD* 30-inch single electric oven actually measures 28¹/₂ inches wide, 27³/₄ inches high, and 23¹/₄ inches deep. That leaves about 4 inches of drop-in depth for a cooktop in your average cabinet and leaves the dual-fuel option wide open. The oven sits flush in the cabinet face. And the toe-kick's left free for kickspace heater installation, directly underneath. A handy design solution for an MSRP of \$1,100 to \$1,240, depending on color.

Whirlpool, 800/253-3977, www.insideadvantage.com.



Chilly Drawers. U-Line's cool 24-inch *2075DWRR Double-Drawer Refrigerator* has a crisper bin in the bottom drawer that slides out on a transverse axis to either side for convenient access. A glass shelf above provides a clear view of its contents and additional storage on top. An adjustable "Slide & Divide" separator keeps contents from shifting during the ride. The 5.5-cubic-foot-capacity unit can be completely concealed behind custom cabinet drawer panels. It'll even chill wine. The unit retails for \$2,174 in black, \$2,540 in stainless steel.

U-Line Corporation, 414/354-0300, www.u-line.com.



Ice Advice. People use lots of ice, but ice making uses lots of standard freezer space. Give the *DCE33* a 15-inch space of its own under the counter, and your clients can enjoy "perfectly clear gourmet ice cubes," without sacrificing ice cream storage. The unit is capable of producing 30 "cubic" pounds of ice per day. Door panel options include white, black, and stainless steel. Prices vary by region.

Scotsman Ice Systems, 800/726-8762, www.scotsman-ice.com.