

What's New in Solid-Surfacing



Precision fabrication tools and a greater number of features mean better choices for builders

Solid-surfacing is showing up in more and more homes, where it is being used not just for countertops, but for window stools, flooring, and shower surrounds (see Figure 1, next page). Solid-surfacing sales are increasing, and the industry is changing rapidly.

by Martin Holladay

In recent years, many more manufacturers have entered the market, creating more competition for DuPont's Corian. New solid-surface products have been introduced, including preformed tops that don't require fabrication.

Fabrication methods have also changed as the larger fabrication shops, seeking ways to speed up countertop assembly, have moved toward factory-style production techniques. Even

artisan fabricators working in shops that have chosen to stay small have adopted new tools and techniques to improve efficiency.

Natural Stone Lures High-End Customers

For years, solid-surfacing has been marketed as a premium countertop for customers who can afford the best. Within the past few years, though, granite has captured most of the luxury market. "We've lost the very high end market to solid stone," admits Jon Lancto, president of the International Solid Surface Fabricators Association.

One reason for the market shift — besides the fact that sophisticated customers often prefer natural materials — is the dropping price of granite. "The price of stone slabs has come



Figure 1. Molded solid-surface shower pans are available from several manufacturers. This shower kit from Transolid includes wall panels of 1/4-inch-thick solid-surfacing.



Figure 2. Swanstone is only 1/4 inch thick and needs to be glued to a particleboard substrate when used as a countertop.



Figure 3. Most solid-surface backsplashes are not attached to the countertop. Such "loose" backsplashes are installed with silicone caulk. Loose backsplashes are much easier to fabricate than coved backsplashes, which are glued to a rabbet at the back of the countertop.

down dramatically," says Chuck Geerdes, general manager of North Star Surfaces, a solid-surfacing distributor in St. Paul, Minn. Therefore, stone countertops are becoming more affordable. According to Tony Pelcher, a solid-surfacing fabricator at Top Shop in Colchester, Vt., "Granite and Corian are priced about the same."

In spite of the loss of the luxury market, sales of solid-surfacing continue to grow, as the material takes an increasing chunk of the middle range of the market, which has been occupied by plastic laminate. Many of these new customers are discovering solid-surfacing at their local big-box store. "The days of the kitchen dealer are numbered," says Lancto. "Now you can walk into a home center and buy solid-surfacing. Those sources will make the K&B dealer less important. Home Depot is DuPont's biggest customer right now."

More manufacturers. DuPont created the solid-surface industry when it invented Corian in the 1960s. Eventually, Avonite, Formica, Swan, and Wilsonart introduced their own versions of solid-surfacing (see "Solid Surface Update," 11/96). Within the last few years, a host of new solid-sur-

facing manufacturers have entered the market, and by now there are at least 18 manufacturers with aspirations for nationwide distribution.

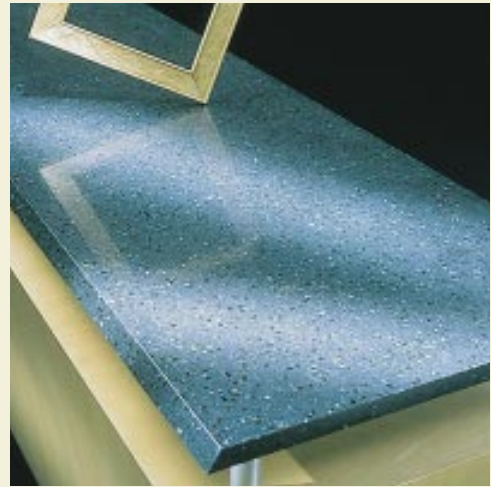
Three of the new companies — Hanwha International (maker of Topstone), LG Chemical (Hi-Macs), and Samsung (Staron) — are manufacturers from South Korea. Asian manufacturers are trying to attract customers away from DuPont by offering prices 10% to 15% below the price of Corian. Even DuPont has set up manufacturing plants in Japan and South Korea, and U.S. buyers may notice that their Corian sheets are shipped with Japanese labels. "The Asian products are driving the prices down," says Geerdes.

Engineered Stone

In the last few years, a new countertop material, engineered stone, has entered the U.S. market. Like solid-surfacing, engineered stone is manufactured by mixing a filler with resin and pouring the material into a mold, where it cures under a vacuum. Engineered stone differs from solid-surfacing in that it uses a different filler (quartz chips instead of aluminum trihydrate) and has a higher proportion of filler. Most engineered stones are composed of around 92% quartz chips.

Engineered stone is said to be less porous than natural stone. According to manufacturers, some customers prefer engineered stone over natural stone because the colors are more consistent. Engineered stone is much harder than solid-surfacing, so it must be cut with diamond tools, like granite. Seams in engineered stone are more noticeable than seams in solid-surfacing.

There are no U.S. manufacturers of engineered stone, which must be imported from Germany, Spain, Israel, or Canada.



Engineered stone, like this Zodiac from DuPont's Canadian plant, is a cast polymer resembling solid-surfacing. Because engineered stone is quite hard, it must be cut with diamond tools.

New materials. Not only are more manufacturers making solid-surface sheets; there are also new materials competing for the crowded surfacing market. European manufacturers have created a new countertop material they call "engineered stone." Like solid-surfacing and cultured marble, engineered stone is a type of cast polymer (see "Engineered Stone"). Sticker shock may scare away many potential customers, though, since engineered stone usually costs more than natural granite.

New Twists in Solid-Surfacing

Several manufacturers have branched out from simple 1/2-inch-thick sheet stock and are offering a variety of new solid-surface products.

Speckled sinks. For years, Corian sinks have been made only in solid colors, so purchasers of speckled color tops have been unable to buy a matching sink. Sinks made from the so-called "aggregate" colors, which mimic the look of natural stone, have been difficult to manufacture by ordinary molding, because the contrasting color chips tend to stratify in the lower section of the mold. However, TFI Corp. (1065 Maurader St., Chico, CA 95973; 800/422-8746; www.tficorp.com) now manufactures Corian sinks in a variety of speckled colors. Their line of sinks, called Lavanto, aren't molded; instead, they are thermoformed from Corian sheet stock.

Thin solid-surfacing. Two manufacturers, Swan Corp. and Wilsonart, produce thin solid-surfacing which needs to be glued to a particleboard substrate like plastic laminate (Figure 2). Swan also sells premolded post formed countertops that have been factory-bonded to a particleboard substrate.



Figure 4. Several manufacturers offer pre-formed lavatory tops, eliminating the need for fabrication. This two-bowl top from Transolid is manufactured by thermoforming. Transolid also sells lavatory tops with undermount sinks that have been factory-seamed to the counter.



Figure 5. A V-grooving machine is a type of automatic router that can cut a V-groove with great precision. The cut is backed up with tape that becomes a hinge when the solid-surfacing is folded and glued, forming a miter joint.



Figure 6. Most solid-surface countertops are only $\frac{1}{2}$ inch thick, so fabricators build up the exposed edge with extra material to make the top appear thicker. Gluing up an edge takes dozens of spring clamps (far left). After a pass with a router equipped with a straight bit, the seams on a built-up edge almost disappear (left).



Figure 7. Before gluing the solid-surface strips used to build up a countertop edge, small blocks of plywood are attached to the top with hot-melt glue. These blocks act as stops to prevent the glued strips from sliding around while being clamped.

Manufactured coved backsplash. Most solid-surface backsplashes aren't seamed to the deck; instead, so-called "loose" backsplashes are separate pieces, attached with silicone caulk (Figure 3). Loose backsplashes avoid the expensive labor required to glue up a custom-made backsplash and then cut the cove with a router bit. However, TFI Corp. has recently begun manufacturing a ready-made coved backsplash out of Corian. To attach the backsplash, a fabricator needs only to create a rabbet at the back of the deck and then glue the backsplash into the rabbet.

Preformed lavatory tops. For years, several manufacturers, including Corian and Surell, have offered preformed solid-surface lavatory tops with integral bowls and backsplashes. Lately, the market has become more competitive, with two solid-surface manufacturers, Talon Surfaces and Transolid, specializing in lav tops (Figure 4, previous page).

Bigger, Better Fabrication Machines

In some areas of the country, there has been a trend toward consolidation among solid-surface fabricators, leading to large fabrication shops with 40 or 50 employees. These big shops have increasingly adopted production fabrication techniques, investing in expensive equipment like V-grooving machines and CNC routers.

V-groovers cut a V-shaped notch in solid-surfacing to create a miter



Figure 8. Turnbuckles attached to power grips (the suction-cup tools used for moving glass) can be used to draw together a solid-surface joint. This clamping system is especially convenient for field seams, where bar clamps can be awkward.

fold (Figure 5). Before the V-groove is cut, the solid-surfacing is backed up with transparent tape, which becomes a hinge when the miter is folded and glued. The folded miter replaces the usual edge build-up method, which involves gluing on two extra strips of 1/2-inch material with spring clamps (Figure 6).

Computer numeric controlled (CNC) routing tables (automatic routers connected to a computer) are able to read a cardboard template, digitizing the information. The computer then directs a precise automatic router to cut out countertop pieces, including sink cutouts, while the operator stands by and watches.

A fabricator interested in buying either a V-grooving machine or a CNC router has to be ready to spend about \$65,000 to \$80,000. Although big production shops have found that the efficiency gains provided by these machines justify the investment, plenty of small shops continue to make a good living producing custom solid-surface work with such simple tools as table saws and 3-hp routers.

New tools for small fabricators. Most of the basic tools used in solid-surface fabrication — table saws, hand-held routers, hot-melt glue guns, and spring clamps — have not changed recently (Figure 7). Although standard woodworking tools are essential and adequate for many fabrication steps, the work has been made more efficient by newer tools designed specifically for solid-surfacing work.

The pioneer in creating solid-surface tools is Tom Pinske, the founder



Figure 9. A wavy router bit (top) creates an edge with more surface area for gluing. The key to using a wavy bit is the special stepped router base. The first cut is made with the high side of the base riding on the material. Then the second piece of solid-surfacing is cut using the low side of the base. The offset in the router base heights allows the two pieces to mate, leaving the top surfaces on the same plane. The resulting joint (above) forms a curvy version of a tongue-and-groove joint.

of The Pinske Edge. He has developed a number of simple tools that work together to speed solid-surfacing fabrication. One of Pinske's inventions is the suction-cup power grip coupled with a turnbuckle (Figure 8). A pair of these grips can be used to draw together a glued joint, eliminating the need for bar clamps or temporary blocks attached with hot-melt glue.

Pinske also promotes the use of his wavy-edge router bit, used in conjunction with a custom router base for making seams in solid-surfacing. The wavy bit has an S-shaped profile; two solid-surface edges can be cut with a wavy bit in such a way that they mate (Figure 9, previous page). Before the introduction of the wavy bit, most fabricators used the mirror cutting technique to prepare seams using a straight router bit (see "Solid Surface Countertops," 5/94).

"We've been using wavy bits for about three years," says Wendell Parish, a fabricator at Vermont Solid Surface in St. Johnsbury, Vt. "We used to do mirror cutting. It took more time to set up, because you'd have to get both pieces side by side, and space them at a certain distance. With the wavy bit, we just cut the pieces we need to seam, put a straight-edge on, and use the wavy bit. Then we turn the router around and do the other side. The seam is stronger, because there's more surface area for the glue."

Over-the-Counter Sales

Most of the changes in the solid-surfacing industry affect fabricators, not builders. But the increasing number of manufacturers creates opportunities for builders who are ready to make their own solid-surface countertops. Whereas in the past only trained, certified fabricators could buy solid-surface sheets, several manufacturers — including AGCO, Formica, Vassallo, and Samsung — will now sell to any buyer.

Solid-surface fabricating requires study and practice as well as many of the skills needed for woodworking. Unlike natural stone, solid-surfacing is a forgiving material, since almost any error can be corrected with a nearly invisible repair.

Coordination counts. Builders who don't want to know anything more about solid-surfacing than the phone number of a local fabricator need to remember the basics of working with any sub — namely, communication and coordination.

A fabricator doesn't want to come to template a job until all of the base cabinets have been installed. "Sometimes a builder calls us when he is not quite ready," says Wendell Parish. "And when we get to the kitchen, he says, 'I'm going to build a wall here.' He should finish what he needs to do, get totally ready, and then call us. And the sink should be on site, so we can take the sink with us."

Although the base cabinets should be in, it's best to hold off on the kitchen trim details until after the countertop is installed. "When we show up, we have a 300-pound top with an integral sink, and we have to lift it up to get it in," says solid-surfacing fabricator Tony Pelcher. "Sometimes we may need to move the tall cabinet on the end to give us some room. You have a very expensive top with very expensive cabinets, so you don't want to damage anything. I tell the builders to leave the crown molding out so we can move a cabinet if we have to."

Martin Holladay is an associate editor at The Journal of Light Construction. Special thanks to Vermont Solid Surface of St. Johnsbury, Vt., for their assistance with this article.

Solid-Surfacing Manufacturers

AGCO

2782 Simpson Circle
Norcross, GA 30071
770/447-6990

Manufacturer of Diamonite, which is made with an acrylic-modified polyester resin. It comes in three thicknesses ($\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$ inch) and two widths (30 and 36 inches). AGCO also offers pre-fabricated kitchen tops, similar to post-formed laminate tops. The price is \$35 to \$55 per linear foot of countertop (\$14 to \$22 per square foot). Purchasers of Diamonite do not have to be certified fabricators. One distributor of Diamonite is World Panel Products, Inc. of Riviera Beach, FL 33404 (888/836-3379; www.worldpanel.com/diamonite.htm).

Avonite

1945 Highway 304
Belen, NM 87002
800/866-8324
www.avonite.com

Avonite uses a blend of acrylic and polyester resins and can be thermo-formed. The standard thickness is $\frac{1}{2}$ inch. Some colors are available in $\frac{1}{4}$ or $\frac{3}{4}$ inch thicknesses. It is available in 30 and 36 inch widths in lengths up to 10 feet. You must be a certified fabricator to purchase Avonite.

Barton Enterprises Inc.

329 W. Lone Cactus, Suite 8
Phoenix, AZ 85027
623/581-9965
www.bartonenterprises.com

Manufacturer of Bartonyte, which is $\frac{1}{2}$ inch thick. The material consists of chips of solid-surface material bonded with epoxy. The manufacturer requires the material to be installed over a continuous substrate. Although it is not necessary to be certified to purchase Bartonyte, the manufacturer may require a purchaser to participate in a background check.

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Centura Solid Surfacing

3525 State Road 32 West
Westfield, IN 46074
888/398-2296

www.centurasolidsurface.com

Centura is available in four different thicknesses (1/4, 3/8, 1/2, and 3/4 inch). Two widths are available (32 and 36 inches) and six lengths (4, 5, 6, 8, 10, and 12 feet). Centura uses polyester resin and cannot be thermoformed. Purchasers must be certified fabricators.

DuPont Corian

P.O. Box 80012
Wilmington, DE 19880-0012
800/426-7426

www.corian.com

Manufacturer of Corian solid-surfacing. Corian is available in three standard thicknesses (1/4, 1/2, and 3/4 inch). The size of a standard sheet is 30 inches by 12 feet, but other sizes are available. Corian can be purchased only by certified fabricators. In order to protect the markets of existing fabricators, DuPont does not certify new fabricators unless a "need" is demonstrated.

Formica/Fountainhead

10155 Reading Rd.
Cincinnati, OH 45241
877/386-4323

www.formica.com
www.ftnhead.com

Manufacturer of Surell and Fountainhead solid-surfacing. Surell and Fountainhead use polyester resins; limited thermoforming is possible. Standard thicknesses are 1/4 and 1/2 inch. The 1/2-inch material is available in two widths (30 and 36 inches) in a standard 12-foot length. Purchasers of Surell and Fountainhead do not have to be certified.

Halstead International

15 Oakwood Ave.
Norwalk, CT 06850
800/699-9324

www.halsteadintl.com

Distributor of Topstone, manufactured in South Korea by Hanwha International. Topstone uses acrylic resin and can be thermoformed. It is available in 1/4-,

3/8-, and 1/2-inch thicknesses. The only available width is 30 inches, while three lengths are available: 8, 10, and 12 feet.

Hartson-Kennedy

P.O. Box 3095
Marion, IN 46953
800/388-8144

www.hartsonkennedy.com

Makers of Cerata solid-surface, which uses an acrylic-modified polyester resin. Cerata is also available in preformed countertop blanks, complete with coved backsplash and built-up edge. Their warranty is valid only if the material is installed by a certified fabricator.

LG Chemical of America

1000 Sylvan Ave.
Englewood Cliffs, NJ 07632
201/816-2311

www.lgchem.com

Importer of Hi-Macs solid-surface, which is manufactured in South Korea. Hi-Macs uses acrylic resins and can be thermoformed. Hi-Macs is available in colors that are comparable to Corian, and sells for 10% to 15% less. Hi-Macs is available in two thicknesses (6 mm and 12 mm, equivalent to about 1/4 and 1/2 inch) in sizes up to 30 inches wide by 12 feet long. Purchasers of Hi-Macs must be certified fabricators. One distributor of Hi-Macs is North Star Surfaces of St. Paul, Minn. (651/602-3200).

Lippert

P.O. Box 1030
Menomonee Falls, WI 53052-1030
800/869-8775

www.lippertcorp.com

Manufacturer of Prism. Prism comes 1/2 inch thick and is available in sizes up to 36 inches by 12 feet. Purchasers must be certified fabricators.

Royal Stone Industries

2949 North 31st Ave.
Phoenix, AZ 85017
888/633-4537

www.royalstoneind.com

Royal Stone solid-surfacing uses a blend of acrylic and polyester resins. It is

available in 1/4, 3/8, 1/2, 3/4, and 1 inch thicknesses. It comes 34 1/4 inches wide in lengths up to 12 feet. Purchasers must be certified fabricators.

Samsung/Cheil Industries

14251 E. Firestone Blvd.
La Mirada, CA 90638
562/926-5520

www.staron.com

Distributor of Staron solid-surface material, which is manufactured in South Korea. It uses an acrylic resin. It comes 30 inches wide in two thicknesses (1/4 and 1/2 inch). It is not necessary to be certified to purchase Staron.

Stone Creations Enterprises

50 W. Third St.
Holland, MI 49423
616/395-5467

www.nu-ance.com

Manufacturer of Nu-Ance solid-surfacing, which uses a blend of polyester and acrylic resins; thermoforming is not recommended. Nu-Ance is available in one size (1/2 inch by 32 inches by 8 feet). Purchasers must be certified fabricators.

The Swan Corp.

One City Centre, Suite 2300
St. Louis, MO 63101
800/325-7008

www.theswancorp.com

Manufacturer of Swanstone. Swanstone is 1/4 inch thick and is available in two sizes: 48 inches by 8 feet and 30 inches by 12 feet. It uses modified acrylic resins and cannot be thermoformed. Purchasers of unfabricated Swanstone sheets must be certified. Like plastic laminate, Swanstone is installed with contact cement over a particleboard substrate. Premolded post-formed tops that have been factory-bonded to particleboard can be ordered from The Swan Corp.

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Talon Surfaces

32031 Howard St.
Madison Heights, MI 48071
877/567-7866
www.talonllc.com

Manufacturer of Korstone. Korstone uses a blend of acrylic and polyester resins. It is available only as preformed lavatory tops, not as unfabricated sheets, so certification is not required for purchase.

Transolid

2599 Charlotte Hwy.
Mooresville, NC 28115
800/766-2452
www.transolid.com

Transolid, like Talon, specializes in preformed lavatory tops. Shower kits are also available. Certification is not necessary for purchase. Transolid uses acrylic and polyester resins.

Vassallo Unlimited

P.O. Box 264
Mercedita, Puerto Rico 00715
787/848-0612
www.lassica.com

Makers of Lassica solid-surfacing, which is available in 1/4, 1/2, and 3/4 inch thicknesses, in two widths (30 and 36 inches), and in three lengths (8, 10 and 12 feet). Anyone can purchase Lassica; certification is not necessary.

Wilsonart International

2400 Wilson Pl.
Temple, TX 76504
800/433-3222
www.wilsonart.com

Manufacturer of Gibraltar and SSV (solid-surface veneer). Both materials use acrylic resin and can be thermoformed. Gibraltar comes 1/2 inch thick and is available in two widths (30 and 36 inches) and one length (12 feet). Wilsonart SSV is only 1/8 inch thick. SSV is bonded to a particle-board substrate with contact cement. It is available either in unbonded sheets or prebonded to a particleboard substrate. Either way, it's available in two widths (30 and 36 inches) in lengths up to 12 feet. Purchasers of Gibraltar or SSV must be certified.

Suppliers of Engineered Stone

Caesar Stone U.S.

7315 Fulton Ave.
N. Hollywood, CA 91605
800/666-8201
www.caesarstoneus.com
Importer of Caesarstone, an engineered stone manufactured in Israel. The manufacturer claims it is both lighter and harder than granite. It is available in 20 colors.

Cosentino USA

10707 Corporate Dr., Suite 136
Stafford, TX 77477
800/291-1311
www.silestoneusa.com
Importer of Silestone, an engineered stone manufactured in Spain. Silestone is a mixture of stone chips, sand, recycled glass, and polyester resins. The standard slab size is 3/4x55x120 inches.

DuPont

P.O. Box 80012
Wilmington, DE 19880-0012
877/229-3935
www.zodiaq
DuPont manufactures Zodiaq engineered stone at its factory in Quebec, Canada.

Halstead International

15 Oakwood Ave.
Norwalk, CT 06850
203/629-9222
www.halsteadintl.com
Distributor of Granyte engineered stone.

Inova

9 Mars Ct.
Montville, NJ 07045
800/544-6682
www.schock.de
Distributor of Cristalite engineered stone countertops, which are manufactured by Schock & Co. of Germany. The standard thickness used for countertops is 39 mm (about 1 1/2 inches).

Sources of Solid Surfacing Tools

Art Betterley Enterprises

P.O. Box 49518
Blaine, MN 55449
800/871-7516
Art Betterley Enterprises sells a variety of specialty routers and bits for laminate and solid-surfacing fabricators.

The Pinske Edge

P.O. Box 68
Plato, MN 55370
800/874-6753
www.pinske-edge.com
The Pinske Edge sells a wide variety of specialized tools they have developed for solid-surfacing fabricators.

Specialtytools.com

940 Lawhon Dr.
Jacksonville, FL 32259
800/669-5519
www.specialtytools.com
Specialtytools.com was formerly known as JCM Industries. They sell a wide variety of solid-surfacing tools, including many Pinske tools.

For More Information

International Solid Surface Fabricators Association (ISSFA)

975 American Pacific Dr., Suite 102
Henderson, NV 89014
888/679-2970
www.issfa.net
ISSFA is a non-profit trade association for solid-surfacing fabricators.

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www.solid surfacemagazine.com

