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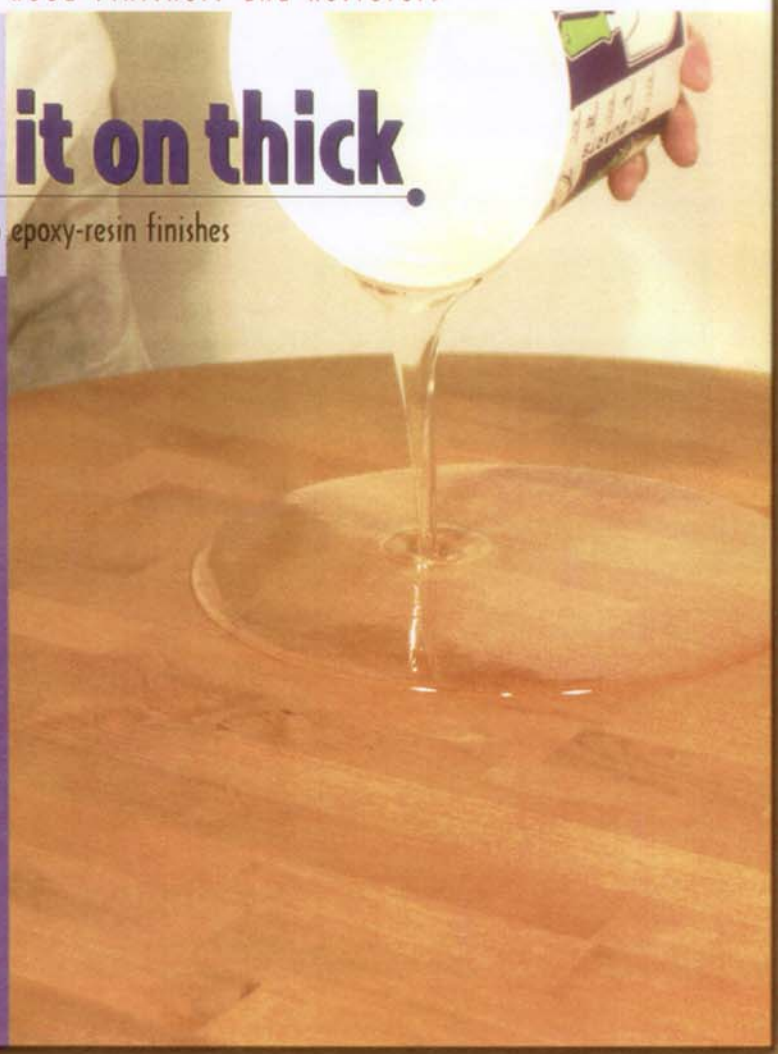
Laying it on thick

An expert's guide to epoxy-resin finishes



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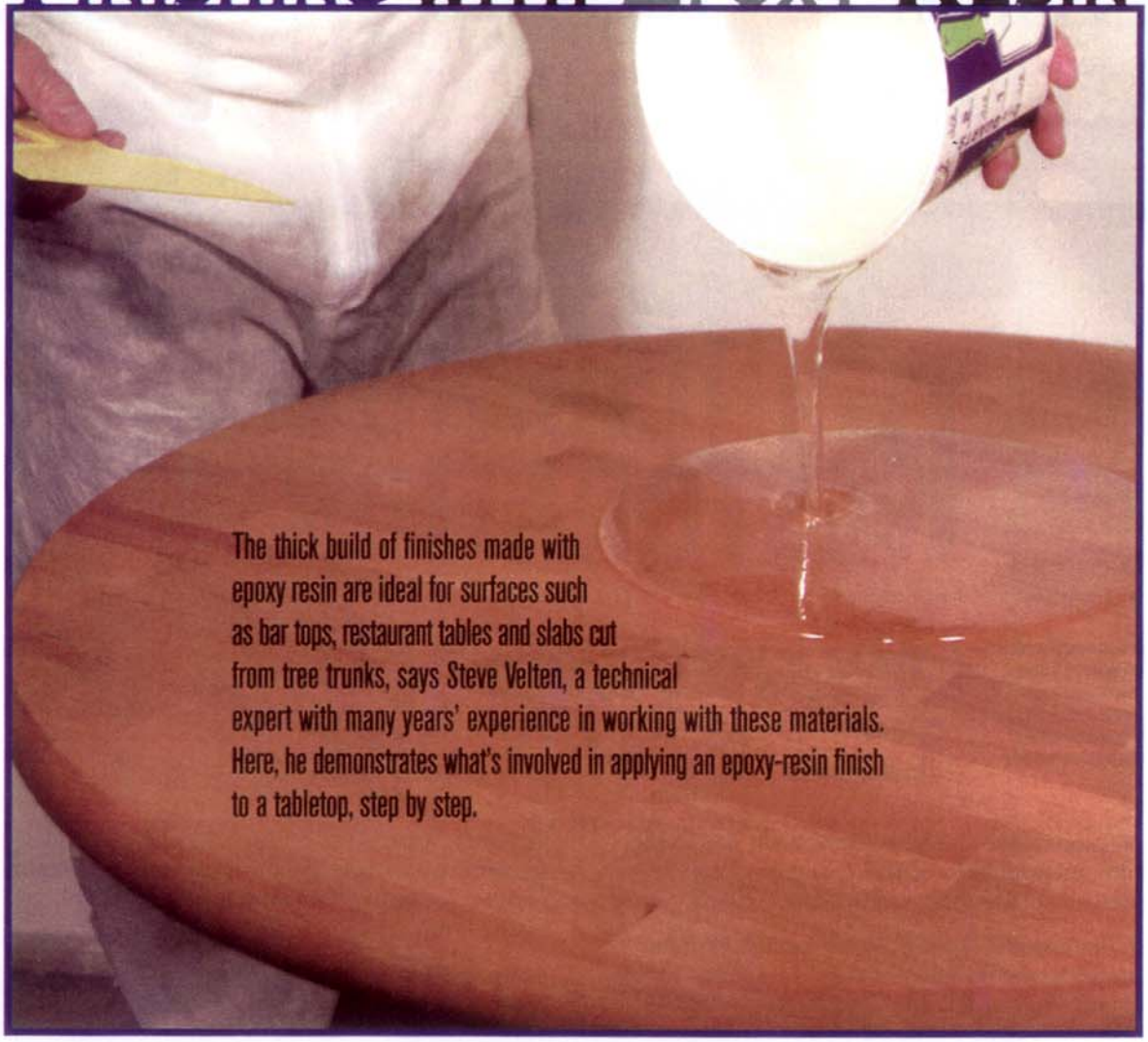
Finishing with Epoxy Resin



The thick build of finishes made with epoxy resin are ideal for surfaces such as bar tops, restaurant tables and slabs cut from tree trunks, says Steve Velten, a technical expert with many years' experience in working with these materials. Here, he demonstrates what's involved in applying an epoxy-resin finish to a tabletop, step by step.

By Steve Velten

Among all finished interior wood surfaces, tabletops and bar tops come into the most contact with water and therefore require finishes that offer the greatest possible protection. Possibly the most protective of all is epoxy resin, which has the added advantage of building to such thickness that decorative objects can be embedded in it if desired.

The build characteristics are truly impressive: One coat (or "pour") of an epoxy-resin finish is about 1/16-inch thick – the equivalent of as many as 60 coats of a brushed- or sprayed-on finish. In combination with this thickness, epoxy resin crosslinks when it cures, so it is particularly good at almost completely stopping wood movement. As a result, epoxy resin is ideal for slabs cut from tree trunks and for tabletops made with many alternately placed pieces of wood glued to a plywood or medium-density-fiberboard (MDF) base.

Because of the wear to which bar tops and tabletops are subjected – and the reduced scratch resistance of epoxy resin – it's often a good idea to topcoat the finish with a coat of more scratch-resistant polyurethane.

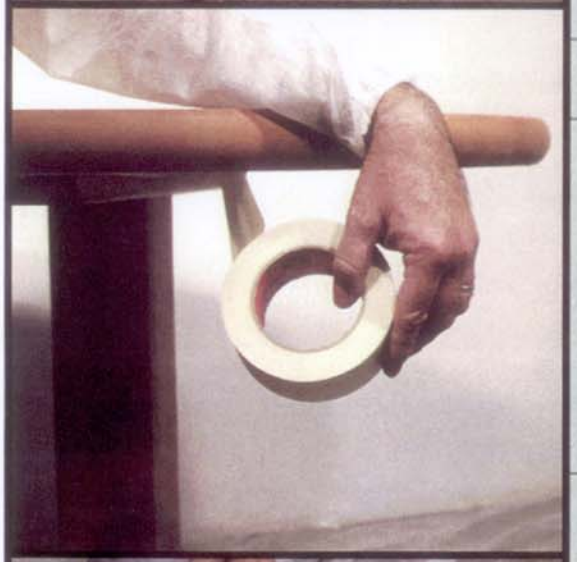
For the project I'm showing here (a job with a small restaurant-type table), I'm using "Glaze Coat," which is what Eclectic Products calls its epoxy-resin finish. This is not a "glaze" in the normal sense – that is, a layer of pigmented color applied between coats of finish. Instead, the name reflects the product's high build and high-gloss appearance.

◀ As in applying any finish, you'll get the best results with epoxy resin if your finishing area is well ventilated, well lighted and has a working temperature between 70 and 85 degrees F. But unlike spraying or brushing, where the object can be at any angle, pouring epoxy resin successfully requires that the surface you're finishing be *perfectly* level. I use a carpenter's level to make sure.

The materials required for the job include:

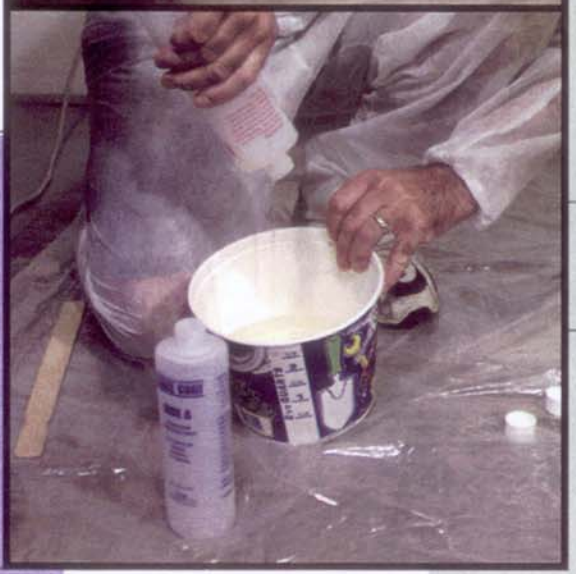
- A thick, two-part, ultra-clear, high-gloss epoxy-resin finish
- Several clean, unwaxed paper buckets with smooth, flat sides and flat bottoms (unwaxed paper cups can be substituted for small jobs)
- Several stir sticks with at least one straight edge
- A plastic spreader
- One or more disposable brushes
- Masking tape.

In addition (and if desired), you'll need to have ready whatever photos or small objects you want to embed in the finish. Also, it's a good idea to have a plastic cover prepared for shielding the tabletop from dust as the finish cures.



◀ It isn't necessary to tape the edges (unless you want to avoid getting finish on them), but it's a good idea to apply masking tape to the *underside* of the table, flush up to the edges. The epoxy resin will flow off the edges and wick onto the tape, which can be removed later to take off any "icicles" that might form. You can sand off any drips at the edge of the tape once the resin has cured.

If the table has any cracks or holes running all the way through the wood, apply tape to the bottom side at these points to keep the resin from dripping through. Just be sure to remove the tape before the finish cures and "glues" it to the wood.



◀ To mix the epoxy resin, pour equal portions (or whatever blend is recommended in the manufacturer's directions) of resin and hardener into a clean, disposable, unwaxed bucket.

Mix the two parts thoroughly by hand (not by machine) for at least two minutes with slow, consistent "folding-into-the-center" revolutions in order to minimize the trapping of air bubbles in the mixture. Scrape the sides and bottom occasionally and clean the stirring stick over the edge of the container several times.

The "Glaze-Coat" product I'm using here sets up (and becomes unworkable) in just 15 minutes, so I need to work with purposeful speed.

When thoroughly mixed to an even transparency, pour the contents of the bucket into a second clean, unwaxed bucket and mix for another minute using a fresh stirring stick. *Do not* scrape the sides or bottom of the first bucket with your stirring stick as you pour.

This "two-cup" method of mixing reduces the possibility of getting bubbles or poorly mixed material into the finish.

After double mixing, quickly flow the resin onto the work surface using one of two methods: Either pour the entire contents of the bucket into the center and spread outward from there, or start at one edge and pour in a zigzag pattern across the surface.

Before the first pour, some finishers seal the wood by brushing on a thin coat of epoxy resin and letting it cure for about four hours. This reduces the possibility of air-bubble formation (especially on porous woods) and provides the opportunity of "gluing" objects down simply by placing them on this still-wet sealer coat. This saves having to glue the objects down with white glue and then waiting for the glue to dry before applying the first full pour coat.

Many people also like to seal the bottom side of a tabletop with a thin coat of epoxy resin to reduce the possibility of warping. This makes more sense with solid-wood tops than with those made with plywood or MDF that have been covered with cloth, paper or smaller wood pieces glued in decorative patterns. In any event, finishing the bottom side in this way always makes the surface feel and look better.

If you wish to encase a tabletop *entirely* in poured epoxy resin, I recommend you coat the bottom side first, taping off the edges so they can be finished together with the top. You can also keep the edges taped off for both the top and bottom pours and then finish them separately by brushing on several coats of epoxy resin after the top and bottom are completed.

Epoxy resin is self-leveling and will run out over the surface pretty well by itself, but you generally need to help it along with a plastic spreader (not a brush, which will leave marks).

Once you have the resin fairly level, look for bubbles that rise to the surface and gently blow on them to make them pop out. (You can also pop them out with a torch or heat gun, holding either one at six to 12 inches from the surface.) The more porous the wood and the larger the surface, the more likely you are to get bubbles.

As a result of the rapid curing of epoxy resin, you should divide large surfaces such as bar tops into four- or five-foot-square sections and have another person help you mix, pour and spread the finish. Remember, you have very little time to complete the job!

TROUBLESHOOTING

Here are the most common problems that occur when pouring epoxy-resin finishes, together with their causes and solutions.

– S.V.

Problem	Cause	Solution
Air bubbles	The surface is porous or you have mixed the epoxy resin too rapidly.	Blow gently over the surface or, for a large number of bubbles, pass a torch or blow dryer about six to 12 inches above the surface.
Soft, sticky spots	The epoxy resin wasn't mixed thoroughly enough.	This can't be fixed once it has occurred. To avoid such problems, use the two-cup method of mixing described in the accompanying text and don't scrape the sides of the first container when pouring into the second. Also, use a clean stirring stick in the second container, don't scrape the sides of the second container when pouring, and don't scrape the stirring stick.
Cloudiness	The epoxy resin was stored or applied in cold conditions.	This can't be fixed once it has occurred. The environment and the product should be at 70 degrees F or warmer during application. If the resin has been stored in cold conditions, set the container in hot tap water until the product clears, then let it cool to room temperature before using.
Uneven surface	This can occur if the build is too thin, if the surface isn't level or if the resin becomes overheated during air-bubble removal.	Pour another coat, possibly after sanding out some of the unevenness. If heating to remove air bubbles, maintain a distance of at least 12 inches and keep the heating apparatus moving.

As the epoxy resin flows over the edges, use a disposable brush to smooth things out. The resin that flows onto the underside of the table will hang up on the masking tape and can be removed later as the resin sets up.

If the object is likely to be used heavily, as with a restaurant or kitchen table, you should do more than one pour. Likewise, if there are recesses (for example, between embedded objects) that need to be filled, you will need multiple pours. Because of the rapid curing and the time between pours, however, mix only enough product to do one pour at a time.

Between coats, allow each pour to cure in a warm room for two to four hours. The final coat will dry in four to seven hours (at 70 degrees F) and generally will cure totally in 72 hours – although temperature and humidity will affect these times.

To protect the final coat from dust settling and becoming embedded, build a lightweight wooden frame slightly taller and wider than the coated piece and staple plastic sheeting to the top of it, or, in the case of a table, just attach the sheeting to objects that are taller than the table itself.

After 12 to 15 hours, you can sand off any remaining drips from the underside.

Once the resin has reached the gel stage and stopped dripping, you can remove the masking tape from the underside of the table or from the edges – or you can let the resin harden and then remove the tape with a putty knife.

Use acetone for tool clean up and plenty of soap and water to cleanse your skin.

To increase resistance to abrasion and scratches, sand the surface lightly with fine sandpaper and brush or spray on a coat of polyurethane. You can use any sheen you like: gloss, satin or flat.

Here's the finished table.

Steve Velten is technology manager for Famowood Products, made by Eclectic Products, Inc., of Eugene, Ore. The company's web address is www.eclecticproducts.com

Special Effects

One of the unique benefits of thick-building epoxy-resin finishes is the capability they provide for burying decorative materials or objects within the finish, so long as those objects aren't waxy.

Here are three examples, with instructions for each:

In this example, the cover page of a Farmer's Almanac is embedded in an epoxy-resin finish, but any papers could be embedded in the same manner. Business logos, cardboard coasters, cartoons and menus are popular choices for restaurant and pub tables.

Immediately after applying the first thin application of resin finish, place the paper item (or items) on the surface and pass the spreader over it (or them) to flatten the sheets and force out any air bubbles. Allow the epoxy resin to dry and then pour one or more thick coats.

The challenge when embedding thin paper like newsprint is that it can become translucent, in which case print on the backside may bleed through. To avoid this happening, photocopy the piece onto thicker paper before gluing it down.

A great way to add color and texture to an epoxy-resin coating is to embed fabric in it, thus producing an instant and permanent "tablecloth" that never needs laundering.

If the tabletop is round, you can cut the fabric into a circle that covers just the surface of the table. This way, you don't have to deal with any folds over the edges.

If the table isn't round, begin by wrapping the fabric over the edges, then staple it to the underside of the tabletop and cut away any excess. Apply masking tape up to the edges of the fabric and then pour the epoxy resin onto the surface and spread it out while removing any bubbles in the process. The fabric will absorb some of the resin and become glued to the wood surface.

In these applications, you'll need to apply at least three coats of epoxy resin.

Objects with three distinct dimensions can be coated onto surfaces finished with epoxy resin. Here, for example, is a solid piece of burl with seashells and dried sea grass embedded into a recess. Simply attach these objects with white glue and then do the pours, or place them into the first thin coat and then cover them over with subsequent pours.

But note: If you want to embed thick objects on a flat surface, you will need to add tape or wood molding to the sides to build a rim slightly higher than the thickest of the objects.

– S.V.