

# Concrete Vanity

For kitchen or bath,  
concrete countertops shine

by Mark Johanson

Concrete casting techniques, material availability and information have improved greatly in recent years, and today pouring your own concrete countertop is easier than ever. By tapping into new DIY-friendly resources, you can virtually guarantee that your casting project will be a success — even if you are a first-timer.

The advantages of a cast concrete countertop are many. The material is durable, inexpensive, low-maintenance and when handled properly, beautiful. Design options are nearly unlimited. You get to choose the size, color, thickness and finish and add special touches such as inlays or integral drainboards.

With extensive input from author and designer Fu-Tung Cheng and Jeff Osteen, his associate at California-based Cheng Design, I designed and built the 1-7/8 x 22 x 48-in. bathroom vanity top featured here.

To prepare for the project I studied Cheng's book *Concrete Countertops* (Taunton Press, 2002) and viewed the new companion DVD by the same name. I also used products supplied through Cheng's Internet site (see SOURCES

ONLINE) to build the form and to mix, finish and seal the concrete. You can find comparable products at local home centers and concrete-products suppliers.

Casting a concrete countertop is a messy



*We mounted the completed bathroom vanity top on a painted metal base designed and built for this project (see "The Nuts and Bolts of Metal Joinery," p. 64).*

process, so plan to do the project in a workshop or garage or even outdoors. Off-site casting (as opposed to pouring the countertop directly onto cabinets) affects the design process in a few ways: You'll pour the project upside-down in the form; if you're creating a large countertop, you'll have to build it in several manageable-size pieces and join them together on site; and you'll be able to choose from more design options (such as a backsplash).

## Design the countertop

In the design stage, consider the following variables:

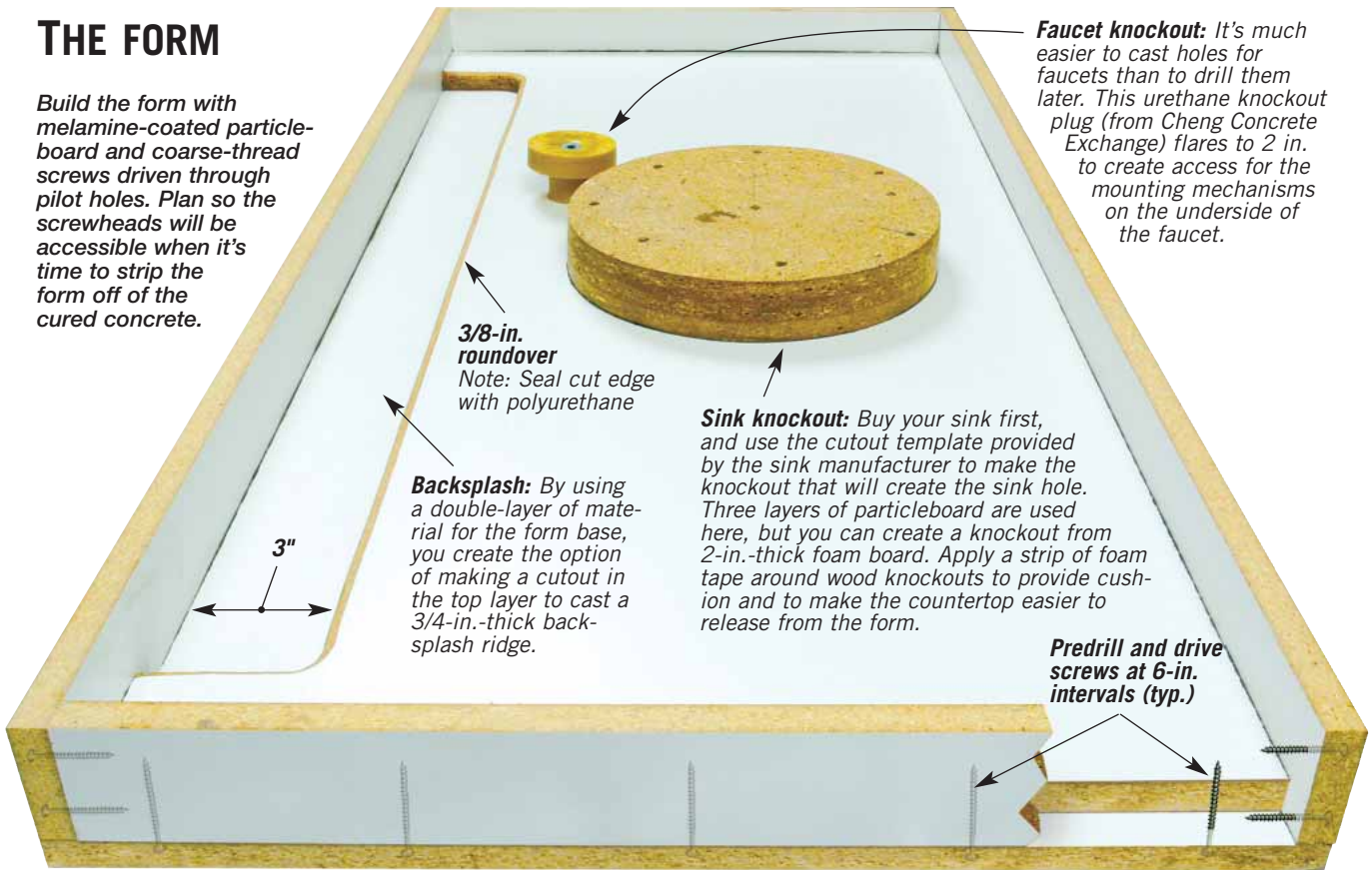
**Size** — Length and width are dictated by your cabinets or vanity base. Measured from front to back, kitchen countertops are normally 25 in., and vanity tops are usually 22 in. Typical thickness is between 1-3/4 and 2 in. If you're making a knockout for a sink, make the countertop the same thickness as the knockout. The knockout I used for this project was created with three layers of 5/8-in. particleboard, so I made the countertop 1-7/8 in. thick to match.

*Grinding, polishing, sealing and waxing a concrete countertop creates a surface that has all the glimmer and appeal of high-end imported marble or granite.*



# THE FORM

Build the form with melamine-coated particleboard and coarse-thread screws driven through pilot holes. Plan so the screwheads will be accessible when it's time to strip the form off of the cured concrete.



**Reinforcement** — Use a combination of rebar (No. 3 or No. 4), wire mesh (re-wire or steel mesh with a minimum 2-in. grid) and fiber reinforcement added to the concrete mix. Design the countertop so there's at least 2 in. of concrete between edges and knockout areas.

**Concrete mixture** — You can blend your own concrete, but buying 5,000-psi bagged mixture (such as Quikrete 5000) is far simpler. If you mix your own, avoid large aggregate (1/2-in. and bigger), but do not use sand alone. Add water reducer to the mix along with fiber reinforcement and pigments.

**Color** — Some people like the neutral gray tones of concrete, but most homeowners opt for colored concrete. Home centers usually stock two or three pigments (including brick red and black). For more options, visit a local concrete-products supplier or shop on the Internet. Colorful aggregate can liven up the appearance of the countertop. I used

amber pigment for this project.

**Finish** — You don't necessarily need to do anything to finish a concrete countertop. But raw concrete stains easily, so in kitchens and bathrooms it's usually a

good idea to seal it. By grinding and polishing the surface you can create sophisticated effects such as exposed aggregate and a very high gloss.

**Inlays and special effects** — One



Build the form and add reinforcement. This No. 4 rebar is hung from the sides of the form with wire ties. The steel wire mesh rests on the rebar. The blocking underneath the rebar is temporary. Affix decorative aggregate, such as jadeite pebbles (inset photo) to the bottom of the form with spray adhesive.



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Thoroughly mix the dry ingredients (concrete mix, fiber reinforcement, pigments and water-reducing admixture). The kit used here included everything except the concrete.



3

Add water and mix the concrete; then shovel it into the form. Work the concrete into the form, using your hands to press it into corners.

unique characteristic of concrete is that you can embed decorative items such as coins and stones to make design statements. Integral drainboards and cavities that hold cutting boards are practical countertop accessories. With concrete, virtually anything is possible.

**Web Extra**  
For a complete sequence of how-to photos, go to:  
[www.HandymanClub.com](http://www.HandymanClub.com)

### Build the form

The best material for building a concrete countertop form is white 3/4-in.-thick melamine-coated particleboard. It is relatively inexpensive, and the smooth surface eliminates the need for a release agent. You can cut sheet goods with a circular saw as long as you use a straight-edge cutting guide, but a table saw is the best tool for the job.

The detailed photograph (top photo,

p. 79) describes specific technical information about form building. When you assemble a form, predrill for all fasteners, and locate screws so the heads will be accessible after the concrete is poured. Position the form on a sturdy worktable, and level it with shims if necessary. Attach the completed form to the worktable with screws, taking care not to drive screws into the concrete area.

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temporary blocks while you suspend it from the edges of the form with wire. The rebar should be at least 1 in. away from all surfaces to prevent ghosting. Rest steel mesh or rewire on the rebar cage, bind them together with wire and then remove the temporary support blocks.

Mix and pour the concrete. If you have the space and the budget, rent a portable concrete mixer. You cannot mix concrete for countertops in small batches, so look for the biggest mixer you can find — 9-cu.-ft. capacity is a good size. Because of space limitations, I mixed the concrete in an extra-large mixing tub.

Blend the dry ingredients (concrete mix, pigment powder, fiber reinforcement and water reducer) thoroughly before adding water. Once you've added the water, you'll have a half-hour to get the material settled into the form. That may sound like plenty of time, but when you're mixing by hand with a masonry hoe, it goes by very quickly.

After you've mixed the concrete to



*Repeatedly rap the form with a rubber mallet to vibrate the concrete so it settles and to remove air bubbles that will cause voids. After you are done vibrating, snip the wires supporting the rebar cage and embed them in the wet concrete (inset photo).*

the consistency of thick oatmeal and made sure all the ingredients are blended, begin shoveling it into the form. Stop filling occasionally and work the concrete into corners and hard-to-reach areas with your hands. (Wear rubber gloves.) Also vibrate the concrete by repeatedly rapping the form with a rubber mallet or by using a rented tool for vibrating concrete called a stinger.

When the form is full of concrete, strike off the excess, working around the wire ties. Vibrate one last time and then cut the wires that support the rebar cage. Press the cut ends of the wires into the concrete and then strike off the surface again until it is smooth and even with the tops of the form walls. Cover or "tent" the concrete with sheet plastic and let it cure for four days.



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Strike off the surface again, screeding over the form edges in a sawing motion. When the concrete is smooth and level, cover it with plastic sheeting and let it cure for four days.

Four days later remove the screws and (without prying against the concrete) carefully strip off the form boards.

### Grind, polish and seal

Make sure to have a helper on hand when you strip the form from the cured concrete. Remove all of the screws holding the form together and pry off the sides. Do not pry against the fresh concrete. Also remove faucet knockouts. Set a few strips of foam board on your work surface for protection; then carefully lift the countertop on edge and lay it onto the foam with the form base panel facing up. If the panel does not pry off easily, drive wood shims into the gap to force it off of the countertop. (Do this along the back

edge.) If you used a foam or urethane sink knockout, it should pop right out. I cut apart the particleboard knockout I used with a jigsaw.

Grinding exposes the aggregate in the concrete. For a lot of exposed aggregate, start with a coarse grinding disc (50-grit). To limit the dust, use a grinder with automatic water feed. You can also use a regular variable-speed grinder to wet-grind; just sponge water onto the concrete surface. Use a GFCI-protected power cord if your electrical circuit isn't protected. Clean the surface frequently

with a squeegee to prevent scratching.

Use a succession of finer grits to grind the surface. I used 50-, 100-, 200- and 400-grit discs. Technically, grinding with discs that are finer than 600-grit is considered polishing. I wet-polished the top with 800-grit and then 1,500-grit. You have about two weeks from the time you pour the concrete before the countertop becomes difficult to grind and polish (wait 10 days before polishing).

For maximum smoothness, fill any voids in the countertop with slurry. Usually applied after grinding to

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**7**  
Grind the surface. We used a variable-speed angle grinder and a sequence of 50-, 100-, 200- and 400-grit discs to wet-grind the countertop.

400-grit, the slurry contains cement, pigment, fine sand and water. Spread it onto the surface and press it into the voids with a putty knife. Let the slurry coat dry for a couple of days and then grind it off with the finest disc you used prior to applying slurry. Repeat if necessary. To preserve the natural concrete look of the slab, don't fill the edges with slurry.

After polishing, seal the concrete. You can use either a topical or a penetrating sealer. Cheng Design recom-



**8**  
Clean vertical surfaces with diamond pads. For a high gloss, wet-polish the horizontal surface with an angle grinder and 800- and 1,500-grit discs.

mends and sells a hybrid sealer that doesn't have the characteristic plastic look of topical sealers such as urethanes. For higher gloss and better stain protection, add a few coats of carnuba wax and refresh the wax as needed.

To install an undermount sink such as the one shown here, drill guide holes and insert metal anchor sleeves. The sink should come with mounting hardware that can be secured in the sleeves. Although concrete countertops are very heavy (ours weighs 175 pounds), it's



**9**  
**OPTION:** To create a smoother countertop, dampen the surface and apply a coat of colored slurry. Press the slurry into any voids with a putty knife.

still a good idea to secure it to the base with a few masonry screws. ♦

## SOURCES ONLINE

For online information, go to [www.HandymanClub.com](http://www.HandymanClub.com) and click on SOURCES ONLINE.

**Cheng Concrete Exchange** (information, kits and supplies for casting countertops) (510) 849-3272, Ext. 217

**Kohler Co.** (Bolero sink and Fairfax tall faucet), 800-456-4537

**Quikrete** (5,000-psi bagged mix) 800-282-8444

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