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In this plan you will be getting:

- Step by Step construction instruction.
- A complete bill of materials.
- Exploded view and elevation drawings.
- How-to photos with instructive captions.
- Tips to help you complete the project and become a better woodworker.

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Backyard Barbecue Cart

Published in Woodworker's Journal "The Home Woodworker: Classic Projects for Your Shop and Home"

$7.95

WJ127


FASTEST
LIGHTING
CHARCOAL
KINGSFORD
The Original
LIGHTS FASTER
BURNS LONGER
CHARCOAL BRIQUETS

Building the barbecue cart will require about 50 hours of shop time. You'll need a table saw, portable and table-mounted routers and a drill. Use carbide bits and blades to mill the Corian.

- 20 board feet of 4/4 white oak
- 2 board feet of 8/4 white oak
- 56 lineal feet of 1x6 clear redwood
- 1 piece of Corian 1/2" x 15" x 32 3/4"

Backyard Barbecue Cart

Barbecuing is a great pastime, but the prep work is a chore — lugging everything from the utensils and hot pads to the charcoal and lighter fluid out to the grill. Build this barbecue cart as a way of saving some effort. It's sturdy enough to wheel around outside and large enough to store one or more bags of charcoal. We're sure it will prove to be a capable assistant to your family's chief outdoor cook—even if that person is you!

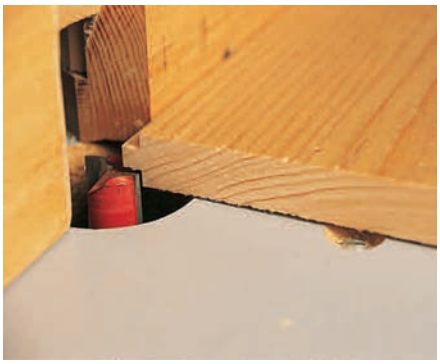


Figure 2: Cut a tongue or groove on all four edges of the redwood panel pieces, and follow up with a chamfering bit.

The cart you see here is made of soft clear redwood panels framed with hardy white oak. Both species stand up well to the elements. We also used stainless steel screws, waterproof polyurethane glue and some forged iron hardware with an exterior-grade finish. It's all topped off with Olympic WaterGuard wood sealant.

Figure 1: Just about all the tongues and grooves can be cut on the router table with a single fence adjustment.

A couple of notes about redwood: First, there are three grades: "Construction," "Construction Heart" and "All Heart." All Heart is the most expensive, but it's also knot-free. Second, 3/4" redwood is a nominal dimension — it's frequently 11/16" thick, sometimes even 5/8". So make sure you adjust your milling setups accordingly.

Starting with the Oak Frames

This project is primarily an exercise in frame and panel construction. Once the pieces are cut to size (see the *Material Lists*), all the remaining milling can be done with a table-mounted router.

The cart's carcass consists of a door frame, a top frame, and three frame and panel subassemblies: The back, the short end (near the wheels), and the long end (with the handle). All five carcass frames (pieces 1 through 8) and the door frames (pieces 27 through 29) are cut from white oak, while the panels (pieces 10 through 14, 30 and 31) are made of free-floating tongue and groove redwood boards.

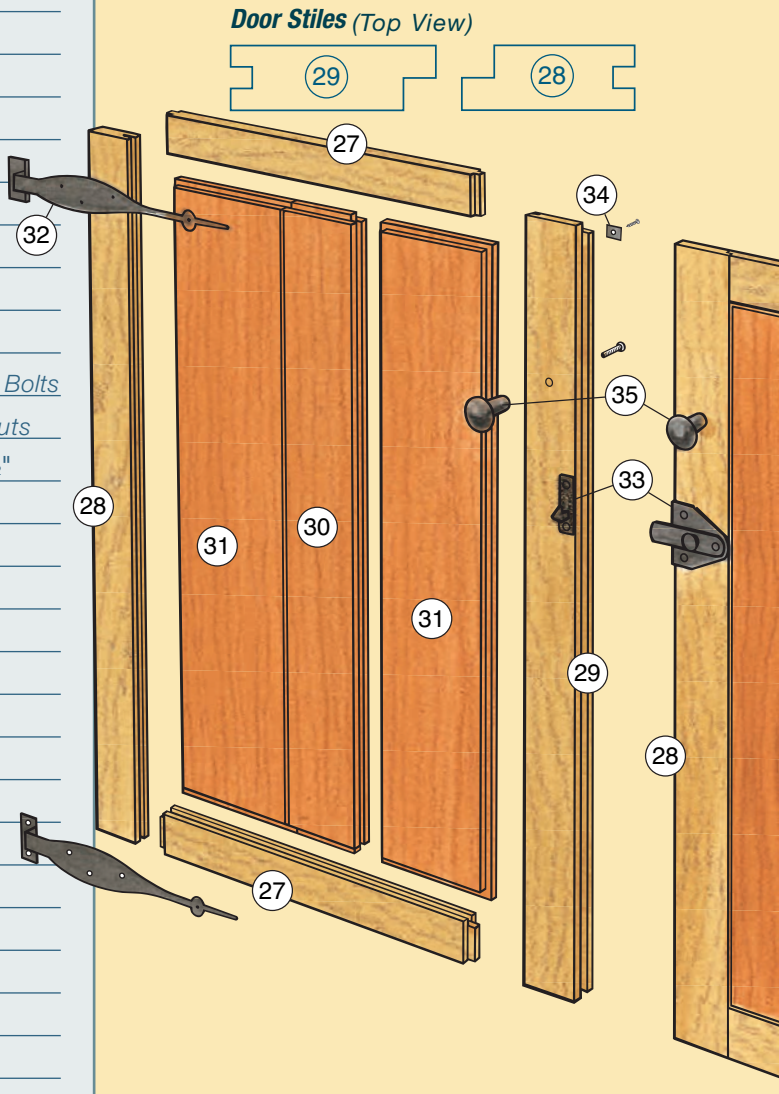
Tongue and groove construction also holds the frames together. Begin them by cutting all the grooves first, because it's easier to adjust the thickness of the tongues than the width of the grooves. Install a 1/4" straight bit in your router table, locating its center 3/8" from the fence. This will center each groove in the edge of the stiles and rails. Set the depth of cut to 1/4", then consult the *Technical Drawings* on pages 144 and 145 for the locations of the grooves.

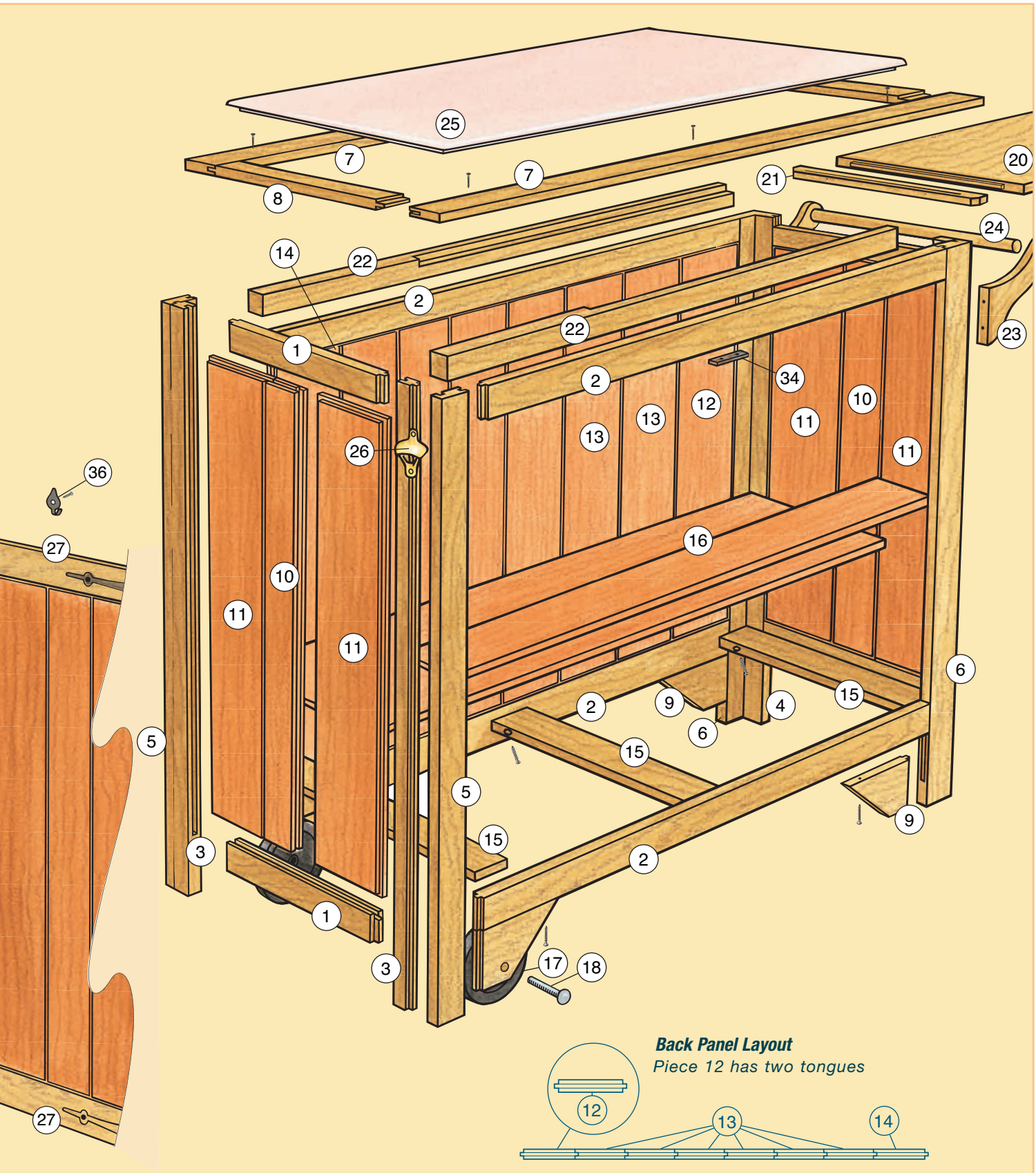
Several of the grooves in the frame pieces are stopped, while others run the full length of the piece. Cut all the grooves (see *Figure 1*), then follow up by making the

Carcass & Door Exploded View

MATERIAL LIST—*CARCASS & DOORS*

		T x W x L
1	End Rails (4)	¾" x 2" x 13¼"
2	Front & Back Rails (4)	¾" x 2" x 31"
3	Short End Stiles (2)	¾" x 1⅝" x 33½"
4	Long End Stiles (2)	¾" x 1⅝" x 34½"
5	Short Front & Back Stiles (2)	¾" x 2" x 33½"
6	Long Front & Back Stiles (2)	¾" x 2" x 34½"
7	Top Stiles (2)	¾" x 2½" x 36¾"
8	Top Rails (2)	¾" x 2½" x 15½"
9	Leg Braces (4)	¾" x 3" x 5¾"
10	Middle End Panels (2)	¾" x 2½" x 26"
11	Outer End Panels (4)	¾" x 5½" x 26"
12	Back Panel - A (1)	¾" x 4⅜" x 26"
13	Back Panels - B (6)	¾" x 4" x 26"
14	Back Panel - C (1)	¾" x 4⅛" x 26"
15	Bottom Stretchers (3)	¾" x 2" x 15"
16	Bottom Boards (3)	¾" x 5" x 32¾"
17	Wheels (2)	5½" *Dia.*
18	Axles (2)	⅜" x 2½" *Carriage Bolts*
19	Axle Nuts (2)	⅜" *Dia. locking nuts*
20	Cutting Board Panel (1)	¾" x 12¼" x 22½"
21	Cutting Board Ends (2)	¾" x 1¼" x 12¼"
22	Cutting Board Slides (2)	2" x 1¾" x 32¾"
23	Towel Rack Sides (2)	¾" x 4" x 9"
24	Towel Rack Handle (1)	1¼" *Dia. dowel*
25	Corian Top (1)	½" x 15" x 32¾"
26	Bottle Opener (1)	*Solid brass*
27	Door Rails (4)	¾" x 2" x 11¾"
28	Door Stiles (3)	¾" x 2" x 26"
29	Door Lip Stile (1)	¾" x 2⅜" x 26"
30	Middle Door Panels (2)	¾" x 2½" x 21½"
31	Outer Door Panels (4)	¾" x 4⅞" x 21½"
32	Strap Hinges (4)	9" *Forged Iron*
33	Door Latch (1)	*Forged Iron*
34	Magnetic Catch (1)	5/16" x 2" x 13/16"
35	Door Knobs (2)	1⅜" *Dia. Forged Iron*
36	Utensil Hooks (4)	*Forged Iron*





Back Panel Layout

Piece 12 has two tongues

tongues (a tight fit is essential here). While you're cutting tongues in the frame pieces, you can also cut them on the leg braces (pieces 9). The tongues and grooves on the top frame are 1" long, so make these cuts in several passes.

Milling the Redwood Panels

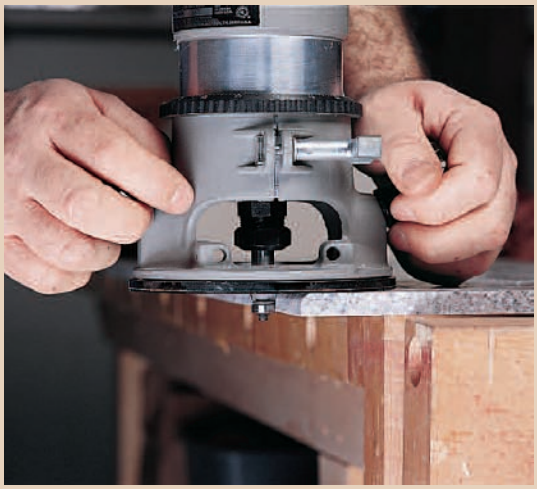
Stick with your 1/4" straight bit to create the grooves and tongues on the redwood panels (pieces 10 through 14, 30 and 31). Since 3/4" nominal redwood comes in various thicknesses, adjust your router table's fence accordingly to make certain that you're centering the grooves in your stock.

Figure 3: Use a pocket hole jig to create the hidden pilot holes in the three stretcher pieces.

Check the *Technical Drawings* to determine where the tongues and grooves are cut. Just like you did on the frame pieces, start with the grooves and test your setups on scraps of the same thickness. As these won't be glued together, a loose fit is appropriate. Start milling the edges (see *Figure 2*), and then, without changing your setup, move on to the tops and bottoms of the panel pieces, which also have to fit into a frame. Finish the milling process on the redwood panels by chucking a 90° V-groove bit in your router to cut the decorative chamfers on all sides of the panel faces, as shown in the *Figure 2* inset and also on the *Technical Drawings*.

WORKING WITH CORIAN®

Corian® is the most popular brand name of a family of products called solid surface materials - plastics with color patterns that permeate the material. Corian usually comes in 1/4", 1/2" and 3/4" thicknesses. Originally, it was used just for countertops. But innovative fabricators have found many new uses for Corian: from shower surrounds and plaques to cutting boards and wall panels.



Carbide bits are essential when routing Corian, which is three times as dense as most hardwoods.

Corian is relatively easy to work. Standard woodshop equipment is quite adequate, but to provide quality work, you must equip your machines with carbide blades or bits. Sharp cutters are essential to prevent chatter and surface irregularities because Corian is three times as dense as most hardwoods.

Cutting straight lines in Corian is best done with a router. If you use a table saw, the cut will have kerf marks that will have to be removed with a router anyway, so you may as well use the right tool to begin with.

Also, when using a router and a straightedge, the tool moves across the surface of the material. A table saw, on the other hand, requires that you push the entire surface of the workpiece across the tabletop, which makes it prone to scratches.

Wearing protective gear is a must with Corian and similar products. Although the dust is chemically non-toxic, it can be pervasive and constitutes a mechanical nuisance. Eye protection is also recommended by the DuPont Corporation, which manufactures Corian. The product, though extremely durable, is somewhat brittle, so particles can fly under certain circumstances. It's also heavy, so use proper lifting techniques. And that density prompts one more piece of advice: When routing a decorative edge, or using a router to cut Corian, make several passes rather than trying to remove all the waste in a single pass. This is easier on your tools and improves the quality of the cut.

Achieving a matte finish on Corian is also easy. Start sanding with 180-grit paper and work your way through 400-grit. Use a silicon carbide open-coat paper, and change papers often as the fine dust tends to clog even open coats rather quickly. Wash off the excess dust with cold water, and buff with a green Scotchbrite® pad.

Assemble the Frames and Panels

After you've milled all the frame and panel pieces, it's time to glue and clamp each frame and panel assembly together. Before you do, rip one of the end rails (pieces 1) to 1⅛", and remember that one stile on one of the doors (piece 29) is wider than the others. Spread your glue sparingly and don't glue the redwood panels to each other or to the frames - they float freely. Make sure each panel is square by measuring diagonally.

After the glue has dried in each sub frame, dry-fit the four frames that create the cart's carcass (where pieces 3 and 5 and 6 and 4 meet). If everything fits, apply your glue to the mating tongues and grooves and use web clamps to hold them together. You may need a couple of extra hands for this step, but polyurethane glue has a long open time, so there's no rush.

Cutting Rabbets on the Doors

There are two last milling steps on the doors, after they've been assembled. The doors are offset, so rabbets must be cut on their inside edges, and a lip must be cut on one door where they overlap. These two steps are handled on the router table with a 1/2" straight bit, following the dimensions shown in the *Technical Drawings*. Cut the rabbet around the inside edge of all the rails and stiles except the wide lip stile (piece 29), which gets a rabbet on the outside edge.

Figure 4: After rounding over the top edge of the Corian with a 1/4" roundover bit, create a rabbet in the bottom edge with a straight bit.

Making the Bottom

Stretchers (pieces 15) are installed between the lower front and back rails to support the redwood bottom boards (pieces 16). If you'd prefer not to see any screws or screw hole plugs on the cart's exterior, you can use a pocket hole jig to drill screw holes diagonally through the sides of the stretchers and into the rails (see *Figure 3*).

After the bottom redwood boards are cut to size, set them loosely in place. It will make cleanup easier; if charcoal spills, just lift out the boards and brush them off.

This is also a good time to glue and screw the braces to the legs below the lower rails. Before you attach them, drill holes (see *Technical Drawings* for locations) for the carriage bolts that serve as axles for the wheels (pieces 17 through 19).

Cutting Board

This cart includes a reversible cutting board that pulls out for clean up in the kitchen sink. Create the panel (piece 20) by gluing up pieces of white oak. While the glue is drying, rout a 1/4"-wide by 3/8"-deep stopped groove (see the *Technical Drawings*) in each cutting board end (pieces 21). After the glue has dried in the panel, route a corresponding tongue on each of its ends.

Assemble the cutting board, using screws instead of glue to allow for the expansion and contraction you'll surely get with this outdoor piece of furniture. You'll find the oversized screw hole locations and dimensions on the *Technical Drawings*. Wrap up by covering the screws with plugs.

With the cutting board panel assembled, use a 90° V-groove bit to route finger pulls on both sides of both ends. Finish the cutting board by drilling a 1/8" drain hole through the middle of each finger pull.

The cutting board is held in the cart by two oak slides (pieces 22) that have stopped rabbets cut in them (see the *Technical Drawings*). After the rabbets are cut, simply glue and clamp the slides to the carcass.

Towel Rack/Handle

Copy the towel rack sides (pieces 23) from the Full-size Pattern and cut them out on your band saw. Clean up the saw marks with a drum sander.

After you have shaped the sides, use a Forstner bit to cut 1¼" holes (see the Full-size Pattern for all locations) that will hold the handle (piece 24). Attach the sides to the frame stiles with screws and glue, making sure the cutting board has enough room to slide out.

The Corian Top

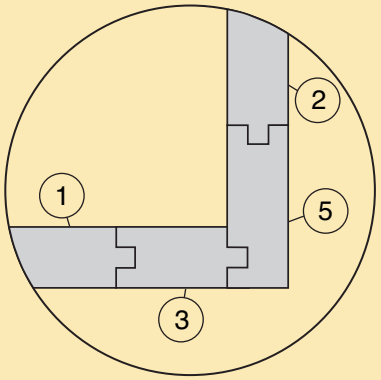
Screw the top frame you built earlier to the cutting board slides now. This top frame will hold the Corian panel (piece 25). There are two milling steps involving the Corian: Rounding the top edge with a 1/4" roundover bit and creating a rabbet on the bottom edge (see *Figure 4*) to hide the screws in the top frame. If you've never used Corian, be sure to follow the tips described in "Working With Corian" on the preceding page. It's not the same as wood.

We used Olympic WaterGuard to seal this project. It's a waterproofing sealant that resists mildew growth and blocks the sun's ultra-violet rays. Apply three coats to everything but the cutting board, sanding lightly between coats. Give the cutting board a couple liberal coats of salad bowl finish since it comes in contact with food. Paint the carriage bolt heads with black enamel so they match the forged iron hardware.

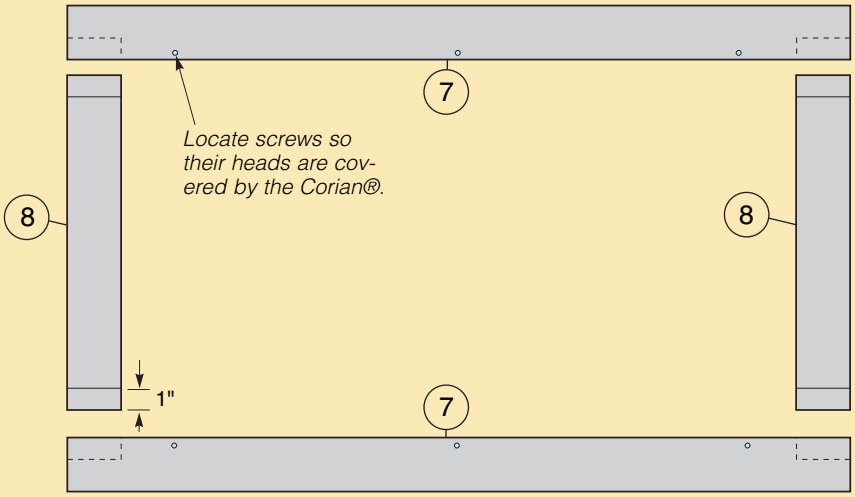
After the finish dries, attach the bottle opener, hinges, door latch, magnetic catch, knobs and utensil hooks (pieces 32 through 36). To keep charcoal dry, apply silicone caulking around the top frame before setting down the Corian top. Then start getting ready for that next big cookout!

Technical Drawings

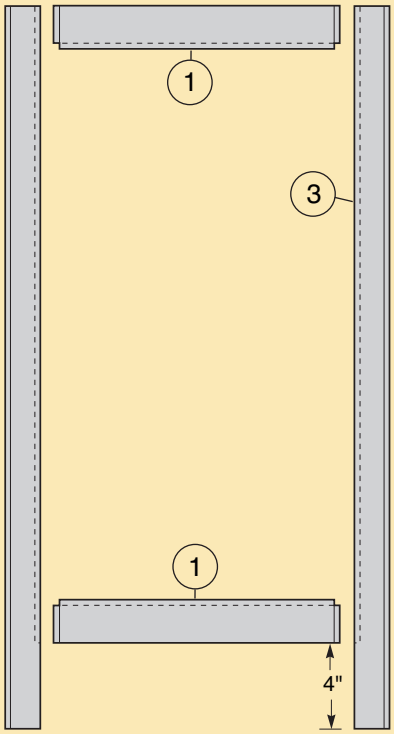
Corner Assembly
(Top View)



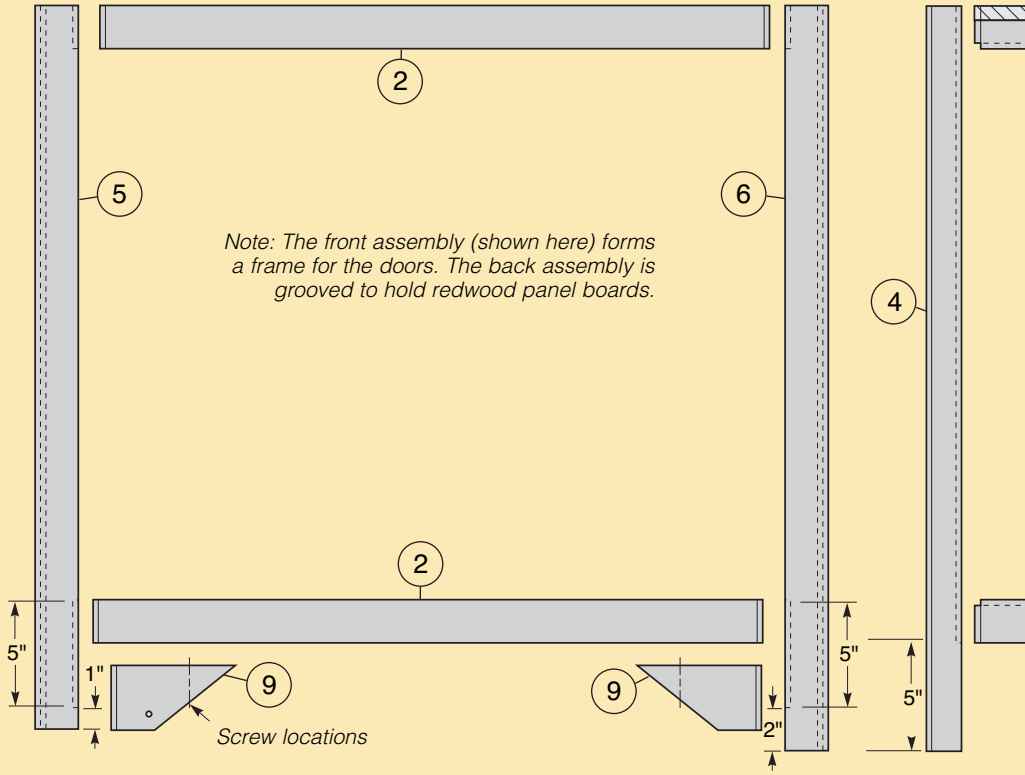
Top Frame Assembly
(Top View)



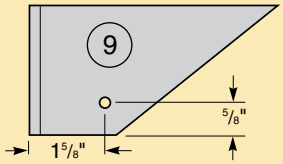
Short End Assembly
(Front View)

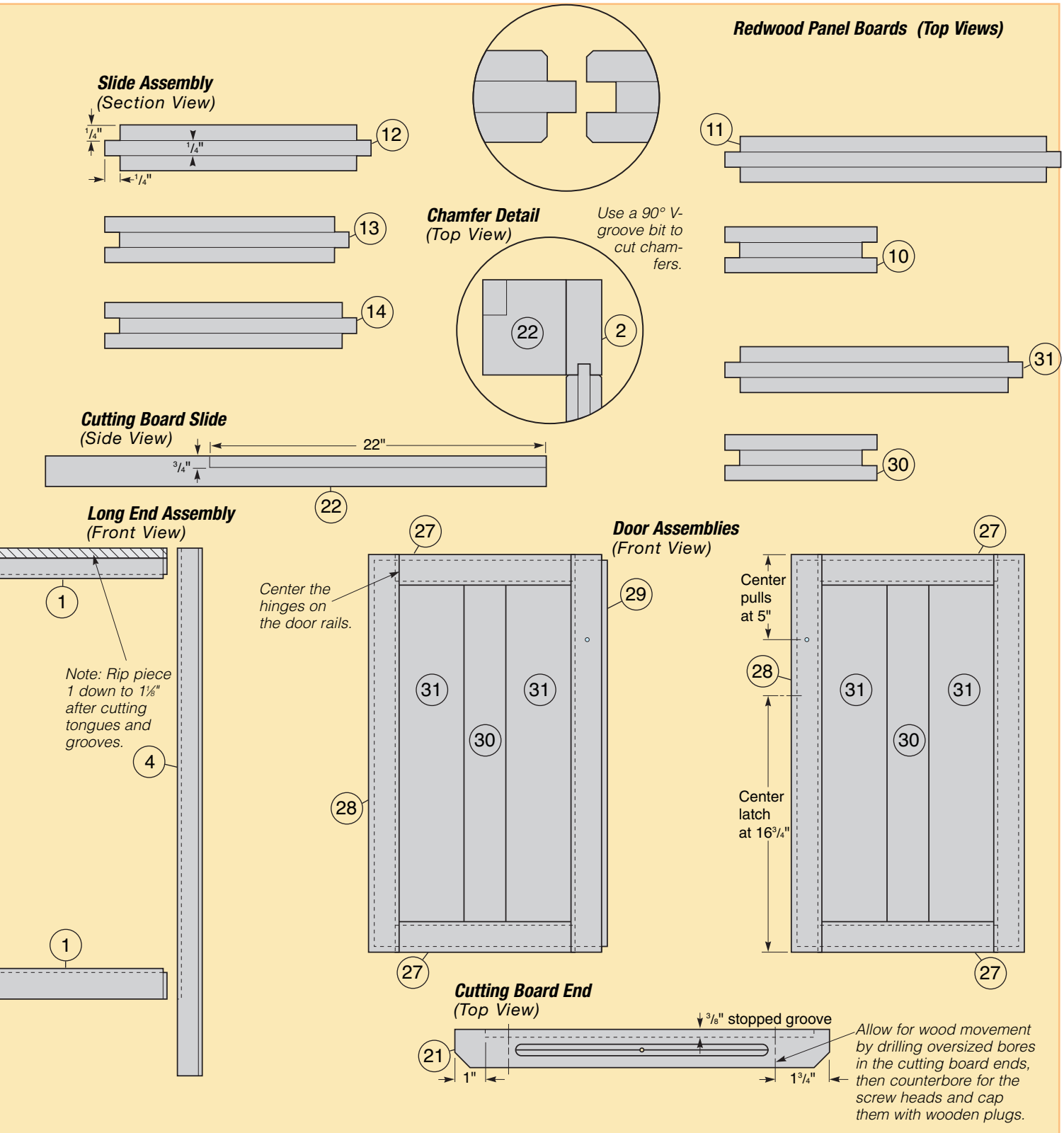


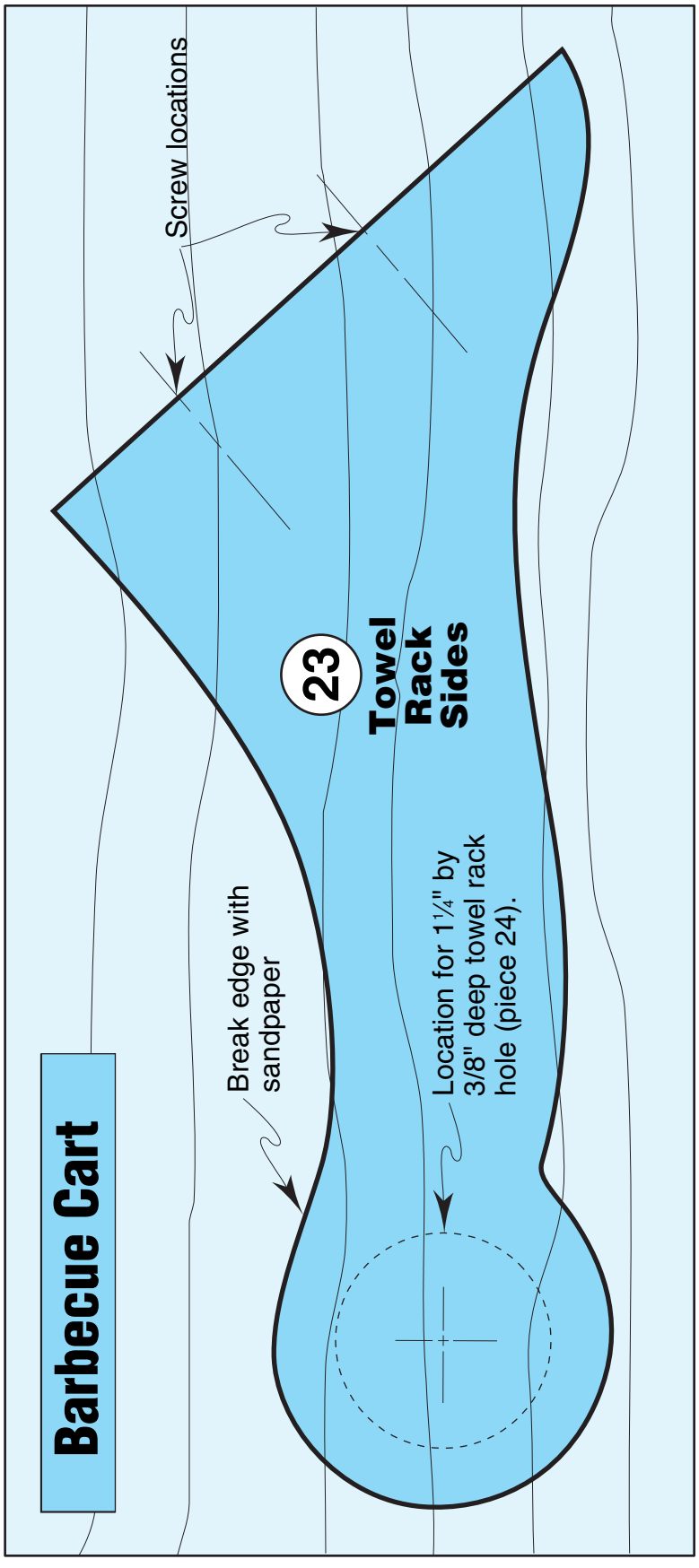
Front & Back Assemblies
(Front View)



Wheel Axle Hole Location
(Front View)




Redwood Panel Boards (Top Views)
Slide Assembly
(Section View)
1/4"
1/4"
1/4"
12
13
14
Chamfer Detail
(Top View)
Use a 90° V-groove bit to cut chamfers.
22
2
11
10
31
30
Cutting Board Slide
(Side View)
22"
3/4"
22
Long End Assembly
(Front View)
1
Note: Rip piece 1 down to 1⅛" after cutting tongues and grooves.
4
1
Door Assemblies
(Front View)
27
Center the hinges on the door rails.
29
31
31
30
28
27
Center pulls at 5"
28
Center latch at 16¾"
31
31
30
27
Cutting Board End
(Top View)
3/8" stopped groove
21
1"
1¾"
Allow for wood movement by drilling oversized bores in the cutting board ends, then counterbore for the screw heads and cap them with wooden plugs.


Barbecue Cart
Screw locations
23
Towel Rack Sides
Break edge with sandpaper
Location for 1¼" by 3/8" deep towel rack hole (piece 24).