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Greene & Greene Serving Table

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LAKE MINNETONKA

Greene & Greene Serving Table

Moving from the verdant east to a dry, southern California landscape had a formative effect on the Greene brothers. Charles and Henry moved to Pasadena in 1893 and shortly thereafter created their own distinct architectural style.

Espousing a similar philosophy to the celebrated Frank Lloyd Wright, the Greenes believed an architect's duty lay beyond floor plans: They designed the furniture, lighting and accents in many homes they built. Charles, who had been affected by a Japanese furniture exhibit at the World's Columbian Exposition in 1893, was primarily responsible for creating those classic interiors. This reproduction serving table features many of the facets that set Charles' designs apart. Bold horizontal lines, wide aprons and a cantilevered top suggest strength, functionality and honest craftsmanship. A broad expanse of Honduras mahogany is deftly balanced by small, ebonized accents. Square plugs hide the screw heads, and splines hold the tabletop's breadboard endcaps in place.

Buying Materials

It's always a good idea to buy stock for a project several weeks in advance of when you plan to start building. That's what we did for the mahogany used on this table. Doing so allows the wood to acclimate to the temperature and humidity of your shop. This is especially true of the board used to make the top (piece 1) of this server: Because of the large cantilever on either end, the tabletop must be a stable, properly cured piece of stock. Another important note before you start: If you will be using the water-based aniline dye we recommend for this project (see page 62), it is important to use a brown polyurethane glue. This will prevent dark lines from appearing, because the water-based glue will absorb the dye at a different rate than the mahogany.

After cutting the top to size (see the Material List on page 61), use a bearing-guided straight bit in your portable router to create the tenon on each end. (Refer to the Exploded View Drawing on page 60 and the project's Elevation Drawings shown on pages 64 and 65 for machining and assembly details.) It's a good idea to cut these tenons before jointing the long edges of the top, as any blowout will be cleaned up by the jointer. If the piece is too large to handle comfortably on your jointer, another option is to clamp a long straightedge to the workpiece and joint the edges with a straight bit chucked in your router.

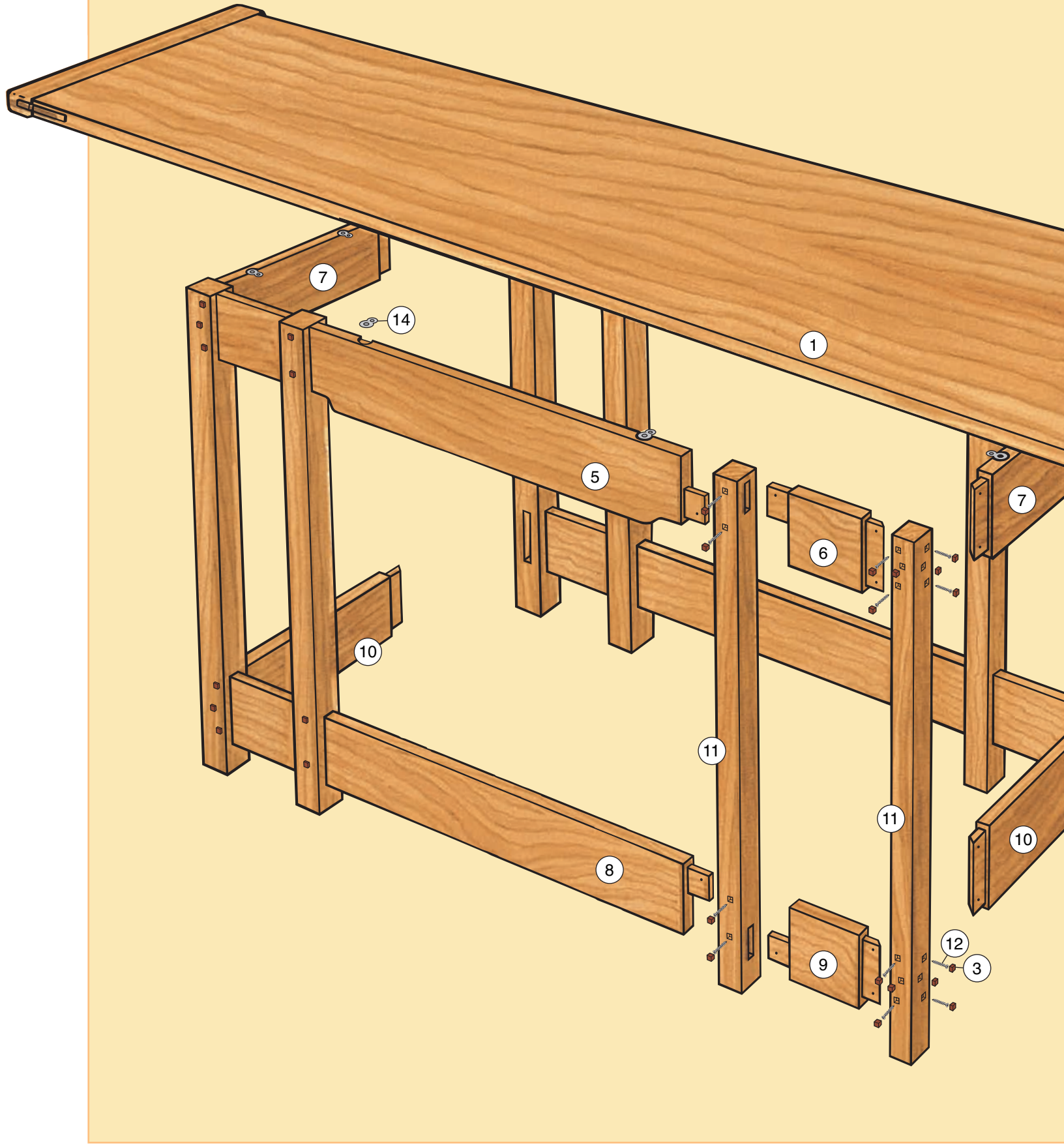
Milling the Tabletop

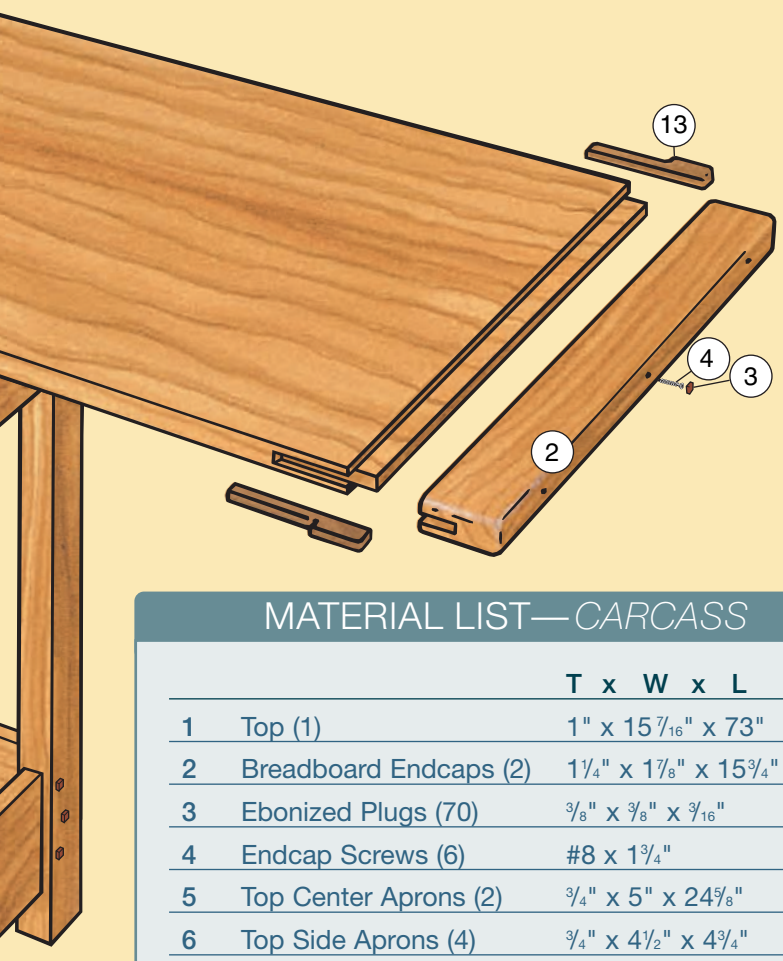
The procedure for creating the breadboard endcaps (pieces 2) is described in detail in the sidebar on page 63. These caps serve two functions: they dress up the ends of the tabletop, and they also help prevent this wide piece from warping widthwise.

Refer to the sidebar on "Making the Ebonized Plugs and Splines," page 64, before chopping the square mortises in the endcaps for the ebonized plugs (pieces 3) that hide the screws (pieces 4). A good technique here is to drill out most of the mortise waste with a Forstner bit, then use a sharp knife to score the squared-up ends before trimming to their final dimensions with a sharp chisel. This will reduce tearout and create sharp, crisp corners on the mortises. Use the same technique to create the spline mortises on both the top and the endcaps. Note that these are matching mortises that accept a single piece between them. Use the Elevation Drawings to lay these out.

Screw (don't glue) the breadboard endcaps to the top through the equally spaced

Table Exploded View





MATERIAL LIST—*CARCASS*

		T x W x L
1	Top (1)	1" x 15 7/16" x 73"
2	Breadboard Endcaps (2)	1 1/4" x 1 7/8" x 15 3/4"
3	Ebonized Plugs (70)	3/8" x 3/8" x 3/16"
4	Endcap Screws (6)	#8 x 1 3/4"
5	Top Center Aprons (2)	3/4" x 5" x 24 5/8"
6	Top Side Aprons (4)	3/4" x 4 1/2" x 4 3/4"
7	Top End Aprons (2)	3/4" x 4 1/2" x 9 11/16"
8	Bottom Center Aprons (2)	3/4" x 4 1/2" x 24 5/8"
9	Bottom Side Aprons (4)	3/4" x 4 1/2" x 4 3/4"
10	Bottom End Aprons (2)	3/4" x 4 1/2" x 9 11/16"
11	Legs (8)	1 13/16" x 1 13/16" x 26 7/8"
12	Screws (48)	#6 x 1"
13	Ebonized Splines (4)	3/8" x 1 1/2" x 4"
14	Tabletop Fasteners (10)	*Metal*

mortises and pre-drilled screw holes. These holes are drilled slightly oversized through the endcaps so the screw shanks have extra play all around. Space created by the enlarged holes allows the top to expand or contract across its grain and will help prevent cracking. Cover the holes with the ebonized plugs, secured with just a drop of glue. Gently break the long edges of the top with sandpaper, then sand the entire top and set it aside while you build the leg assembly.

Making the Tenoned Aprons

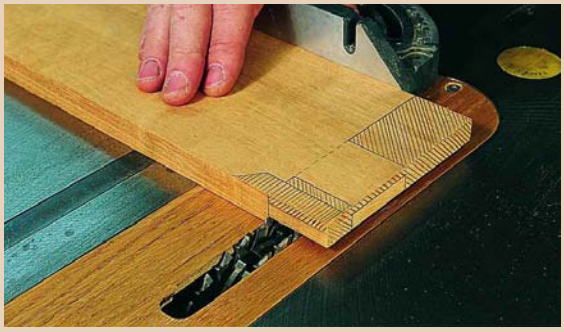
Harmony and simplicity were guiding principles of the Arts & Crafts movement, so it's a good idea to keep both concepts in mind when selecting stock for the top and bottom aprons (pieces 5 through 10). Above all, the wood should be consistent in color. If its grain patterns also match, so much the better.

Cut all sixteen of the apron parts to size, according to the Material List on this page, then lay out the asymmetrical and mitered tenons on the ends of the aprons. Use the Elevation Drawings on pages 64 and 65 to create the proper offset for the aprons joining the central legs. You can cut all these tenons on the table saw using a dado head and the saw's miter gauge, as shown on the next page. Note that some of the tenons are notched and some are mitered. Cut the notches on the band saw and the miters on the full-width tenons with your table saw. After the tenons are cut, use the Full-size Patterns on the Pinup Shop Drawings to lay out, then band saw the stepped profile on the bottom edge of both the top center aprons. Clean up the saw marks with a drum sander mounted in your drill press.

Mortising the Legs

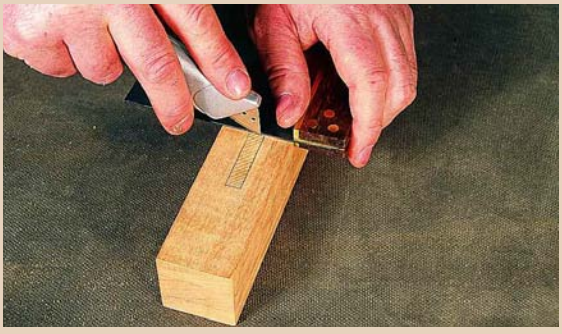
If you own a mortising machine or an attachment for your drill press, chopping mortises in the legs (pieces 11) should be a quick and easy task, as all of them are the same width (see the *Elevation Drawings* on pages 64 and 65 for details). Even doing it the old-fashioned way (see the *sidebar* on the next page) is a relatively simple task. Carefully lay out the mortises for each individual leg. (The four inner legs are similar and the

MAKING THE MORTISE AND TENON JOINTS



Before cutting the shaped profile on the top center aprons, reveal the tenons on their ends using a dado head in your table saw.

A Forstner bit chucked in your drill press will remove most of the mortise waste, and the bit's design leaves a nice, flat-bottomed cavity.



After laying out the matching mortises in the legs, score them with a sharp utility knife to avoid tearout as you drill.

Clean up with a sharp chisel, cutting across the grain on the top and bottom first, then with the grain along the sides.

four corner legs match each other in the same fashion.) The apron tenons are asymmetrical and the mortises must match them exactly. Clamp a fence to your drill press and, as the Forstner bit removes most of the waste, slide each leg across the table against the fence. Clean up each pocket with a sharp chisel, then stay at the drill press to make all the small, square mortises in the legs for the plugs (these are similar to the plug mortises you already cut in the breadboard endcaps). When you're done, switch bits again and drill pilot holes for all the screws. Chisel the plug mortises square.

Using the *Exploded View* drawing on page 60 as a guide, dry-fit the aprons to the legs. Make any necessary adjustments, then use the screw holes in the legs as guides to extend pilot holes into the apron tenons. Disassemble the legset and give all the pieces their final 120-grit sanding before raising the grain with a water-dampened sponge. When this dries, sand with 220-grit paper before applying a stain or other colorant to bring out the richness of the wood. Before you go on, mask off the areas where the aprons and the legs meet. This will keep those areas free of dye as you proceed with the finishing process.

Applying an Aniline Dye Finish

In keeping with the habits of the Greene brothers, we applied a water-based aniline dye to all the legset and tabletop mahogany parts. If you haven't used aniline dyes before, here are some tips to help you get top-notch results: Use a drop of dish soap in water-based dye to break the surface adhesion, and apply the product with a foam brush. Wipe it off immediately with paper towels, then let it dry. It is important to dye the wood before you assemble the piece. It is virtually impossible to achieve uniformity of color if you try to dye the assembled server.

From this stage on, you should wear utility gloves (latex medical versions or standard household rubber gloves will both work fine) whenever you handle any of the dyed parts: otherwise you may leave oil residue on the dye or dissolve the dye with ambient moisture from your hands. Both will show up as smudges on the finished piece. A little caution here will save you heartache later.

After the dye dries, remove the masking tape and use a utility knife to create small, V-shaped channels in the hidden surfaces, wherever glue might squeeze out of a joint. These little glue traps (see *Figure 1*, next page) will save you frustration — they're an excellent alternative to refinishing all the parts that might be affected by squeeze-out, since wiping off the wet glue will also

smudge the dyed surfaces.

You can now reassemble the legset using glue sparingly. Make sure everything is square and plumb as you tighten the clamps, then set this subassembly aside to dry. After the glue has cured, remove the clamps and drive home the screws (pieces 12) to complete the joint.

Final Thoughts

After all the plugs (pieces 3) and splines (pieces 13) are made, there are a couple of items that need your attention before these accents can be installed. First on the list is attaching the tabletop to the legset. Refer to the *Exploded View* or *Elevation Drawings* to locate and drill simple round mortises with a Forstner bit in the top of the legset for the tabletop fasteners (pieces 14), then screw the fasteners to the legset. Lay the top face-down on a soft surface (towels laid across cardboard works well), and drill pilot holes in its underside (be careful!) for the fastener screws. Then, screw the legset and top together.

Apply three coats of a satin or semi-gloss finish to all surfaces to achieve the soft yet durable finish the Greenes preferred. One of the best options out there is a gel varnish such as Bartley's — it's tough, easy to apply and has great visual depth. As mentioned earlier, a brown polyurethane glue is a good choice for securing the plugs and splines in their mortises. However, only glue the splines to the tabletop and not to the end-caps. This will allow your top to expand and contract with the seasons during a lifetime of useful service.

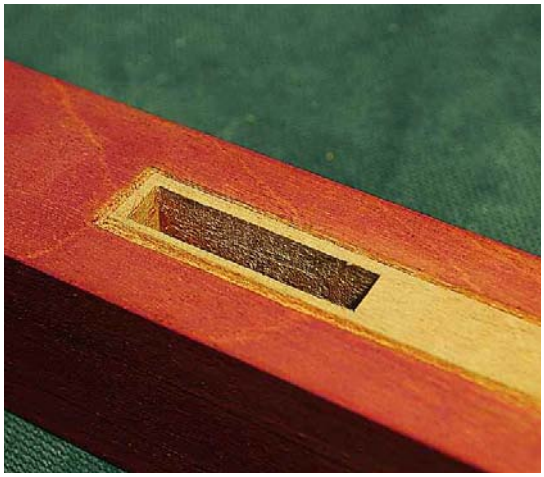
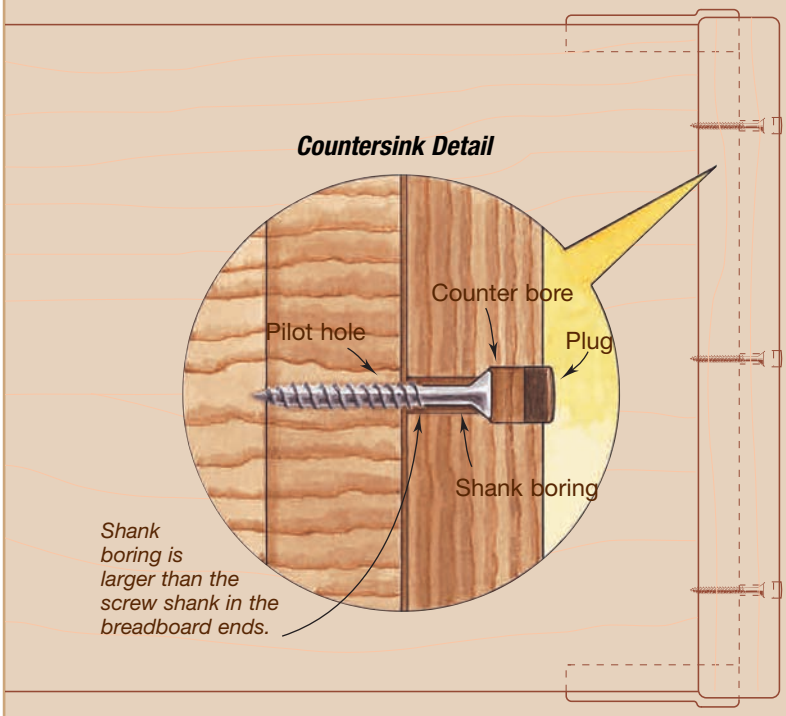


Figure 1: Slice tiny v-channels around the perimeter of the joint areas with a sharp chisel or utility knife to help prevent glue squeeze out from smudging the dye.

Charles and Henry Greene became known for their fine architecture and furniture design, developing a style of their own from a world of influences. Now you can serve your food from atop a stylish piece of true Americana that you've built yourself.

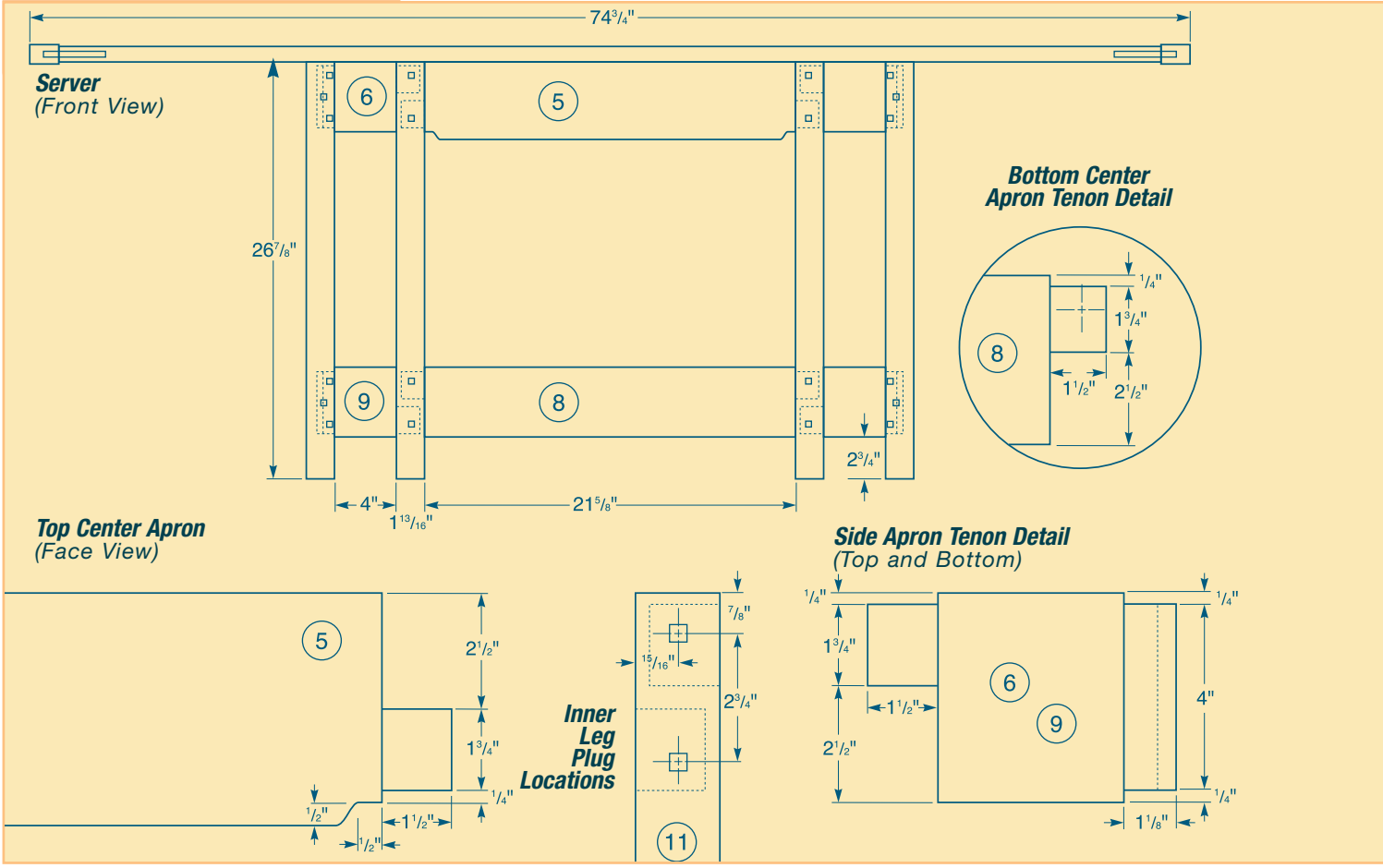
MAKING BREADBOARD ENDS



Whether it's a glued-up lamination or a single wide board, wood likes to wiggle with the weather. Old-time cabinetmakers tried to eliminate this movement in breadboards by capping the ends with strips of solid hardwood. This treatment worked, but had its problems. You'll hear tales of folks awakened in the middle of the night by the loud report of maple and oak parting company under the tremendous pressures of moisture-related wood movement.

To prevent such a calamity from happening on this project, the tongue and groove joints on the breadboard ends allow the cross-grain joints to slip past one another as needed. The exclusion of glue here also helps. We used screws driven into counterbores with oversized shank holes to secure the ends. The space provided by these extra-large holes allows for the expansion and contraction of the top. Square up the counterbores to accept the ebony plugs that cap the screw heads and also add decorative detail.

Elevation Drawings

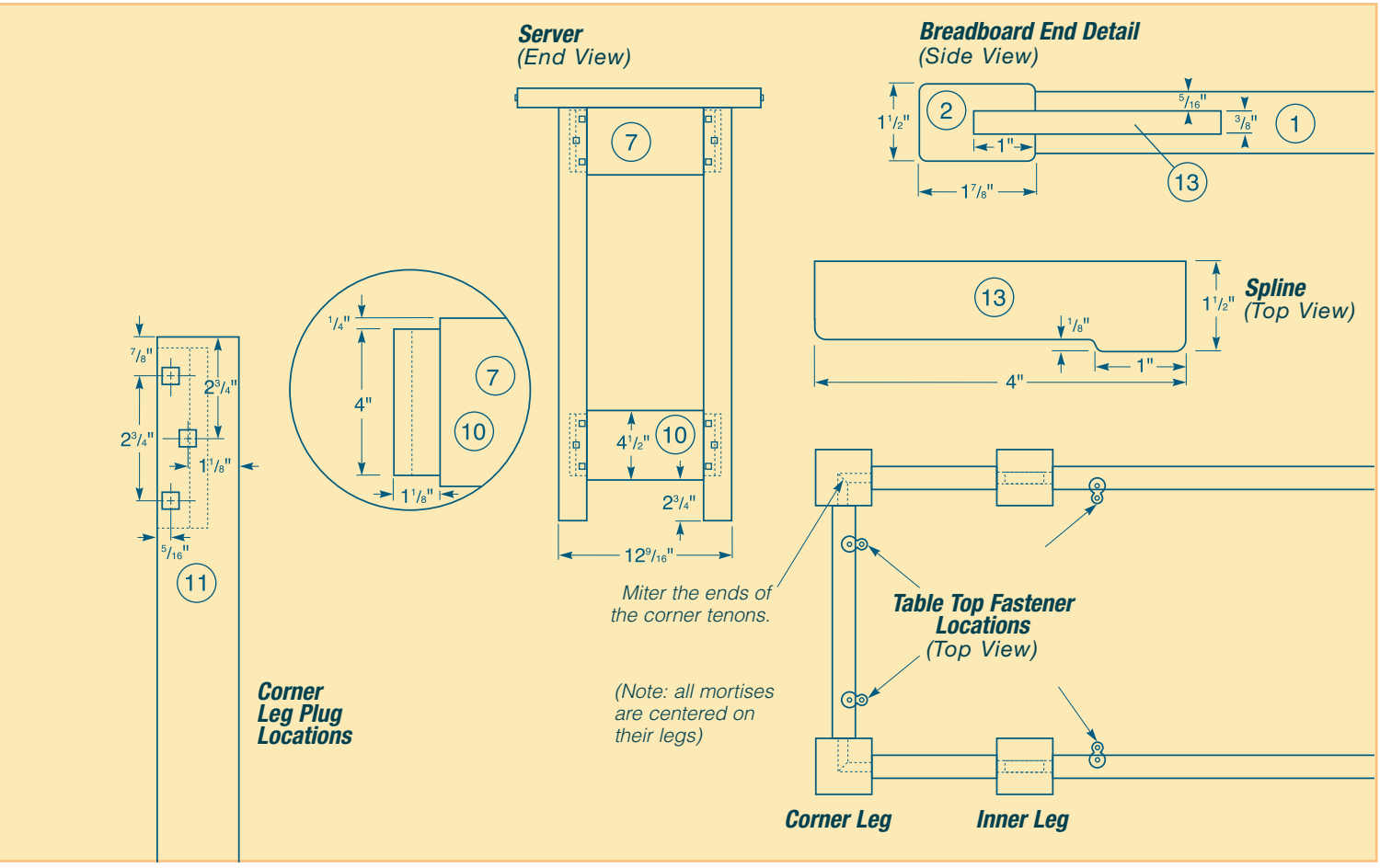


MAKING THE EBONIZED PLUGS AND SPLINES

Polish the Ebon-X plugs and splines to their final luster with a polishing wheel mounted in a bench top grinder.

Early in the new century, Charles Greene had the luxury of being able to specify ebony for the plug and spline accents in his most accomplished furniture pieces. While ebony is no longer as widely available or as inexpensive as it once was, there are some viable modern alternatives. Exotic Birch™ in its Charcole Ruby shade is a sound choice, as is the idea of ebonizing your own stock. Perhaps the most appealing option is Ebon-X™, an ebony substitute made by impregnating domestic hardwoods with non-toxic chemicals. Making plugs (pieces 3) with this material is relatively simple. Rip a length of material to 3/8" x 3/8", then create a gentle crown to both of its ends with a sander. Buff the ends of the stick on a grinder equipped with a polishing wheel to create an ultra smooth finish. Cut off 3/16"-long plugs using your band saw, then repeat the entire plug making process.

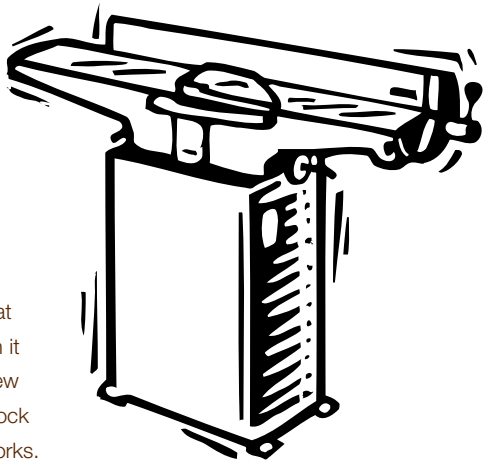
Cut the splines (pieces 13) to the shape found on the *Pinup Shop Drawings*. Again, use a sander to help create the gently rounded profiles on the splines. Move to the buffing wheel and repeat the buffing technique you used on the plugs. Polish the Ebon-X smooth as silk, bringing it to a high, rich luster.



Quick Tips

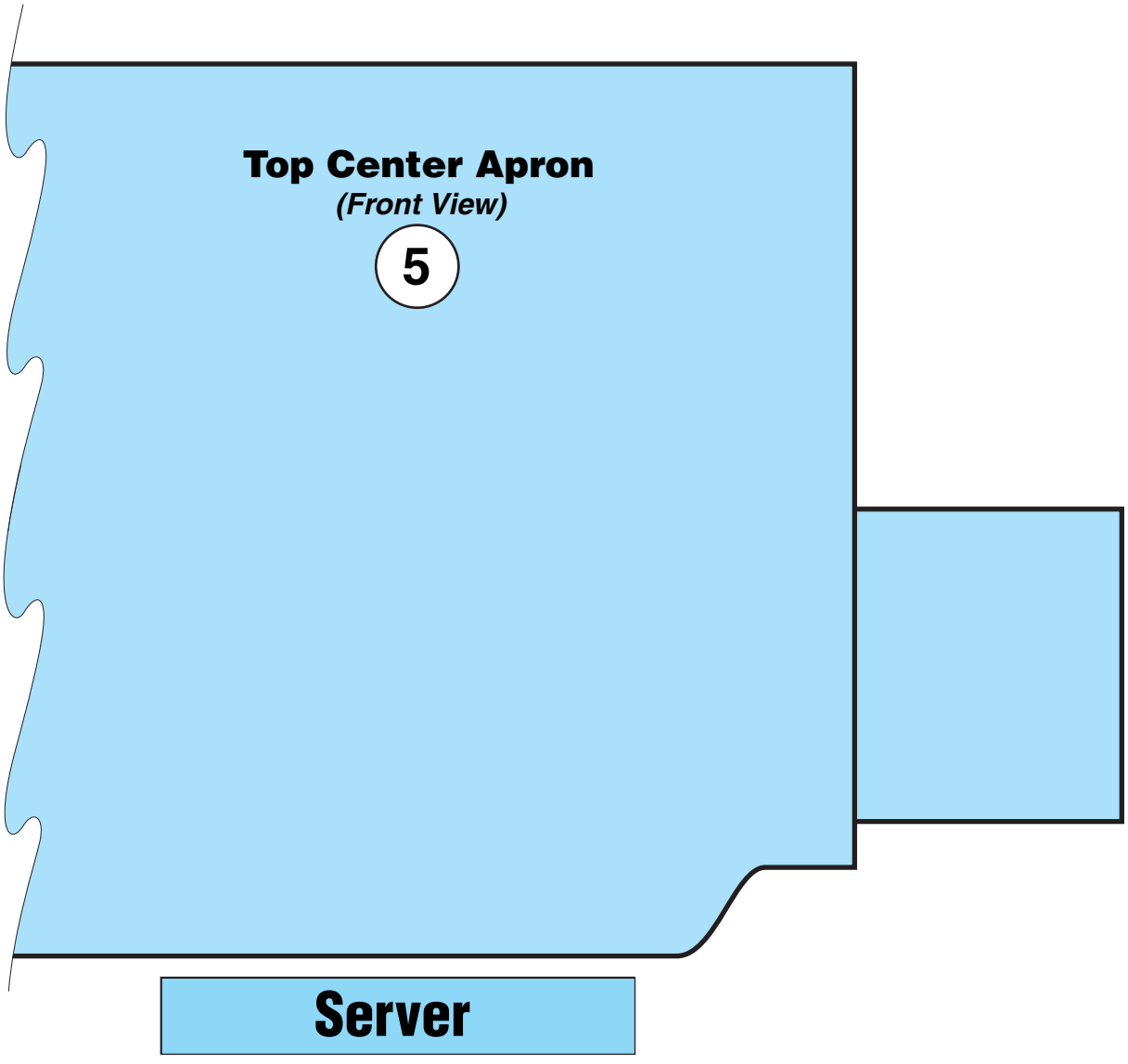
Go with the Grain

If you're getting a little tearout or feathering on boards as you run them across the jointer, flip the board end for end to reverse the direction of the feed. Tearout usually means you're planing against the grain. By switching the front of the board to the back, the blades will shear with the grain direction and produce a much cleaner cut. If the knives are nicked, just loosen one and move it left or right, as far as it will go. Leave the others as they are and you'll get clean, sharp cuts.

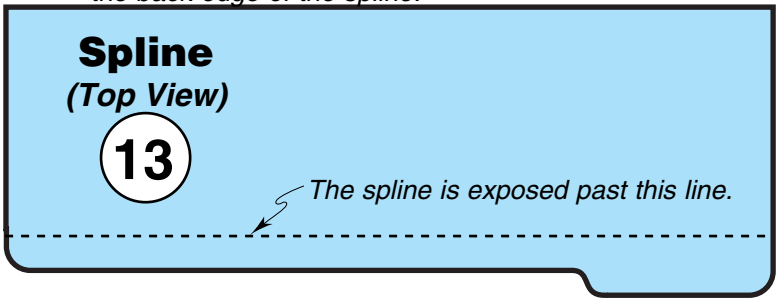


Snipe Remedies

Snipe is that annoying little concave area that a jointer or thickness planer can leave on the last couple of inches of a board. It is caused by an outfeed table that is set lower than the knives or on workpieces that are just too short. Dealing with it involves adjusting the outfeed table, planing longer boards, or buying one of a new breed of planers that are marketed as being "snipe-free." Or you can cut your stock 6" or 8" too long, then trim off the snipe on the miter saw. It's not thrifty, but it works.



If your mortise isn't deep enough, simply trim the back edge of the spline.



NOTE:*The splines and decorative plugs in this project are made from dark contrasting ebony or an ebony substitute.*