



WOODWORKING PLANS · FREE PLAN

The Shaker

Bench



1 SPLINTER

Beginner friendly

A 36 in Shaker bench from 4/4 lumber: arched end panels, a half-lapped stretcher and a screwed and plugged top. Free from M2.

Size	36 L x 11-1/2 D x 16-3/4 H in
Lumber	4/4 hardwood, about 7 bd ft
Joinery	Half-lap + screws and plugs
Shaping	One arch per end panel
Price	Free plan from M2 Lumber

Questions while you build? Call us. 1-864-GOT-WOOD (468-9663)
Mon-Fri 9 am-5 pm, Sat 8 am-3 pm (Eastern)

Read This First

The Splinter Scale, our shop standards and how to use these drawings.



The Splinter Scale

Every M2 plan is rated 1 to 3 splinters so you know what you're getting into before the first cut.



1 SPLINTER · Beginner friendly <- this plan

Straight parts, square cuts and simple joinery.



2 SPLINTERS · Some skill needed

Curved or shaped parts, more joints and tighter fits.



3 SPLINTERS · Advanced

Drawers, doors, casework or complex shaped joinery that has to fit just right.

Why this plan is rated 1 splinter

Three part types, straight cuts plus one arch per leg, and a half-lap joint. Beginner friendly.

M2 shop standards (apply to every part)

- **Edges.** We ease every edge about 1/8 in (sandpaper or a small roundover bit). Sharp corners splinter and chip, so don't leave them, even where a drawing shows a sharp corner.
- **Except at joints.** Never round or ease an edge where two parts meet. Keep joint lines crisp: ease edges after the part's joinery is cut, and skip any face that becomes a joint face.
- **Feet.** Where wood touches the floor, round the bottom edges 1/8 to 1/4 in so the feet don't splinter out when the piece is moved.
- **Curves and templates.** A single gentle curve can be cut by hand: bandsaw or jigsaw just outside the line, then sand or spokeshave to it. Parts with a series of curves are cut with a template and a flush-trim bit, and we strongly recommend our CNC-cut templates for those. The shop-drawing views are drawn to scale, so you can also enlarge and print them and trace your own paper template, but then you're making your own template: check it against every dimension before you cut.
- **++ means rough it out oversized.** On shaped parts, a dimension marked ++ is the FINISHED size of the part. Rough-cut the blank well oversized (about 1 in wider and 3 in longer than the ++ size), trace the template, saw about 1/8 in outside the line, then flush-trim to the template for the final size. Don't cut a shaped blank to the ++ size before templating.
- **Dimensions govern.** Always work from the numbers, not by measuring the drawing. Cut one part, test the fit, then cut the rest.
- **Joinery.** We join parts with Festool Domino loose tenons wherever two parts meet. Dowels, pre-drilled screws with plugs, or traditional mortise and tenon all work in their place (see the Joinery sheet). Pocket screws work but are weaker.
- **Thick parts are glued up.** We don't stock 16/4. For anything thicker than 1-3/4 in, glue up two 8/4 boards: plane each a little over half the final size (about 1-5/8 in for a 3 in part), glue, let it dry, then plane to the final size. Always leave extra width, thickness and length to do your final sizing after a glue-up.
- **Anything wider than 12 in.** Most shops have a 12 to 13 in planer and a 6 to 8 in jointer. Flatten and thickness boards before glue-up, glue wide parts in sections narrower than your planer, plane each section, then join them and level the seams with a hand plane, router sled or sander. Wide shaped parts are glued up from boards about 5 in wide and cut to shape afterward.
- **Tops.** Table tops finish 1-1/2 to 1-3/4 in thick unless noted, and attach with Z-clips in slots cut with a biscuit joiner (2 to 3 per side) so the top can move with the seasons.
- **Knock-down bases.** Stretchers attach with connector hardware so the base can come apart for moving. If you glue instead, make sure you have room to move one solid base.



TITLE

The Shaker Bench - Woodworking Plans

Plan set for personal use. Dimensions govern; don't scale the drawings.

LUMBER AND QUESTIONS

M2 Lumber, Laurens, SC

m2lumber.com

1-864-GOT-WOOD (468-9663)

REV / DATE

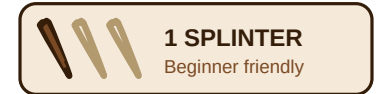
A draft, 10/21/26

SHEET

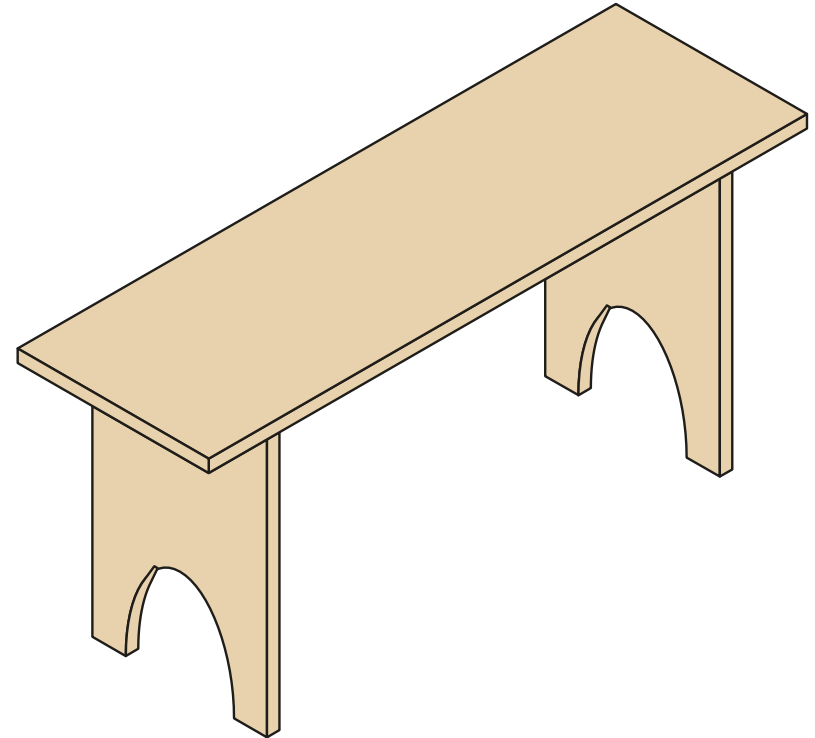
2 / 14

Notes for This Design

Read these before you cut. They come from how we build it in our shop.



- The arch in each end panel is a gentle parabola. Eyeball it: bend a thin strip through the points, trace, cut by hand and sand to the line.
- The stretcher and legs join with a half-lap (matching notches that lay over each other); sneak up on a snug fit. The holes in the top edge of the stretcher are for screwing the half-lap together.
- The stretcher is 3 in tall.
- Top attaches with #8 screws in 3/8 in counterbores, plugged. Dowels work too, but screws and plugs keep it an easy build.



TITLE

The Shaker Bench - Woodworking Plans

Plan set for personal use. Dimensions govern; don't scale the drawings.

LUMBER AND QUESTIONS

M2 Lumber, Laurens, SC
m2lumber.com
1-864-GOT-WOOD (468-9663)

REV / DATE

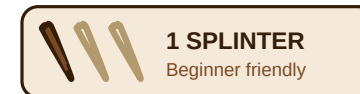
A draft, 10/21/26

SHEET

3 / 14

Materials, Board Feet and Cost

What to buy. Board feet include 20% for waste and defects.



Lumber to buy

9 board feet of 4/4 lumber

Approximate lumber cost (at the drawn size)

Species	4/4 price	Lumber cost
Black walnut	\$10.99	\$99
White oak	\$9.99	\$90
Sapele	\$8.99	\$81
Hard maple	\$6.49	\$58
Hickory	\$4.59	\$41
Cherry	\$4.99	\$45
Ash	\$4.99	\$45
Ambrosia maple	\$4.29	\$39
Red oak	\$4.59	\$41
Poplar	\$2.99	\$27

M2 Lumber prices per board foot on 10/21/26; check m2lumber.com or call for today's price. Plans are free with \$800 or more of lumber.

Also needed

- #8 wood screws and 3/8 in wood plugs
- Wood glue
- Finish

Tools

- Saw (table or circular)
- Jigsaw or bandsaw
- Chisel and dado or handsaw for notches
- Drill, 3/8 in bit
- Clamps
- Sander



TITLE

The Shaker Bench - Woodworking Plans

Plan set for personal use. Dimensions govern; don't scale the drawings.

LUMBER AND QUESTIONS

M2 Lumber, Laurens, SC

m2lumber.com

1-864-GOT-WOOD (468-9663)

REV / DATE

A draft, 10/21/26

SHEET

4 / 14

Rough Milling: From Board to Blank

Every part before any shaping, templating, angles or joinery, shown for the 36 x 11.5 in bench. Not to scale.



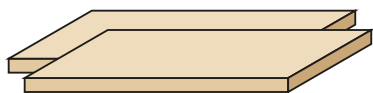
1. ROUGH CUT FROM LUMBER

2. MILL AND GLUE UP

3. READY FOR SHAPING / JOINERY

TOP make 1

*joint, plane and rip to
3/4 x 11-1/2*



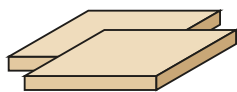
1 pc 4/4 x 12 x 38



3/4 x 11-1/2 x 36

LEG (END PANEL) make 2

*joint and plane to 3/4 thick;
keep the full width and length for the template*



2 pcs 4/4 x 11-1/2 x 19



3/4 x 11-1/2 x 19 blank, ready to trace
the template (10-1/2 x 16 finished)

STRETCHER make 1

*joint, plane and rip to
3/4 x 3*



1 pc 4/4 x 3-1/2 x 34



3/4 x 3 x 32
then cut the angles shown

Why rough out oversized: wood moves when it's cut and glue lines never line up perfectly, so every blank starts thicker, wider and longer than it finishes. Shaped parts are roughed out about 1 in wider and 3 in longer so the template and flush-trim bit cut them to size. Plane laminated blanks to final size only after the glue is dry. Sizes that change with your table are on the Cut List.



TITLE

The Shaker Bench - Woodworking Plans

Plan set for personal use. Dimensions govern; don't scale the drawings.

LUMBER AND QUESTIONS

M2 Lumber, Laurens, SC

m2lumber.com

1-864-GOT-WOOD (468-9663)

REV / DATE

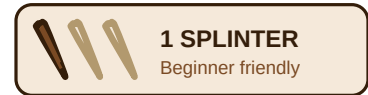
A draft, 10/21/26

SHEET

5 / 14

Cut List

Finished sizes at the drawn size, and rough sizes to cut before milling.



Part	Qty	Finished T x W x L (in)	Rough size to cut	Lumber	Shape	Notes
Top	1	3/4 x 11-1/2 x 36	4/4 x 12 x 38	4/4	Panel	
Leg (end panel)	2	3/4 x 10-1/2 x 16	4/4 x 11-1/2 x 19 ++	4/4	Template / CNC	Arch; half-lap notch at top
Stretcher	1	3/4 x 3 x 32	4/4 x 3-1/2 x 34	4/4	Angled cuts	Angled ends; half-lap notches

Rough sizes add about 2 in to length and 1/2 in to width. ++ **shaped parts** are roughed out well oversized (about 1 in wider and 3 in longer) because the template and flush-trim bit cut them to the finished size; the finished size is the ++ size on the drawing. Laminated parts: see the part sheet. Cut the longest parts first so offcuts can cover the short ones.



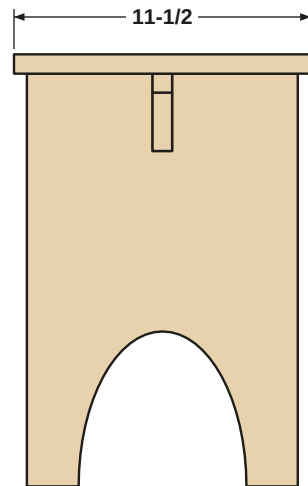
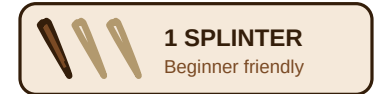
TITLE
The Shaker Bench - Woodworking Plans
Plan set for personal use. Dimensions govern; don't scale the drawings.

LUMBER AND QUESTIONS
M2 Lumber, Laurens, SC
m2lumber.com
1-864-GOT-WOOD (468-9663)

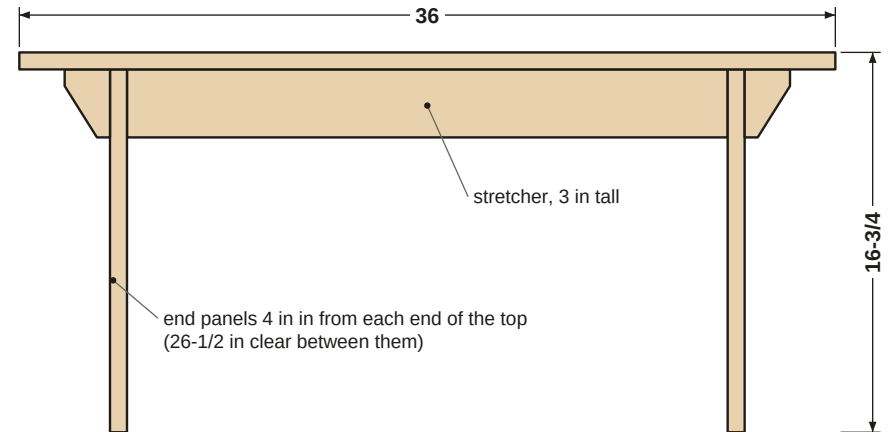
REV / DATE SHEET
A draft, 10/21/26 **6 / 14**

Assembly Views

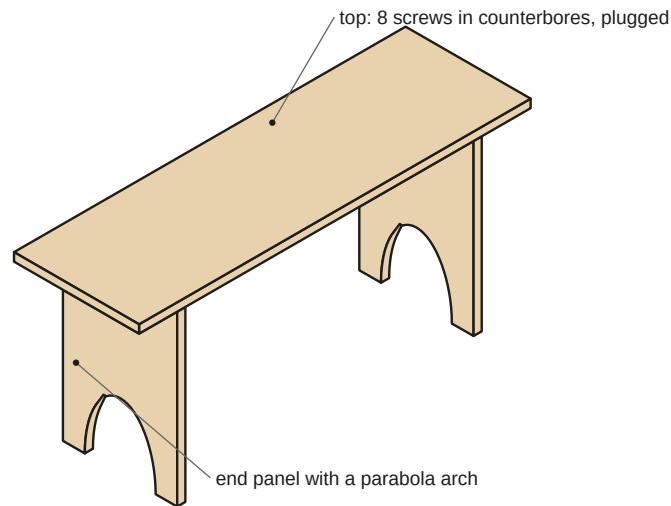
Drawn at 36 x 11-1/2 x 16-3/4 in. All parts are 3/4 in thick (4/4 lumber).



End view (11-1/2 in deep)



Front view (36 in long, 16-3/4 in high)



Isometric view



TITLE

The Shaker Bench - Woodworking Plans

Plan set for personal use. Dimensions govern; don't scale the drawings.

LUMBER AND QUESTIONS

M2 Lumber, Laurens, SC

m2lumber.com

1-864-GOT-WOOD (468-9663)

REV / DATE

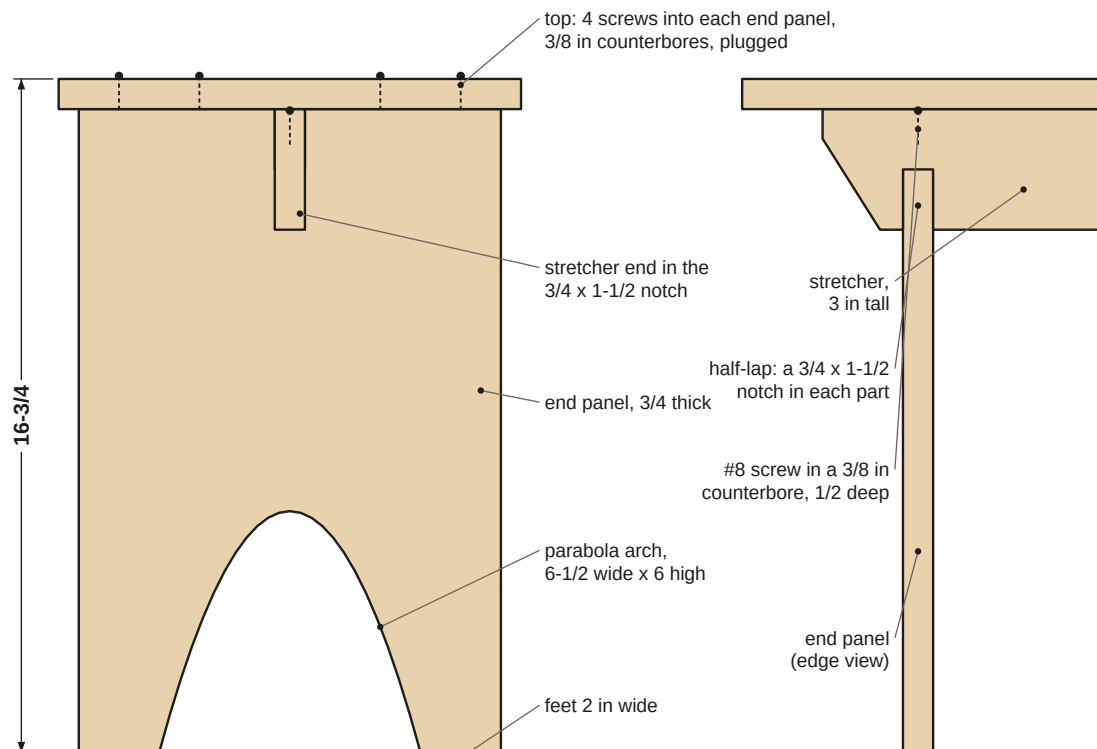
A draft, 10/21/26

SHEET

7 / 14

Base Joints: Half-Lap, Screws and Plugs

Left: one end of the bench seen from the end. Right: the same joint seen from the side, where the two notches lap over each other.



The half-lap

- Each end panel has a $3/4 \times 1-1/2$ in notch at the top center. The stretcher has matching $3/4 \times 1-1/2$ in notches in its bottom edge, 2 in from each end.
- Drop the stretcher in: the notches lap over each other and the stretcher's top edge ends up flush with the top of the legs.
- Cut the notches a hair narrow and pare to a snug fit. It should go together with hand pressure or a light mallet tap.

Screwing the base

Glue the laps, then drive a #8 x 2 in screw down through each $3/8$ in counterbore ($1/2$ in deep) in the stretcher's top edge into the end panel below. The top covers these, so plugs are optional here. Check that the end panels are square to the stretcher.

Screwing and plugging the top

Center the top on the base (end panels 4 in in from each end). Drill eight $3/8$ in counterbores $1/4$ in deep: $4-3/8$ in from each end, $1-1/2$ and $3-1/2$ in from each long edge. Pre-drill and drive #8 x $1-1/4$ in screws into the top edge of the end panels (it's end grain, so don't overdrive). Glue in face-grain $3/8$ in plugs with the grain lined up, then trim and sand flush.

Order of work

Cut all the notches and the arches, dry-fit the base, glue and screw the stretcher, then the top, then plug and finish.

Part: Top



1 SPLINTER

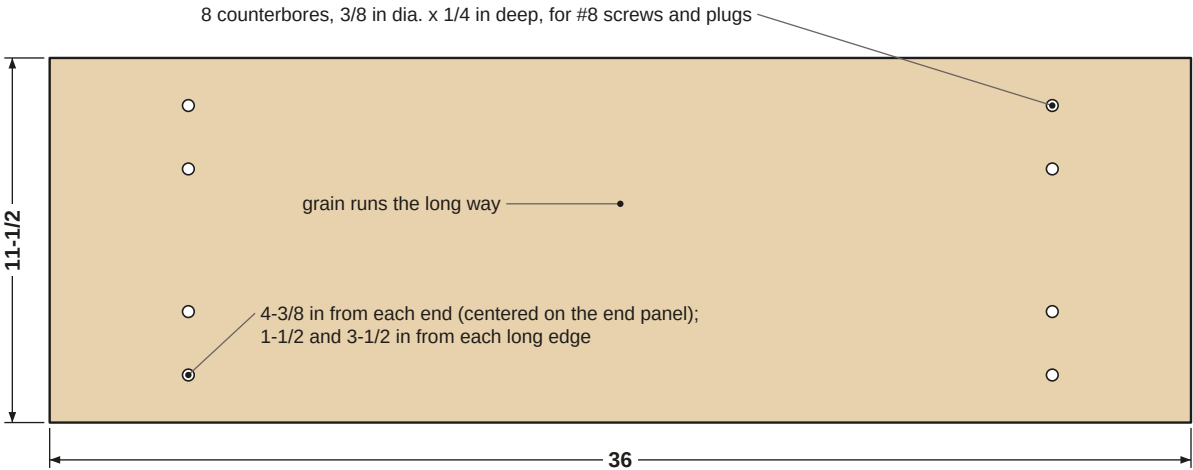
Beginner friendly

Quantity	1
Finished size	3/4 x 11-1/2 x 36 in
Lumber	4/4

PLAN VIEW

How to make it

- Drill the 8 counterbores (3/8 in, 1/4 in deep) over the legs as drawn; screw and plug.



EDGE VIEW



Dimensions in inches. '++' = finished size of a shaped part; rough it out oversized.



TITLE
The Shaker Bench - Woodworking Plans
Plan set for personal use. Dimensions govern; don't scale the drawings.

LUMBER AND QUESTIONS
M2 Lumber, Laurens, SC
m2lumber.com
1-864-GOT-WOOD (468-9663)

REV / DATE
A draft, 10/21/26
SHEET
9 / 14

Part: Leg (end panel) (make 2)



1 SPLINTER

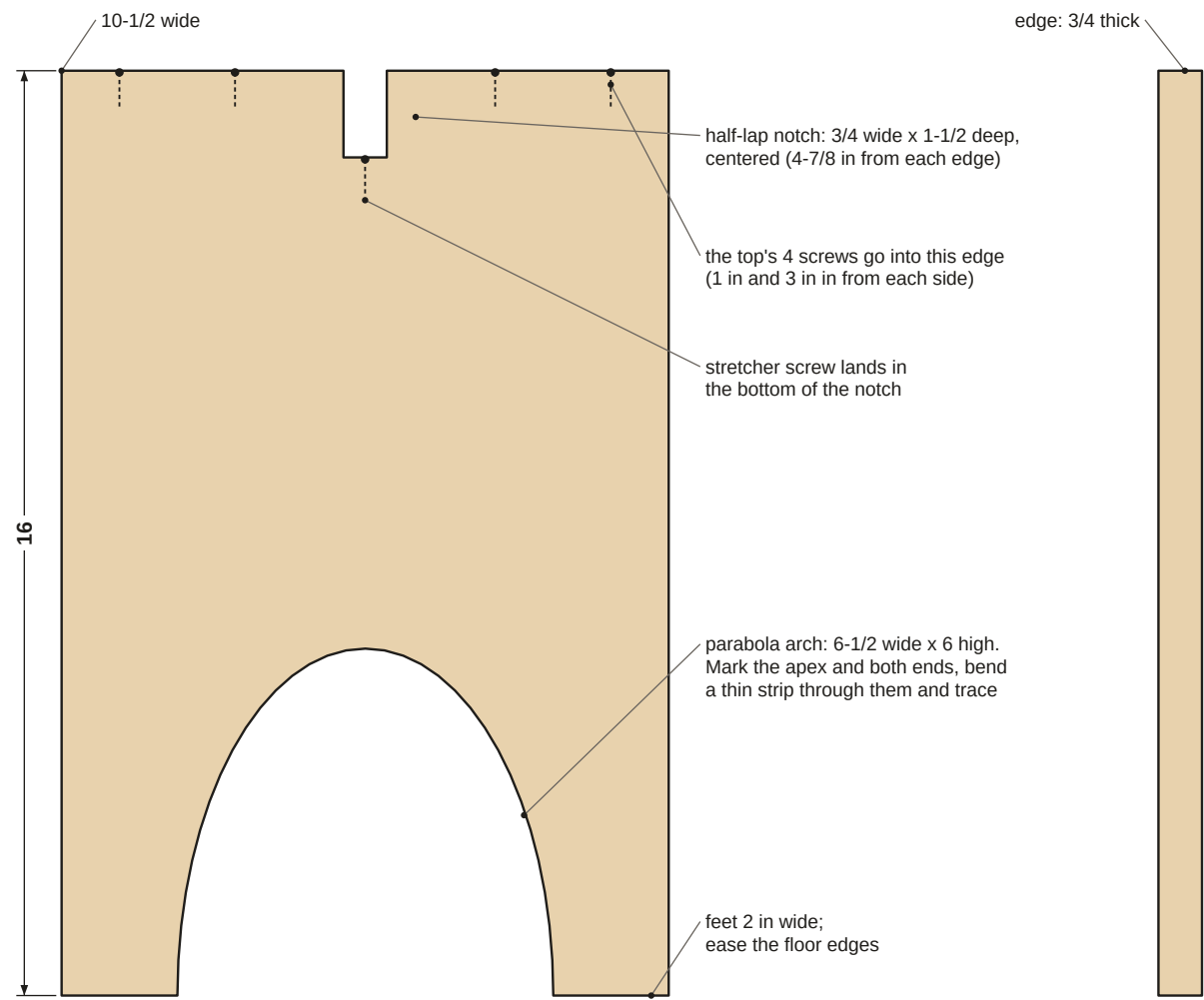
Beginner friendly

Quantity	2
Finished size	3/4 x 10-1/2 x 16 in
Lumber	4/4
Rough blank ++	3/4 x 11-1/2 x 19 in (oversized; trim to template)
Cutting	Template + flush-trim bit (CNC template kit recommended)

How to make it

- Cut the 3/4 x 1-1/2 in notch at the top center.
- Cut the arch, leaving 2 in feet; sand smooth.
- Ease the floor edges 1/8-1/4 in.
- Shaped part: make or buy a template, rough cut 1/16 in outside the line, then flush-trim to the template.

FACE AND EDGE VIEWS



Dimensions in inches. '++' = finished size of a shaped part; rough it out oversized.



TITLE

The Shaker Bench - Woodworking Plans

Plan set for personal use. Dimensions govern; don't scale the drawings.

LUMBER AND QUESTIONS

M2 Lumber, Laurens, SC
m2lumber.com
1-864-GOT-WOOD (468-9663)

REV / DATE

A draft, 10/21/26

SHEET

10 / 14

Part: Stretcher



1 SPLINTER

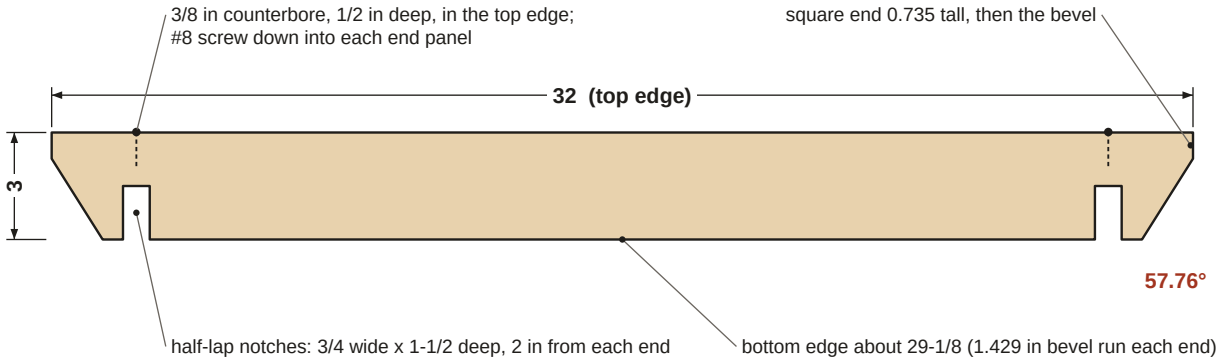
Beginner friendly

Quantity	1
Finished size	3/4 x 3 x 32 in
Lumber	4/4
Angles	57.76 deg end bevels (bottom corners clipped)

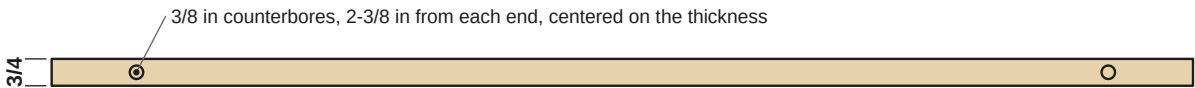
How to make it

- Cut the angled ends as drawn.
- Cut the two 3/4 x 1-1/2 in notches 2 in from each end to half-lap with the legs.
- Drill the 3/8 in counterbores in the top edge to screw the half-laps.

FACE VIEW



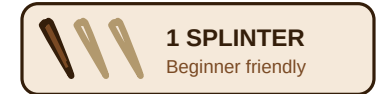
TOP EDGE



Dimensions in inches. '++' = finished size of a shaped part; rough it out oversized.

Joinery and Hardware

How the parts go together, with alternatives if you don't own a Domino.



How we join it

- Stretcher to legs: half-lap notches, glued and screwed down through the top edge of the stretcher.
- Top to legs: #8 screws in 3/8 in counterbores, plugged.

Alternatives to Dominos

- **Dowels:** two 3/8 in dowels per joint with a doweling jig, 1-1/4 in deep each side.
- **Screws and plugs:** pre-drill, counterbore 3/8 in, glue a face-grain plug and trim flush.
- **Mortise and tenon:** the traditional joint. Add tenon length to the parts (not detailed here).
- **Pocket screws:** work, but they're the weakest choice for a piece that gets used hard.

Assembly tips

- Fit the half-laps dry first; the stretcher should seat flush with the top of the legs.



TITLE

The Shaker Bench - Woodworking Plans

Plan set for personal use. Dimensions govern; don't scale the drawings.

LUMBER AND QUESTIONS

M2 Lumber, Laurens, SC

m2lumber.com

1-864-GOT-WOOD (468-9663)

REV / DATE

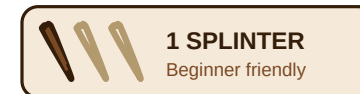
A draft, 10/21/26

SHEET

12 / 14

Choosing Lumber and Grain

Good boards and careful layout matter more than any tool.



At the lumber rack

- Buy everything for one piece from the same species and, if you can, the same bundle so the color matches.
- Kiln-dried, 6 to 8% moisture. Let it sit in the room where you'll build for 1 to 2 weeks before milling.
- Sight down each board. Pass on heavy twist or cup; a little bow is fine since parts get cut shorter.
- Avoid the pith (center of the tree) and long cracks. Small end checks get cut off.
- Buy the board feet on the Materials sheet. The extra 20% lets you be picky about grain.

Shaped and structural parts

- Grain runs vertically on the end panels so the feet are strong.
- Straight grain for the stretcher.

Board-foot math

Board feet = thickness x width x length (inches) / 144. 8/4 counts as 2 in thick, 4/4 as 1 in.



TITLE

The Shaker Bench - Woodworking Plans

Plan set for personal use. Dimensions govern; don't scale the drawings.

LUMBER AND QUESTIONS

M2 Lumber, Laurens, SC

m2lumber.com

1-864-GOT-WOOD (468-9663)

REV / DATE

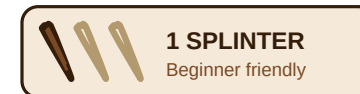
A draft, 10/21/26

SHEET

13 / 14

Milling, Build Sequence and Finishing

Work in this order: mill, cut and shape, joinery, glue-up, finish.



Milling

- **Cut the longest parts first**, then the shorter ones from what's left.
- Cut every part to rough size (cut list) and let them sit overnight.
- Flatten one face, square one edge, plane to thickness taking wood off both faces.
- Mill matching parts at the same time so they come out identical; cut to length with a stop block.

Shaping

- Draw the parabola with a bent strip, cut with a jigsaw and sand to the line.

Build sequence

#	Step
1	Mill 4/4 stock to 3/4 in; glue up the top if needed.
2	Cut legs and stretcher; cut notches and arches.
3	Dry fit the half-laps.
4	Glue and screw the base; screw the top down.
5	Plug, trim flush, sand, ease edges, finish.

Finishing

We use a 1K water-based polyurethane in satin: 3 coats on surfaces that get wear, 2 elsewhere, scuffing with 320 grit between coats. Finish both faces of a top the same.

Stuck? Give us a call

Call **1-864-GOT-WOOD** (864-468-9663) Mon-Fri 9-5 or Sat 8-3 (Eastern) with your sheet number handy.

For personal, non-commercial use. Check every dimension against your own parts before cutting. Use guards and follow your tool makers' safety instructions; you build at your own risk. © 2026 M2 Furniture Company / M2 Lumber.



TITLE

The Shaker Bench - Woodworking Plans

Plan set for personal use. Dimensions govern; don't scale the drawings.

LUMBER AND QUESTIONS

M2 Lumber, Laurens, SC

m2lumber.com

1-864-GOT-WOOD (468-9663)

REV / DATE

A draft, 10/21/26

SHEET

14 / 14