GRAINBENCH ORIGINAL | CONFIDENT BEGINNER

The Weekend Potting Bench

An outdoor potting bench with continuous square rear posts, flush 2x4 rails and a plywood worktop and lower shelf. Worktop 34 in high.



SIZE	SKILL	TIME	JOINERY
42 in wide, 23 in deep, 48 in tall	Confident beginner	About a day, plus drying	Pocket screws, exterior glue and panel screws

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01 / MATERIALS AND TOOLS

What to buy.

LUMBER AND SHEET GOODS

BUY	USED FOR
2 x 4x4 board, 8 ft	L front posts, U full-height rear posts
3 x 2x4 board, 8 ft	A front and back rails, E end rails, G upper tool rail
1 x 3/4 plywood, 4 ft x 4 ft panel	B lower shelf blank - 4 notches, T worktop blank - 2 rear notches

Use straight, dry softwood: 4x4 posts (actual 3-1/2 in square), 2x4 rails (actual 1-1/2 x 3-1/2 in) and exterior-rated 3/4 in plywood. Reject twisted posts and badly cupped boards. Match the two front-post lengths exactly. Buy 2 eight-foot 4x4s, 3 eight-foot 2x4s and one 4 x 4 ft plywood panel. The plywood uses a light natural presentation tone with visible layered edges; it is not a required species or stain.

HARDWARE AND SUPPLIES

ITEM	AMOUNT
2-1/2 in exterior coarse-thread pocket-hole screws	36 used: A 16, E 16, G 4; buy a box of 50 for setup and spares
#8 x 1-1/2 in exterior flathead wood screws	24 used: 12 each for T and B; buy a box of 50 for setup and spares
Exterior wood glue	One small bottle; follow its clamp and cure times
Sandpaper	120 and 180 grit
Exterior finish	About 1 L (1 quart), depending on coverage; seal faces, undersides, cut ends and notches

TOOLS

- Saw for accurate post and rail crosscuts; use a supported setup suitable for 4x4 stock
- Circular saw and straight-edge guide for plywood, or store-cut blanks
- Jigsaw for the square post notches
- Pocket-hole jig for 1-1/2 in stock, stepped bit, stop collar and long driver bit
- Drill/driver, suitable wood pilot bit and countersink bit
- Tape, pencil, square, straightedge and two clamps opening at least 42 in
- Sanding tools, eye/hearing protection and dust protection

02 / CUT LIST

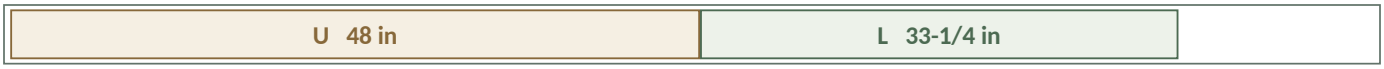
Cut the parts.

Finished sizes are below. Square one end before measuring, cut matching parts together and label each ID. Allow 1 in per board for squaring and 1/8 in saw kerfs. Cut T and B as matching 42 x 23 in blanks, then cut their different notches. Do not cut both blanks as 24 in strips: two such strips plus a saw kerf will not fit a 48 in sheet.

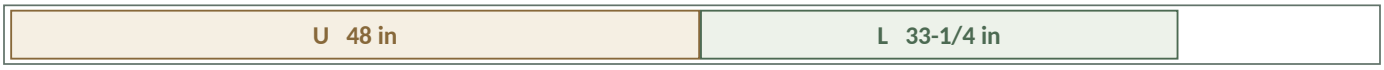
ID	PART	QTY	LENGTH	WIDTH	THICK	FROM
L	Front posts	2	33-1/4 in	3-1/2 in	3-1/2 in	4x4
U	Full-height rear posts	2	48 in	3-1/2 in	3-1/2 in	4x4
A	Front and back rails	4	35 in	3-1/2 in	1-1/2 in	2x4
E	End rails	4	16 in	3-1/2 in	1-1/2 in	2x4
G	Upper tool rail	1	35 in	3-1/2 in	1-1/2 in	2x4
T	Worktop blank - 2 rear notches	1	42 in	23 in	3/4 in	3/4 plywood
B	Lower shelf blank - 4 notches	1	42 in	23 in	3/4 in	3/4 plywood

CUTTING DIAGRAMS

4x4 x 8 ft — 82-3/8 in used, including 1 in to square the end and 1/8 in per cut



4x4 x 8 ft — 82-3/8 in used, including 1 in to square the end and 1/8 in per cut



2x4 x 8 ft — 87-1/4 in used, including 1 in to square the end and 1/8 in per cut



2x4 x 8 ft — 87-1/4 in used, including 1 in to square the end and 1/8 in per cut



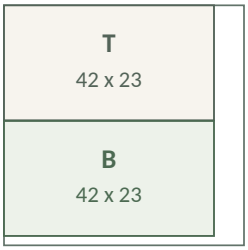
2x4 x 8 ft — 68-1/4 in used, including 1 in to square the end and 1/8 in per cut



02 / CUT LIST, CONTINUED

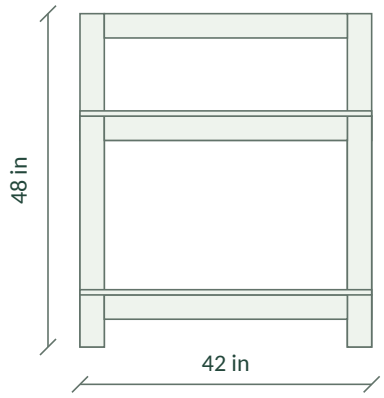
3/4 plywood, 4 ft x 4 ft

Long edge runs left to right. Allow 1/8 in between parts for the saw.

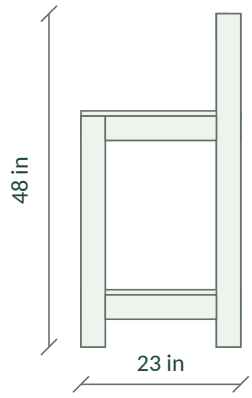


FINISHED SIZE

FRONT



SIDE



Use the ground as the common height datum. Lower rail bottom edges: 4 in; lower shelf underside/top: 7-1/2 / 8-1/4 in. Upper rail bottom/top: 29-3/4 / 33-1/4 in; worktop top: 34 in. G top: 48 in. The A/E rail outside faces are flush with the posts. G has its front face flush with the rear-post front faces. Both plywood panels bear directly on four rails. Rear posts continue uninterrupted from the ground through the tabletop notches to G.

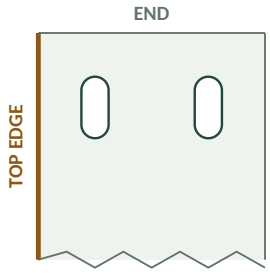
03 / BUILD

Put it together.

STEP 1 Mark the faces and drill the rails

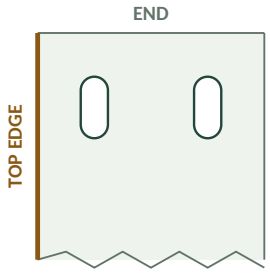
Mark the inward face and top edge of all A/E rails; mark the back face of G. Set the jig and bit stop once for 1-1/2 in stock and use 2-1/2 in pocket screws. Test on matching scrap first. Drill 2 pockets at each end, on the marked face, with centres 7/8 and 2-5/8 in from the top edge. Keep the parts clamped while drilling. There are 36 pocket holes in total.

A **Front and back rails**
Inward face



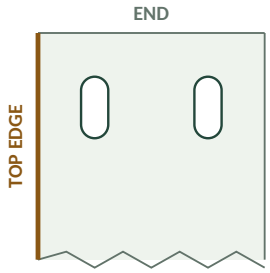
Same at the other end
2 at each end | 16 total
7/8, 2-5/8 in from top edge

E **End rails**
Inward face



Same at the other end
2 at each end | 16 total
7/8, 2-5/8 in from top edge

G **Upper tool rail**
Back face

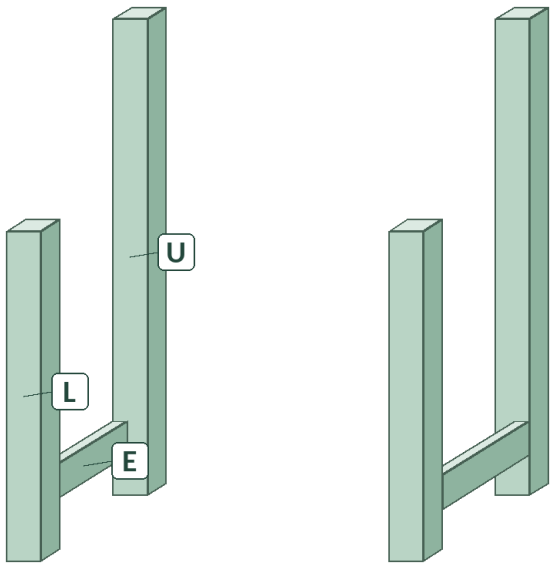


Same at the other end
2 at each end | 4 total
7/8, 2-5/8 in from top edge

Ovals = pocket-hole entries, enlarged. Not a drilling template.

STEP 2 Make the two lower end frames

Pair one short front post L with one continuous rear post U. Mark a line 4 in above the bottom of each. Clamp one lower E between them with its bottom on the lines, outside face flush with the outside post faces, and pockets facing inward. Check square, glue the rail ends and drive 2 pocket screws into each post. Repeat for the opposite end. Keep both U posts at the back.



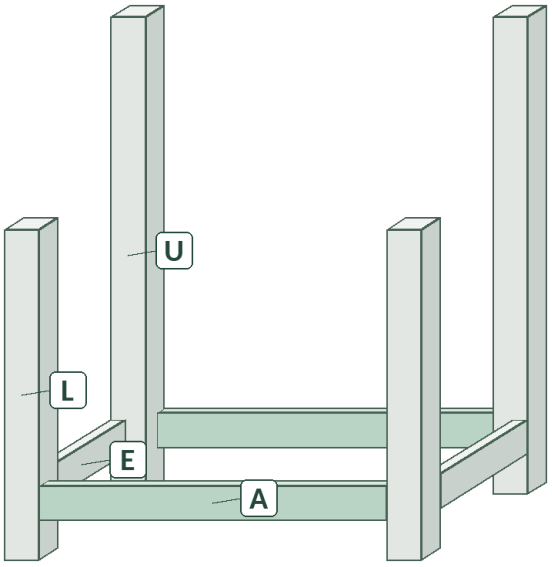
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03 / BUILD, CONTINUED

STEP 3

Join the lower frame and square it

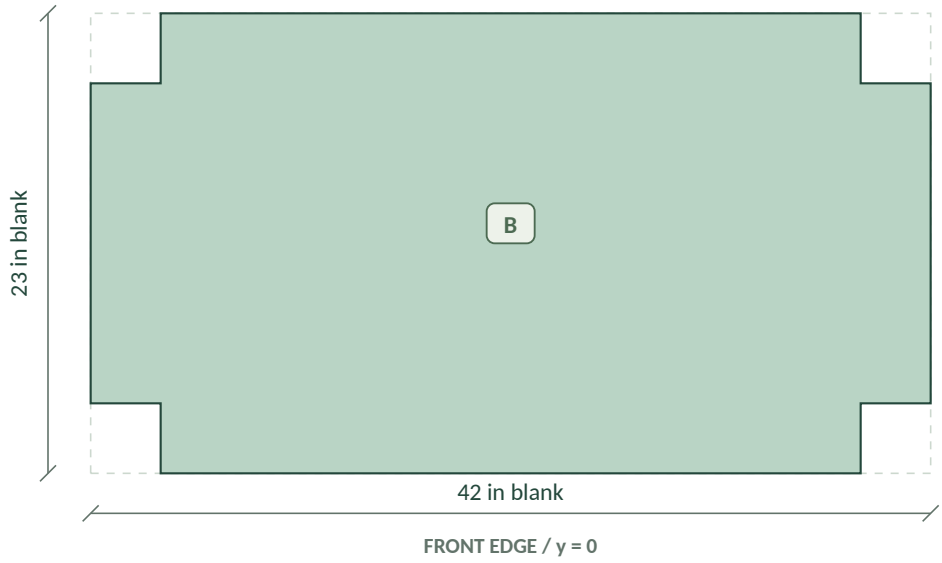
Fit the two lower A between the end frames at the same 4 in bottom-edge marks, with outside faces flush and pockets inward. Clamp, glue and drive 2 pocket screws at each end: 8 screws for the pair. Set all four posts on a flat surface, match the corner-to-corner diagonals and check for rocking. Keep the upper A/E rails and G off until the lower shelf is installed.



GREEN: added in this step | GREY: already in place

STEP 4 Cut and test the lower-shelf notches

Mark four 3-1/2 x 3-1/2 in corner notches in B, one around each actual post. Use a square; cut inside the waste and ease the cut to the line. Test the fit against the actual stock, allowing only the small sliding clearance needed for assembly and finish. Keep the blank at 42 x 23 in: the notches remove just the four corners.



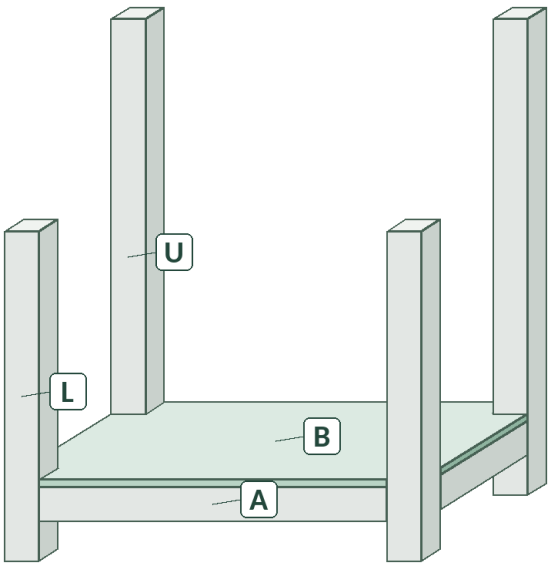
4 notches
3-1/2 x 3-1/2 in
Mark actual posts.

Dashed line = blank.
Top view.

Coordinates start at the front-left blank corner. Not a full-size template.

STEP 5 Lower the shelf onto the rails

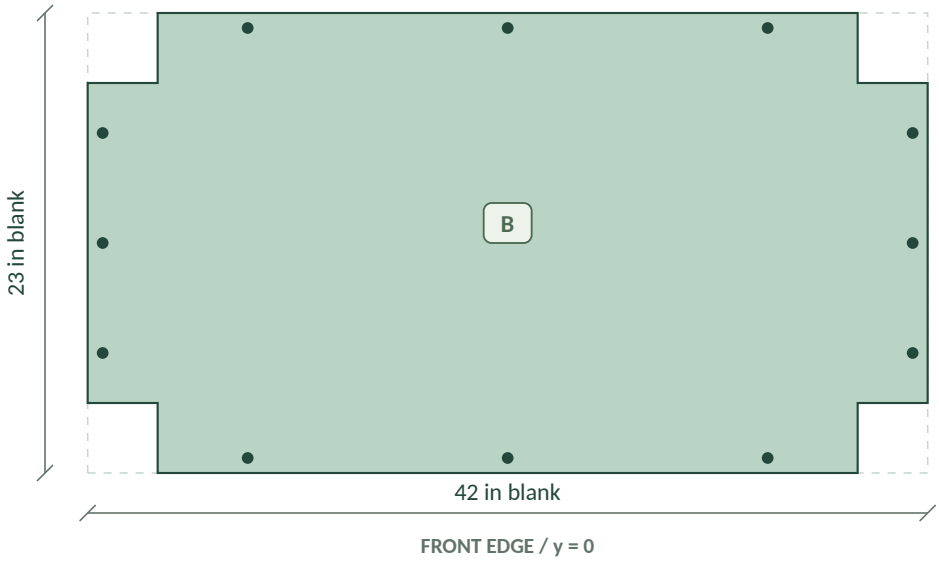
With the upper rails still off, lower B over the rear posts first, then over the front posts. Its four notches clear the posts, and its underside rests flat at 7-1/2 in on all four lower rails. The outside edges align with the post outside faces. Confirm direct bearing all around; do not force the panel or enlarge a notch to hide a misplaced rail. Clamp it flat before drilling.



GREEN: added in this step | GREY: already in place

STEP 6 Fasten the lower shelf

Use the panel fixing diagram below: 3 screws into each of the four rails. Mark the rail centre lines on B, then predrill through the plywood into the rail, using a pilot appropriate for the screw and wood. Countersink only enough for a flush head. Drive 12 of the 1-1/2 in flathead screws; keep the panel flat and do not strip the holes. The same fixing pattern is used for T later.

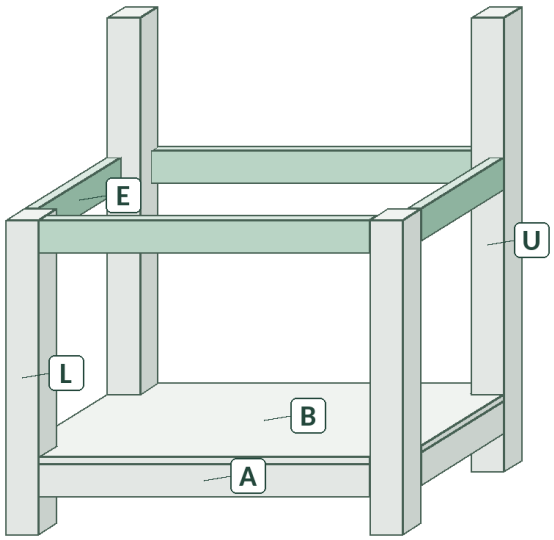


12 panel screws
Front/back: x = 8, 21, 34; y = 3/4, 22-1/4 in.
Ends: x = 3/4, 41-1/4; y = 6, 11-1/2, 17 in.

Coordinates start at the front-left blank corner. Not a full-size template.

STEP 7 Fit the upper end and long rails

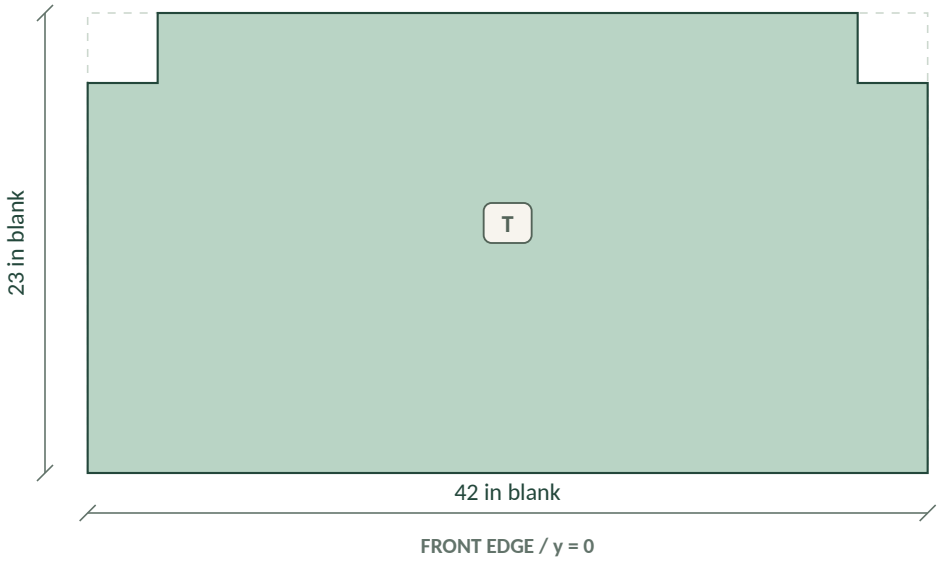
Mark 29-3/4 in above the ground on every post for the upper rail bottoms. Fit the remaining two E and two A, with outside faces flush and pockets inward. Their top edges must finish level with the L post tops at 33-1/4 in. Clamp, check square, glue and use 2 pocket screws per rail end: 16 screws for these four rails. Leave G off for worktop access.



GREEN: added in this step | GREY: already in place

STEP 8 Notch the worktop around the rear posts

T needs only TWO notches, both at the rear. Mark each rear post position on the 42 x 23 in blank and remove the two 3-1/2 in squares shown. Keep the front corners whole: they will rest on the short front posts. Test T around the rear posts before finishing, and seal every notch edge. The rear posts are full length; do not cut them into separate upper and lower pieces.



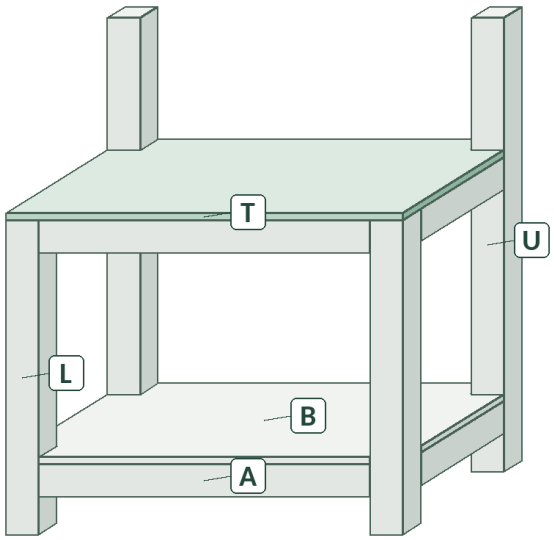
2 notches
3-1/2 x 3-1/2 in
Mark actual posts.

Dashed line = blank.
Top view.

Coordinates start at the front-left blank corner. Not a full-size template.

STEP 9 Fit and fasten the worktop

Lower T around the continuous rear posts onto the upper rails and front post tops. Align its outside edges flush with the frame; its finished top is 34 in above the ground. Check that both end rails sit directly below the tabletop edges. Clamp, use the same fixing coordinates shown for B, predrill/countersink and install the remaining 12 panel screws. Do not use the long pocket screws through the plywood.

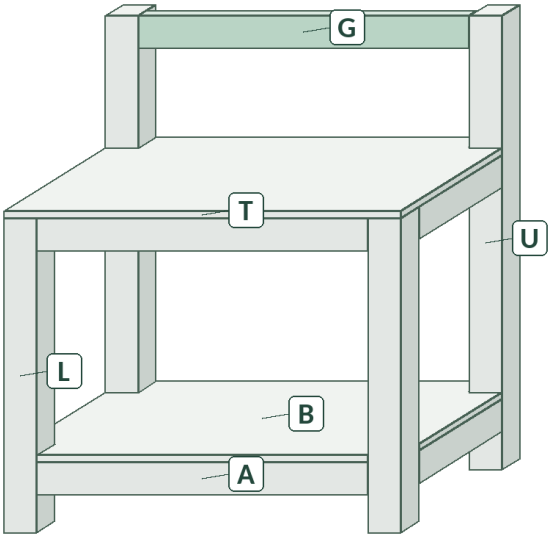


GREEN: added in this step | GREY: already in place

03 / BUILD, CONTINUED

STEP 10 Fit the upper tool rail last

Clamp G between the two rear posts, with its top at 48 in, front face flush with the rear post fronts, and pocket holes facing backward. Glue the ends and drive 2 pocket screws into each post: 4 screws total. There are no separate back-upright strips or screws attaching uprights behind the legs.



GREEN: added in this step | GREY: already in place

STEP 11 Finish and make the final checks

Ease exposed edges, sand to 180 grit and coat all faces, undersides, notch cuts and post ends with exterior finish. Follow the finish and glue cure times. Check the frame is square and level, all panels bear directly on their rails, fastener heads are flush, and no tips protrude. Recheck after moving the bench.



CARE

Keep the bench level, clean off soil and standing water, and renew exterior finish as needed. Inspect screw tightness, panel edges and joints. It is not a seat or step.

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Dimensions, part quantities, stock yields, rail bearing, panel clearances and assembly sequence were checked digitally. This design has not been physically built or load-tested.