Studio Workbench



WORK SURFACE	CONSTRUCTION	FORMAT
60 x 29 IN	LUMBER / PLYWOOD	PLANS + GUIDE

01 Free plans / A Drafting Table example

Adapted from MAN about TOOLS and Sandor Nagyszalanczy. Credits: G12.

The finished bench

Built in my studio.



The finished bench, with Rockler casters. Photo: Justice Engineering.

Feature	Details
Work surface	60 x 29; single nominal 3/4 in panel
Shelf surface	12 in from the floor to the top of the shelf
Mobility	Rockler foot-operated workbench casters

Before you start

Read the dimensions rather than measuring the drawings. A few details still need checking.

About this bench

I built this bench for my studio, for drawing, cutting, mold making and mechanical work. It has a 60 x 29 in plywood top, one lower shelf and Rockler casters. The top is flush with the frame; there is no hardboard covering.

Still to check

The drawings put the upper end rails between the long rails. The end-view photo on G13 confirms that arrangement. The builder confirmed a 36 in height on bare legs and a 48 x 29 in shelf with end gaps. The review model centers the shelf; the gap widths and leg inset have not been measured.

Check your lumber

A 2x6 usually measures 1 1/2 x 5 1/2 in, a 4x4 is 3 1/2 in square. The drawings use those sizes. Measure your lumber and plywood before cutting.

The rail joints need another check

The earlier rail screw layout has been withdrawn; see D04. The final layout must account for both wood members, grain direction, pilot holes and intersecting screws. These plans remain Draft until the connections are resolved.

BUILDING AND USE

Support the plywood while cutting and clamp joints before drilling. Wear eye, hearing and dust protection. The bench has not been load-tested, and these plans do not cover mounting a vise.

Buy the materials

Choose straight, dry lumber and plywood with a face you are happy to leave exposed.

Qty	Material	Use
1 sheet	3/4 in x 4 x 8 ft quality veneer-core plywood; birch-faced preferred	Top A, shelf B, rib C and cleats J; see D06
4	2x6 x 8 ft, dry untreated stock	Rails E, F, G and H
2	4x4 x 8 ft, dry untreated stock	Four legs D
1 set	Four Rockler foot-operated workbench casters	Moving the bench; check the kit model
16 oz	Wood glue suitable for indoor wood joints	Rail / leg mating surfaces
1 small tub	Natural-color sandable wood filler	Minor edge voids
2 quarts	Clear matte water-based polyurethane	Allow two quarts; check coverage on the label

CHOOSING PLYWOOD

Use plywood with a wood-veneer core, not an MDF core. Check both faces for damage and the edges for large gaps. Avoid knots or splits where screws will enter the lumber.

One full 48 x 96 in sheet fits all plywood parts if the shelf is rotated. The shelf uses the full 48 in factory width, with face grain front to back. Check usable width and square edges; allow extra stock if trimming is needed. Measure panel thickness before cutting.

Hardware and tools

Products identified from the build. Quantities are proposed, not a count of installed screws.

Code / qty	Item	Where used
S1 / 32*	5/16 x 4 in GRK RSS screws*	Two per rail-to-leg joint; see D04
S2 / 4	GRK R4 #10 x 3 1/8 in screws	Two through each upper end rail G into rib C
S3 / 12	GRK Cabinet #8 x 2 in screws	Two per cleat J into upper long rails
S4 / 16	GRK R4 #9 x 2 1/2 in screws	Shelf into lower rail tops
S5 / 12	GRK Cabinet #8 x 2 in screws	Two per cleat, upward into top A
S6 / kit	Caster manufacturer's mounting fasteners	Four casters; use exact kit instructions

*The RSS product is confirmed. Its joint layout remains under review; see D04. S3 and S5 use the same cabinet screw: 24 total in this proposed layout. Check counts and positions before release.

Tools and supplies

You will need a circular saw and straightedge or a track saw, plus a saw that can cut the 4x4 legs square. Have a drill/driver, drill bits, depth stop, square, tape, clamps and sawhorses ready. Have T15, T25 and T30 driver bits. Use a 5 in random-orbit sander.

Buy compatible 120- and 180-grit discs (about 10 each), 80 grit for rough lumber only, a fine hand-sanding block or 320-grit sponge, a 2 in synthetic brush, stir sticks and clean lint-free cloths. Follow the finish label for the final sanding grade.

Cut list

All dimensions are in inches. In the formulas below, t is your measured plywood thickness.

ID	Qty	Stock	Finished size
A	1	3/4 plywood	60 x 29
B	1	3/4 plywood	48 x 29; end gaps
C	1	3/4 plywood	57 x 5 1/8
D	4	4x4	35 1/4 long for true 3/4 top
E	2	2x6	60 long; upper long rails
F	2	2x6	60 long; lower long rails
G	2	2x6	26 long; upper end rails
H	2	2x6	26 long; lower end rails
J	6	3/4 plywood	6 x 1 1/2; mount 1 1/2 high

HEIGHT FORMULAS

For this bench without foot pads: leg length = 36 - t. From the bottom of each leg, lower rail top = 12 - t; lower rail bottom = 12 - t - 5 1/2.

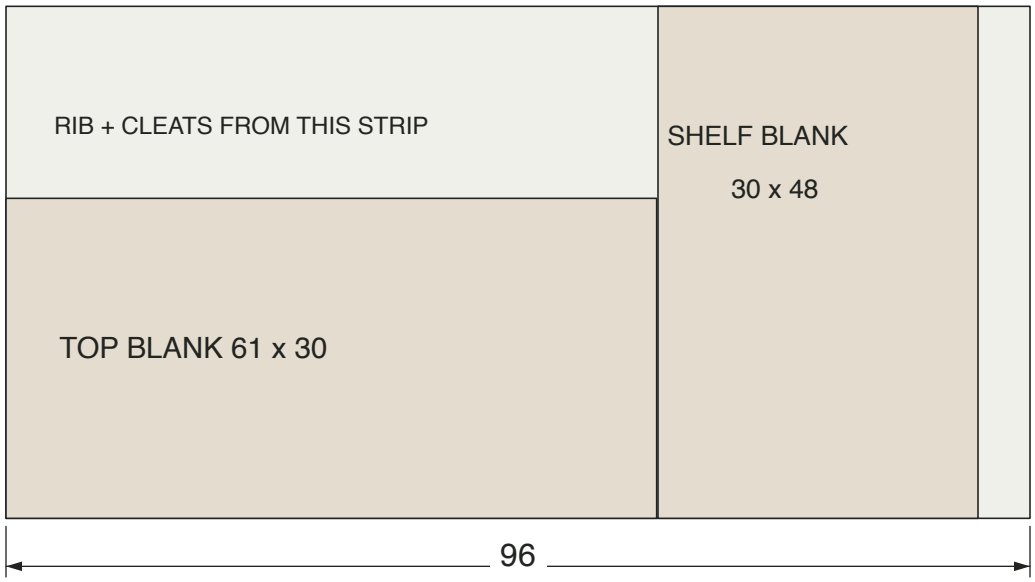
For actual 3/4 in panels: legs 35 1/4, lower rail tops 11 1/4, and lower rail bottoms 5 3/4. Retractable casters do not add to working height when the bench rests on its feet.

Cutting the stock

If you need smaller pieces for transport, leave them oversize and make the final cuts at the studio.

Stock	Cut from each board
2x6 boards 1 and 2	60 + 26; leave room for saw kerf
2x6 boards 3 and 4	60 + 26; leave room for saw kerf
Each 4x4	Two 35 1/4 legs; verify measured thickness first
Plywood offcuts	Six 6 x 1 1/2 cleats; 3/4 thick

Crosscut a 61 x 48 in section for the top, rib and cleats. The remainder is about 34 7/8 x 48 in with a 1/8 in kerf. From that remainder, cut a 30 x 48 in shelf blank and trim its 30 in side to 29. Keep the factory 48 in edges; see D06.

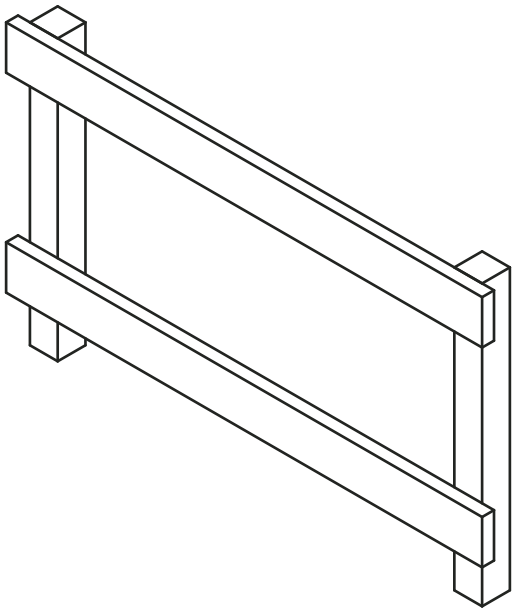


The shelf is rotated in this layout; its face grain runs front to back. This uses the full factory width. If the edges need trimming, buy a separate oversized shelf panel. Do not assume a nominal sheet is a full 48 in wide.

Transport option: rough-cut each 2x6 at 61 in and keep both pieces; halve the 4x4s. Check vehicle clearance, protect the plywood and secure the load. If delivered, leave stock full-length until final cutting.

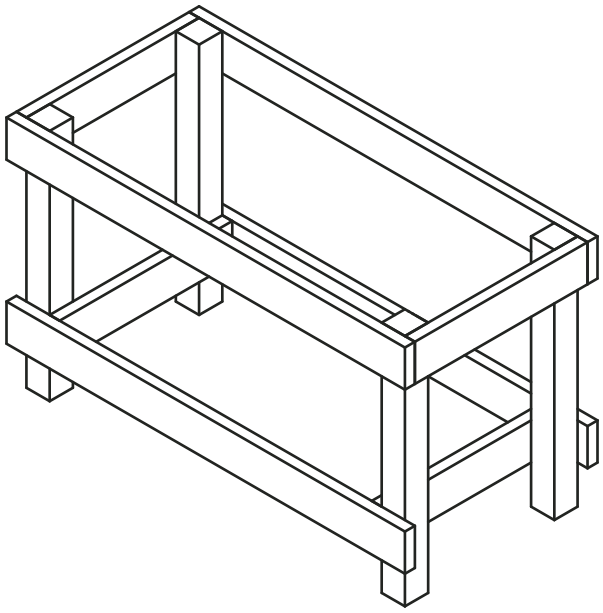
Assemble the base

Dry-fit the frame first. Upper and lower end rails sit in different positions; see D02.



01 TWO MATCHING LONG SIDES

Lay two legs D on a flat surface. Position E flush with their top ends. Set the bottom of F at 5 3/4 from the leg bottoms for true 3/4 in plywood. The review model uses a 1 1/2 in leg inset from each rail end; this is not an as-built measurement. Repeat for the second side.



02 JOIN THE SIDES

Join the side assemblies with the 26 in upper end rails G, between the long rails at their ends. Fit the 26 in lower end rails H against the inward faces of the end-leg pairs, between the lower long rails.

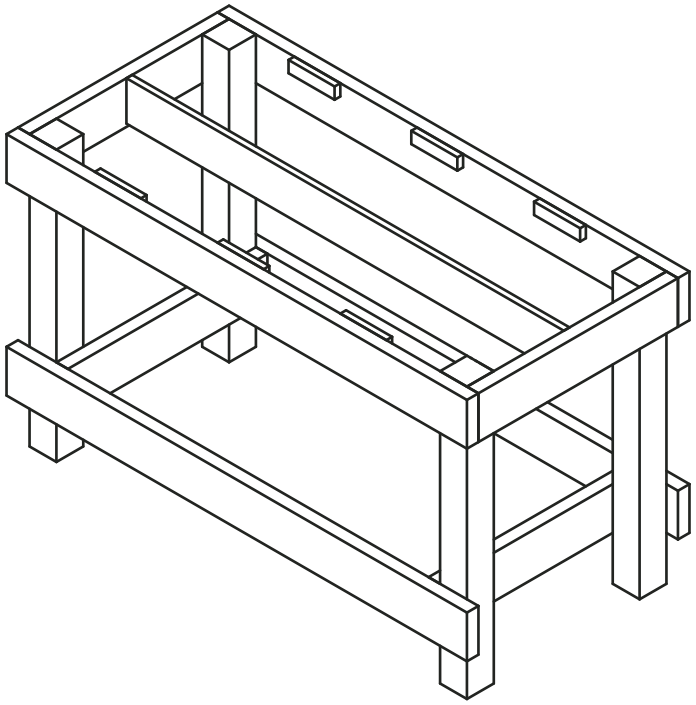
CHECK FOR SQUARE

Clamp the frame and measure both diagonals across the same four corners. Adjust until they match. Check the legs with a square, close any gaps at the joints, and check that the rails are level with each other.

Before drilling the rail joints, see the unfinished fastening detail on D04. Do not copy screw positions from the photos.

Support the top

The center rib supports the plywood. Six cleats hold the top down with screws driven from below.



03 FIT THE RIB

Use the measured 57 x 5 1/8 in plywood rib C. Center it across the depth, with its top edge flush with the rails. The proposed connection uses two S2 screws per end; placement and pilot holes still need checking.

04 FIT SIX CLEATS

Use 6 x 1 1/2 x 3/4 in plywood cleats, with 1 1/2 in vertical. The builder used #8 x 2 in cabinet screws to attach them to the rails and top. The review model shows three per long rail; tops flush.

KEEP THE SCREW PATHS SEPARATE

Offset the horizontal rail screws from the upward top screws. D05 shows the corrected plywood section and screw reach. Exact hole positions remain under review; do not reuse the earlier 8 in cleat layout.

Fit the panels

Fit the shelf before drilling. Fasten the top from below so it can be removed later.

05 SHELF

The built shelf is 48 x 29 in, with gaps beside the legs at both ends. The review drawing centers it. Its top surface is 12 in above the floor. Check that both short edges bear on the lower end rails before fastening.

06 SECURE THE SHELF

The proposed schedule allows 16 S4 screws into the lower rails. The old coordinate list has been removed because the shelf is narrower. Check the support positions and edge distances before finalizing the holes; see D07.

07 ATTACH THE TOP

Align A flush with the outer frame on all four sides. Clamp it in place. Drill clearance holes upward through the cleats and pilot holes into the plywood using a depth stop. The proposed count is two S5 washer-head screws per cleat; hole positions remain pending on D05. Do not countersink these heads.

08 CHECK SCREW REACH

A 2 in screw through a 1 1/2 in flush cleat reaches about 1/2 in into the plywood, leaving about 1/4 in in a true 3/4 in panel. Check actual screw length, panel thickness and tip reach on an offcut before fastening the top.

NO HARDBOARD OVERLAY

Use a cutting mat when cutting and a tray for oily or abrasive parts. The plywood is the finished work surface.

Finish and casters

Sand the faces and edges, then apply a clear matte finish.

09 SAND AND FINISH

Ease cut edges by hand. Sand rough lumber through 120 and 180 grit; use 80 only where needed. Sand the plywood face lightly to avoid cutting through its veneer. Fill small voids, remove dust and follow the chosen polyurethane label for preparation, coat count, recoat intervals and full cure.

10 FIT THE ROCKLER CASTERS

This bench uses Rockler foot-operated casters. Check the model on your kit and use its mounting template, screws and instructions. Item 43501 is listed below as a reference; the exact kit on this bench has not been confirmed.

WORKING AND MOVING

Lower all four legs onto the floor before working. Raise the bench onto its wheels only to move it, and remove loose items first. Stay on a clear, level floor. The caster weight limit includes the bench itself; it does not tell you how much the wooden frame can carry.

MAINTENANCE AND A VISE

Check the joints again as the lumber dries. Replace damaged panels and fasteners that no longer hold. A vise needs backing and a bolt layout suited to that vise; these plans do not include them. Do not weld or do other hot work on the wood top.

Caster reference: rockler.com/rockler-workbench-caster-kit-4-pack

Credits and drawing notes

Free plans from Justice Engineering. Keep the guide and drawings together.

Sheet	Contents
D01	Overall elevations and working dimensions
D02	Upper and lower frame plans
D03	Exploded panel view and component key
D04	Rail joints: withdrawn hole pattern
D05	Plywood cleats and screw reach
D06	Plywood and lumber cutting layouts
D07	Shelf fit and rib connection notes

Where the design came from

I built this bench from the MAN about TOOLS workbench build, which credits Sandor Nagyszalanczy's "Building a Basic Workbench." I changed the dimensions and used 3/4 in plywood without hardboard. Both sources are linked below.

How the drawings were made

Scripts built this guide and drawing set using DraftingKit and Drafting Table's DocumentCore. The editable files can be opened in Drafting Table. These A.6 PDFs were exported by script; the earlier in-app views are from A.1.

Links

MAN about TOOLS - workbench build

Sandor Nagyszalanczy - Building a Basic Workbench (archive)

Free to download. See G03 for the remaining construction checks.

Frame and shelf

Photos of the built bench. See D02 for the frame layout.



End view. The upper end rail fits between the front and rear rails.



Front view, with the shelf and retractable casters.



The 48 x 29 in shelf sits on the lower rails with gaps beside the legs.

These photos record the build. Use the stated dimensions and check D04 before laying out the rail-joint fasteners.

Under the top

The center rib and attachment cleats, viewed from below.



The plywood rib runs lengthwise beneath the worktop. The cleats sit against the inside faces of the upper long rails and hold the top down from below.

Measured cleats: 6 x 1 1/2 x 3/4 in plywood, with 1 1/2 in vertical. Both attachment directions use #8 x 2 in cabinet screws. See D05; exact hole locations remain under review.