



crestonWood

Furniture and Shop Design

ULTIMATE ROUTER TABLE PLANS



By Dan Phalen

January 2012

Ultimate Router Table Plans.

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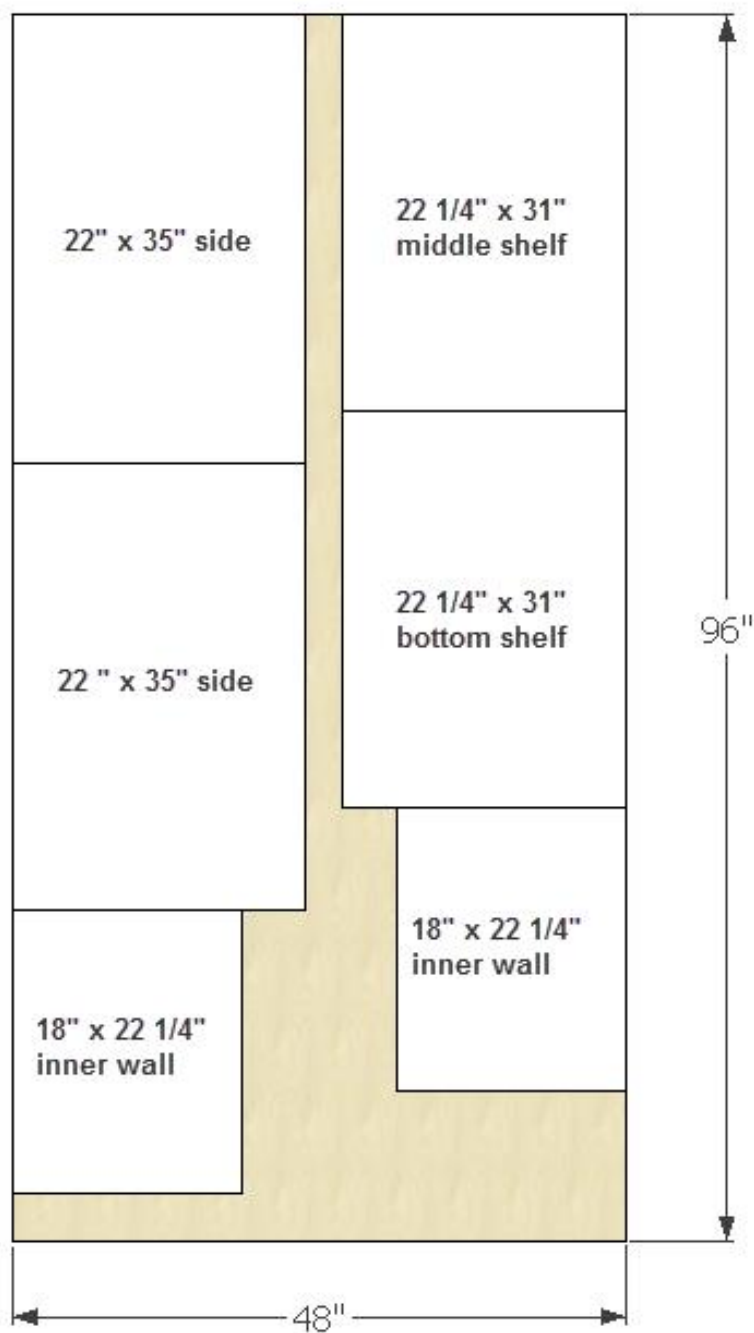
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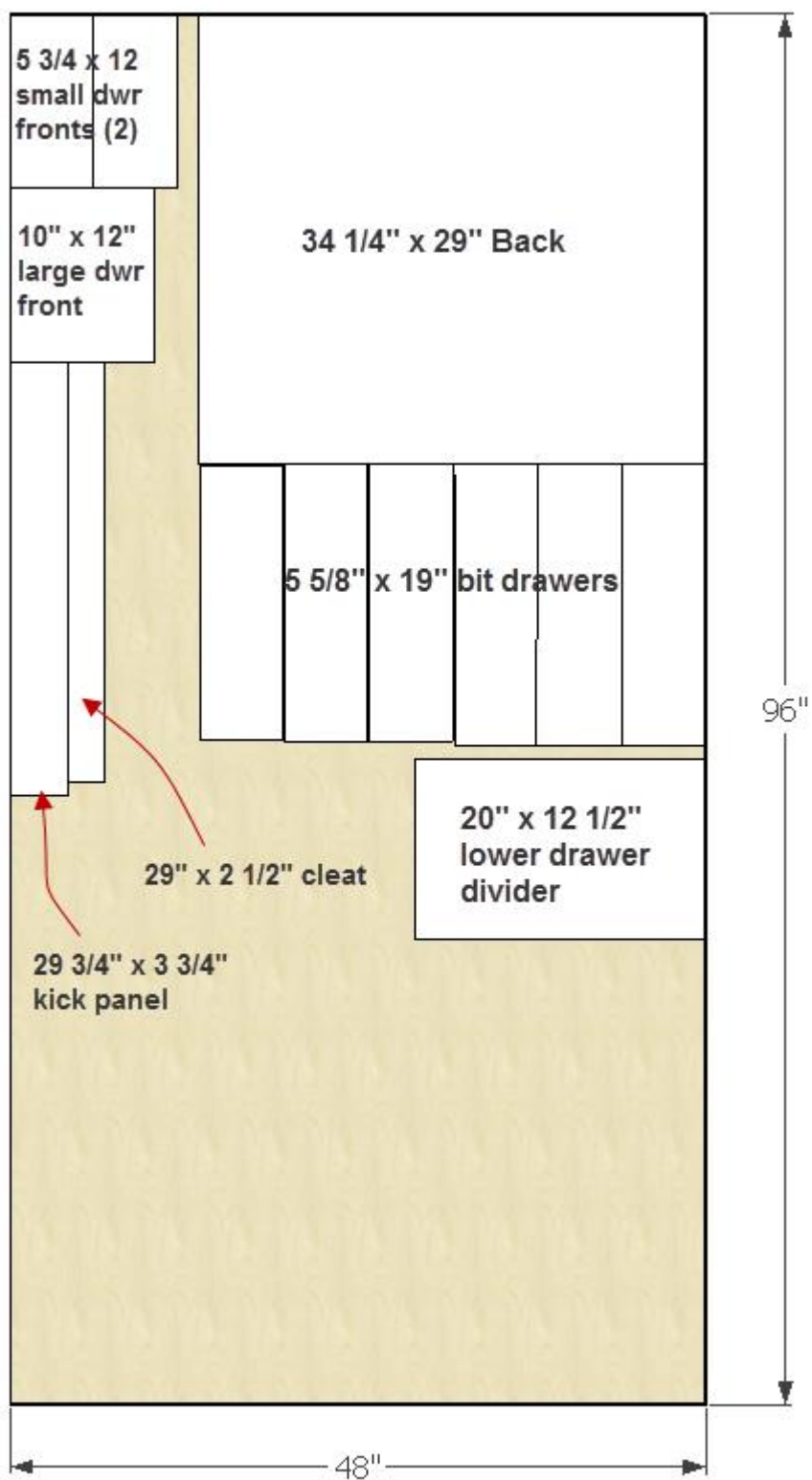
CUT LISTS

NOTE: The dimensions on the ply sheets are oversized in case you need to make your rough first cut with a hand saw or rotary saw. This makes room for saw kerfs and possible splinters. You'll notice later on in the document that the finished dimensions are smaller.

PLYWOOD CUTTING LIST (PANEL 1)



PLYWOOD CUTTING LIST (PANEL 2)



MATERIALS LIST

Nominal Dimensions	Quantity/Length	Part of Project
3/4" Birch Plywood	2 pcs. 4ft. x 8 ft long	Carcase and drawer fronts
3/4" Medium Density Fiberboard	1 pc 49 in. x 48 in.	Top*
1/2" Medium Density Fiberboard	1 pc. 49 in x 30 in.	Top*
1/2" Cabinet Grade or AC Plywood	1 pc. 4 ft. x 8 ft.	Cleats, drawers
1/4" Luan Plywood	1 pc. 4 ft. x 4 ft.	Dust collection chute
High Pressure Laminate (any color)	1 pc. 4 ft. x 4 ft.	Top
1" x 6" Oak or other hardwood	1 pc. 6 ft. long	Face frame rails & stiles
1" x 2" Oak or other hardwood	1 pc. 12 ft. long	Top edging
1/8" Plexiglas	1 pc. 16 in. x 16 in.	Door panel
2" PCC TY 2" PVC Pipe Hose clamps Cleaner and glue for PVC	1 pc. 1 pc. 1 ft. long 3 pcs. 1 small can of each	Fittings and glue for vacuum hookup
1 " Wooden Knobs	8 pcs.	Bit and wrench drawers
3" Drawer pulls (hardware)	3 pcs.	Storage drawers
1 1/2" Brass No-Mortise Hinge	1 pair	Door
Magnetic Catch	1 pc.	Door
18" Full Extension HD Drawer Slides	3 sets	Storage drawers
3" Casters	2 Locking Swivel 2 Swivel	Wheels
Large Router Plate with 2 Inserts and Leveling Screws	Specify make and model of router when ordering	
Hardware Includes saftety switch, 36" miter track, fence hardware, Levelers and 4" to 2 1/2" reducer	1 each	
2 1/2" x 10' Black Hose #89567	1 pc.	
Porter Cable Router Model #75182 or builder's choice		

*NOTE: The MDF pieces are for the top. You may wish to use a single full sheet of 3/4" MDF, 4 ft. x 8 ft., rather than the 1/2" second piece. It makes the top 1/4" thicker but could save you some material.

CARCASE

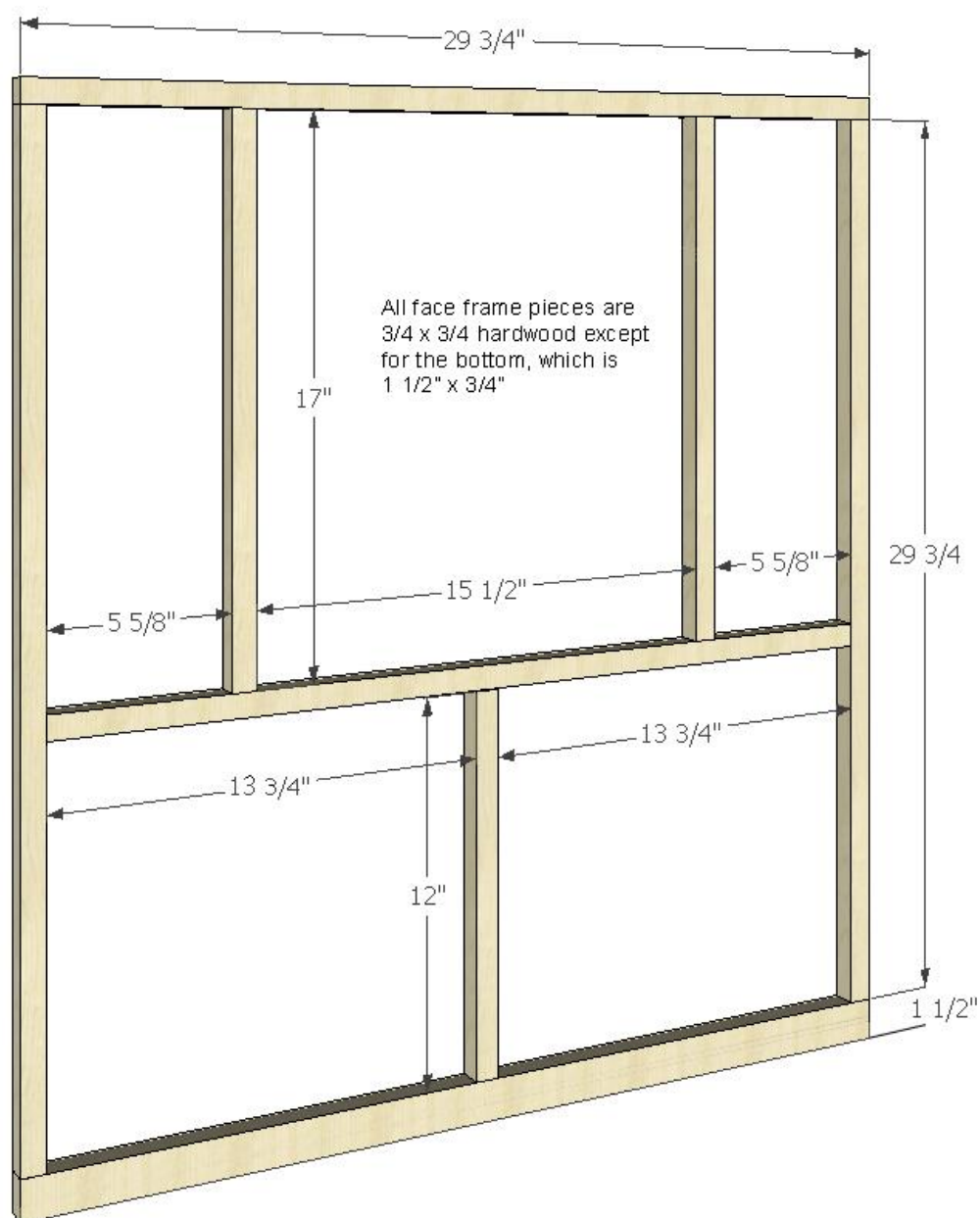
The carcass is built from $\frac{3}{4}$ " shop ply or MDF. Assemble shelves and inner walls with glue and clamps. The back is a $\frac{3}{4}$ " L dado for a sturdy fit with the side panels.



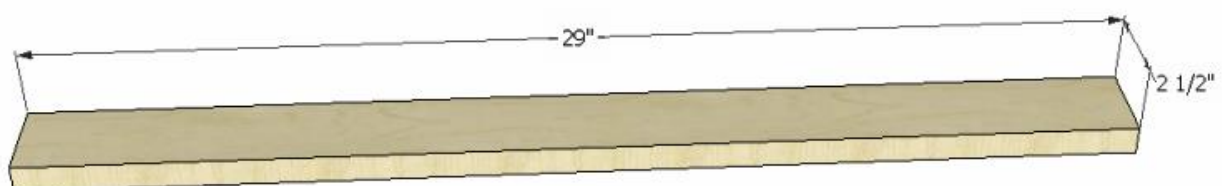
CARCASE DIMENSIONS



FACE FRAME

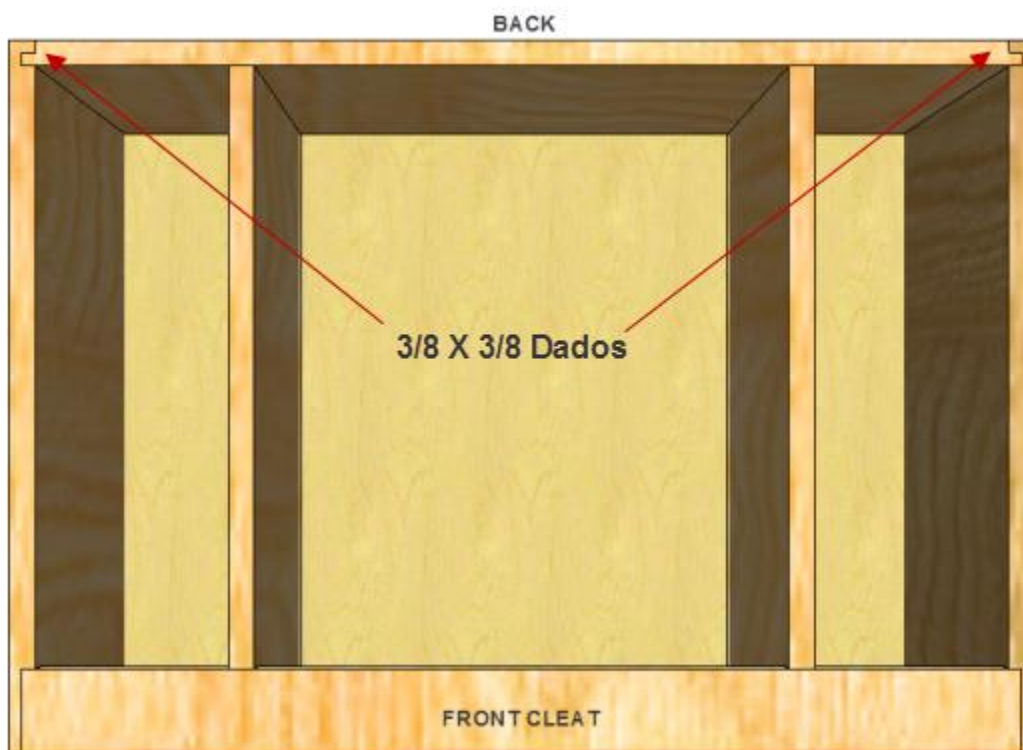


CLEAT



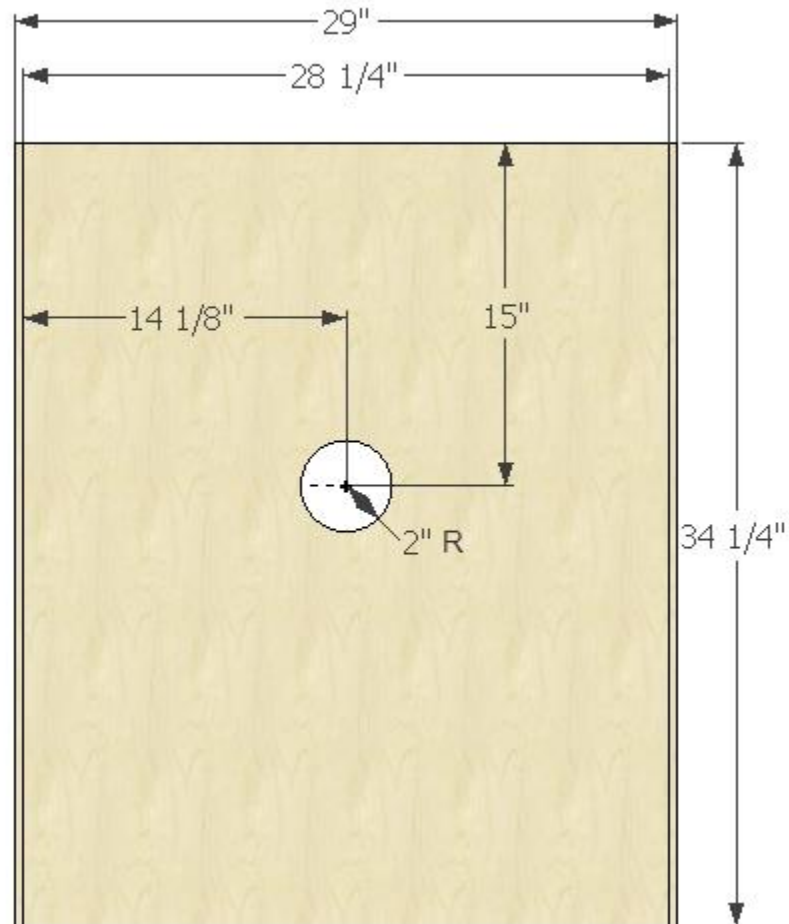
TOP VIEW SHOWING DADO BACK FIT

For a structurally strong fit on a case of this size, cut matching 3/8" dados in the back and sides as shown.



BACK

Note that the overall width of the back piece is exactly 29 inches, whereas the outer width of the carcass including both sides is $29 + \frac{3}{8} + \frac{3}{8}$, or $29 \frac{3}{4}$ inches.



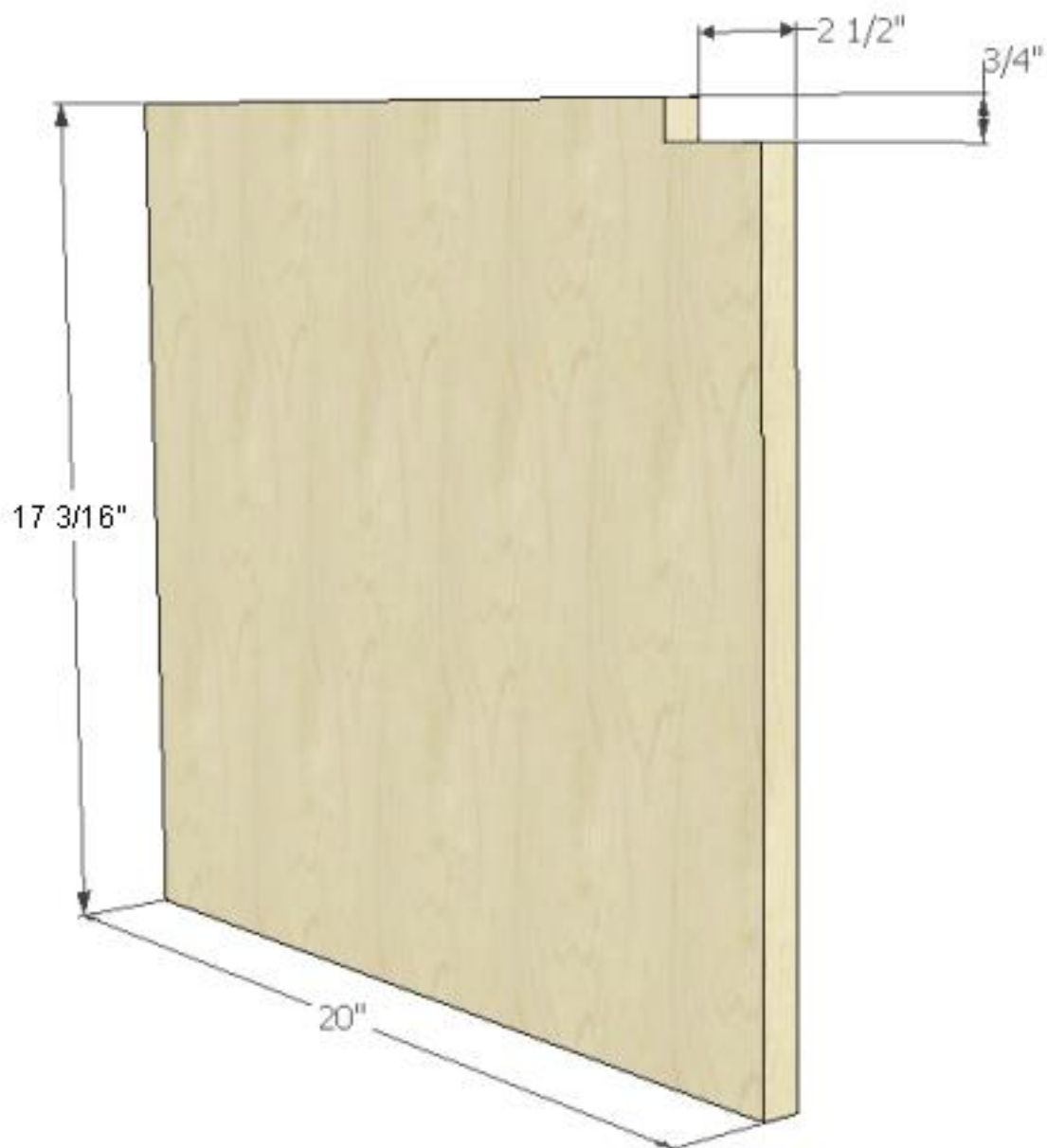
Center the 4" Dia. Hole 15 inches from the top for a 4-inch dust collector fitting.

Note: If you are using a 2 1/2" fitting instead, mark your center 15 3/4" from the top of the back.

In either case, **the bottom of the hole should be level with the floor of the dust chute.**

INNER WALLS (UPPER, 2 EACH)

Shop or hardwood ply, 17 3/16 x 20 inches with cutout for cleat.

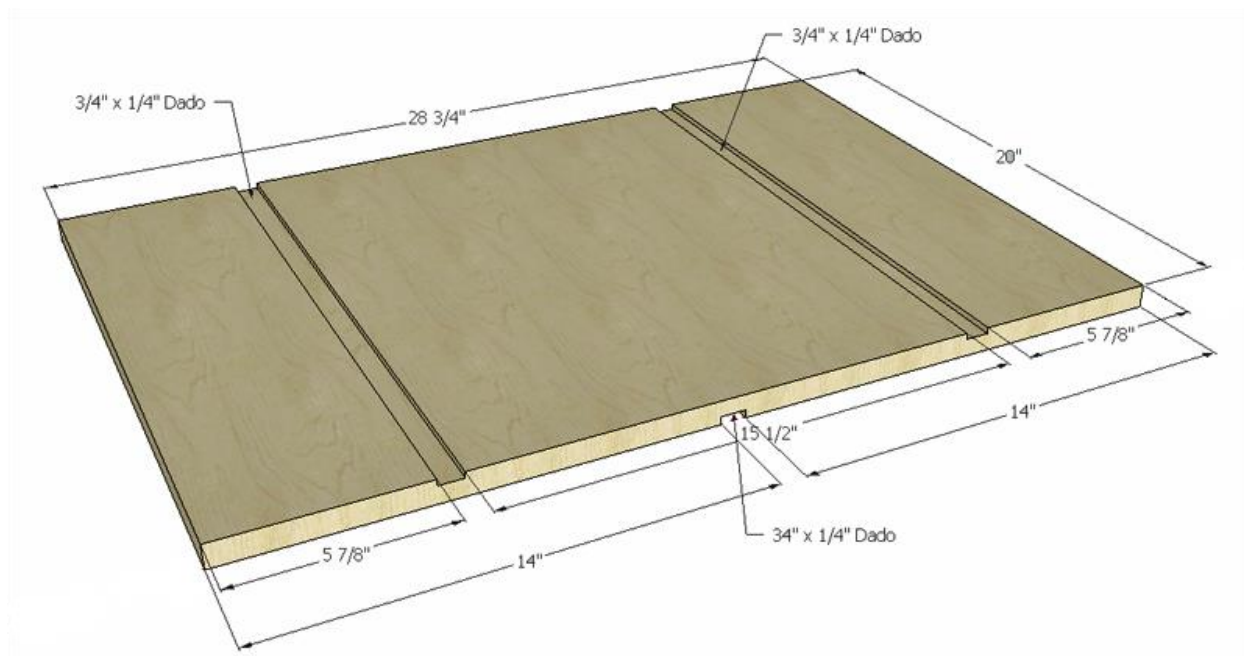


LOWER DRAWER DIVIDER

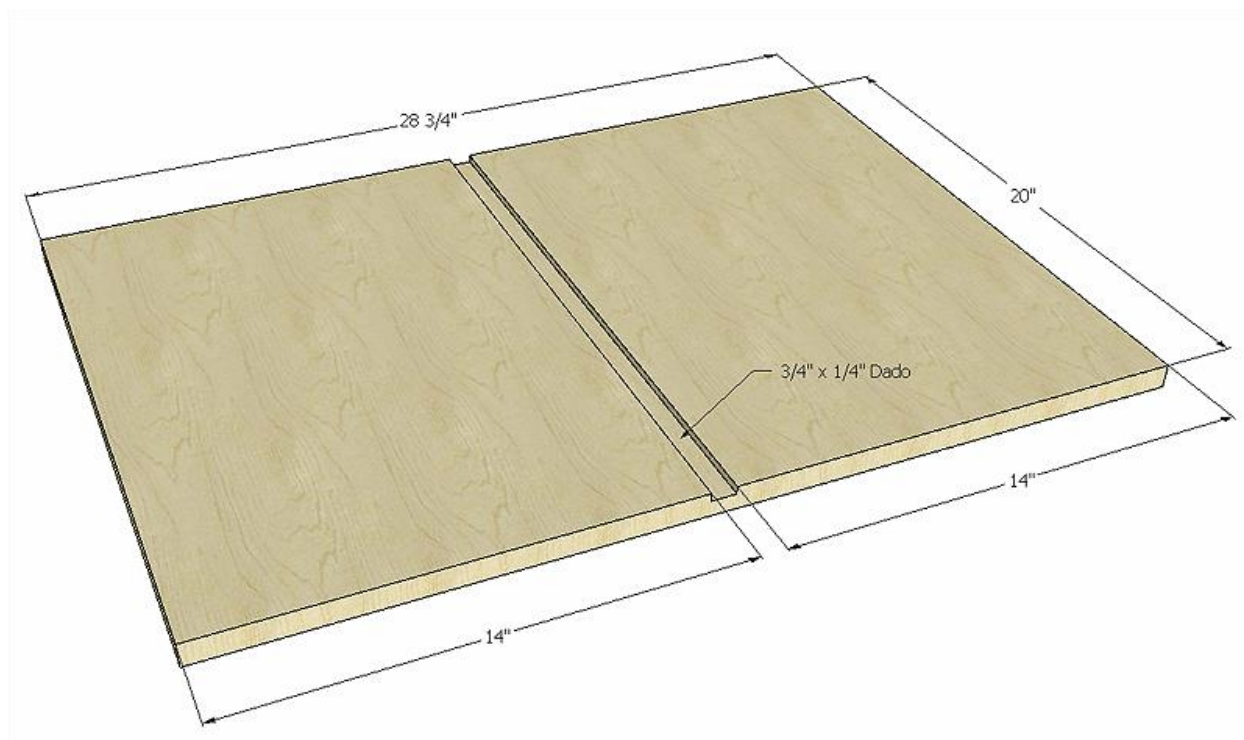
Shop or hardwood $\frac{3}{4}$ " ply 20 x 12 $\frac{1}{2}$



MIDDLE SHELF

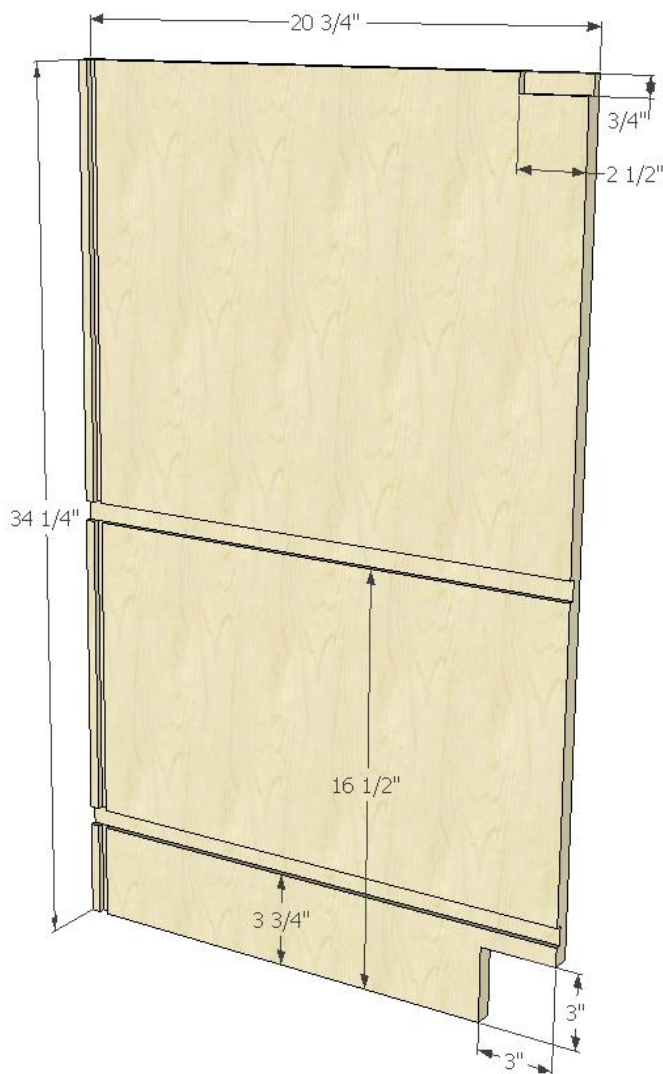


BOTTOM SHELF



SIDE PANEL

Shown is the right side panel. The left side is the inverse. Shelf dados are $\frac{3}{4}"$ W x $\frac{1}{4}"$ D. The rear panel fits into the $\frac{3}{8}"$ W x $\frac{3}{8}"$ D dado cut into the rear of the panel. Note the 3" x 3" notch cut for the front kick plate, and the 2 $\frac{1}{2}"$ W x $\frac{3}{8}"$ D mortise for the cleat.



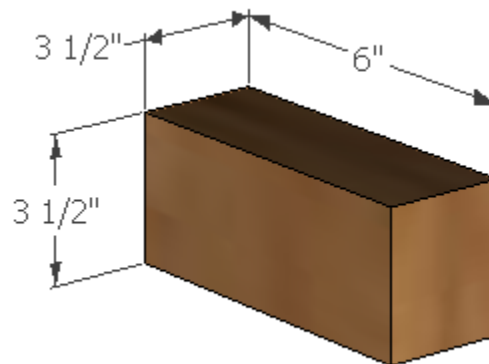
TOE KICK

Notch the top corners $\frac{3}{4}"$ x $\frac{3}{4}"$ for side panel overhang.

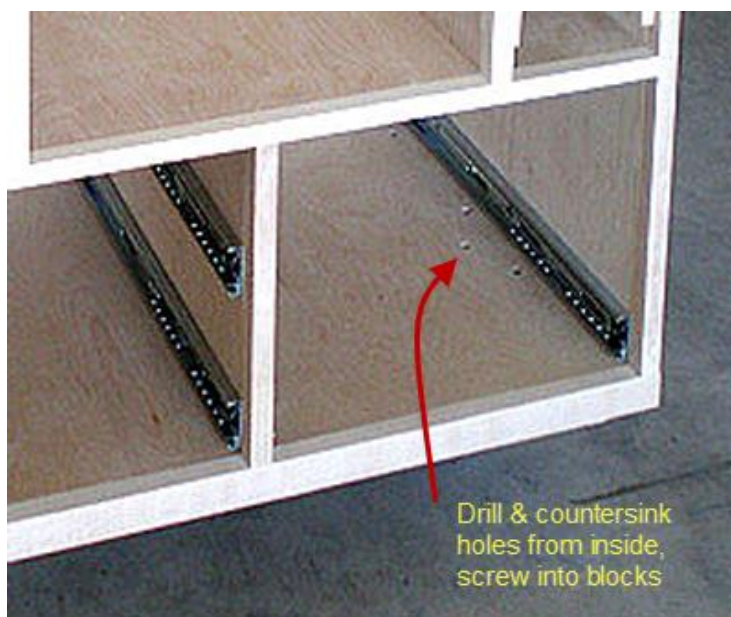


WHEELS, WHEEL BLOCKS

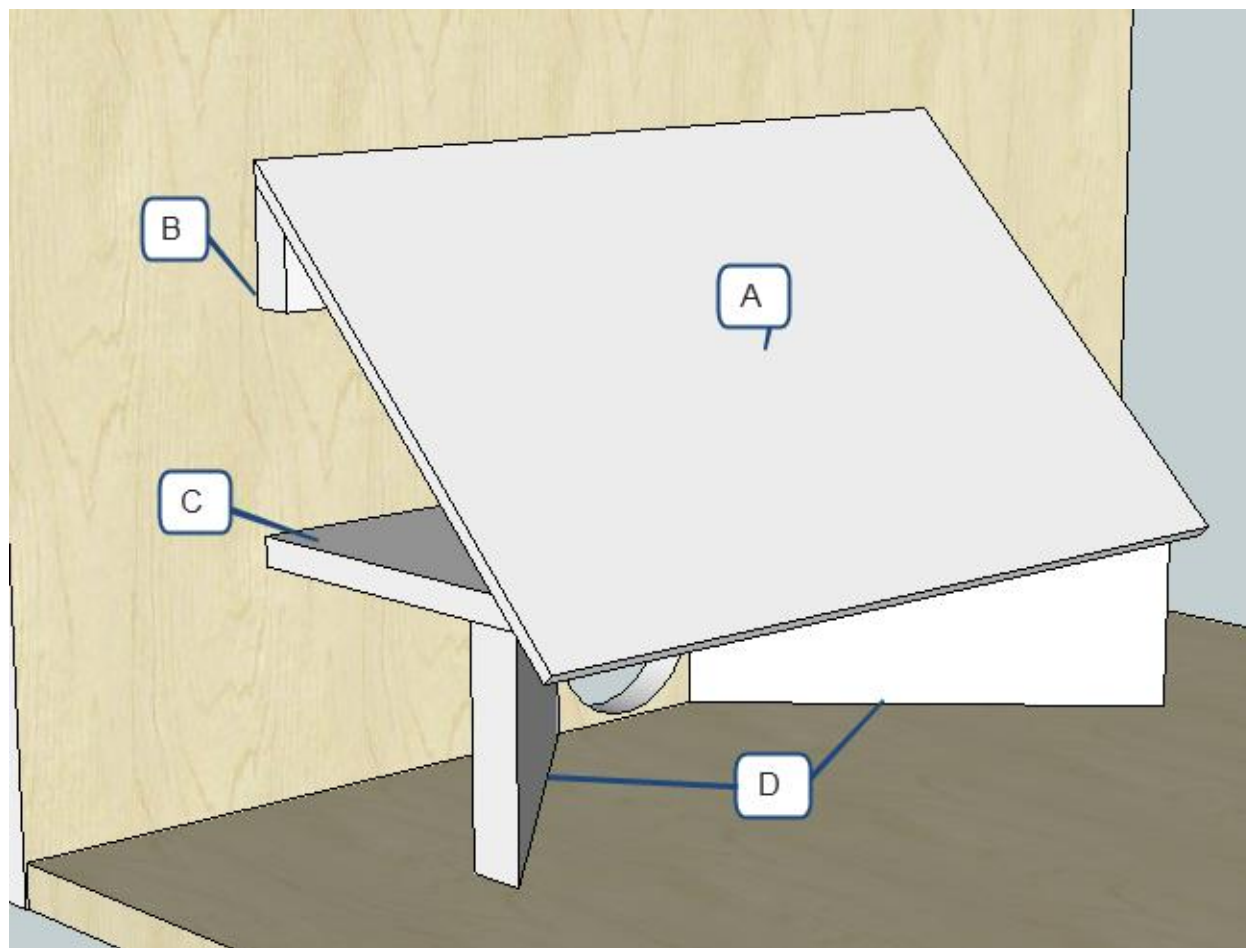
My unit uses 3-inch heavy-duty polyurethane swivel casters, two locking at opposite corners, two non-locking at the other opposing corners. This allows me to lock the wheels solidly with just two toe taps. Wheels are secured to recessed underside of carcass bottom shelf by four (4) blocks. Use #8 x $2 \frac{1}{2}"$ wood screws driven through shelf from top (inside the drawer compartments).



Wheel Block Placement -- Viewed From Underside



DUST CHUTE ASSEMBLY



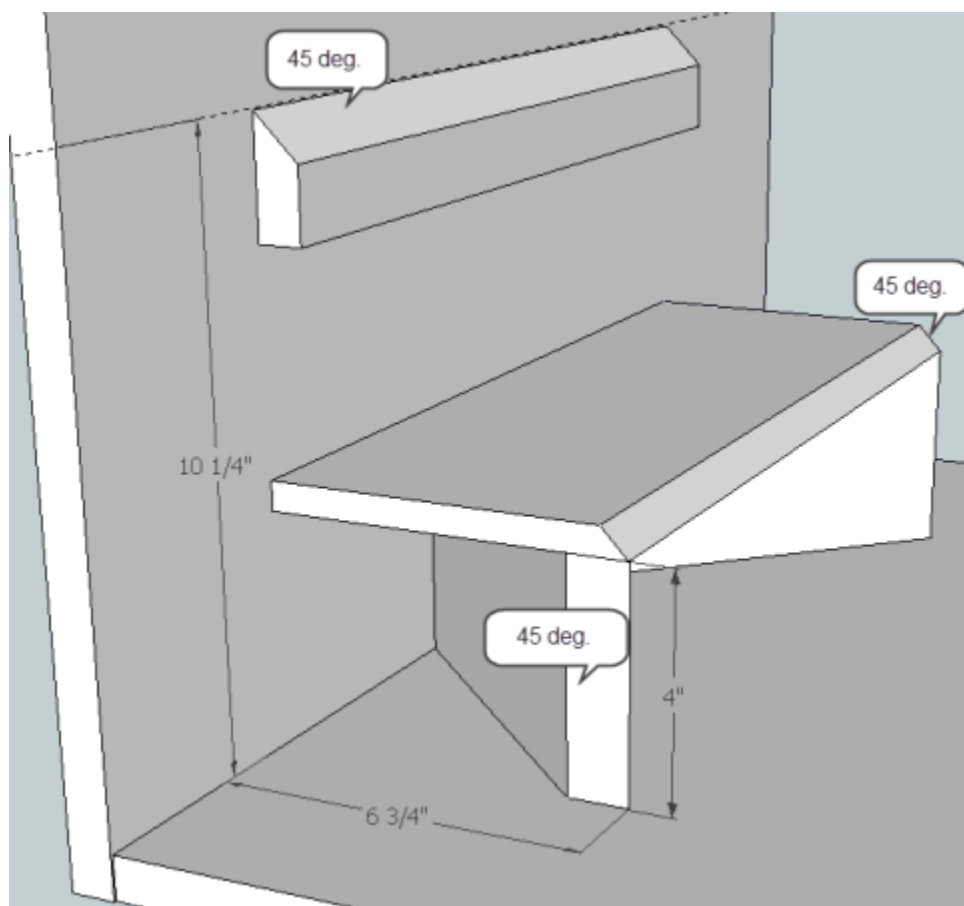
A – Top

B – Cleat

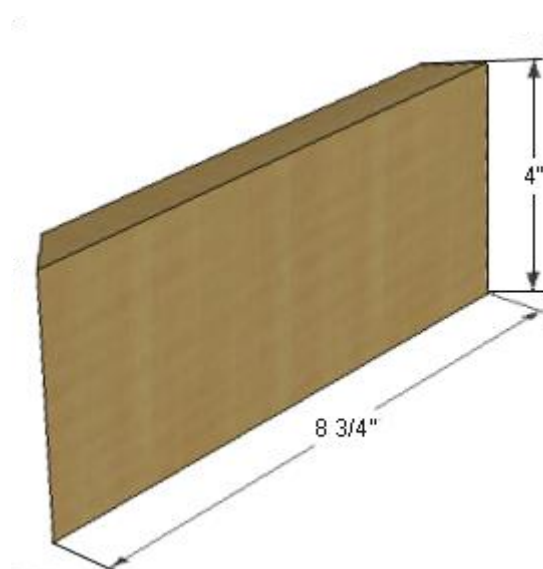
C – Shelf

D – Walls

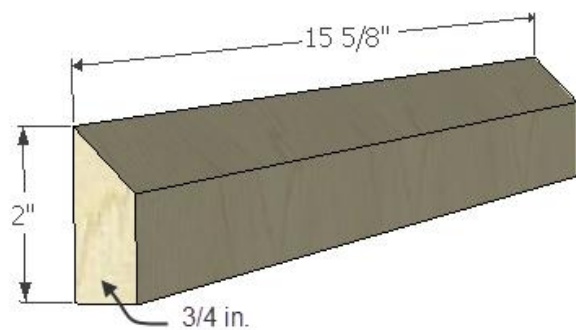
DUST CHUTE COMPONENT PLACEMENT



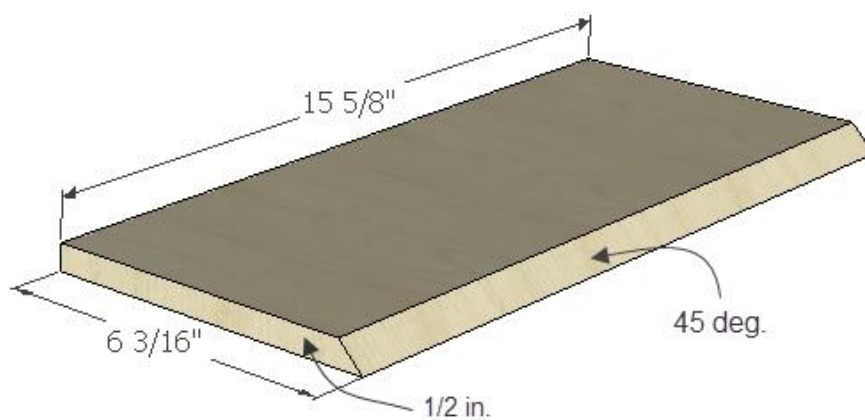
CHUTE WALL (2)



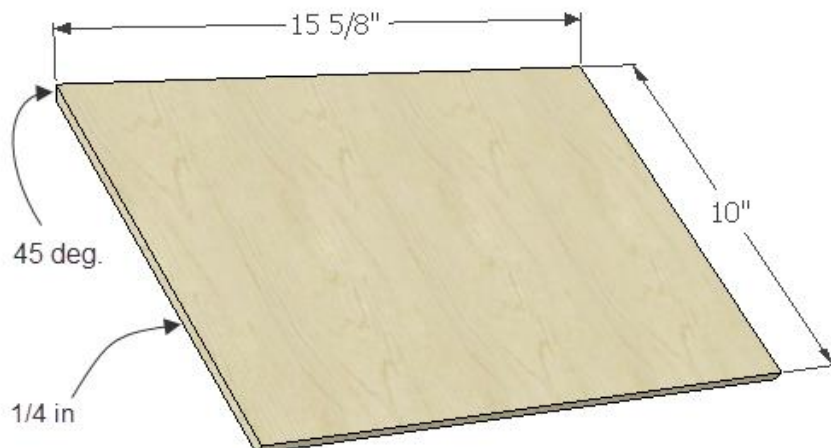
DUST CHUTE CLEAT



DUST CHUTE SHELF



DUST CHUTE TOP



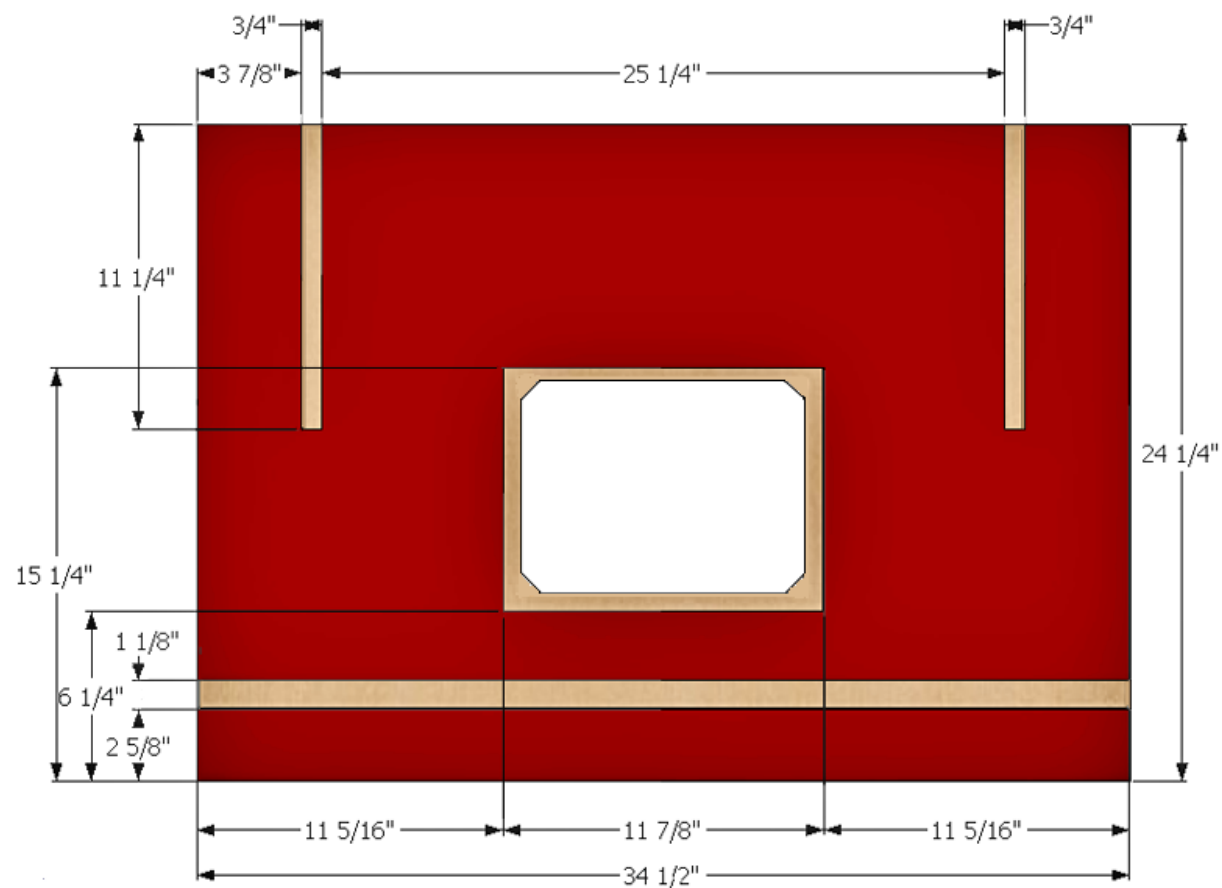
ROUTER TOP

My top uses a 3/4" MDF piece glued on top of another 3/4" MDF board, with a 1/16" laminate glued to the top piece. The edging is hard maple 3/4" thick x 1 9/16" deep, attached to the MDF with #20 biscuits. Ease all edges by hand sanding.

3D VIEW



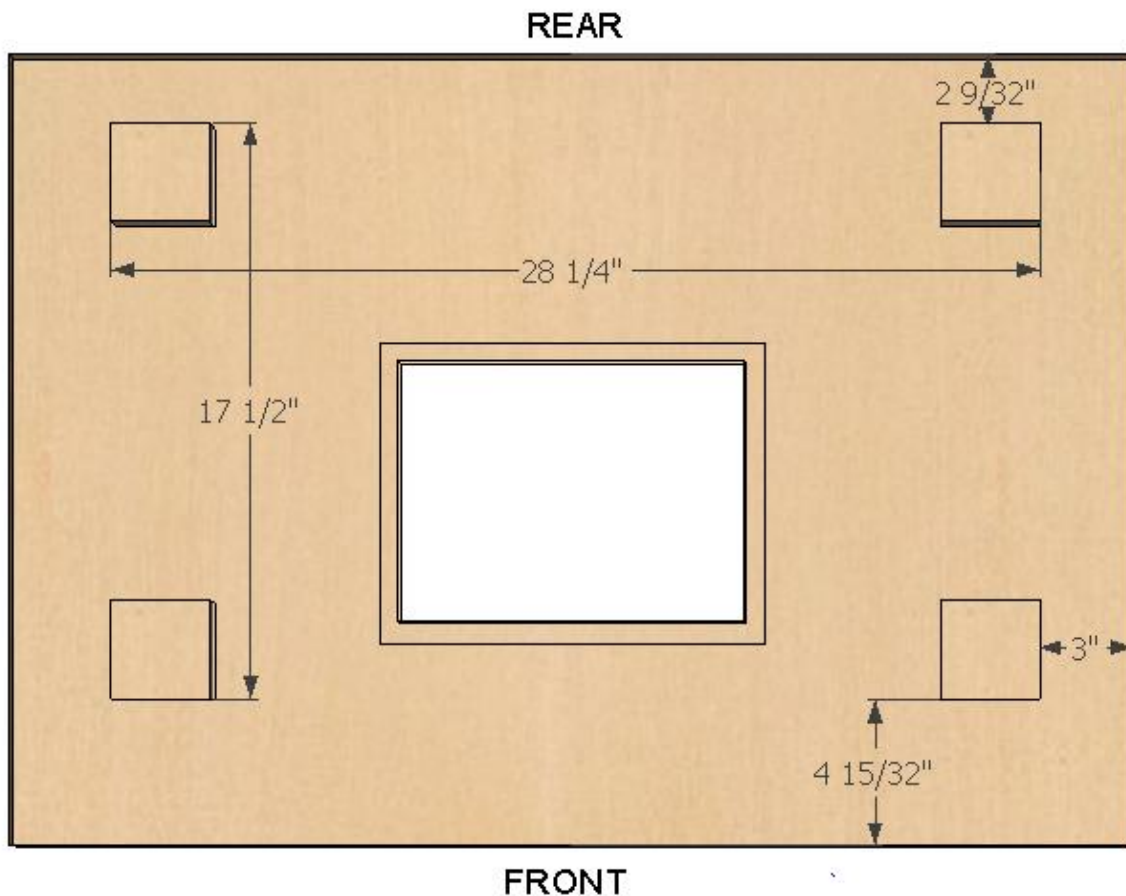
DIMENSIONS



TOP BLOCK POSITIONING

Cut four (4) blocks 3" x 3" from $\frac{3}{4}$ " plywood stock. These blocks keep the top secured within the carcass opening. The dimensions shown are approximate. Yours may vary slightly. Glue and screw blocks in place.

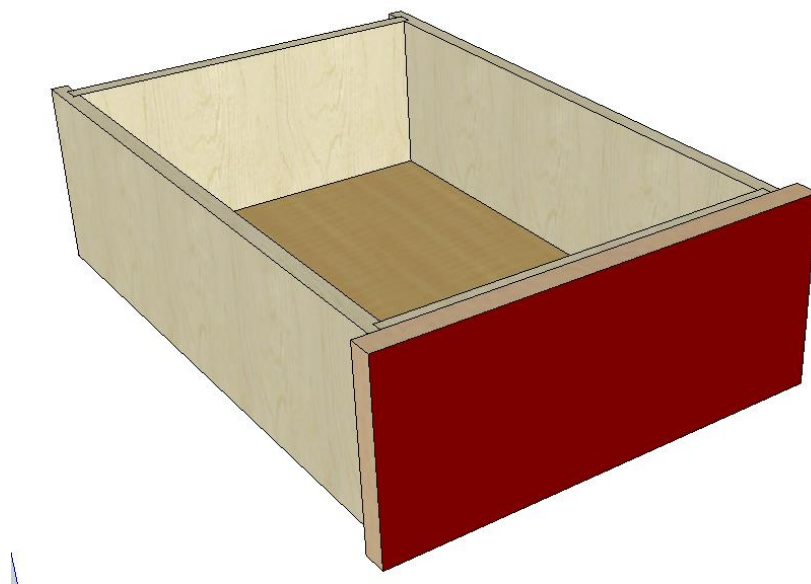
The best approach is to turn the top and carcass upside down on a work surface, then place the blocks for a snug fit that doesn't allow too much play and mark the inside corners. Then glue and clamp or drill and fasten with #8 $1\frac{1}{2}$ " screws *while the carcass and top are still upside down*.



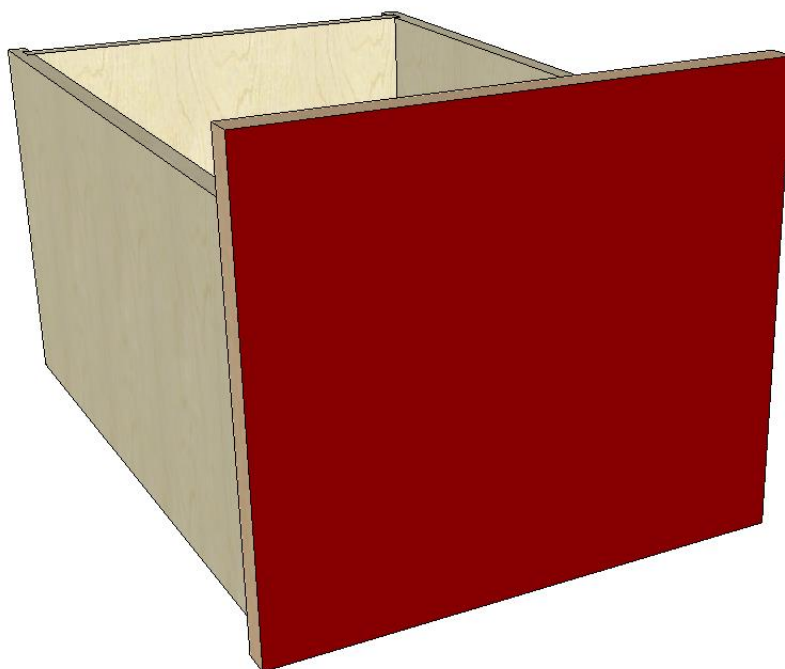
LOWER DRAWERS

Three lower drawers, two small, one large, same width and depth but heights as shown on next page.

SMALL DRAWER

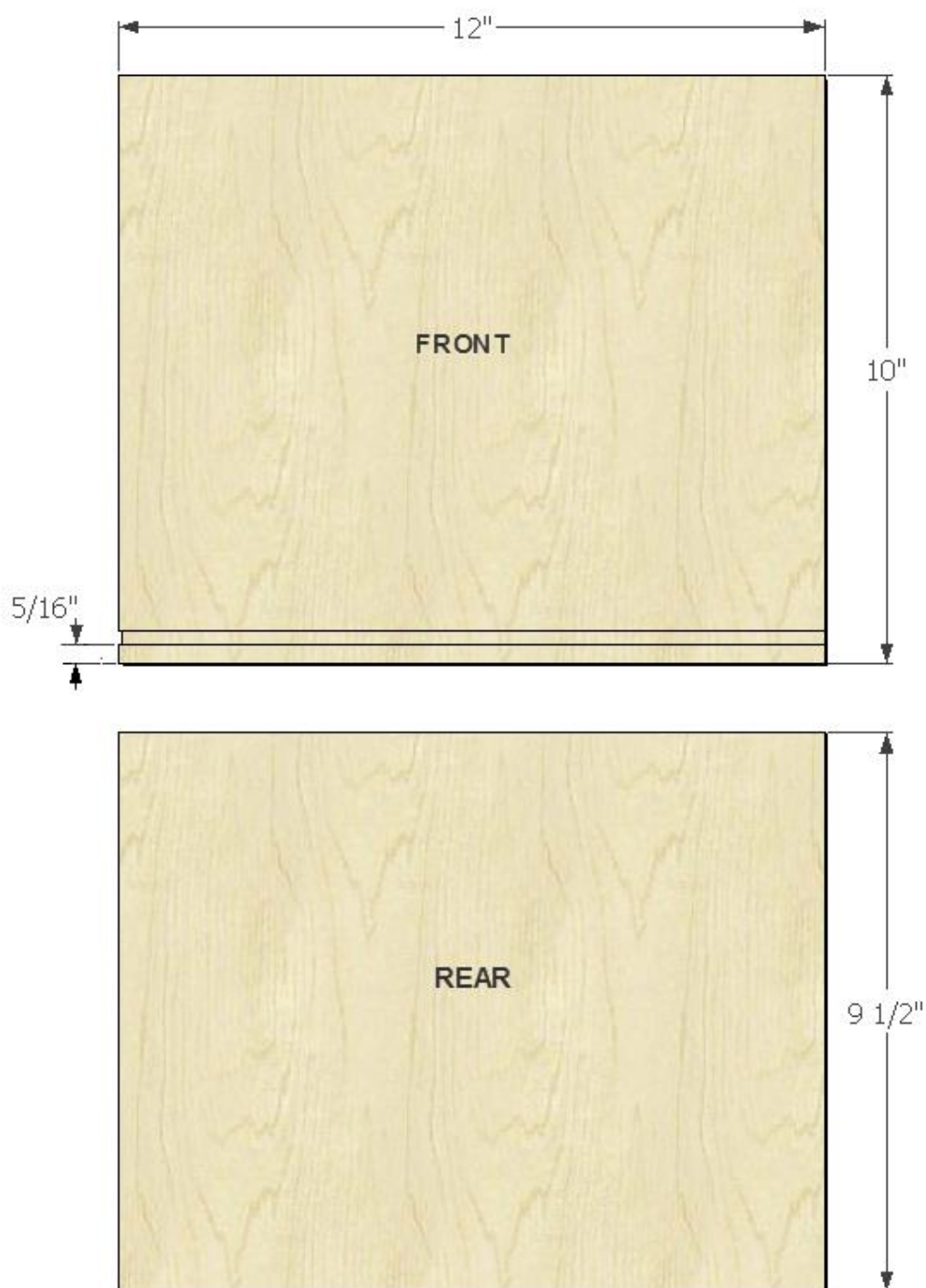


LARGE DRAWER

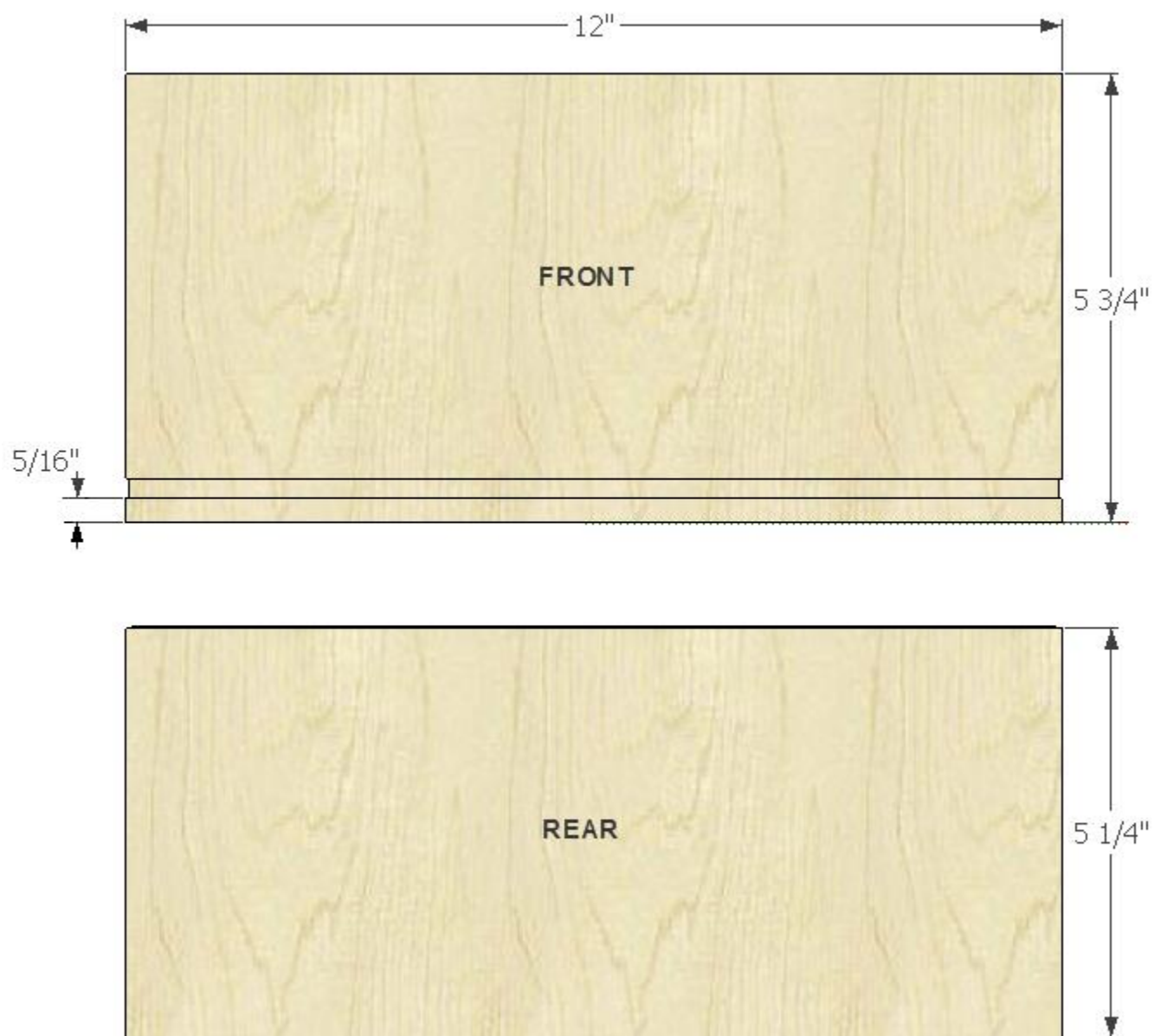


DRAWER BOX FRONT AND REAR

Cut a $\frac{1}{4}$ " x $\frac{3}{16}$ " dado into the front for the drawer bottom. The bottom slides into the dados from the rear, which is why the rear is shorter.

Large Drawer

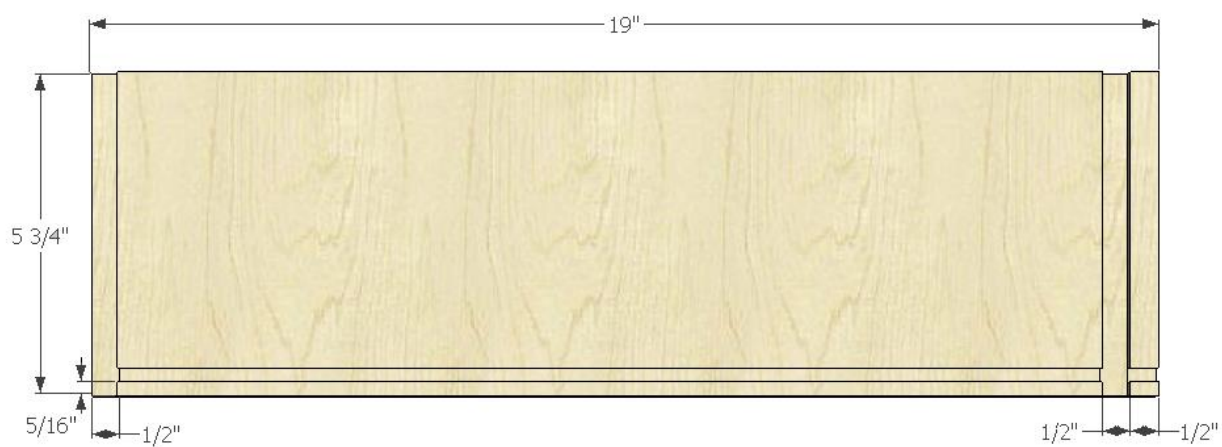
Small Drawer



SIDE PANELS

Front and rear vertical dados: $\frac{1}{2}$ " x $\frac{3}{8}$ "; rear dado inset by $\frac{1}{2}$ ". Bottom dado: $\frac{1}{4}$ " x $\frac{3}{8}$ ", raised $\frac{5}{16}$ " from bottom edge.

Small Drawer



Large Drawer



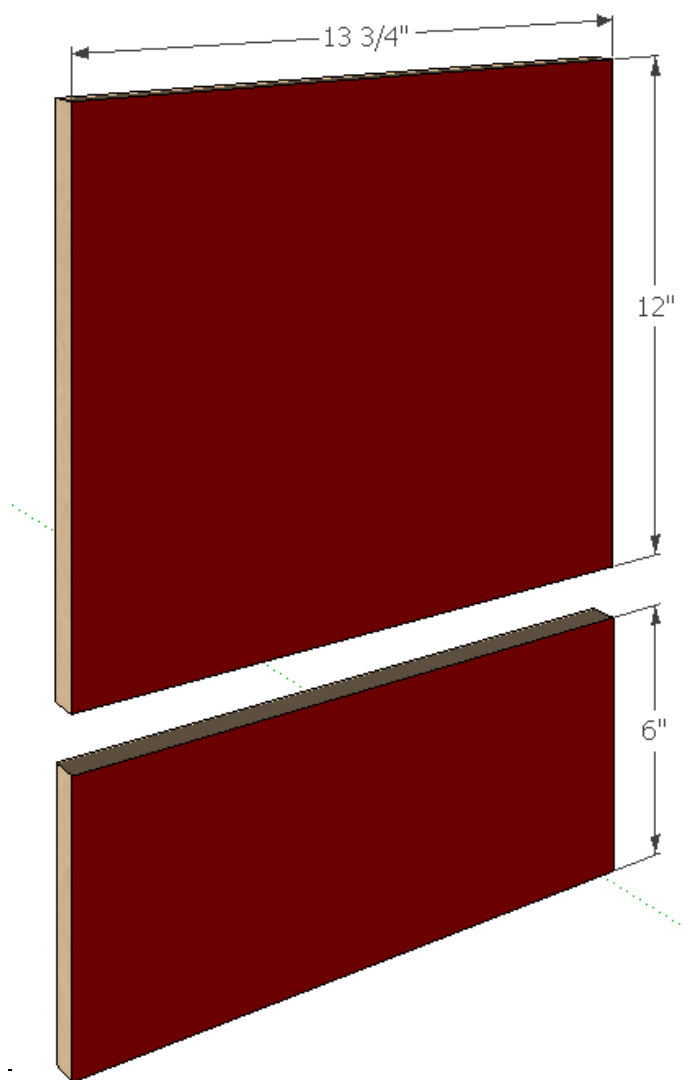
DRAWER FACES

The drawer faces overhang the drawer box fronts by $\frac{1}{2}$ " either side to allow room for the slides.



NOTE: Before you cut the faces, build your boxes and attach the slides. Then slide the drawers into place as shown to the left. Measure your actual inside width and cut your drawer face accordingly. You should use a $\frac{1}{16}$ " shim all around for spacing around each drawer Face.

Fasten each face to its box with four #8 x $1\frac{1}{4}$ " screws.

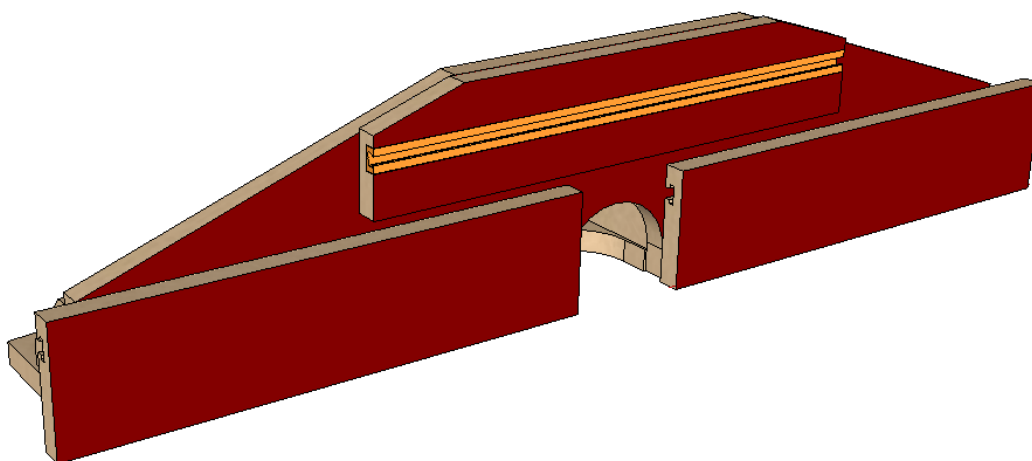


The face width shown here ($13\frac{3}{4}$ ") is approximate.

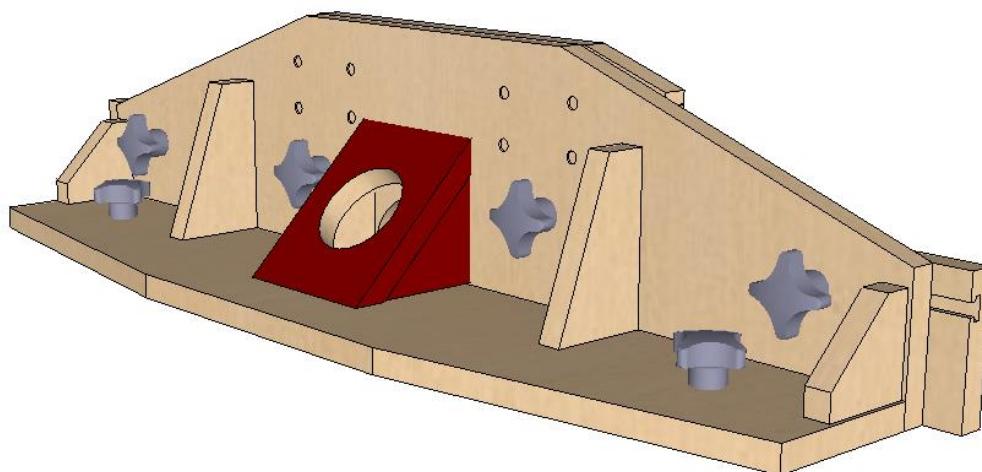
THE FENCE

The fence assembly is all MDF, comprised of the vertical fence, a base to support the workpiece, four braces, a fixed fence to hold featherboards, two sliding fences to support the workpiece, and a dust port. The base knobs are 3/16" "five-star" threaded jig types; the slider fences are secured with four T-knobs.

FENCE FRONT



FENCE REAR



5-star
Jig Knob

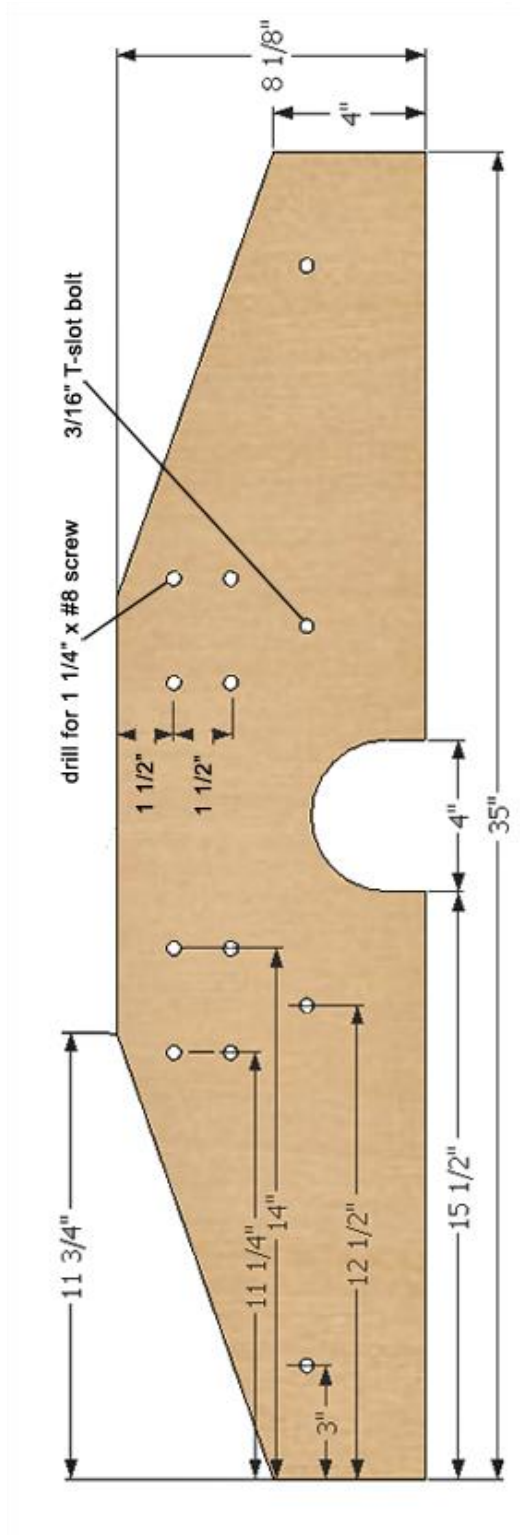


2"
T-Knob

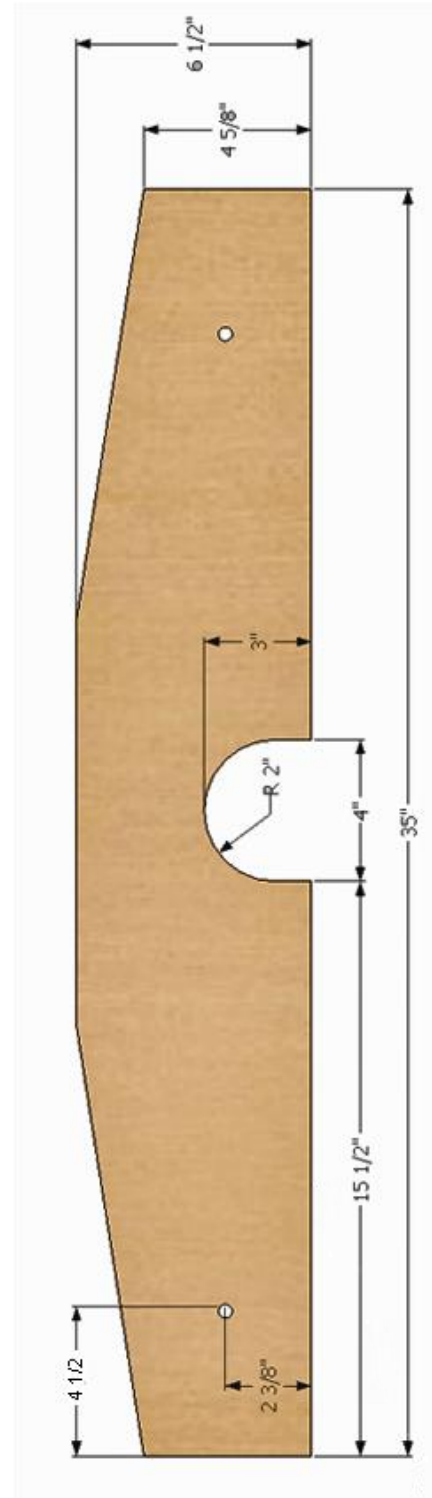


FENCE BODY

Cut the dust port mouth of each piece with a 2" radius centered 1" from the bottom. Chamfer top surface of base $\frac{1}{4}$ " to ease dust flow.



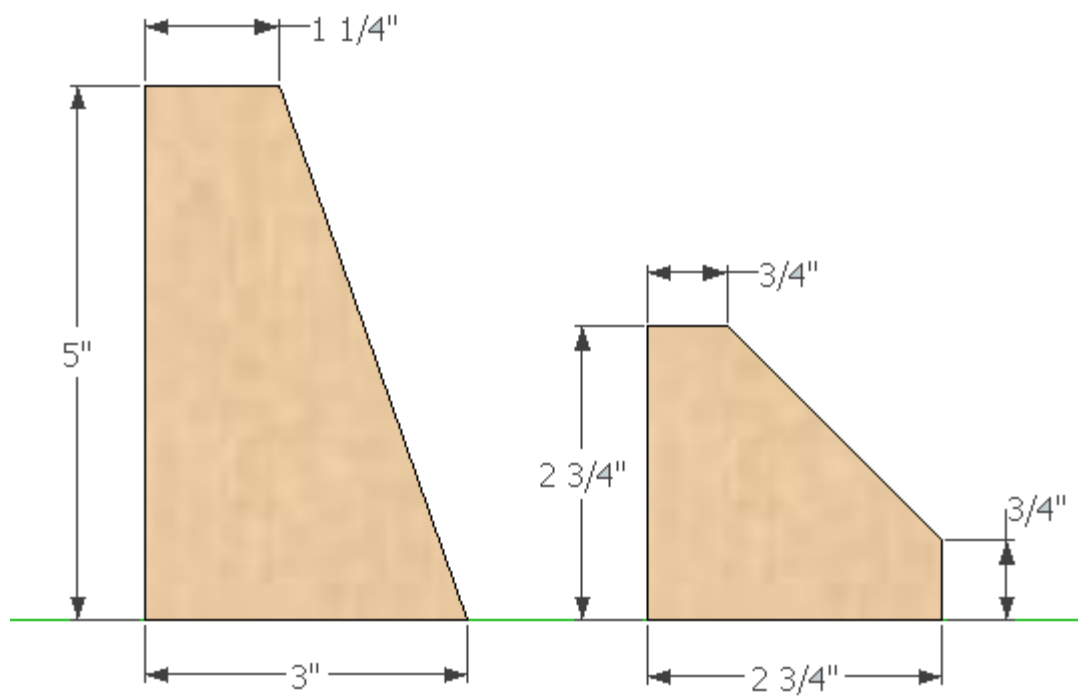
Vertical



Base

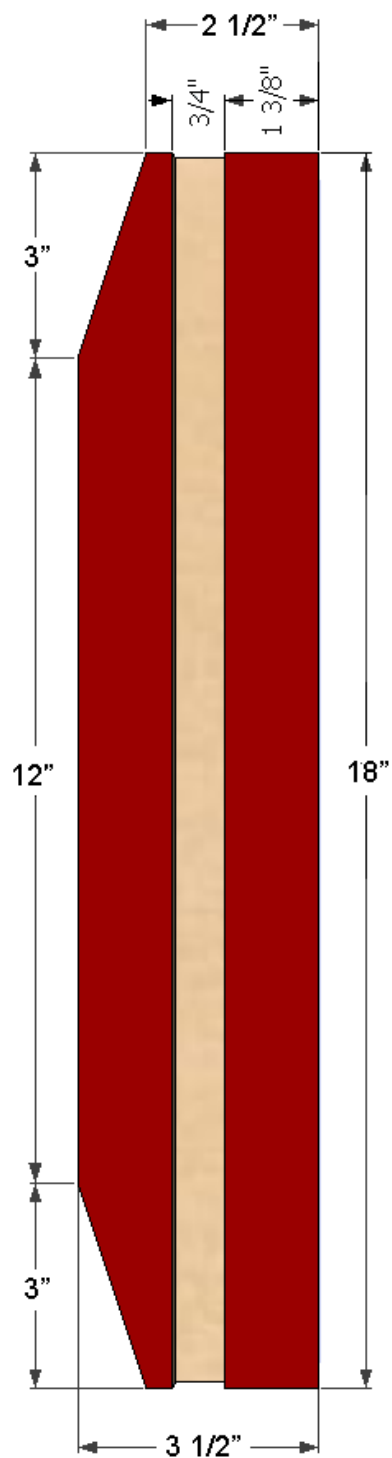
FENCE BLOCKS

Material: $\frac{3}{4}$ " MDF.



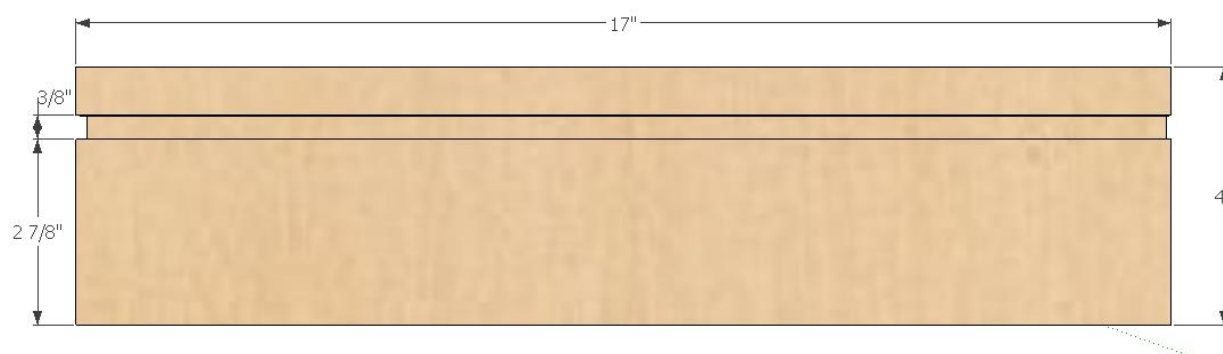
FIXED FENCE BLOCK

The fixed fence block accommodates vertically mounted featherboards. Dado is $\frac{3}{4}$ "W x $\frac{1}{2}$ "D for Incra anodized aluminum miter slot. Fasten this piece to the fence body vertical from the back with #8 screws.



SLIDING FENCE WINGS

Two (2) adjustable fence wings support the work piece. The T-slot in the back secures each wing (A) to the fixed fence with T-knobs and T-bolts. Optional wing (B) has a T-slot cut into the face for an adjustable stop block.

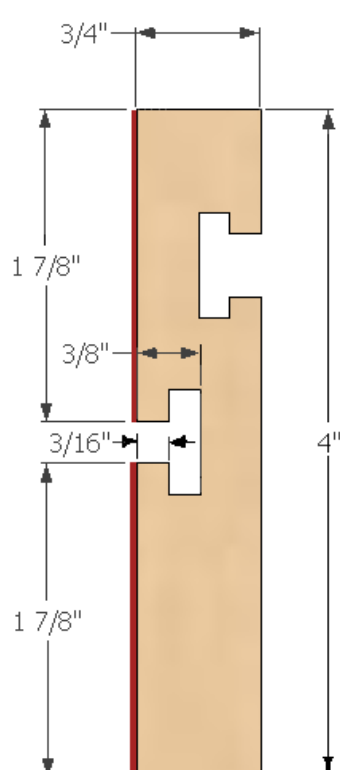
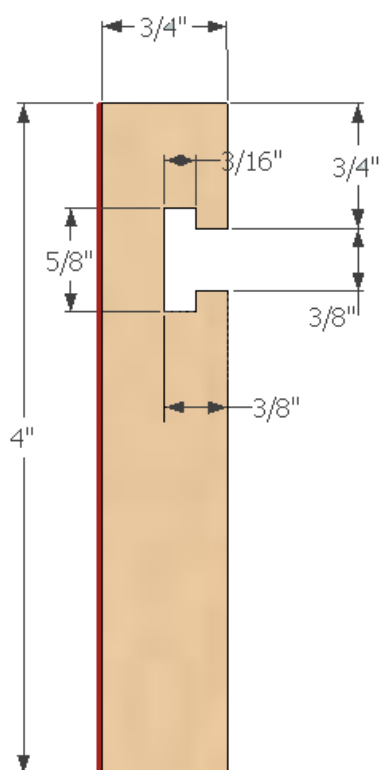


A

B

Smooth Face Fence

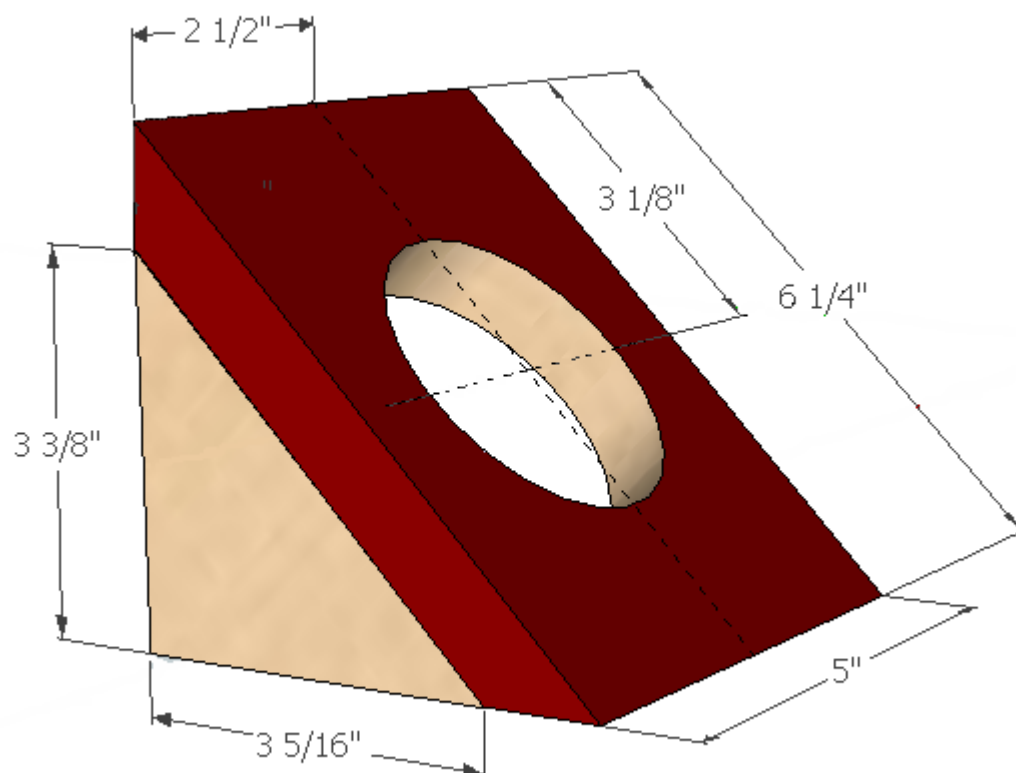
T-Slot Dado For Stop Block



CUSTOM DUST PORT

A simple, easy approach to a tight, secure fitting for a 2 ½" dust collector hose. Center and drill the 2 ½" hole with a Forstner bit, hole saw, or circle cutter bit.

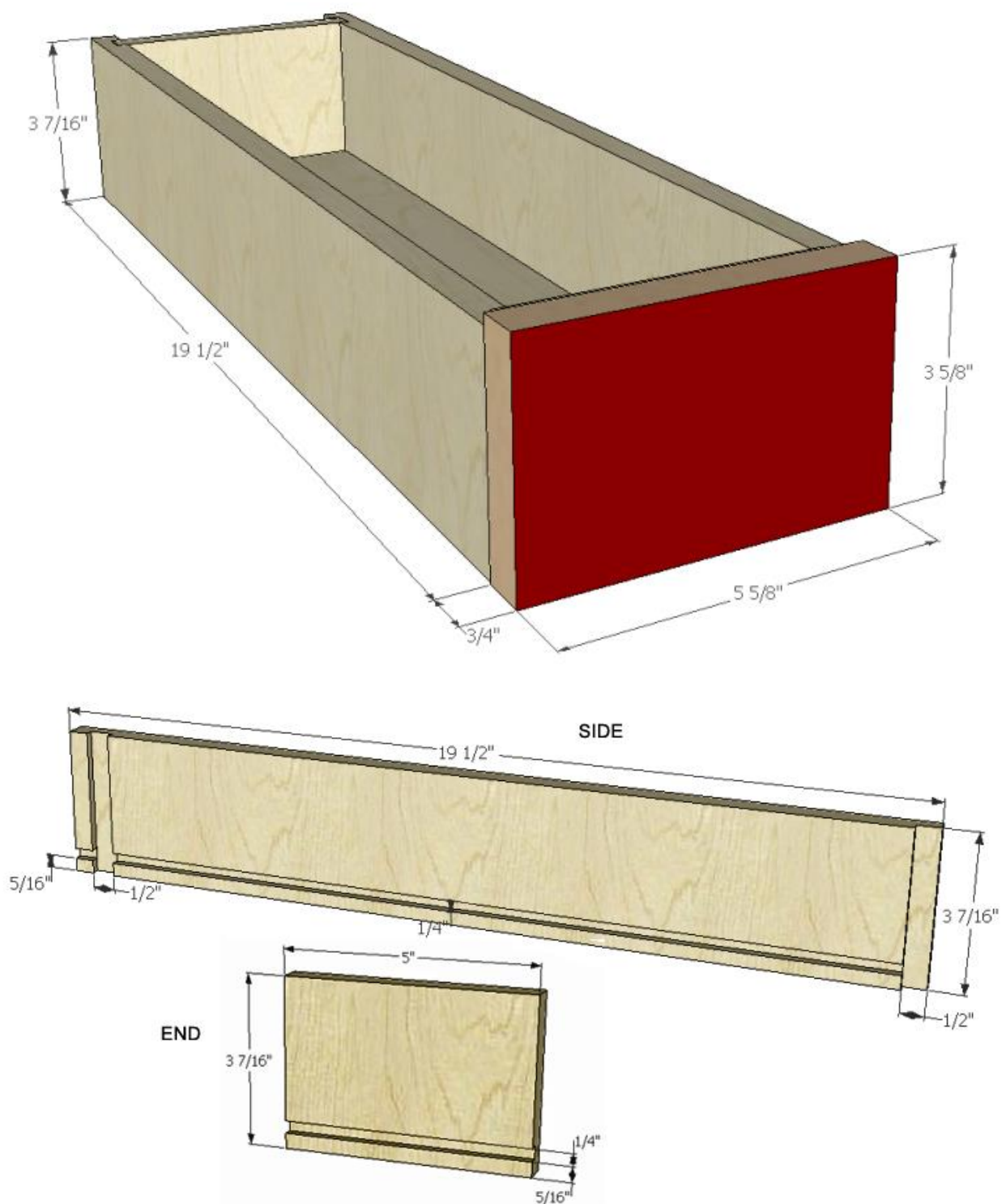
DUST PORT DIMENSIONS



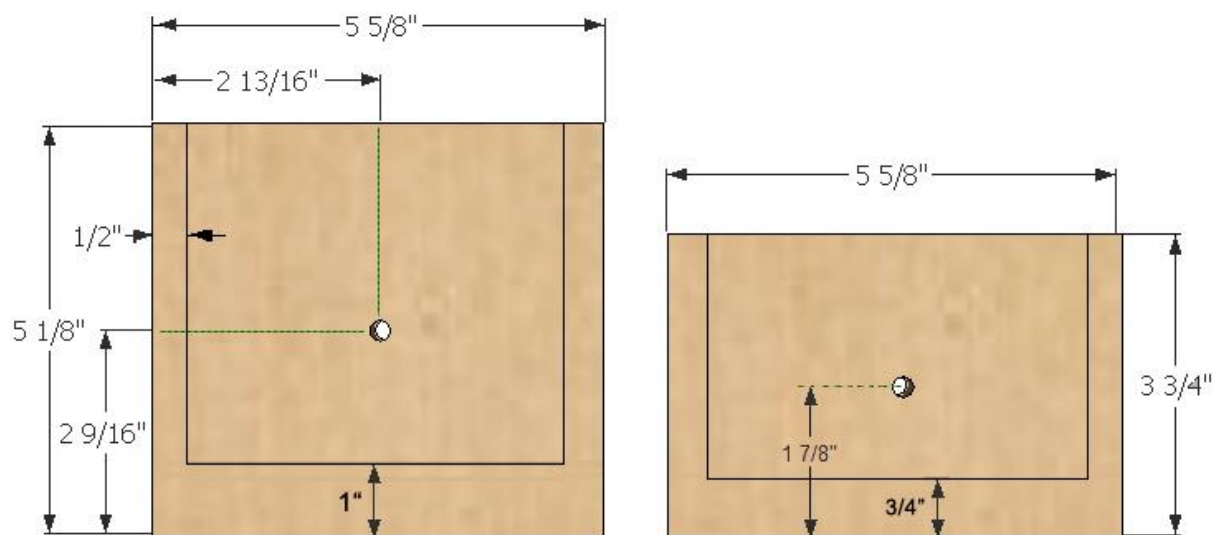
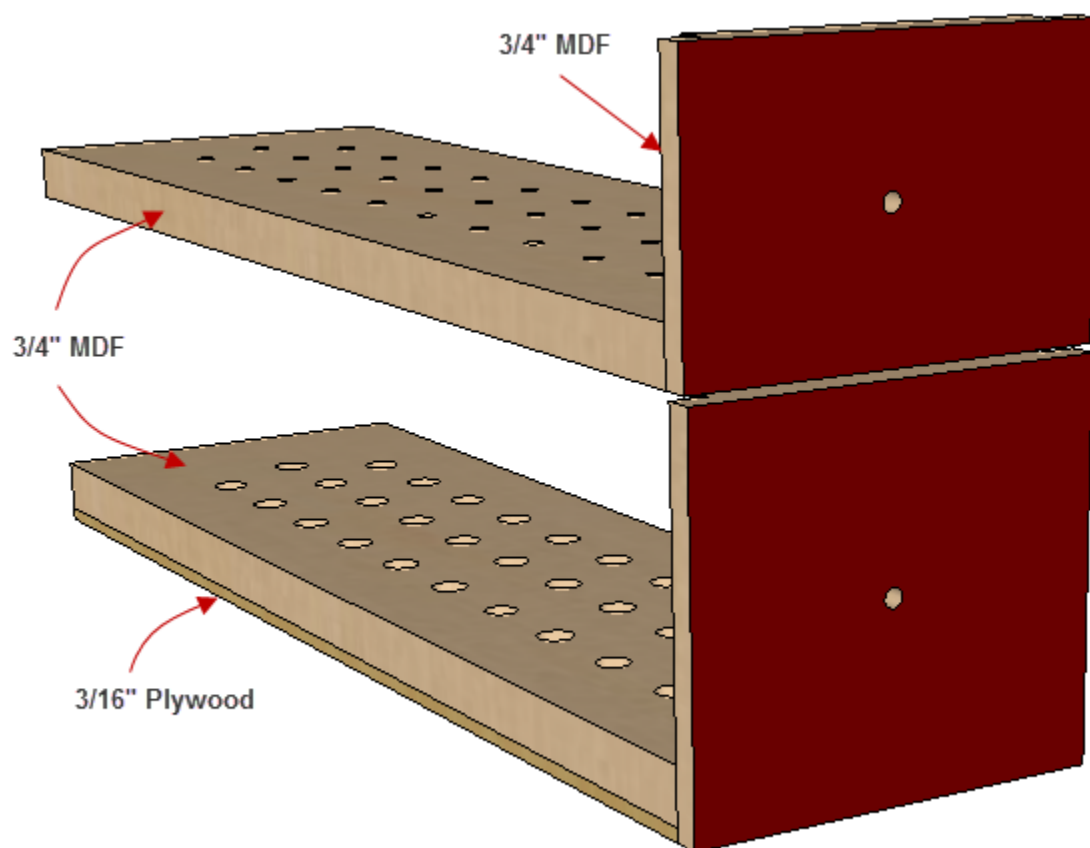
UPPER DRAWERS

The upper drawers are for wrench and bit storage.

WRENCH DRAWER



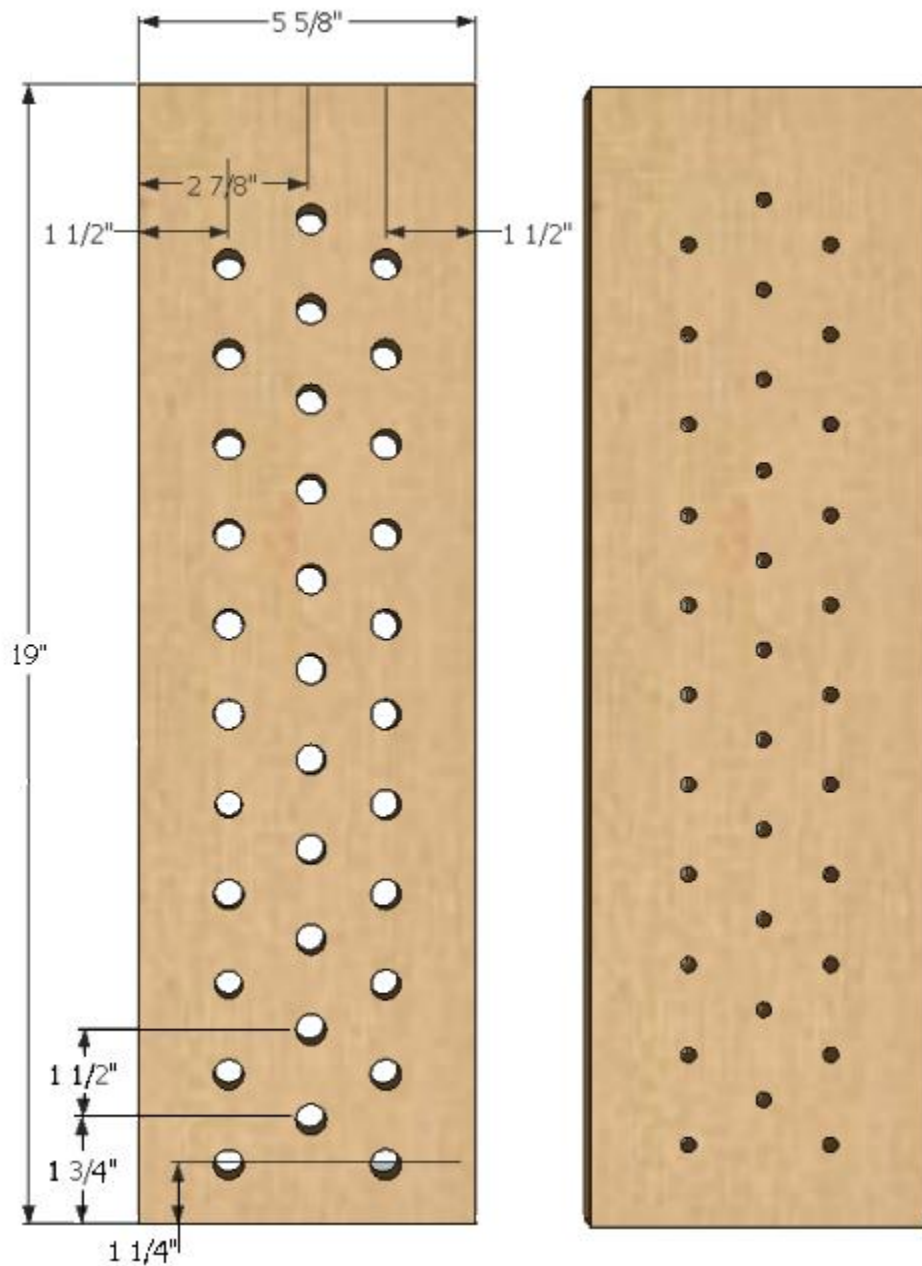
BIT DRAWERS



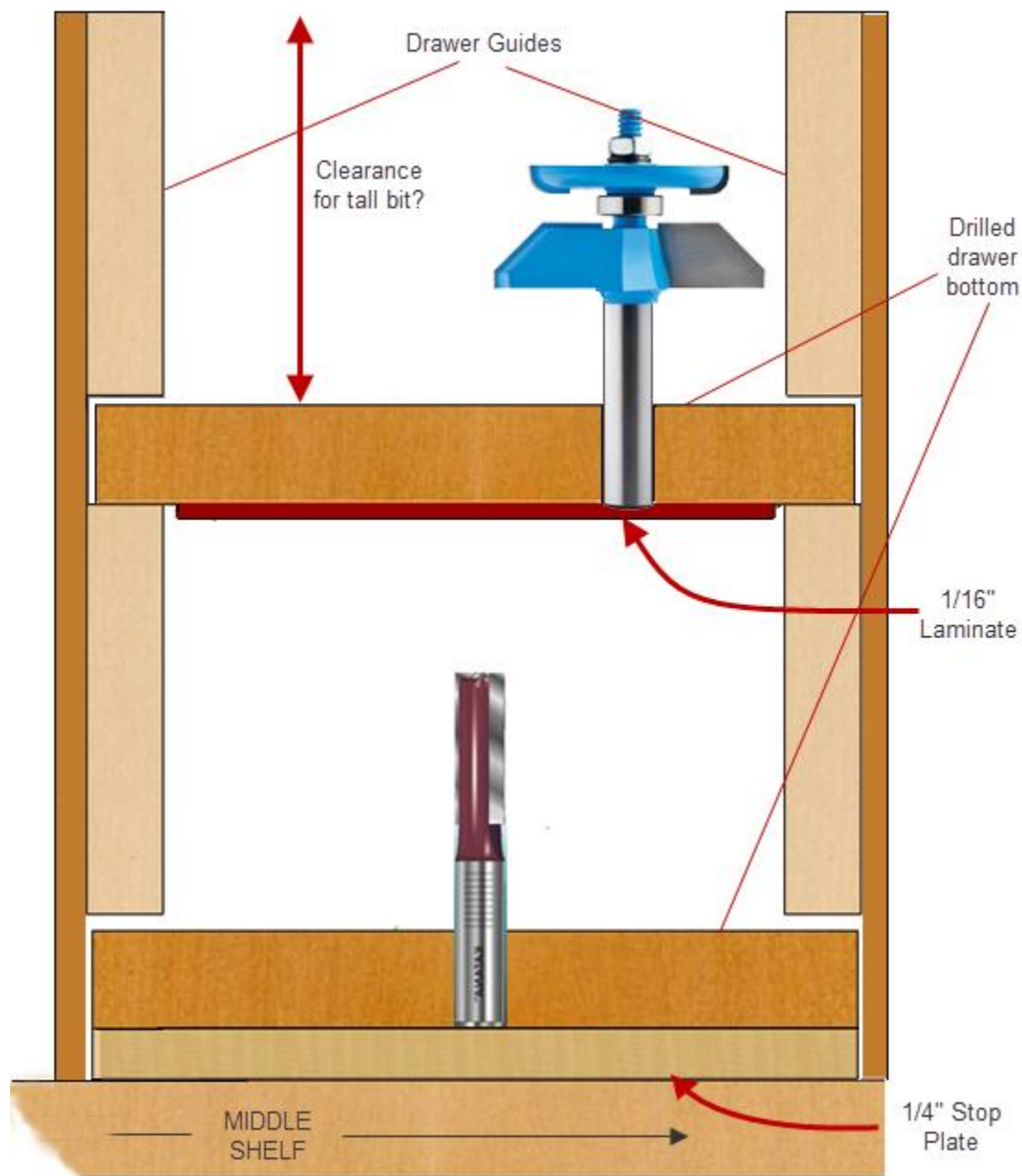
BIT DRAWER BOTTOMS

Drill $\frac{1}{2}$ " holes or $\frac{1}{4}$ " holes on $1\frac{1}{2}$ " centers as shown for bit shank diameters. I like mine staggered to allow for the larger bits such as raised panel, tongue-and-groove, rabbets, etc.

After drilling, cement a piece of $\frac{1}{16}$ " laminate to the underside as a stopper to prevent straight bits from dropping through. You could optionally use $\frac{1}{4}$ " hardboard or ply for this purpose if you reduce the width by $\frac{1}{2}$ " on either side to allow room for the drawer slides.



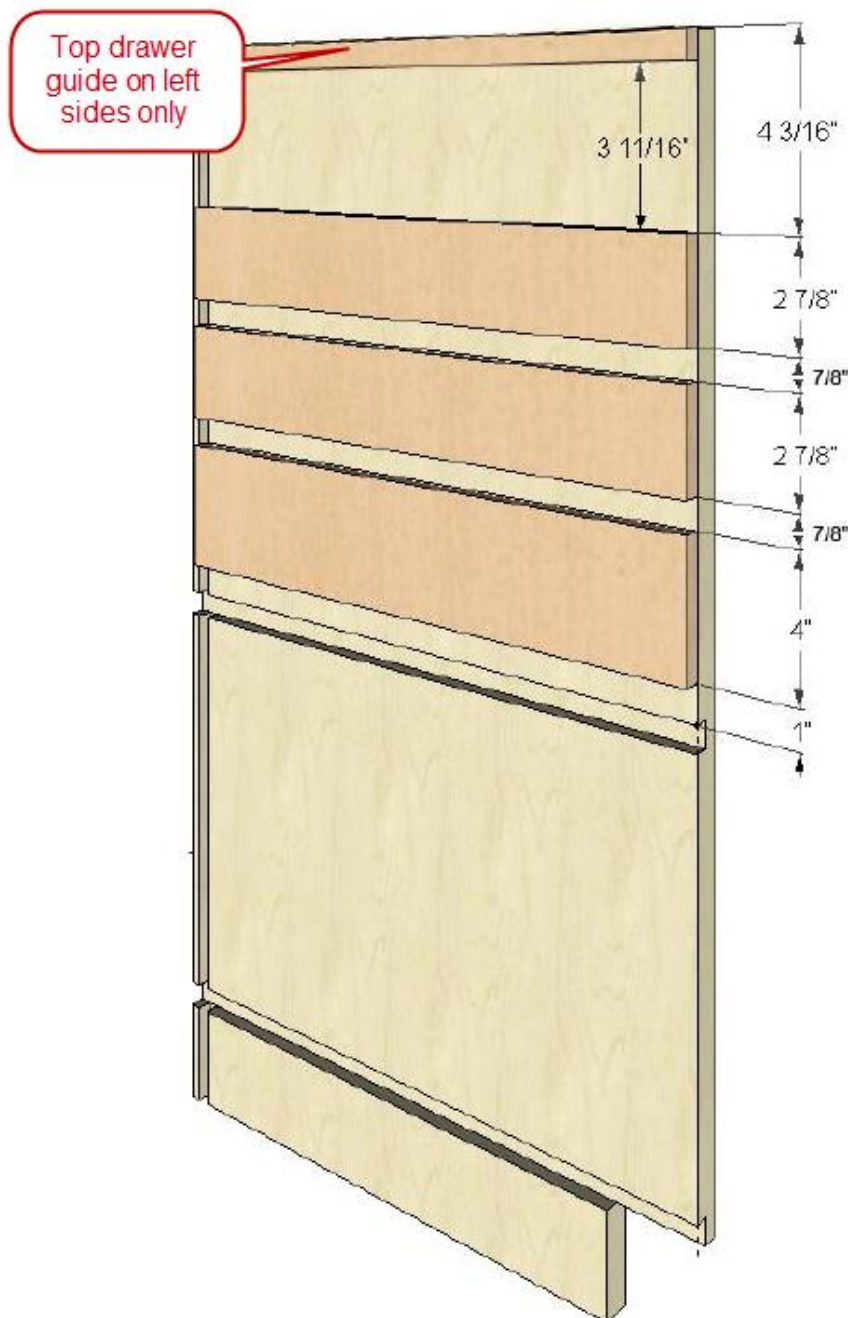
BIT STOP CLEARANCE ISSUES



UPPER DRAWER GUIDE PLACEMENT

CRITICAL NOTE: This is a **narrow space!** Apply the guides **before** you assemble the carcass. That way you'll have plenty of working room to mark lines, apply glue, and arrange your clamp setup.

Using a straight edge, mark the upper and lower edges of each guide on the side panel. Spread glue on side panel and guide, then apply two clamps to either end. Use cauls to spread pressure evenly along the entire 20" length of the guide.

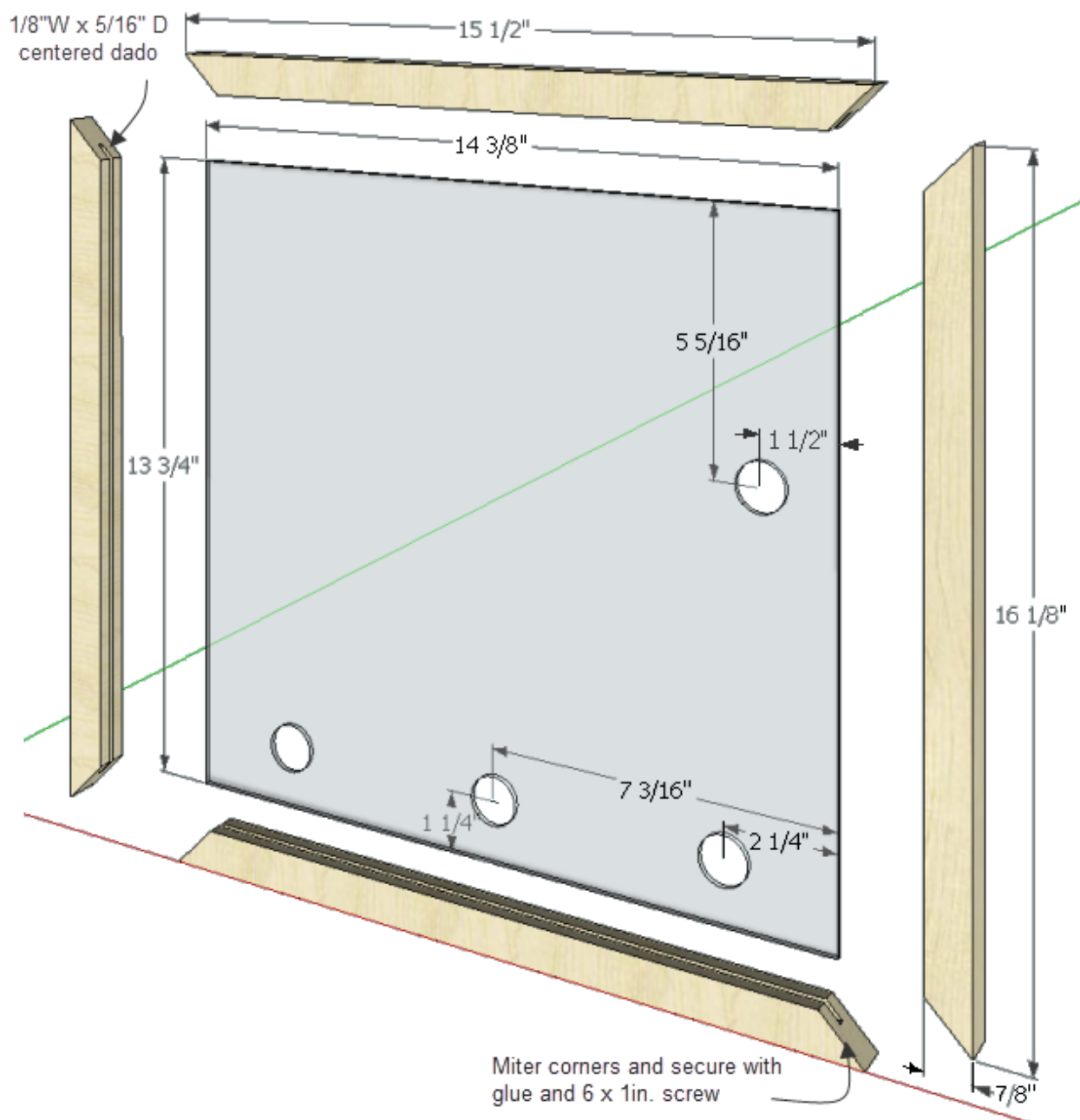


To insure straight and square alignment, create spacers $7/8$ " and 1" thick by 2 or three inches wide by 20" long. Wrap in wax paper and place them between the guides as you clamp.

When working on the inner walls, be sure to add the dado depth to your starting point from the lower edge of the wall.

DOOR

Material: hardwood frame 7/8 x 3/4. Ease outer edges with a block plane after assembly. Drill 1" diameter holes in 1/8" clear plastic.



FINISHED APPEARANCE

With the wheels on, the table surface stands exactly 40" off the shop floor. That's a comfortable and safe work height for anyone 5'6" or taller.



THAT'S IT!

This completes the plan drawings for my Ultimate Router Table as built. Please enjoy and let me hear from you about your success.

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