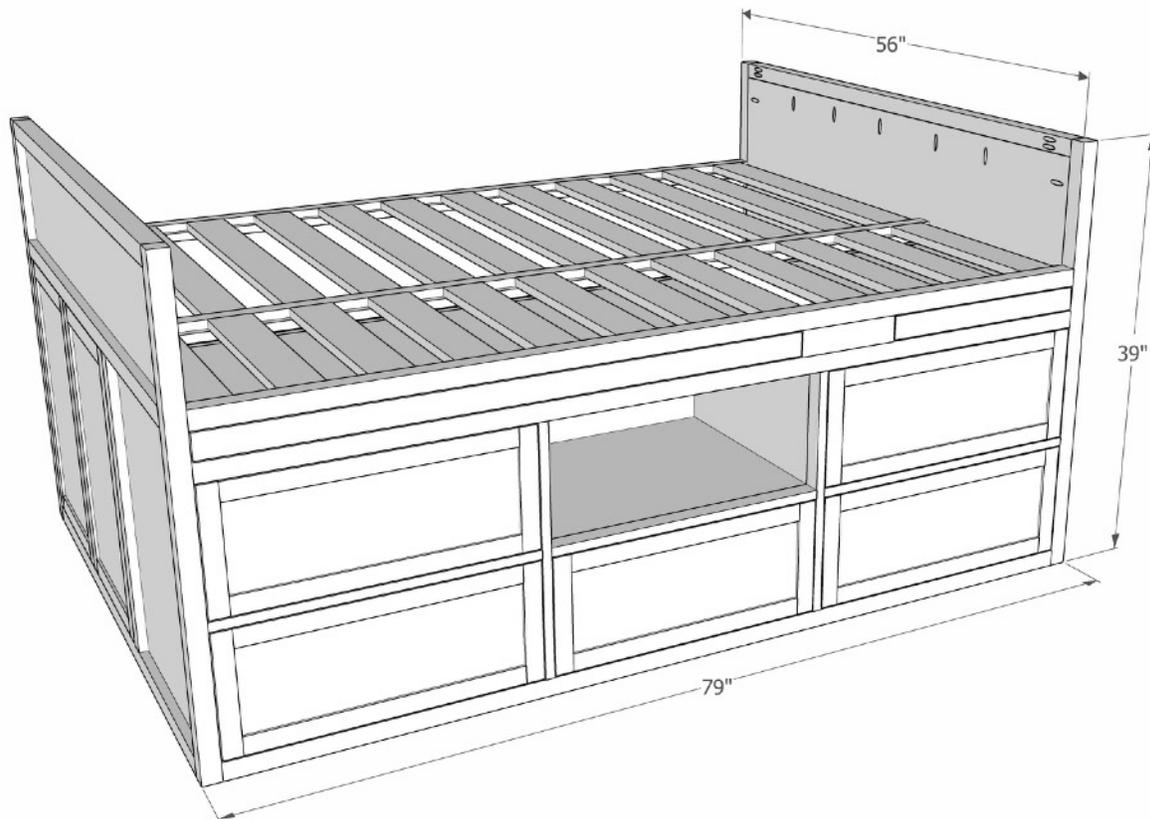

DIY Full-Size Captain's Bed with Storage

Addicted2DIY.com



Before beginning this project...

Please read through all of the plans as well as the blog post associated with this project. Always use safety precautions whenever using power tools and follow the manufacturer's suggested guidelines. Make sure to wear proper safety protection (eye protection, hearing protection, etc.) before beginning any project. Cut all pieces per the measurements in the plans, unless noted otherwise.

Materials and Cut List:

Materials Needed:

- 3 sheets of 3/4" veneer plywood (4' x 8')
- 1 sheet of 1/2" veneer plywood (4' x 8')
- 1 - 2' x 4' sheet of 1/2" veneer plywood
- 1 sheet of 1/4" veneer plywood (4' x 8')
- 11 - 2x2 pine boards (or 20 board feet of 8/4 lumber, such as poplar)
- 7 - 1x2 pine boards (or approx 15 board feet of 4/4 lumber, such as poplar)
- 3 - 1x3 pine boards ripped down to 2" wide (or use part of the 15 bf of milled 4/4 lumber)
- 7 - 1x4 pine boards for mattress slats
- 1 - 4'x8' sheet of pegboard (if desired)
- 13 - 3/4" square dowels @ 36" long (or rip 3/4" square dowels from a 1x6x96" board)
- Pocket screws (1", 1 1/4", and 2 1/2")
- Wood glue
- 1" & 1 1/4" brad nails
- Wood screws (1", 1 1/4", and 2")
- 220 grit sandpaper
- Paint or stain of choice

Tools Needed:

- Circular Saw
- Miter Saw
- Table Saw
- Drill/Driver
- Pocket Hole Jig
- Various sized clamps
- Router/router table
- 1/4" straight bit
- Tongue and groove bit (optional)
- Brad nailer

Cut List:

3/4" plywood:

- 1 - 36"x53" (headboard)
- 1 - 9 1/2" x 53" (footboard)
- 1 - 18 1/4" x 25" (footboard)
- 2 - 25" x 76" (side/middle panels)
- 2 - 2 1/4" x 8 7/8" (desk/nightstand spacer)
- 2 - 2 1/4" x 19" (stretchers for drawer slides)
- 1 - 19" x 24" (cubby shelf)
- 2 - 19" x 22 3/4" (cubby sides)
- 1 - 18 1/4" x 45 3/4" (desk)

1 - 18 1/4" x 16 3/8" (nightstand)

1/2" plywood:

4 - 23 1/4" x 8 1/2" (lg drawer front/back)

4 - 22 3/4" x 8 1/2" (lg drawer (steps) front/back)

2 - 22" x 8 1/2" (sm drawer front/back)

10 - 18 1/2" x 8 1/2" (drawer sides)

2 - 17 1/4" x 22 1/2" (drawer steps)

1/4" plywood:

1 - 22 1/2" x 18" (sm drawer bottom)

2 - 23 3/4" x 18" (lg drawer bottoms)

2 - 23 1/4" x 18" (lg drawer/step bottoms)

4 - 22 3/4" x 7 3/4" (lg drawer fronts)

1 - 21 1/2" x 7 3/4" (sm drawer front)

2 - 22 1/2" x 14 3/16" (cabinet doors)

2x2 boards (can use dimensional pine or mill down approx 20 board feet of 8/4 lumber, such as poplar):

4 - 2x2 @ 39"

5 - 2x2 @ 53"

1 - 2x2 @ 25"

7 - 2x2 @ 76"

1x2 boards (can use dimensional pine or mill down approx 15 board feet of 4/4 lumber, such as poplar):

1 - 1x2 @ 24" (faceframe)

2 - 1x2 @ 21 1/4" (faceframe)

2 - 1x2 @ 25 1/4" (faceframe)

4 - 1x2 @ 13 7/16" (or 14 3/16" if using tongue and groove joinery) (cabinet door rails)

4 - 1x2 @ 24 3/4" (cabinet door stiles)

2 - 1x2 @ 20 3/4" (or 21 1/2" if using tongue and groove joinery) (small drawer front rails)

8 - 1x2 @ 22" (or 22 3/4" if using tongue and groove joinery) (lg drawer front rails)

10 - 1x2 @ 10" (drawer front stiles)

1x3 ripped down to 2" wide (can use dimensional pine or mill down 4/4 lumber):

1 - 2" x 45 3/4"

4 - 2" x 19"

1 - 2" x 48"

1 - 2" x 18 5/8"

1 - 2" x 16 3/8"

1x4 mattress slats:

12 @ 19" long

12 @ 32 1/2" long

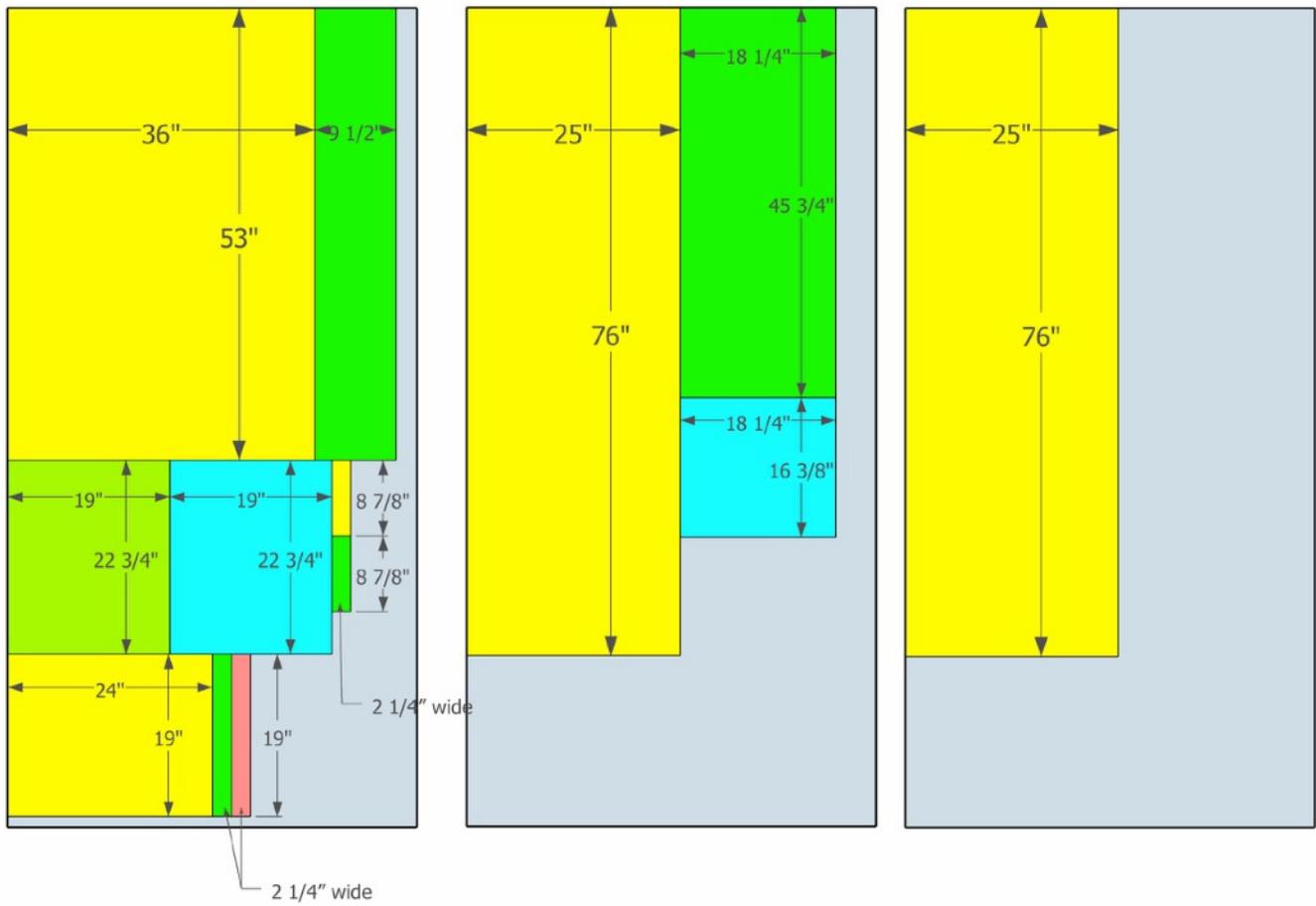
3/4" square dowels (store bought or ripped down on table saw)

4 - @ 76" long

4 - @ 22 3/4" long

4 - @ 16" long

3/4" Plywood Cuts

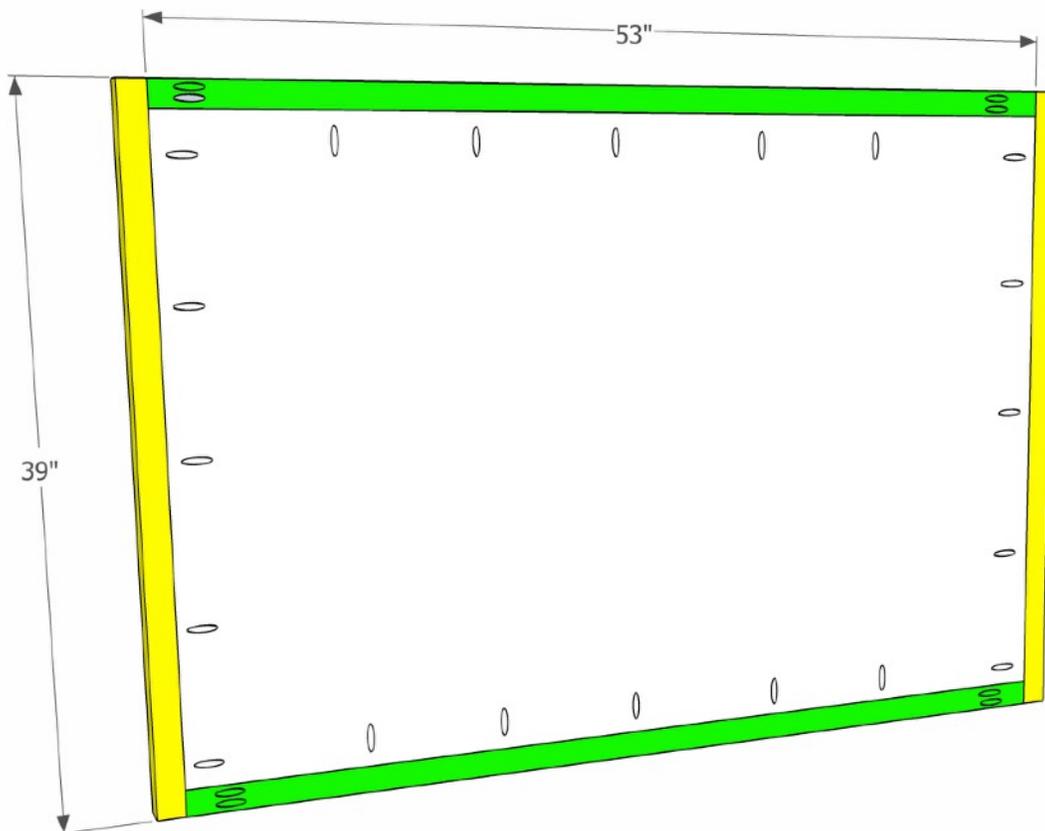


Step One:

Build the Headboard

Drill 1 1/2" pocket holes into the 53" 2x2 boards. Drill 3/4" pocket holes into all four sides of the 3/4" plywood. Glue and clamp the headboard pieces together with the 3/4" plywood flush with the inside face of the frame. Attach the 2x2 pieces with 2 1/2" pocket screws. Attach the plywood with 1 1/4" pocket screws.

Fill the top rows of pocket holes with wood filler, if desired.

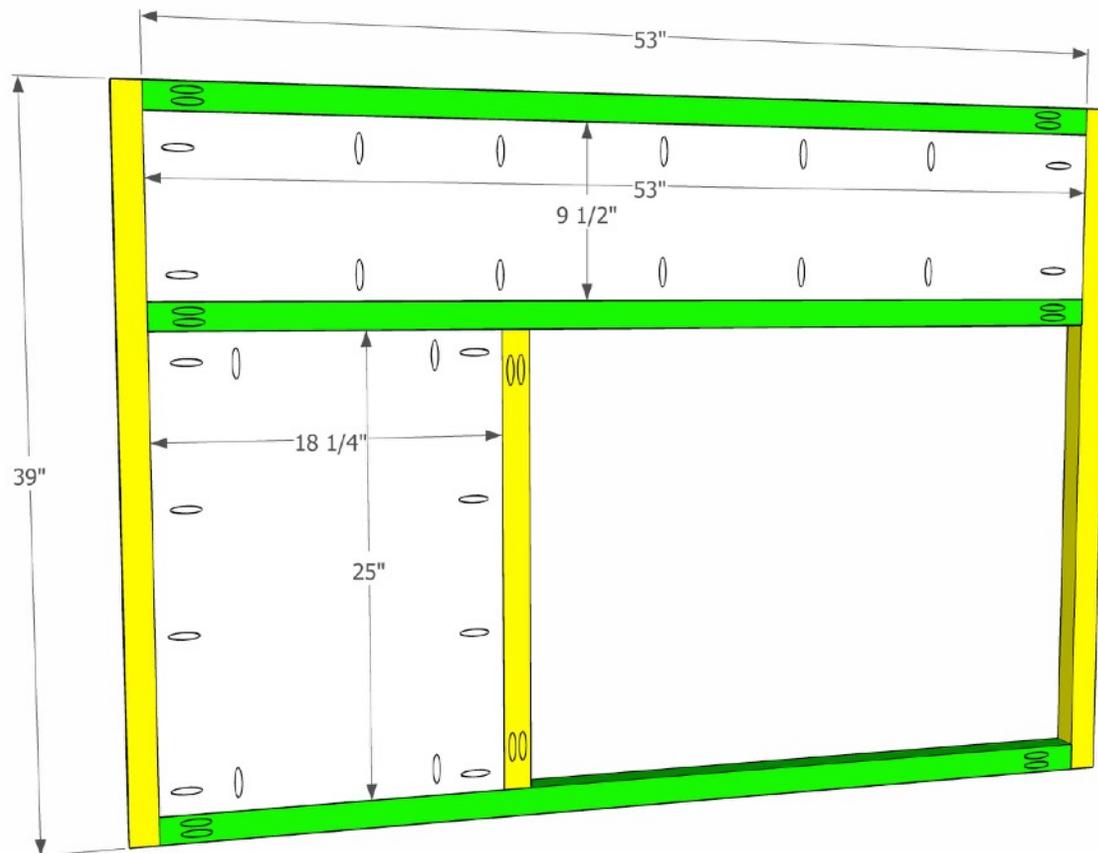


Step Two:

Build the Footboard

Drill 1 1/2" pocket holes into the 2x2 boards as shown in the diagram. Drill 3/4" pocket holes into the 3/4" plywood. Use the plywood as a guide for where to set the 2x2 frame pieces. Attach with wood glue and 2 1/2" pocket screws. Attach the plywood in place with 3/4" pocket screws, flush with the inside face of the foot board.

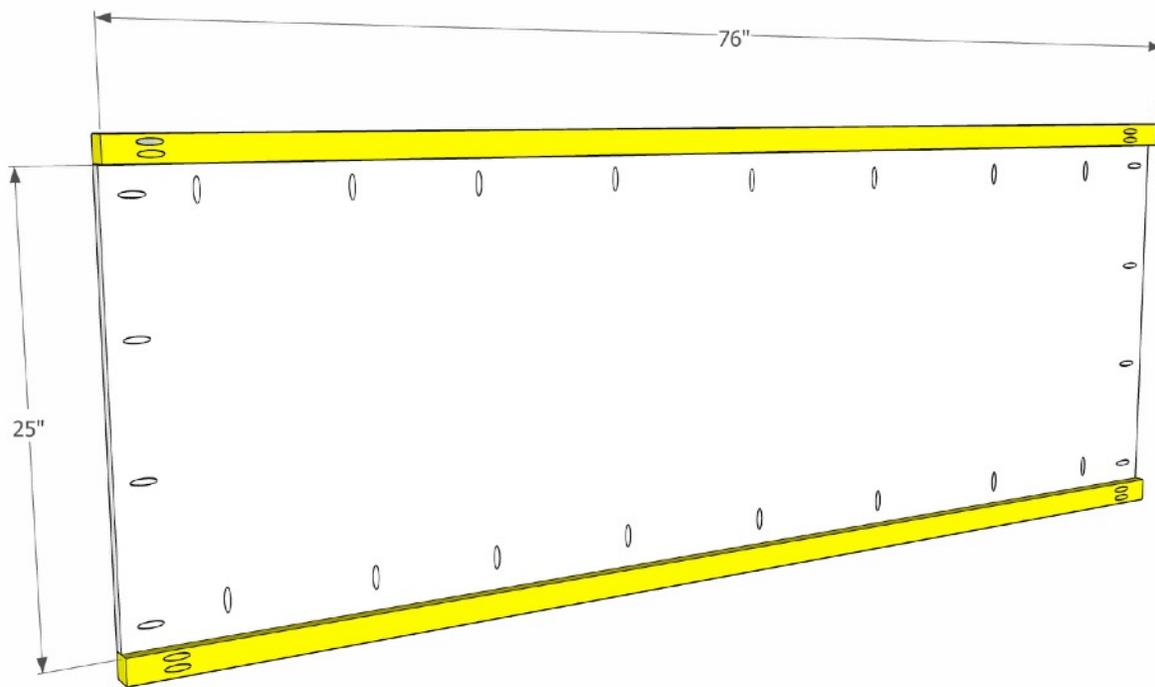
Fill the top section of pocket holes with wood filler, if desired.



Step Three:

Build The Side and Middle Panels (Build 2)

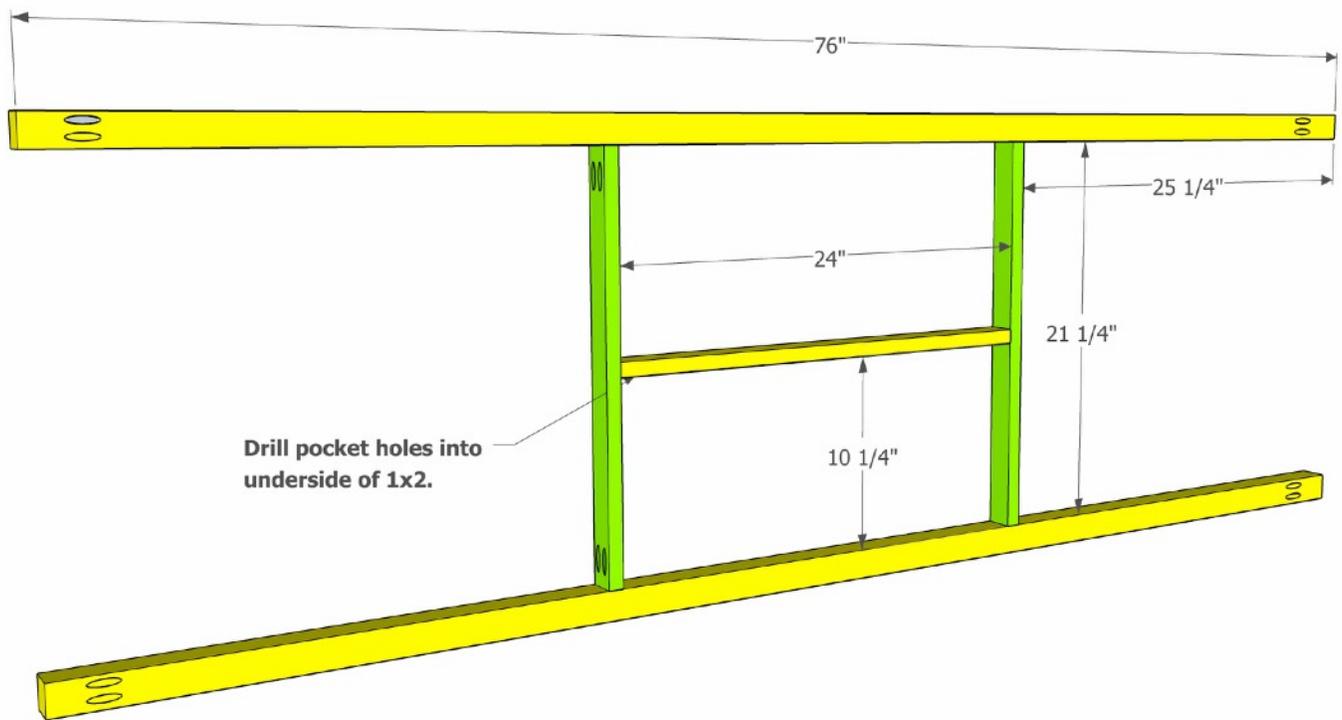
Drill 1 1/2" pocket holes into each end of the 2x2 boards. Drill 3/4" pocket holes into the 3/4" plywood on all four sides. Glue and clamp the 2x2s to the plywood with the clean plywood face flush with the edge of the 2x2s. Attach with 3/4" pocket screws.



Step Four:

Build the Face Frame

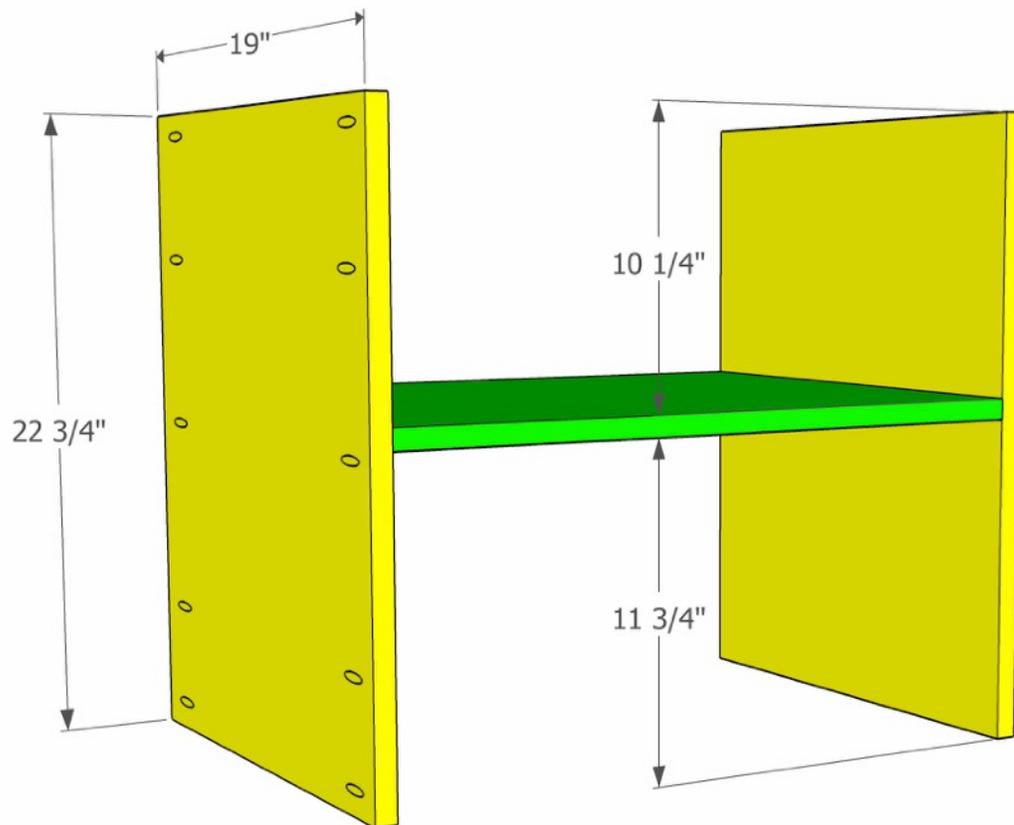
Drill 1 1/2" pocket holes into each end of the 2x2 boards on the inside face. Drill 3/4" pocket holes into the 1x2 pieces. Glue and attach the 1x2s in place using 1 1/4" pocket screws.



Step Five:

Build the Center Cubby

Drill 3/4" pocket holes into the front and back edges of the vertical plywood pieces. Drill 3/4" pocket holes into all four edges of the horizontal piece. Mark and place the horizontal piece per the diagram below. Glue and attach with 1 1/4" pocket screws.



Step Six:

Build the Cabinet Doors

Measure and cut to size the 1/4" plywood face panels to fit into the dado grooves (approx 22 1/2" x 14 3/16").

Pocket Joinery Method:

Cut the rails at 13 7/16" long. Drill 3/4" pocket holes into each end of the rails. Using a router and router table with a 1/4" straight bit rout a dado groove through the entire inside edges of the rails. For the stiles, add the same dado groove; however, begin the groove by plunging the wood onto the bit approximately 1" in from the end of the stile, then lifting the wood off of the bit before reaching the end of the stile. Alternately, a dado groove can be run the entire length of the stile and each end will need to be filled with wood filler once the door is assembled.

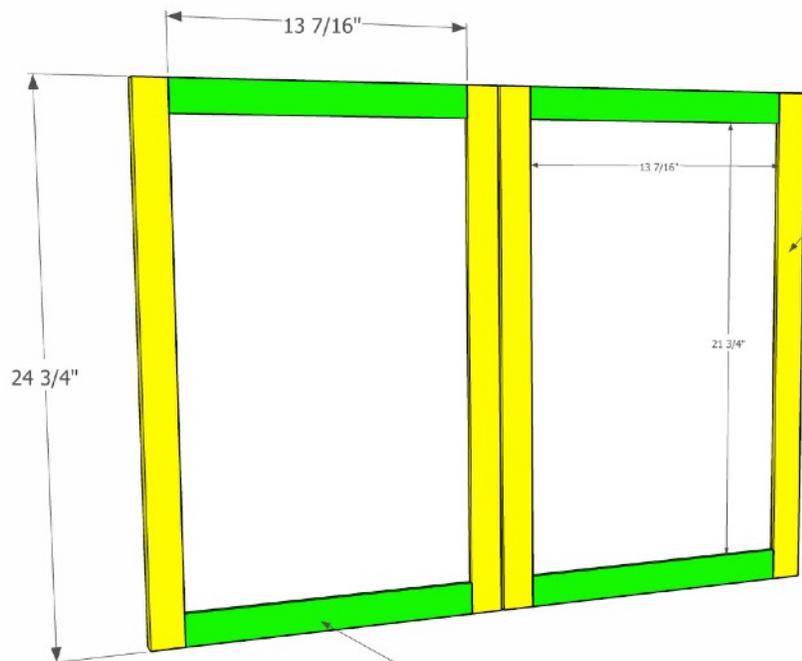
Glue and attach the door frames around the plywood panel. Clamp in place, then attach with 1 1/4" pocket screws.

Tongue and Groove Method:

Cut the rails at 14 3/16" long. Rout the tenons on each end of the rails, then rout grooves into each inside edge of the rails and stiles.

Apply glue to the tenons on the rails, build the frame around the face panels and clamp. Let dry overnight.

** See diagram on next page*



Dado grooves in rails and stiles
Should be 3/8" deep.

Panels should be cut approximately 3/4"
Wider and longer than the inside dimensio
Of the door frame.

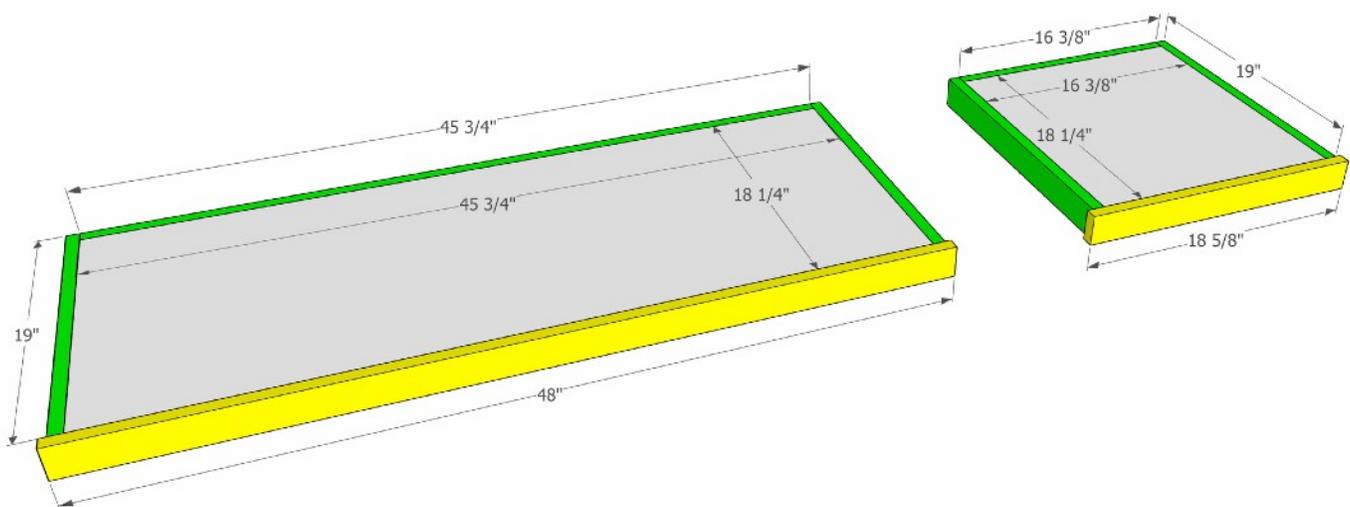
If using tongue and groove joinery,
Cut rails at 14 3/16" long.

Step Seven:

Build The Desk and Nightstand Trays

Drill $\frac{3}{4}$ " pocket holes into each end of the $45 \frac{3}{4}$ " and $16 \frac{3}{8}$ " pieces. Drill $\frac{3}{4}$ " pocket holes into one end of each of the 19" pieces. Drill $\frac{3}{4}$ " pocket holes into all four edges of each of the plywood pieces.

Build the frames of the desk and nightstand around the plywood pieces. Center the desk and nightstand fronts onto the frames so that there is a $\frac{3}{8}$ " overage on each side. Glue and clamp, then attach with $1 \frac{1}{4}$ " pocket screws. Attach the plywood tops flush with the top edges of the frames with $1 \frac{1}{4}$ " pocket screws.

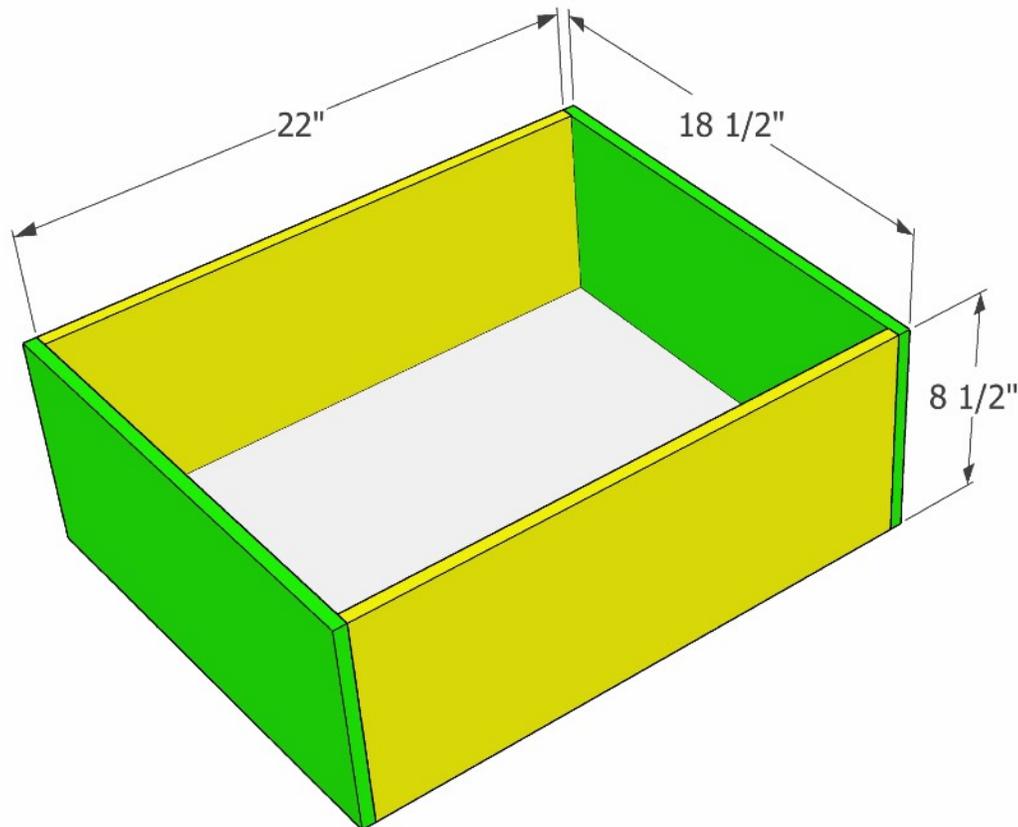


Step Eight:

Build the Small Drawer

Drill 1/2" pocket holes into each edge of the front and back pieces. Rout a 1/4" deep dado groove into each piece of the drawer box, 1/2" up from the bottom edge with a 1/4" straight bit.

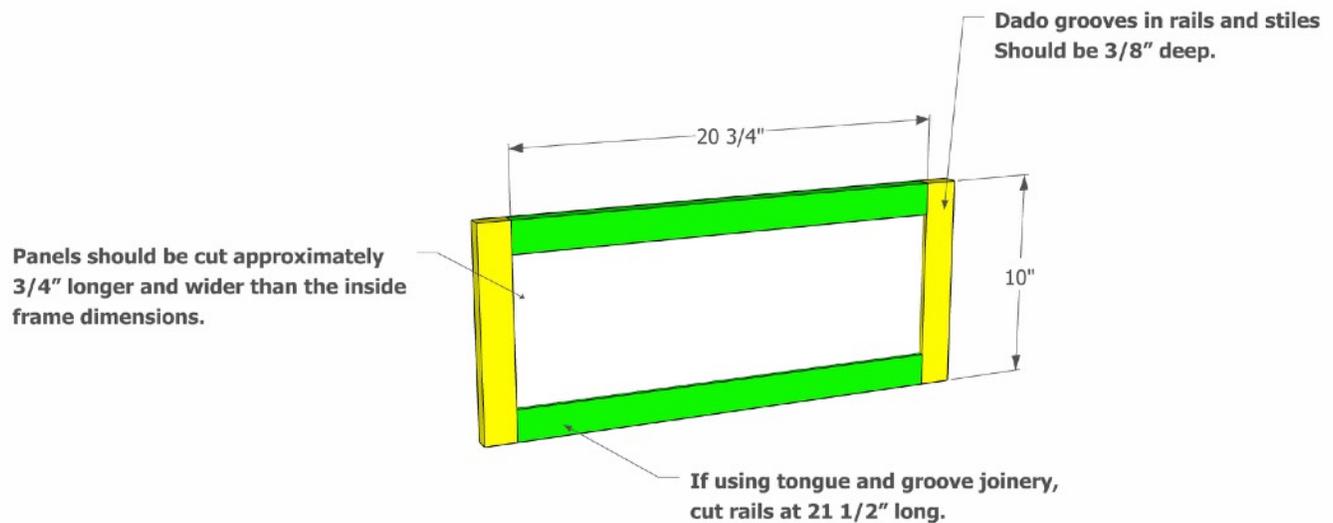
Cut the 1/4" plywood drawer bottom approx 22 1/2" x 18". Fit the 1/4" plywood bottom into the dado grooves. Glue up the edges of the front and back pieces and clamp the drawer boxes together. Attach with 1" pocket screws.



Step Nine:

Build the Small Drawer Face

Following the same methods for the cabinet doors in step 6 (pocket joinery or tongue and groove joinery), build the small drawer face.



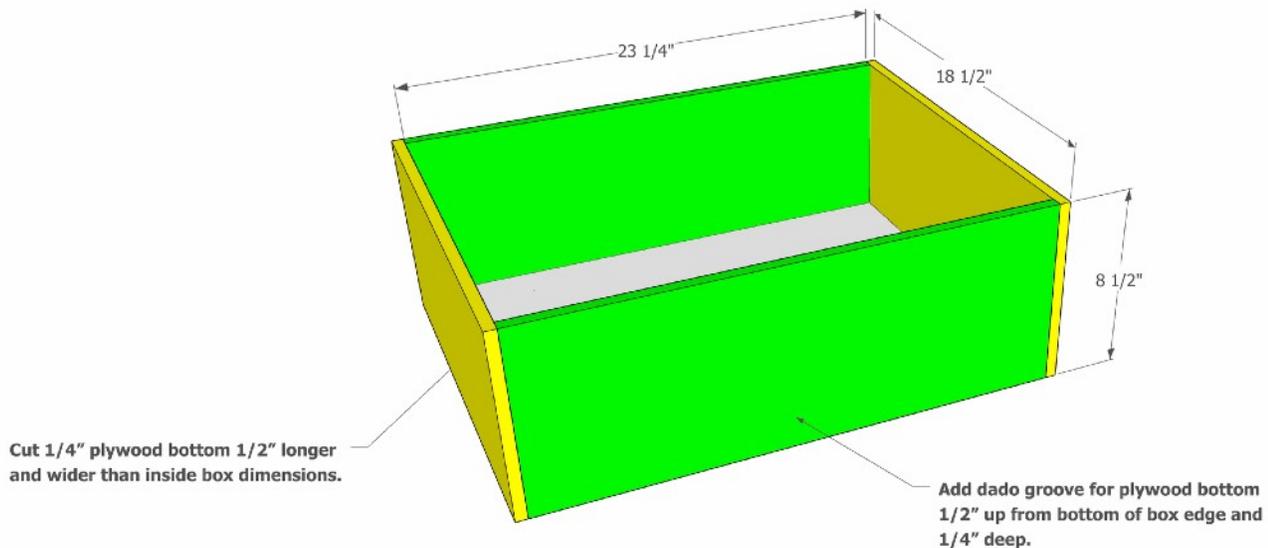
Step Ten:

Build the Large Drawers

****If building the bed without steps, build four large drawer boxes at this size. If building the bed with steps, build two at this size and build two at the size listed in step 11.***

Drill 1/2" pocket holes into each edge of the front and back pieces. Rout a 1/4" deep dado groove into each piece of the drawer box, 1/2" up from the bottom edge with a 1/4" straight bit.

Cut the 1/4" plywood drawer bottom approx 23 3/4" x 18". Fit the 1/4" plywood bottom into the dado grooves. Glue up the edges of the front and back pieces and clamp the drawer boxes together. Attach with 1" pocket screws.



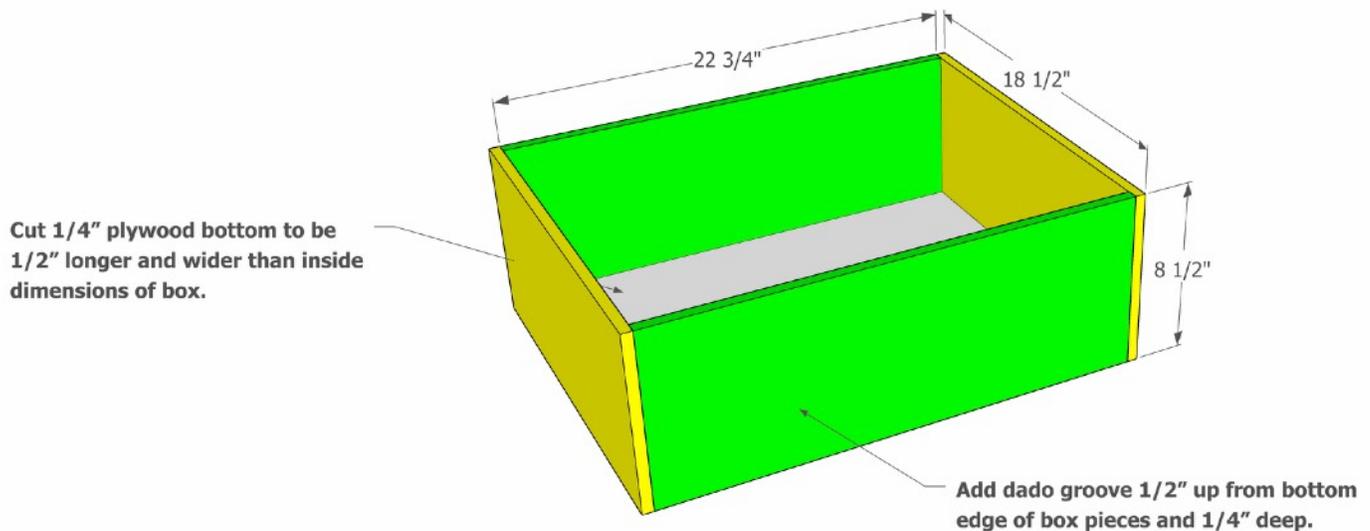
Step Eleven:

Build the Large Drawers/Steps (optional)

****If building the bed with steps, build two of these drawers.***

Drill 1/2" pocket holes into each edge of the front and back pieces. Rout a 1/4" deep dado groove into each piece of the drawer box, 1/2" up from the bottom edge with a 1/4" straight bit.

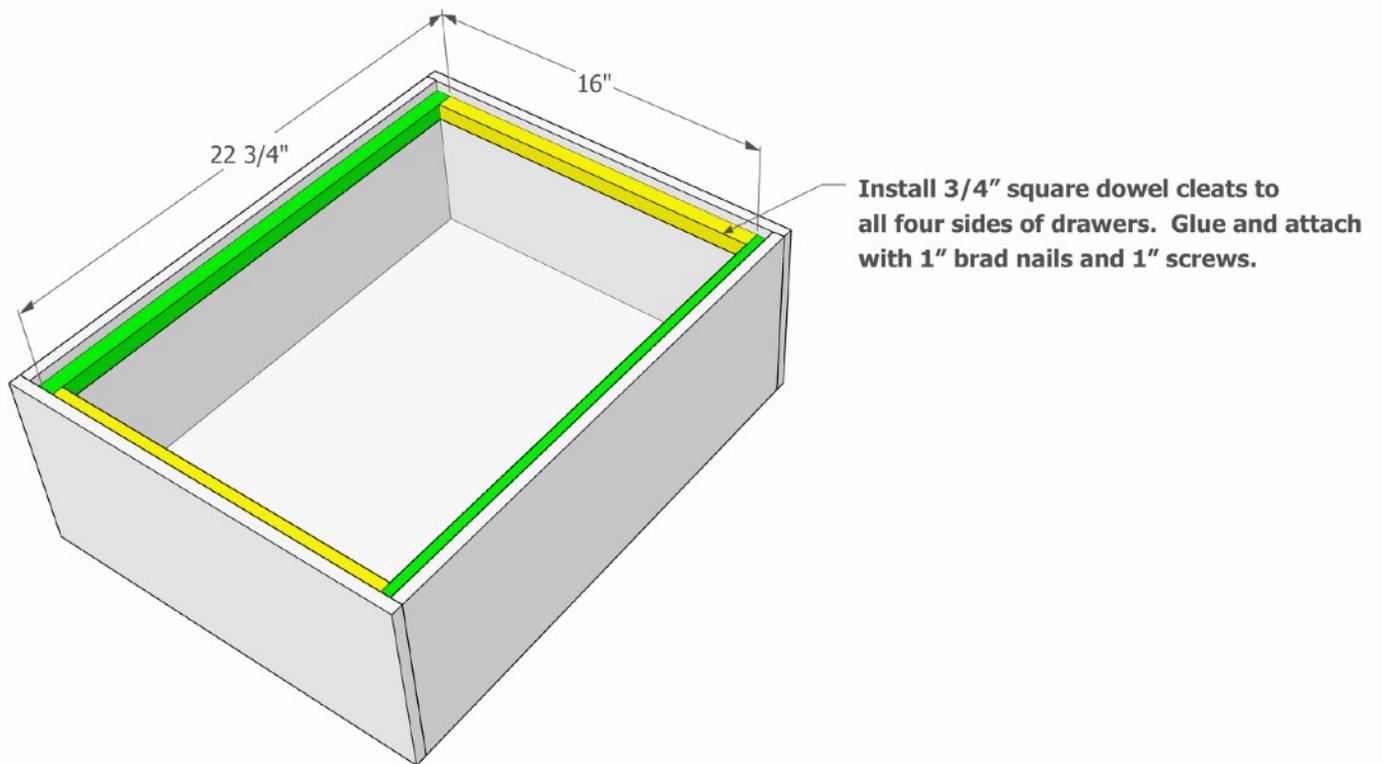
Cut the 1/4" plywood drawer bottom approx 23 1/4" x 18". Fit the 1/4" plywood bottom into the dado grooves. Glue up the edges of the front and back pieces and clamp the drawer boxes together. Attach with 1" pocket screws.



Step Twelve:

Build the Steps (optional)

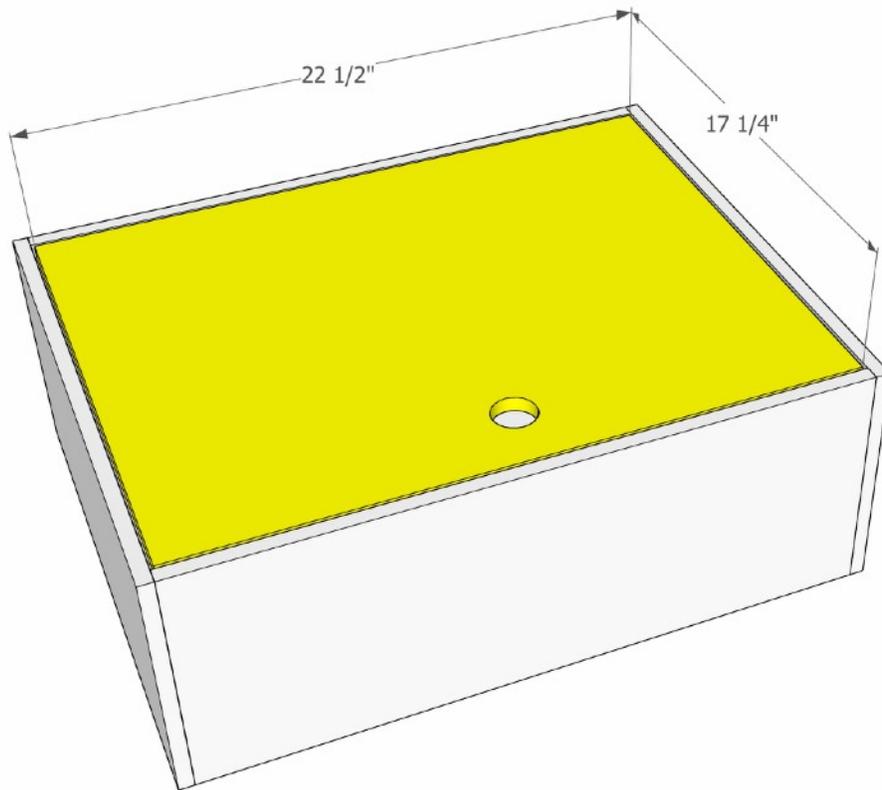
Either purchase or make your own 3/4" square dowels. Measure and cut them to size to fit inside the drawer boxes that will double as steps. Glue and clamp to the inside of the drawer boxes, 1/2" down from the top edge. Secure in place with brad nails and 1" wood screws.



Step Thirteen:

Cut and Install The Stair Steps

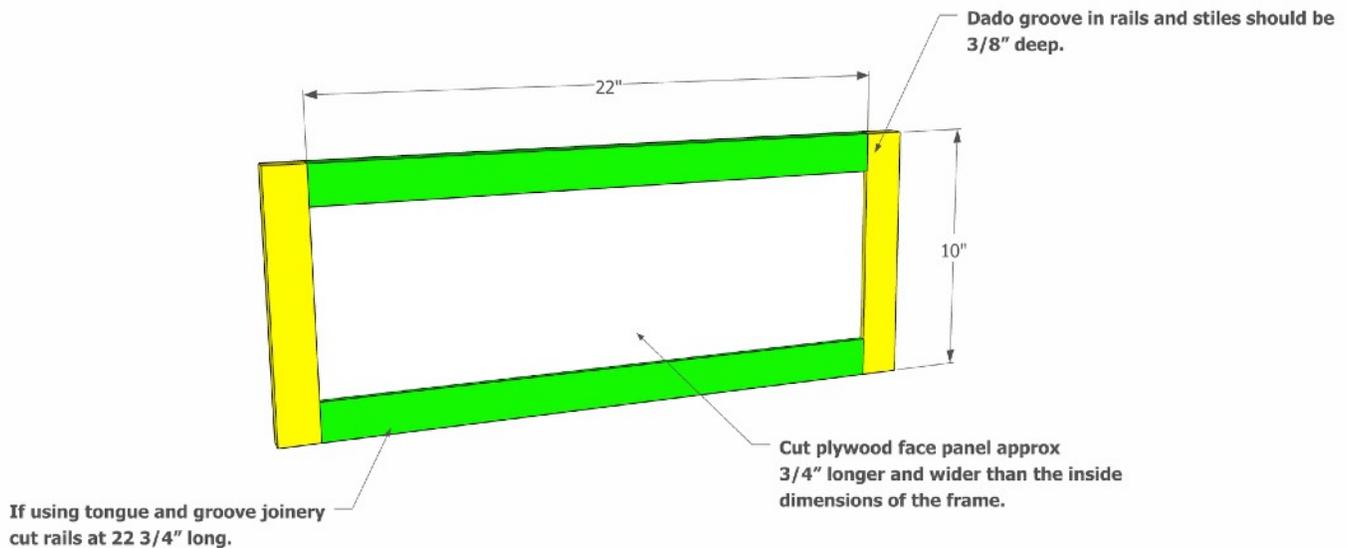
For the stair steps, cut 1/2" plywood so that there is 1/8" of clearance around all sides of the drawer box (approx 22 1/2" x 17 1/4"). Drill a 1 1/2" hole into the plywood to allow for it to be easily removed and put back in place. A 1/8" roundover bit can be used on a router to round the edges of the plywood. Sand smooth with 320 grit sandpaper.



Step Fourteen:

Build the Large Drawer Faces (build 4)

Following the same methods for the cabinet doors in step 6 (pocket joinery or tongue and groove joinery), build the large drawer faces.



Sand and finish all pieces as desired, prior to assembly.

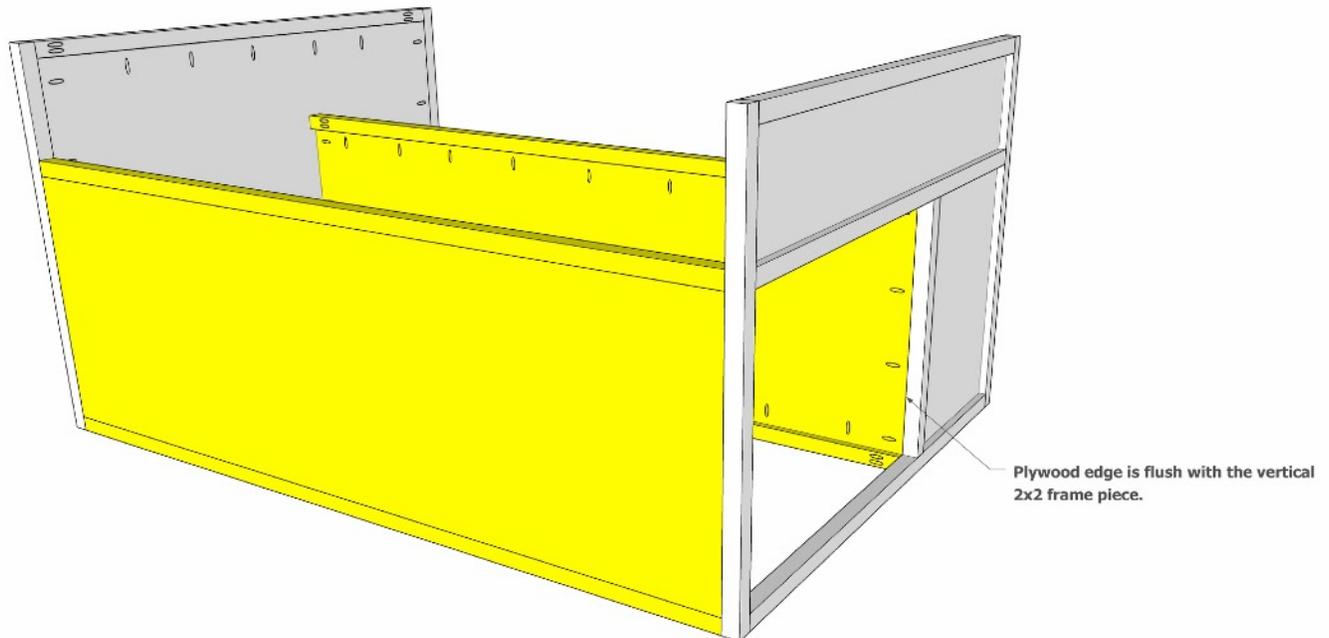
Step Fifteen:

Assemble Main Carcass of Bed

Begin assembling the main carcass of the bed. Install the side and middle panels and clamp into place with 8' bar clamps and/or pocket hole clamps.

For the middle panel where the top 2x2 board connects to the plywood headboard, use 1 1/4" pocket screws to attach.

Use 2 1/2" pocket screws where the 2x2 horizontal boards attach to the 2x2 frames of the headboard and footboard. Use 1 1/4" pocket screws wherever there are 3/4" pocket holes drilled.

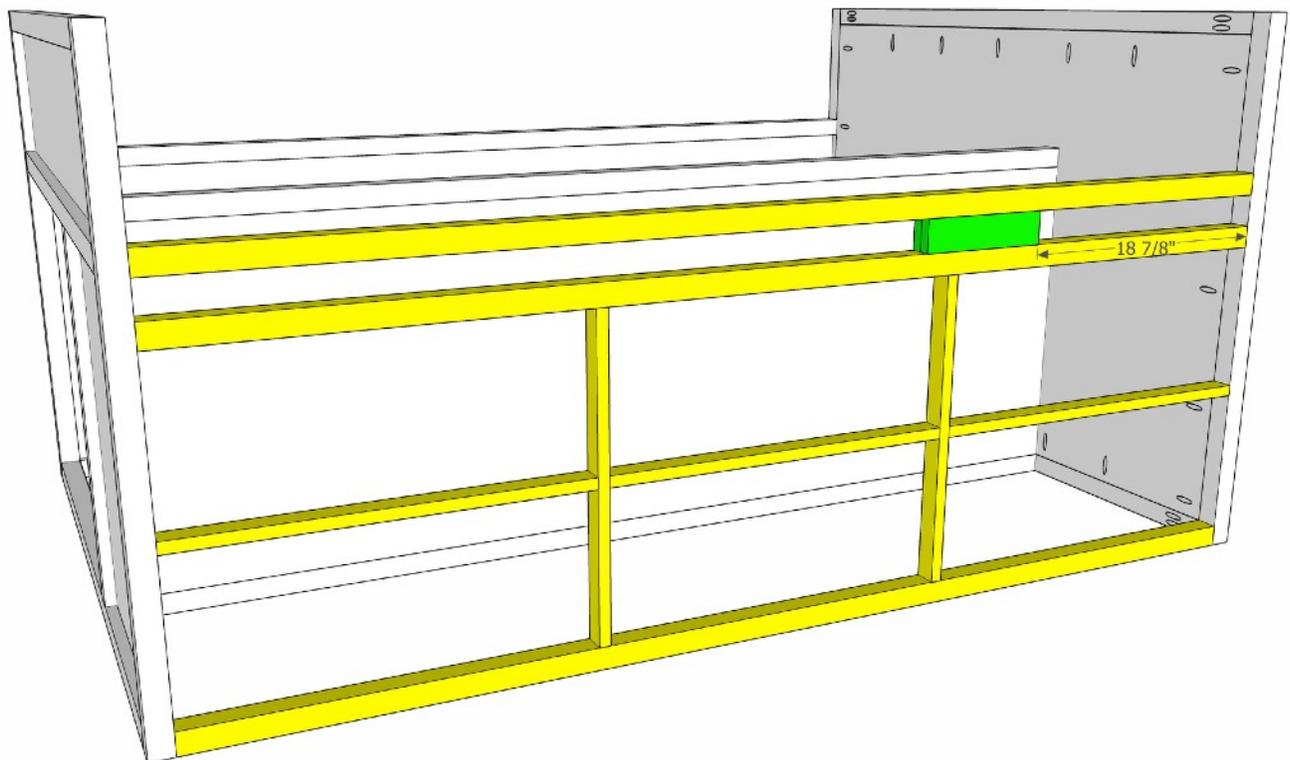


Step Sixteen:

Attach the Face Frame

Attach the face frame to the bed using 2 1/2" pocket screws for the 2x2 pieces. Install the remaining 1x2 face frame pieces 10 1/4" up from the bottom 2x2 and attach with 1 1/4" pocket screws.

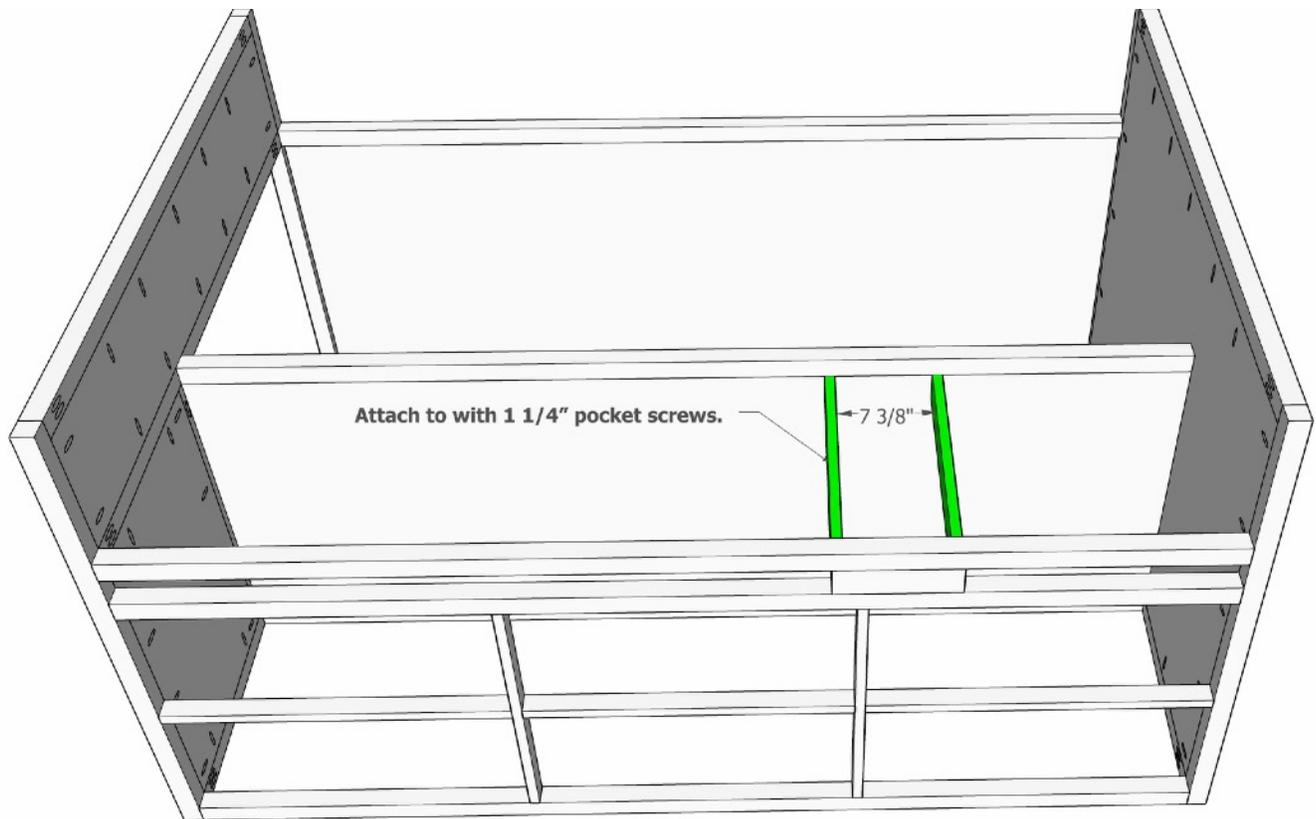
For the 2 1/4" plywood divider (green), drill 3/4" pocket holes going up and down to attach to the frame. Install as per the diagram below with 1 1/4" pocket screws.



Step Seventeen:

Attach the Plywood Stretchers

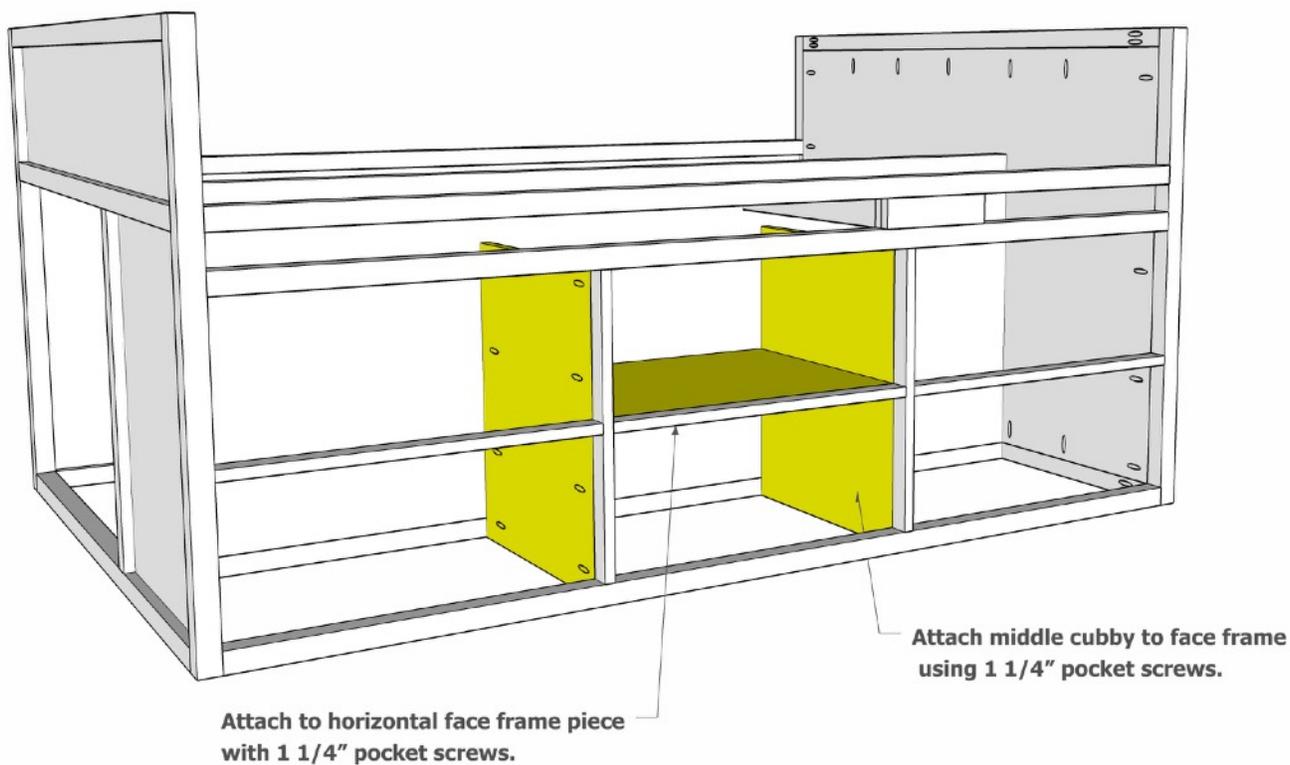
To accommodate the desk and nightstand drawer slides, plywood stretchers must be installed flush with each edge of the plywood spacer on the face frame. Attach with 1 1/4" pocket screws.



Step Eighteen:

Install the Middle Cubby

Attach the middle cubby to the frame with 1 1/4" pocket screws as per the diagram below.



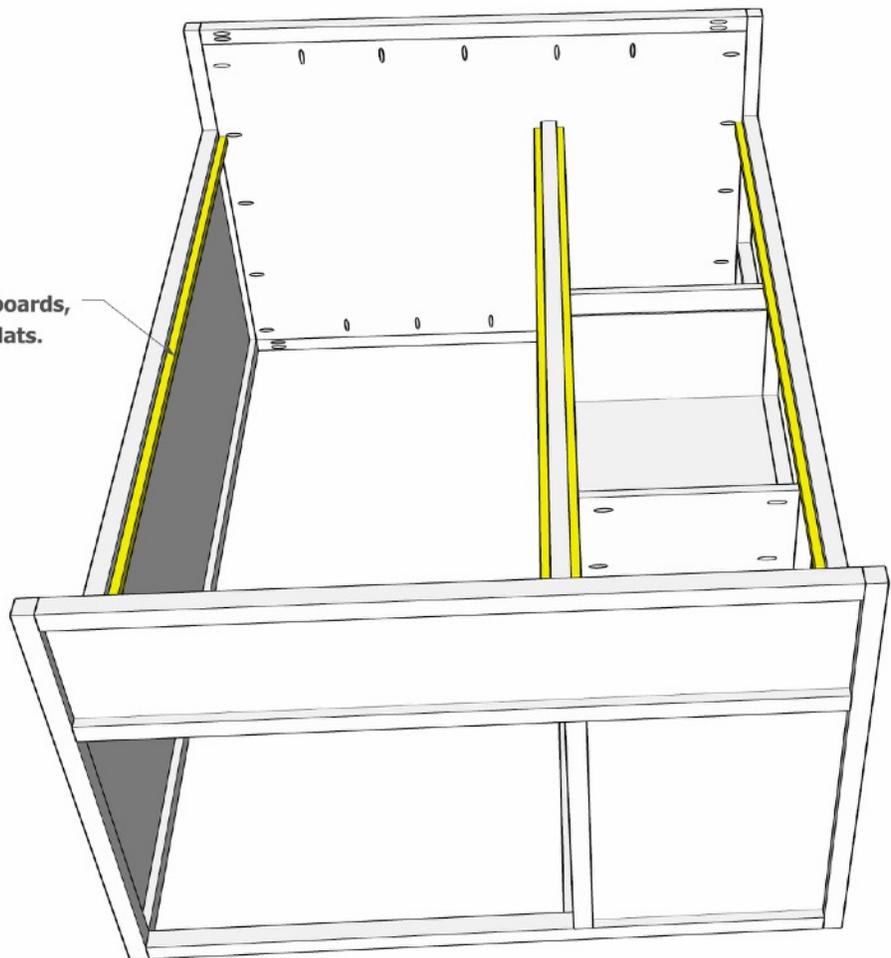
Step Nineteen:

Install the Cleats for the Mattress Slats

Either purchase or rip down $\frac{3}{4}$ " square dowels to make up the cleats that will support the mattress slats. Measure and cut to size (76") and secure in place, $\frac{3}{4}$ " down from the top edge, with $1\frac{1}{4}$ " brad nails. Drill pilot holes and then firmly attach with 2" wood screws.

If installing pegboard inside open compartment of bed, do so at this time. Attach a scrap 1x2 to the top of the plywood panels, just under the top 2x2s. Cut the pegboard to the desired length and width. Attach to the 1x2 and the bottom 2x2 with 1" wood screws and washers. This can be done on both sides of the compartment if desired.

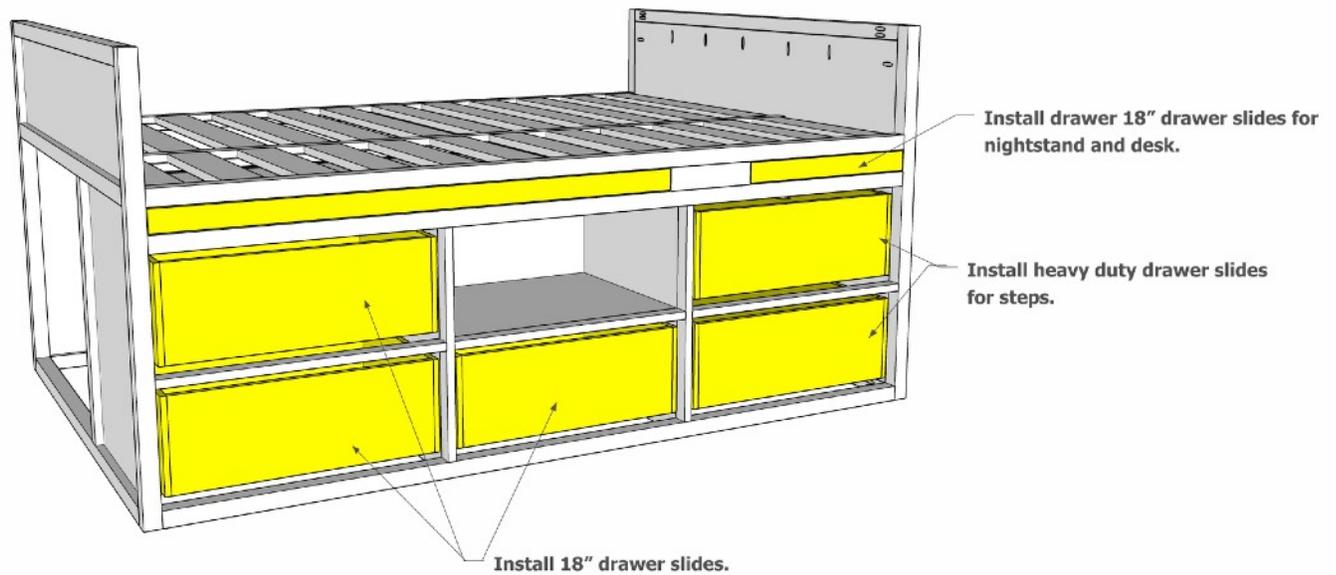
Attach $\frac{3}{4}$ " square cleats to 2x2 boards, $\frac{3}{4}$ " below top to hold mattress slats. Attach with 2" wood screws.



Step Twenty:

Install Drawer Slides

Install all of the drawer slides and drawers. Do this before installing the mattress slats.



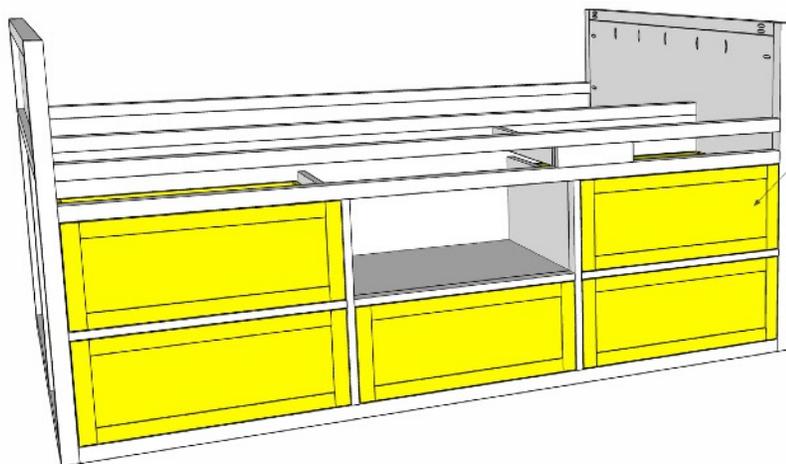
Step Twenty One:

Install Drawer Fronts

To attach the drawer faces, center them with a 1/8" gap around all sides in the drawer opening. Stacked playing cards are a great way to achieve and maintain this gap while attaching.

Hold the drawer face in place, then use a brad nailer and 1" brad nails to nail the drawer fronts on from the inside of the drawer boxes. Drive the nails in at the upper and lower corners of the drawer boxes, making sure the nails are being driven into the 1x2 frames of the drawer faces. The drawers will be fully secured once handles are installed.

Install desired drawer hardware.



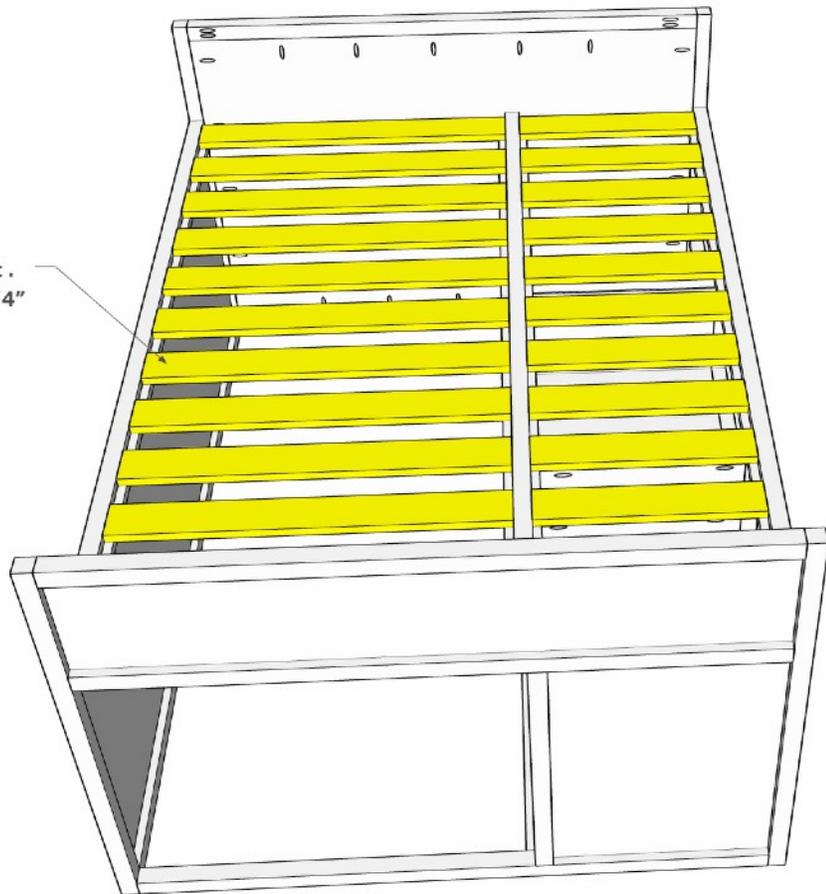
Center drawer faces. Use a brad nailer to nail the drawer faces to the drawer box

Step Twenty Two:

Install the Mattress Slats

Set the mattress slats onto the cleats with approximately 3" spacing. Drill pilot holes through the slats and into the cleats, then attach with 1 1/4" wood screws.

Place mattress slats approx 3" apart .
Drill pilot holes and attach with 1 1/4"
wood screws.



Step Twenty Three:

Install Cabinet Doors

Using either euro hinges or mortised inset hinges, install the cabinet doors. If using inset hinges, a 1x2 board must be nailed next to the face frame of the foot board on the left side. This will create a “frameless” opening which the hinges will be able to attach to. Install the doors so that there is 1/8” spacing around all sides.

Once the doors are installed, add magnetic catches to the top and bottom of the door frames.

Install desired door hardware.

