NAHB
Picnic Table Challenge
Drawings and Instructions

PicnicTable Challenge

- These drawings and assembly instructions are provided as a resource for a hands-on activity for NAHB secondary school student chapters.
- Do not scale the drawings. Follow the dimensions provided.
- The table is designed to be easily accessible.
- The design also acts as a moment frame providing a sufficiently stiff structure without the knee braces found under the table on most picnic table designs

Picnic Table

Component List

NAME	MATERIAL	QUANTITY
Table Top Edge Board	2x6	2
Table Top Interior Board	2x6	3
Seat Board	2x6	4
Table Leg	2x6	4
Seat Leg	2x4 P.T.	8
Horizontal Beam	2x4	4
Seat Support	2x4	8
Table Support	2x4	4
Seat Batten	2x4	2
Table Batten	2x4	2

Other Materials

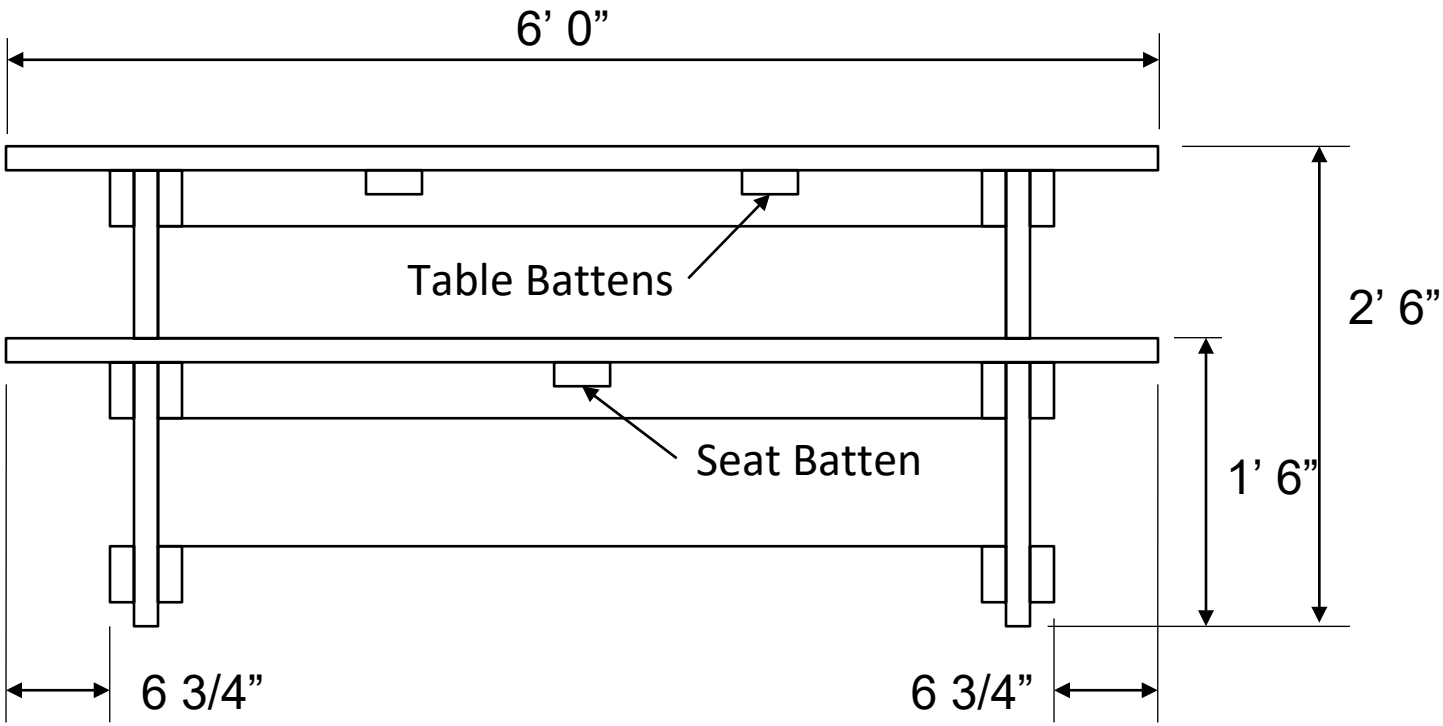
- Use typical, kiln-dried structural lumber for all components except the 8 seat legs that use pressure-treated lumber
- Use 3/8”, Zinc-Plated Bolts, Nuts and Washers
  - See instructions for additional information
- Use 2 ½” Exterior Screws
- All boards should be coated with a water sealer prior to assembly

Tool List

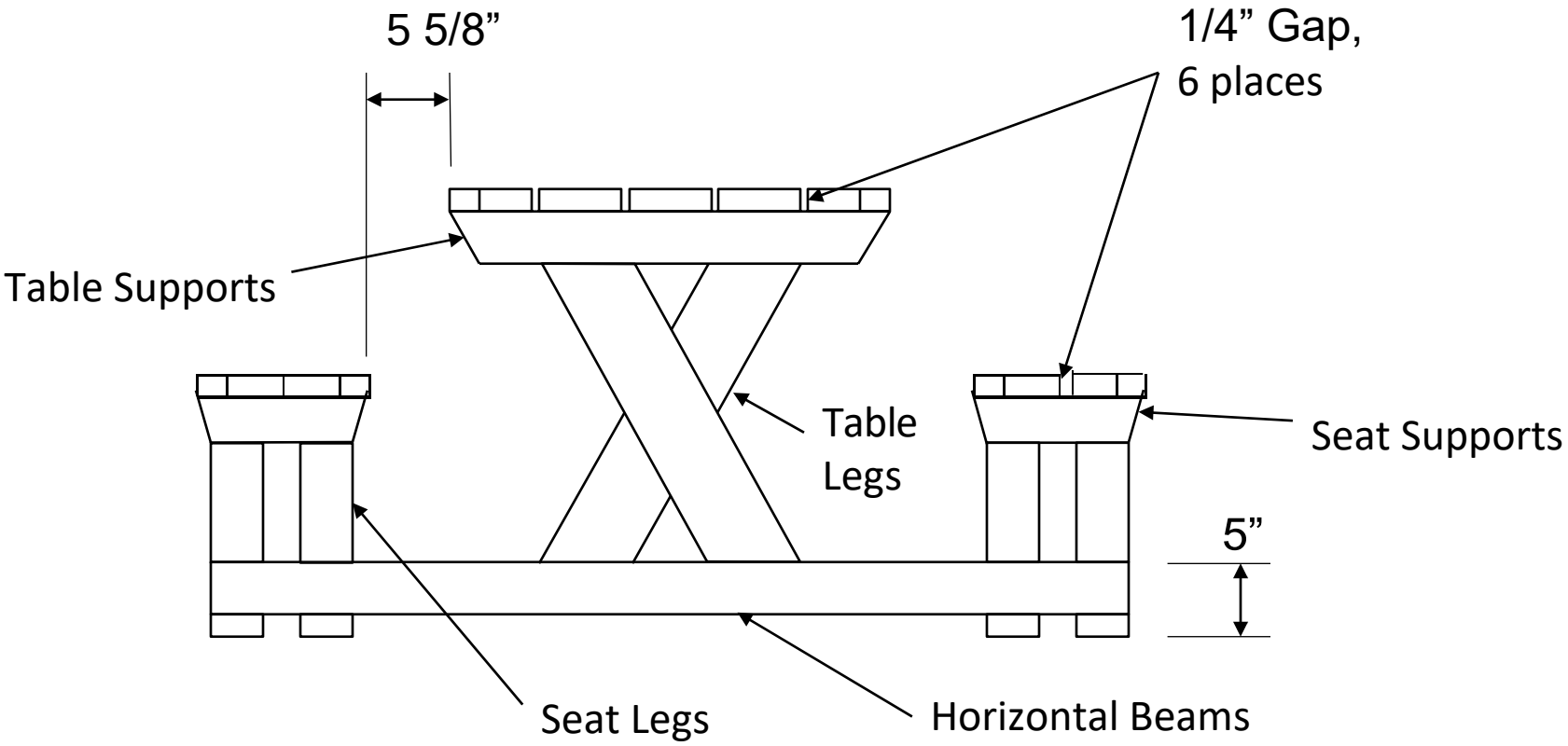
The following tools were used to fabricate the prototype picnic table:

- Miter saw
- Circular saw
- Chisel
- Rubber mallet
- Sander
- Speed square
- Tape measure
- 3/16” drill bit
- 3/8” drill bit
- 6” bar clamps
- 3’ bar clamp
- Carpenter pencil
- Sealer applicator
- Wrenches – 9/16”
- Socket – 9/16”
- Socket adapter
- Screw driver bit
- Cordless screw driver
- Cordless drill
- ¼” spacers

Front View



Side View


5 5/8”
1/4” Gap,
6 places
Table Supports
Table
Legs
Seat Supports
5”
Seat Legs
Horizontal Beams

Top View

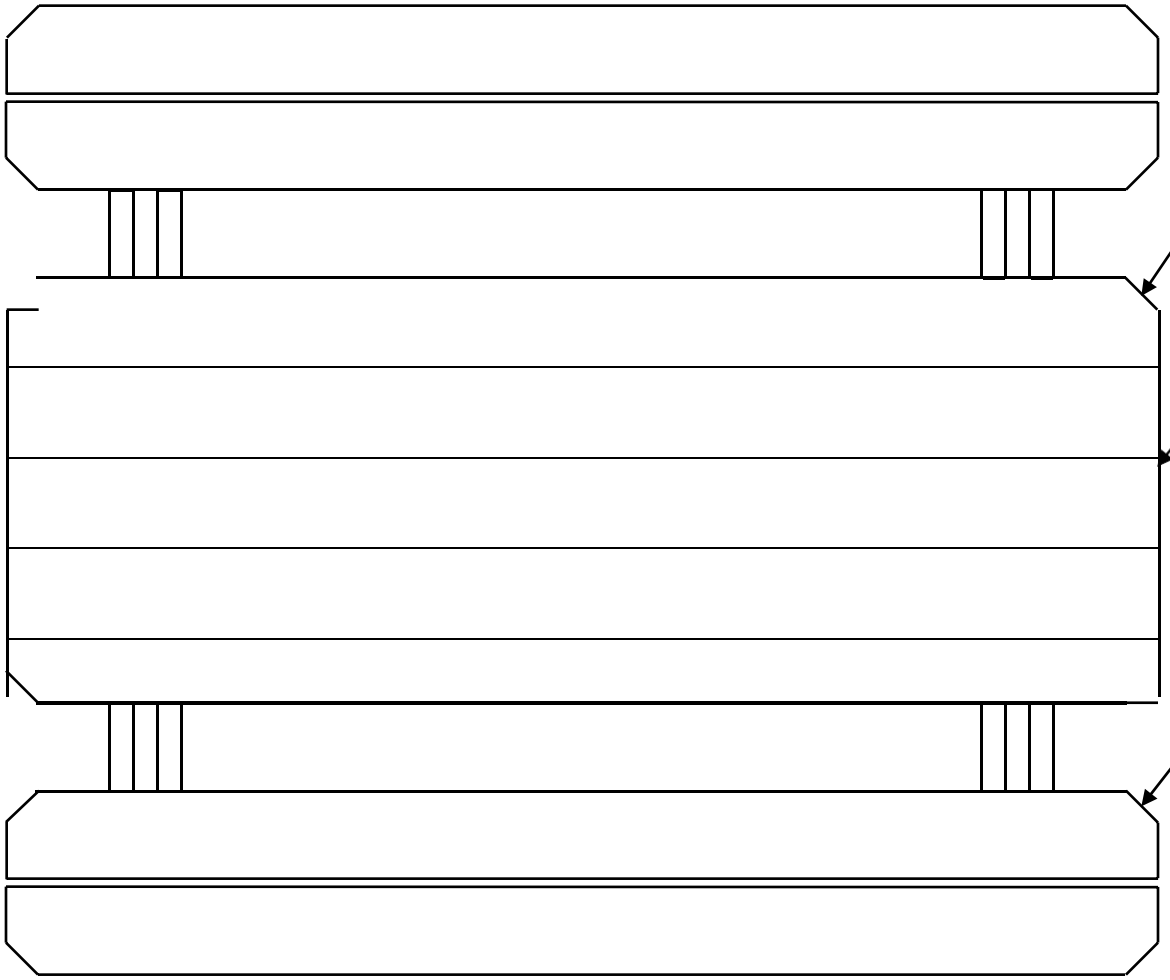
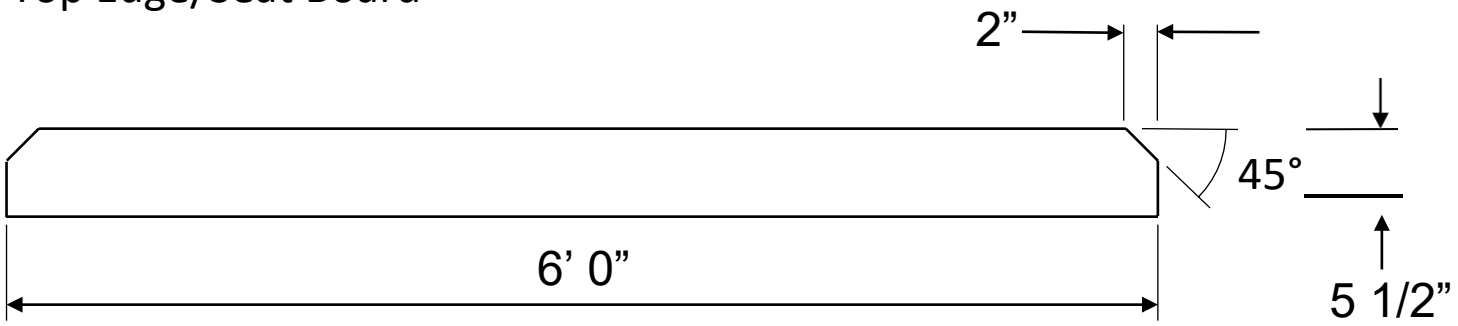


Table Top Edge Boards
Table Top Interior Boards
Seat Boards

Components

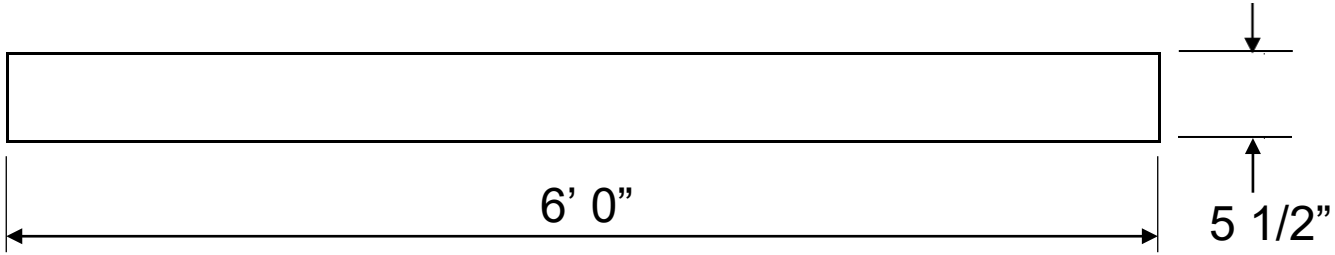
2x6 Table Top Edge/Seat Board

6 ea.



2x6 Table Top Interior Board

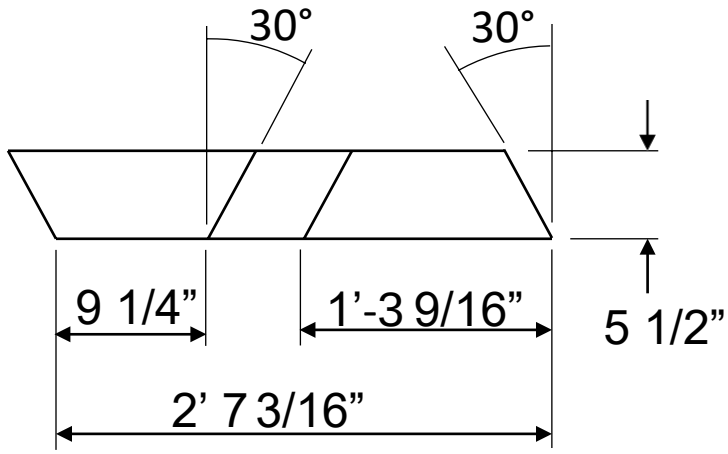
3 ea.



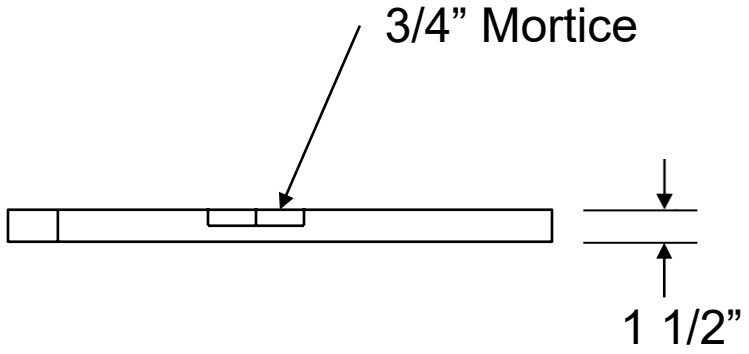
Components

2x6 Table Leg

4 ea.



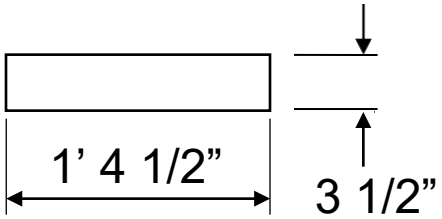
Side View



Components

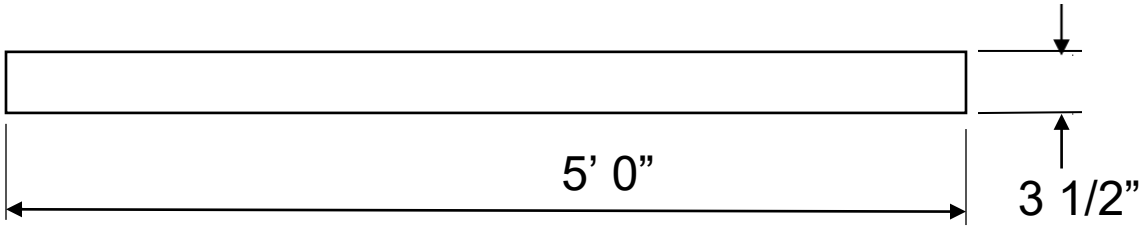
2x4 Pressure-Treated Seat Leg

8 ea.



2x4 Horizontal Beam

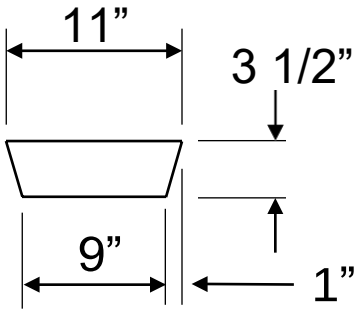
4 ea.



Components

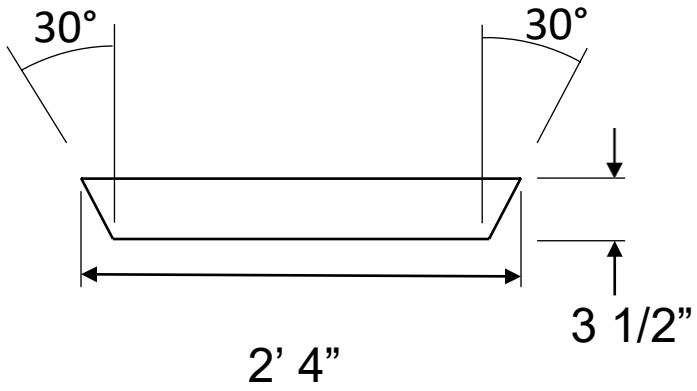
2x4 Seat Support

8 ea.



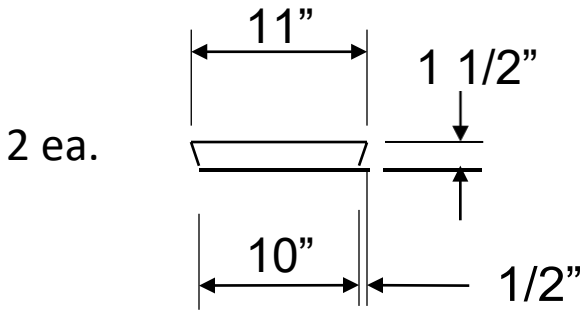
2x4 Table Support

4 ea.

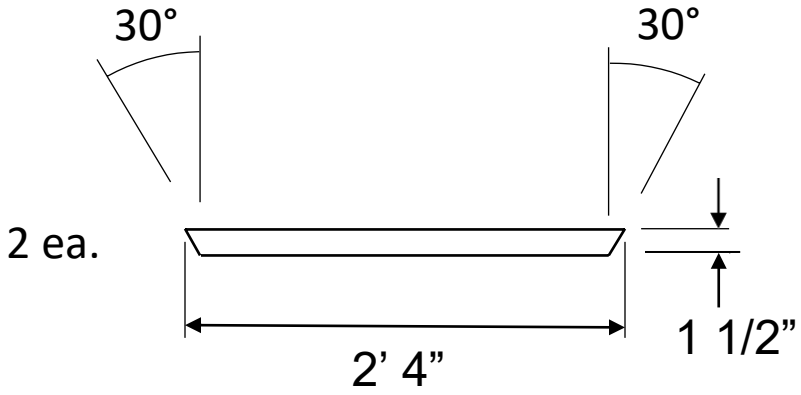


Components

2x4 Seat Batten

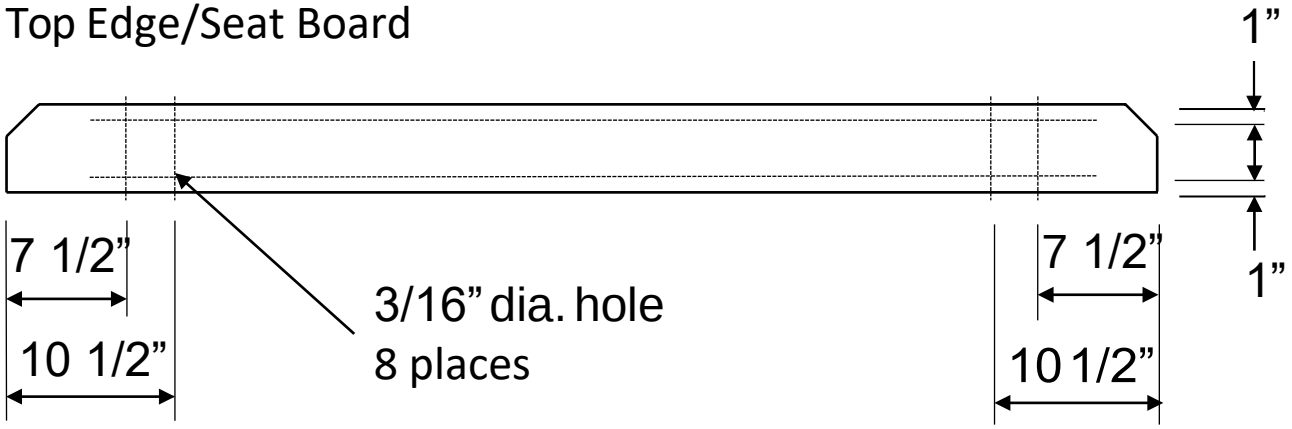


2x4 Table Batten

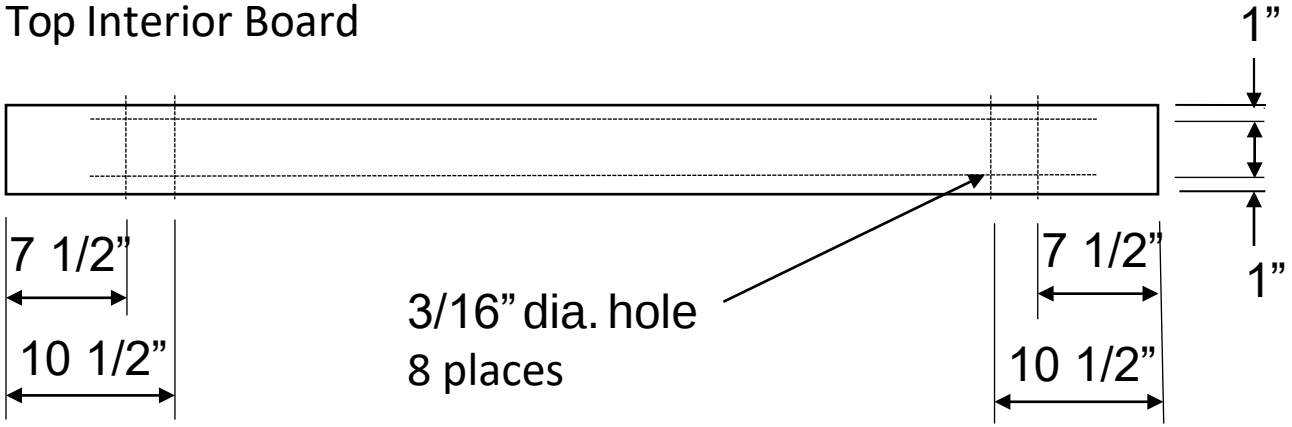


Drilling Plan

2x6 Table Top Edge/Seat Board

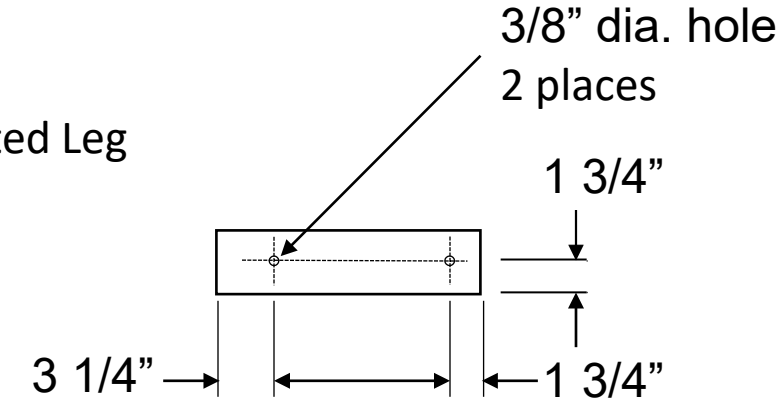


2x6 Table Top Interior Board

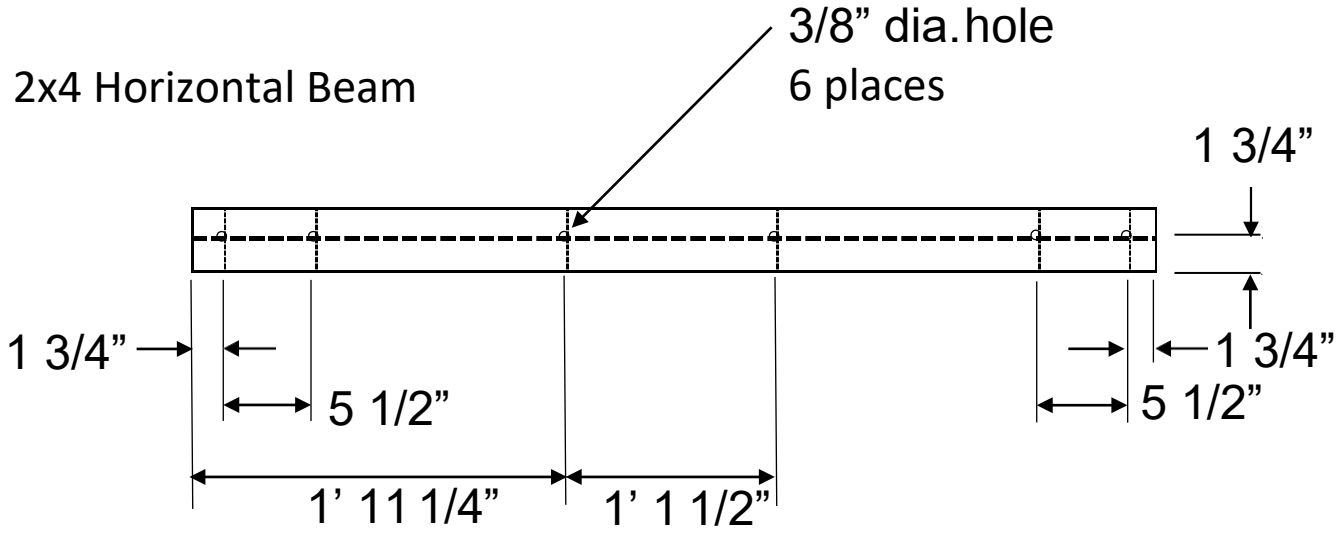


Drilling Plan

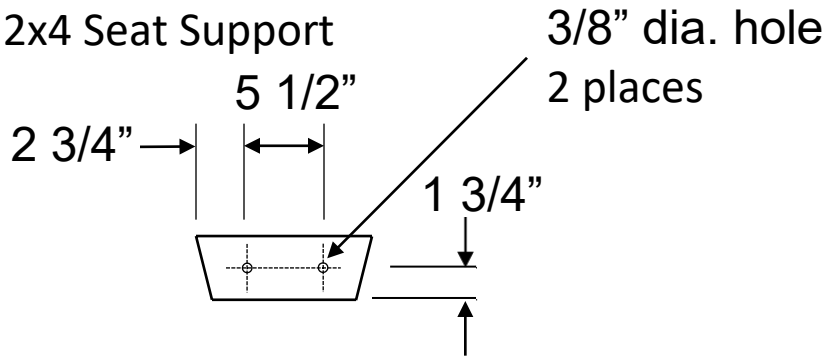
2x4 Pressure-Treated Leg

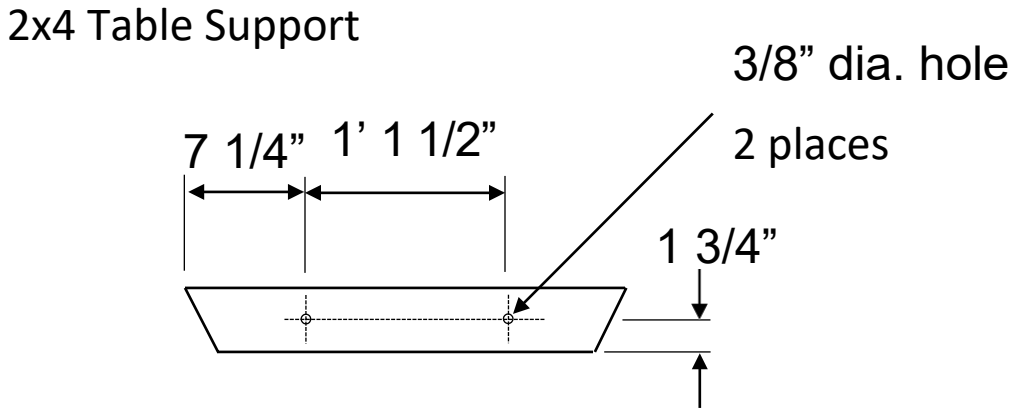


2x4 Horizontal Beam



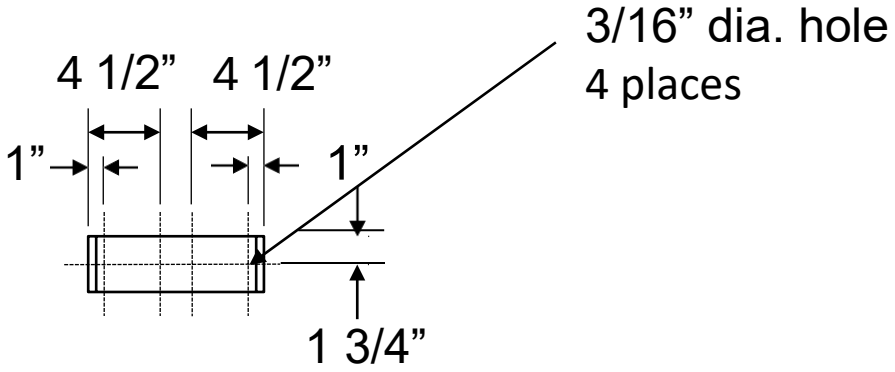
Drilling Plan





Drilling Plan

2x4 Seat Batten



2x4 Table Batten

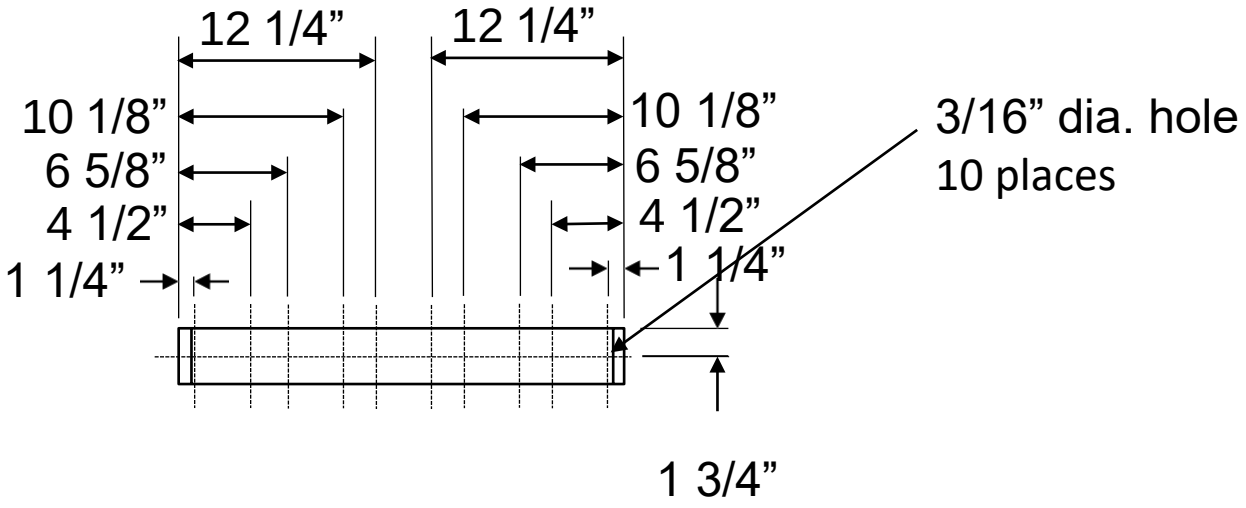


Table Leg Assembly

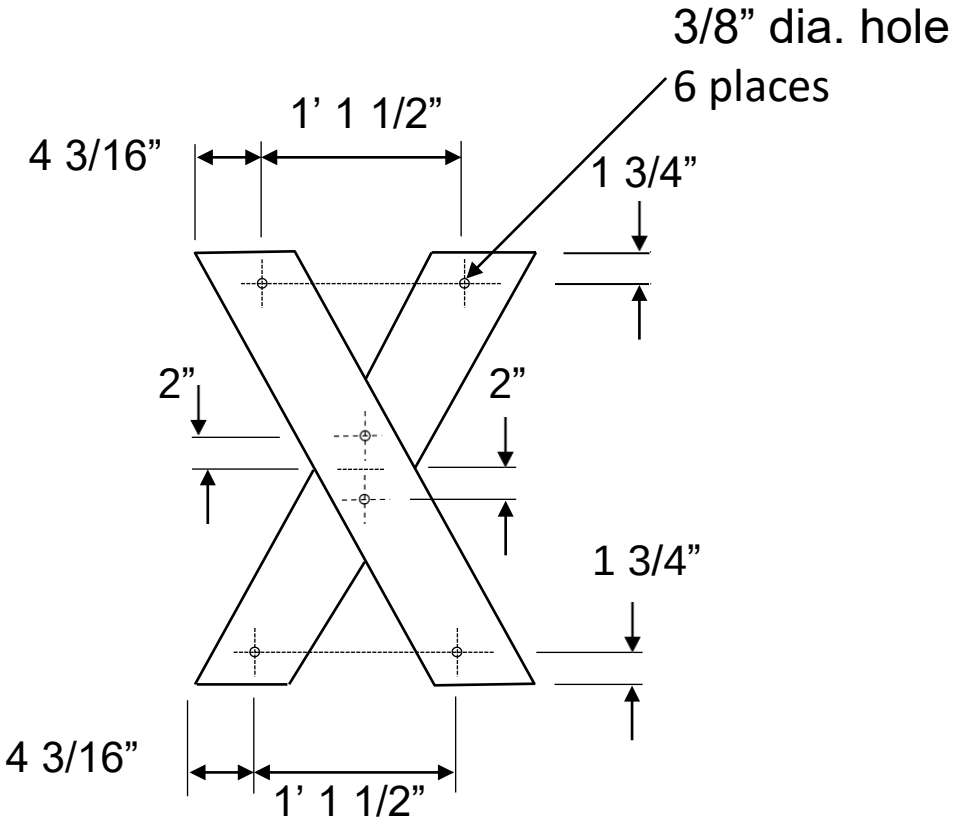
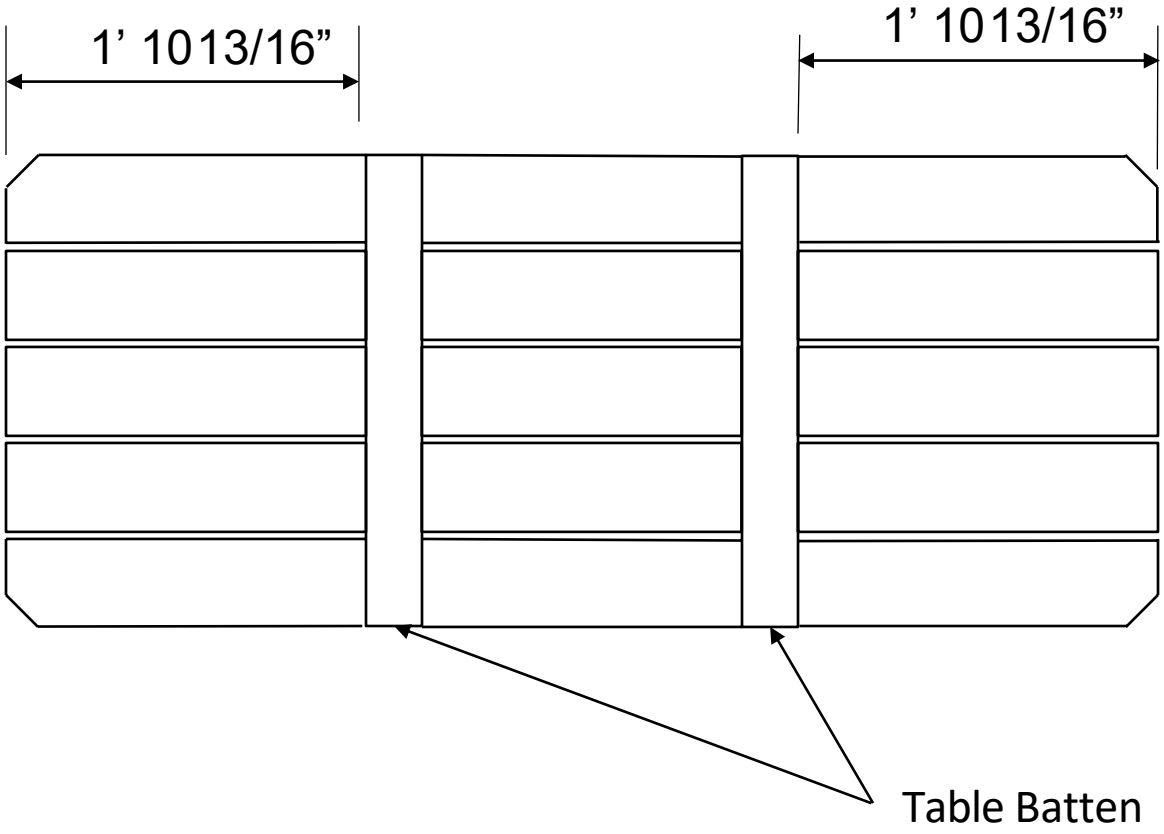
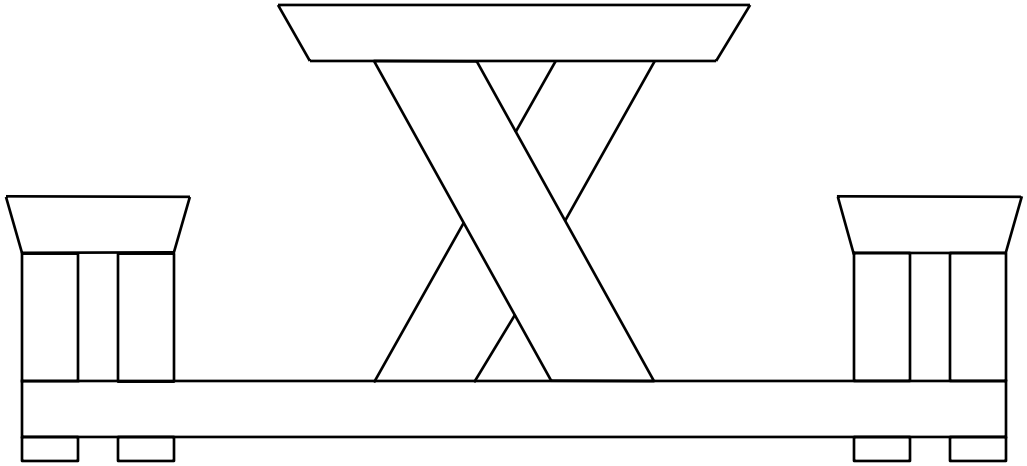


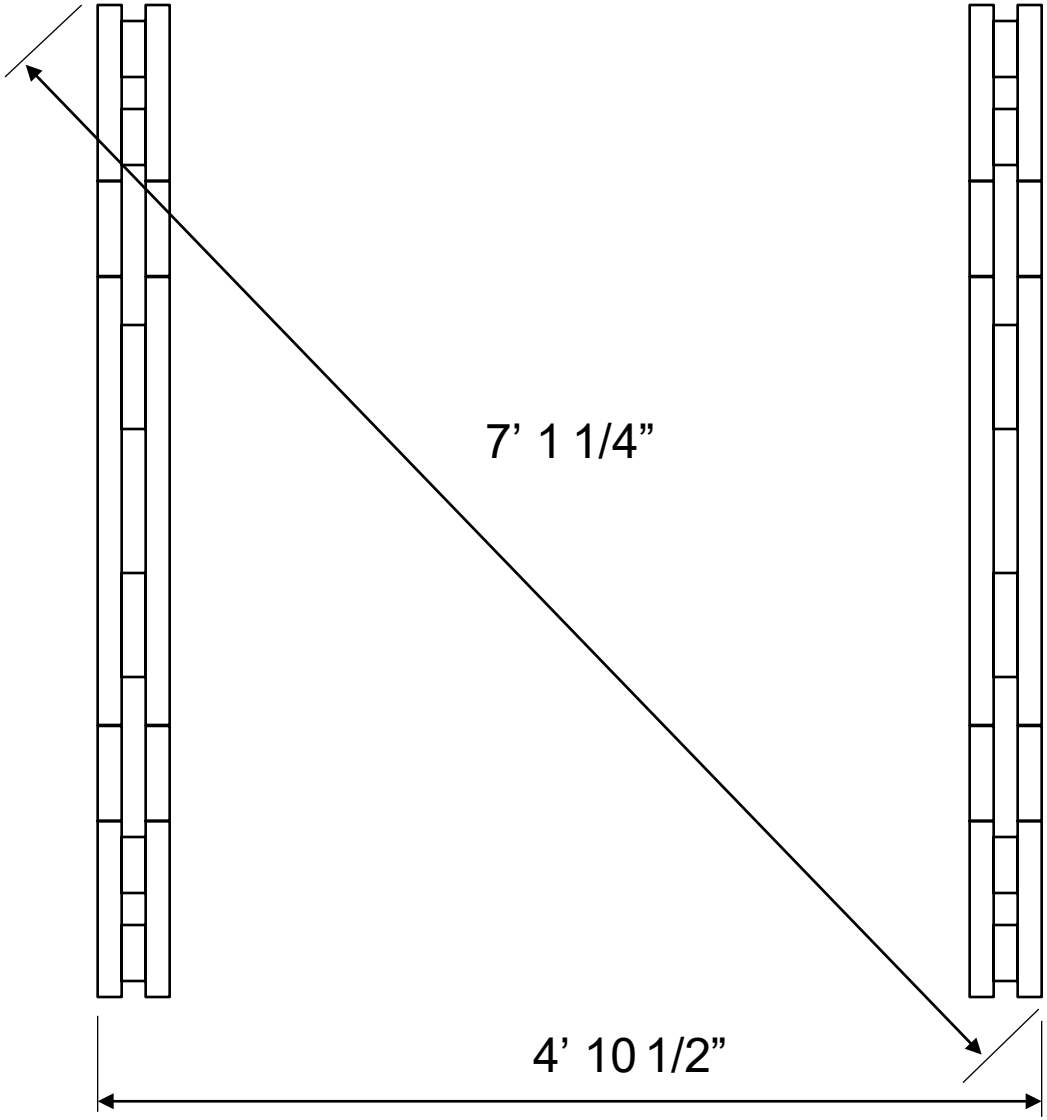
Table Top Assembly (Viewed from the bottom)



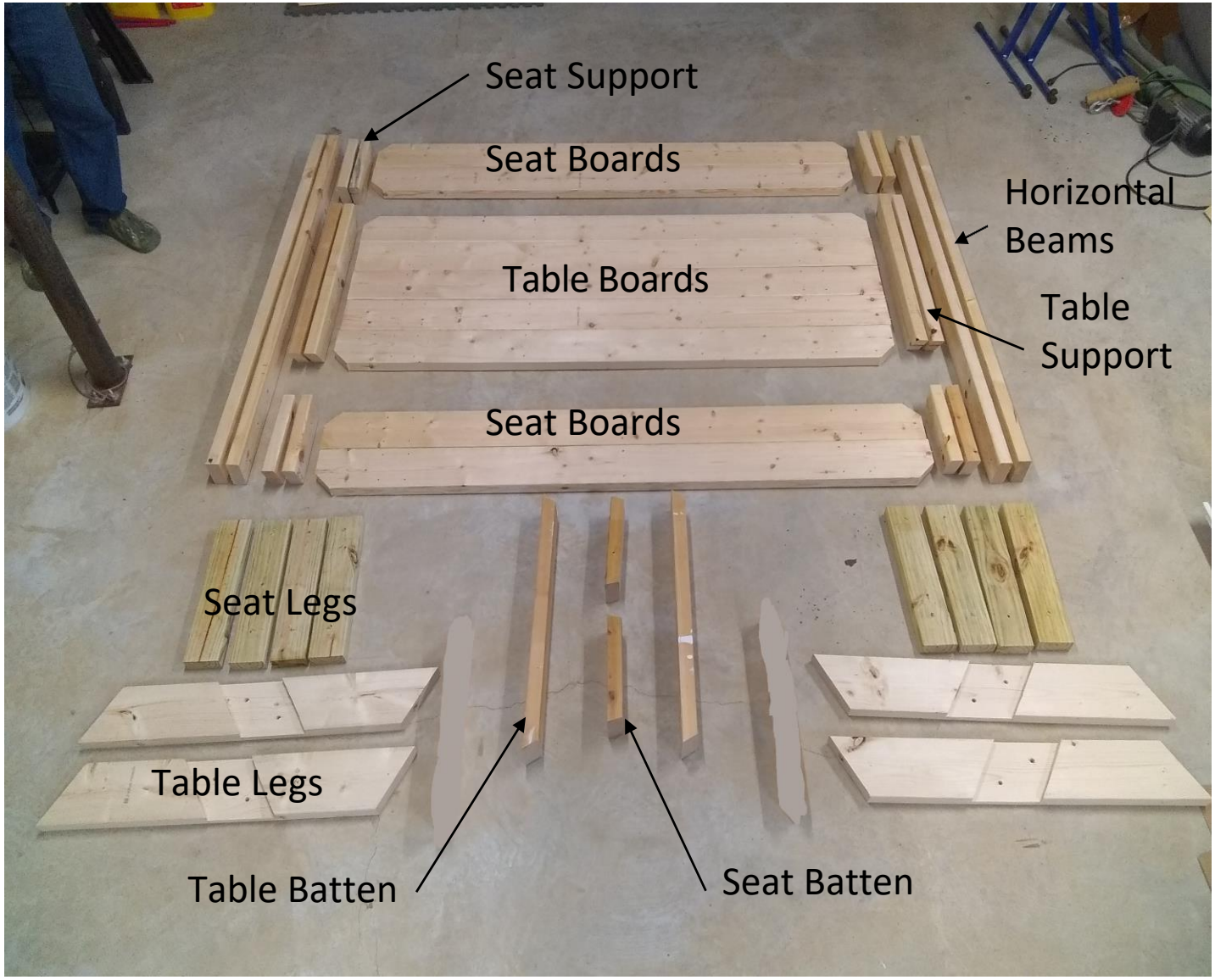
Support Assembly



Squaring Dimensions



Step 1: Fabricate Components



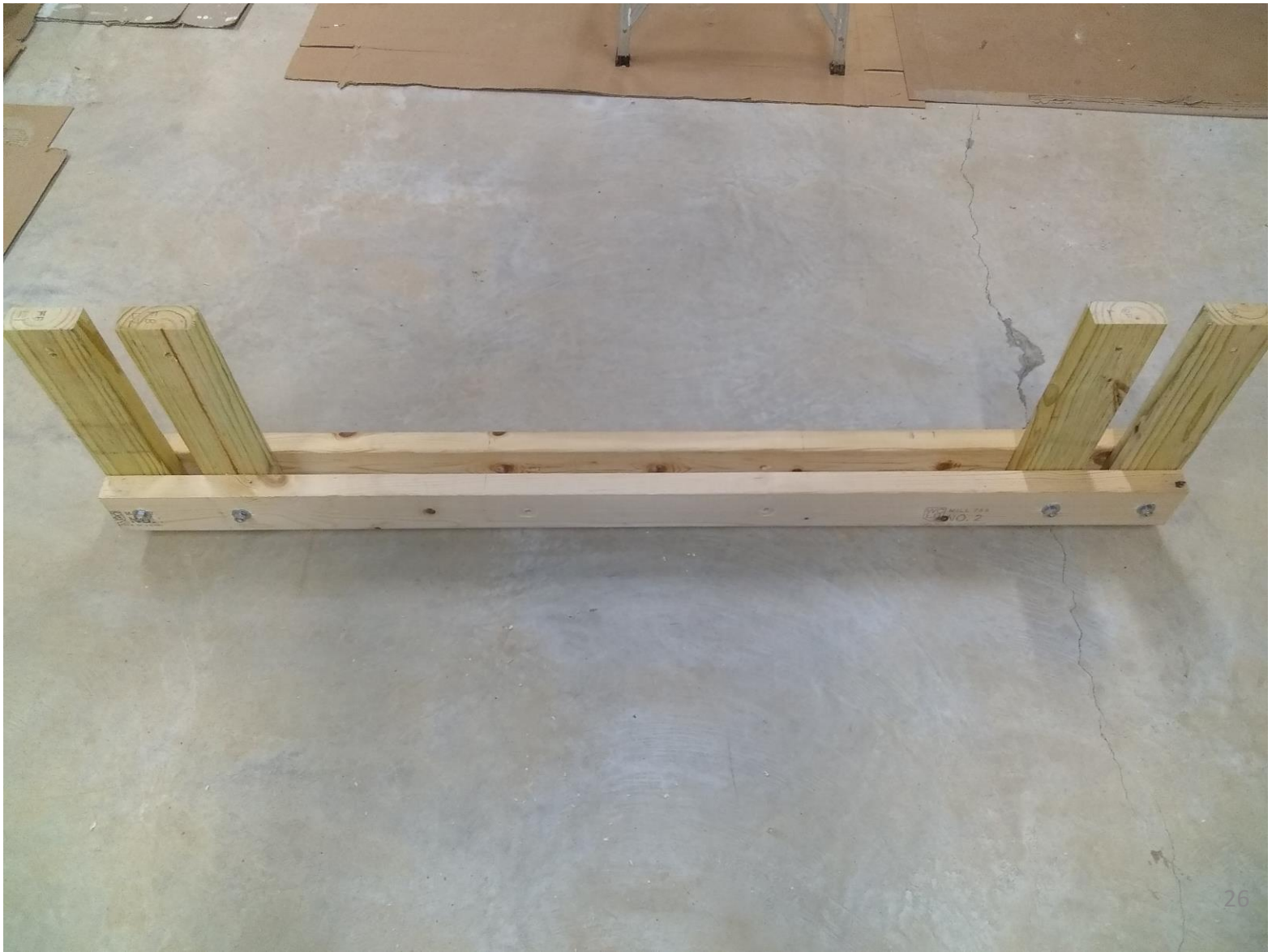
Step 2: Sand and Seal Components

The top surface and edges of all Seat Boards and Table Boards are to be sanded to a smooth finish and to minimize the likelihood of splinters. A protective coating must be applied to all surfaces in accordance with manufacturers instructions prior to assembly.

Step 3: Attach Seat Legs to Horizontal Beams

Use 4 – 3/8” x 5” bolts to attach 2 Horizontal Beams to 4 Seat Legs. You may rest the beams on 2x4 pieces to assist in alignment. Place a washer on both sides of the bolted connection. Do not fully tighten the bolts at this time.

Step 3: Attach Seat Legs to Horizontal Beams



Step 4: Attach Seat Supports to Seat Legs

Use 4 – 3/8” x 5” bolts to attach 2 Seat Supports to each pair of Seat Legs. Ensure that the legs are perpendicular to the beams and supports. Tighten all bolts through the Seat Legs at this time. Hand tighten so that the end of the bolt is flush with the edge of each nut. Do not overtighten and crush the wood.

Step 5: Assemble Table Legs

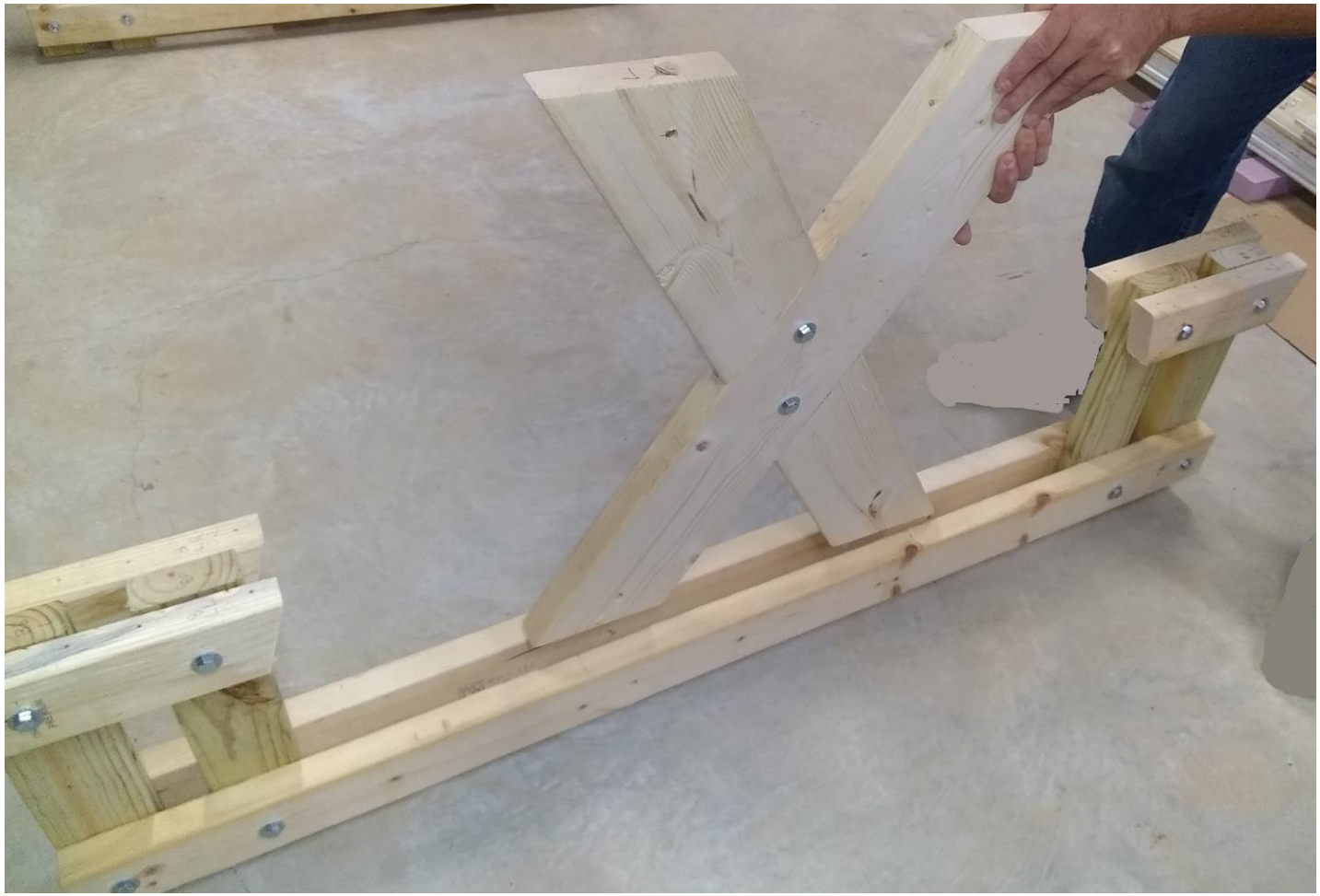
Assemble a pair of morticed Table Legs into an "X" configuration. Match drill two holes as shown in the Table Leg Assembly drawing and attach using 2 – 3/8" x 2" bolts.

Step 6: Locate and Drill Holes in Assembled Table Legs

In order to ensure proper fit, the holes at the top and bottom of the Table Leg Assembly should be drilled after assembly. The 1’ 1 1/2” distance between the holes should be measured carefully to match the spacing shown for the Horizontal Beams and Table Supports.

Step 7: Attach Table Legs to Horizontal Beams

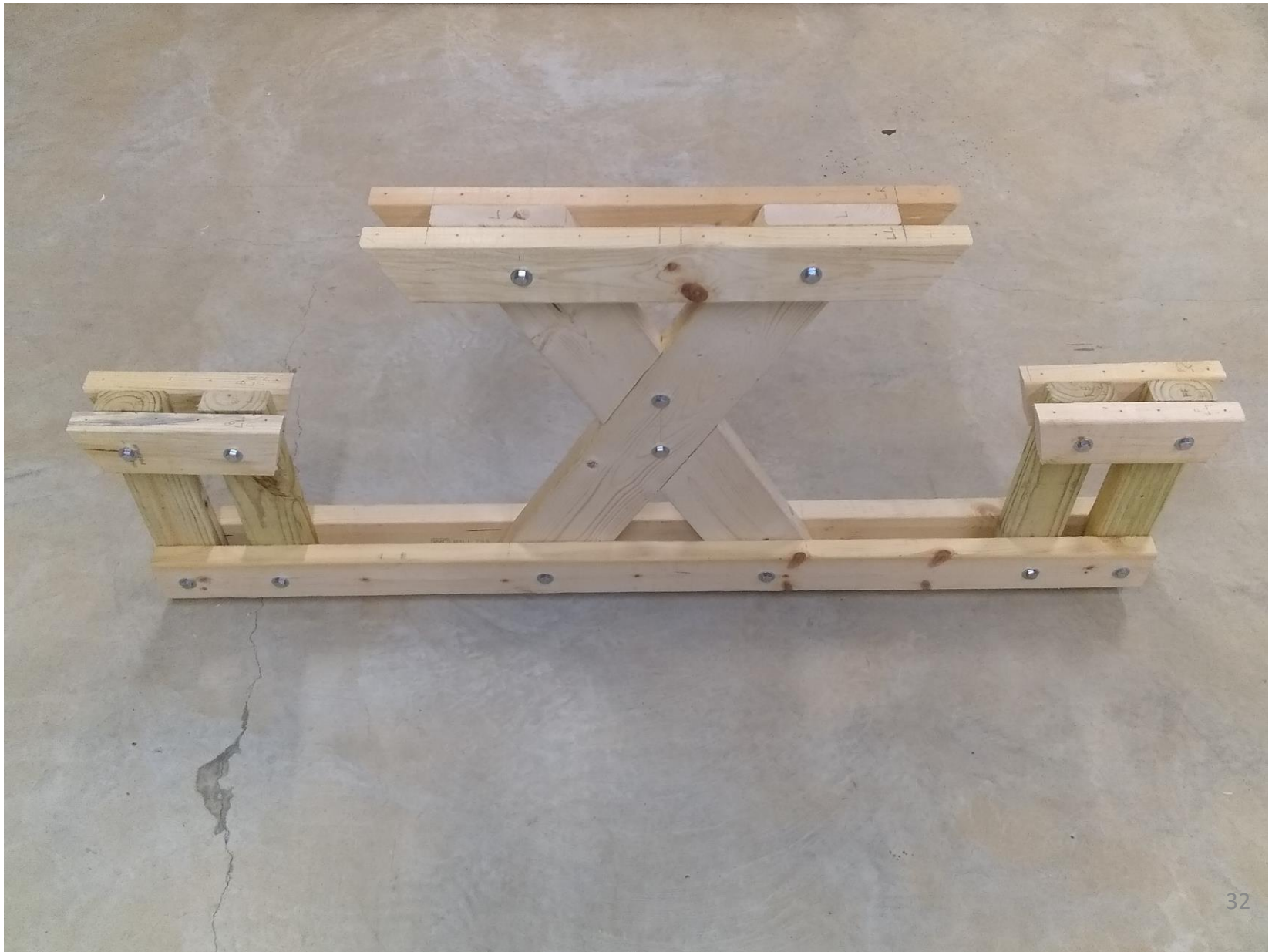
Place assembled table leg between horizontal beams and attach using 2 – 3/8”x5” bolts.



Step 8: Attach Table Support to Table Legs

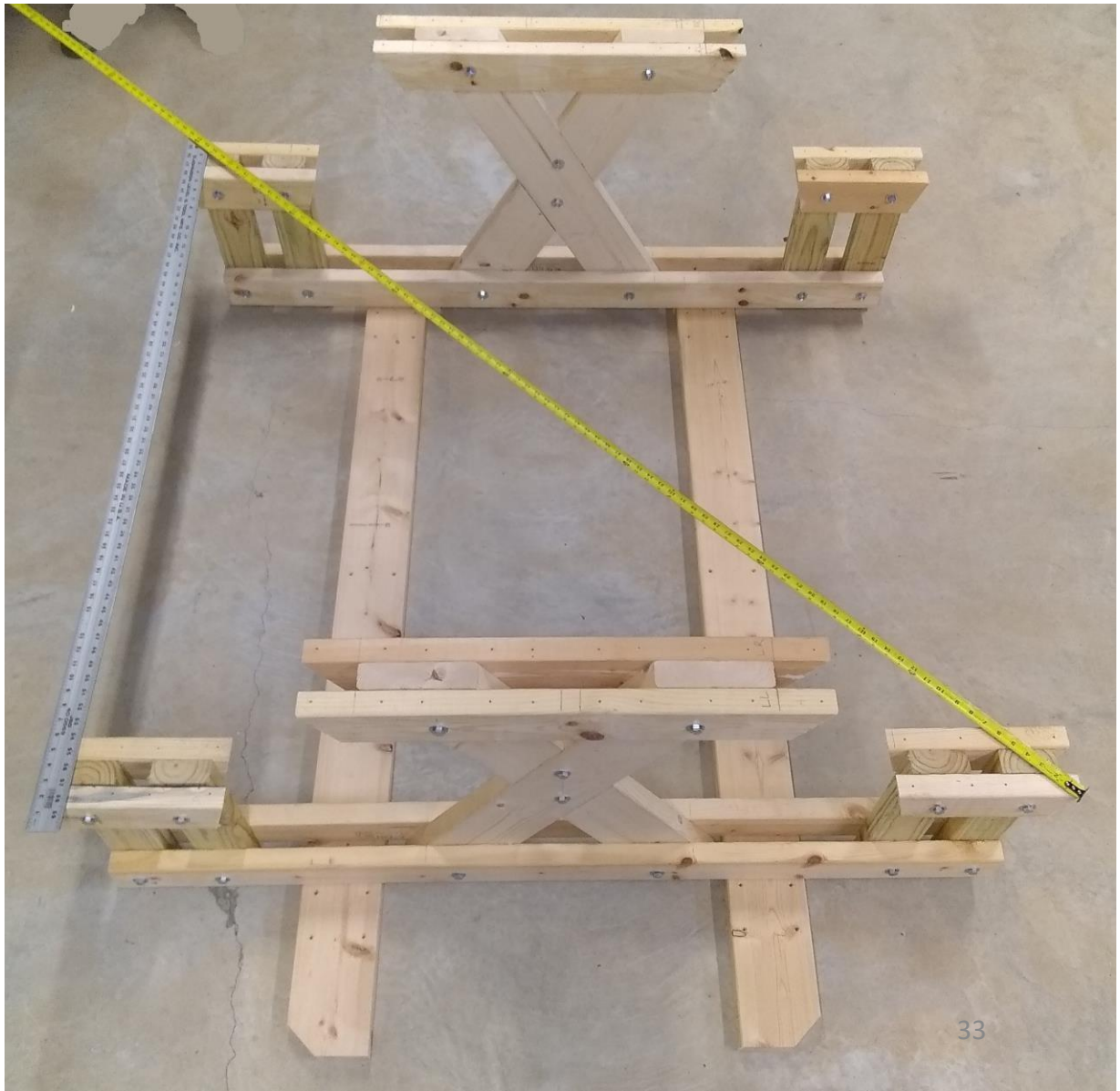
Attach two Table Supports to the Table Legs as shown using 2 – 3/8”x5” bolts.

Step 9: Repeat Steps 3 – 8 for the other Support Assembly



Step 10: Align the Support Assemblies

The two Support Assemblies must be properly aligned to ensure that they are square before attaching the Seat and Table Boards. It is helpful to rest them temporarily on two Table Boards as shown to minimize rocking. Adjust the position and alignment to match, as closely as possible, the squaring dimensions shown in the drawings.



Step 11: Assemble the Seat Boards

Place two Seat Boards side-by-side with the top down. Place ¼" spacers between the boards and clamp them together ensuring that the ends of the boards are aligned. Locate the Seat Batten with the longer side down, centered on the span and the two boards. Connect the Seat Batten using 4 – 2 ½" screws.

Step 12: Attach the Seat Boards

Place a spacer between the Seat Boards near each end to enforce the ¼" gap between the boards. Align the assembled seats on the Support Assemblies. The distance from the outer Seat Support and the end of the Seat Board should be the same on each end. Connect using 16 – 2½" screws for each seat.

Step 13: Align the Table Boards

Place five Table Boards side-by-side with the top down. Place ¼" spacers between the boards. Ensure that the ends of the boards are aligned. A spare board was used as shown in the picture to check the alignment. Clamp the boards together.

Step 14: Assemble the Table Boards

Place the Table Battens with the longer side down at the locations shown in the drawings. Connect the Table Battens using 10 – 2 ½” screws each.

Step 15: Attach the Table Boards

Place a spacer between the Table Boards near each end to enforce the ¼” gap between the boards. Align the assembled table top on the Support Assemblies. The distance from the outer Table Support and the end of the Table Boards should be uniform and the same on each end. Connect using 40 – 2 ½” screws.