

# BOAT BENCH

**Use:** Architecture Folly/Public Bench

**Count:** 1

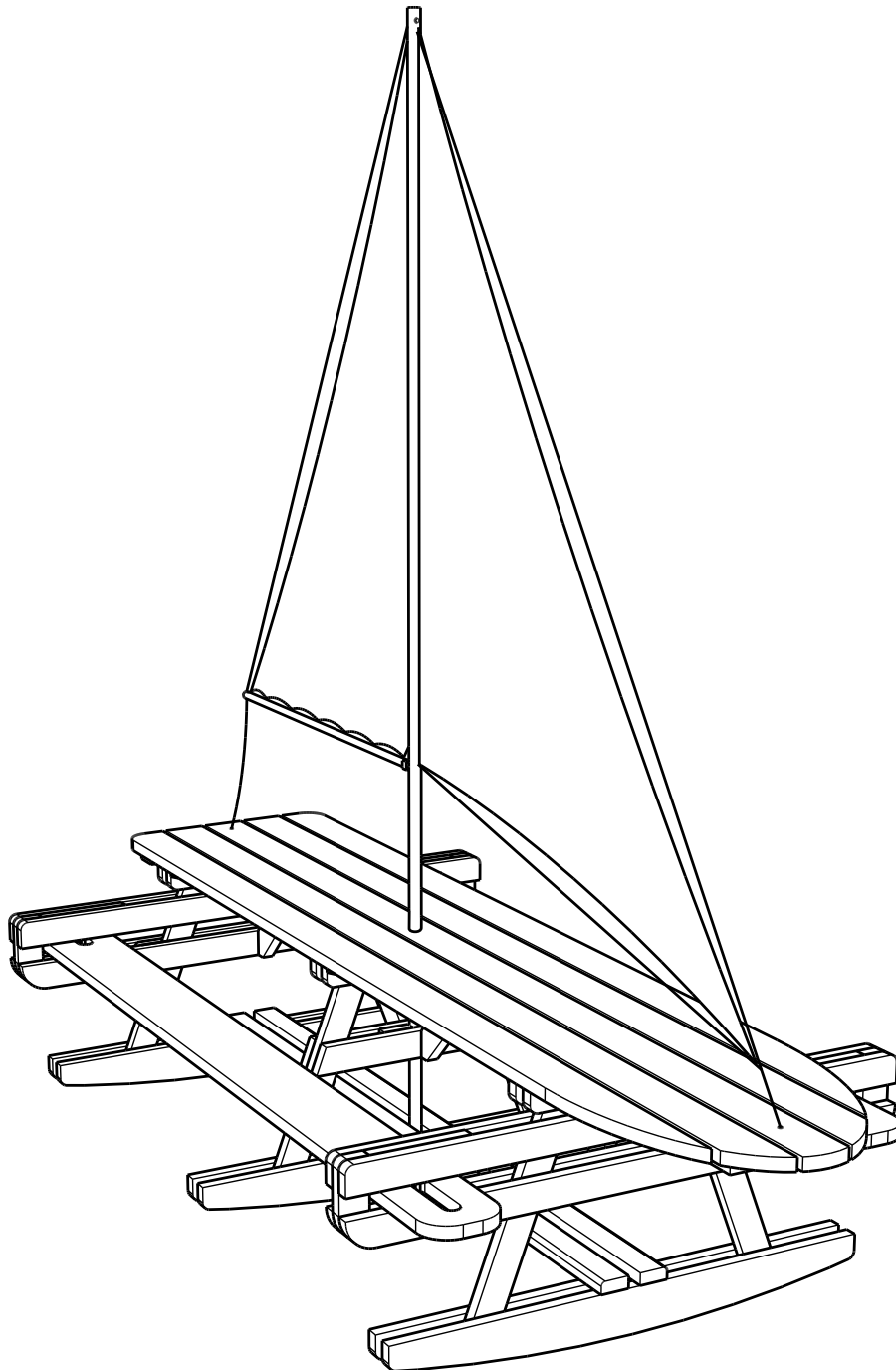
**Materials + Directions:**

2x4 pressure treated lumber

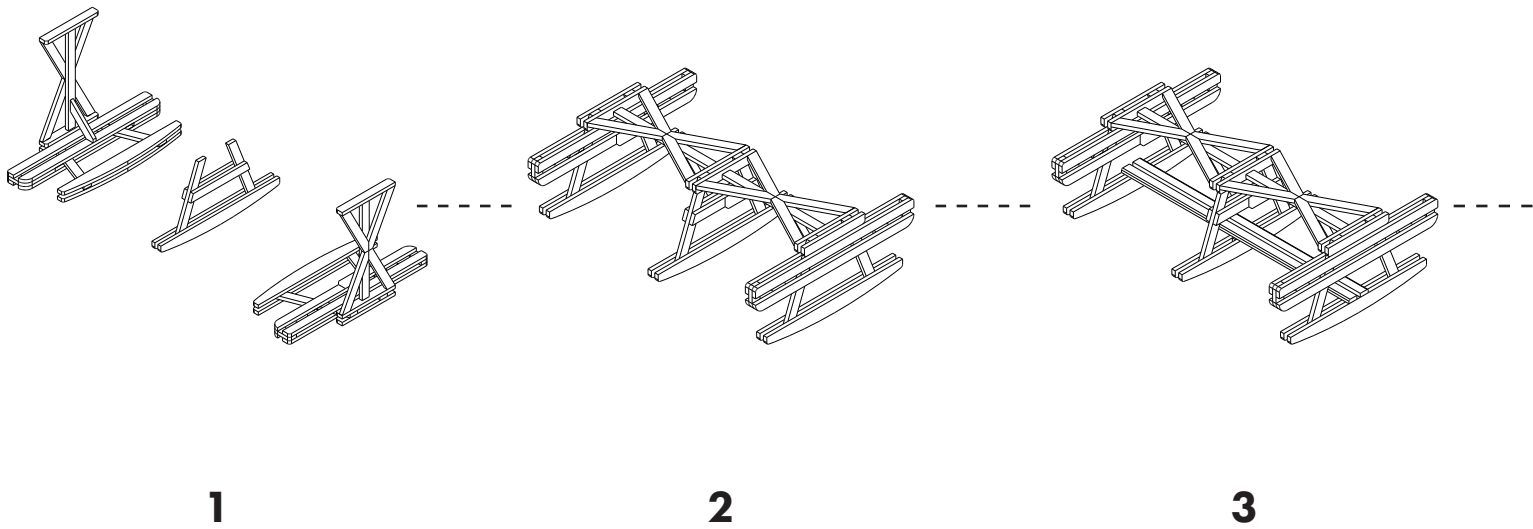
2x6 pressure treated lumber

2x10 pressure treated lumber

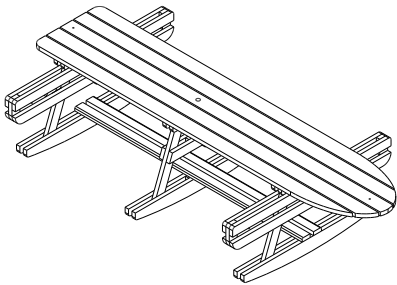
1 paint color (blue)



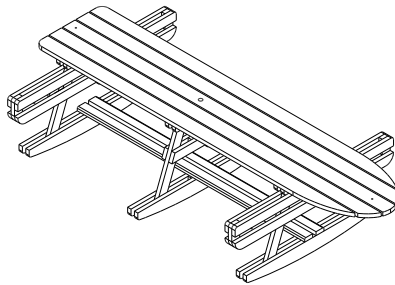
# ASSEMBLY



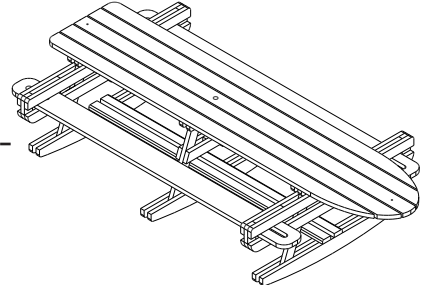
# ASSEMBLY



**4**

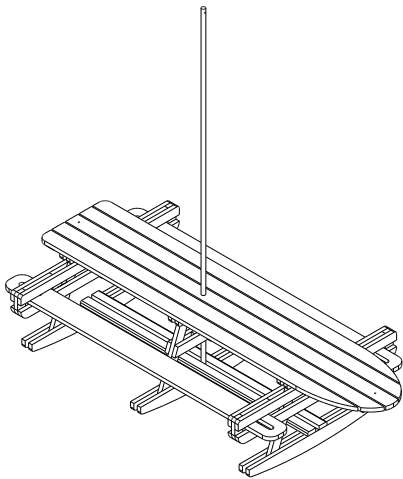


**5**

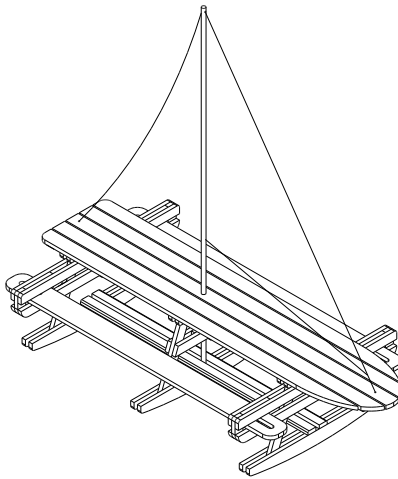


**6**

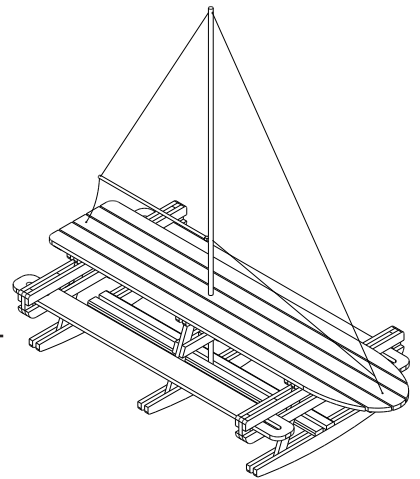
# ASSEMBLY



**7**

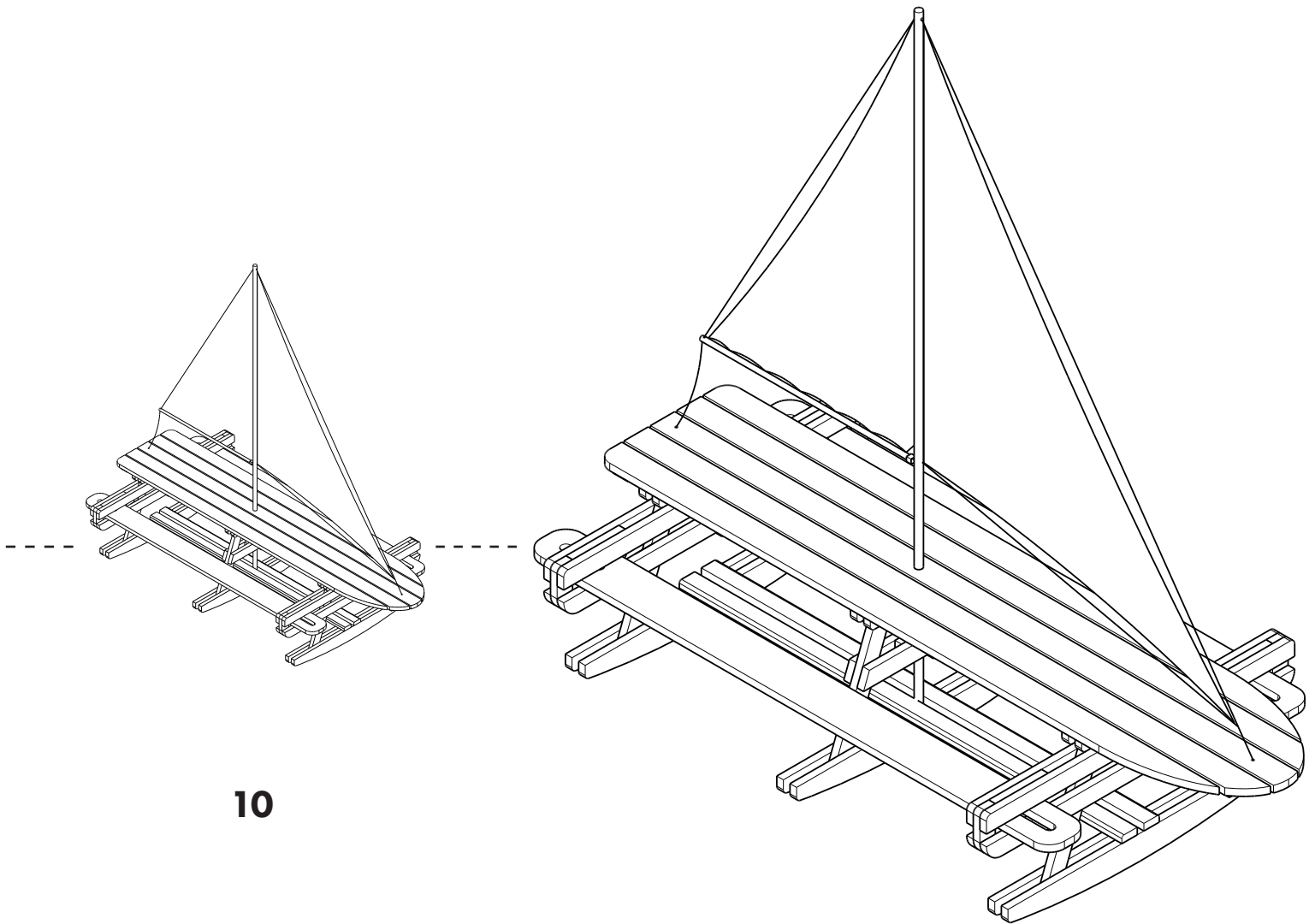


**8**



**9**

# ASSEMBLY



10

# ASSEMBLY

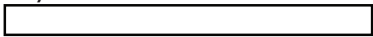
# BLOCK X

Use: Sub-Table Structure

Count: 2

Piece E:

Qty: 1



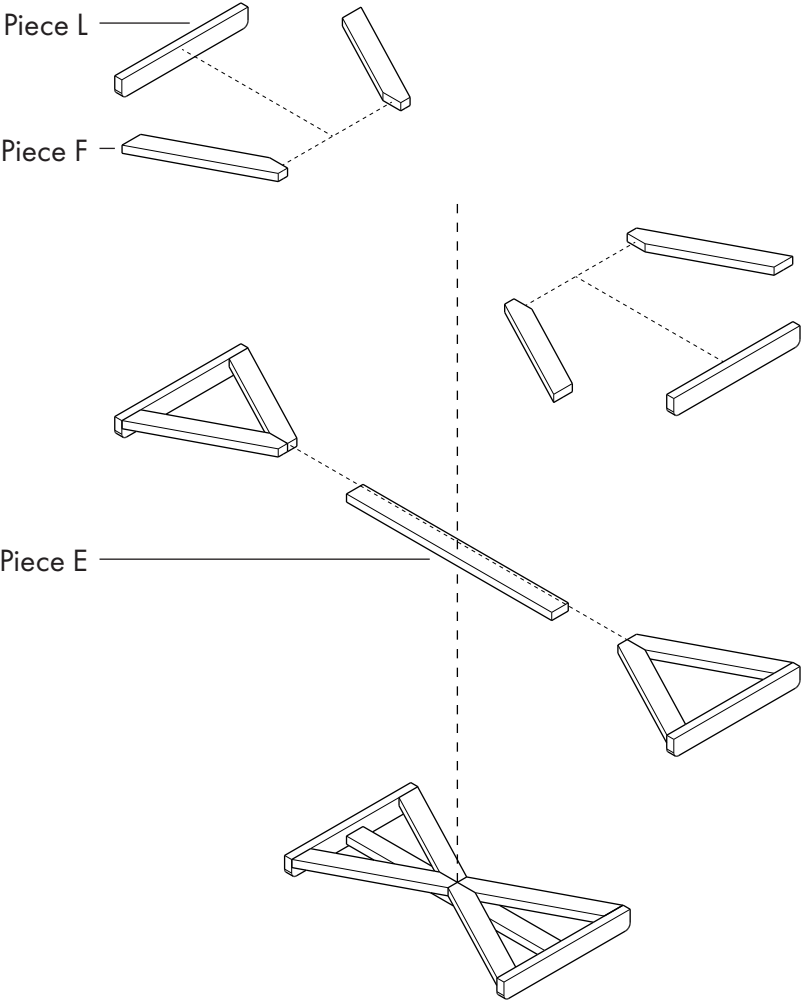
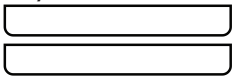
Piece F:

Qty: 4



Piece L:

Qty: 2



# ASSEMBLY

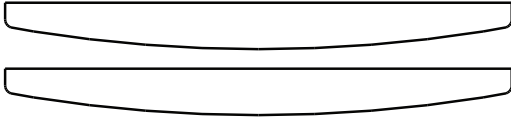
## BLOCK Y

**Use:** End Bench Legs

**Count:** 2

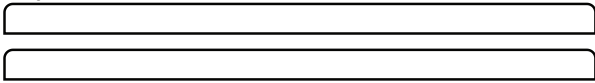
### Piece H:

Qty: 2



### Piece I:

Qty: 2



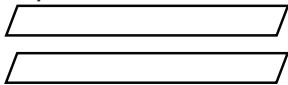
### Piece J:

Qty: 2



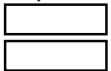
### Piece K:

Qty: 2



### Piece N:

Qty: 2

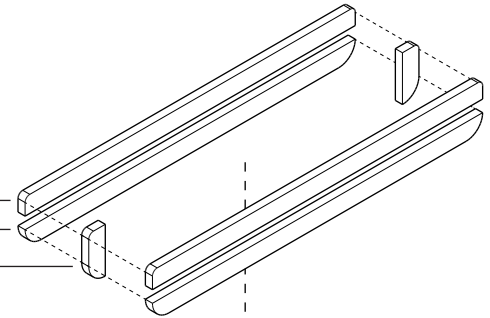


### Piece O:

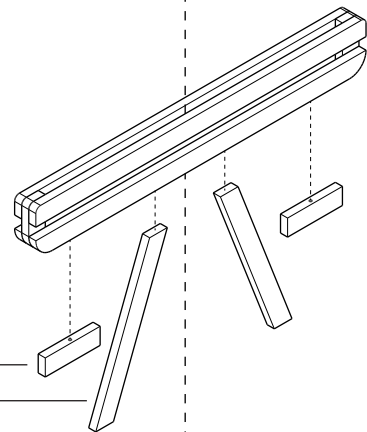
Qty: 2



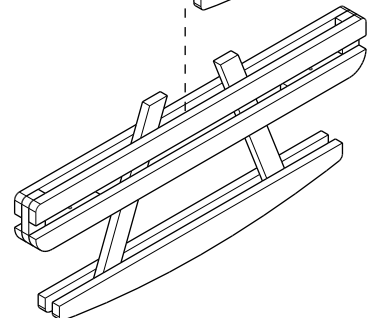
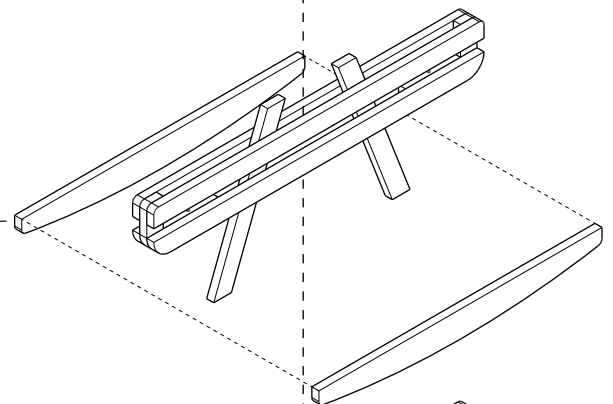
Piece I  
Piece J  
Piece O



Piece N  
Piece K



Piece H



# ASSEMBLY

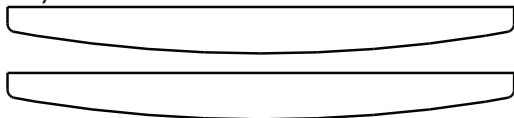
## BLOCK Z

**Use:** Middle Bench Structure

**Count:** 1

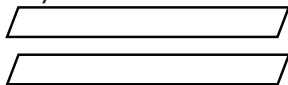
### Piece H:

Qty: 2



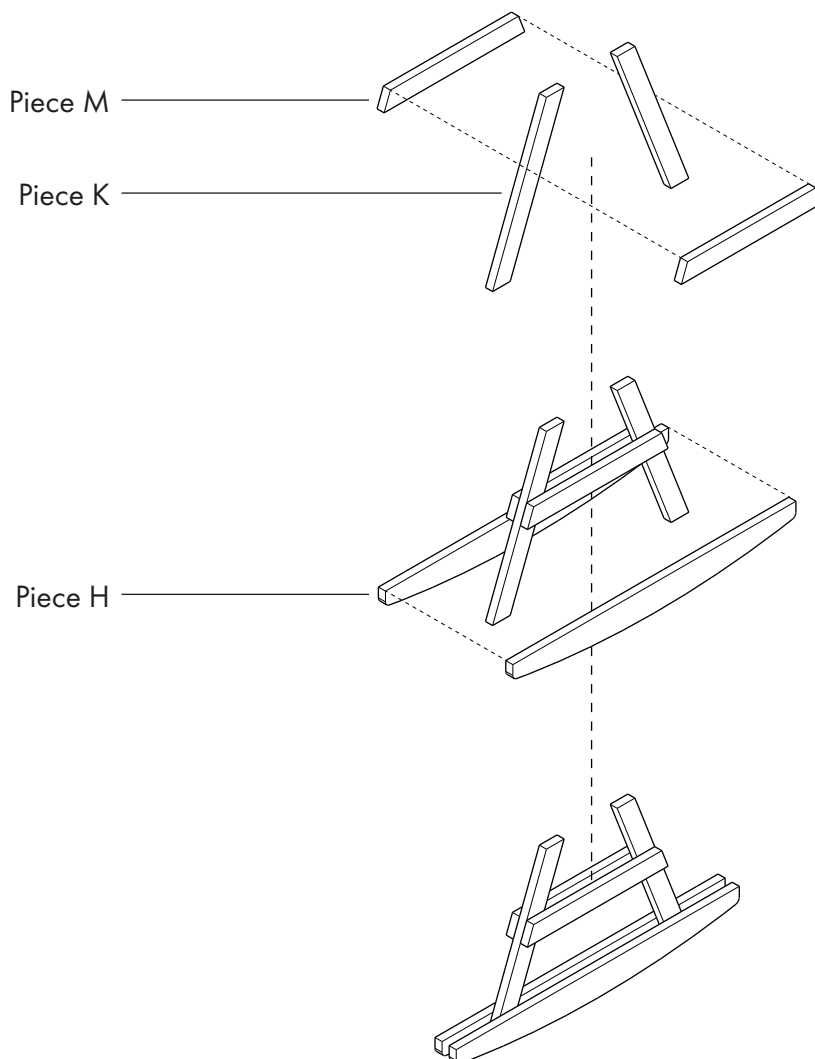
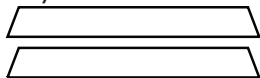
### Piece K:

Qty: 2



### Piece M:

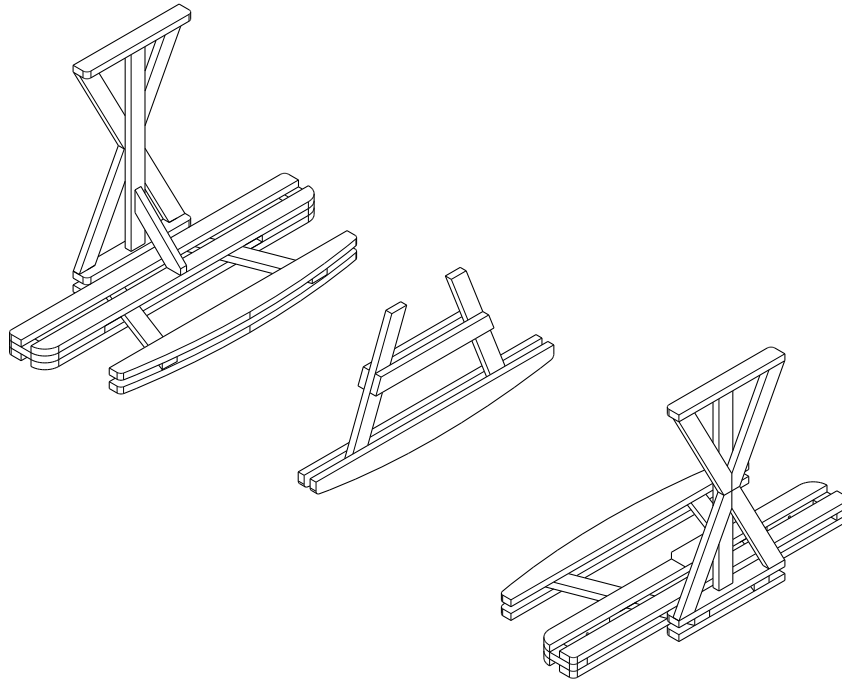
Qty: 2





# ASSEMBLY

## STEP 1

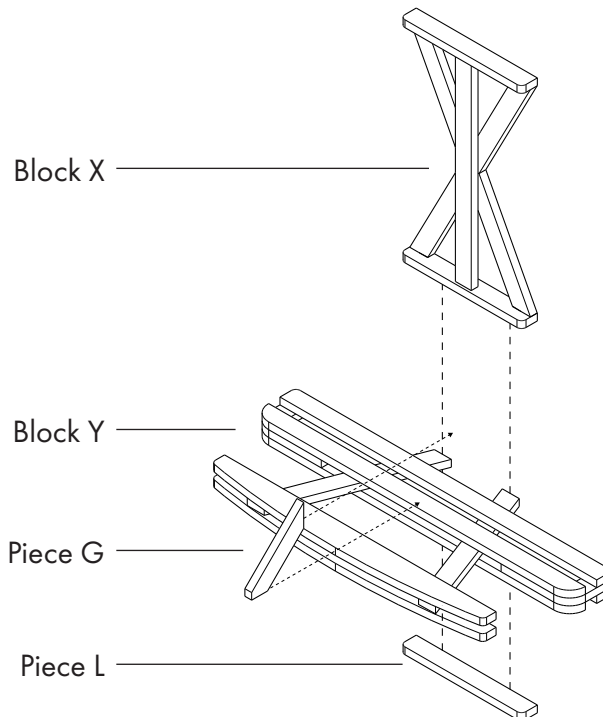


### Pieces + Directions:

With Block Y flat on the ground, screw in Block X and Piece L. Then screw Piece G into the bottom of Block X and the inner face of Block Y to stabilize the Chunk.

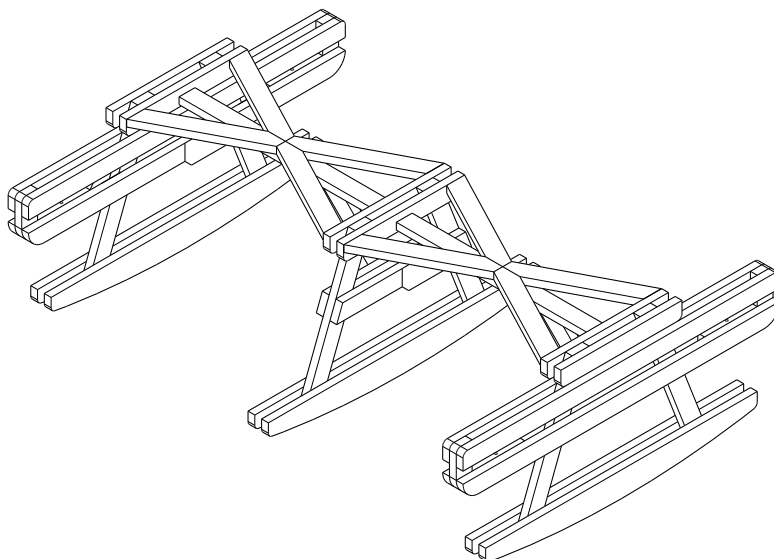
### Note:

Be sure the top of Block X, top of Piece K, and top of Piece L create a level surface.



# ASSEMBLY

## STEP 2

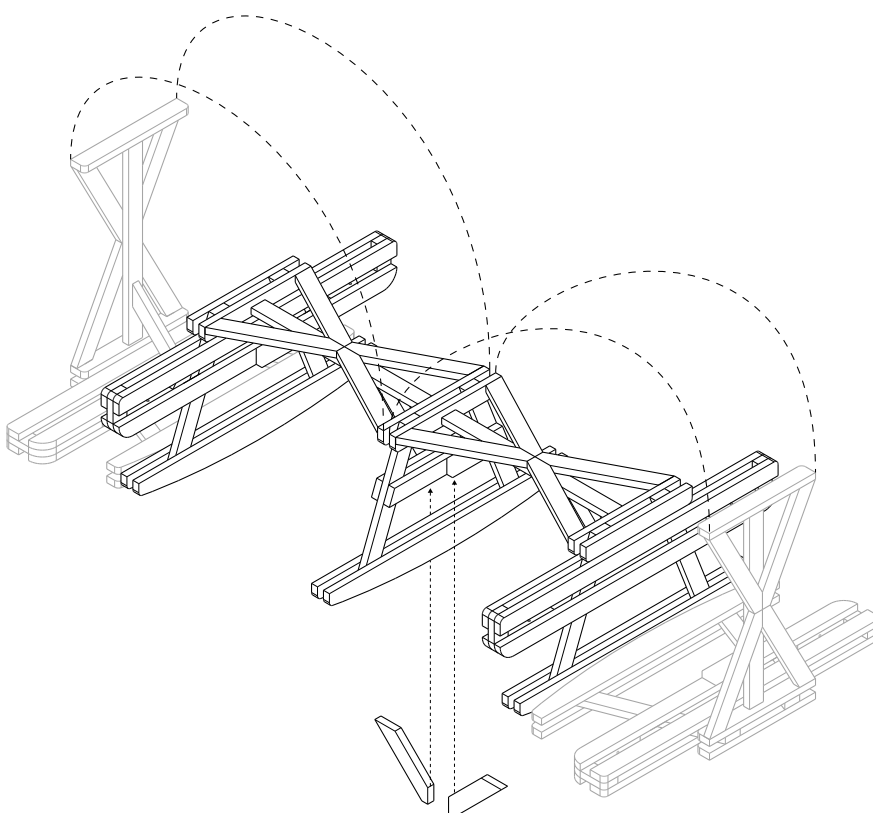


### Pieces + Directions:

With Block Z placed upright, tilt the two chucks created in Step 1 and screw into Piece K. Then screw Piece G into the bottom of Block X and the outer faces of Block Z to stabilize the Chunk.

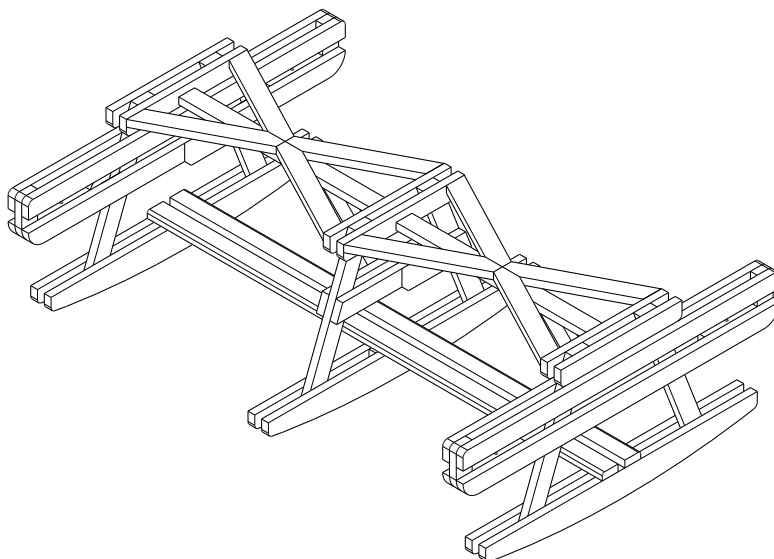
### Note:

Be sure the top of Block X and top of Piece K create a level surface.



# ASSEMBLY

## STEP 3

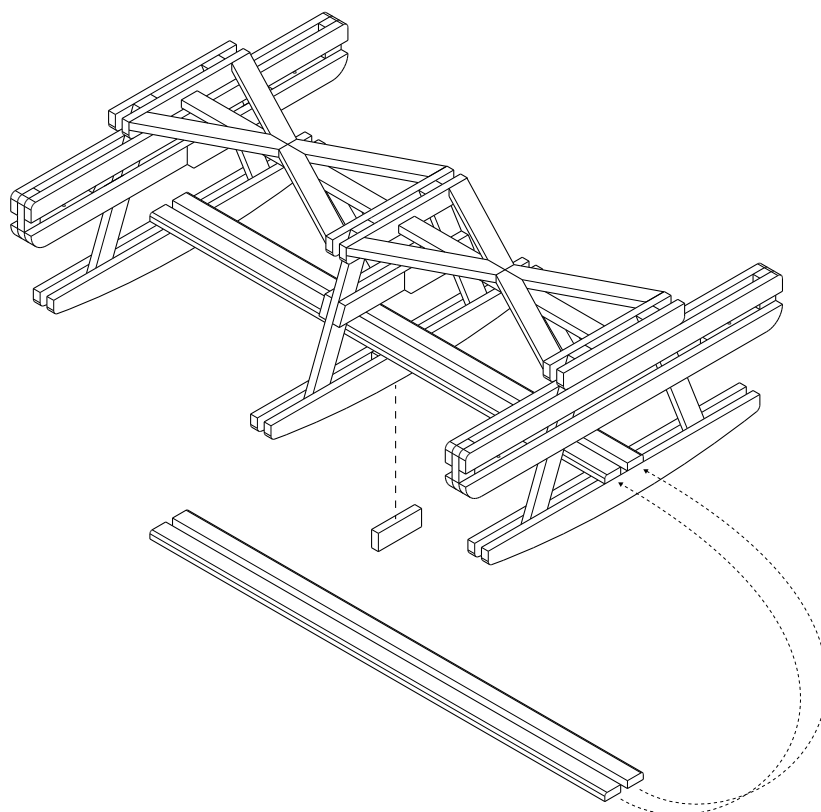


### Pieces + Directions:

Screw Piece Q into the center of the gap between the rockers of Block Z. Slide Piece D in-between the rocker legs with a 1.5" gap centered on the midpoint of the bench.

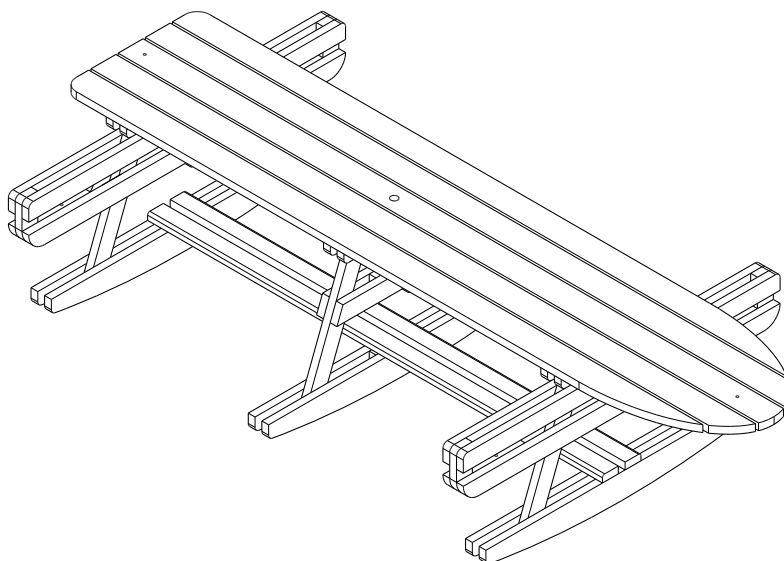
### Note:

Be sure the larger radius of Piece D is facing out.



# ASSEMBLY

## STEP 4

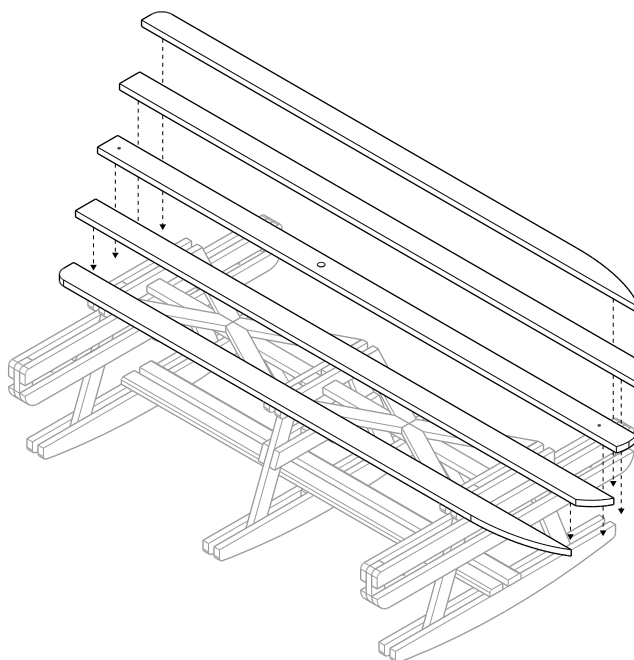


### Pieces + Directions:

Starting with the center board, screw each table top board into each Piece J. The Aft (Back) of the bench will project 8" beyond the last Piece J.

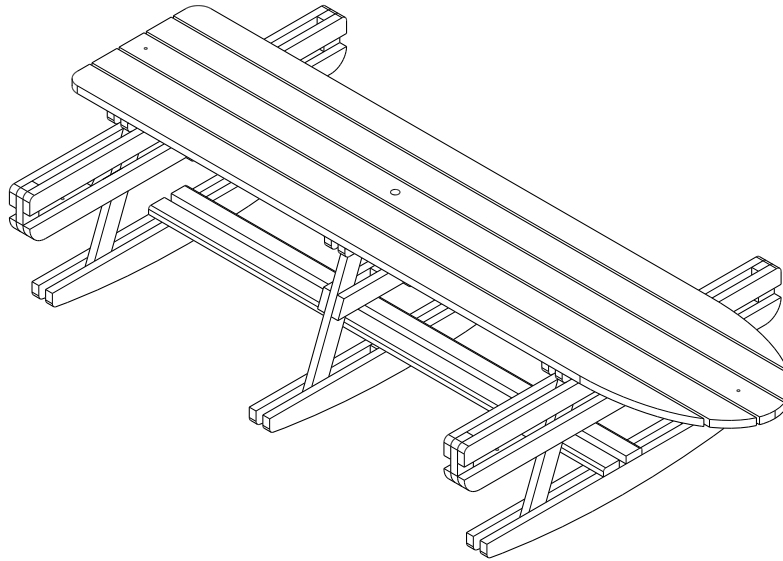
### Note:

Be sure the center board's mast hole aligns with the gap between Block Z.



# ASSEMBLY

## STEP 5

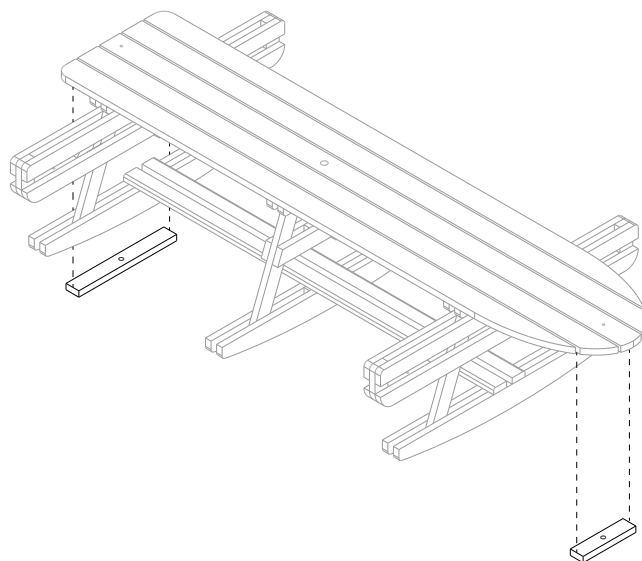


### Pieces + Directions:

Screw Piece C into the bottom of the Table Top. Align the center holes with the holes in the middle Table Top Board.

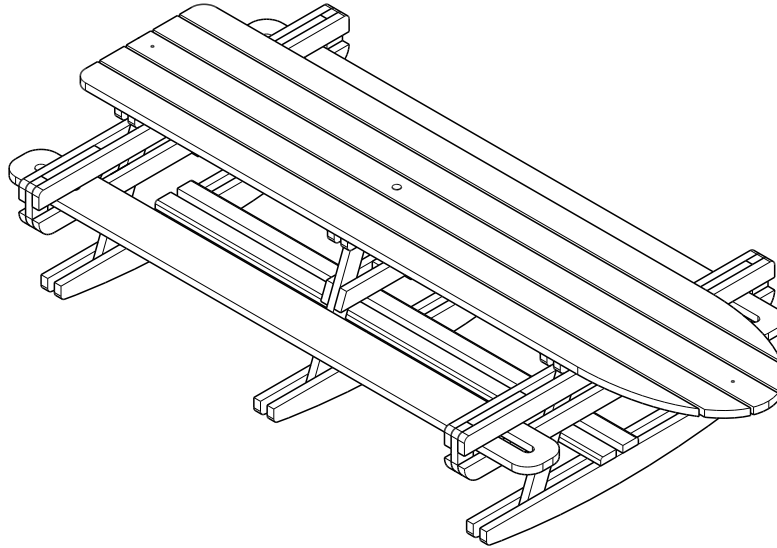
### Note:

The Aft (back) Piece will span all five boards while the Fore (front) Piece will span the middle three.



# ASSEMBLY

## STEP 6

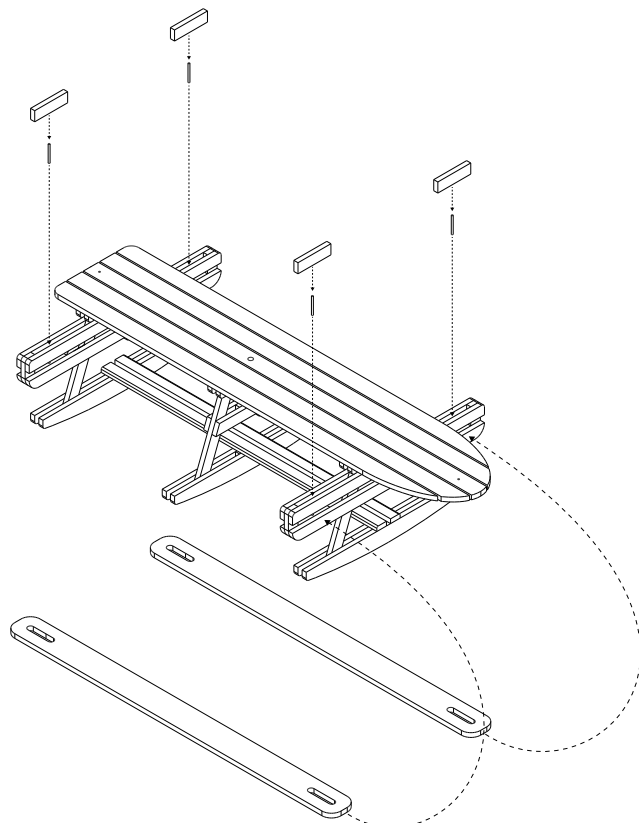


### Pieces + Directions:

Slide Piece B into the space between the bench arms of what was block Y. Drop a 5" long  $\frac{3}{8}$ " diameter rod through the slot of Piece B and into the vertical hole of Piece N. Fit a second Piece N (with the vertical hole facing down) onto the rod, until it is flush with the top of the bench arm.

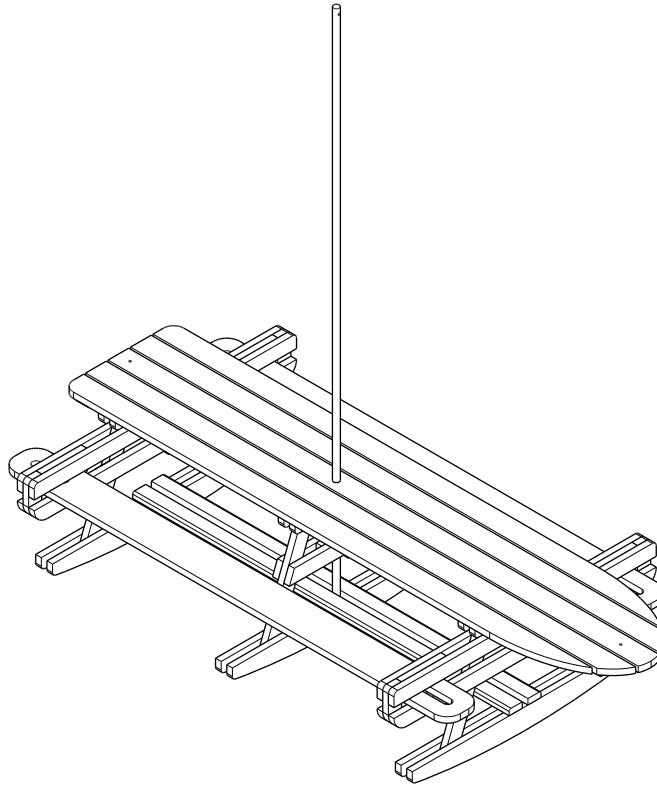
### Note:

Be sure that the larger radius round over on Piece B is facing up.



# ASSEMBLY

## STEP 7

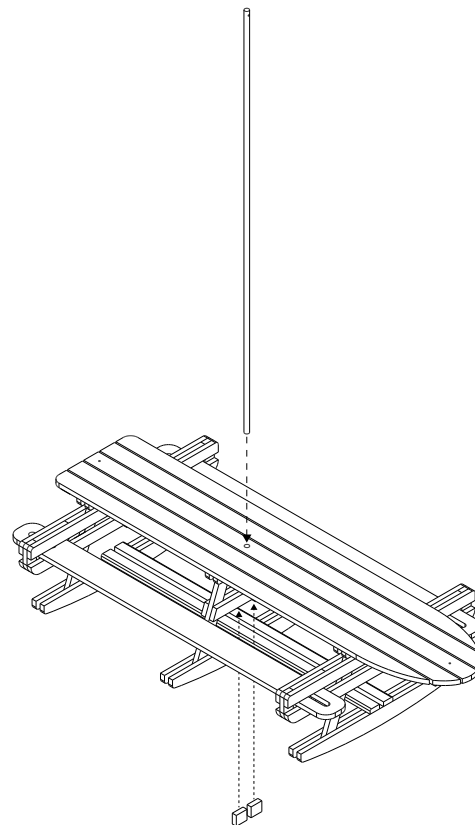


### Pieces + Directions:

Lower the Mast (Piece T) through the center hole in the table top. The bottom of the mast will rest between the foot-ledge (Piece D) and on top of Piece Q (installed in step 3). Screw Piece P on either side of the mast in between the cross-bracing of what was block Z.

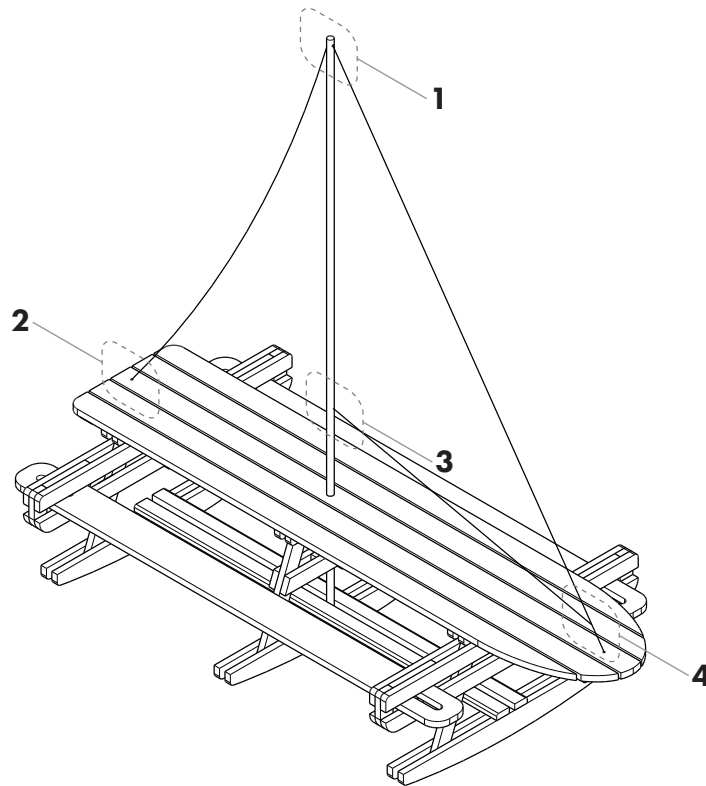
### Note:

If the mast is a tight fit, loosen some of the screws in the area to allow the structure to flex more. Re-tighten the screws once the mast is in place.



# ASSEMBLY

## STEP 8



### Pieces + Directions:

Thread the riggings (Piece V) through the Table Top and Mast holes. Secure the cables using I hooks and Saddle Clamps as noted in the details. Cable Locations:

V.1: Aft

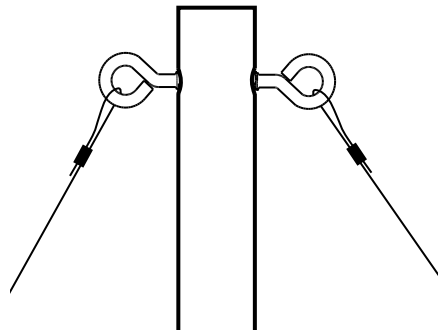
V.2: Fore

V.3: Jib Rigging

### Note:

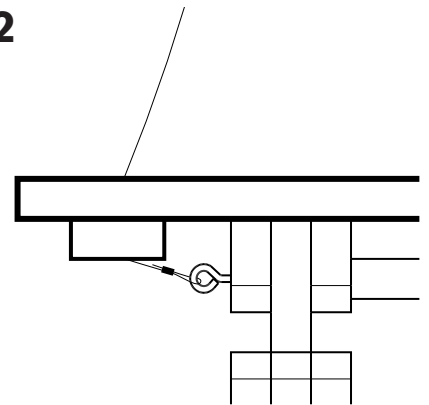
Be sure to leave slack in V.1 for the Boom to be inserted in Step 9.

1



3

2

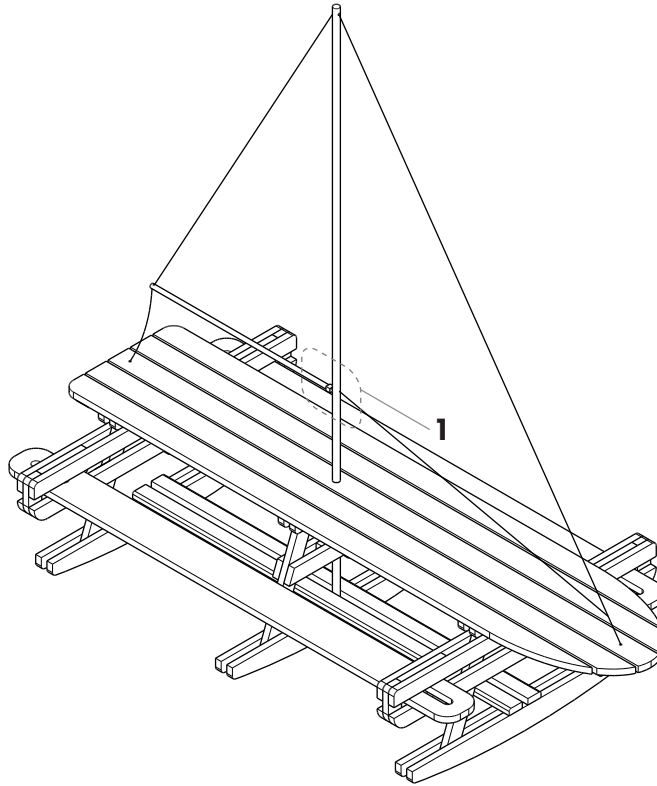


4



# ASSEMBLY

## STEP 9

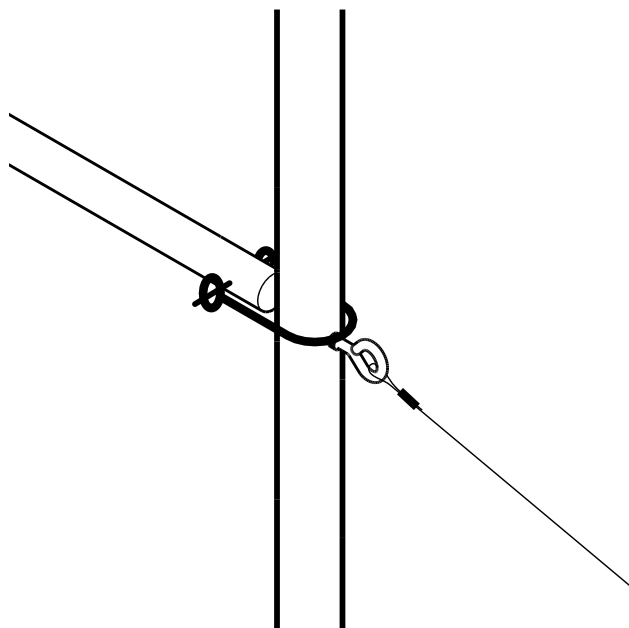


### Pieces + Directions:

Install the Boom (Piece U) by threading it through V.1 and attaching the saddle clamp around the mast as seen in Detail 1.

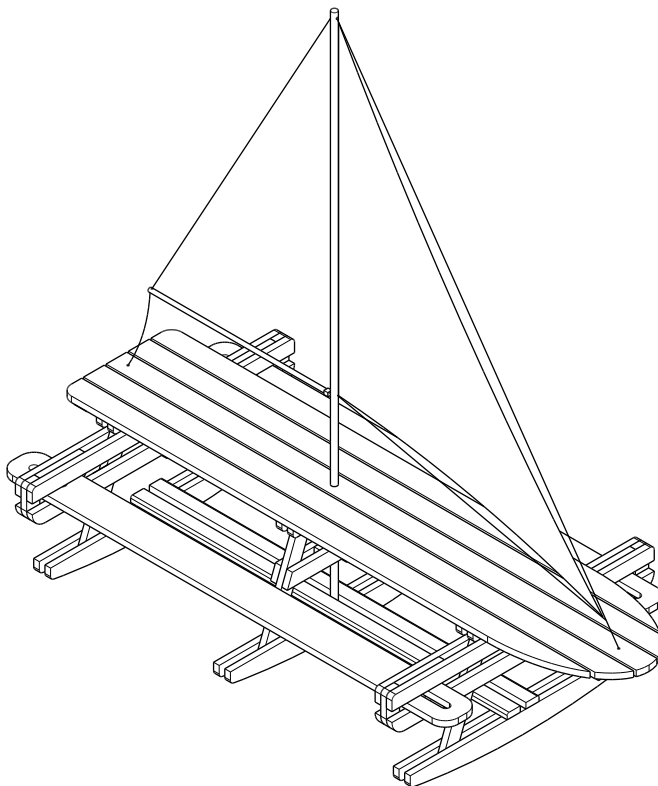
### Note:

This step is optional, it is possible to have two stationary sails. In that case, attach Piece R in the same manner as Piece S.



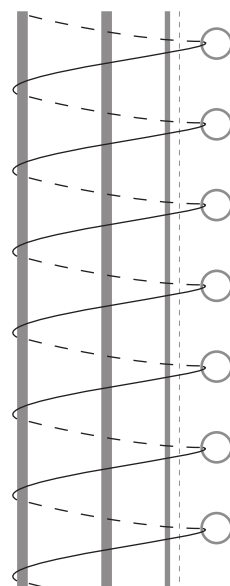
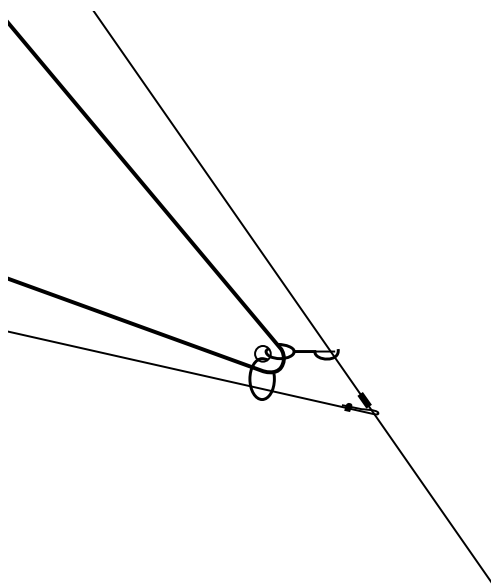
# ASSEMBLY

## STEP 10



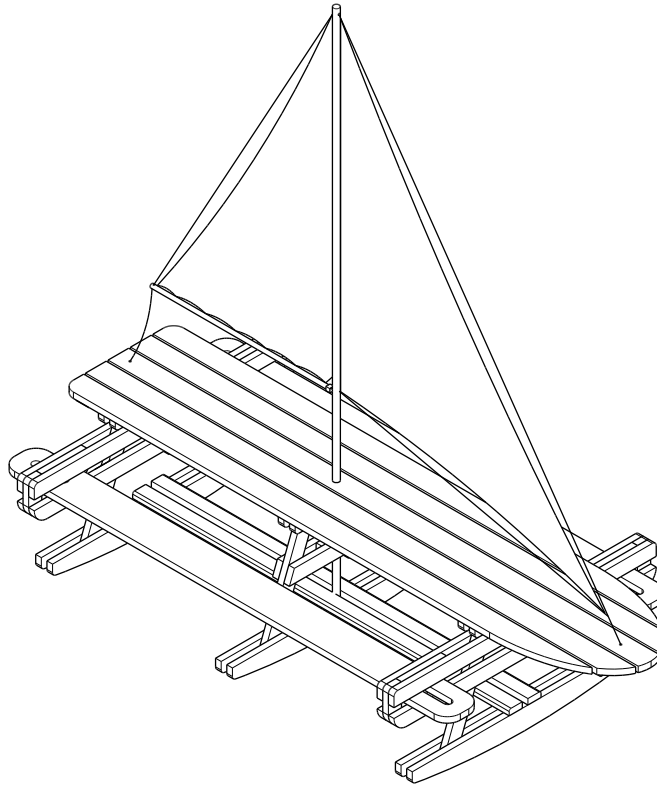
### Pieces + Directions:

Attach the Jig Sail (Piece S) with rope threaded through the grommets. A Swivel Bolt Snap Hook can be used to secure the sail to the bottom right corner.



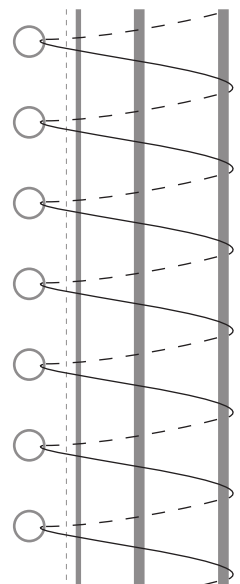
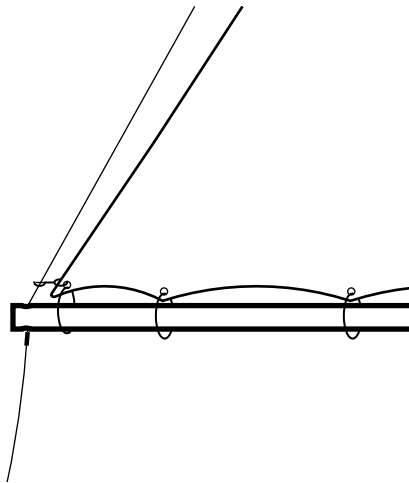
# ASSEMBLY

## STEP 11



### Pieces + Directions:

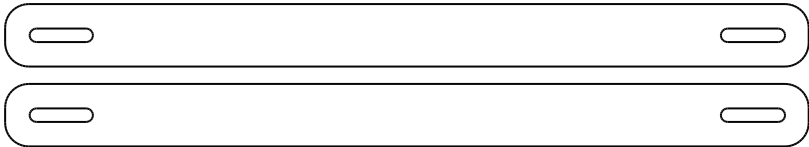
Attach the Mainsail (Piece R) with rope threaded through the grommets. A Swivel Bolt Snap Hook can be used to secure the sail to the bottom corner of the riggings. Metal rings through the lower grommets and around the boom allow the sail to slide.



# PIECE LIST:

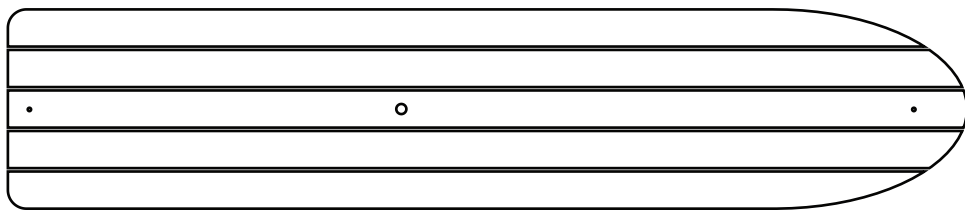
- Procedure:
- ☐ Measure
  - ☐ Cut Length
  - ☐ Cut Angles (If Applicable)
  - ☐ Round-overs
  - ☐ Paint (First Coat)
  - ☐ Drill Holes (If Applicable)
  - ☐ Paint (Second Coat)
  - ☐ Assemble Chunks

A.



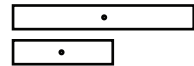
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MLARPDP  
☐☐☐☐☐☐☒☐

B.



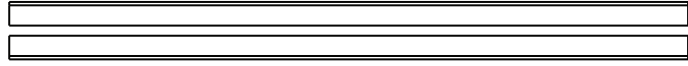
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C.



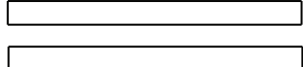
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D.



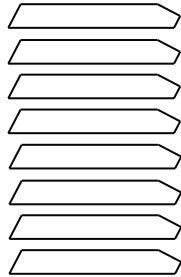
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E.



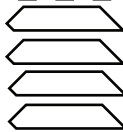
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☐☒☐☐☒☐☐☐

F.



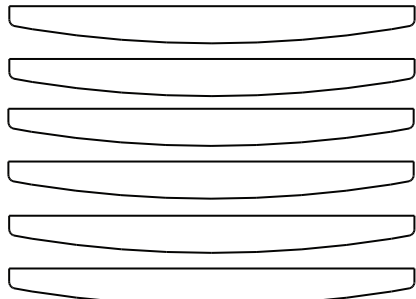
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☐☐☐☐☐☐☒☐

G.

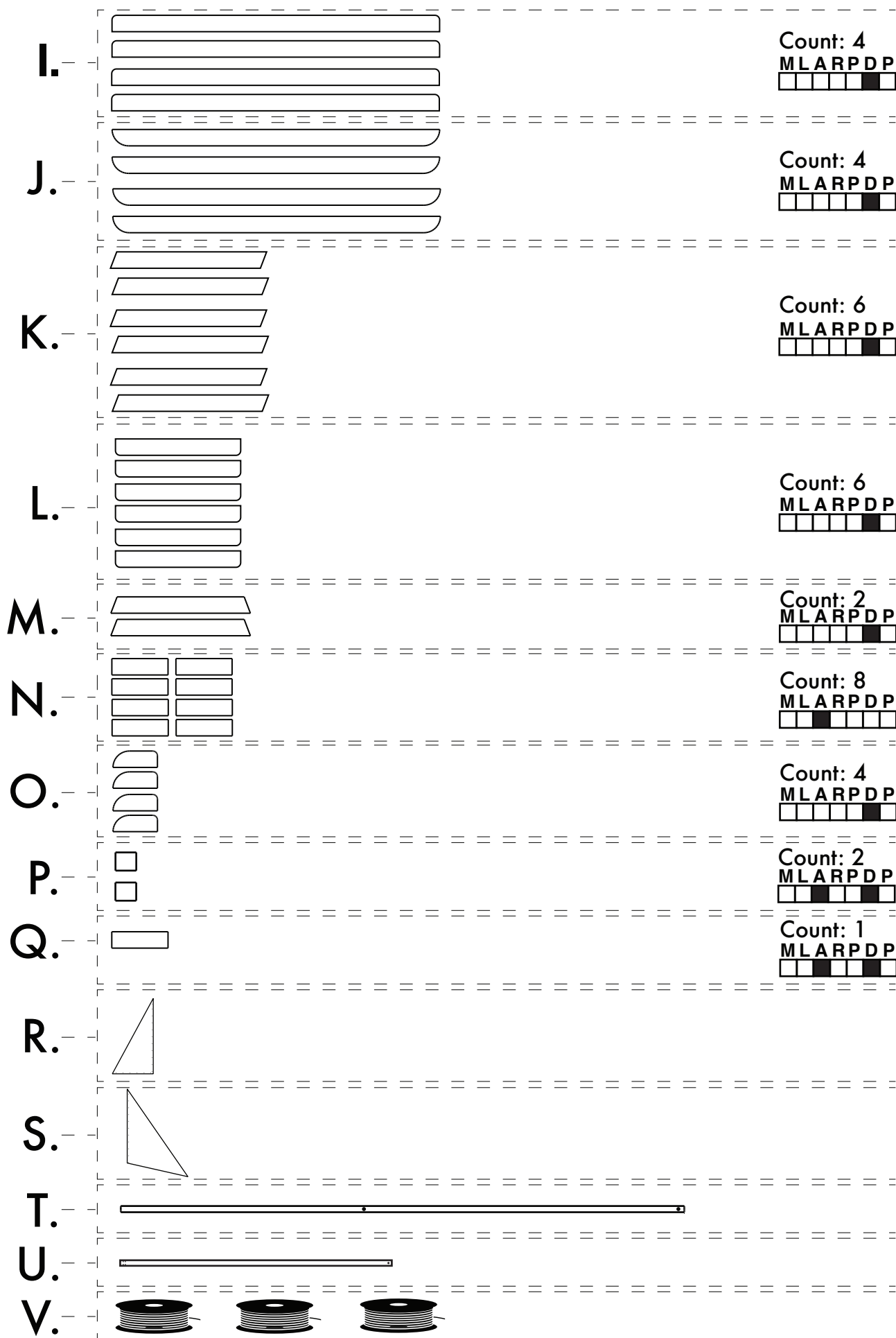


Count: 4  
MLARPDP  
☐☐☐☐☒☐☐☐

H.



Count: 6  
MLARPDP  
☐☐☐☐☒☐☐☐



# PIECE: A

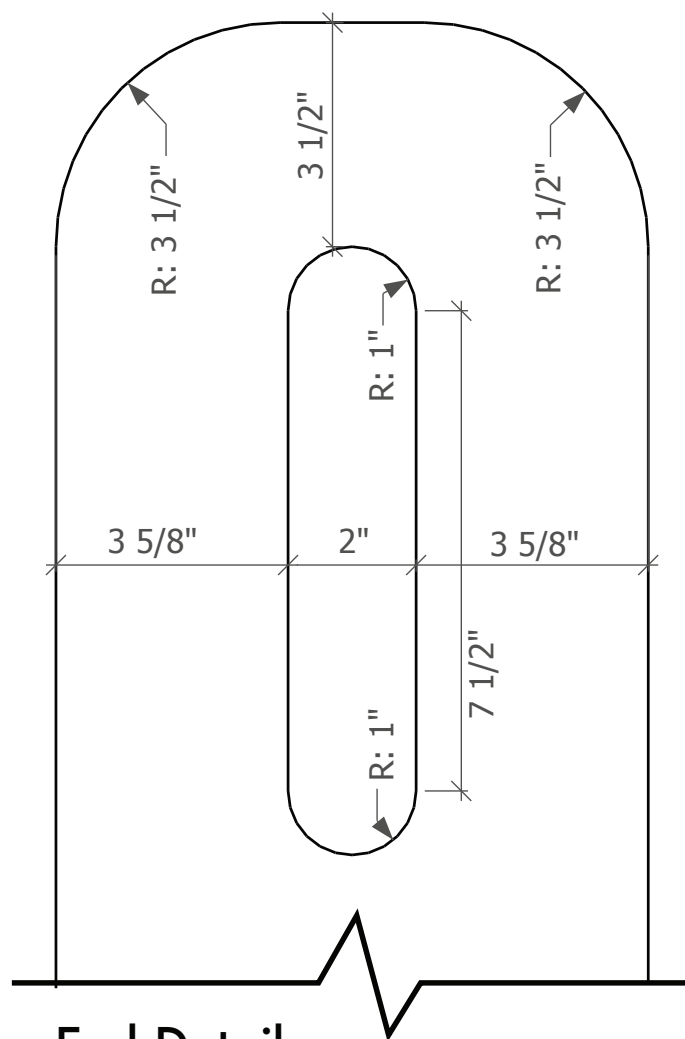
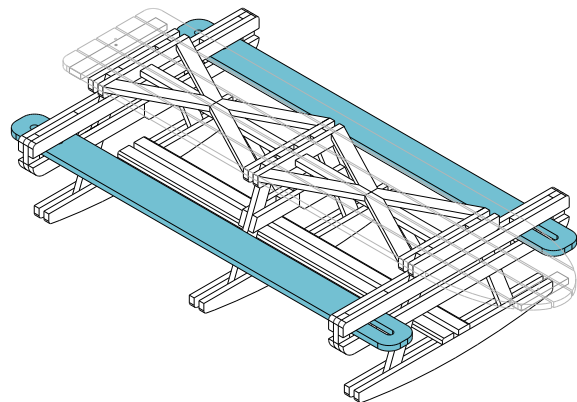
**Use:** Joggling Bench

**Count:** 2

**Materials + Directions:**

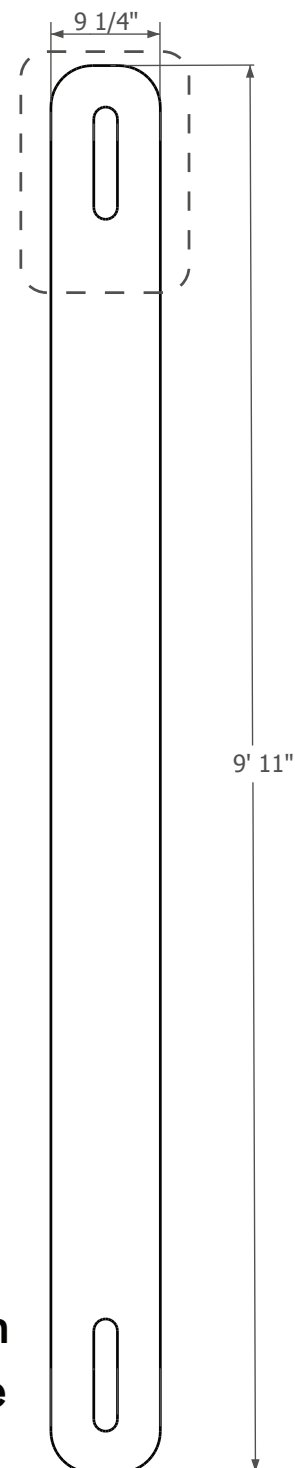
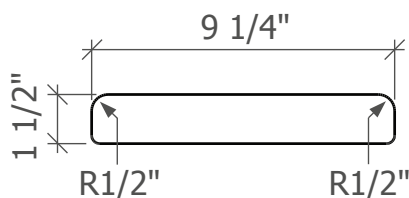
2x10 lumber

Rounded edges



**End Detail**  
Scale: 4" = 1'

**Section**  
Scale: 2" = 1'



**Plan**  
Not To Scale

# PIECE: B

**Use:** Table Top

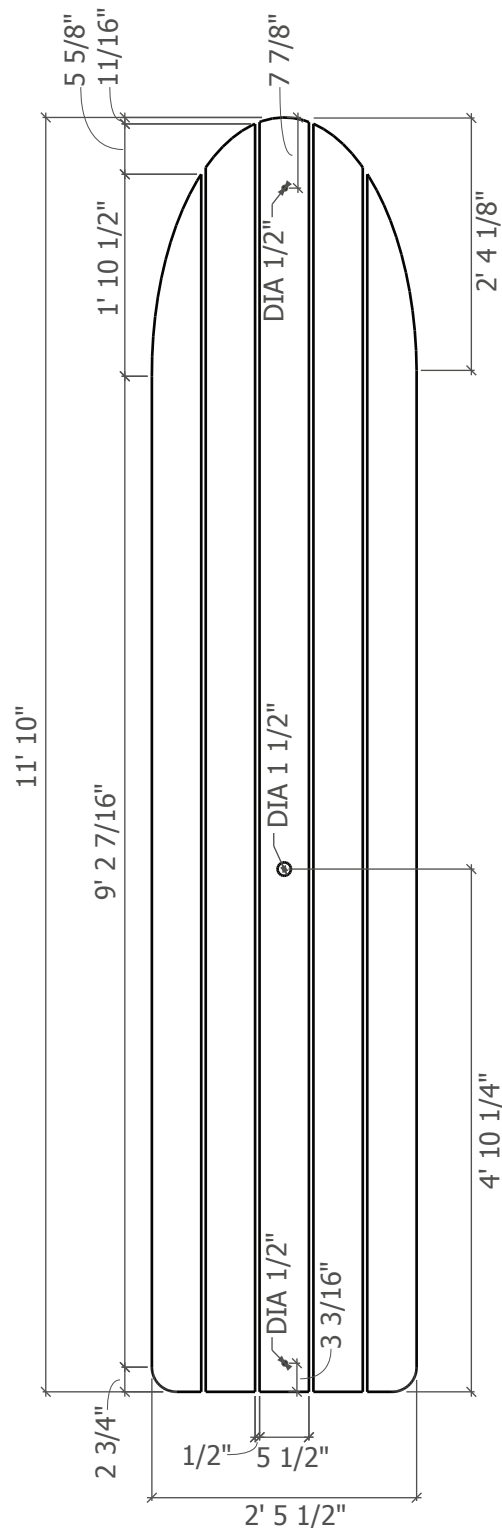
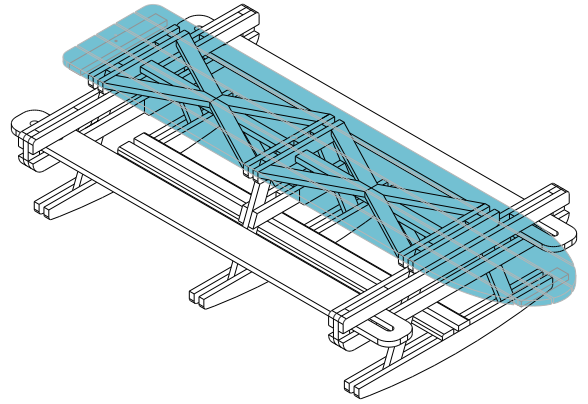
**Count: 1**

### Materials + Directions:

2x6 lumber

(Sub-quantity: 5)

Rounded edges



# Plan

## Not To Scale

BENCH BOAT 23

# PIECE: C

**Use:** Rigging Tie-ins

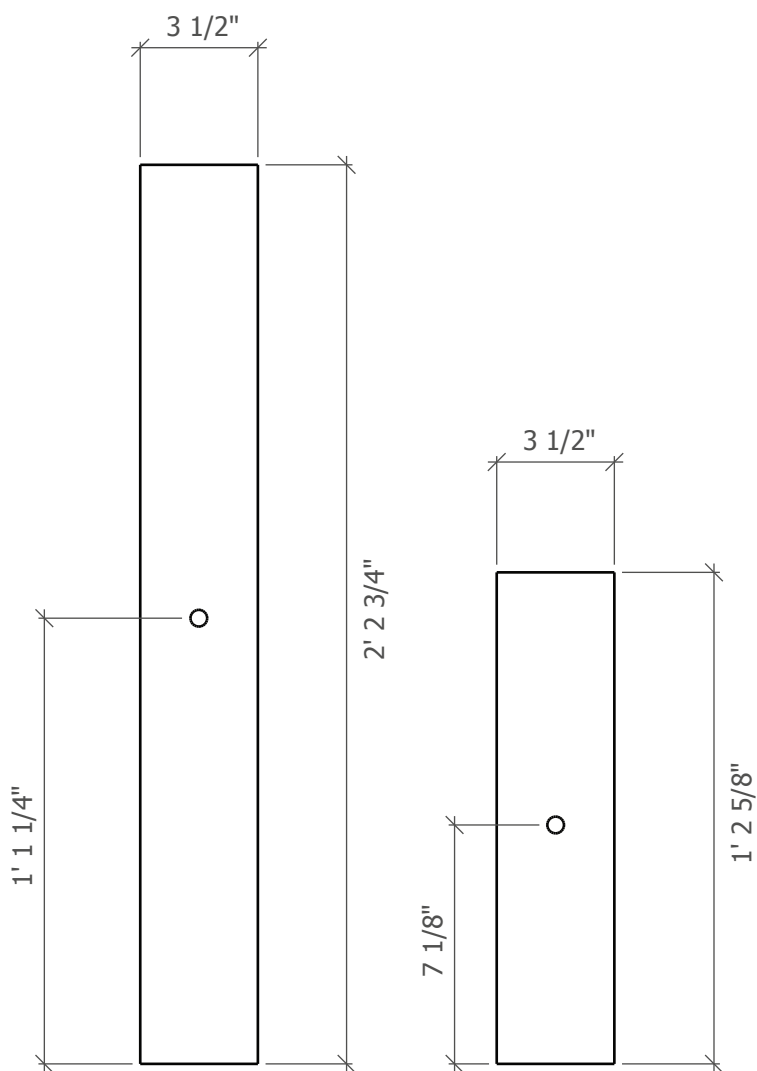
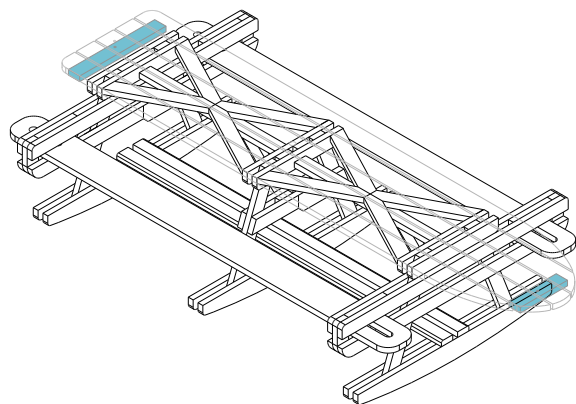
**Count:** 2

**Materials + Directions:**

2x4 lumber

Rounded edges

Hole Diameter:  $1/2"$



**Plan**  
**Scale:  $2" = 1'$**



# PIECE: D

**Use:** Foot Ledge

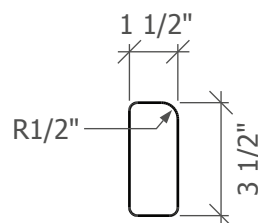
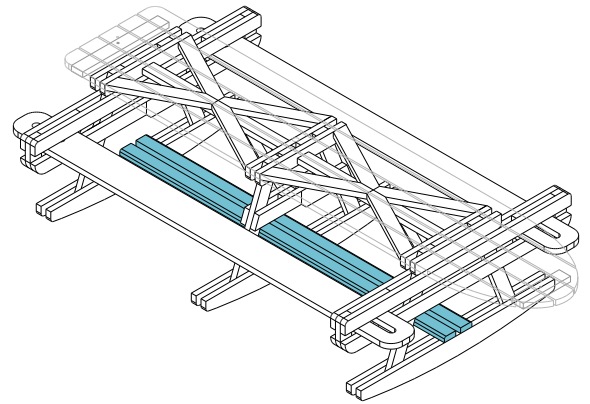
**Count:** 2

**Materials + Directions:**

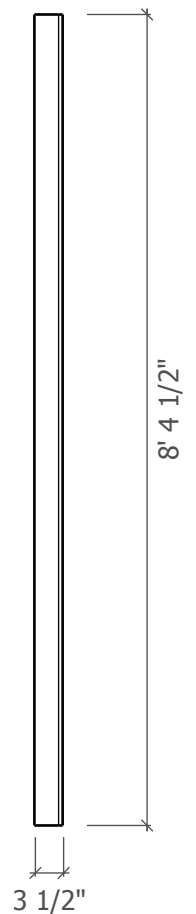
2x4 lumber

Rounded edges:

1/4" and 1/2"



**Section**  
**Scale: 2" = 1'**



**Plan**  
**Scale: 1/2" = 1'**  
BENCH BOAT 25

# PIECE: E

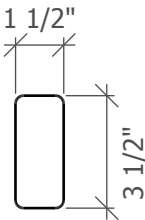
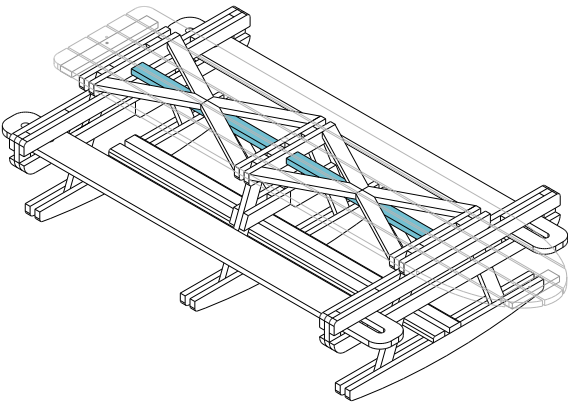
**Use:** Horizontal Sub-Table Structure

**Count:** 2

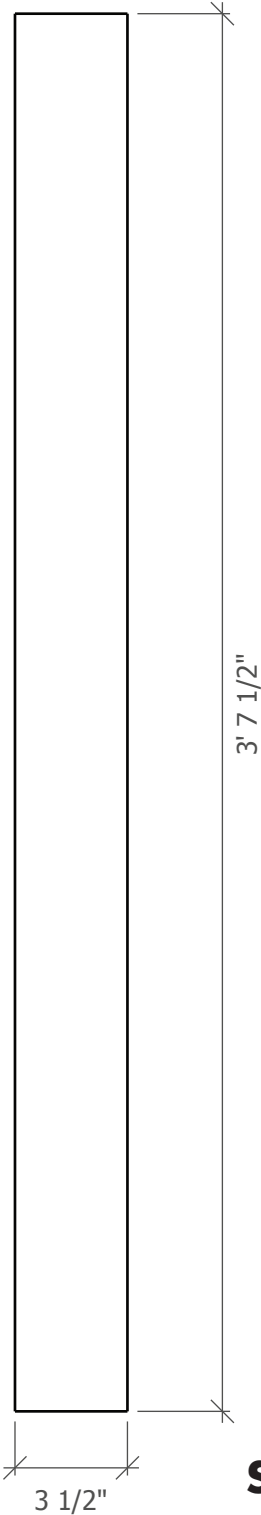
**Materials + Directions:**

2x4 lumber

Round edges



**Section**  
**Scale: 2" = 1'**



**Plan**  
**Scale: 2" = 1'**

# PIECE: F

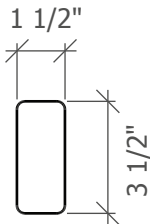
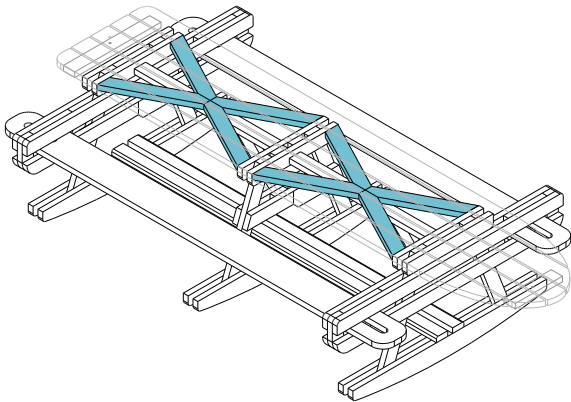
**Use:** Cross-Brace Sub-Table Structure

**Count:** 8

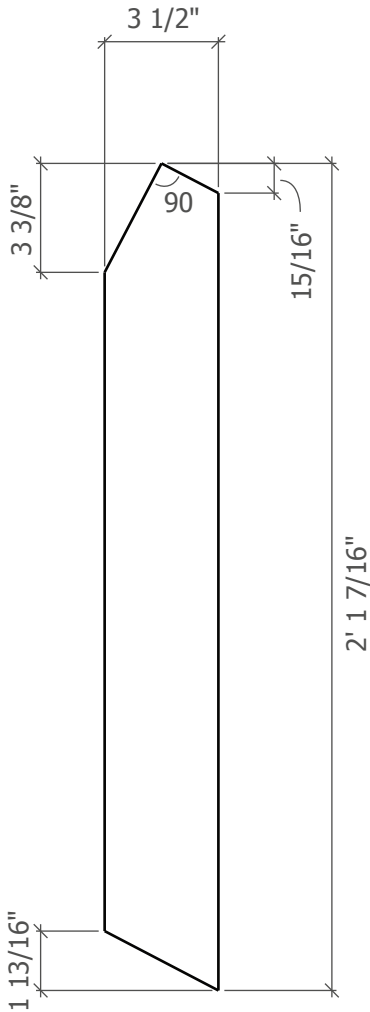
**Materials + Directions:**

2x4 lumber

Round edges



**Section**  
**Scale: 2" = 1'**



**Plan**  
**Scale: 2" = 1'**

# PIECE: G

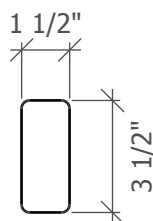
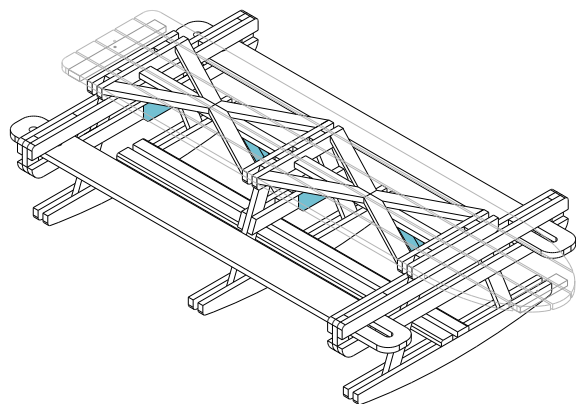
**Use:** Vertical Sub-Table Structure

**Count:** 4

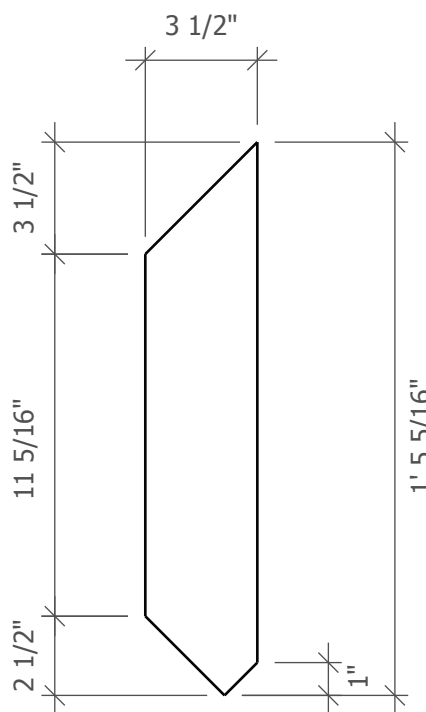
**Materials + Directions:**

2x4 lumber

Round edges



**Section**  
**Scale: 2" = 1'**



**Plan**  
**Scale: 2" = 1'**

# PIECE: H

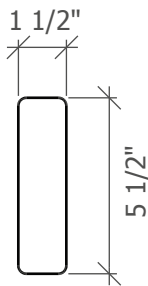
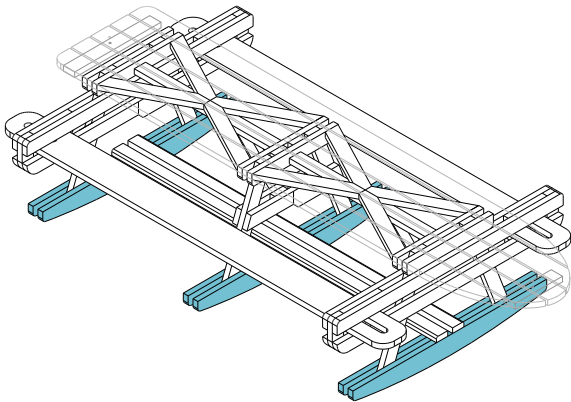
**Use:** Bench Rockers

**Count:** 6

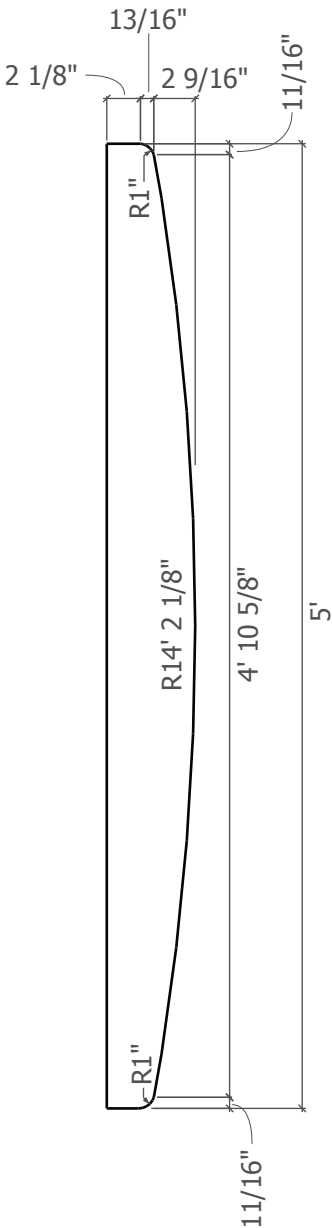
**Materials + Directions:**

2x6 lumber

Round edges



**Section**  
**Scale: 2" = 1'**



**Plan**  
**Scale: 1" = 1'**  
BENCH BOAT 29

# PIECE: I

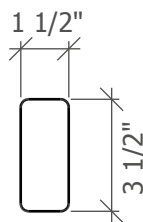
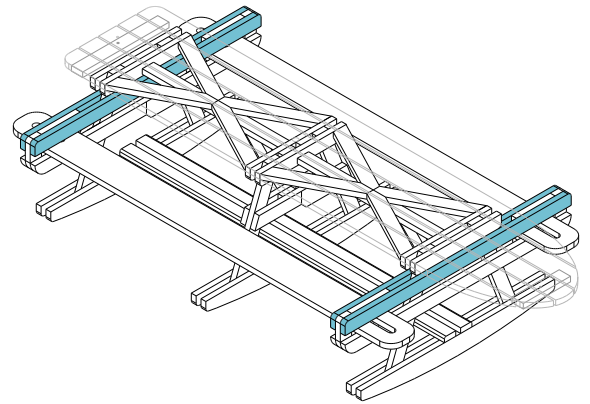
**Use:** Bench Top Arm

**Count:** 4

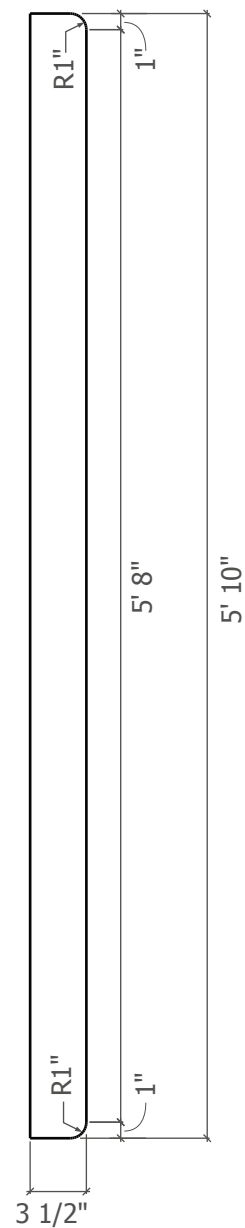
**Materials + Directions:**

2x4 lumber

Round edges



**Section**  
**Scale: 2" = 1'**



**Plan**  
**Scale: 1" = 1'**

# PIECE: J

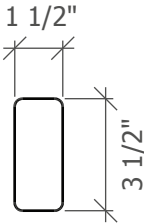
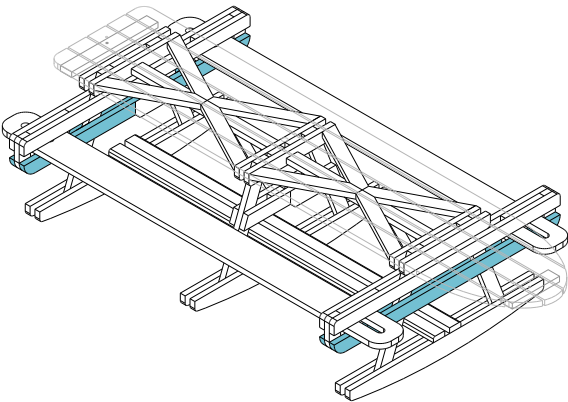
**Use:** Bench Bottom Arm

**Count:** 4

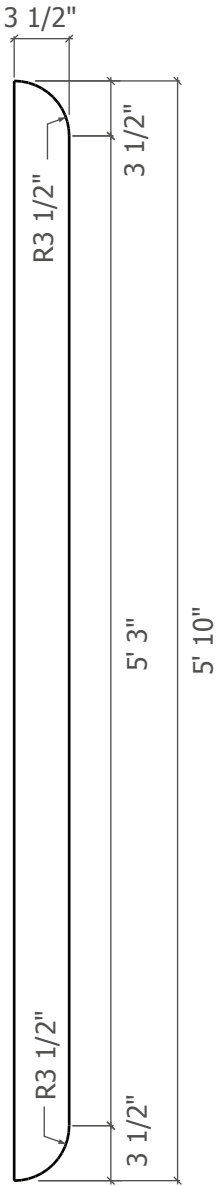
**Materials + Directions:**

2x4 lumber

Round edges



**Section**  
**Scale: 2" = 1'**



**Plan**  
**Scale: 1" = 1'**

# PIECE: K

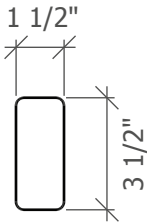
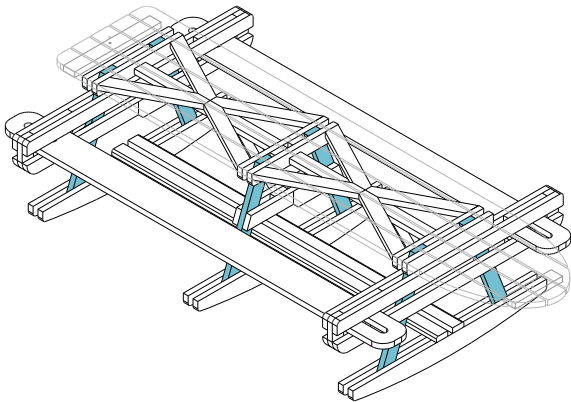
**Use:** Bench Legs

**Count:** 6

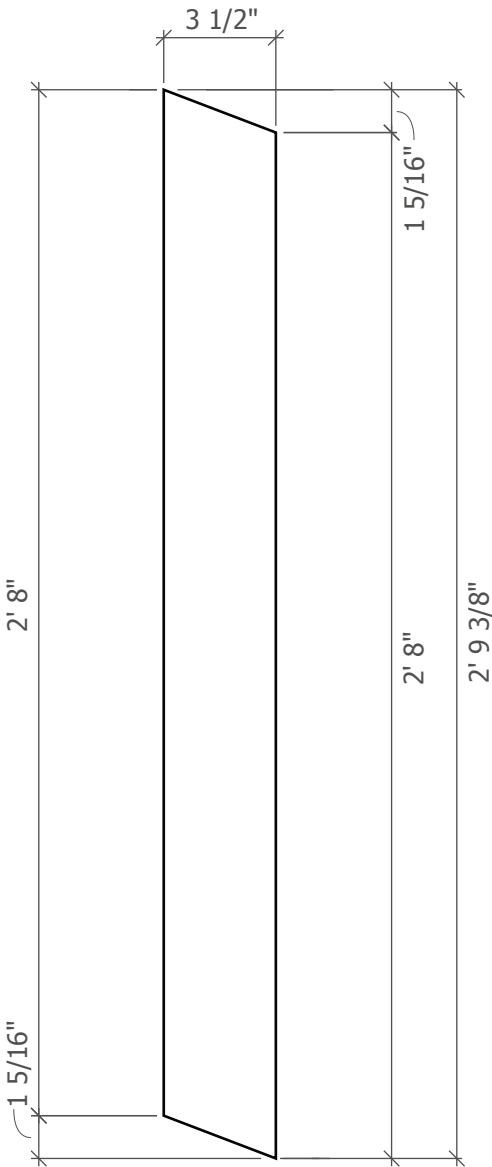
**Materials + Directions:**

2x4 lumber

Round edges



**Section**  
**Scale: 2" = 1'**



**Plan**  
**Scale: 2" = 1'**



# PIECE: L

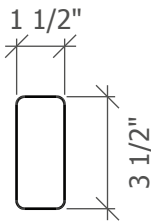
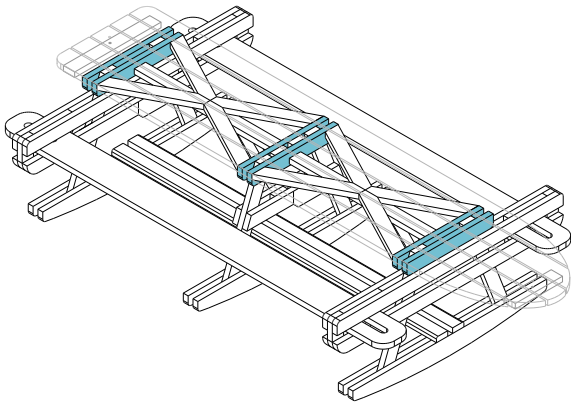
**Use:** Bench Top Structure

**Count:** 6

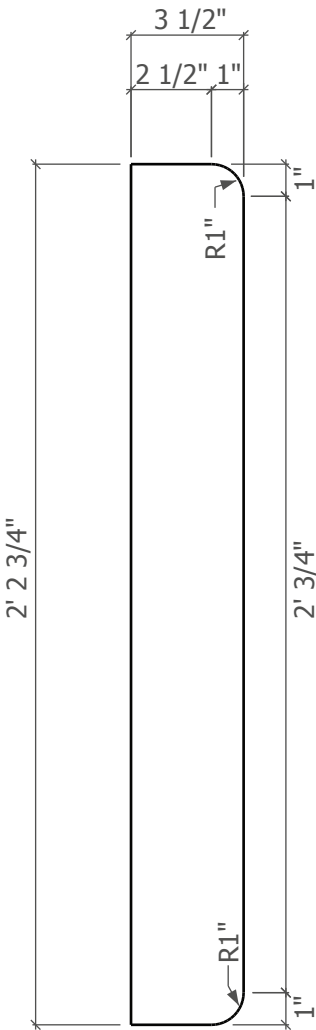
**Materials + Directions:**

2x4 lumber

Round edges



**Section**  
**Scale: 2" = 1'**



**Plan**  
**Scale: 2" = 1'**

# PIECE: M

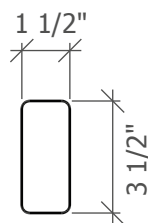
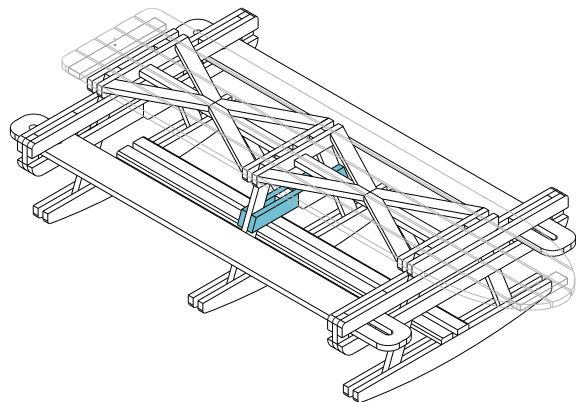
**Use:** Midstructure Stringer

**Count:** 2

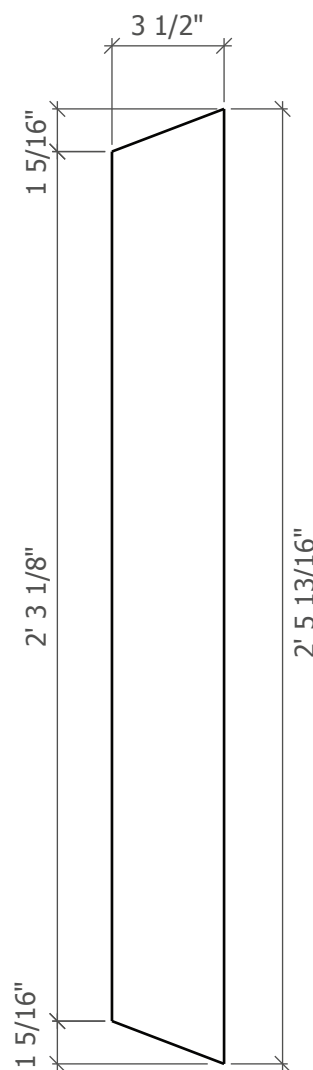
**Materials + Directions:**

2x4 lumber

Round edges



**Section**  
**Scale: 2" = 1'**



**Plan**  
**Scale: 2" = 1'**

# PIECE: N

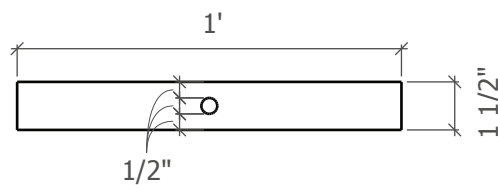
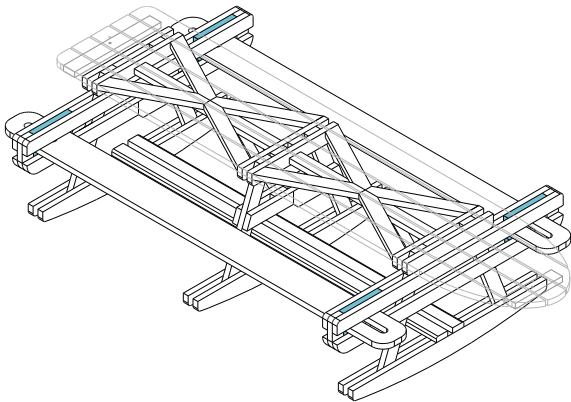
**Use:** Bench Arm Post Reciever

**Count:** 8

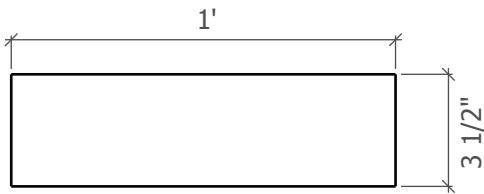
**Materials + Directions:**

2x4 lumber

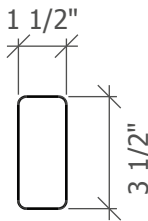
Round edges



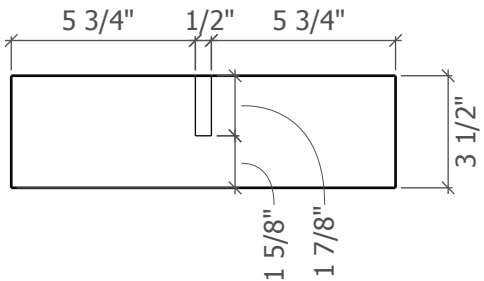
**Plan**  
**Scale: 2" = 1'**



**Elevation**  
**Scale: 2" = 1'**



**Section**  
**Scale: 2" = 1'**



**Section**  
**Scale: 2" = 1'**

# PIECE: O

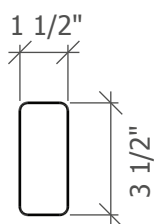
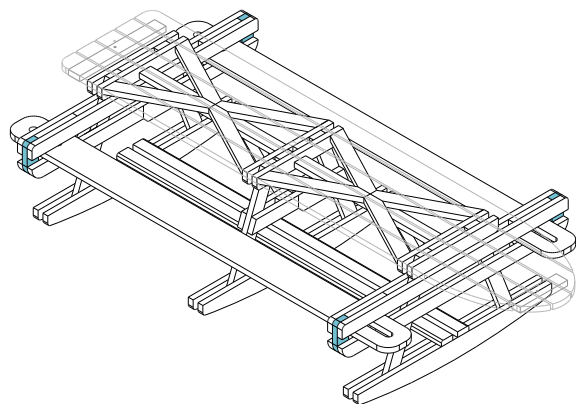
**Use:** Bench End Cap

**Count:** 4

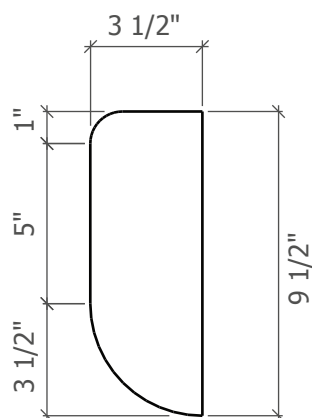
**Materials + Directions:**

2x4 lumber

Round edges



**Section**  
**Scale: 2" = 1'**



**Plan**  
**Scale: 2" = 1'**

# PIECE: P

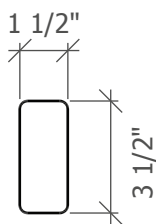
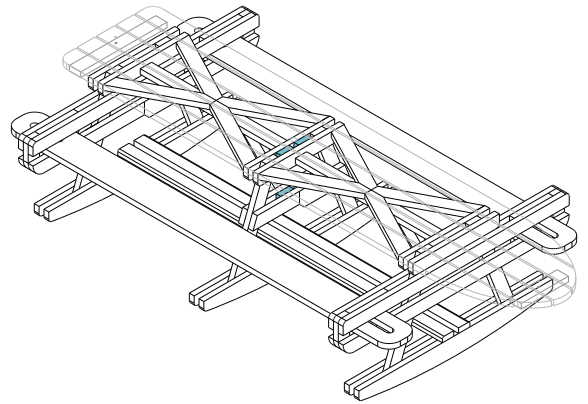
**Use:** Center Sail Support

**Count:** 4

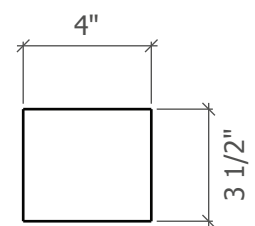
**Materials + Directions:**

2x4 lumber

Round edges



**Section**  
**Scale: 2" = 1'**



**Plan**  
**Scale: 2" = 1'**  
BENCH BOAT 37

# PIECE: Q

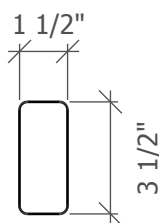
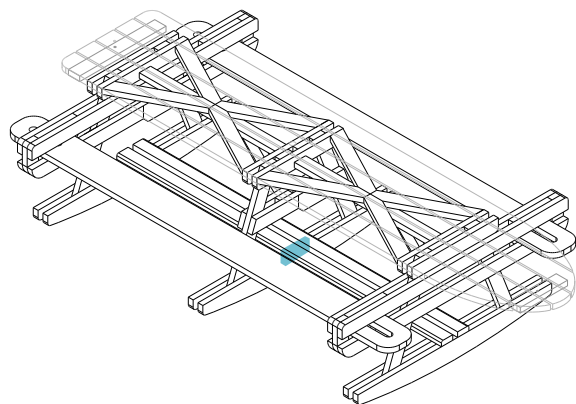
**Use:** Bottom Sail Support

**Count:** 1

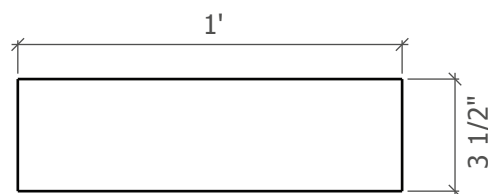
**Materials + Directions:**

2x4 lumber

Round edges



**Section**  
**Scale: 2" = 1'**



**Plan**  
**Scale: 2" = 1'**

# PIECE: R

**Use:** Front Sail

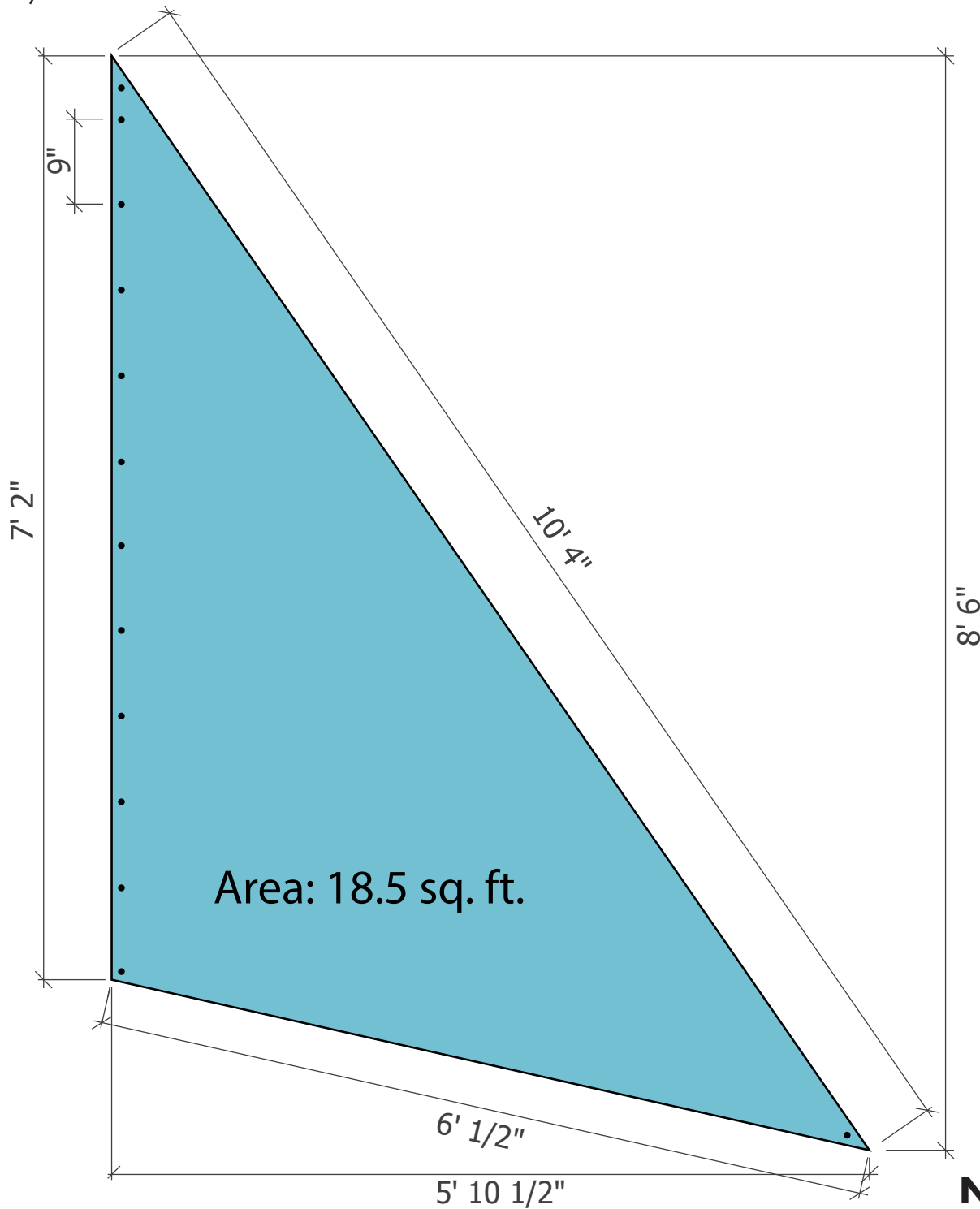
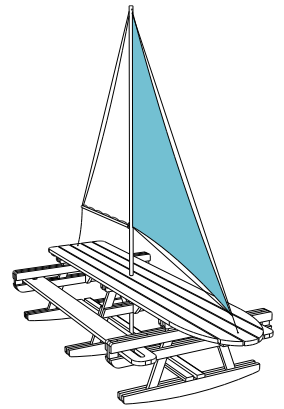
**Count:** 1

**Materials + Directions:**

White Water-Resistant Canvas

Hem Edges

1/2" Dia. Grommet where Noted



**Elevation  
Not To Scale**  
BENCH BOAT 39

# PIECE: S

**Use:** Aft Sail

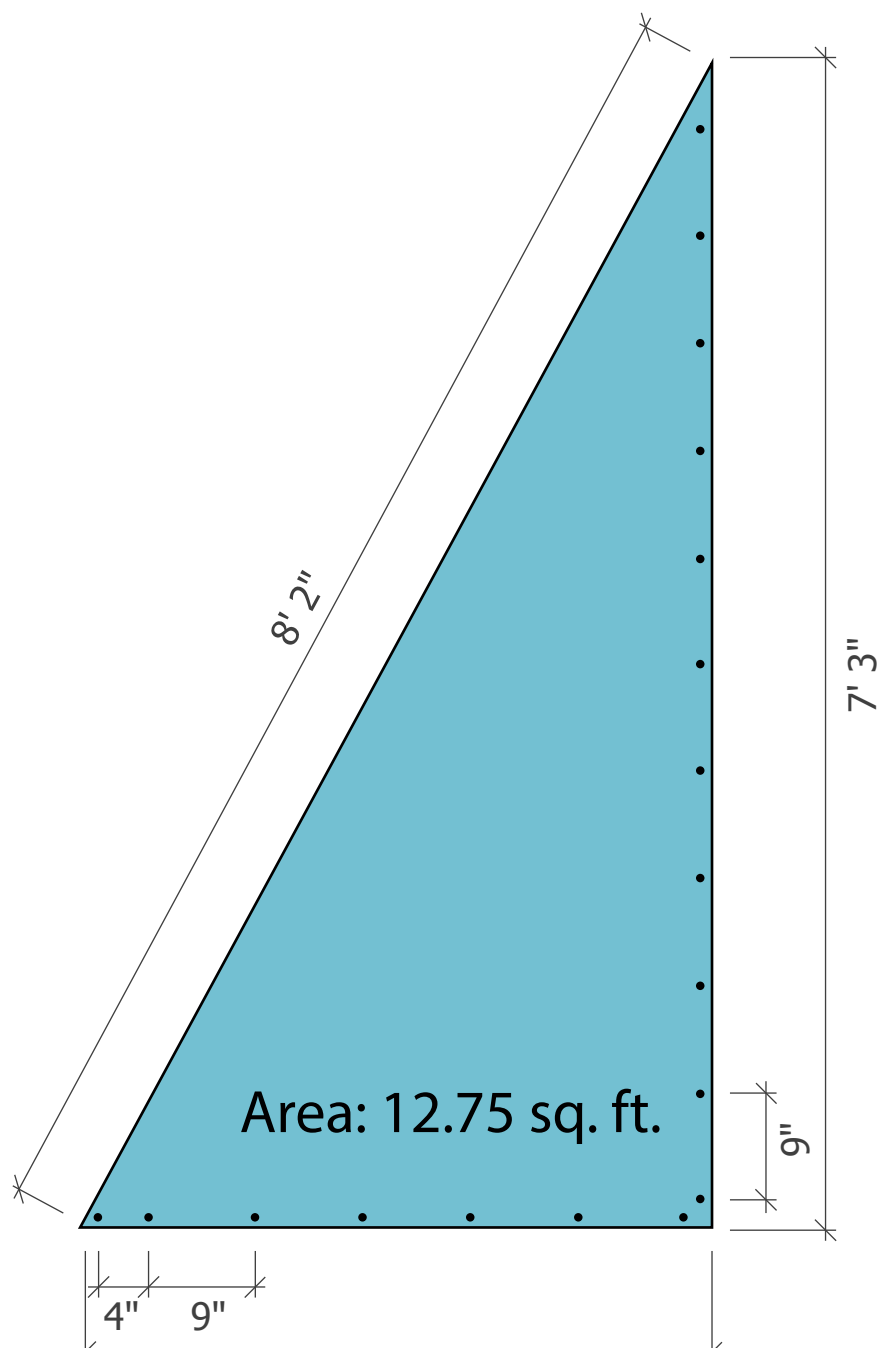
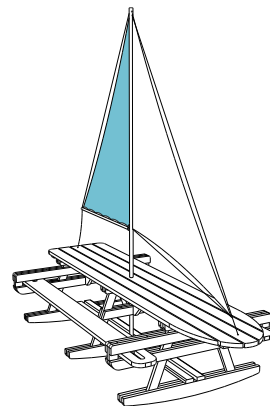
**Count:** 1

**Materials + Directions:**

White Water-Resistant Canvas

Hem Edges

1/2" Dia. Grommet where Noted



**Elevation  
Not To Scale**



# PIECE: T

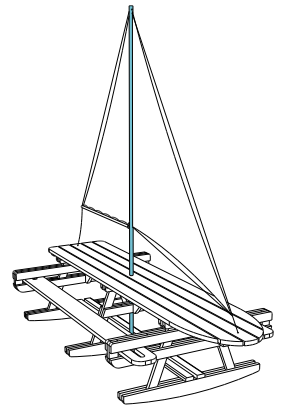
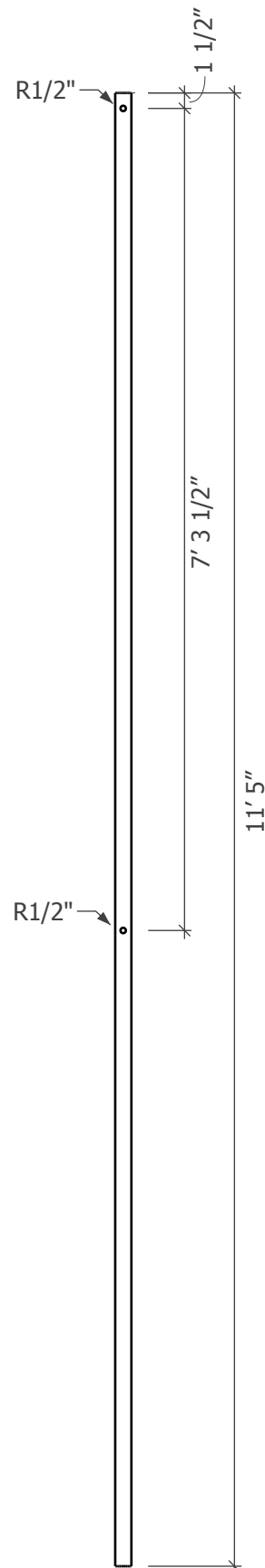
**Use:** Mast

**Count:** 1

**Materials + Directions:**

Metal: (Aluminum, Galvanized Steel)

1 1/2" Diameter



**Elevation**  
**Not To Scale**  
BENCH BOAT 41

# PIECE: U

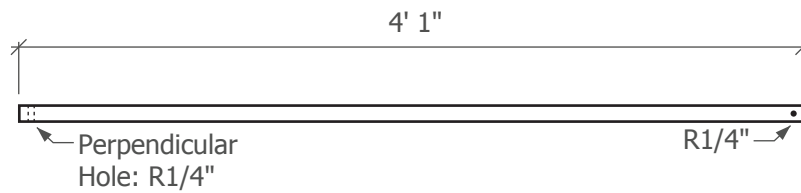
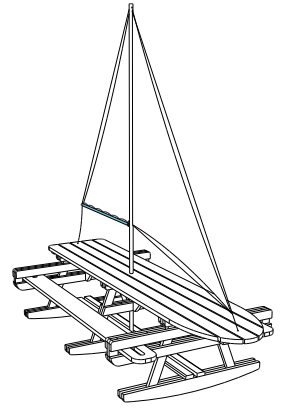
**Use:** Boom

**Count:** 1

**Materials + Directions:**

Wooden Dowel

1" Diameter



**Elevation**  
**1" = 1'**

# PIECE: V

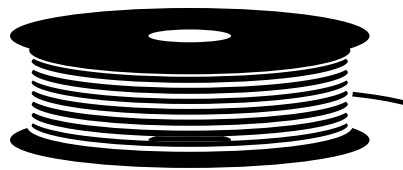
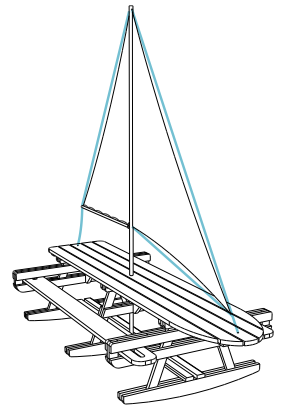
**Use:** Riggings

**Count:** 3

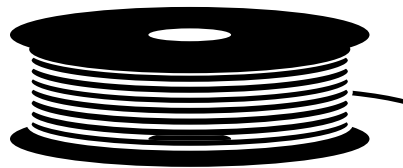
**Materials + Directions:**

Steel Plain Wire Rope

3/16" Diameter



**V.1 Length:** 15 feet



**V.2 Length:** 12 feet



**V.3 Length:** 7 feet

# BLOCK: X

**Use:** Sub-Table Structure

**Count:** 2

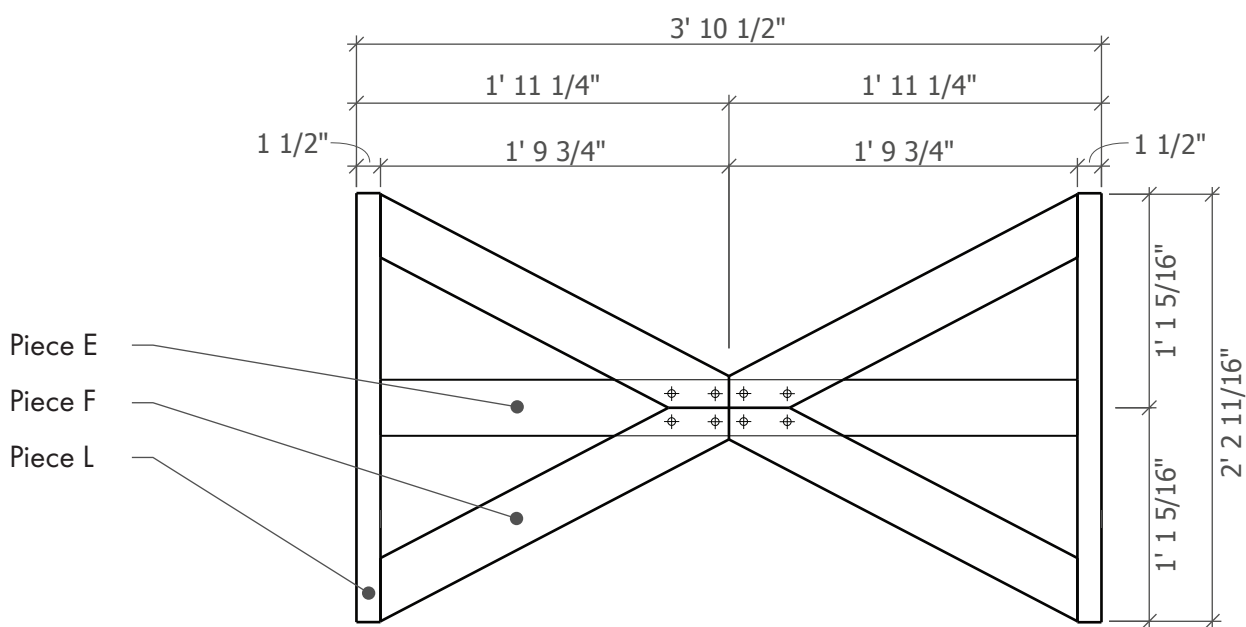
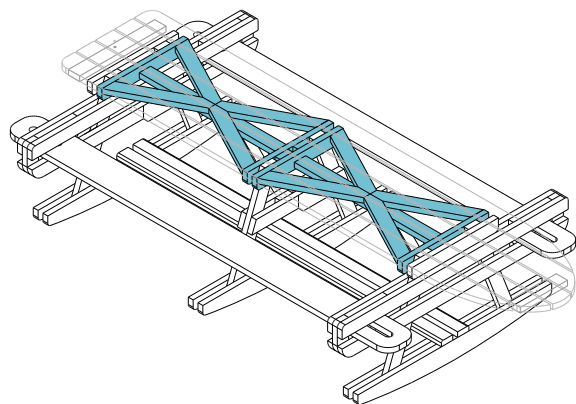
**Pieces + Directions:**

Suggested screw locations noted with:  $\oplus$

Piece E

Piece F

Piece L



**Plan**  
**1" = 1'**

# BLOCK: Y

**Use:** End Bench Legs

**Count:** 2

**Pieces + Directions:**

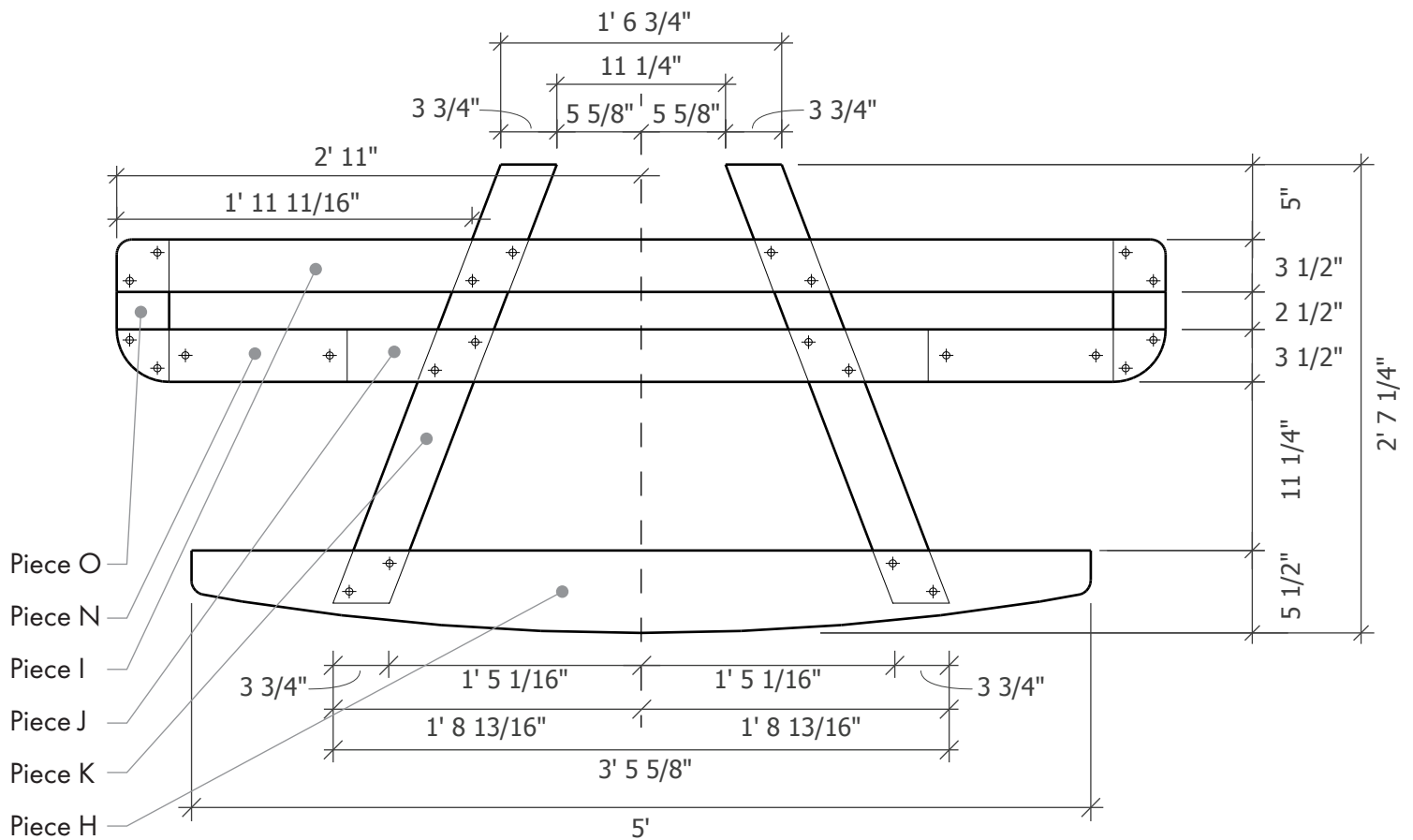
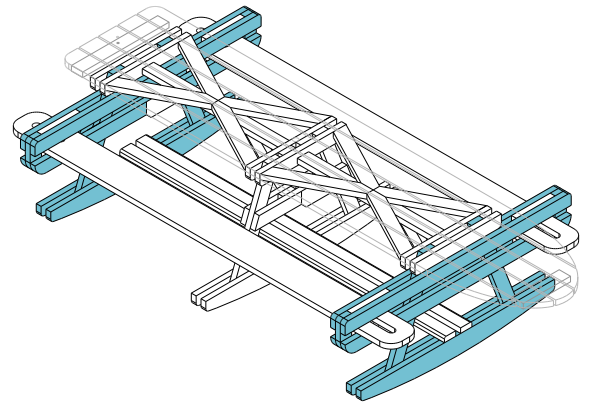
Piece H

Piece I

Piece J

Piece K

Piece O



**Elevation**

**1" = 1'**

BENCH BOAT 45

# BLOCK: Z

**Use:** Middle Bench Leg

**Count:** 1

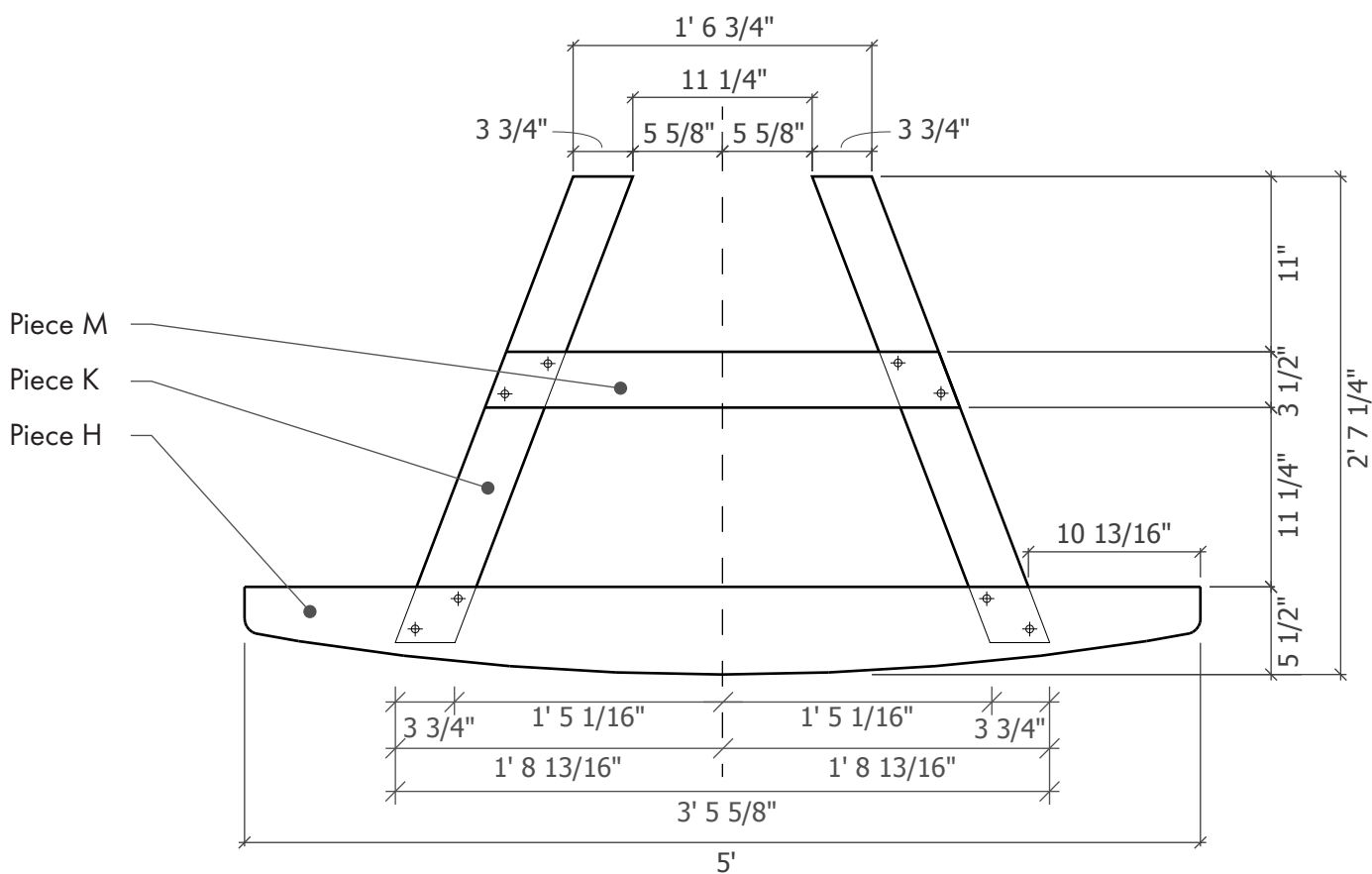
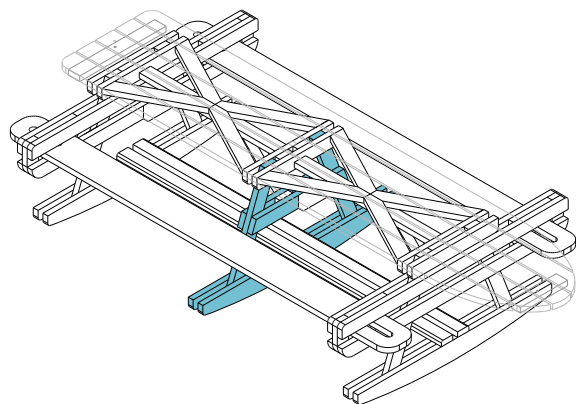
**Materials + Directions:**

Suggested screw locations noted with:  $\oplus$

Piece H

Piece K

Piece M



**Elevation**  
1" = 1'



# CLEMSON

## SCHOOL OF ARCHITECTURE

**STUDIO** Community + Build

**PROFESSOR** Dan Harding

**YEAR** Spring 2018

**STUDENT** Russell Zimmerman