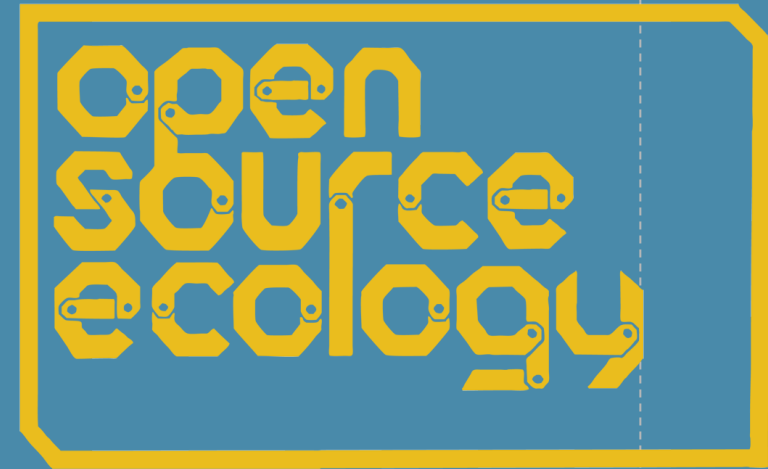




Open Source Ecology Developer's Manual

CEB 6 Build Instructions: Legs, Feet, Hopper Supports

Lead Contributors:

Stephen Whiting

Source File:

[OSE CEB Press](#)

[Development Board](#)

Graphic Design:

Jean-Baptiste Vervaeck

openMaterials



Build Time and Overview

-This module should be fairly straight forward and short.

Mark Locations: 15 minutes

Drilling: 15 minutes

Welding of the nuts: 20 minutes

Weld the feet to the base: 30 minutes

Total Build Time: ~1 ½ hours

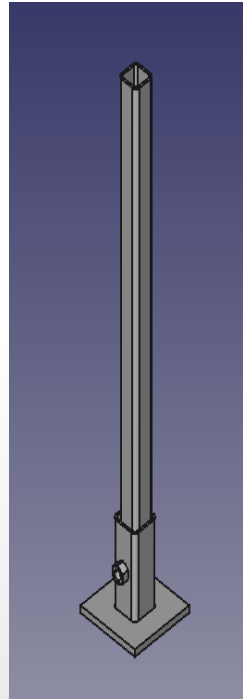
Difficulty Rating : 3/10

Design Rationale:

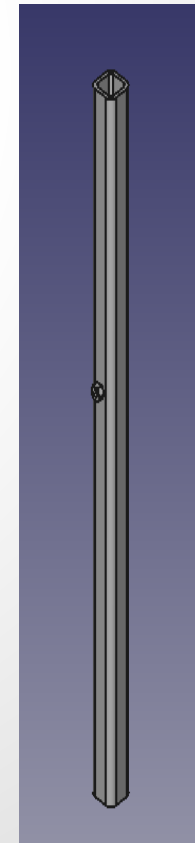
Many bolts are used as clamps to hold the locations of multiple parts. Legs can be individually height adjusted and are designed to fit in the back of a truck. Bolts are used so that many parts can be easily adjusted.

Final Products: Legs, Feet, Hopper Supports

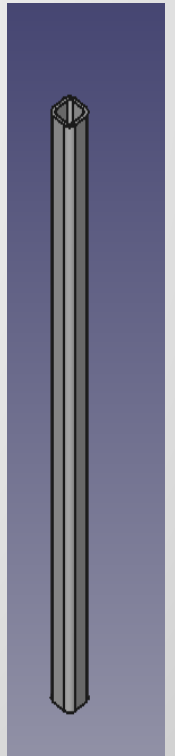
Legs + Feet [x4]



Hopper Supports
Long [x2]



Hopper Supports
Short [x2]



CEB Press Legs, Feet, Hopper Support Module



Legs + Feet



Hopper Supports



Safety Equipment

Safety is important during assembly.
Be sure to wear:



Hard hat



Ear protection



Protective gloves



Steel toed boots



Safety glasses



Welding shield

Be sure to know the location of your
emergency equipment:



Emergency shower



First aid kit



Fire extinguisher



Eyewash station

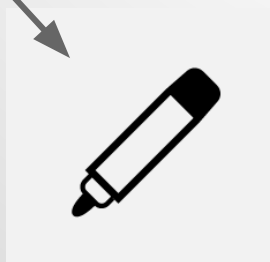
Materials and Equipment

Stock Materials:

2 ½"x 3/16" steel tubing 1x 3' long
2"x1/4" in. steel tubing [x3] 10' long
¾" bolts (2 inches long) [x4]
¾" bolts (4 inches long) [x2]
¼" steel plate (6"x6") [x4]

Equipment

measuring tape
abrasive cutoff saw
grinder
annular cutter
level welding table
welder
[marker](#)

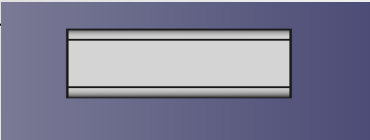
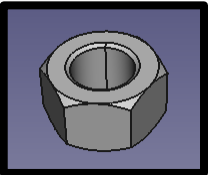
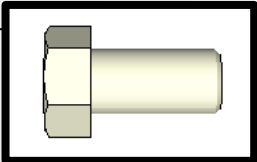


Personal Protection Equipment:

eye protection
hard hat
gloves
steel toes boots



Part Labels: Legs, Feet, and Hopper Supports

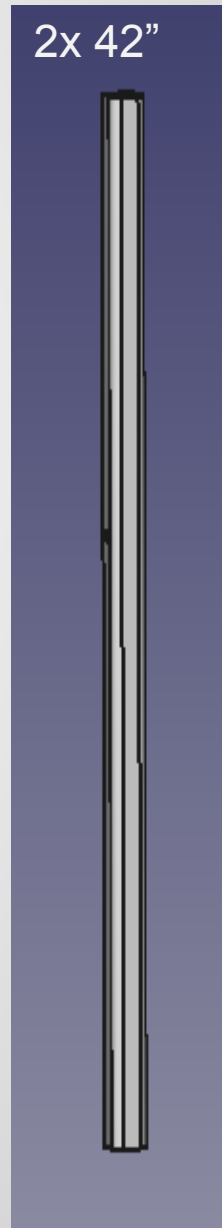
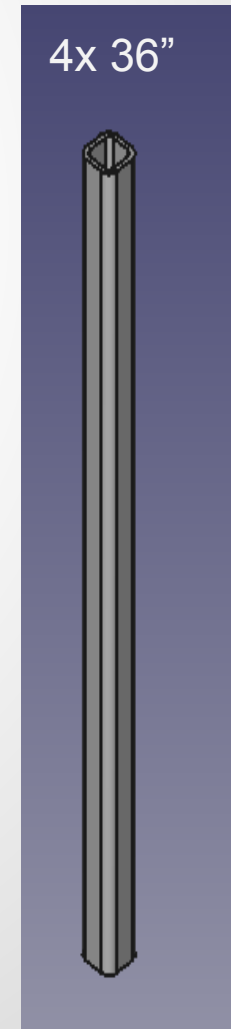
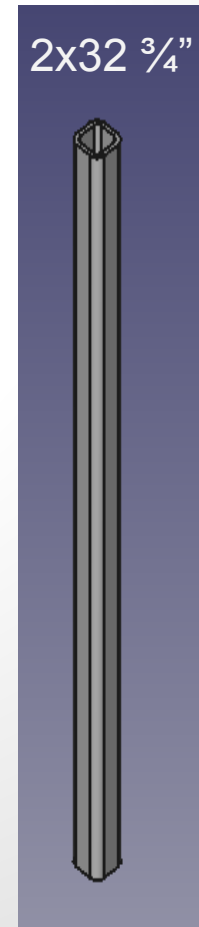
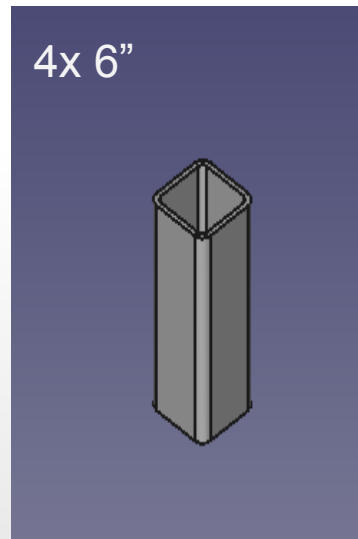
	Length	Stock	Part Name	Quantity
	6"	2 1/2"x 3/16" square tubing	F1, F2, F3, F4	4
	36"	2"x 1/4" square tubing	L1, L2, L3, L4	4
	32 3/4"	2"x 1/4" square tubing	P1, P2,	2
	42"	2"x 1/4" square tubing	P3, P4	2
			3/4 in. nut	6
	1.5"		3/4 in diameter bolt	4
	4"		1/2 in. diameter bolt	2

Procedure

1. Cut square tubing to size with the abrasive saw.
Be sure to grind sharp edges when finished.



Number:	Stock:	Size:
4x	2 1/2"x 3/16" square tubing	6 inches long (foot fittings)
4x	2"x 1/4" square tubing	36 inches long (legs)
2x	2"x 1/4" square tubing	32 3/4 inches long (hopper supports)
2x	2"x 1/4" square tubing	42 inches long (rear hopper supports)
4x	3/4" x 1.5" long bolts	
2x	3/4" x 4" long bolts	



Labeled Materials:



2. Label each piece in marker.

F(1-4), L(1-4), P (1-4)

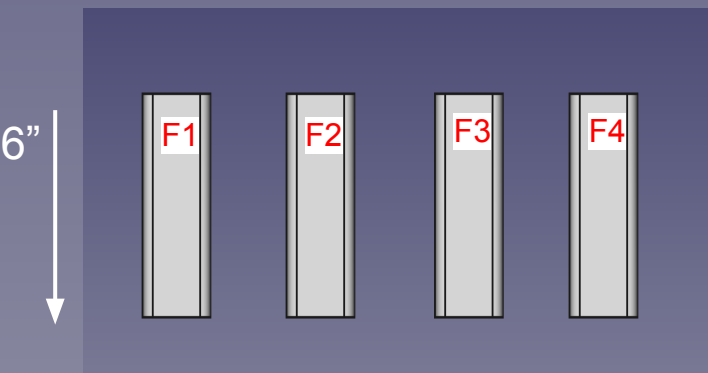
F = Foot

L = Leg

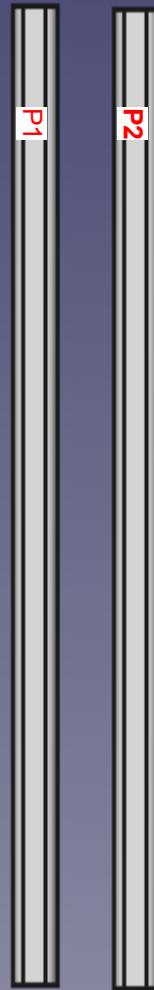
P = Pillars

P 1, 2 = $32\frac{3}{4}$ "

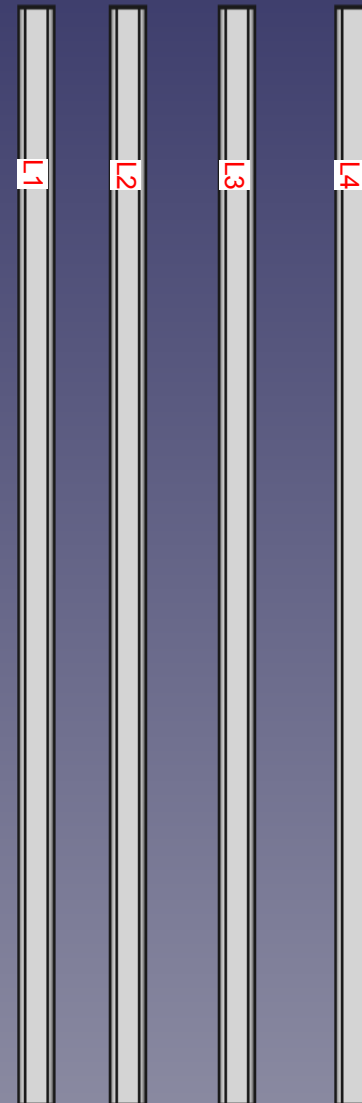
P 3,4 = 42"



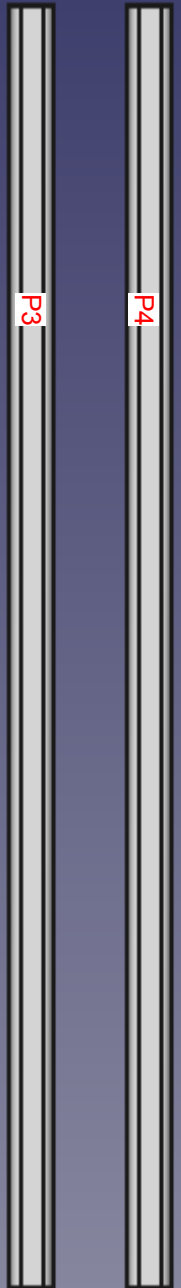
$32\frac{3}{4}$ "



36"



42"



Welding Procedure

- Make sure the table is clear of bumps and scrap metal
 - Grind spatter and bumps from your weld table; the table down for easier assembly
- Welding heats the metal to high temperatures so the metal will warp if not careful
 - To minimize warping, tack weld all parts first in different places first
 - Then spread the weld apart into many different places, not closing any gaps until the very end
 - Order the welding so each weld are far apart from the previous weld, welding about 2%, then 5%... 10%... 20%... 50%... 100% at each spot.
- Millermatic 200 welders - use High Voltage, 2 power setting, 60 wire speed.
- See [procedure for replacing liner](#)

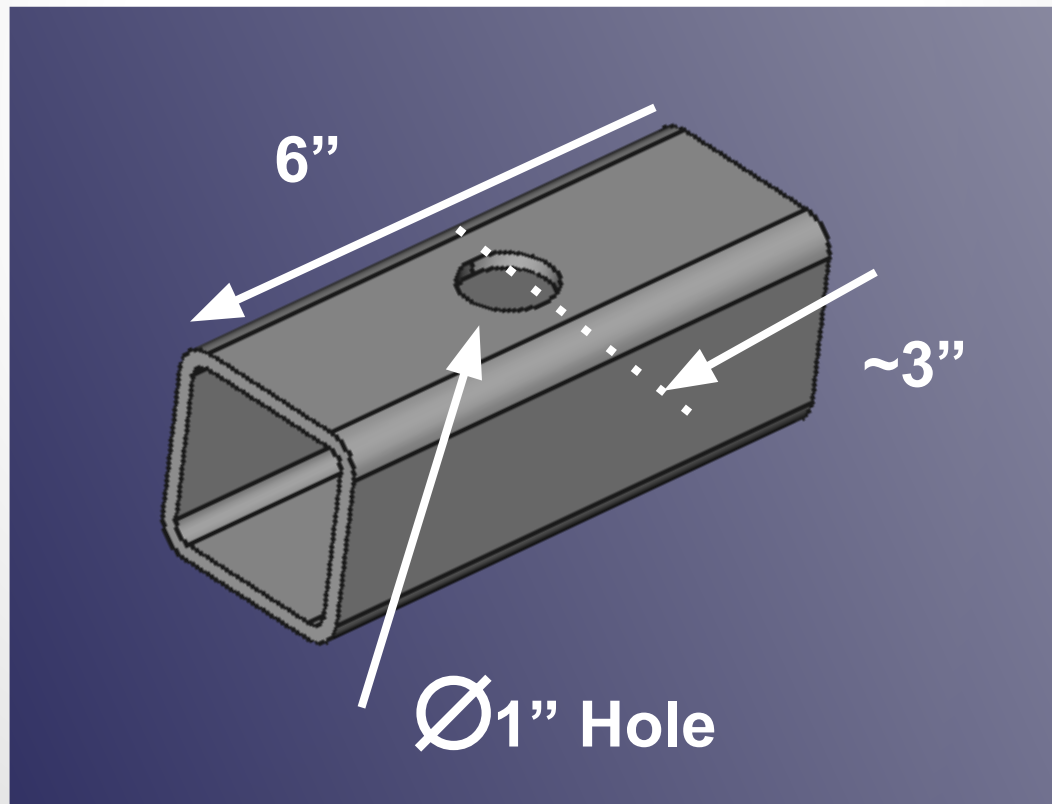
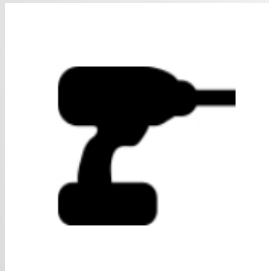
Procedure: Legs

Step 1:

1. Drill 1" hole with the annular cutter 3" down through one side of the 6" long 2 ½"x 3/16" square tubing. Repeat for all four pieces.

- One side of tube has a welded seam - do not drill on that side

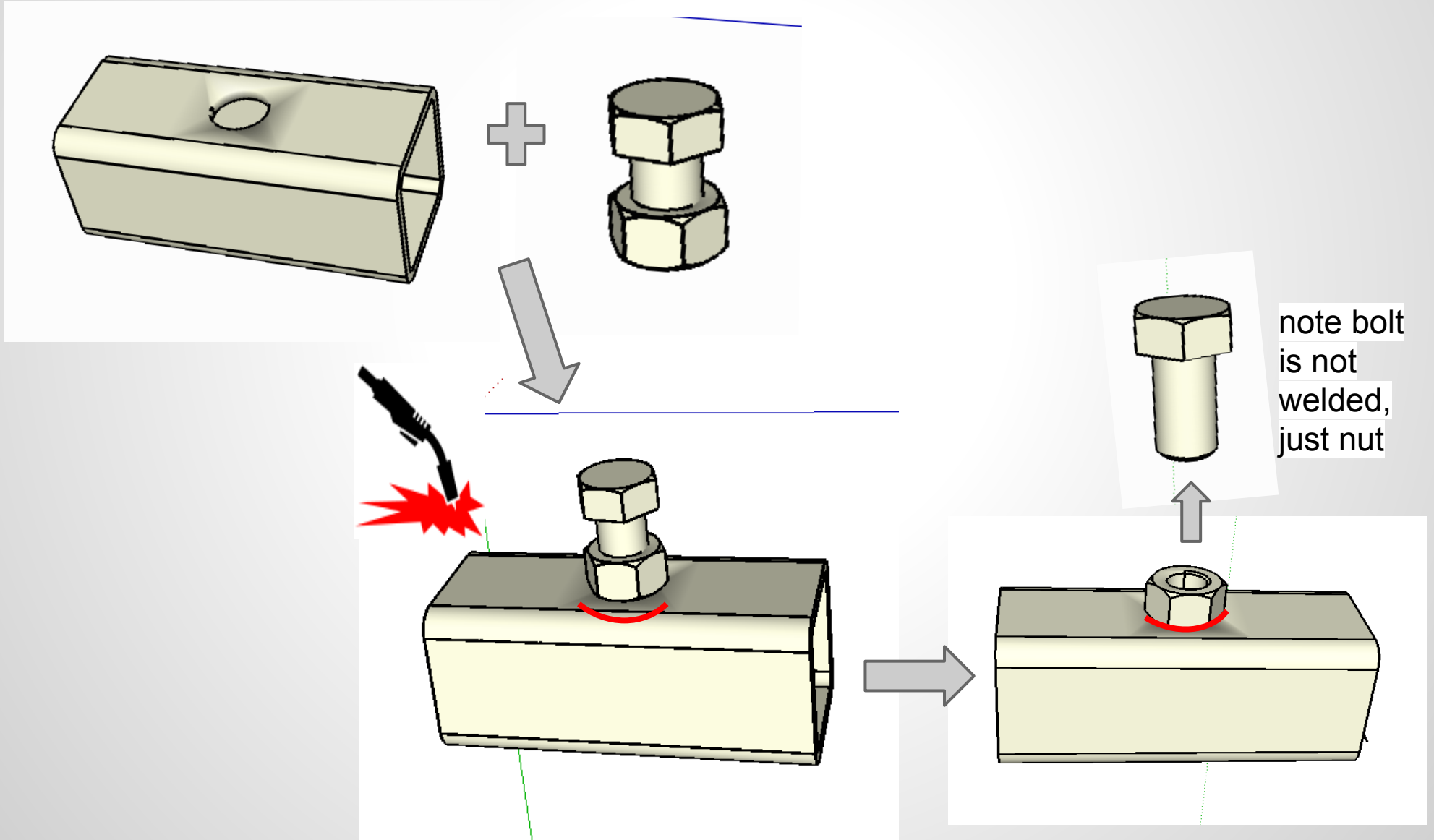
Foot [x4] 2 ½ inch square tubing



Procedure: Legs

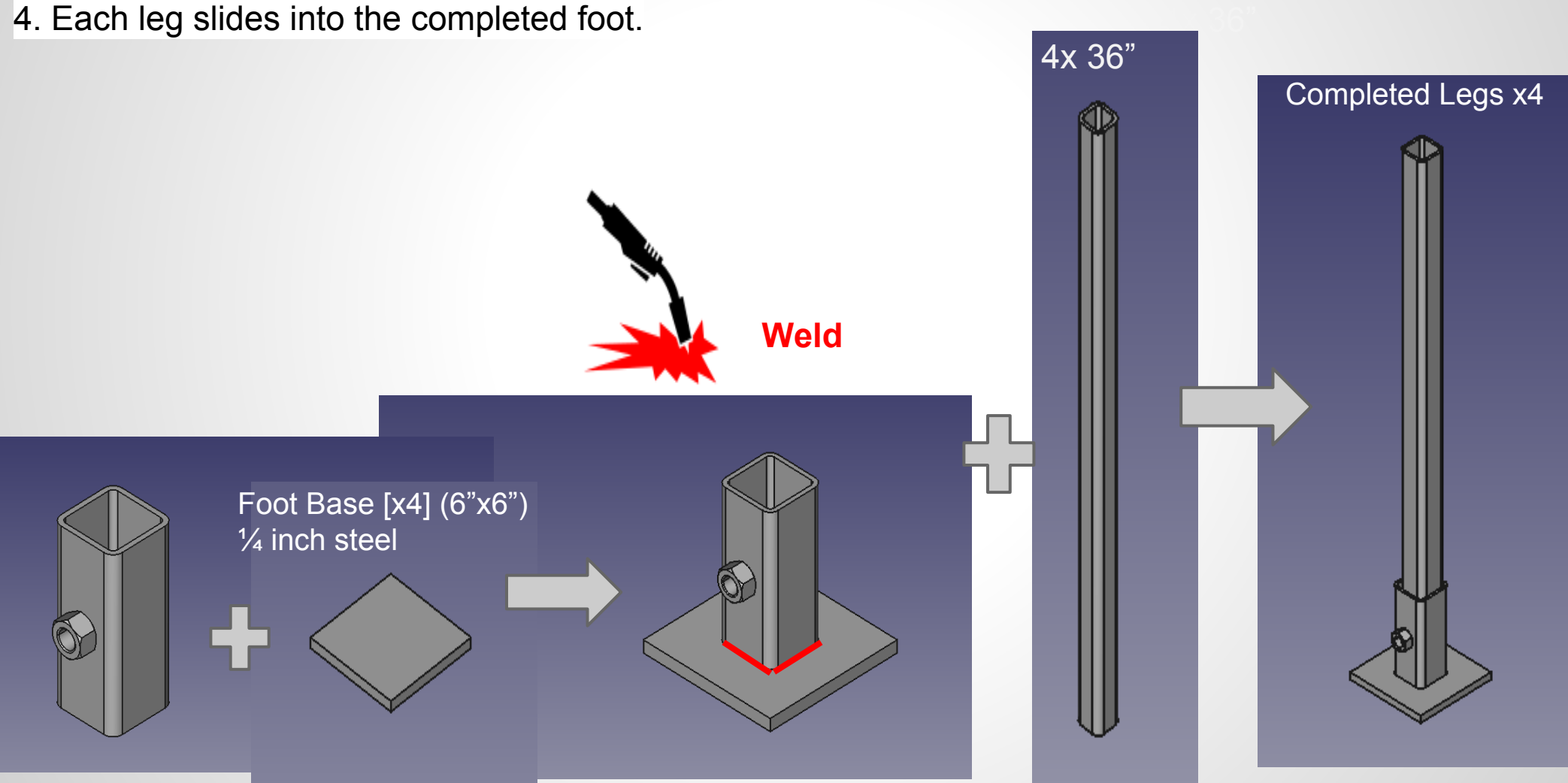
Step 2:

2. Place a 2" long $\frac{3}{4}$ " bolt through the nut before you begin welding. This ensures that the bolts will be properly aligned before you begin welding. Weld $\frac{3}{4}$ " nut over the hole in 2 $\frac{1}{2}$ " square tubing. Repeat for each foot.



Procedure: Legs Continued

3. Weld each tube to the center of the base plate. Repeat for each foot. Not a critical weld, doesn't have to be precise
4. Each leg slides into the completed foot.

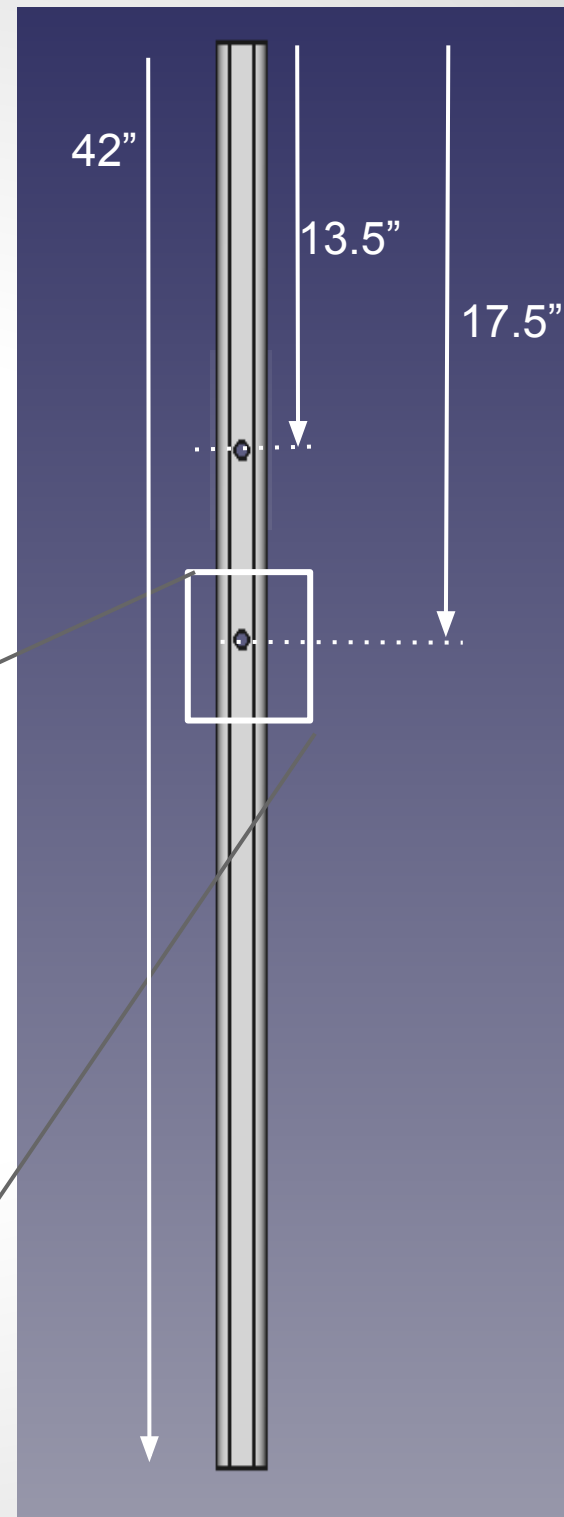
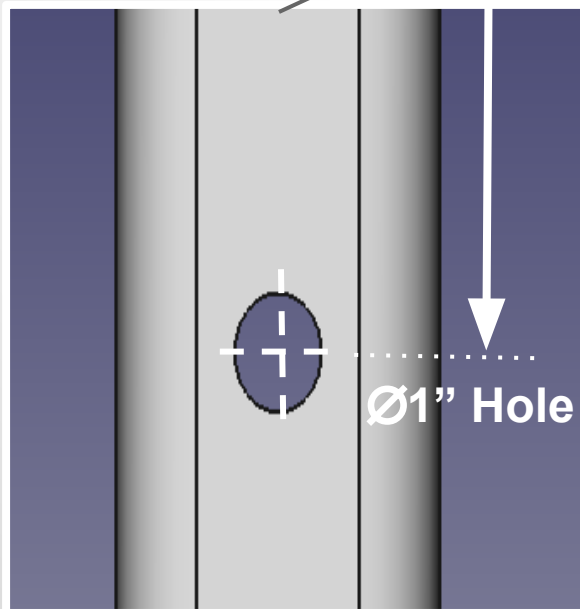


Procedure: Hopper Supports

5. Drill two 1 inch diameter holes through the long hopper supports 13.5 inches and 17.5 inches down from the top edge of the 42 inch long 2"x ¼" square tubing.

Drill through one side first with the annular cutter, then flip the piece over and cut through the opposite side. Repeat for the second 42 inch long piece.

Nut is welded to the rear piece of the hopper assembly. See hopper assembly instructions for more details.



Legs/Feet Module

Were these instructions helpful?

Please rate from 1 to 10 (10 being the highest)

Are there any parts that needed improvement?

What parts did you like that you found helpful?