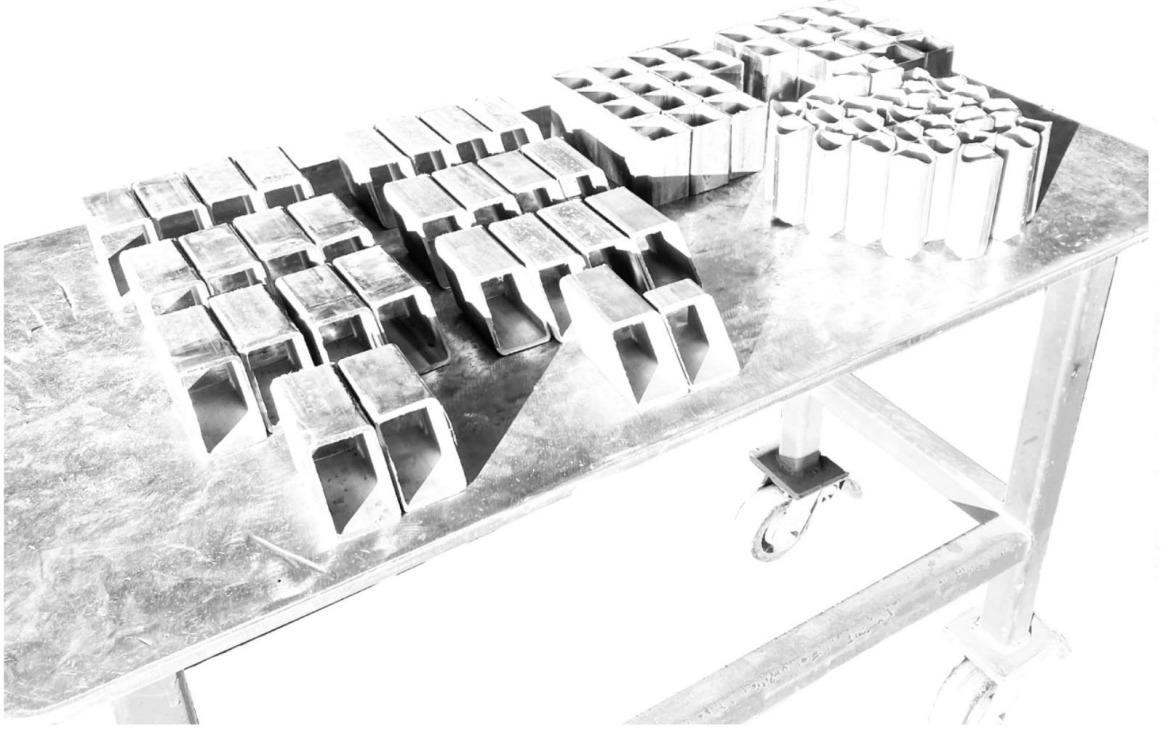
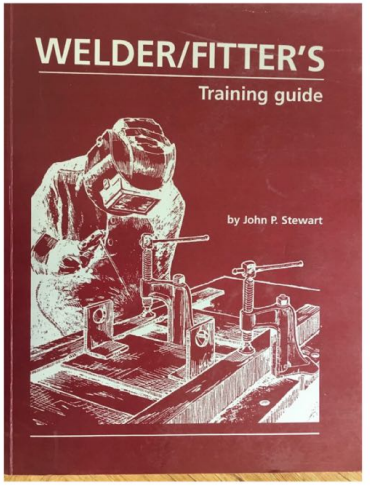
WLD 260: Beginning Fabrication.



Student Name:_____ Date:_____

CCOG for WLD 260: https://www.pcc.edu/ccog/wld/260/



1. Turn in chapter review questions from fabrication chapter in the Jeffus textbook.

Read the **Fabrication Techniques and Practices** chapter in the Larry Jeffus Textbook
Complete all review questions at the end of the chapter and hand them in to your instructor.

Welder Fitter's Training Guide

The Welder/Fitter's Training Guide is an excellent book. For the beginning of this class we will work our way through some of the basic exercises. These may seem simple to some but they are important basic skills that we often need out in the field. Fitting something up properly before we weld it is a skill in itself, one we are usually expected to have.

Most of the tools required for these exercises can be checked out from the tool room. Most of these exercises can be drawn out on a large table in the Fabrication Bay.

1. Check the Fitter's guide out from the tool room for each class period it is needed.

   Please perform the following exercises and have them inspected by your instructor.
   Many of the exercises call for a specific size plate or circle to be used. You can simply lay these out on a table in most cases, or draw a rectangle, circle or square, instead of cutting one out.

LESSON 1: ***Alignment with Basic Tools***

Exercise 1-2
Using a steel square draw angles 45°,60°,30°

Exercise 1-3
Using a steel square find the center of a 24" square plate (the square can be simply drawn on a table)

Exercise 1-4
Using the square from the previous exercise mark the center with a center punch. (this should be a very accurate mark)

Exercise 1-5
Check the trueness of a straightedge on a surface known to be true. This seems a bit odd but it is an issue that can occur. Check the edge of a framing square against the feed table of both shears.

Exercise 1-9

Exercise 1-10

Exercise 1-11

Exercise 1-12
(a steel scale is a ruler)

Exercise 1-14
For this one try to locate four perfectly level surfaces in the shop.

LESSON 2: ***Laying out Plate***

For these exercises, you can modify the size of circles to allow them fit onto a welding table.

Exercise 2-1
You can use the soapstone compass from the tool room for this instead of trammels.

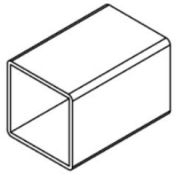
Exercise 2-2
You can use dividers, trammels, or compass for this.

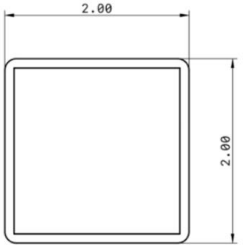
Exercise 2-3

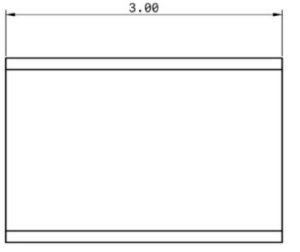
Exercise 2-4

Exercise 2-7

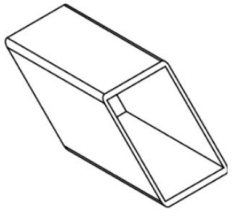
Cut-list for tube welding Projects

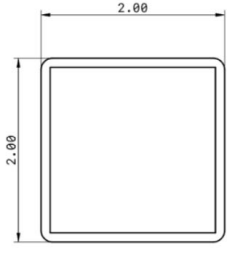


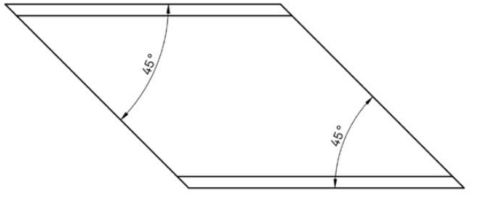




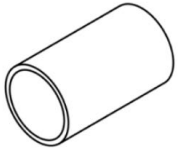
Part A			
Quantity	Initials	Dimensions	Initials
26			

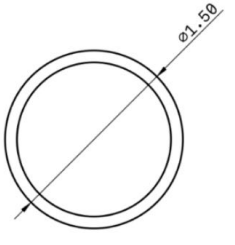


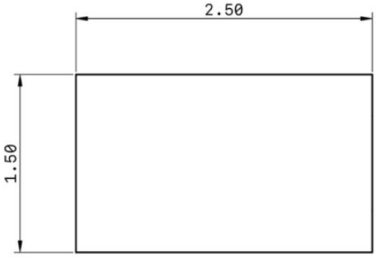




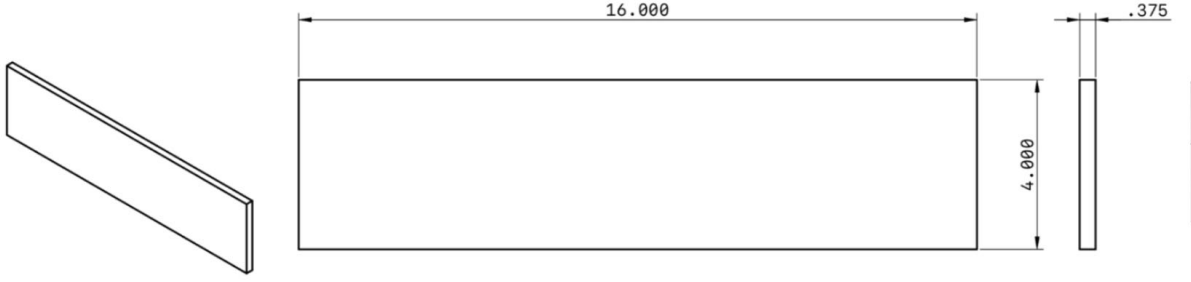
Part B			
Quantity	Initials	Dimensions	Initials
24			





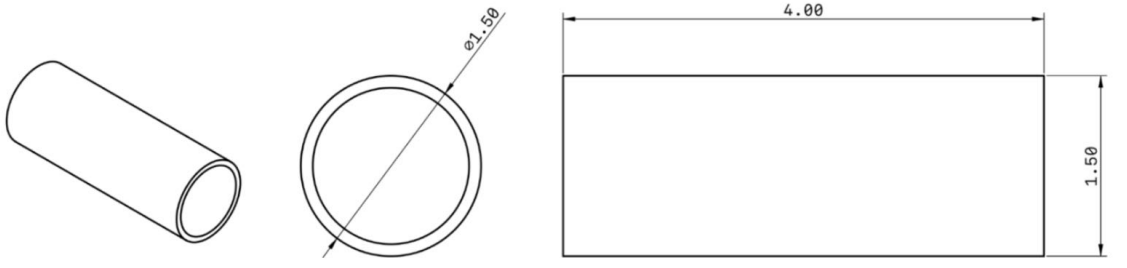


Part C			
Quantity	Initials	Dimensions	Initials
16			



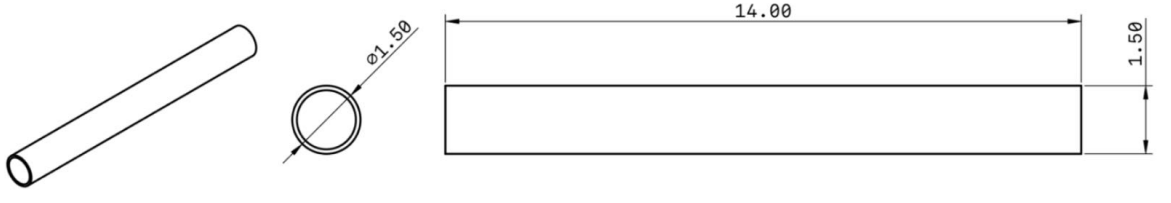
Part D

Quantity	Initials	Dimensions	Initials
4			



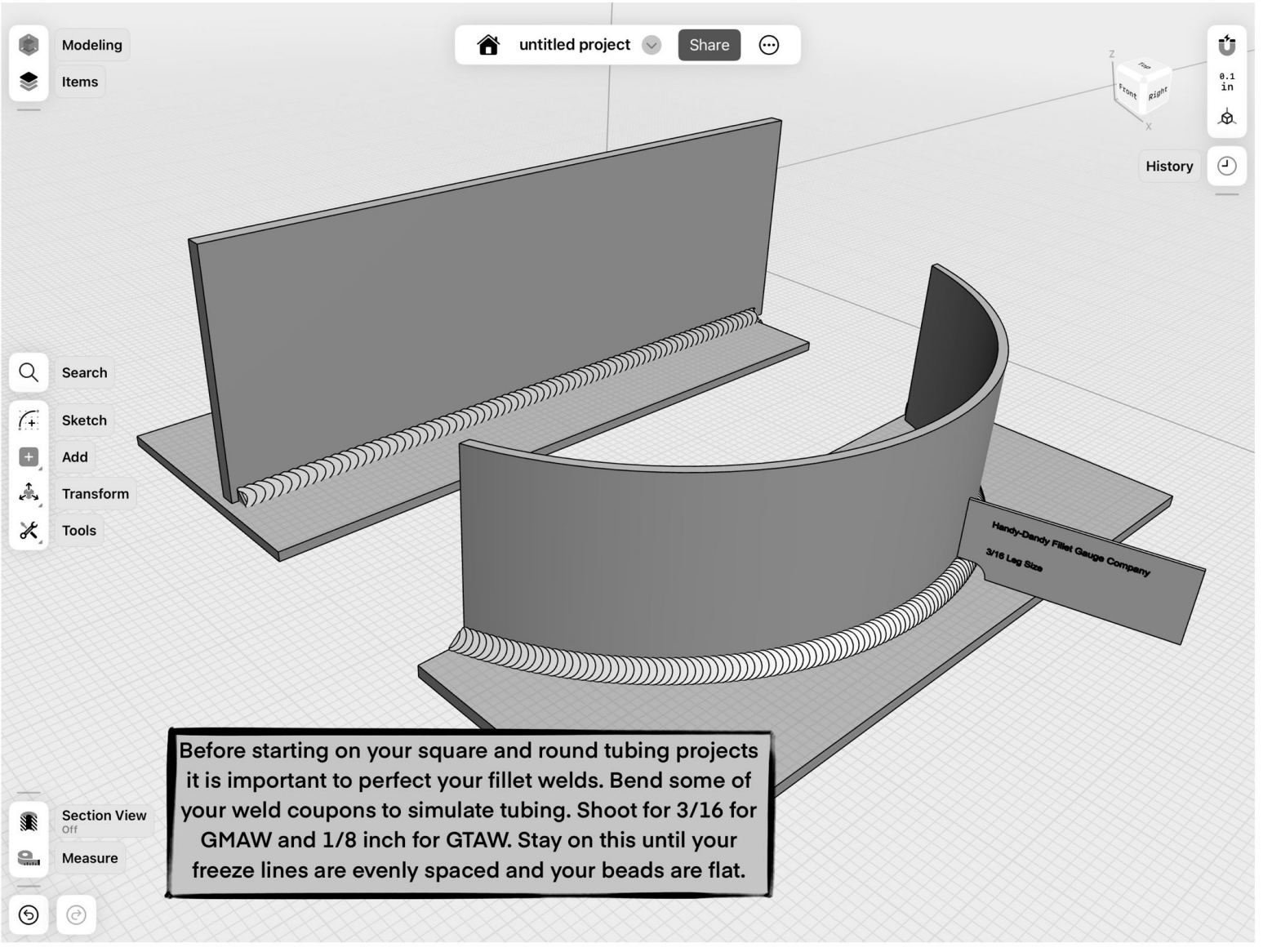
Part E

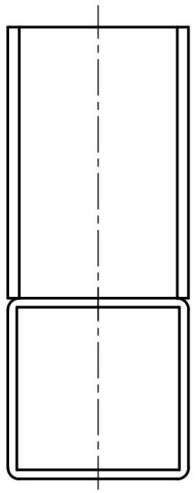
Quantity	Initials	Dimensions	Initials
20			

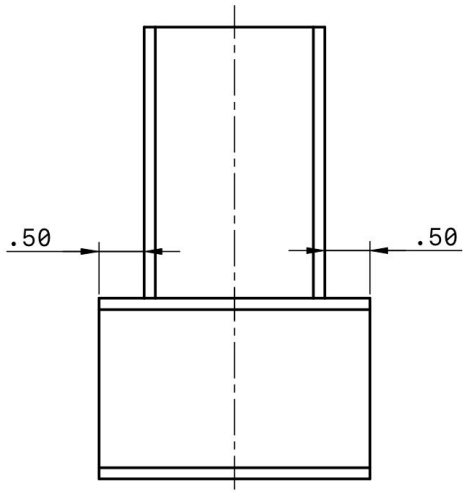


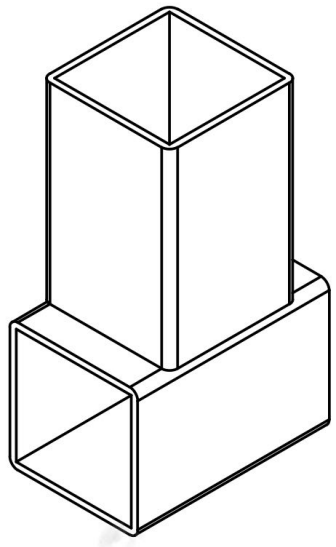
Part F

Quantity	Initials	Dimensions	Initials
4			


Modeling
Items
untitled project
Share
History
Search
Sketch
Add
Transform
Tools
Handy-Dandy Fillet Gauge Company
3/16 Leg Size
Before starting on your square and round tubing projects it is important to perfect your fillet welds. Bend some of your weld coupons to simulate tubing. Shoot for 3/16 for GMAW and 1/8 inch for GTAW. Stay on this until your freeze lines are evenly spaced and your beads are flat.
Section View
Off
Measure

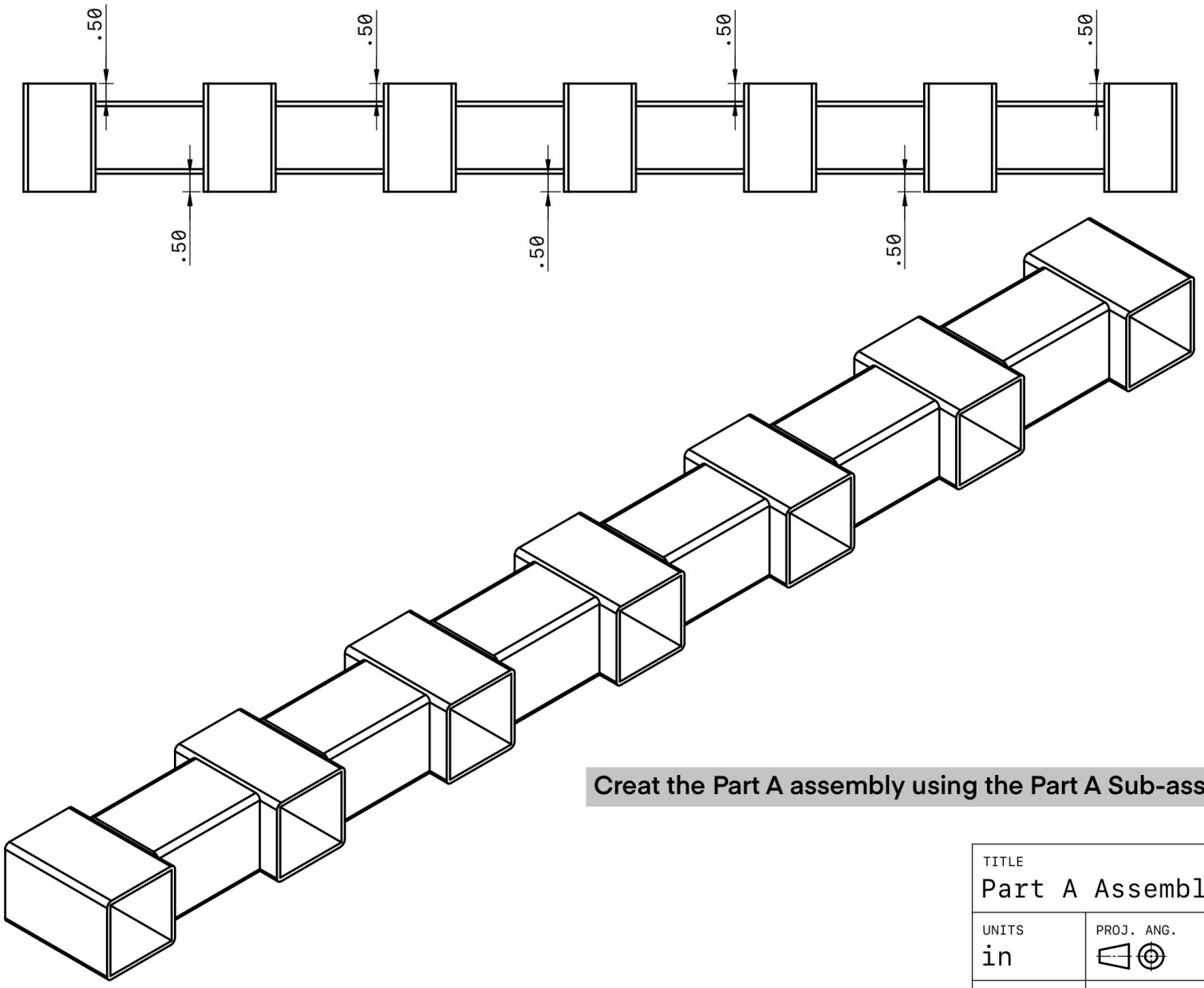






The tubes should be fit up to be square. Light first tacks are important for keeping the tubes from shifting as the tack weld cools and shrinks. Welds should wrap the corners slightly and overlap one another. The flare-bevel groove should be welded in such a way as to prevent undercut and poor bead contour.

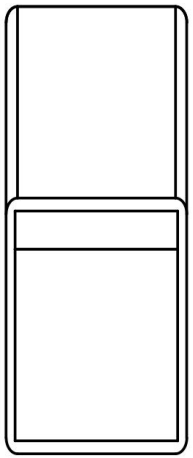
TITLE		
Part A Sub-assembly		
UNITS in	PROJ. ANG.	SIZE A
SCALE 1:2	LAST UPDATED 03/29/25	SHEET 1/1

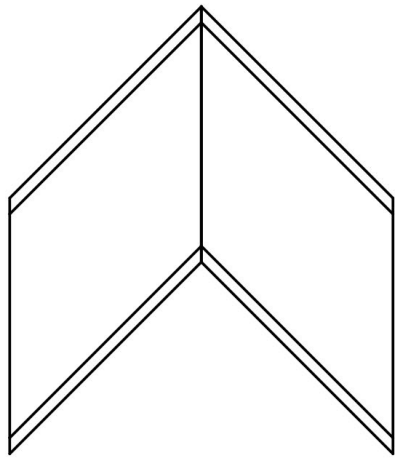


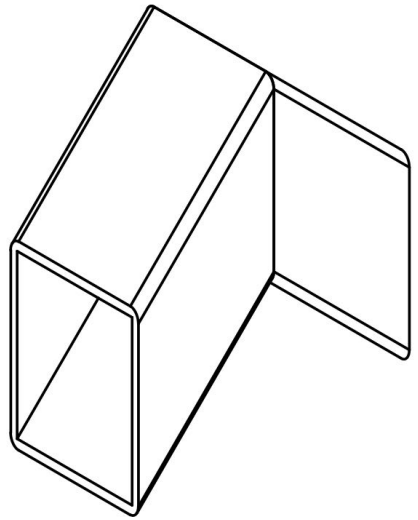
Creat the Part A assembly using the Part A Sub-assemblies.

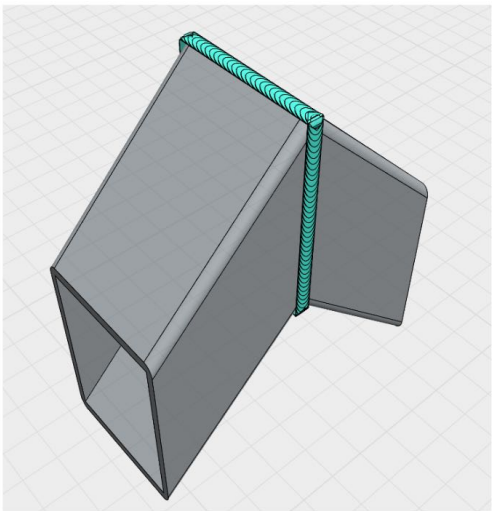
SCALE 1:3

TITLE: Part A Assembly		
UNITS: in	PROJ. ANG.	SIZE: A
SCALE: 1:4	LAST UPDATED: 03/29/25	SHEET: 1/1



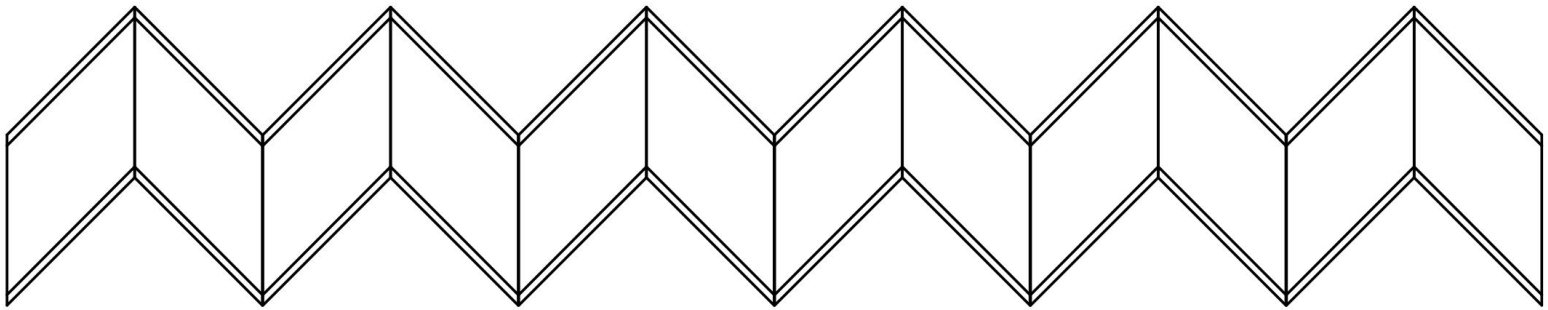


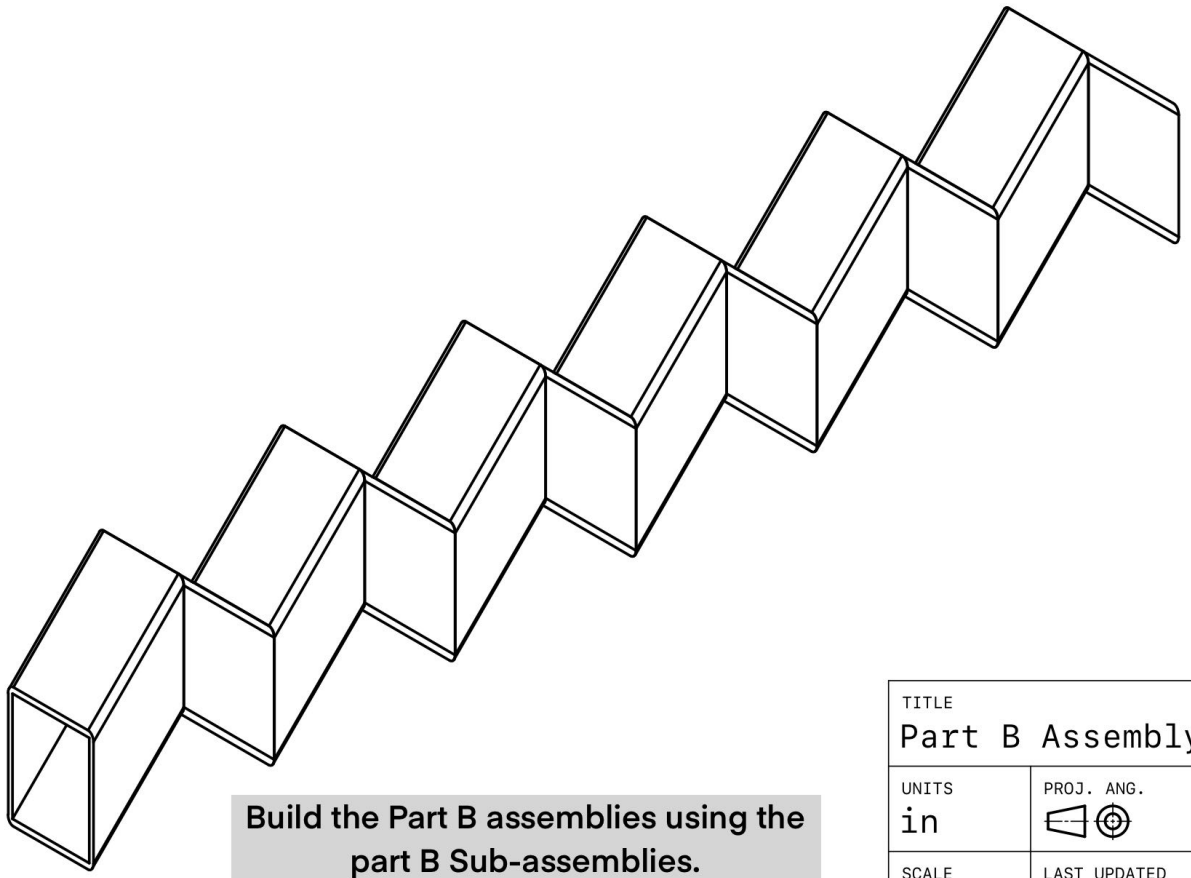




Weld the Part B Sub-assembly using part B. Attention should be paid to squareness of the parts when finished. A small gap between parts will help with fit-up, distortion control, and penetration. Penetration is essential for weldments that will be ground and finished. Experiment with weld progression to find the best order to produce a square result. Check fit-up for squareness after each weld.

TITLE: Part B Sub-assembly		
UNITS: in	PROJ. ANG.	SIZE: A
SCALE: 1:2	LAST UPDATED: 03/29/25	SHEET: 1/1



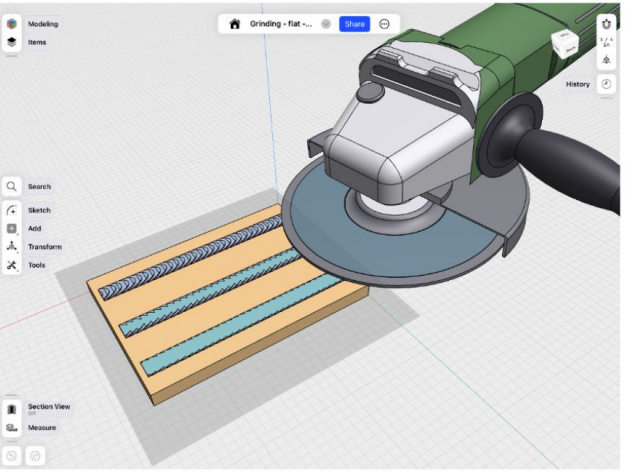


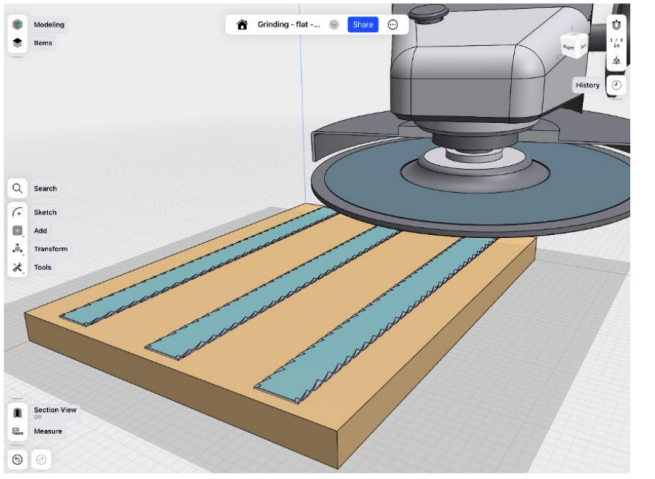
Build the Part B assemblies using the part B Sub-assemblies.

TITLE: Part B Assembly		
UNITS: in	PROJ. ANG.	SIZE: A
SCALE: 1:3	LAST UPDATED: 03/29/25	SHEET: 1/1

Grinding exercises
Flat not flush.

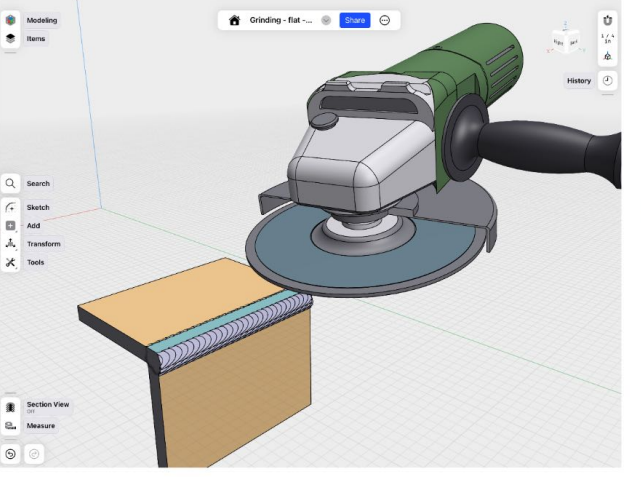
1. For this exercise weld 3 equally spaced beads on a 4 x 6 plate. Grind the welds down until they are just slightly proud of the plate surface. The object of this project is to not touch the plate at all with the grinding disk. Do not blend the weld with the surface. This project should be repeated until it is successful.

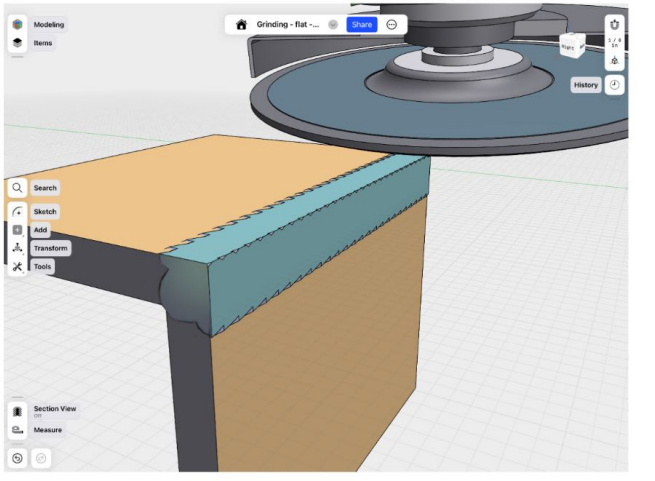


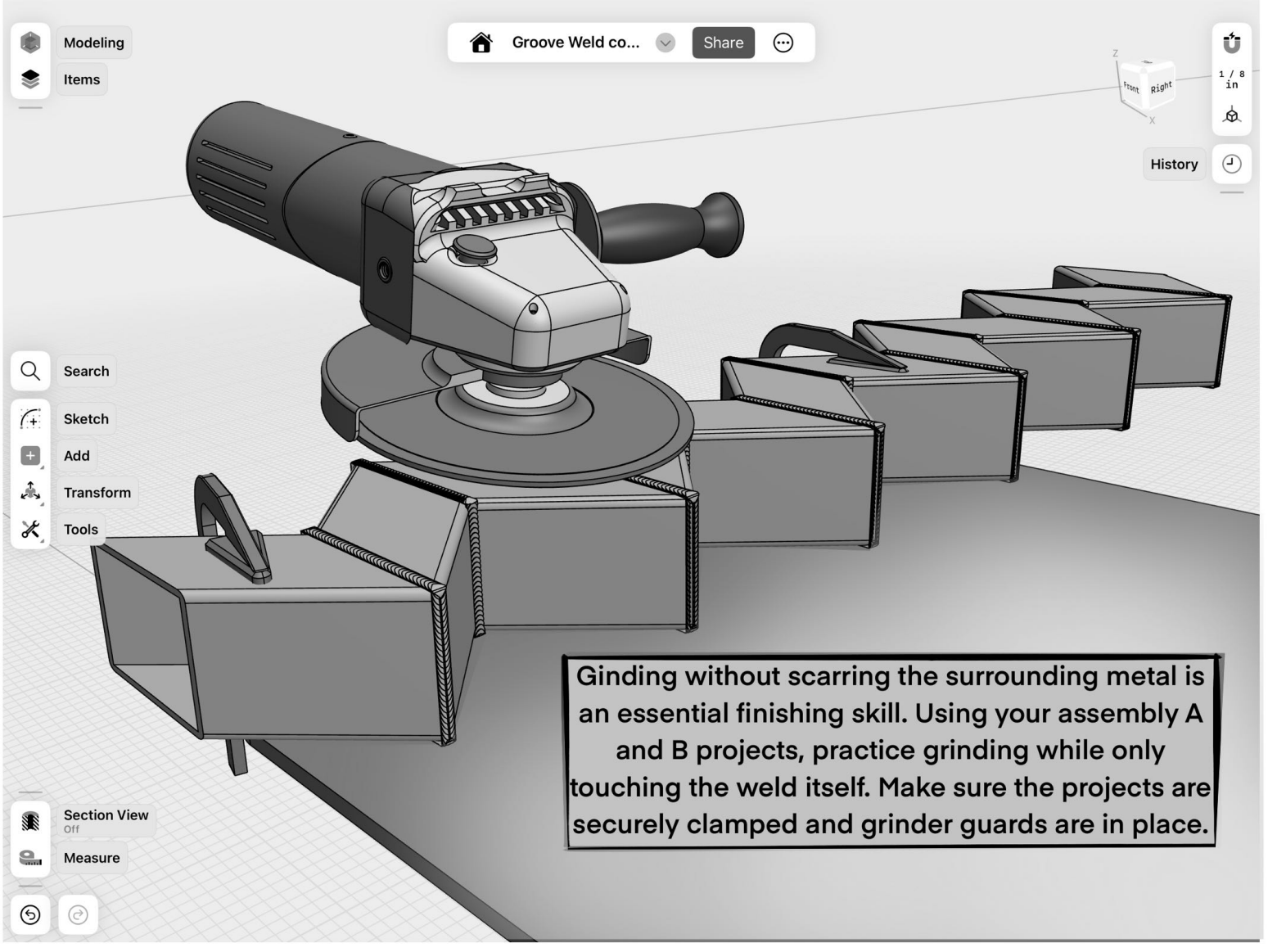


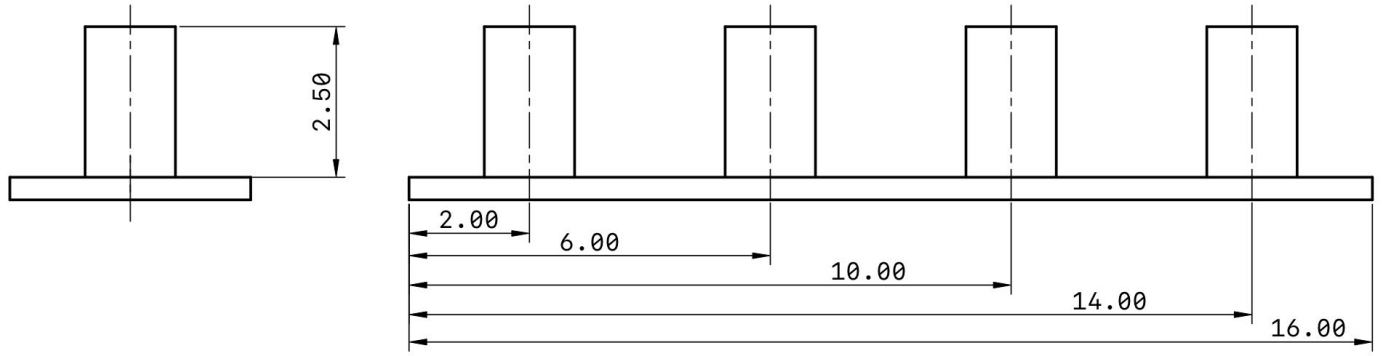
Be sure to clamp projects down before grinding.

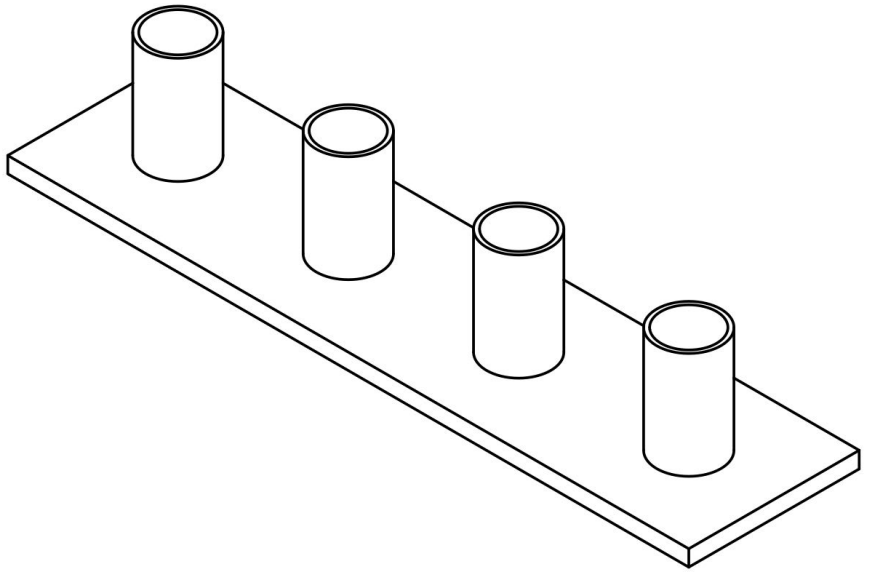
2. For this exercise weld a corner joint using two 4 x 6 plates. Build the corner up with multiple welds until the profile will yield a 90 degree angle after grinding nearly flush with the base plates. Grind one plane until nearly flush with the surface. Inspect the joint from the ends to determine if more welds will be required to fill out the finished 90 degree edge. Now grind the second plane and inspect the corner angle and be sure not to touch the plates with the grinding wheel.
This project should be repeated until successful.





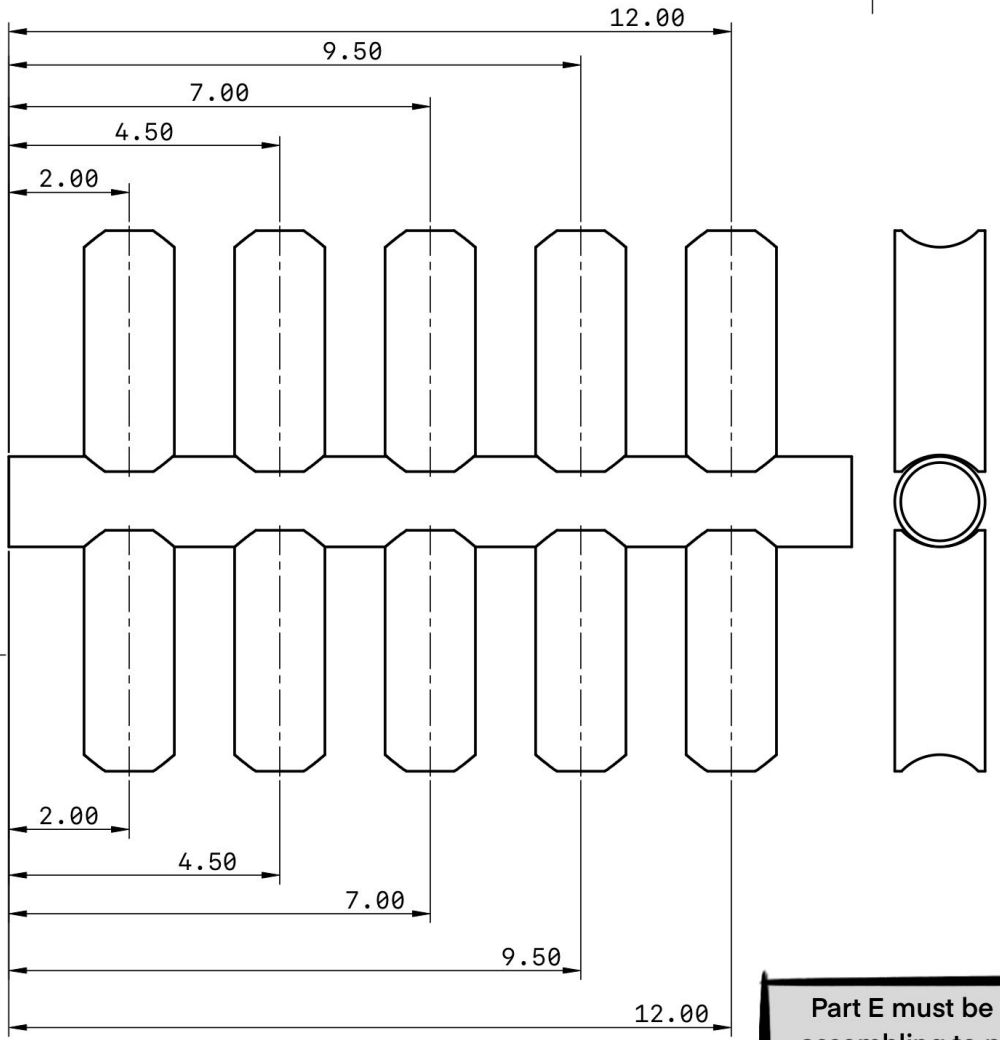

Modeling
Items
Groove Weld co...
Share
Front
Right
1 / 8 in
History
Search
Sketch
Add
Transform
Tools
Section View
Off
Measure
Ginding without scarring the surrounding metal is an essential finishing skill. Using your assembly A and B projects, practice grinding while only touching the weld itself. Make sure the projects are securely clamped and grinder guards are in place.

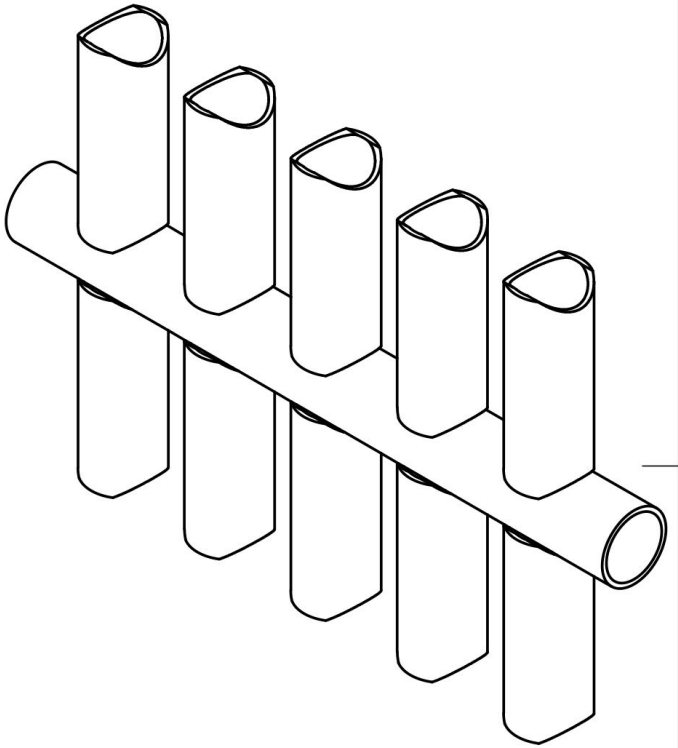




Try to make it around each tube with only one restart. Weld should be equal legs and as flat as possible. After the root welds are inspected apply another layer of welds to the joint by stacking two more fillet welds.

TITLE: Parts C and D Assembly		
UNITS: in	PROJ. ANG.	SIZE: A
SCALE: 1:3	LAST UPDATED: 03/29/25	SHEET: 1/1





Part E must be notched before assembling to part F. The GTAW assemblies would benefit from improved fit-up. This can be achieved by slightly crushing the very ends of the tubes in a vice. Fit and weld 2", 7", and 12", locations before attempting the 4.50" and 9.50" locations.

TITLE: Parts E and F Assembly		
UNITS: in	PROJ. ANG.	SIZE: A
SCALE: 1:3	LAST UPDATED: 03/29/25	SHEET: 1/1

WLD 260 Time Tracker

Week	Monday	Tuesday	Wednesday	Thursday
1	Hours/work done:	Hours/work done:	Hours/work done:	Hours/work done:
2	Hours/work done:	Hours/work done:	Hours/work done:	Hours/work done:
3	Hours/work done:	Hours/work done:	Hours/work done:	Hours/work done:
4	Hours/work done:	Hours/work done:	Hours/work done:	Hours/work done:
5	Hours/work done:	Hours/work done:	Hours/work done:	Hours/work done:
6	Hours/work done:	Hours/work done:	Hours/work done:	Hours/work done:
7	Hours/work done:	Hours/work done:	Hours/work done:	Hours/work done:
8	Hours/work done:	Hours/work done:	Hours/work done:	Hours/work done:
9	Hours/work done:	Hours/work done:	Hours/work done:	Hours/work done:
10	Hours/work done:	Hours/work done:	Hours/work done:	Hours/work done:
11	Hours/work done:	Hours/work done:	Hours/work done:	Hours/work done:
12	Hours/work done:	Hours/work done:	Hours/work done:	Hours/work done:

Write the hours for each day and a short description of what you did on that day.

Name:_____ Grading Sheet 260

Lesson 1:Alignment basic tools

exercise 1-2	
exercise 1-3	
exercise 1-4	
exercise 1-5	
exercise 1-9	
exercise 1-10	
exercise 1-11	
exercise 1-12	
exercise 1-14	

Lesson 2: Laying out Plate

Exercise 2-1	
exercise 2-2	
exercise 2-3	
exercise 2-7	
exercise 2-13	
exercise 2-17	
chalklines	

Grinding and finishing

exercise 1	
exercise 2	

Tube Notcher :Saddle welds

GMAW	
GTAW	

Tools

Band Saw	
Iron Worker	
Hand Drill	
Drill Press	
Slip Rolls	
Break	
Shear	
Plasma	

Square tube welds

90° Miter	
90°Butt	

Round tube to plate

GMAW	
GTAW	

Chapter Questions	