

The Adams-Brown-Waldschmitt (ABW) Desk Manufacturing Plan

Originally developed by: Michael Brown and Samuel Waldschmitt June 2019

Modified by: Hannah Gardner, General Team October 2019

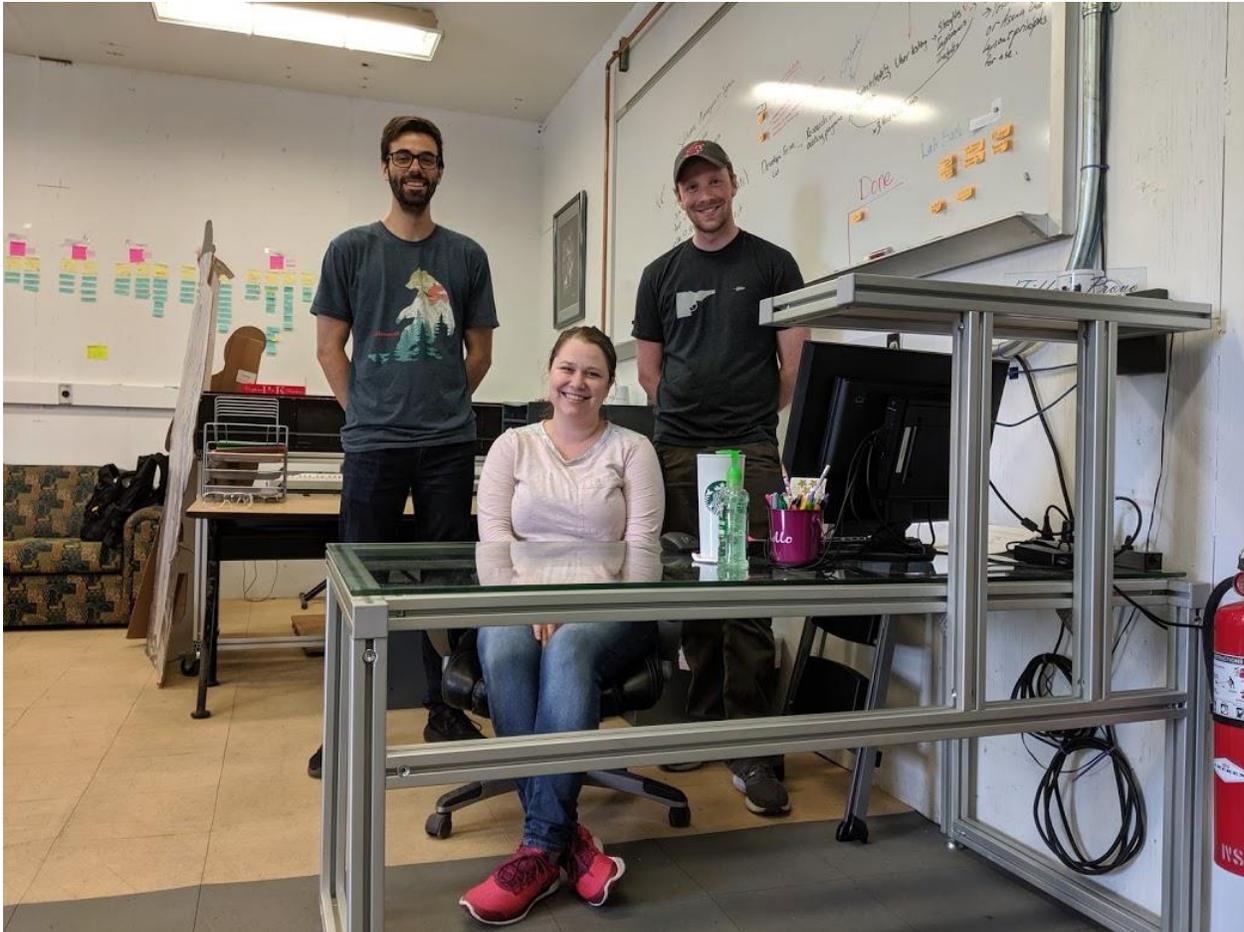


Figure 1: Sam Waldschmitt (Left) and Michael Brown (Right) present the first ABW desk to Tiffany Provo (HYPER lab manager in 2019).

Short Desk with Full-Width Shelf

Required Materials:

- i. 8x (45 x 45 mm) Bosch end caps
- ii. 2x (45 x 45 mm) Bosch gussets with fasteners
- iii. 4x Bosch threaded leveling feet
- iv. 20x Bosch rigid “quick connectors”
- v. Bosh extruded aluminum frame tubing cut to the following lengths and quantities:
 - o 6x 25 3/8” (Green)
 - o 2x 28 1/2” (Blue)
 - o 5x 54 1/4” (Yellow)
 - o 2x 23 1/4” (Red)
 - o 2x 12” (Purple)
- vi. Tempered glass desktop (57 3/4 x 26 3/4)
- vii. 6x Rubber Bumpers (for glass top)
- viii. Furniture grade plywood shelving 55 1/4” x 9 1/2” x .4”

Tall Desk with Full-Width Shelf

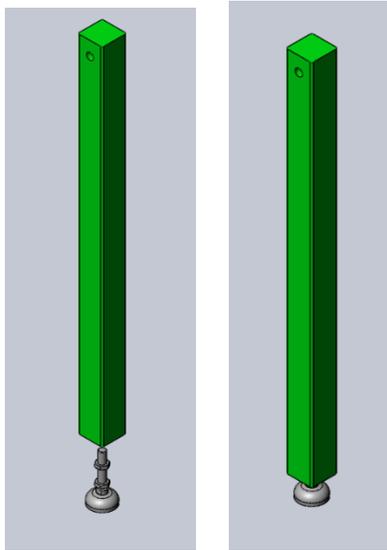
Required Materials:

- ix. 8x (45 x 45 mm) Bosch end caps
- x. 2x (45 x 45 mm) Bosch gussets with fasteners
- xi. 4x Bosch threaded leveling feet
- xii. 20x Bosch rigid “quick connectors”
- xiii. Bosh extruded aluminum frame tubing cut to the following lengths and quantities:
 - o 6x 38 3/8” (Green)
 - o 2x 28 1/2” (Blue)
 - o 5x 54 1/4” (Yellow)
 - o 2x 23 1/4” (Red)
 - o 2x 12” (Purple)
- xiv. Tempered glass desktop (57 3/4 x 26 3/4)
- xv. 6x Rubber Bumpers (for glass top)
- xvi. Furniture grade plywood shelving 55 1/4” x 9 1/2” x .4”

To build these desks, we will break into two teams of two.

Team 1

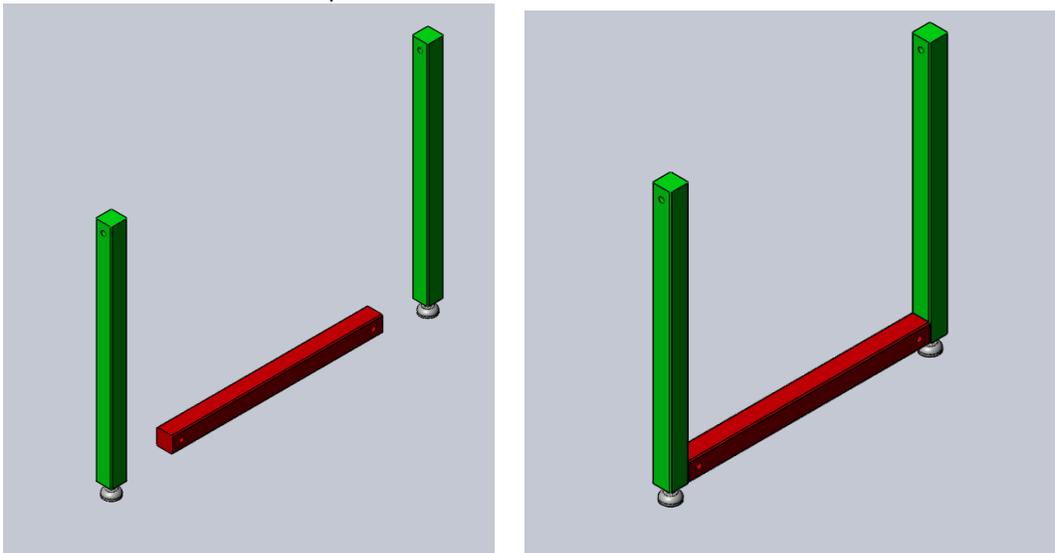
1. Prepare the struts to create the desk legs by:
 - i. Tap the bottoms of 4 of the 25 1/8" struts (short desk) or 4 of the 38 3/8" struts (tall desk)
 - ii. Attach leveling feet.



2. Assemble desk leg 1:

- a. Required materials:

- i. 2x 25 1/8" strut (1 hole, Green) or 38 3/8" (1 hole, Green)
- ii. 1x 23 1/4" (2 holes, Red)
- iii. 2x quick connector



3. Assemble desk leg 2 by repeating step 2

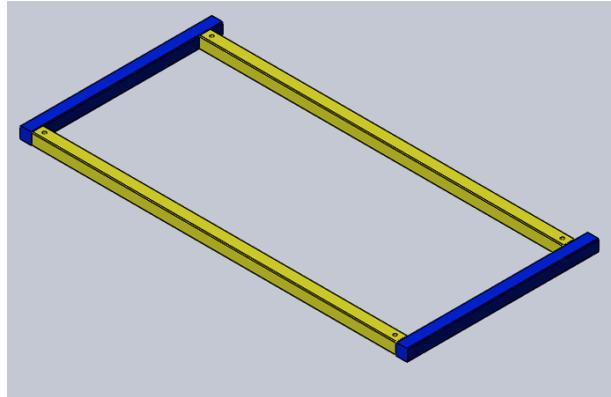
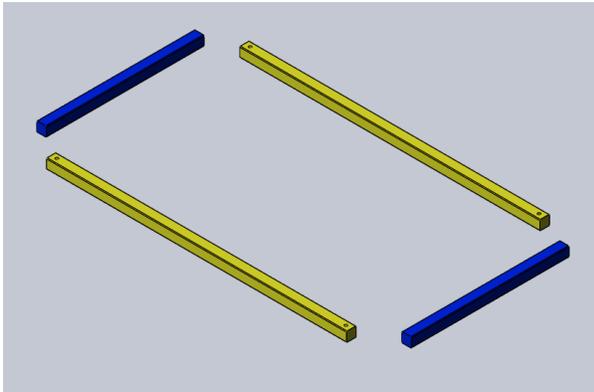
Team 2

1. Assemble desktop

a. Required materials:

- i. 2x 54 ¼ " strut (2 holes, Yellow)
- ii. 2x 28 ½ " strut (no holes, Blue)
- iii. 4x quick connector

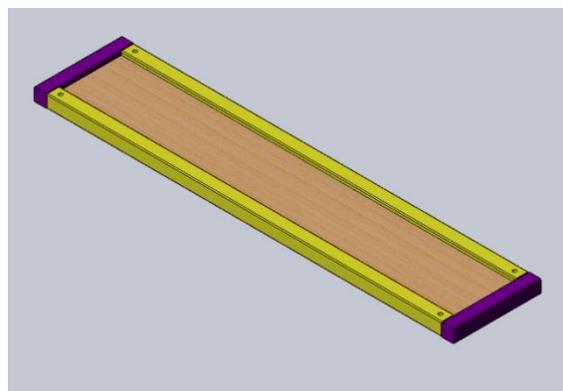
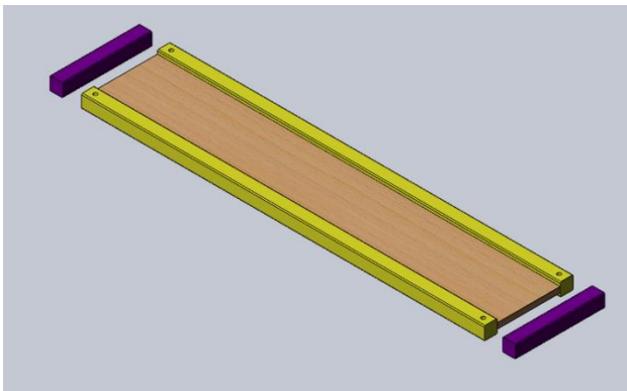
b. Set the rear 54 ¼ " strut 45mm (one strut width) from the back edge of the 28 ½ " strut.



2. Assemble shelf unit

a. Required materials:

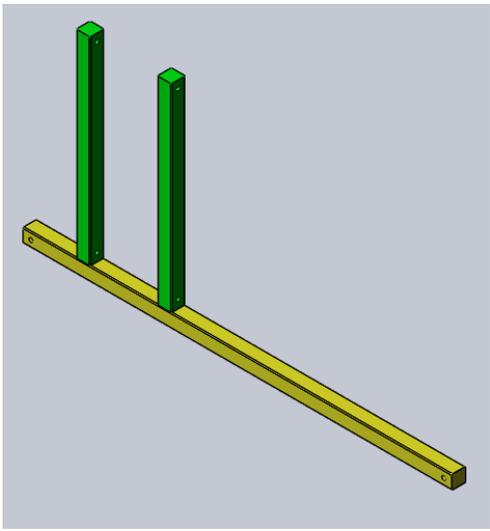
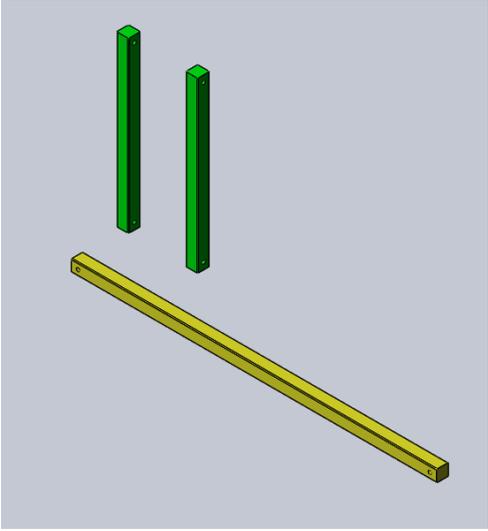
- i. 2x 12" strut (2 holes, Purple)
- ii. 2x 54 ¼ " strut (2 holes, Yellow) (ensure these are oriented so quick connects don't impede plywood placement)
- iii. 4x quick connector
- iv. 1x 55 ¼" x 9 ½" x .4" plywood insert



3. Attach vertical shelf supports to crossbar

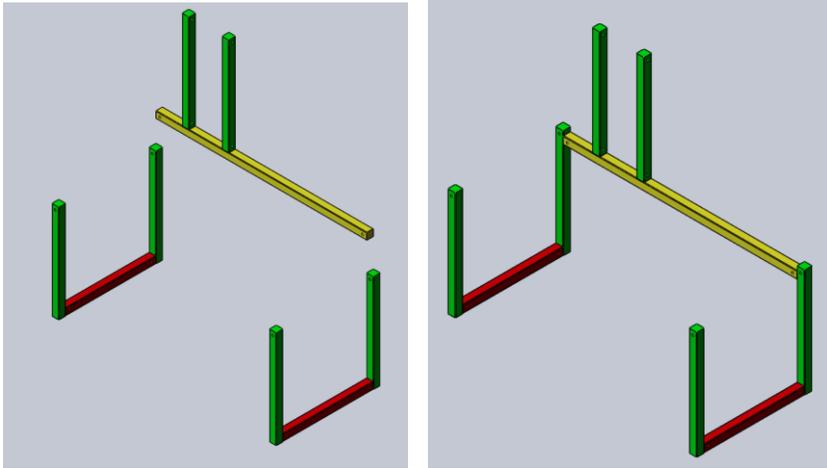
a. Required materials:

- i. 2x 25 1/8" strut (2 holes, Green)
- ii. 1x 54 ¼" strut (2 holes, Yellow)
- iii. 2x quick connector

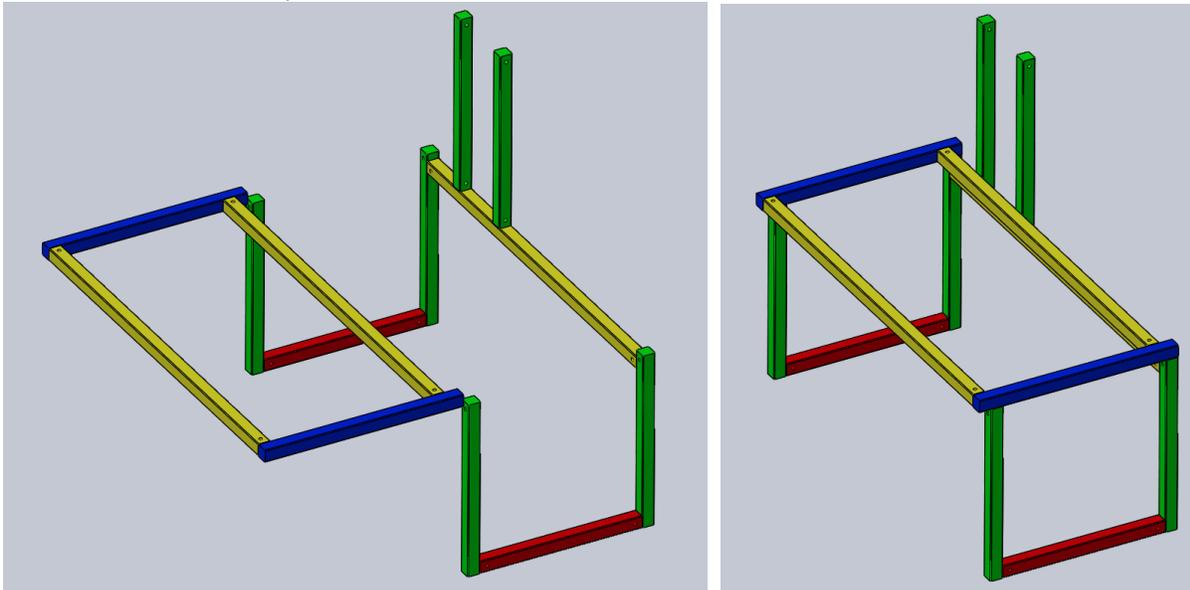


Together

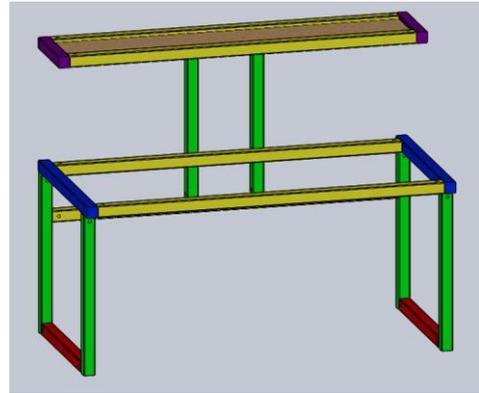
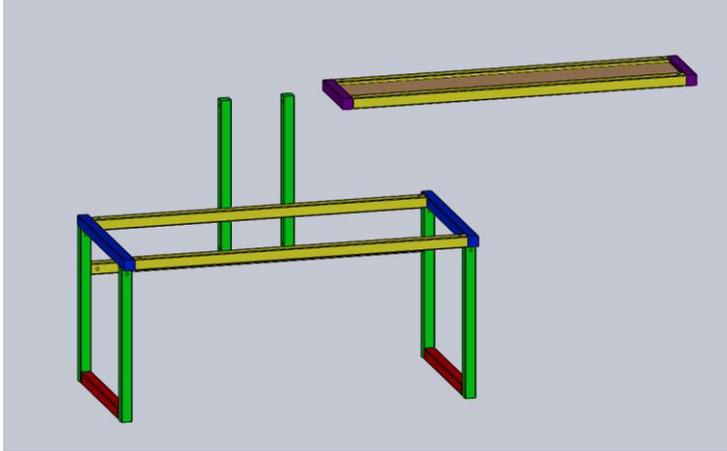
1. Connect desk legs with Crossbar
 - a. Required materials:
 - i. Desk leg 1
 - ii. Desk leg 2
 - iii. Crossbar with vertical supports
 - iv. 2x quick connector



- b. Set the crossbar to the desired height
2. Attach desktop
 - a. Required materials
 - i. Desktop
 - ii. 4x quick connector



3. Position the vertical supports
 - a. Position each vertical support 12" away from their respective edge of the desk
4. Attach shelf unit to the tops of the vertical supports
 - a. Required materials:
 - i. Shelving unit
 - ii. 2x quick connector



5. Adjust desk height to preference with feet
6. Adjust shelf height to preference by adjusting the height of the crossbar
7. Install gussets to vertical supports and the underside of desktop
8. Install Glass top
 - a. Required Materials:
 - i. 57 $\frac{3}{4}$ " x 26 $\frac{3}{4}$ " tempered glass top
 - ii. 6x Rubber bumper pads
9. Cover all exposed strut faces
 - a. Required Materials:
 - i. 8x 45mmx45mm end caps