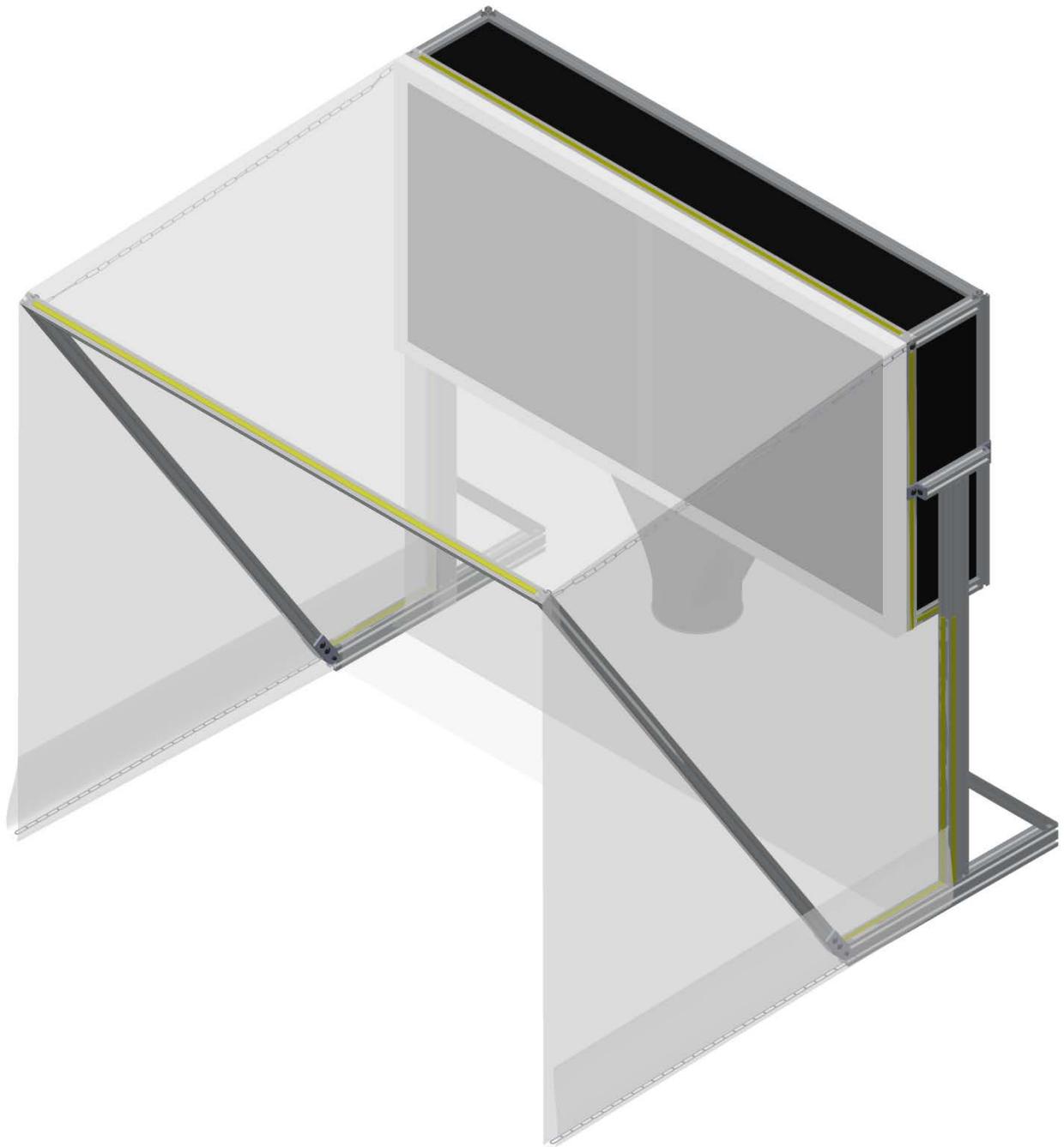


# Expedient Isolation Headboard Construction Using 8020 Kit

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## **Background**

The National Institute for Occupational Safety and Health (NIOSH) has developed the Ventilated Headboard, a novel and effective solution that isolates patients while protecting healthcare personnel from airborne infectious diseases. Learn more about the Ventilated Headboard: <https://www.cdc.gov/niosh/topics/healthcare/engcontrolsolutions/ventilated-headboard.html>

This document provides a material parts list and detailed assembly instructions for the extruded aluminum version of the ventilated headboard. This product is commercially available and designed around a common product line which has multiple vendors. These instructions apply to Voelker Item #SQ3688-01-001.

## **Disclaimer**

Mention of any company or product does not constitute endorsement by the National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention.

## Parts List

	Part number/letter	Quantity	Description
<b>Fixtures/ miscellaneous</b>	4180	2	Hinge
	3383	19	8020 connection screws/backs flanged head
	3393	16	8020 connection screws/backs
	3080	4	Long bolt cylinder head
	3381	26	Screws/backs end connectors
	2015	10	End caps single
	2025	2	End caps double
	4119	4	Corner fixture single
	4113	2	Corner fixture double
	2116	32 ft	Rubber corner seals
	N/A	4	36" Chains
	N/A	1	3.5 mil plastic sheeting (44" x 168")
	N/A	1	3.5 mil plastic sheeting (56" x 35")
<b>Aluminum frame</b>	A	2	Canopy side arms (51.5")
	B	1	Canopy top (48")
	C	2	Headboard top, front and back pieces (46")
	D	1	Headboard bottom front (46" w/ holes)
	E	1	Headboard bottom back (46" w/ holes)
	F	4	Headboard sides (24")
	G	6	Headboard connection pieces (6")
	H	2	Leg attachment pieces (6" w/ holes)
	I	2	Legs (33")
	J	2	Feet (20")
	R	2	Leg supports (12" diagonal)
<b>Headboard plastic filler pieces</b>	K	1	Headboard backing (46.5" x 22.5")
	L	1	Headboard top (46.5" x 6.5")
	M	2	Headboard sides (22.5" x 6.5")
	N	2	Headboard bottom pieces (16.5" x 6.5")
<b>Filters</b>	O	2	Filter holders, top and bottom (48")
	Q	2	Filter holders, sides (24")
	S	2	24" by 24" HEPA filters
<b>T-Slot clips</b>	T	1	Canopy front (48")
	U	2	Headboard top and bottom (46")
	V	4	Headboard sides (11")
	W	4	Sides (2 for canopy, 2 for baffle) (2")
	X	4	Legs (2 for canopy, 2 for baffle) (22")
	Y	2	Feet (9.5")

## Part List Photo Examples



Figure 1. End Connection Fixtures. (Part 3381)



Figure 2. Groove Connection Fixtures. (Part 3393)



Figure 3. Groove Connection Fixtures with Flanged Bolts.  
(Part 3383(should be 3383))



Figure 4. Single End Cap. (Part 2015)



Figure 5. Double End Cap. (Part 2025)



Figure 6. Single Corner Joint for Headboard Attachment.  
(Part 4119)



Figure 7. Double Corner Joint for Headboard Attachment.  
(Part 4113)



Figure 8. T-Slot Clip. for Attaching Canopy.



Figure 9. Bolt for Headboard Central Beams (Part 3080)



Figure 10. Canopy Arm Hinge (Part 4180)



Figure 11. Rubber Strip for Sealing Headboard (Part 2116)



Figure 12. Example of Framework



Figure 13. Example of Headboard Body Piece.

## Tools required

- 8020 5/32" Allen Tool
- 3/16" Allen wrench or hex head screwdriver
- Scissors/utility knife
- Tape measure
- Duct tape

# Headboard

## Front frame

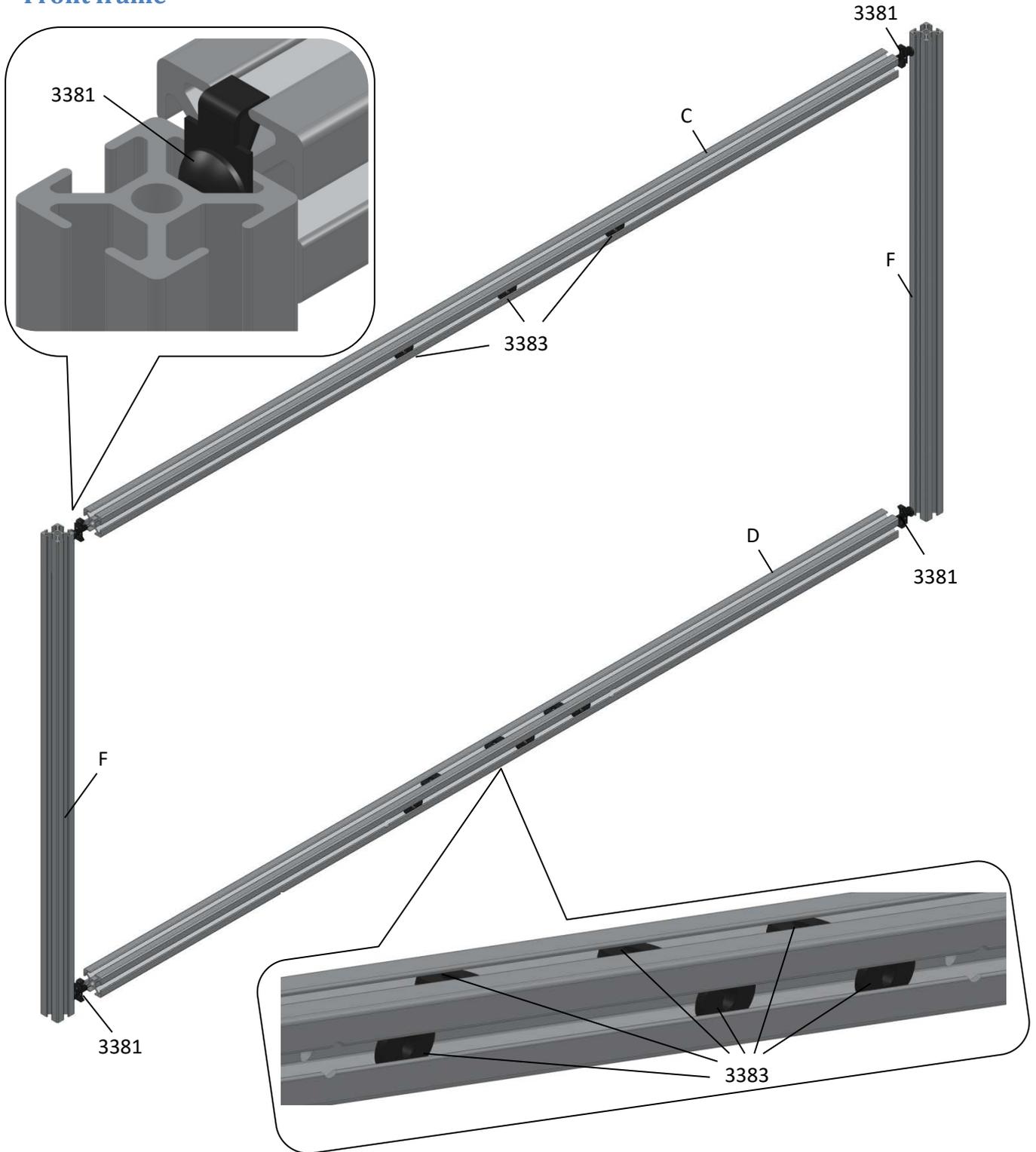


Figure 14. Front Frame Layout

1. Thread 3381 fasteners into either end of the cross beams (parts C, D) ensuring the clips are parallel
2. Insert three 3383 anchors into the front groves of both the top and bottom beams (parts C, D), these will be used in future steps. The Front of beam D has holes drilled in the groves
3. Insert three 3383 anchors into the top groove of the bottom cross beam (D)
4. Connect 2 F beams to either end of beam C by sliding the clip on the end of C into the groove on the F beams, aligning the bolt head with the hole in part F tighten the fastener using the 8020 allen tool
5. Repeat process for crossbeam D parallel to C on the opposite end of F

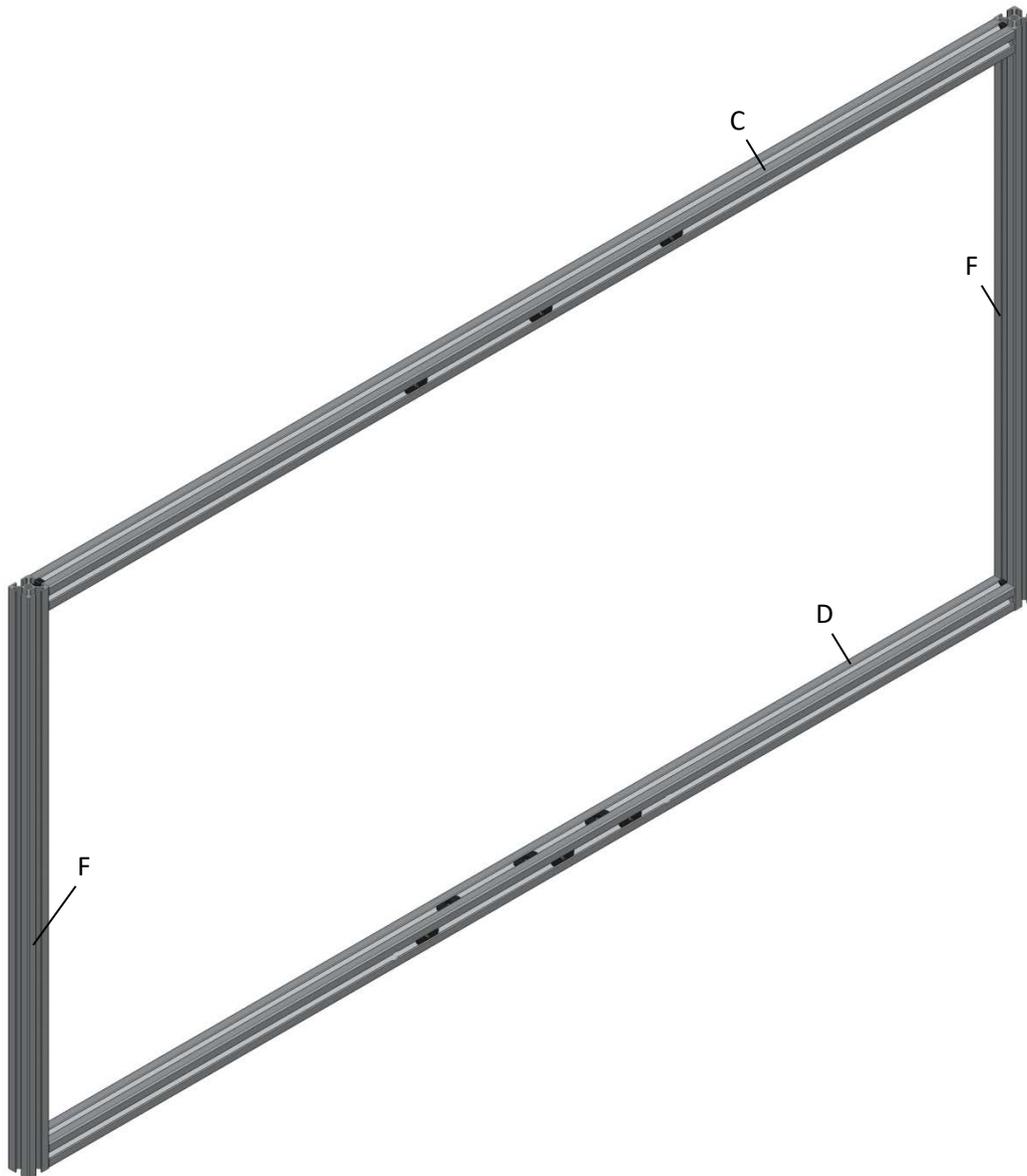


Figure 15. Front Frame of Headboard Complete

## Back Frame

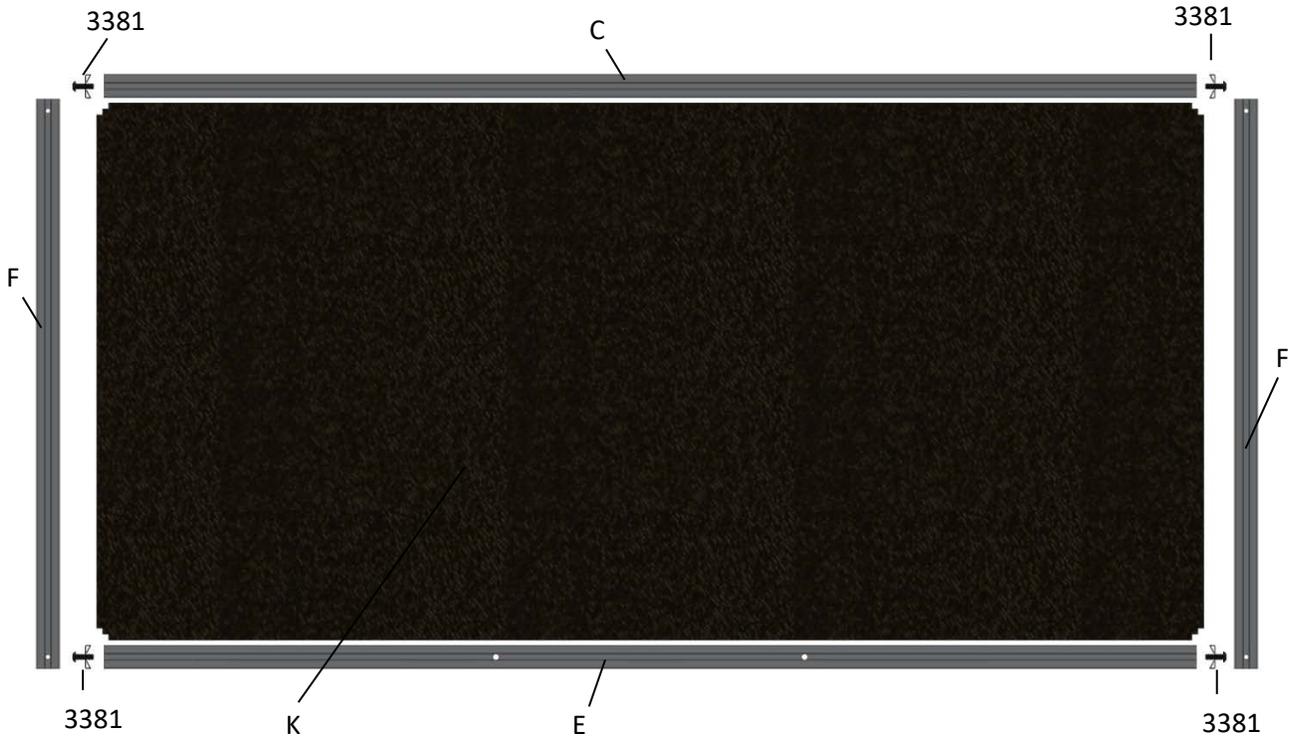


Figure 16. Back Frame Layout

6. Thread 3381 fasteners into either end of the cross beams (parts C, E) ensuring the clips are parallel
7. Slide a F beam on either side of C and tight clips as was done for the front assembly
8. Slide headboard backing piece K in to groves on inside of assembly
9. Slide piece E onto the bottom of this assembly connecting the two C pieces, ensure the screw holes in the middle of E are facing the same direction as the rough side of the backing, and tighten fasteners

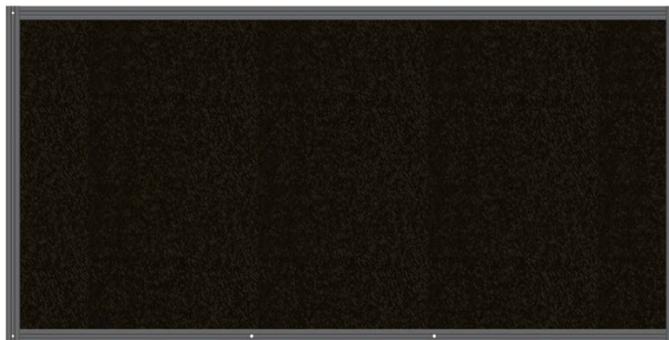


Figure 17. Back Frame Complete

## Connect front and back assemblies

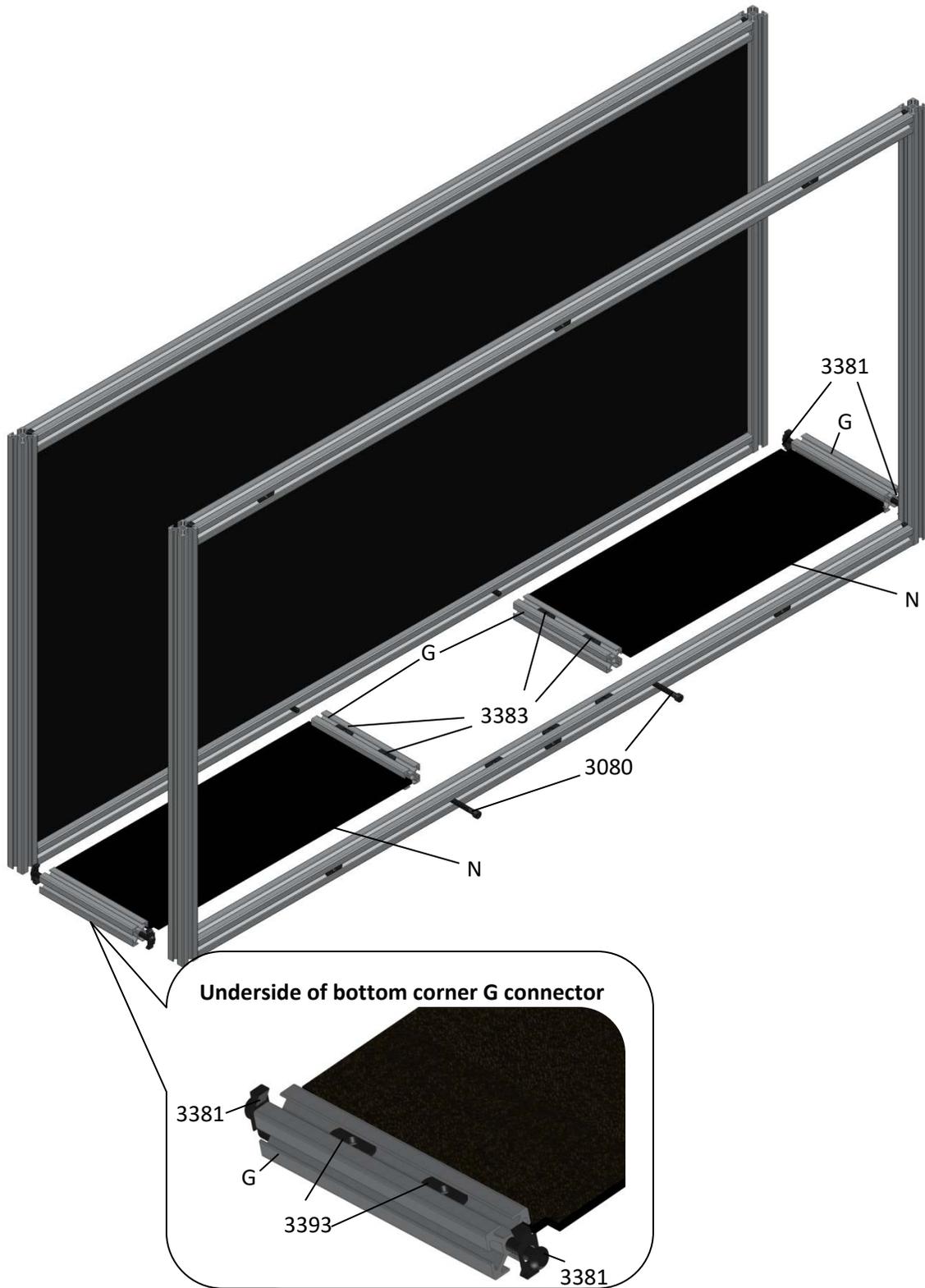


Figure 18. Headboard Bottom Layout

10. Thread 3381 fasteners into the ends of two G connectors
11. Insert two 3393 anchors into the bottom groove of each bottom corner G connector (four 3393 anchors total), these will be used in a future step
12. Insert two 3383 anchors into the top groove of each bottom middle section G connector (four 3383 anchors total), these will be used in a future step
13. Starting in bottom corner, slide the front and back assemblies on to either side of the G piece ensuring the screw holes in pieces D and E are on the outside
14. Slide headboard bottom pieces (N) in to groves in pieces E and D, inserted with rough side facing out
15. Insert G Piece into other end of bottom assembly
16. Insert 2 G pieces without 3381 fasteners into the bottom of assembly, align with central screw holes and fasten with 3080 long bolts, will need 3/16" hex head screwdriver

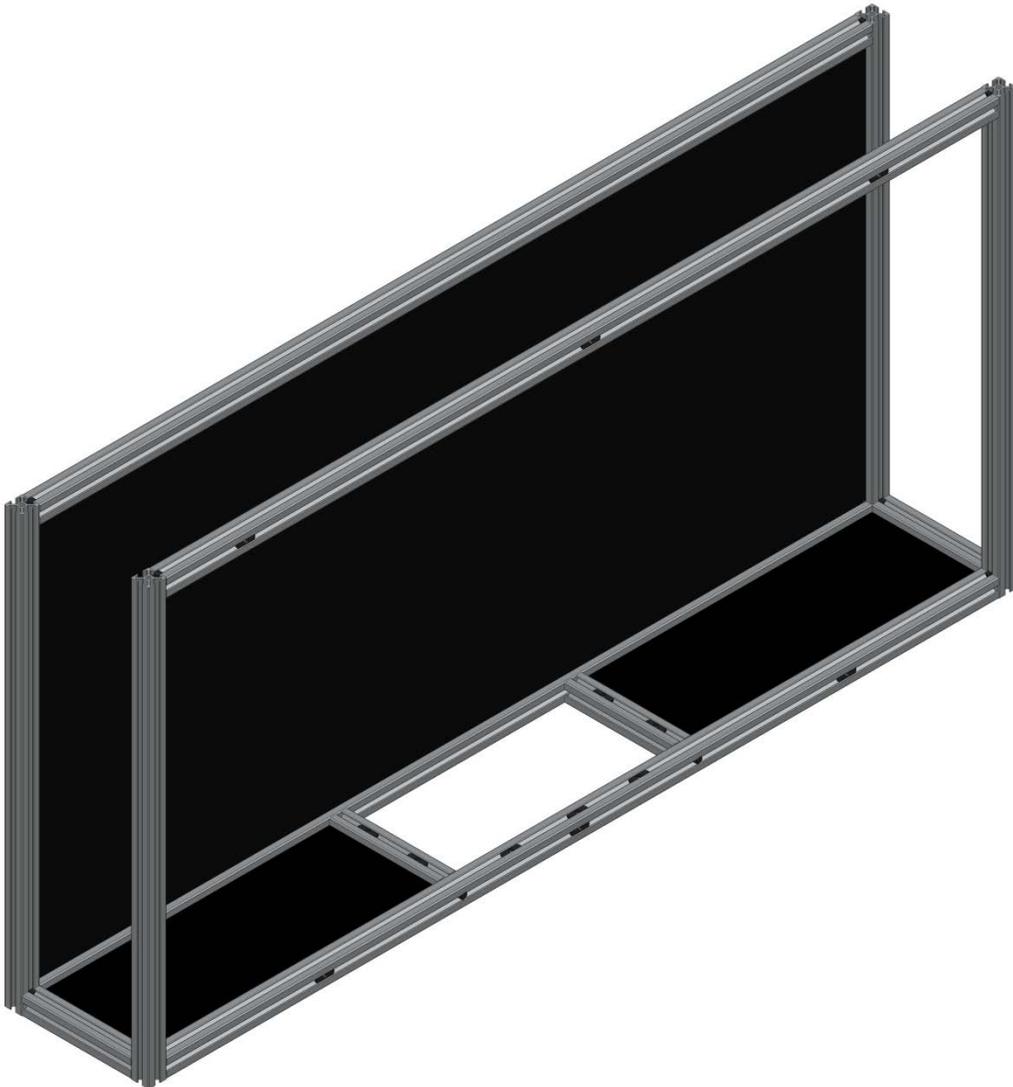


Figure 19. Headboard Bottom Finished

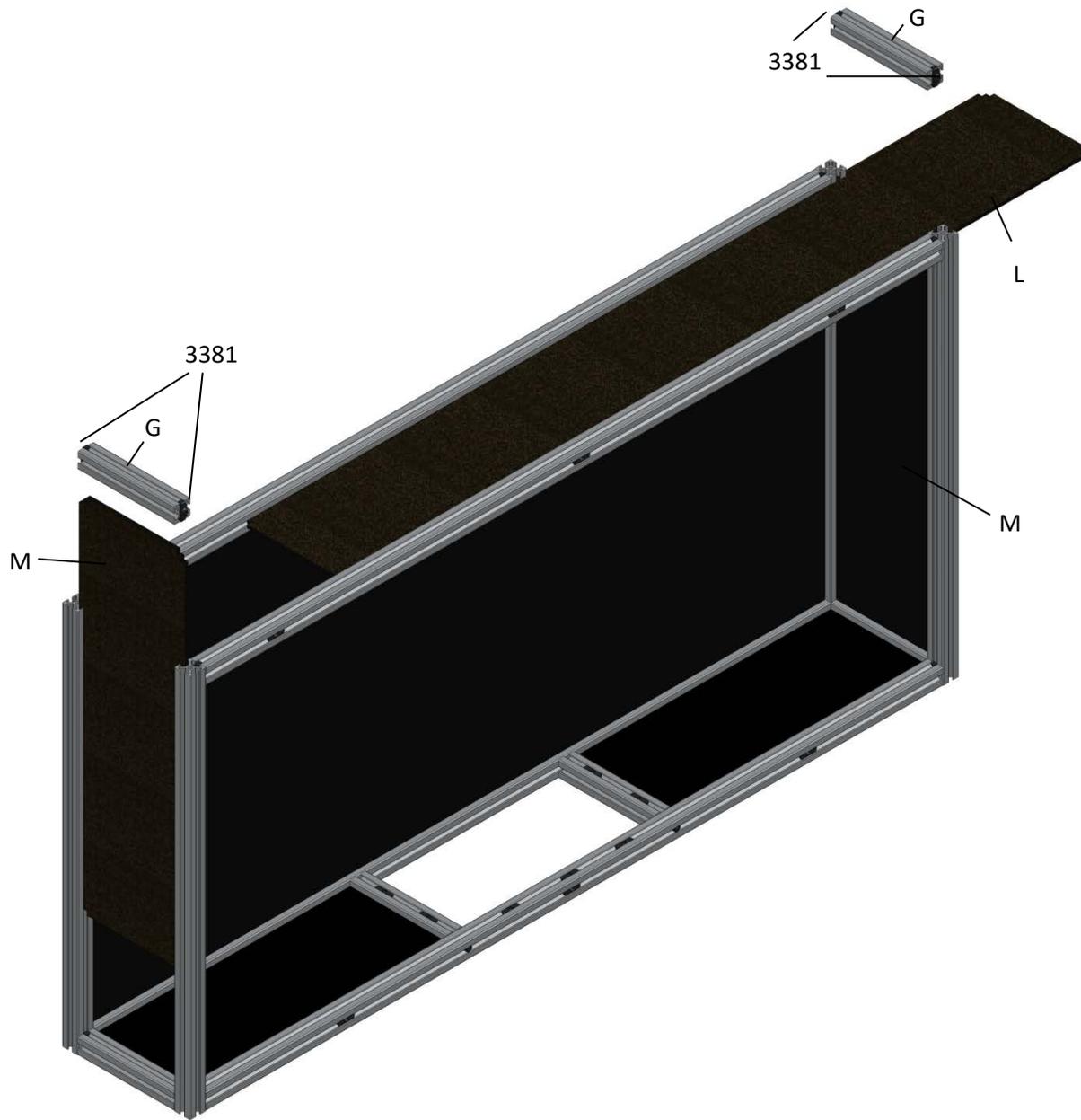
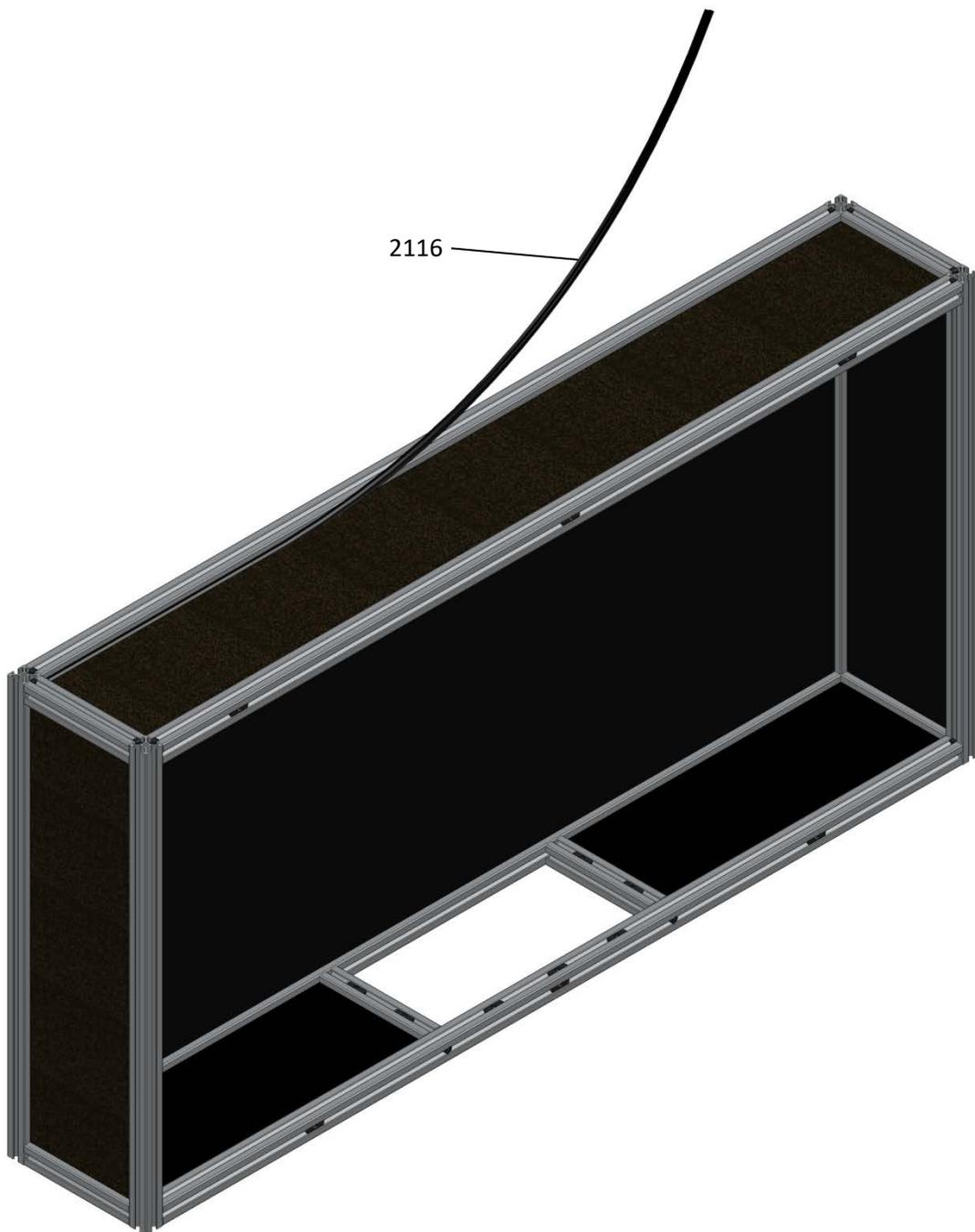


Figure 20. Headboard Body Pieces

17. Insert side body pieces (M) into sides of headboard
18. Fit G piece into one side of top of assembly using 3381 fasteners
19. Fit Top body piece L in to groves on top of assembly
20. Fit last G piece in to last corner of assembly using 3381 fasteners, may have to loosen screws in order to make it fit

## Finishing



**Figure 21. Rubber Strip Installation**

21. Insert strips of the rubber sealer (part 2116) into the gaps between the body pieces and the frame on the rough sides of the pieces all around the body

## Legs

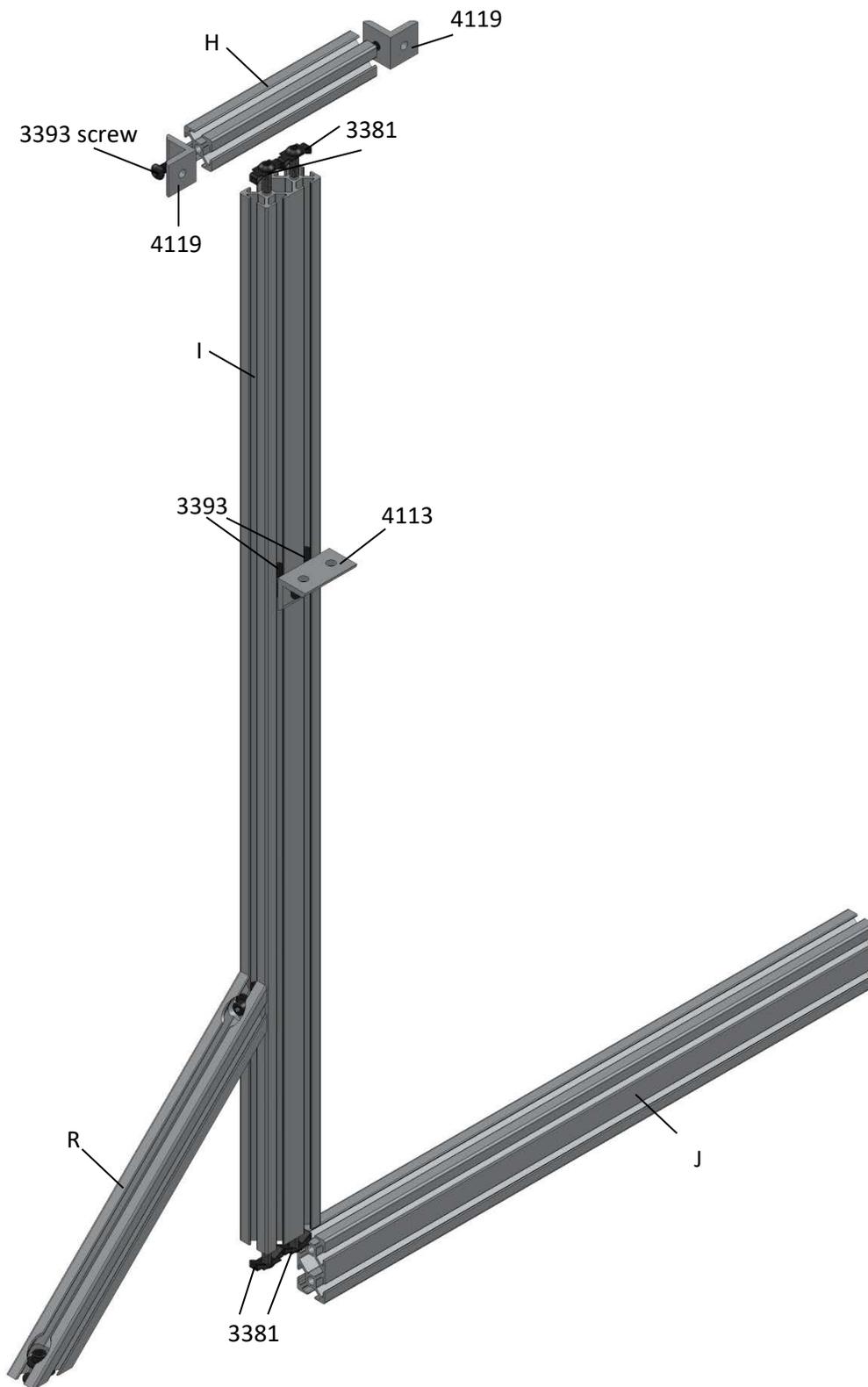


Figure 22. Leg Layout

22. Take the legs (I) and thread 3381 fasteners to the one end. On the bottom end leave one fastener loose so the leg support (R) can be attached
23. Attach leg supports (R) to the legs (I) but do not tighten fastener all the way
24. Slide the feet onto bottom of leg and leg support, align foot (J) so it is flush with the back edge of the leg support and tighten all fasteners
25. Attach the double elbow piece (4113) to the leg 11.5 in. from the top, facing up, on the left of one leg and on the right of other, use the 3393 fasteners
26. Attach the head board connectors (H) to the top of the legs using 3381 fasteners
27. Attach the single elbows (4119) to the ends of the head board connectors (H), facing the same direction as the double elbow on each leg, using 3393 screws

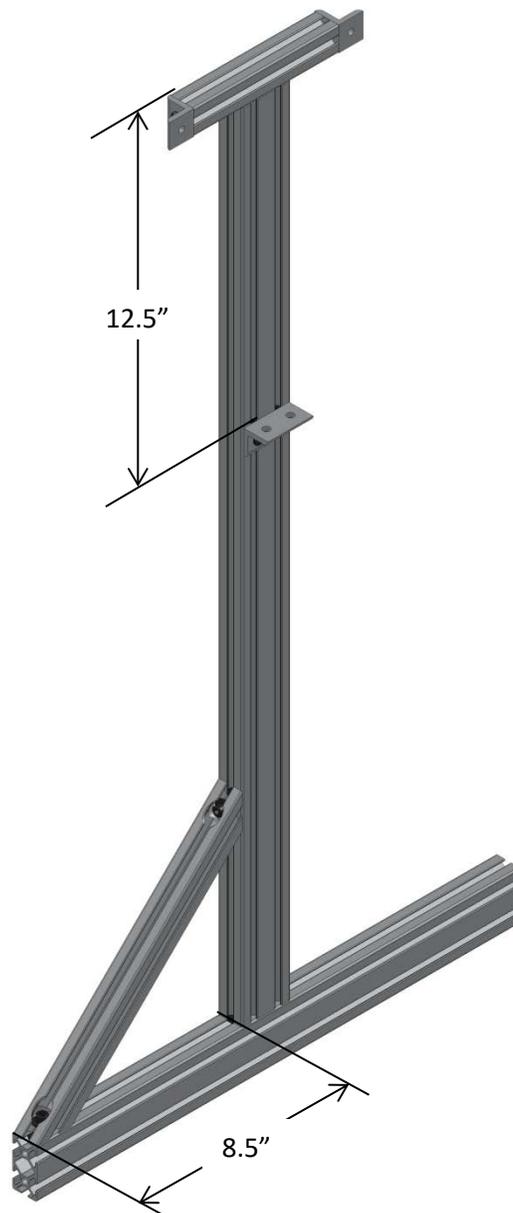


Figure 23. Leg Complete

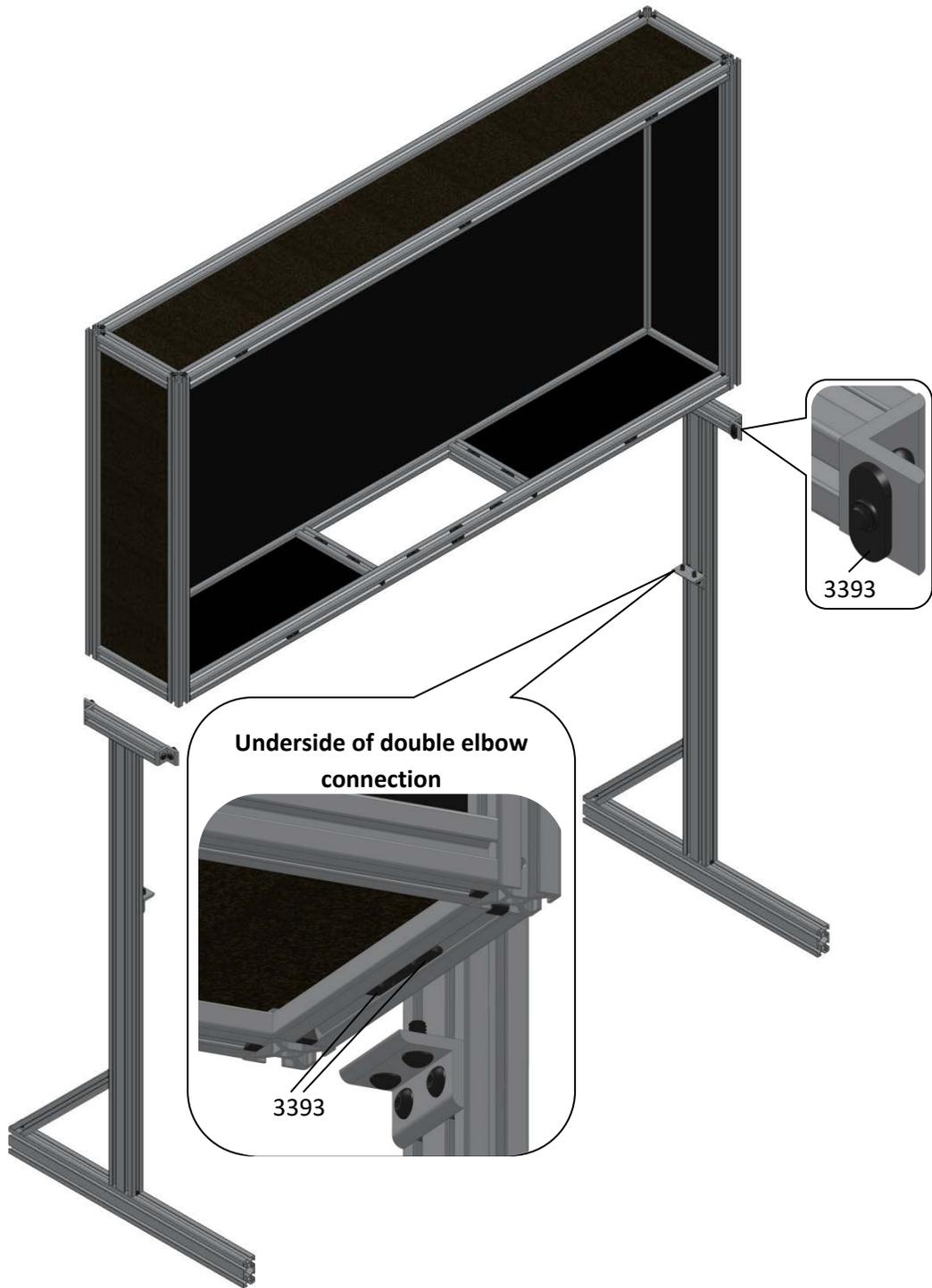


Figure 24. Headboard with Legs Layout

28. Slide the headboard on to 3393 fixtures attached to the single elbows and allow it to rest on the double elbow, tighten the 3393 fasteners in the single elbows and fix the double elbows to the bottom of the headboard by inserting 3393 screws into the 3393 anchors placed when constructing the headboard

Filter Holders/Duct take off (no sealing materials at this time wait on test data)

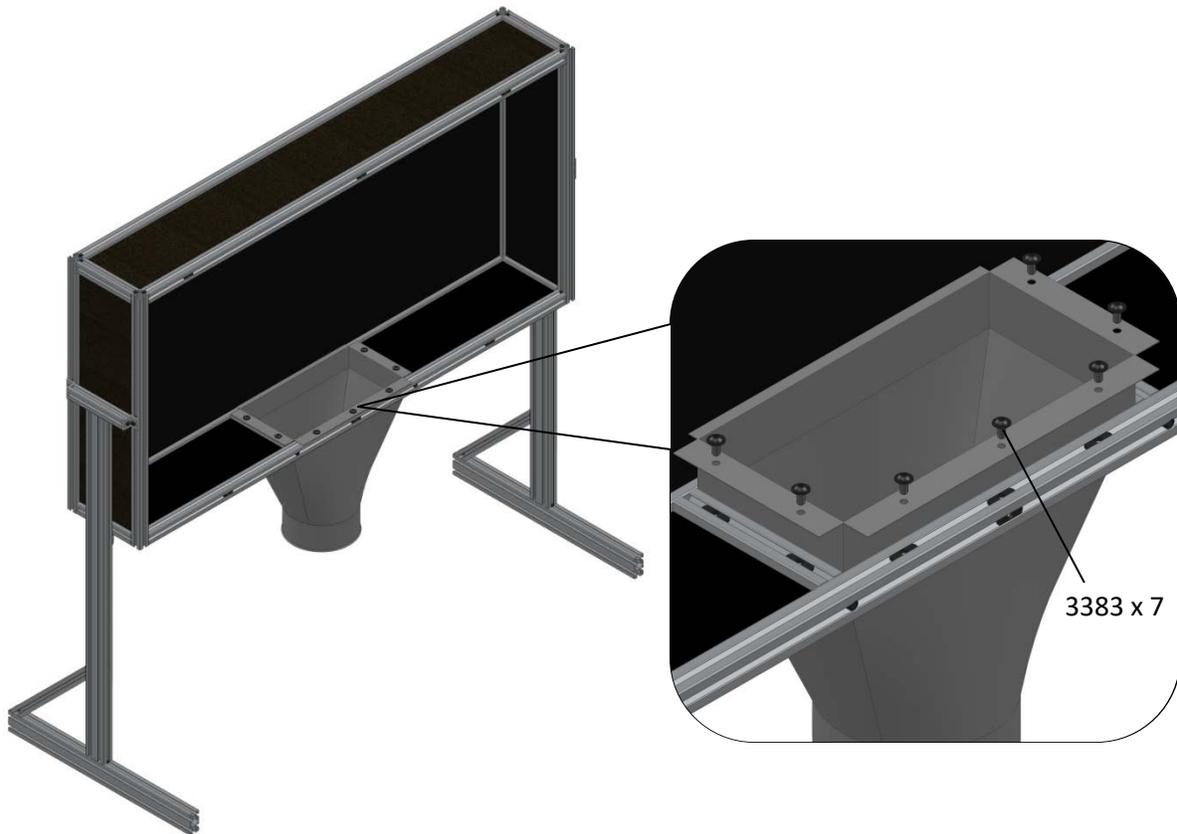


Figure 25. Duct Placement

29. Insert duct take off in to hole in bottom of headboard, may require loosening of bolts in the central beams
30. Align the anchors placed in previous steps with the holes in the ducts flanges and secure using 3383 washer head screws

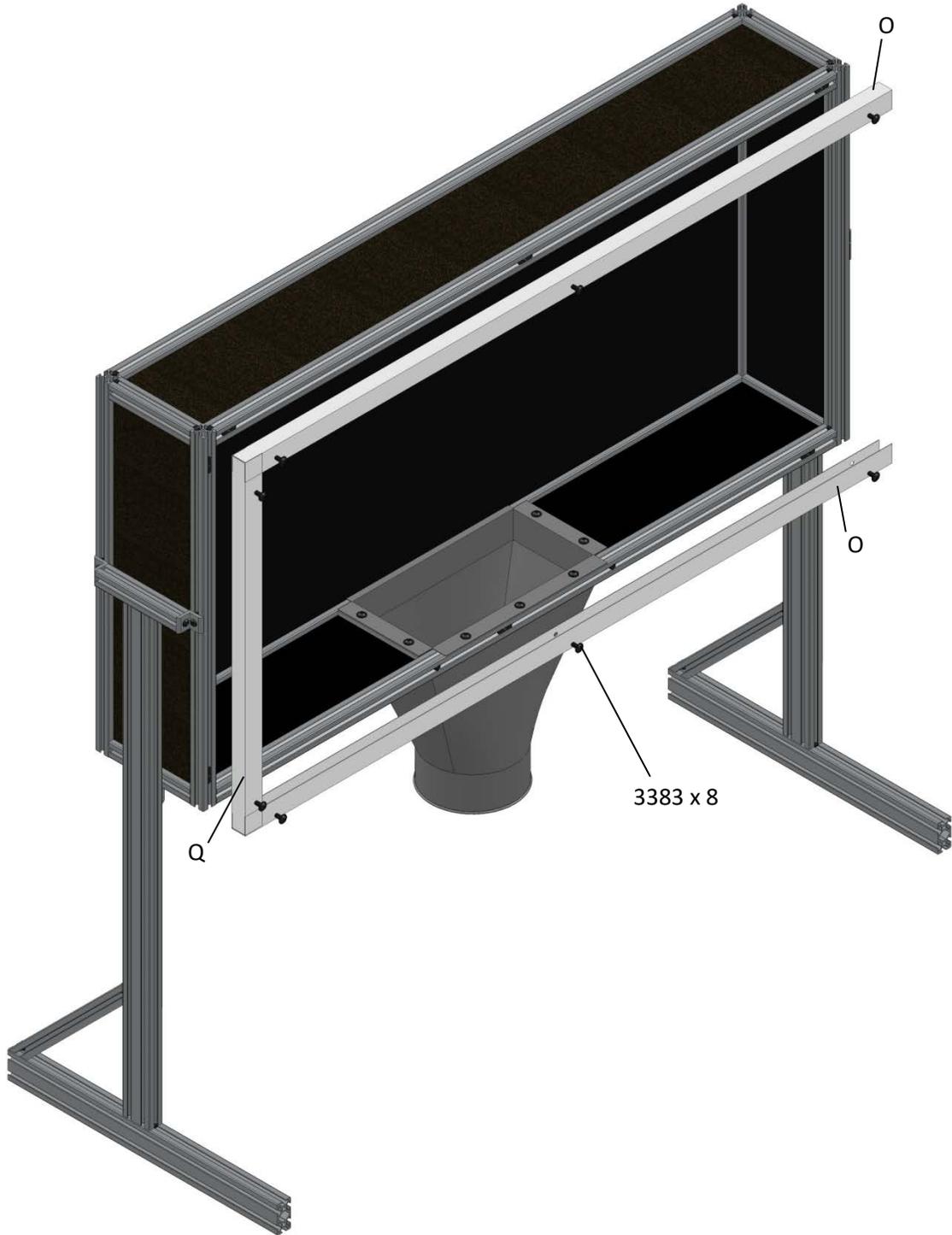


Figure 26. Filter Holder Attachment

31. Align the filter holders along the top bottom and left of the front of the headboard, the shorter side of the channel should be against the beam, attach using the 3383 fasteners

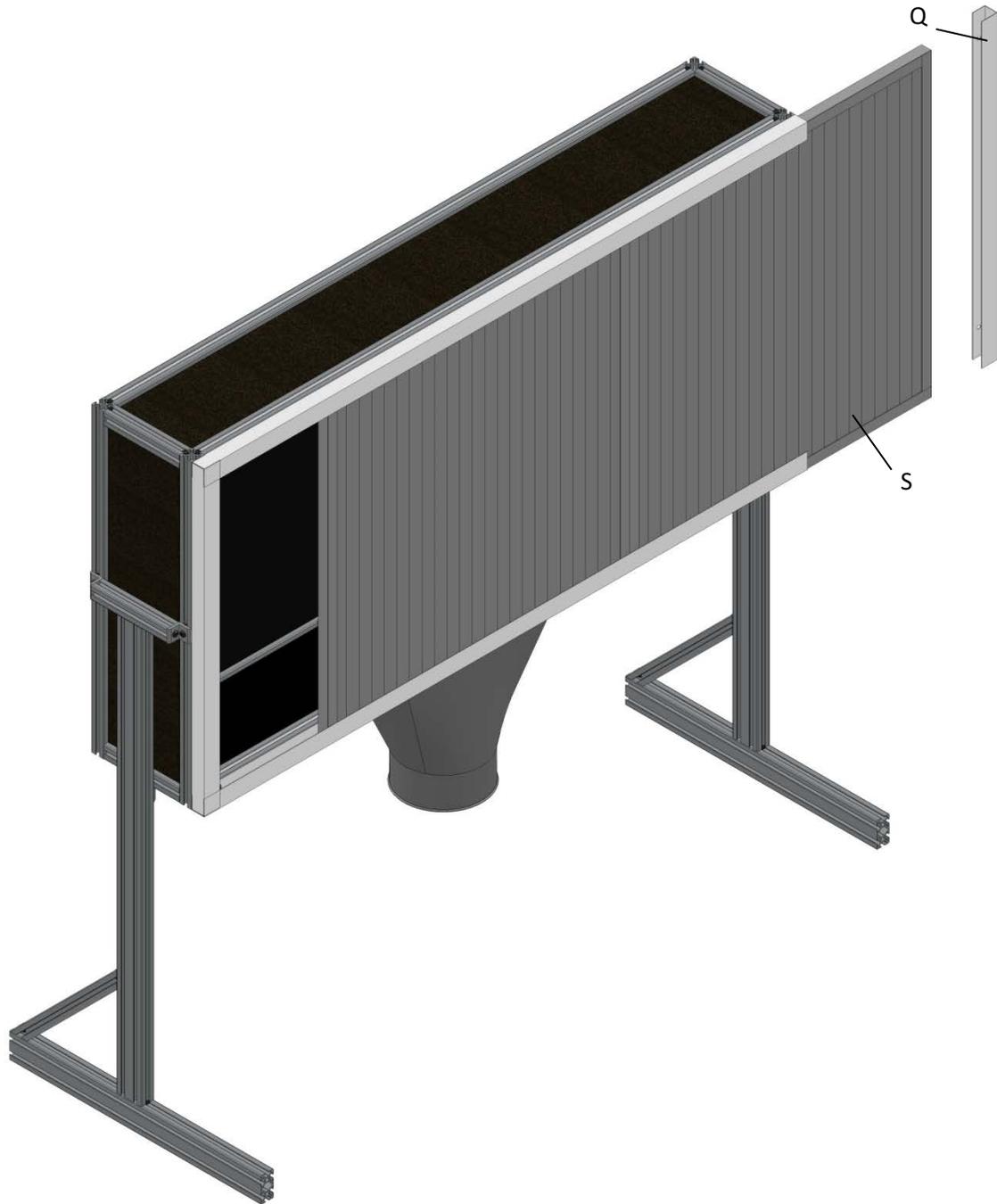


Figure 27. Filter

32. Slide the filters into the holders from the open end, the two filters should be taped together during use down the middle line
33. The final filter holder slides in to the open spot and can be removed for filter replacement

# Canopy

## Frame

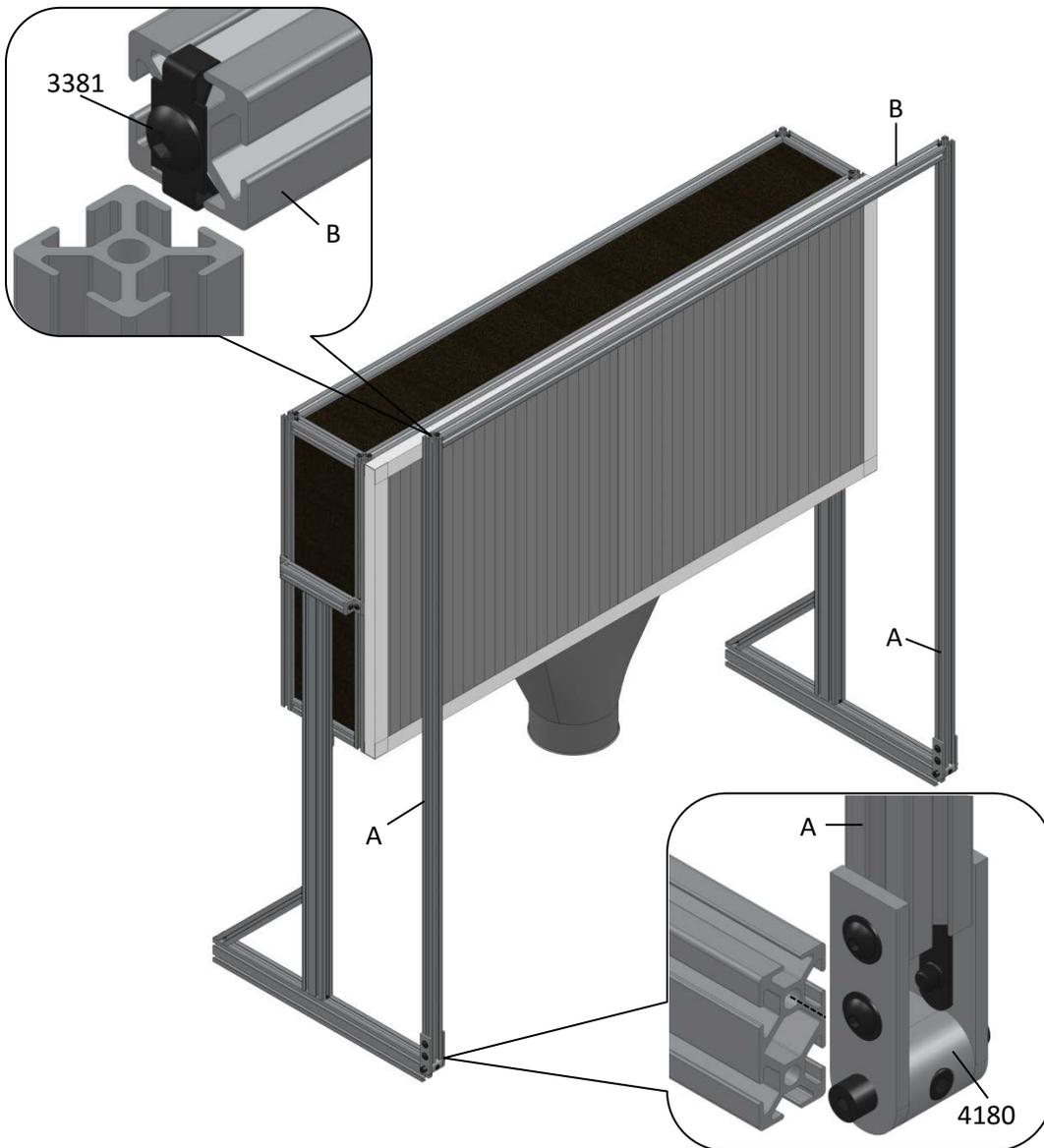


Figure 28. Canopy Arm Attachment

34. Attach the hinges (Part 4180) to the bottom of each canopy arm (A); ensure the fasteners are on the same side of the arm as the through hole on the opposite end
35. Attach the hinge to the foot using the screw built in to the hinge, you must remove the slide anchor backing, attach to the top hole in the foot, will need 3/16" hex head screwdriver
36. Thread end connectors (3381) to either end of the canopy cross beam (B) and slide into the groves on the arms, tighten connectors

## Chains

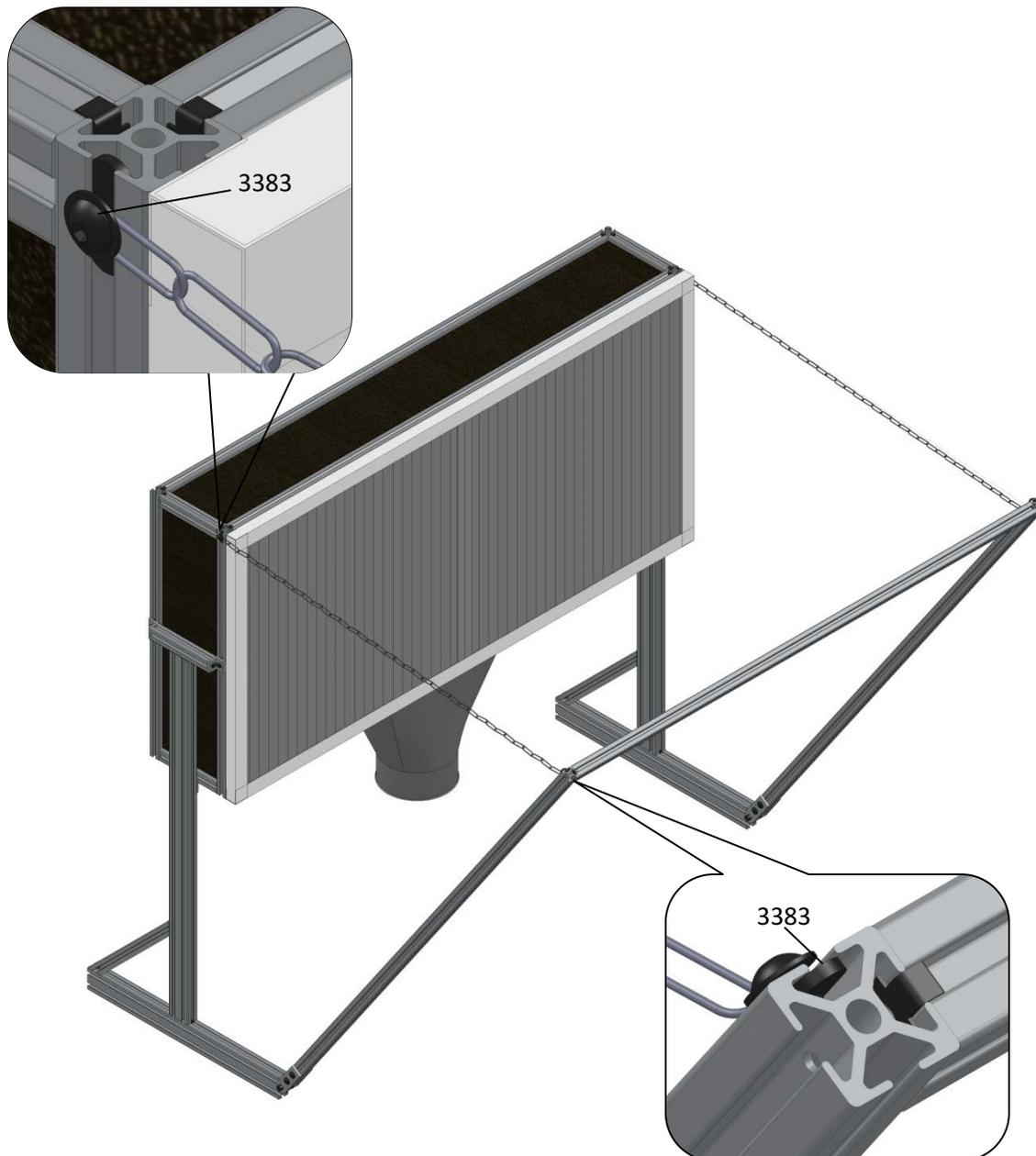


Figure 29. Chain Attachment

37. Attach 3383 fasteners to the end links of two of the chains
38. Use these fasteners to connect the chain to back face of the canopy arm and the side of the headboard front vertical beam. The chains should be placed at the end of the beam ensuring the anchors do not hang over the edge

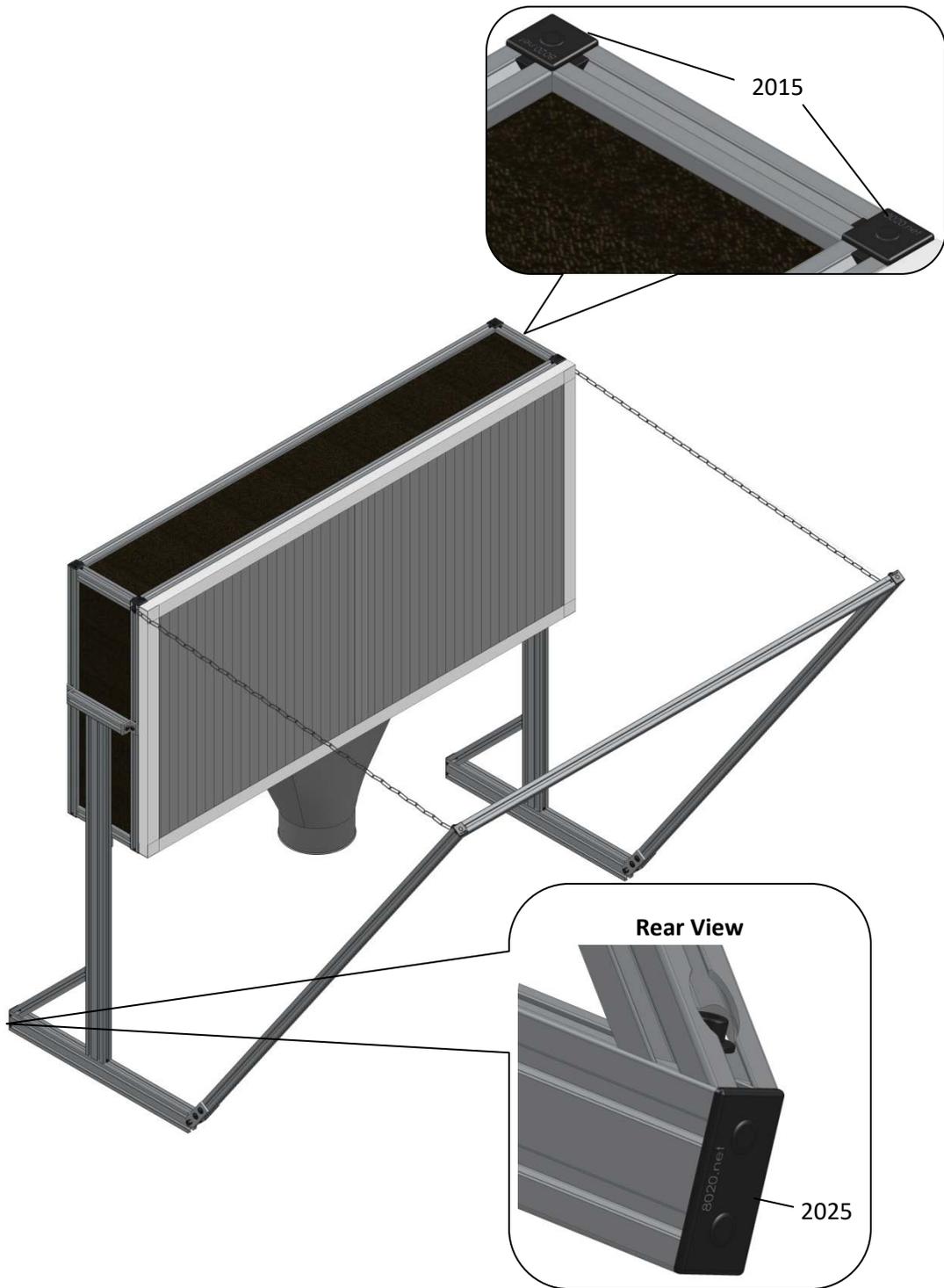
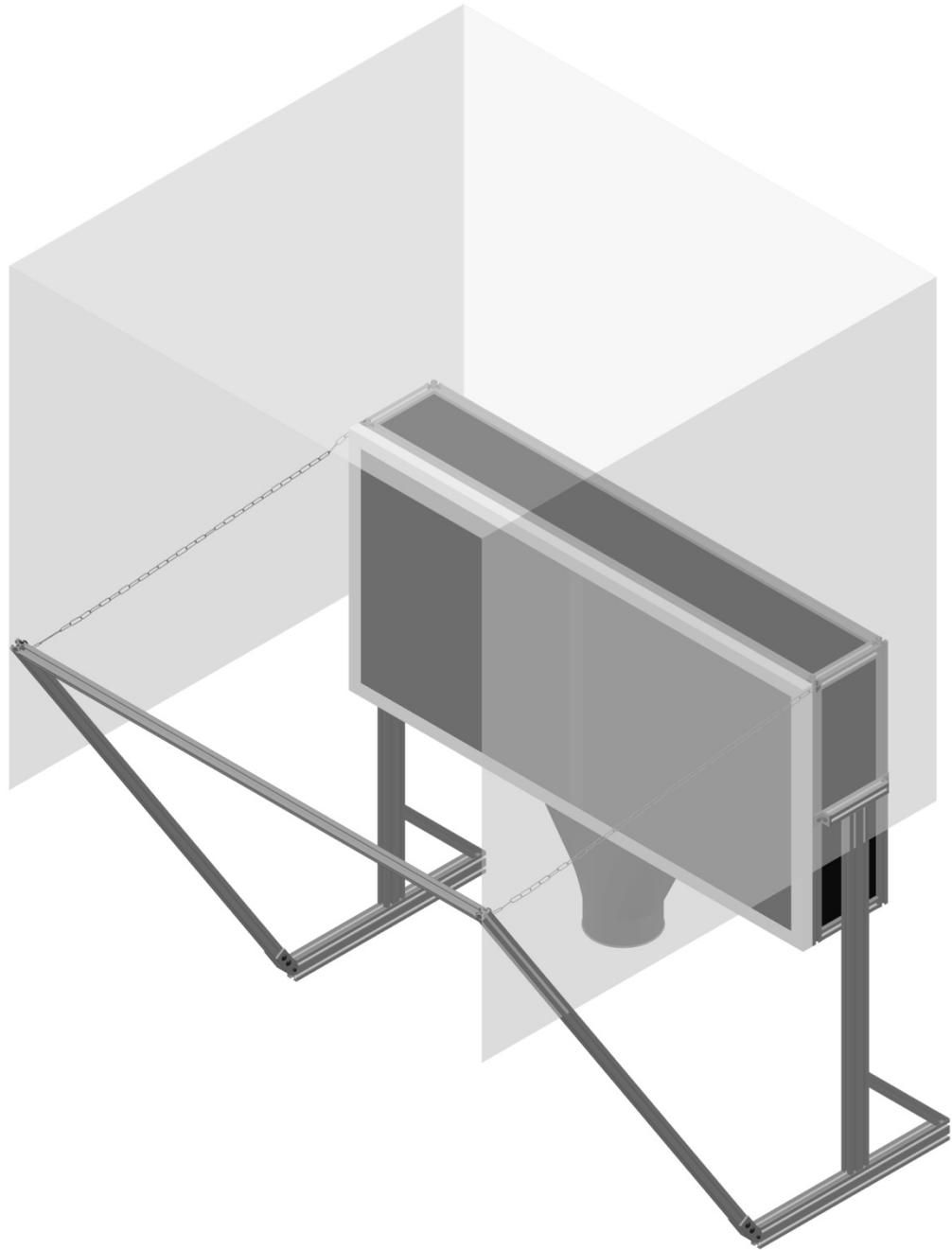


Figure 30. End Cap Connection

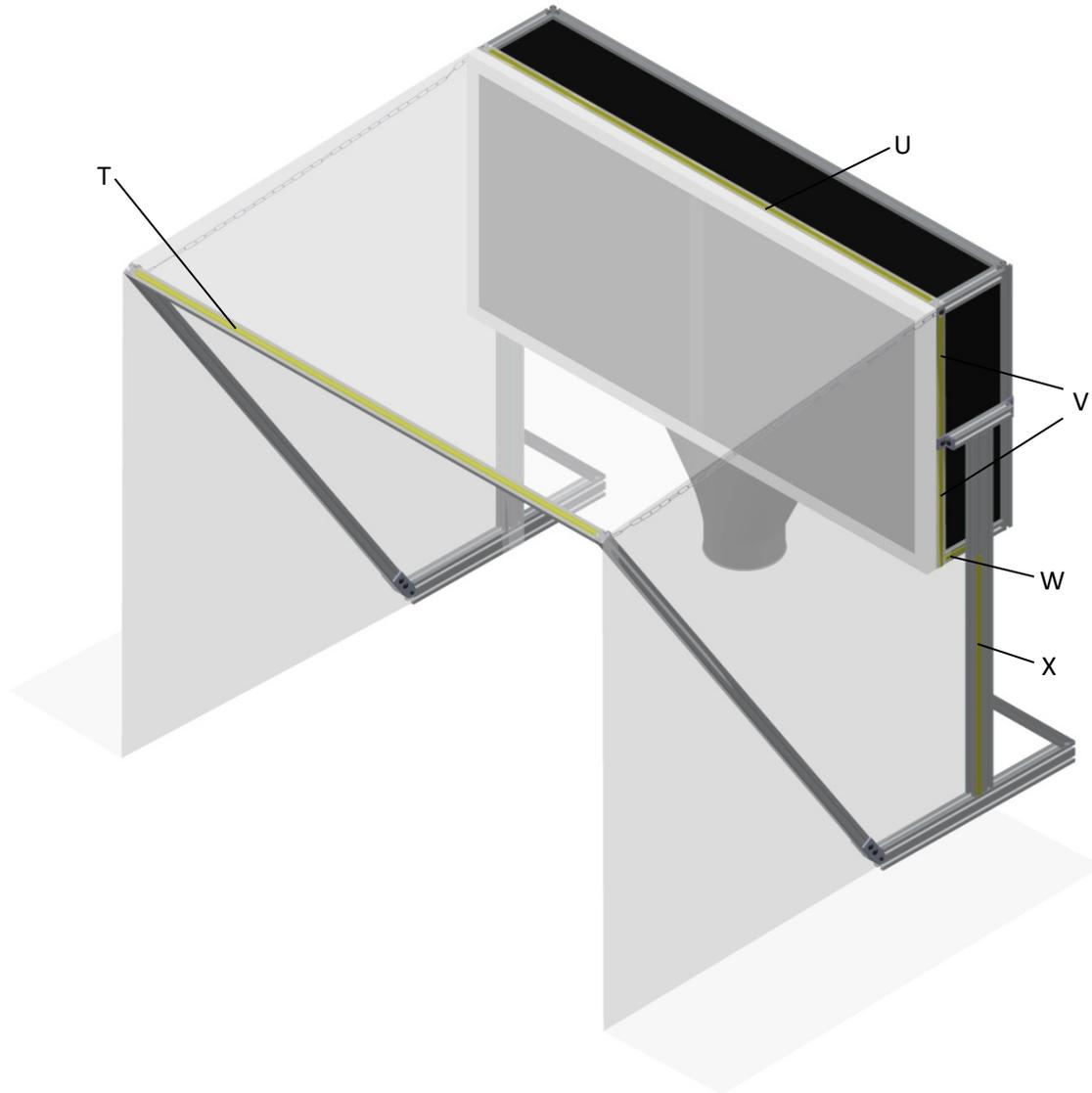
39. Insert 2025, and 2015 end caps in to appropriate positions

**Plastic Hood & Baffle Installation Instructions** (assumes bottom of hood frame set to 24", will need to adjust plastic sheet size for alternate hood height)



**Figure 31. Plastic Canopy Placement**

40. Cover the hood with a piece of 3.5 Mil plastic sheeting canopy at least 44" x 168"



**Figure 32. Plastic Canopy Clip Attachment**

**41. Attach Canopy**

- i. Clip back edge of the canopy to the top of the headboard using clip U, ensure the canopy is centered over the unit and there is 10 or 12 inches extra on the floor of either side for making the chain pocket
- ii. Clip the front edge of the canopy to the top of the canopy arm with clip T, ensure the arm is fully extended and the canopy plastic is pulled tight
- iii. Attach the canopy to the sides headboard using V clips, the top clip may need to be trimmed to accommodate the chain
- iv. Use W clips to run the plastic along the side of the headboard up to the leg
- v. Attach the plastic to the side of the leg using clip X
- vi. Trim excess plastic

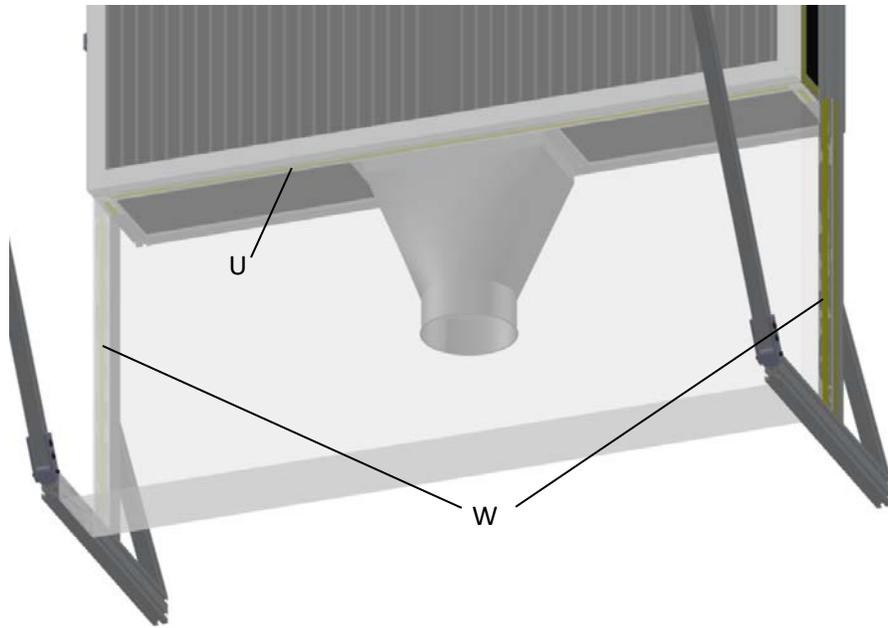


Figure 33. Baffle Clips U and W

42. Attach 56" by 35" Plastic Sheeting Baffle

- i. Clip baffle to front beam of the bottom of the headboard using clip U, make sure there is enough slack on either side of the headboard to clip the plastic into the legs and feet
- ii. Use clip W to attach the baffle to the sides of the bottom of the headboard

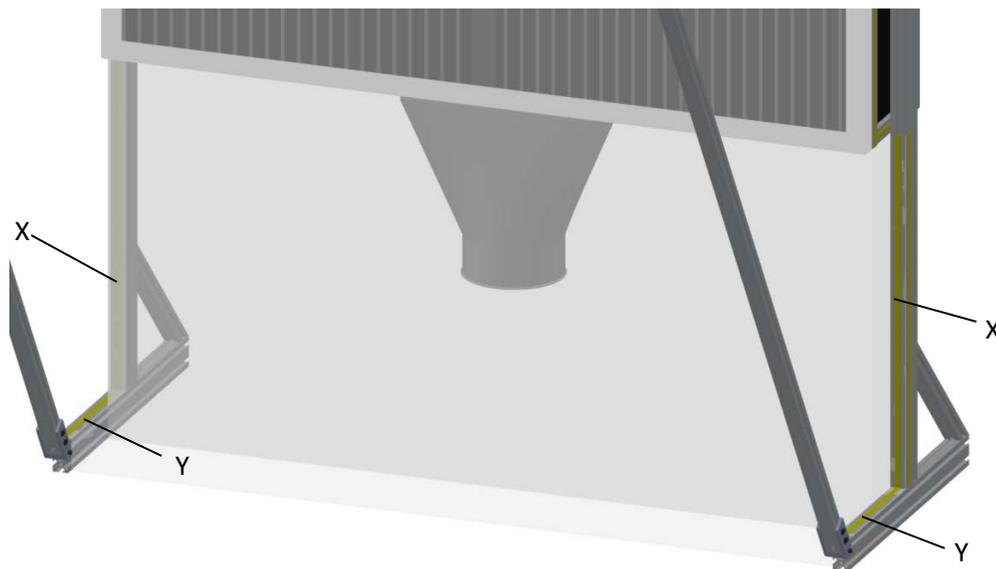


Figure 34. Baffle Clips X and Y

- iii. Use clip X to attach baffle to the front of the leg
- iv. Attach baffle to the foot using Clip Y
- v. Trim any excess plastic

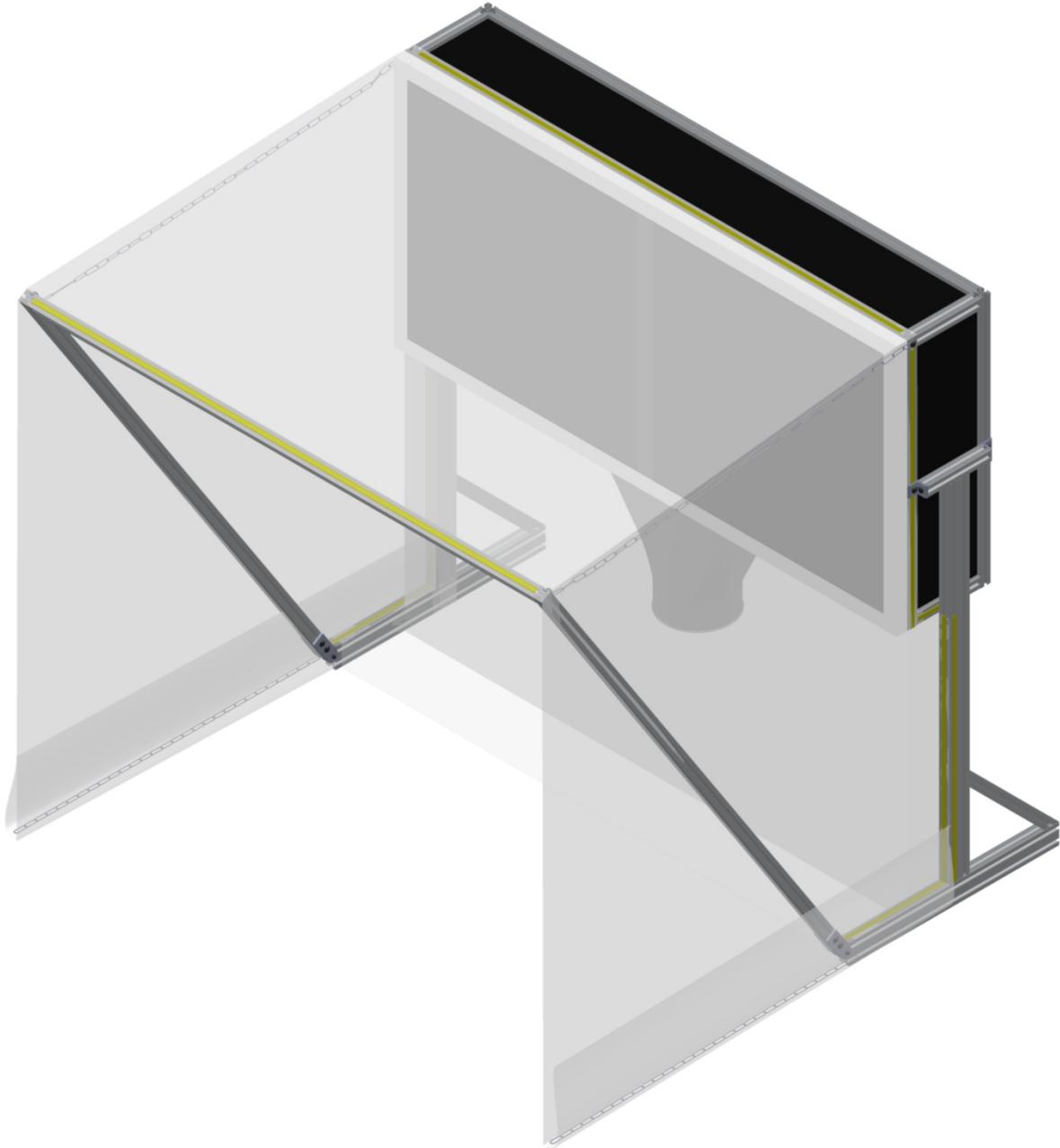


Figure 35. Ballast Pocket.

43. Make ballast pocket
  - i. Fold excess plastic on the sides of the hood over twice making an approx. 5 inch pocket, add 36" ballast chains and secure using duct tape