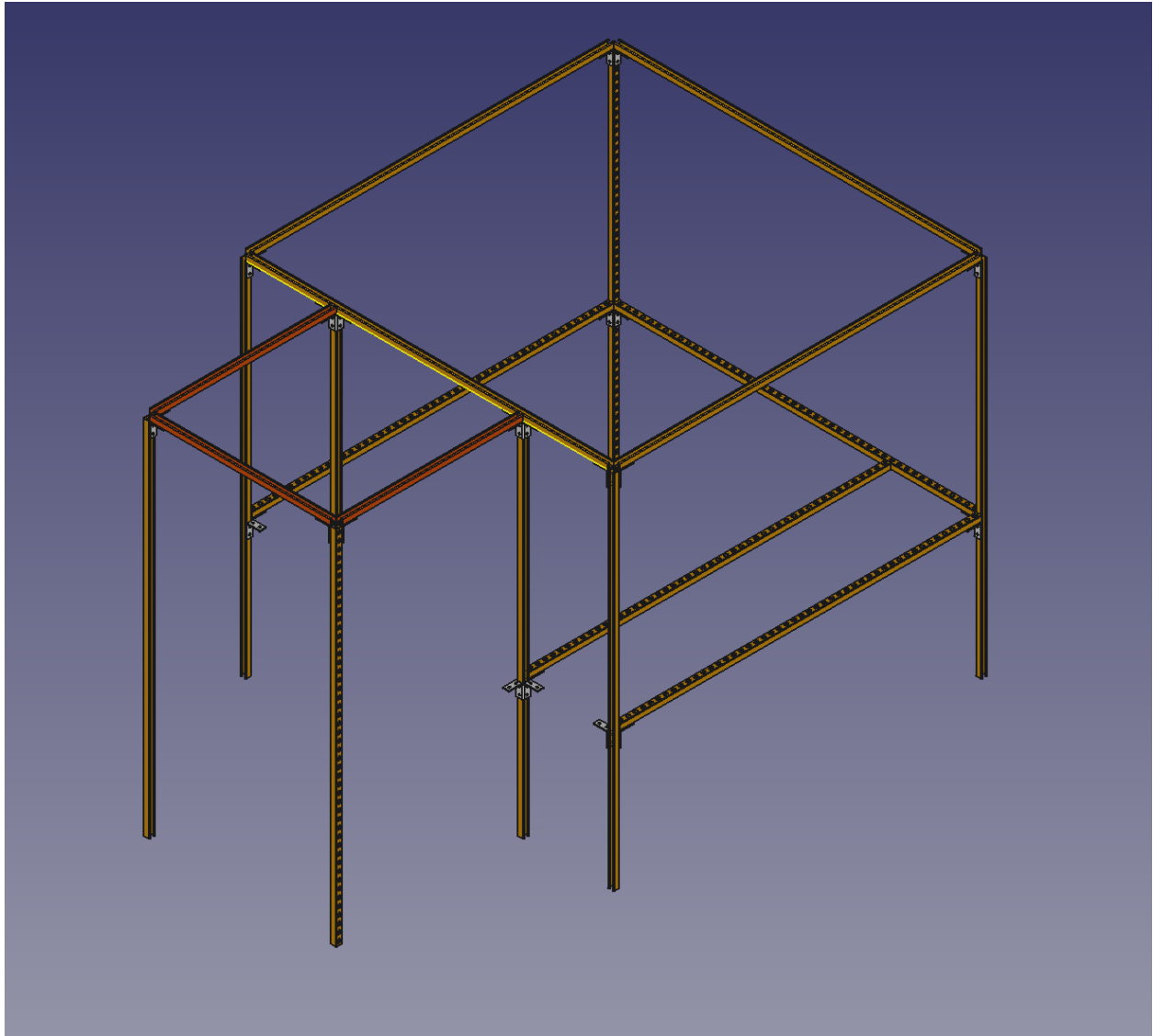


Final result: 8x8x8' clean space with 4x4x8' gowning room

Strut Channel Assembly Notes:

- Leave fasteners relatively loose until assembly is completed, this will aid in alignment of components down the line
- Generally use 2.5 inch bolts to attach wraparound brackets to strut channel

### Step 1: Assemble rough exterior frame

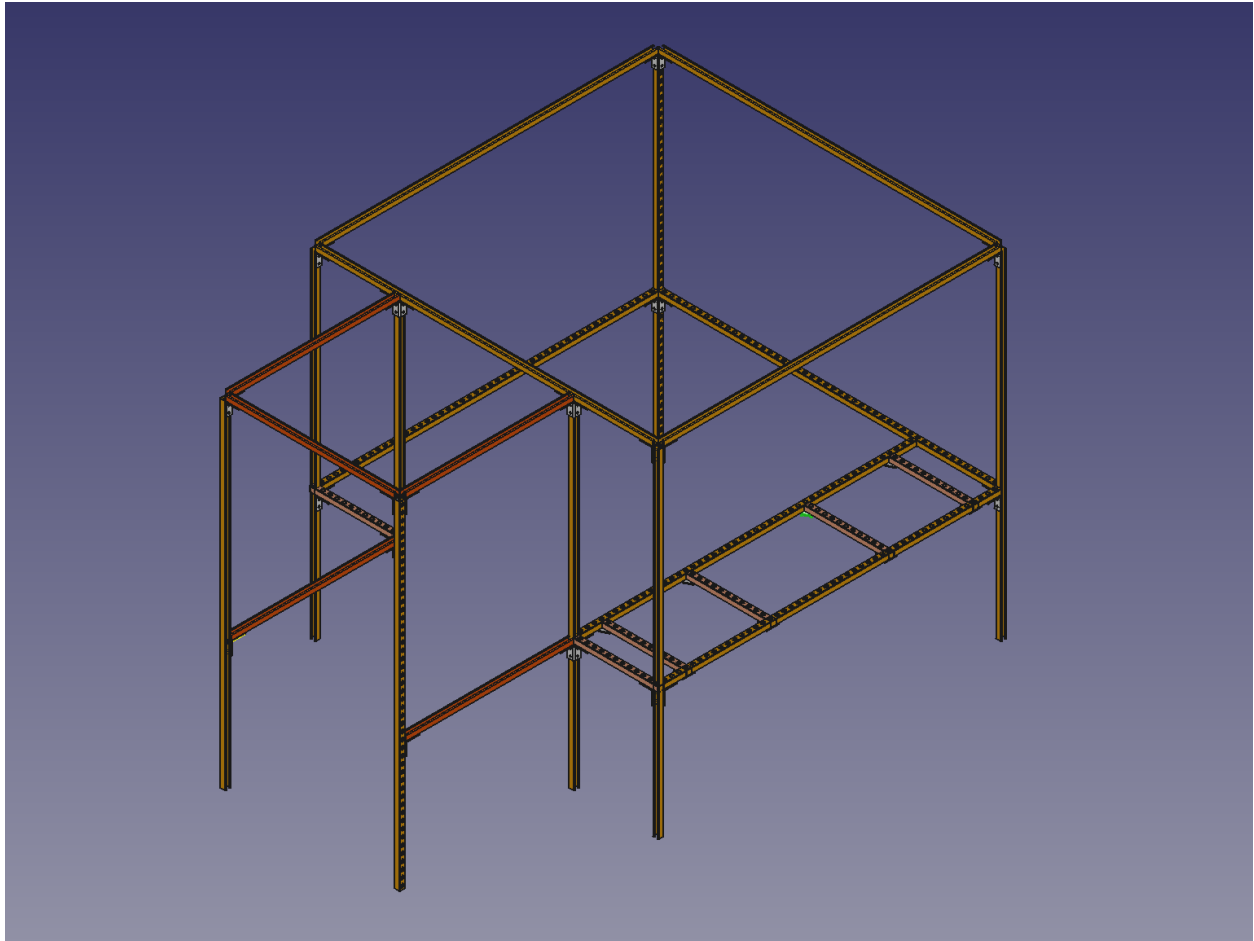


#### Materials:

- 16 x 8' strut channel
- 3 x 4' strut channel
- 11 x double 90° brackets
- 3 x triple 90° brackets
- 1 x Large elbow bracket (joins bench beam to beam at rear of clean room)
- 11 x Strut Channel Caps

Notes: Make sure that strut channels have the channel side facing upward for all the pieces of strut channel on the top of the structure, and the same facing outward for the vertical pieces of strut channel. Install strut channel Strut Channel Caps as feet on strut channels

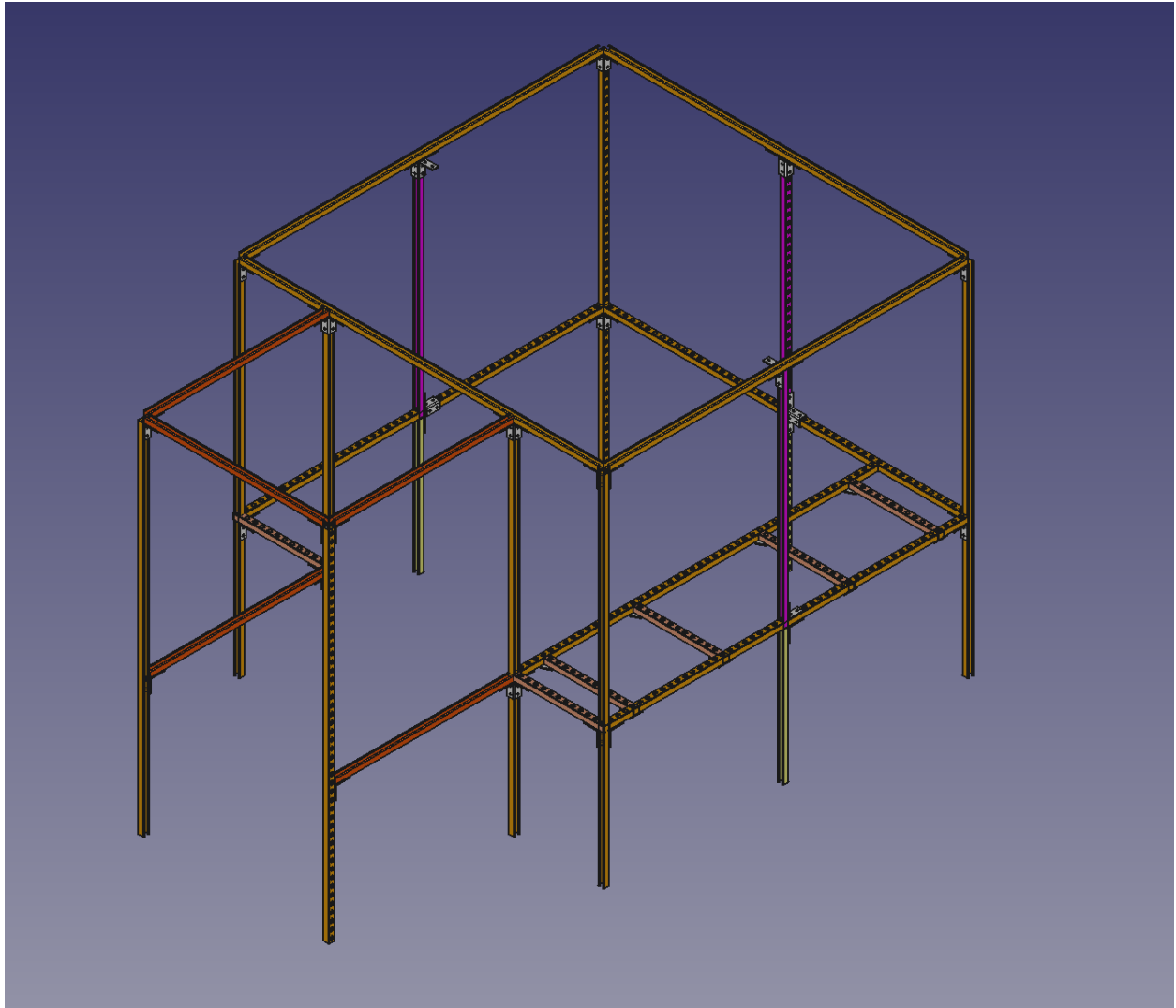
Step 2: Assemble top cross members for gowning room and bench top as well as top beam and ceiling lattice



Materials:

- 2 x 90° brackets
- 2 x 4' strut channel
- 6 x 2' strut channel - Cut 1 and  $\frac{5}{8}$  inch off of all pieces of 2 ft strut channel
- 8 x Small Tee brackets

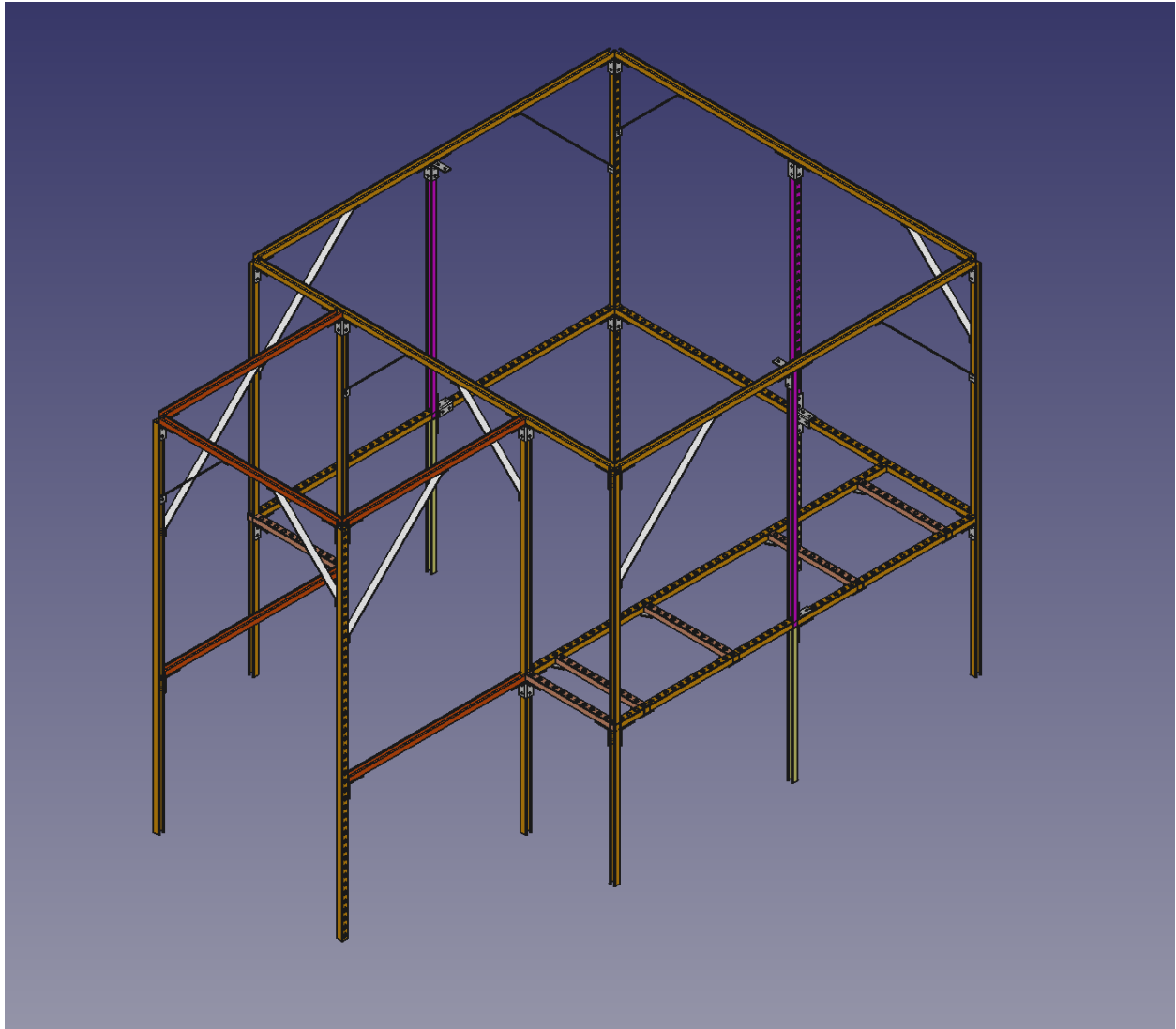
Step 3: Install mid-beam vertical members



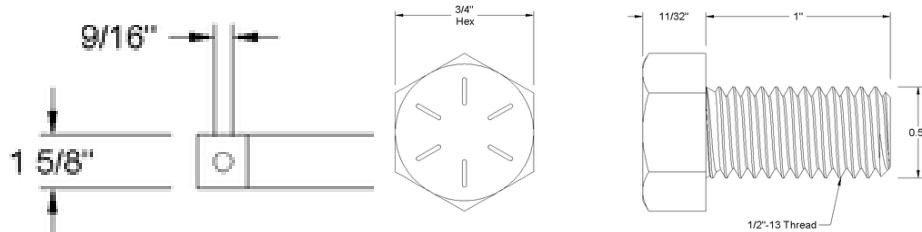
Materials:

- 4 x wraparound wing brackets
- 2 x triple 90° brackets
- 3 x 3' strut channel
- 3 x 5' strut channel - Cut 1 and  $\frac{5}{8}$  inch off of all pieces of 3 ft strut channel

#### Step 4: Install corner bracing



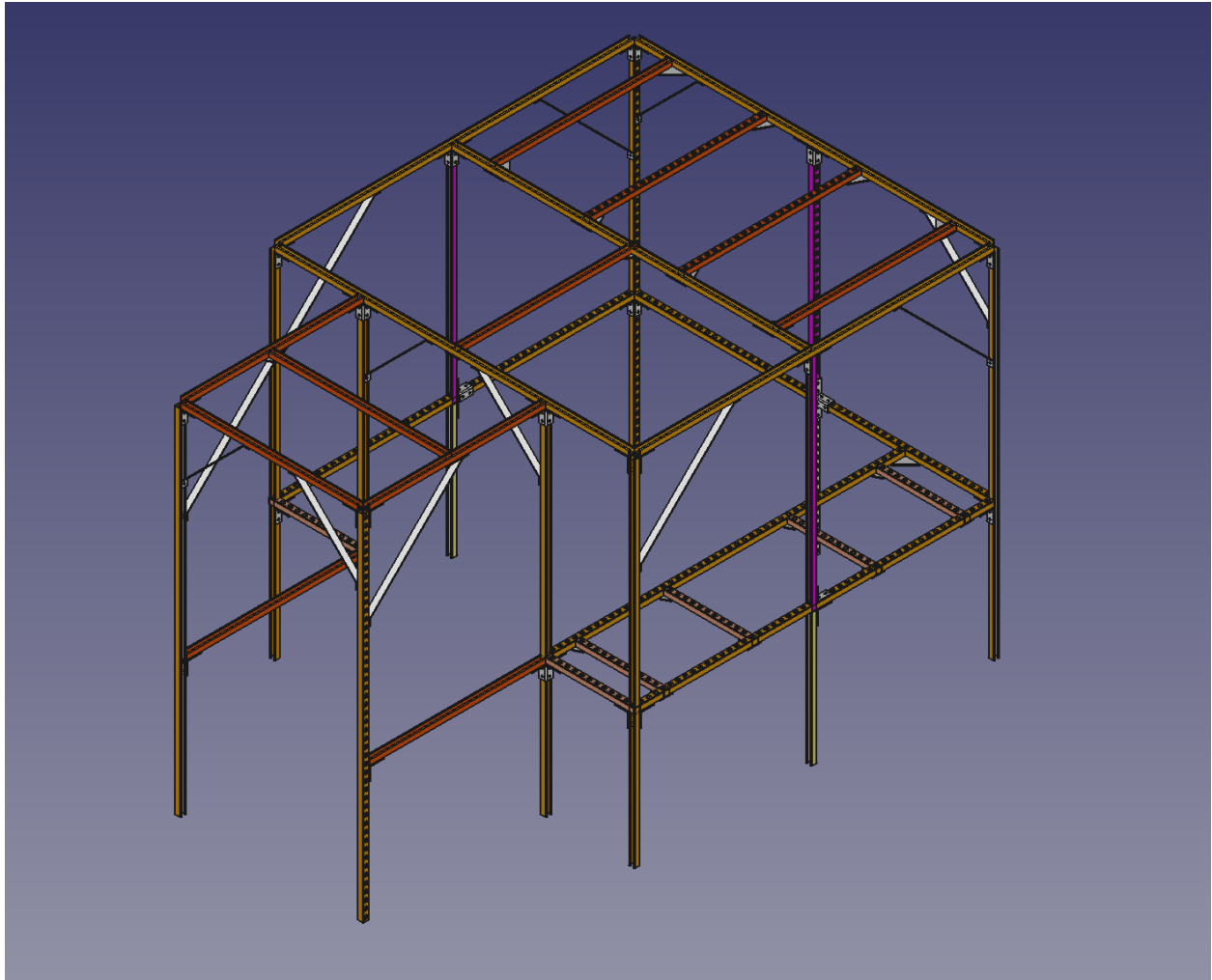
Notes: Some holes may need to be drilled into the strut channel depending on orientation of the braces WRT the mounting holes. Holes can be drilled  $9/16''$  to accommodate  $1/2''$  bolts



#### Materials:

- 6 x 32'' corner braces
- 6 x 24'' corner braces

## Step 5: Assemble roof lattice

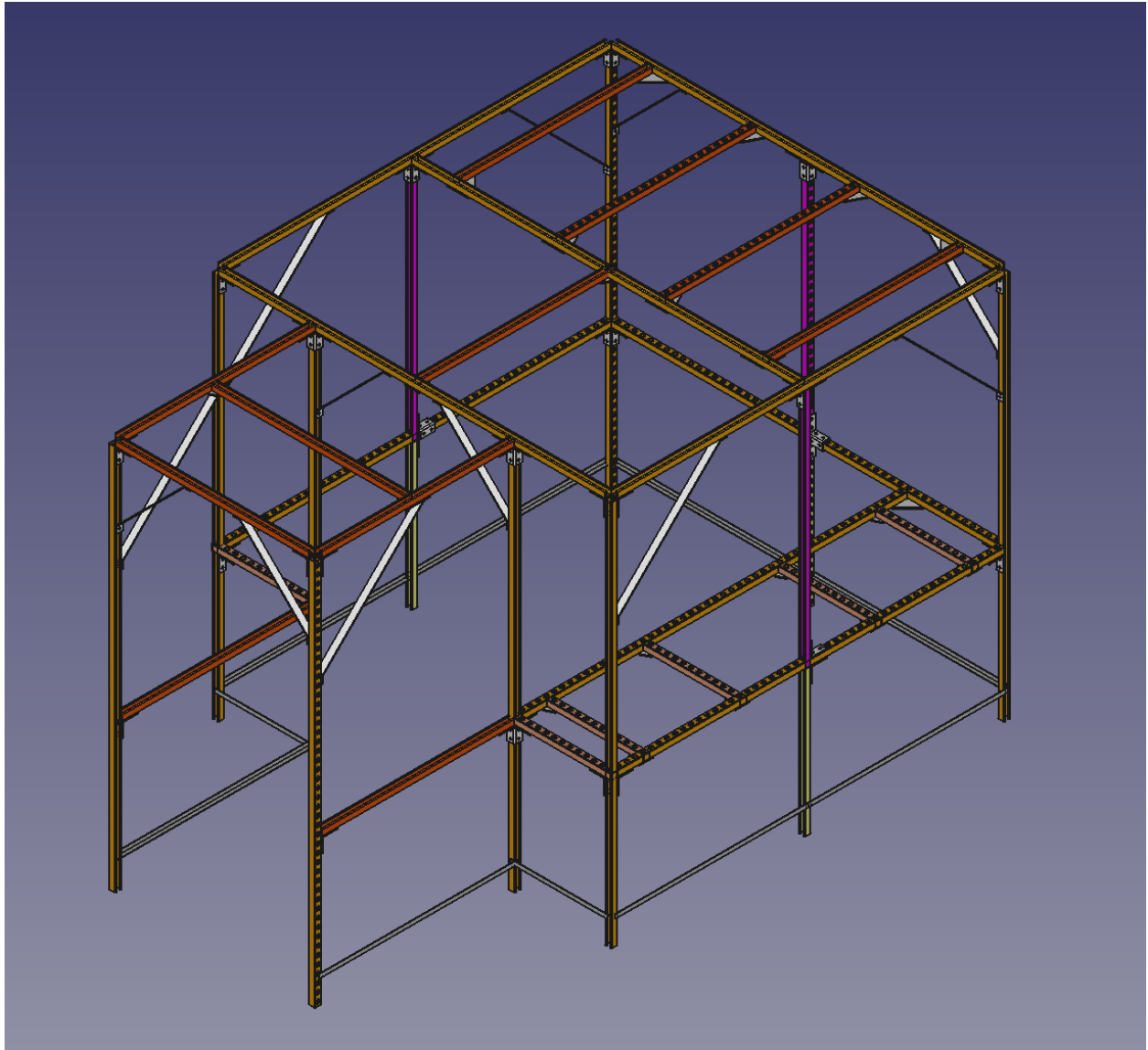


Notes: Rear four 4' strut channel beams should be oriented with holes facing upward and attached using the Large brackets; front two with holes facing downward and attached using the small brackets. 4' strut channel beam at the front of the main part of the clean room (not the one in the gowning room) needs 1 and  $\frac{5}{8}$  inch cut off to accommodate the other components. FFUs should be able to seat directly into the rear lattice holes, space 4' beams on intervals of 2' apart to achieve this.

### Materials:

- 1 x 8' strut channel
- 6 x 4' strut channel - Cut 1 and  $\frac{5}{8}$  inch off of **ONE** piece of 4 ft strut channel
- 4 x Large elbow bracket
- 4 x Large Tee bracket
- 4 x Small Tee bracke

## Step 6: Bottom Al bar installation

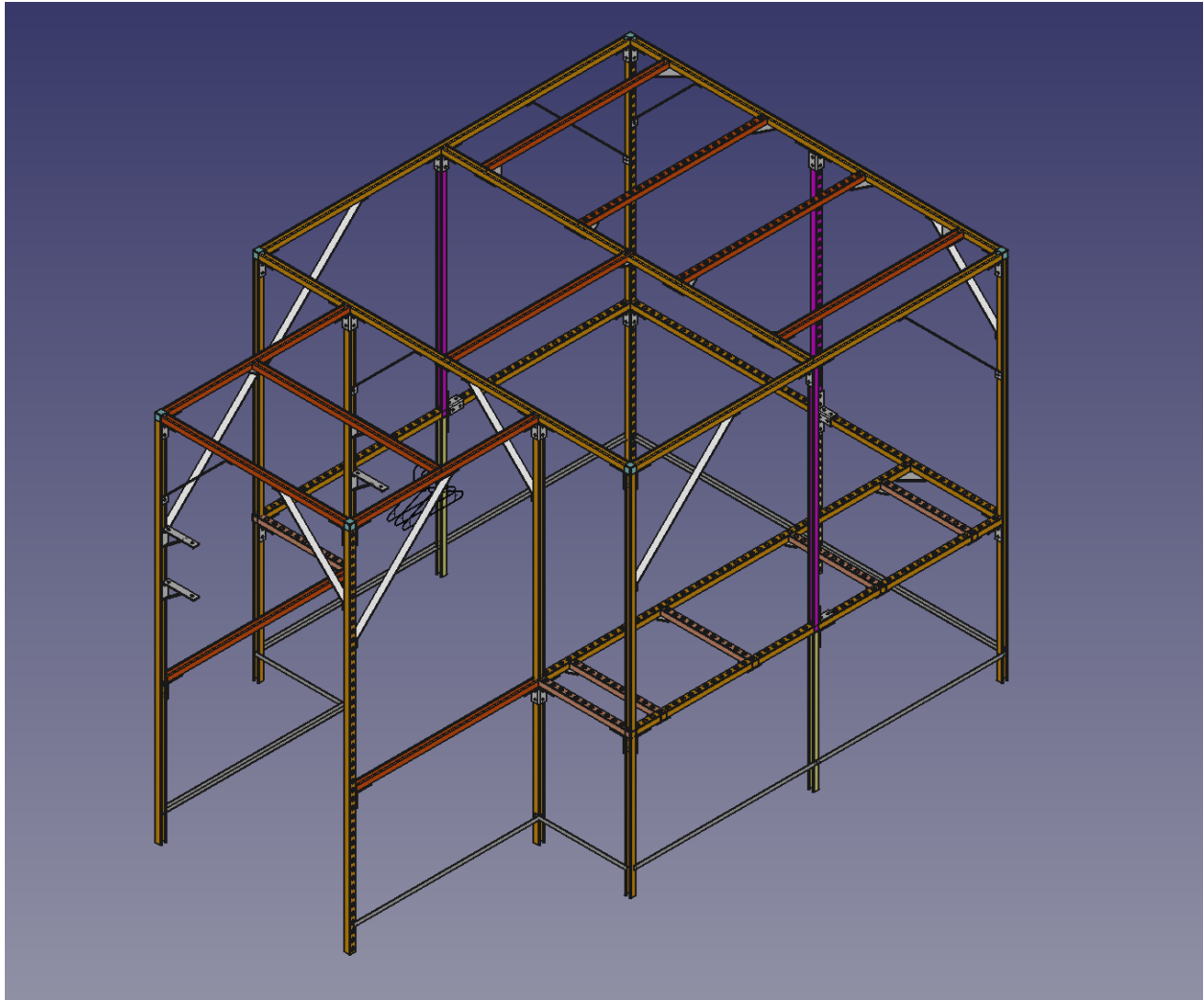


Notes: Attach these pieces of 1"x1/8" Al bar to the bottom strut channel so that pieces of plastic sheeting may be attached with binder clips at a height of your choosing. 6 inches is what I'd recommend. Use the nut driver and the external head drilling screws for metal to attach the Al bars. Cut the bars to length using a miter saw or hacksaw. The bars connecting the bottom of the gowning room to the main cleanroom may be bent at 90 degrees and attached as one piece.

### Materials:

- 10 x 6' 1"x1/8" Al bars
- External head drilling screws for metal
- Fastener nut-holding driver

## Step 7: Finishing touches



Notes: Install shelf brackets in the gowning chamber. 3D print 6 of the smoothed corner inserts (.stl file included, orientation independent), install in top corners to prevent cutting of plastic sheeting. Use clean room tape to seal interior surfaces by covering all of the strut channel holes that may link the inside atmosphere with the outside atmosphere. There should be approximately 125% as much as is necessary in the 2 rolls of tape. Main components needing to be taped are the 8 major 8' strut channel beams defining the outer cube of the clean room as well as the 4' strut channel beams comprising the ceiling lattice, as well as the ceiling beams in the gowning room.

### Materials:

- Clean room tape
- 6 x 3D-printed Smoothed corner inserts
- 4 x Shelf brackets



## Step 8: Install plastic sheeting

Use the 'tuck and roll' method to install plastic sheeting into strut channels and affix to structure using binder clips at regular intervals. Maybe wear thick gloves during this process so it doesn't bother your delicate hands haha jk. Sheeting should go on relatively easily. Sides and ½ of the top of the main clean room cube can be done in 1 sheet each. Gowning chamber and front of the main clean room can be done in 2 sheets. Rear of the main clean room can be done in 1 sheet. ALL interior surfaces will need to be wiped down before use and after turning on the FFUs. To avoid poisoning, use clean room wipers and water, not alcohol.