

Ember House 3.0 Building Instructions

There is no one “right way” to build an Ember House. There are a lot of variations out there, so rely on your imagination. Reported below is simply how I did it.

1. The first step is to order the “Front Face and Roof Sections” (see Print Files for Front Face file). These are made of 3mm (about $\frac{1}{8}$ ”) aluminum composite panels (e.g., Di-bond, e-panel, etc.). These are two sheets of aluminum with a foam core. The image is printed onto a vinyl laminate, like a bumper sticker, which is adhered to the aluminum panel. The Front Face and Roof Sections are then professionally cut-out of the sheet as are the designated openings (e.g., vents, open window, etc.). Arrowhead Signs of Gardnerville, Nevada came up with the design and built the Front Face and Roof Sections. You may wish to use them to build your sections. Their contact information is:

Arrowhead Signs
Phone: (775) 265-7881
Email: arrowheadsignshop.com/

2. Next, order your 1 $\frac{1}{4}$ ” PVC pipe fittings from a Furniture Grade PVC supply store. I used Formufit Furniture Grade PVC (<https://formufit.com/>). See “Parts and Supply List.” It might be smart to purchase extra fittings of each type because mistakes happen and PVC cement is unforgiving.
3. Go to your local home improvement store and hobby shop and purchase remaining items from the “Materials List.”
4. For gluing and attaching pieces, PVC cement is the strongest, but there is very little “work time” to make adjustments. When needing to adjust and adhere pieces, use a heavy duty construction glue that bonds PVC (I used Gorilla Glue) and a pan head screw to secure fittings and pipe.
5. Use a sturdy, level work table and have plenty of clamps on hand.
6. I intentionally left out pipe measurements because of potential variability in the Front Face dimensions, differences in the amount of “recess” within the pipe fittings (i.e., how far the pipe travels within the fitting) etc. Take your own measurements and “test fit” the pieces first without glue.
7. Use white plastic corrugated sheet material as backing to the Front Face openings (e.g. vents, window, etc.). Attach them to the back of the Front Face with white duct tape.

8. Spray paint 4" wide "hook-side" Velcro with adhesive back orange and attach to Front Face openings and roof sections.
9. Attach the Front Face to the PVC frame using ¼" bolts, fender washers and wing nuts. Use slip tees, cut PVC fittings, other plastic material, wood, etc. as a spacer between long sections of pipe and attach a bolt, fender washer and wing nut through the spacer.
10. Note: The Ember House depicted in the pictures has 1½" x 1½" white PVC square pipe across the bottom of the Front Face. This was placed there to protect the bottom edge of the Front Face. Unfortunately, square PVC is no longer available so was eliminated from the plans.
11. "Butt-up" the narrower edges of the two roof sections and create a hinge using white Gorilla tape. Drill holes through the roof section to access holes in the "L" brackets. Secure with 1"x1/4" hex bolts, washers and wing nuts.
12. Make 6-8 approximately 2" square embers out of pieces of wool socks and filled with dried pinto beans.
13. Use the 20-gallon garbage can to store and transport the various accessories. Make the various accessories (watch the video to get some ideas). Use your imagination!
14. Find a sturdy canvas bag and place a sand bag in it to serve as a weight to stabilize the Ember House.
15. Do not store the Ember house in direct sunlight or in a hot, confined place. Sunlight and heat may damage the vinyl covering of the Front Face. We keep ours inside the office in a storage closet.
16. Make a cover out of used blanket or bed spread for the front face to keep it from getting scratched or damage during transport.

Ember House 3.0 Materials List

From Furniture Grade PVC Supply Store (all fittings 1¼" diameter)

- 7 Adjustable PVC elbows (such as SKUF114ADJ-WH from <https://formufit.com>)
- 1 4-Way PVC fitting
- 1 5-Way PVC fitting
- 4 Tee
- 2 Elbows
- 1 Fishmouth
- 8 Slip Tee (for spacers, or could use washers, piece of PVC, shim, etc.)

From Home Improvement Store

- 3 1¼" x 10' PVC pipe
- 1 Wood bark mulch, partial bag
- 1 2' x 4' x ¼" plywood
- 1 10' PVC raingutter
- 6 Raingutter end caps
- 1 20 gallon metal garbage can
- 10 ¼" x 2½" hex bolts, fender washers and wingnuts (to attach front face section to PVC frame)
- 4 ¼" x 1" hex bolts, fender washers and wing nuts (to attach roof sections to "I" brackets)
- 4 5"x 5" metal "L" brackets
- 1 7/16" socket and socket wrench
- 1 Stubby (e.g., 2" long) Phillips screwdriver
- 20 5/8" Panhead screws
- 1 Firewood, 3-4 pieces, 12" long
- 1 Bailing wire, 10'
- 1 2' x 4' white plastic corrugated sheet
- 1 Roll white, heavy duty duct tape
- 1 White plastic molding trim (for bottom edge of Front Face), 5'
- 2 Sandbags
- 1 Plastic "Extra Parts" box

Spray Paint and Wood Stain

- 1 Fluorescent orange
- 1 Flat white
- 1 Satin brown
- 1 Wood stain, pint
- 1 Satin polyurethane, pint

Adhesive

- 1 Liquid Nails
- 1 3M spray adhesive, small
- 1 PVC cement, small
- 1 Construction glue that will bond PVC, small
- 1 Package of Velcro 1" squares, white, adhesive back
- 1 Package of 2" x 3" Velcro rectangles, white, adhesive back

From Hobby Store or Internet

- 1 Fake juniper shrub
- 1 Fake dried grass and flowers
- 1 10' of 4" wide Velcro, white, adhesive back
- 1 Fake pine needles, cones, dried grass and flowers

Tools

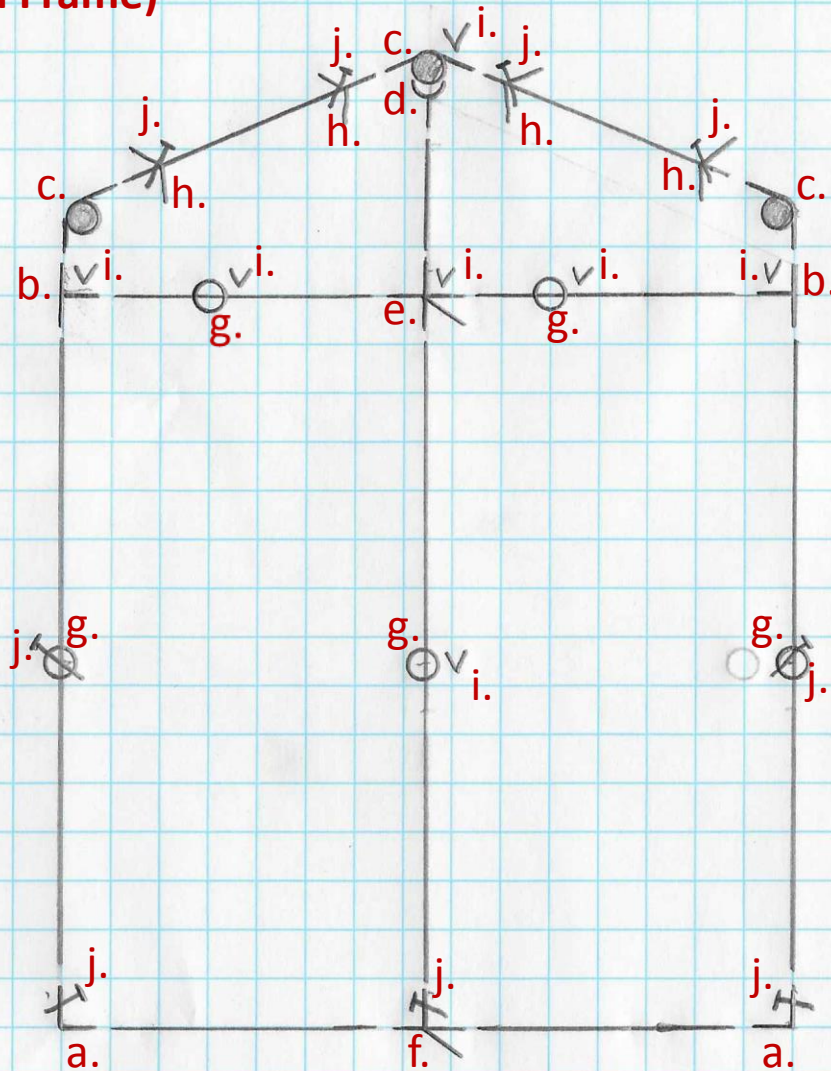
- Cut-off or radial-arm saw
- Drill with $\frac{1}{8}$ " and $\frac{1}{4}$ " drill bits
- Sabre saw
- Clamps
- Level work table
- Pipe wrench for $1\frac{1}{4}$ " pipe

Misc.

- 1 Pair wool socks or microfiber material for ember bags
- 1 Bag of kidney beans for ember bags
- 1 Roll orange flagging for ember bags

Ember House 3.0

(Main Frame)



a. 90° Elbow*

b. Tee

c. Adjustable PVC Elbow

d. Fishmouth

e. Five-way Cross

f. Four-way Cross

g. Spacer (Slip tee, washers, PVC piece, etc.)

h. 5" Metal "L" Brackets

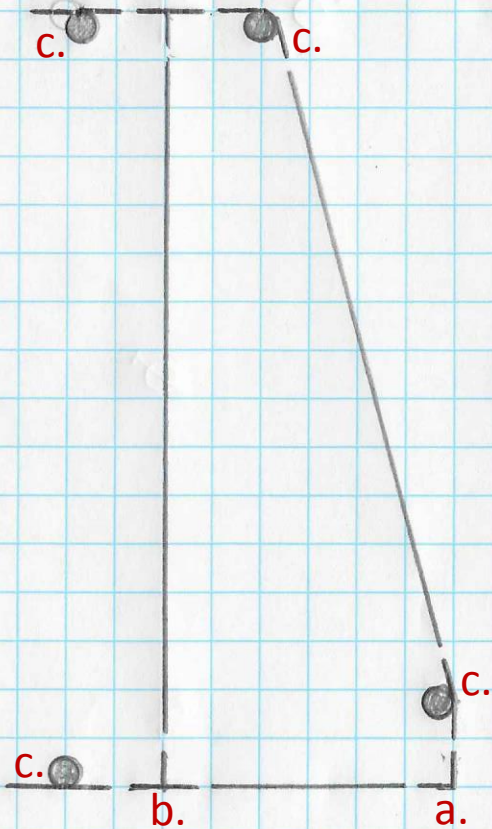
i. Velcro

j. ¼" x 2½" Hex Bolt, Fender Washer, Wing Nut

* All fittings and pipe are 1¼" in diameter.

Ember House 3.0

(Brace)



a. 90° Elbow*

b. Tee

c. Adjustable PVC Elbow

d. Fishmouth

e. Five-way Cross

f. Four-way Cross

g. Spacer (Slip tee, washers, PVC piece, etc.)

h. 5" Metal "L" Brackets

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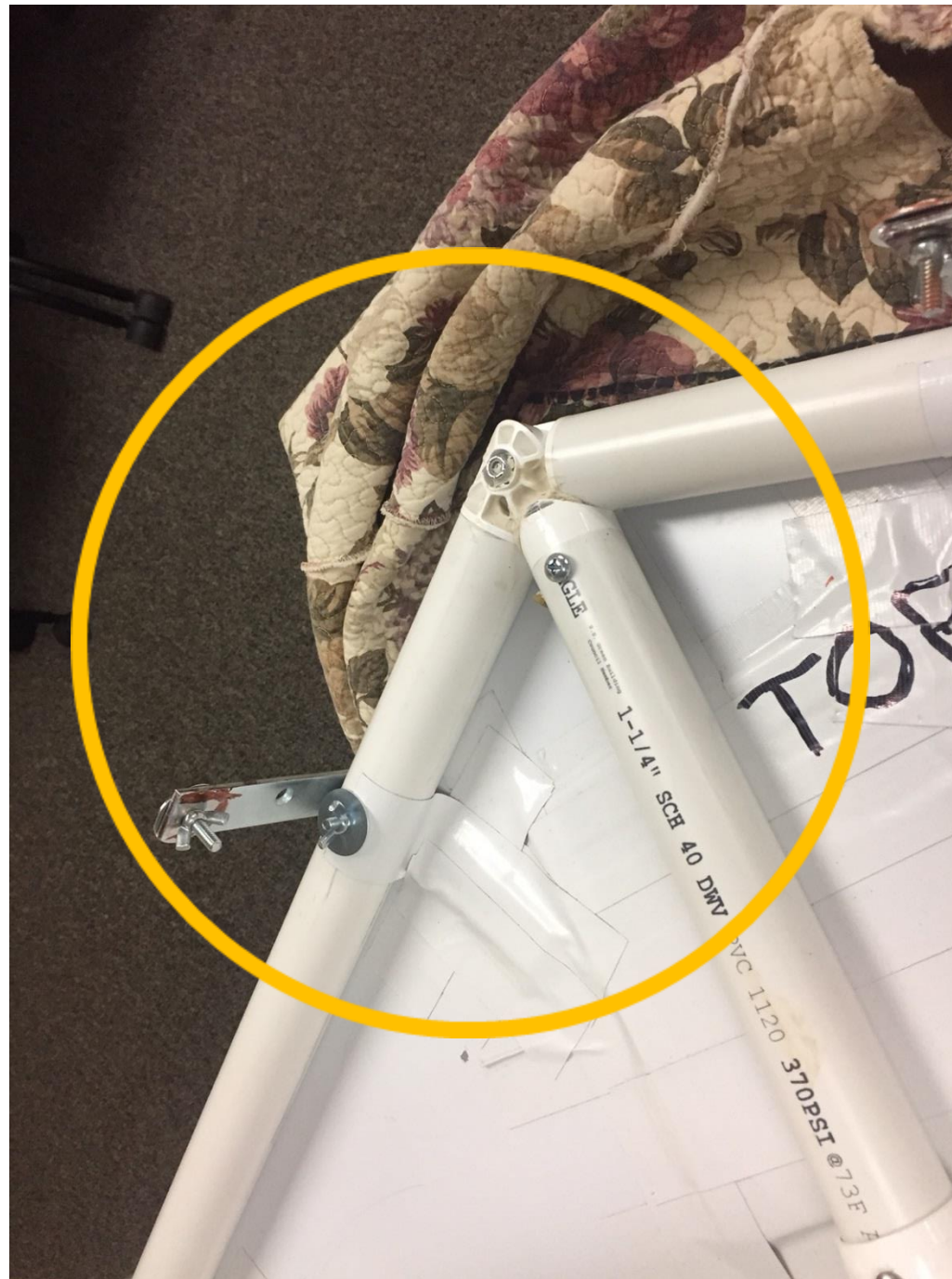
* All fittings and pipe are 1¼" in diameter.



The “Ember House 3.0” Face Front



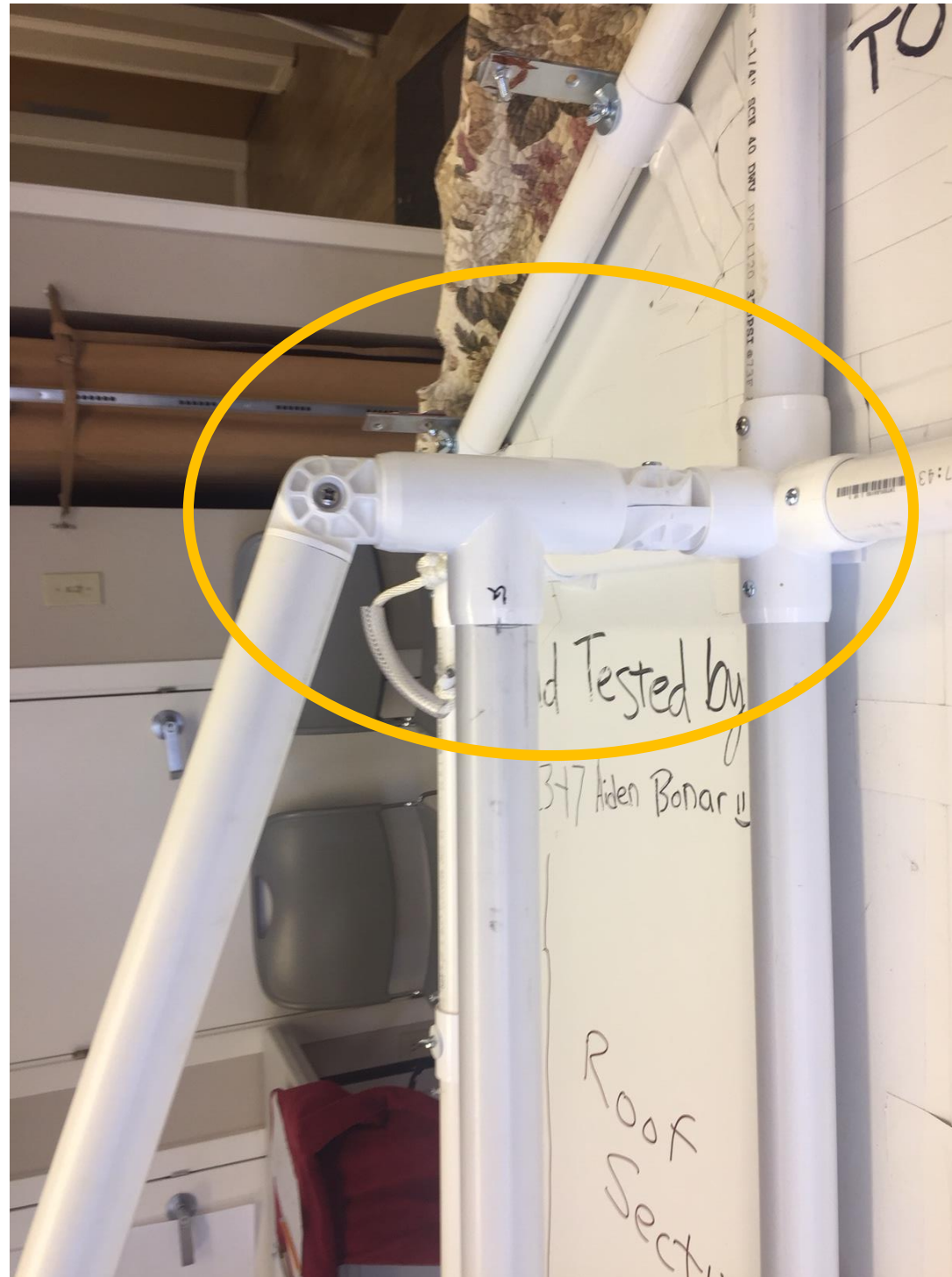
PVC frame upper corner showing the Tee and Adjustable Elbow joint, 5" Metal "L" Bracket (to attach roof section to) with bolt, fender washer and wingnut, spacer, and handle.



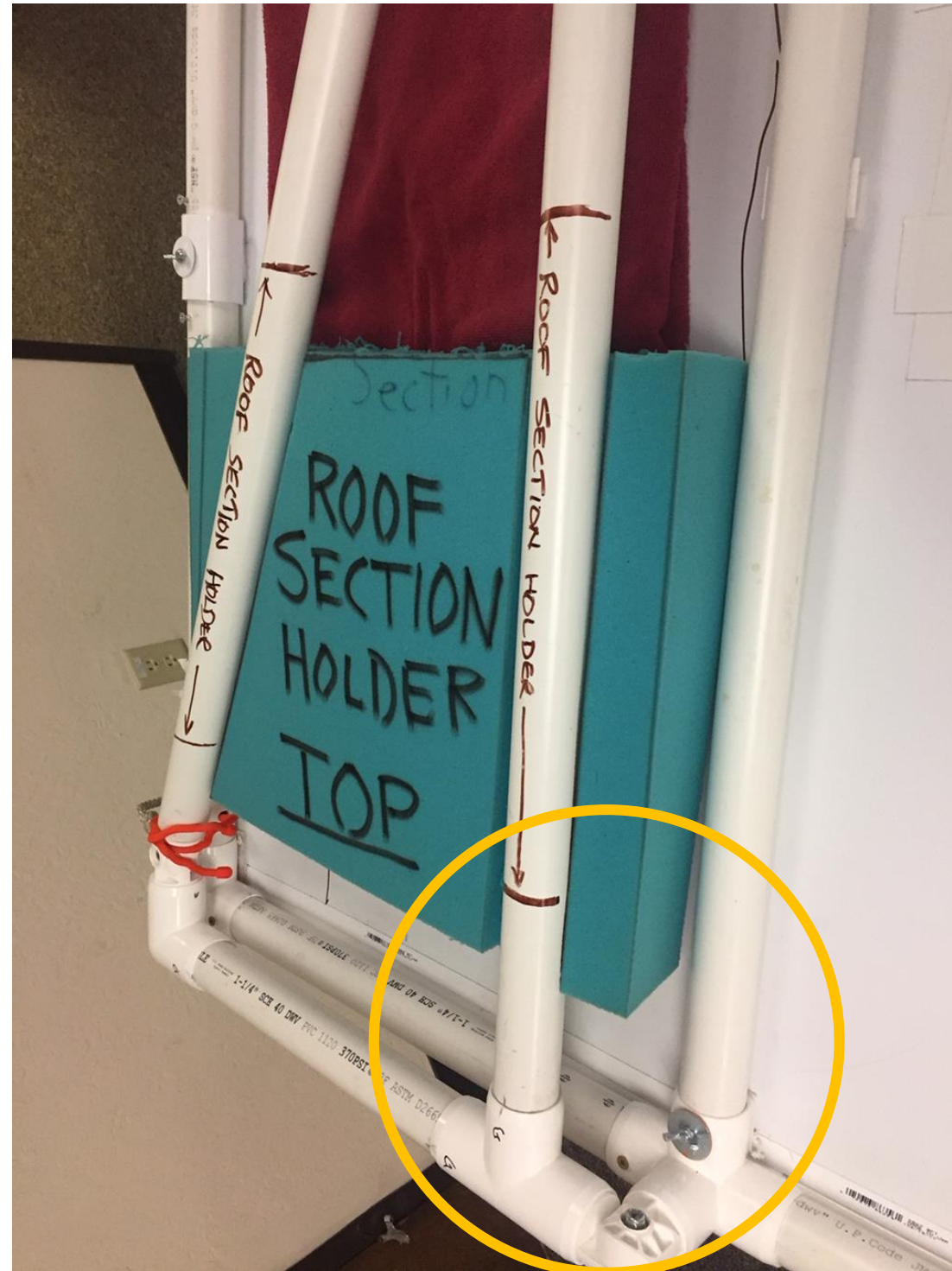
Main Frame gable with Adjustable Elbow, 5" Metal "L" Bracket for roof attachment wingnut, fender washer, and bolt. The Fishmouth is attached to the gable peak Adjustable Elbow with glue and a screw.



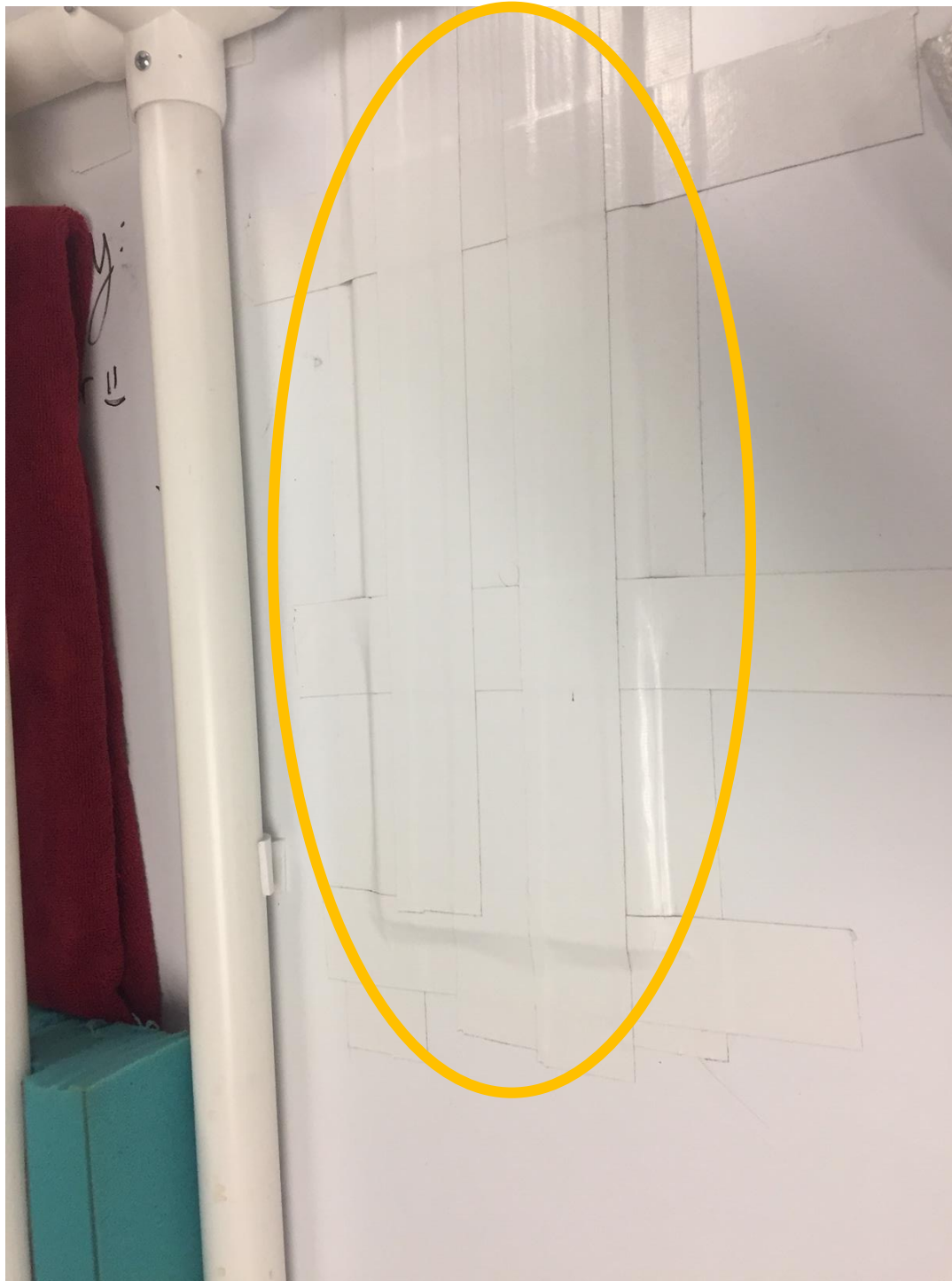
Upper Brace connection to the Main Frame in closed position showing the Five-way Cross, Adjustable Elbows, and Tee.



Upper Brace connection in open position.



Bottom Brace connection in closed position with Four-way Cross, Adjustable Elbow and Tee connection between the Main Frame and Brace.



Corrugated plastic sheet to serve as backing to openings (window, vents, etc.) and attached with white duct tape.