

Sutton Screened in Awning / Porch

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Sutton Porch Awning

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Sheet # 1

This is to be a well built awning structure which will function as a screened three season porch. A new curved dormer will be added to the existing roof, and the new awning will tuck up under the new gable edge.

The awning material will cover an arched aluminum canopy frame.manufactured off site and deleivered in two sections. The aluminum arches will rest on a cedar base of 4x4 posts, 4x6 lintels, doorways, with a base shelf rail around the bottom edge.

The cedar will be bolted to the deck with stainless steel angle brackets.

The area between the railing and the canopy will be filled with specially made aluminum framed screens, which will be assembled on site.

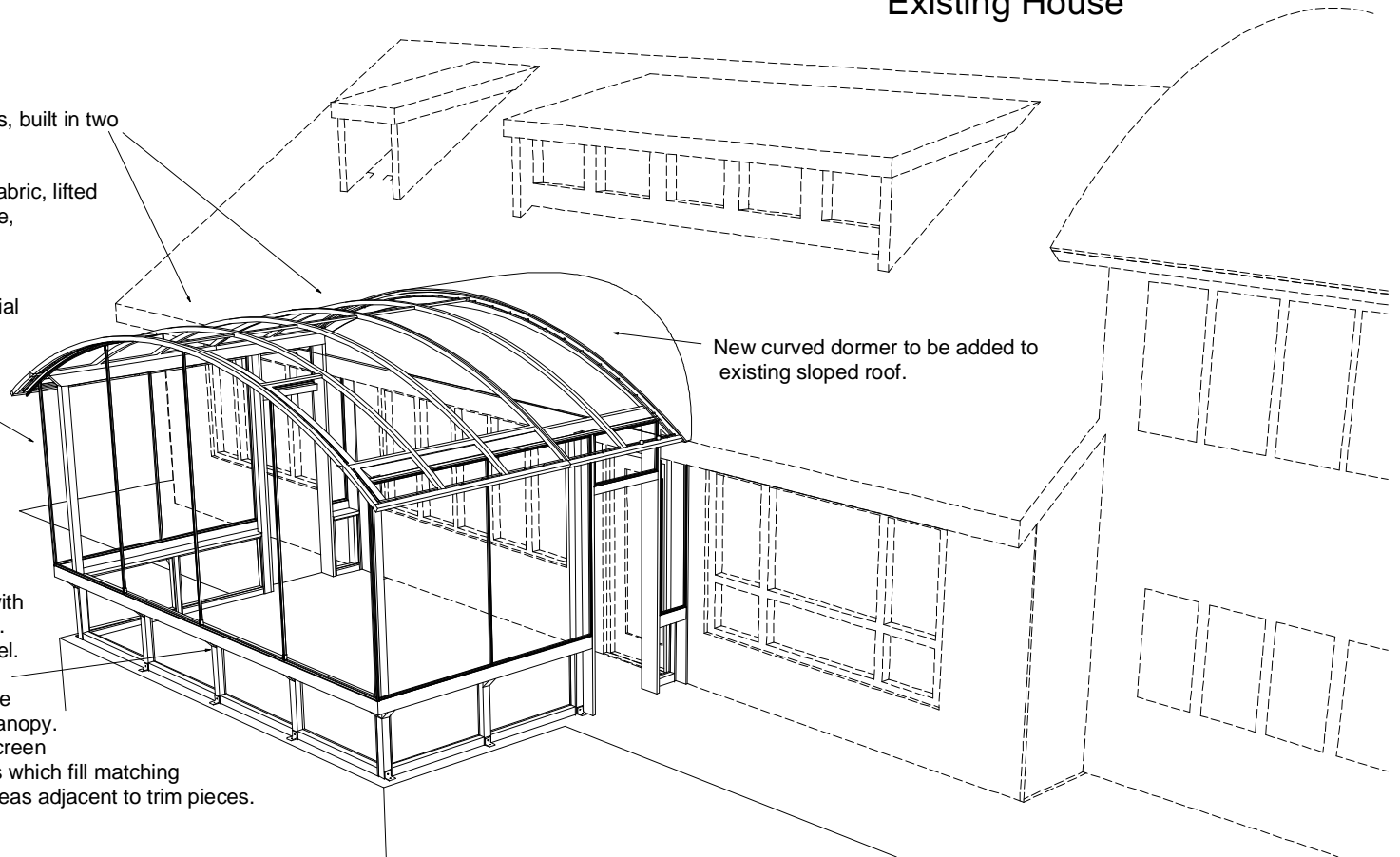
Existing House

Canopy frame of rolled aluminum arches, built in two sections and bolted together on site.

It will then be covered with the canopy fabric, lifted into place and secured to the cedar base, and the new dormer.

Upper screen frames are made of special 1"x1" aluminum channel extrusions. The end frames will be prefabricated and covered prior to installation. The top of the front screen is welded into the front arch section, and the bottom and vertical sections will bolt into place. These screens will be installed on site.

The cedar base is built of 4x4s, 4x6s, with a 2x10/2x6 shelf around the perimeter. The doorways are 2x12s with a 4x4 lintel. Some 1x12 stock is used against the building and under the eave to frame the transition between the house and the canopy. The area below the shelf is filled with screen which is held in place by .75 x .75 strips which fill matching notches in the corners of the 4x4s or areas adjacent to trim pieces.



Project Summary

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Sutton Porch Awning
Project Summary

No Scale
Sheet # 2

Roof Work

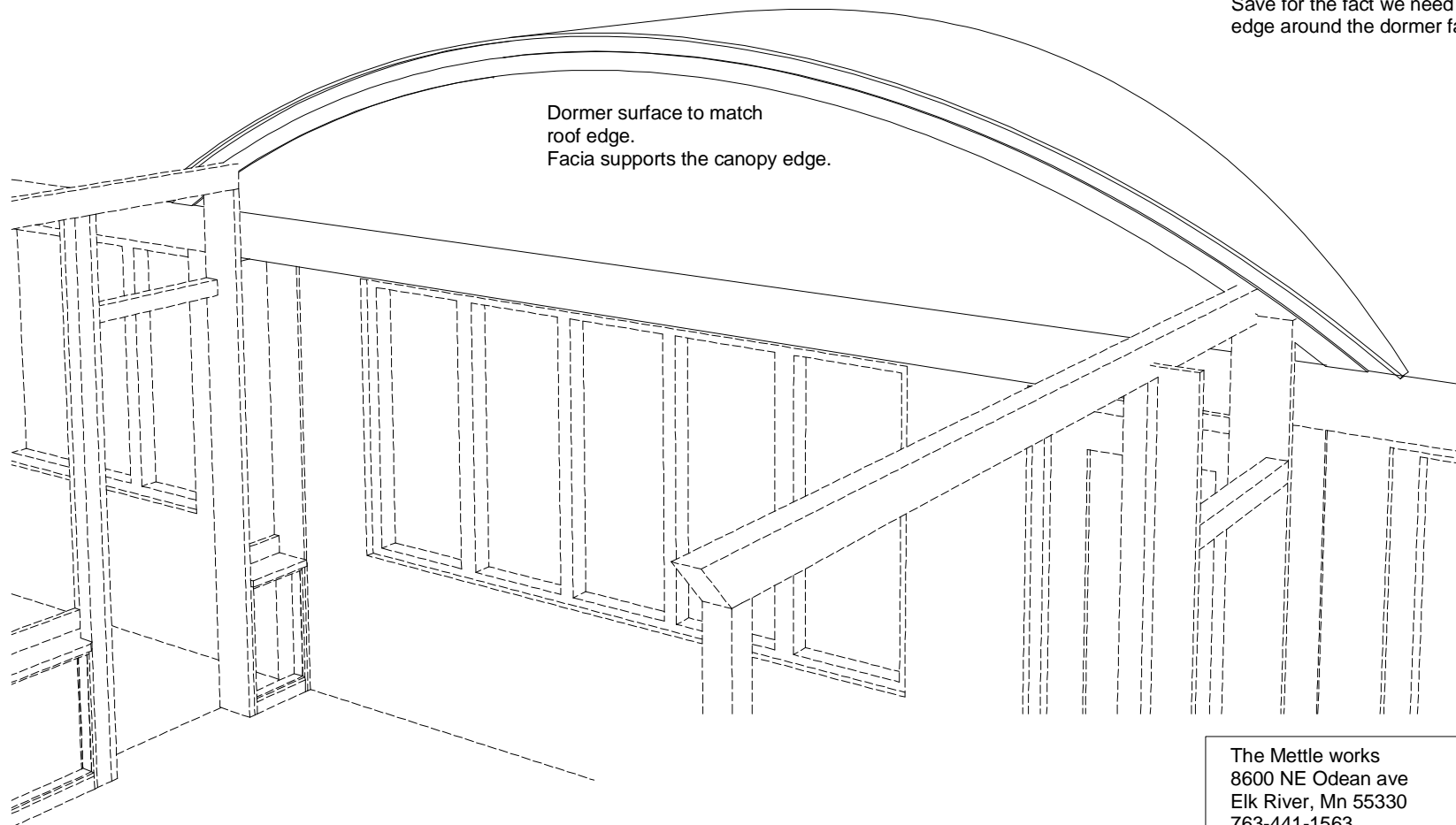
The Dormer is built centered on the cement porch slab.

The canopy will slip in under the edge of the dormer and seal with a gasket.
The fascia will need to be cut to fit around the ends of the main canopy support beams and the upper extension of the door frame.
The fascia is the curved trim piece below the edge of the roof.
The canopy edge sits on it.

The gutters should be installed in the roof edge and a leg built to catch the water at the ends of the awning and carry the water out beyond the deck area.

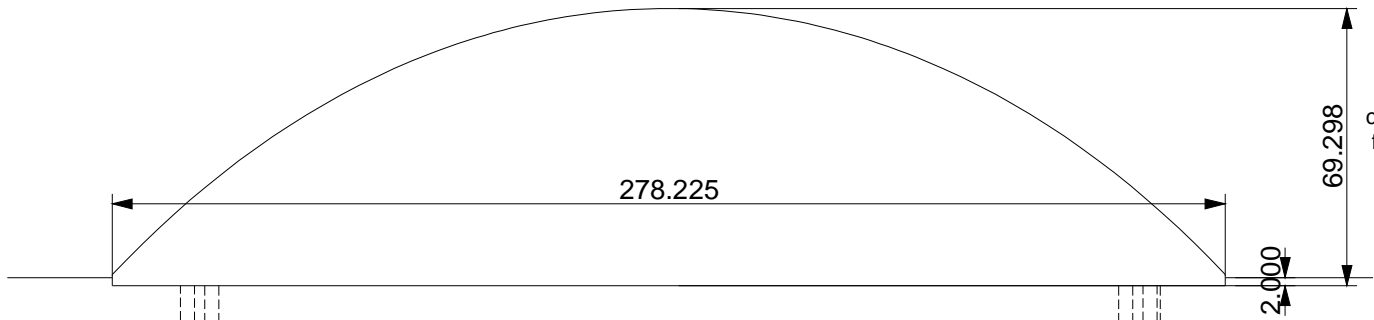
A strap can be bolted to the aluminum arch members as needed.

I leave the roofing details to the roofer.
Save for the fact we need a short drip edge around the dormer face. (see sheet 5)



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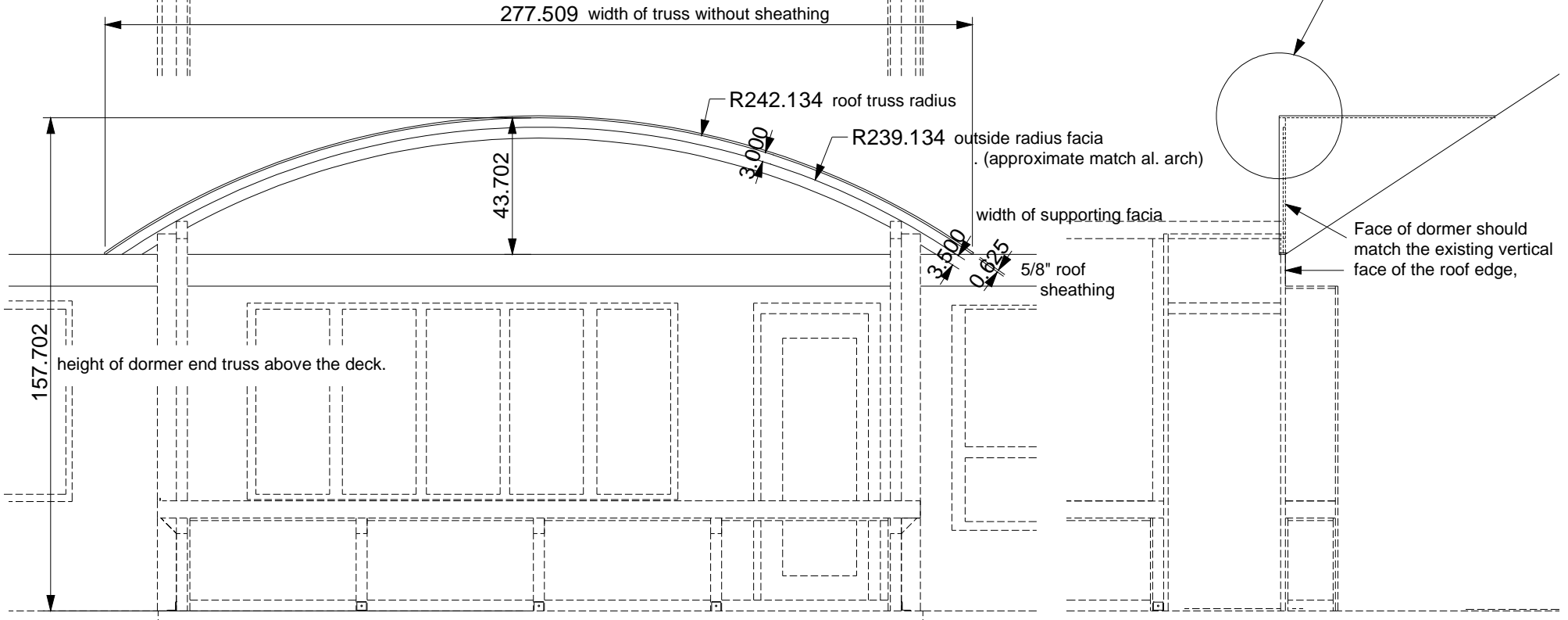
Sutton Porch Awning
Roof work overview
No Scale
Sheet # 3



Plan view

calculated dimension
from iffy drawing
field vary.

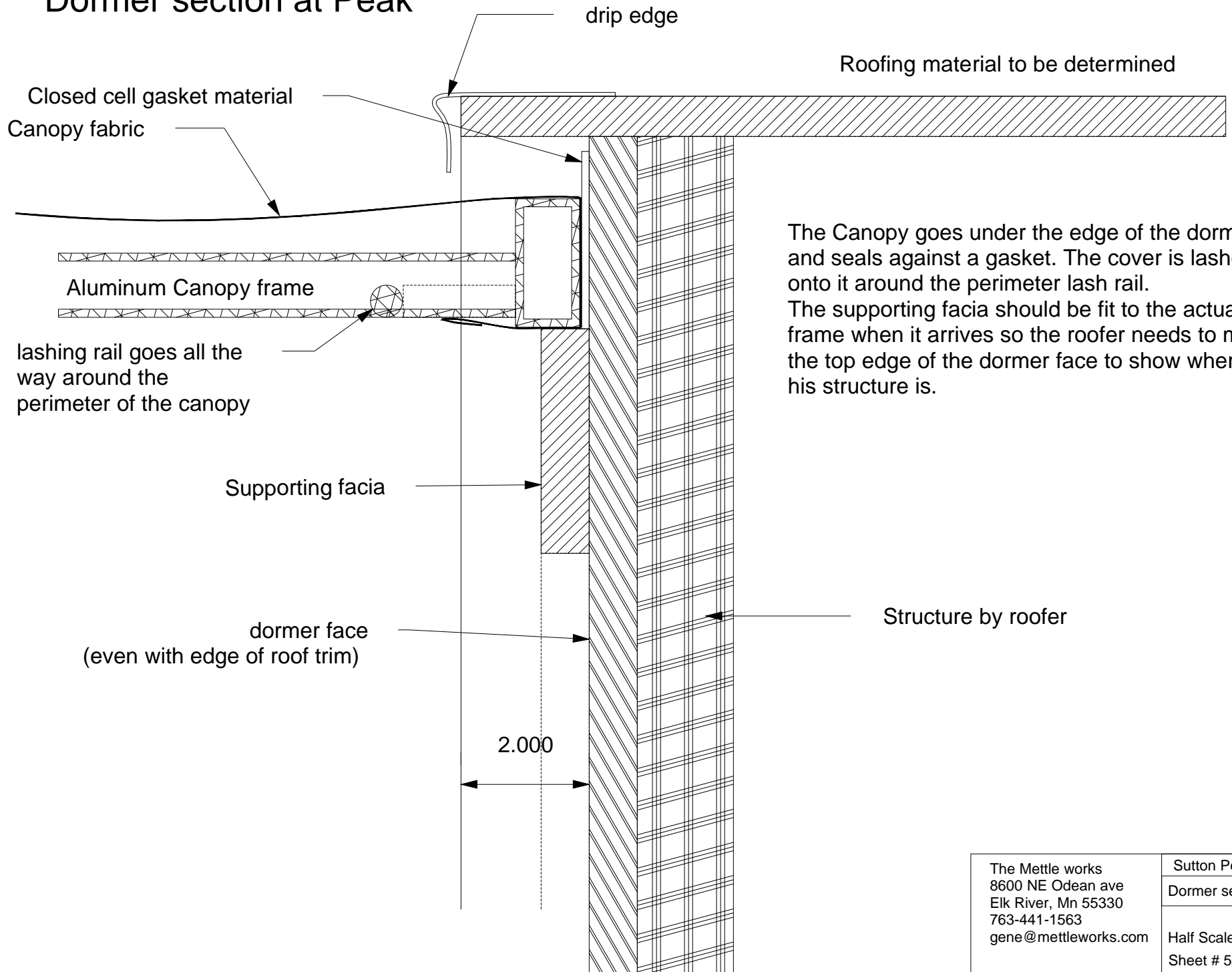
See detail on sheet # 5



Front elevation

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	Dormer
	1/4" = 1 ft. Sheet # 4

Dormer section at Peak



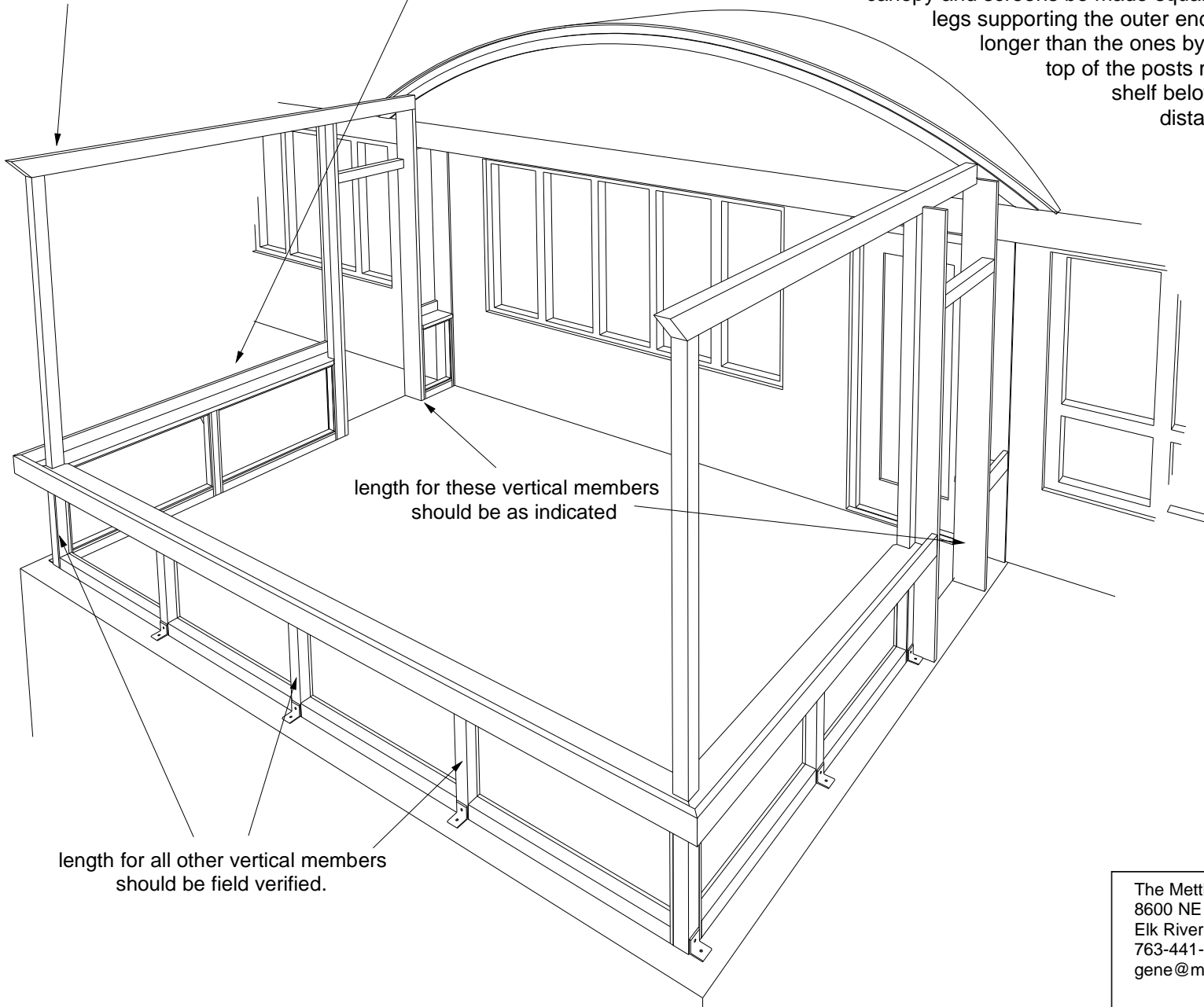
The Canopy goes under the edge of the dormer and seals against a gasket. The cover is lashed onto it around the perimeter lash rail. The supporting facia should be fit to the actual frame when it arrives so the roofer needs to mark the top edge of the dormer face to show where his structure is.

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	Dormer section at Peak
	Half Scale Sheet # 5

The Cedar Frame

The cedar support frame presents the the biggest construction challenge. It is here that the sloped and slightly irregular patio base must be adapted to, as well as any inconsistencies the roofer leaves. We will specify that the canopy and screens be made square. To make this work, the legs supporting the outer end need to be about an inch longer than the ones by the doors. The beams on top of the posts must be level and the 2 x shelf below must be level and a given distance below the beam.

These upper 4 x 6 beams and this lower shelf/rail must be level and in close tolerance for the screens to fit.



length for these vertical members should be as indicated

length for all other vertical members should be field verified.

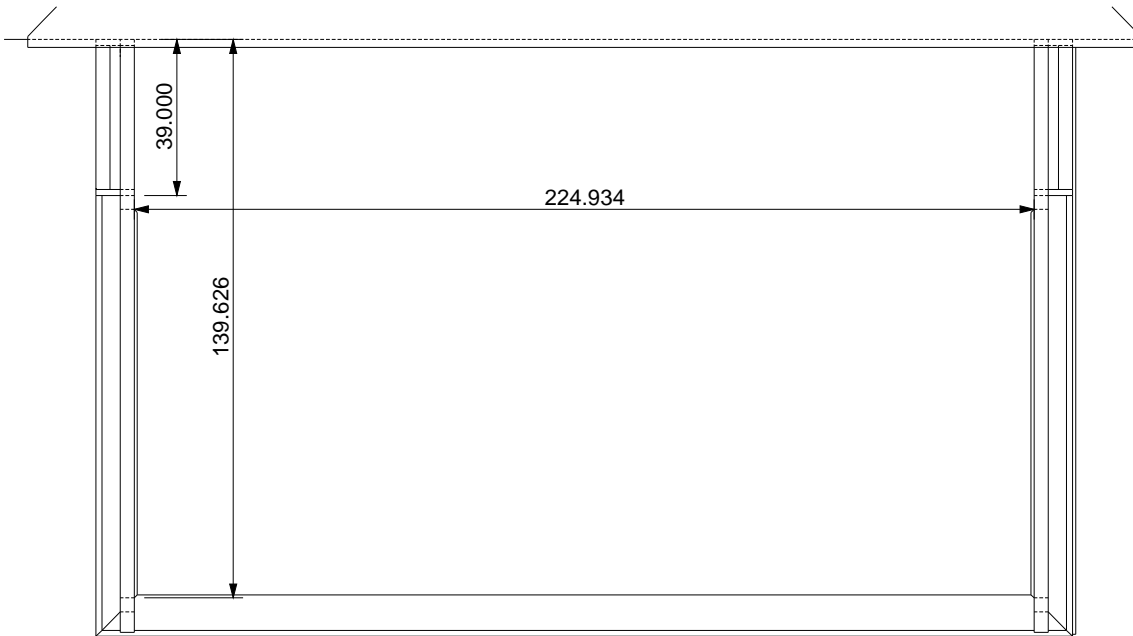
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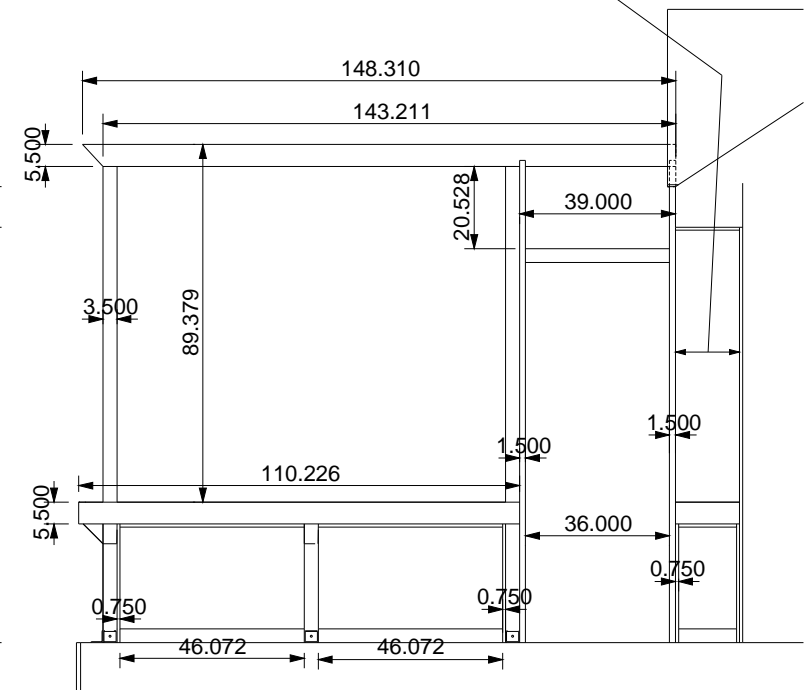
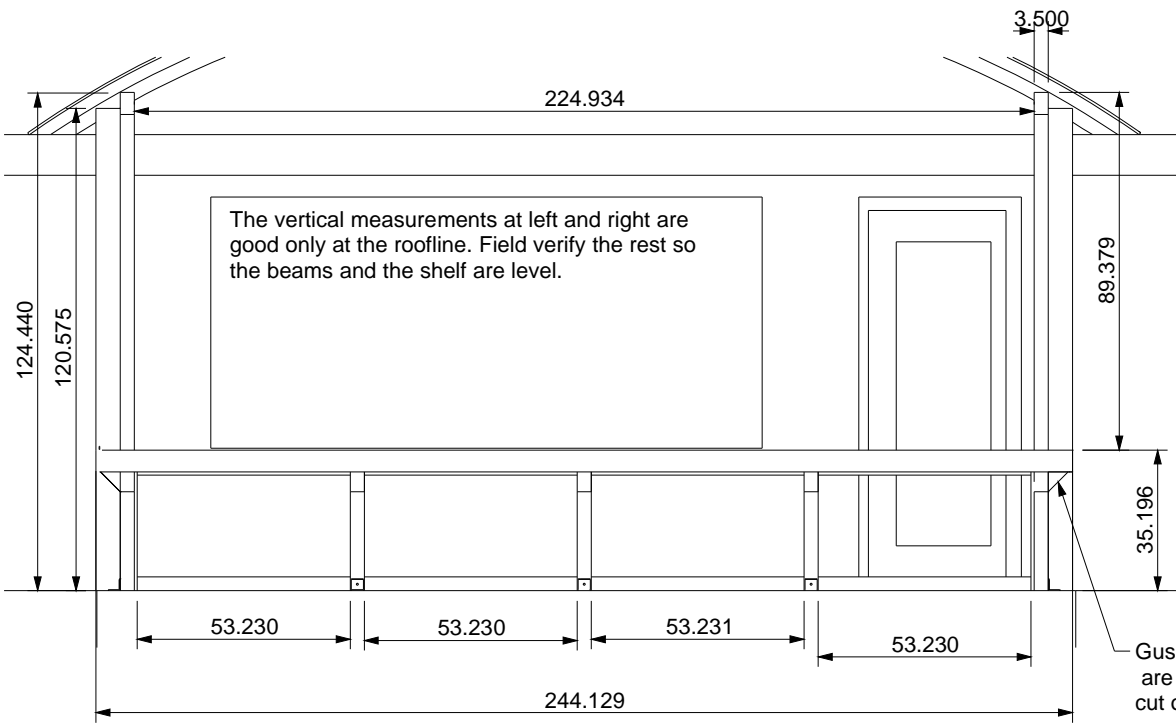
The Cedar Frame

No Scale

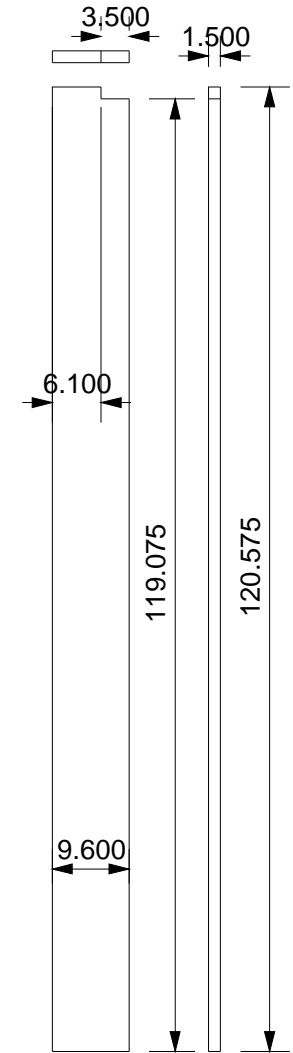
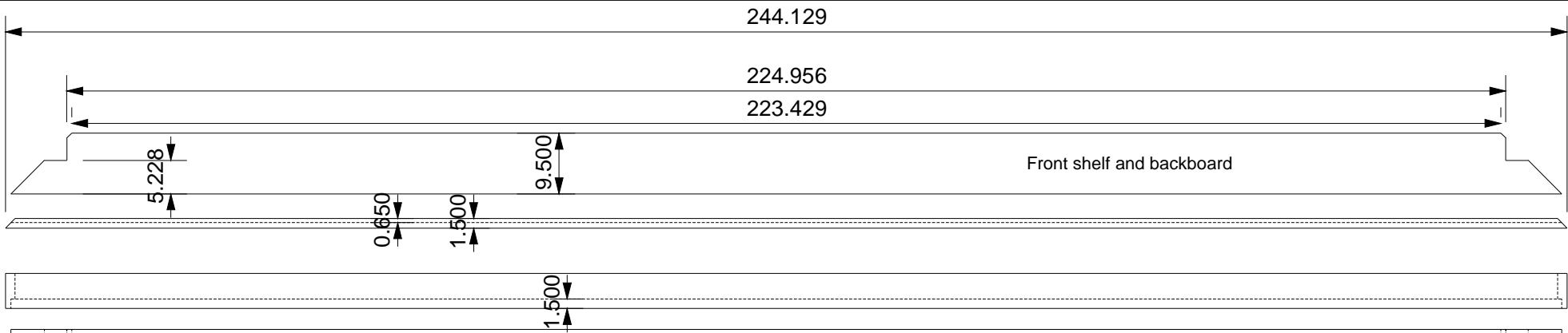
Sheet # 6



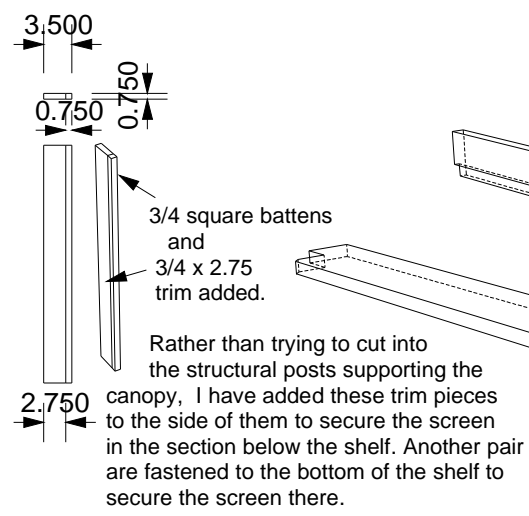
The section under the edge of the roof will have to be measured and cut to fit on site.



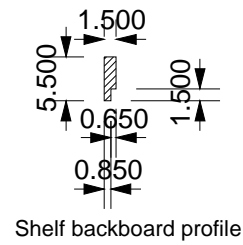
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	Cedar Frame
	1/4" = 1 ft. Sheet # 7



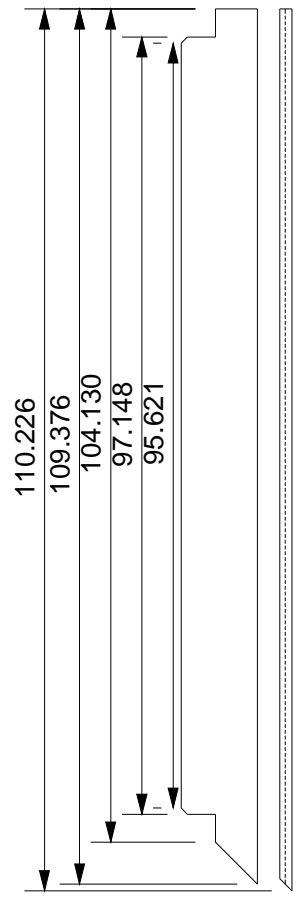
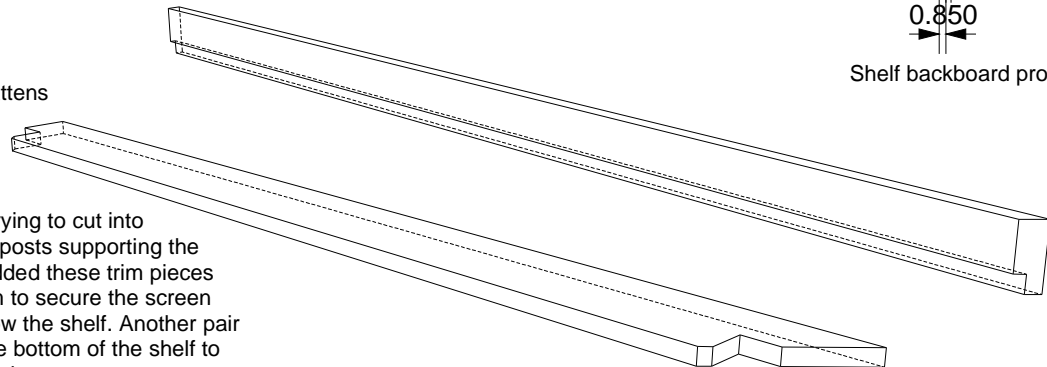
Door frame need 4, two this length and two longer, cut to fit.



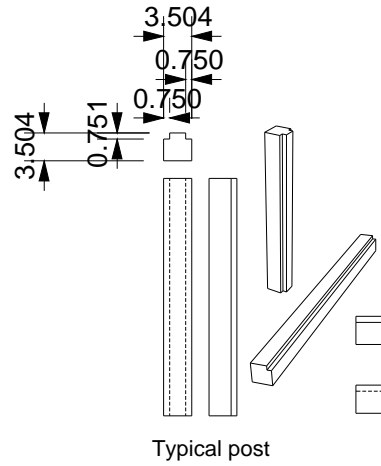
Typical shelf members, 2x10 shelf board and notched two by six backboard. Backboard length and position relative to the overhead beams is critical.



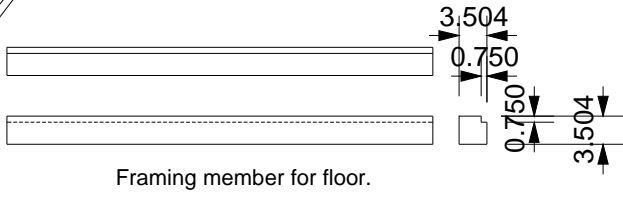
Shelf backboard profile



End shelf need two reverse and repeat.



Typical posts and floor frame members that go under the shelf unit above. Standard profile, but lengths will vary per print and site measurements. A 3/4" square batten fits in the slot to hold the screen.



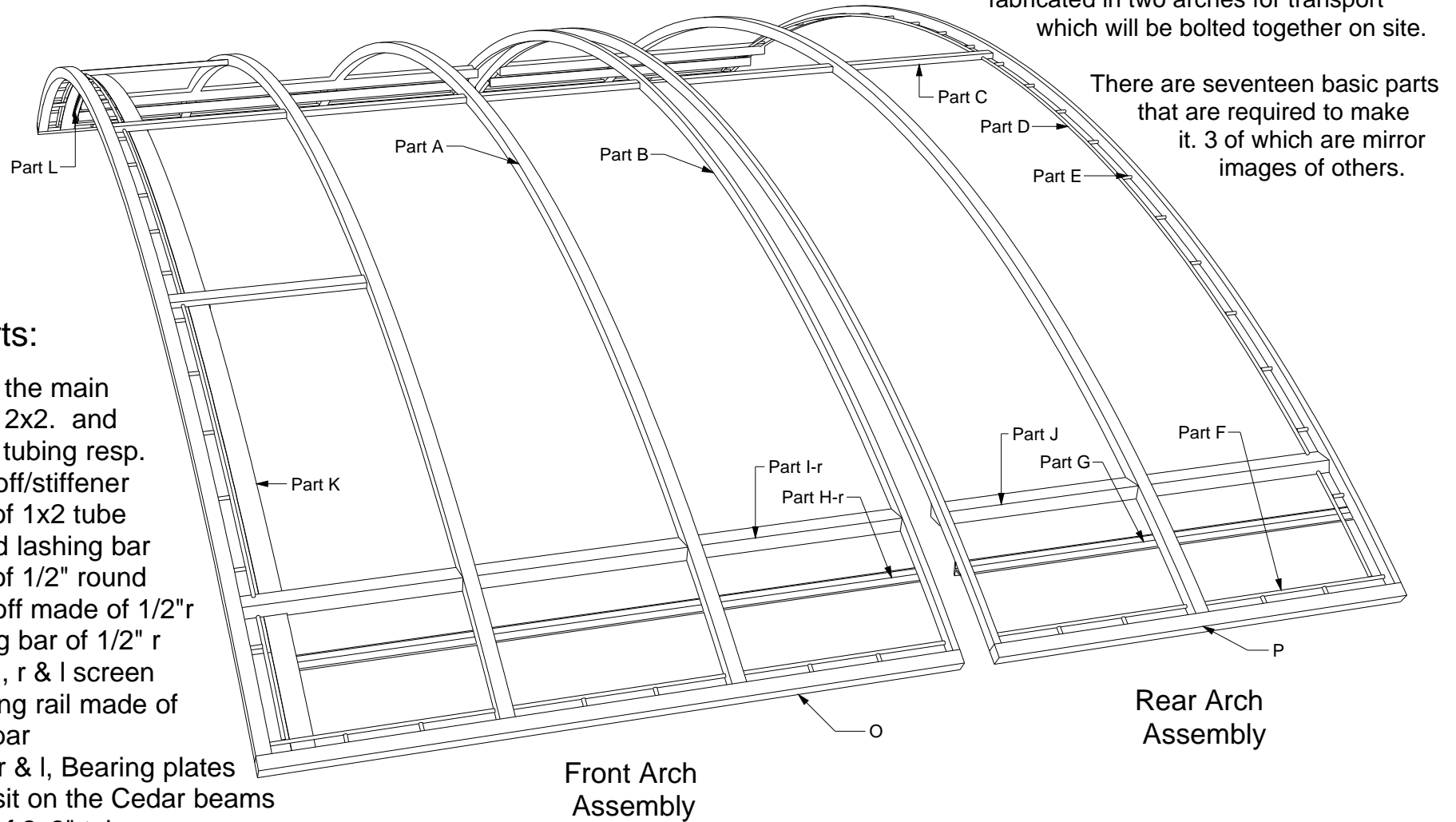
Typical post

Framing member for floor.

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	Cedar elements
	1/2" = 1 ft. Sheet # 8

Aluminum Canopy Frame

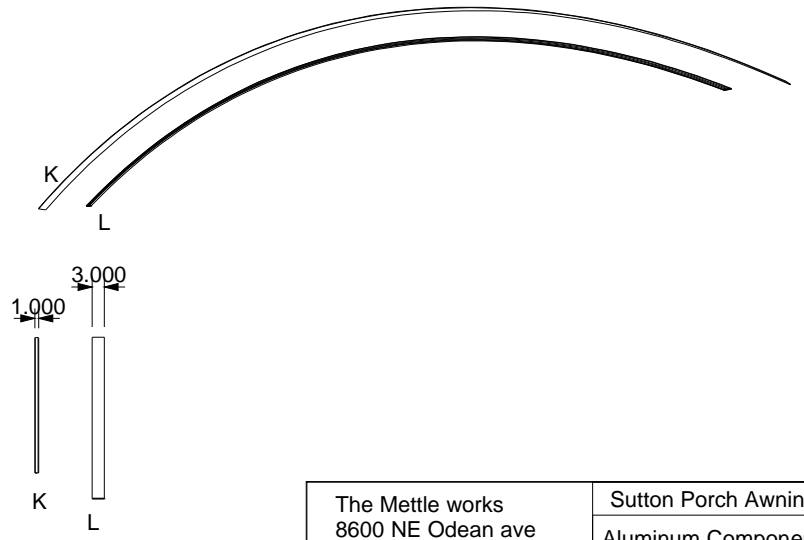
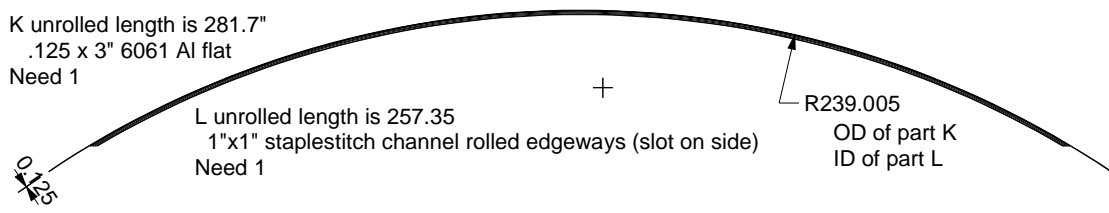
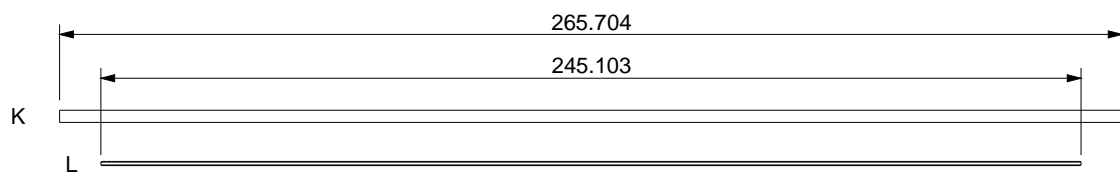
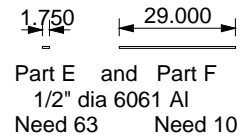
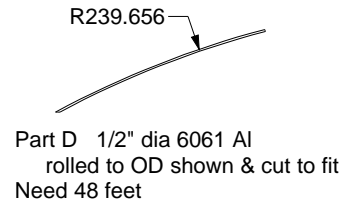
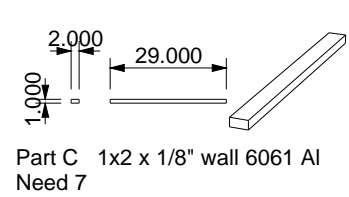
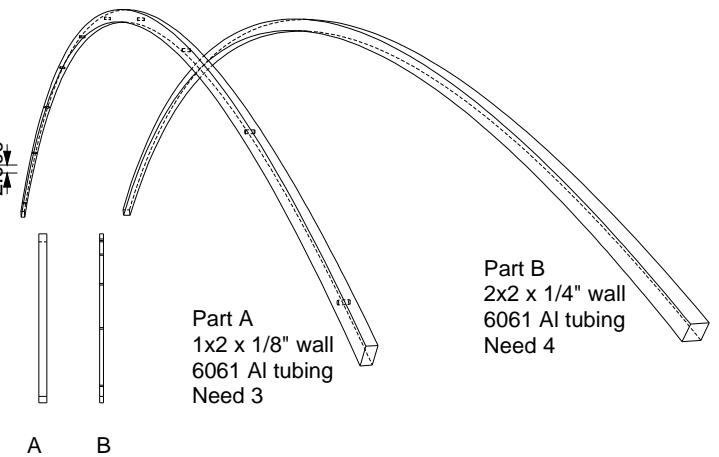
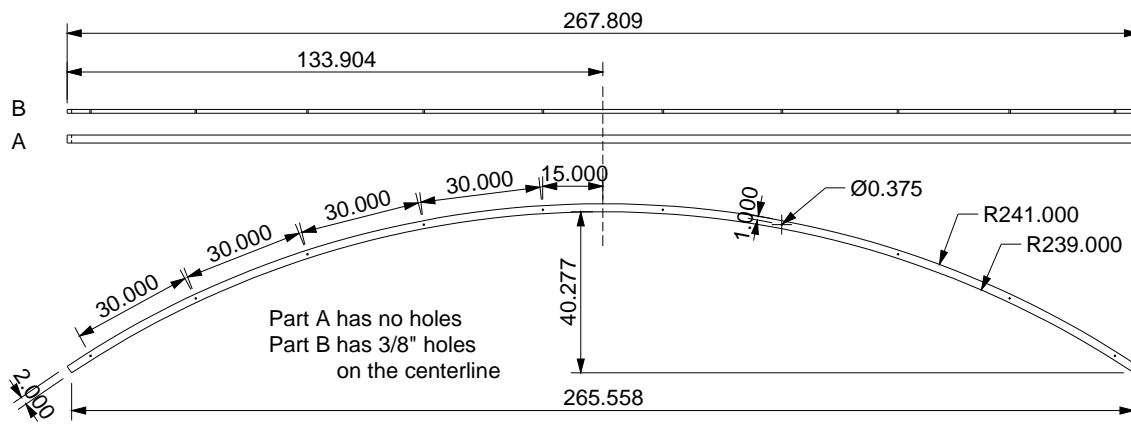
The canopy frame is fabricated of aluminum tube, round and flat bar, T bar and a proprietary design channel extrusion called Staplestitch which we are using to frame the screens. The canopy is fabricated in two arches for transport which will be bolted together on site.



The parts:

- A and B the main arches 2x2. and 1x2 in. tubing resp.
- C standoff/stiffener made of 1x2 tube
- D curved lashing bar made of 1/2" round
- E standoff made of 1/2" r
- F lashing bar of 1/2" r
- G and H, r & l screen mounting rail made of 2x2 T bar
- J and I, r & l, Bearing plates which sit on the Cedar beams made of 2x3" tube
- K mosquito seal seat 1/8 x 3"
- L Top screen mounting channel for front 4 screen panels.
- M and N, r & l Screen channel brackets hidden under part K in drawing.
- O Lateral edge of front arch section
- P Lateral edge of rear arch section

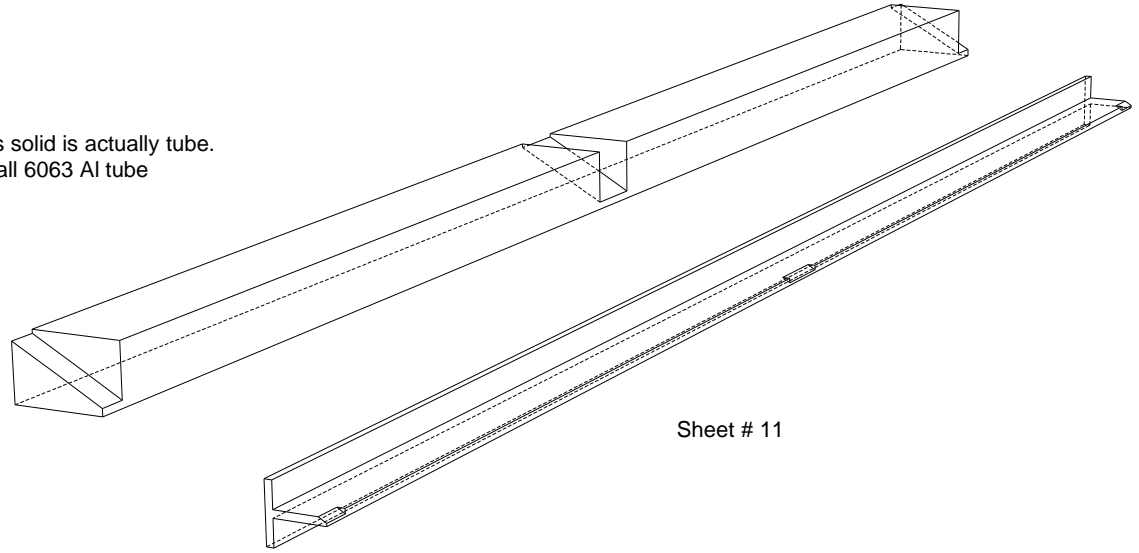
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	Aluminum Frame
	No Scale Sheet # 9



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	Aluminum Components
	1/4" = 1 ft Sheet # 10

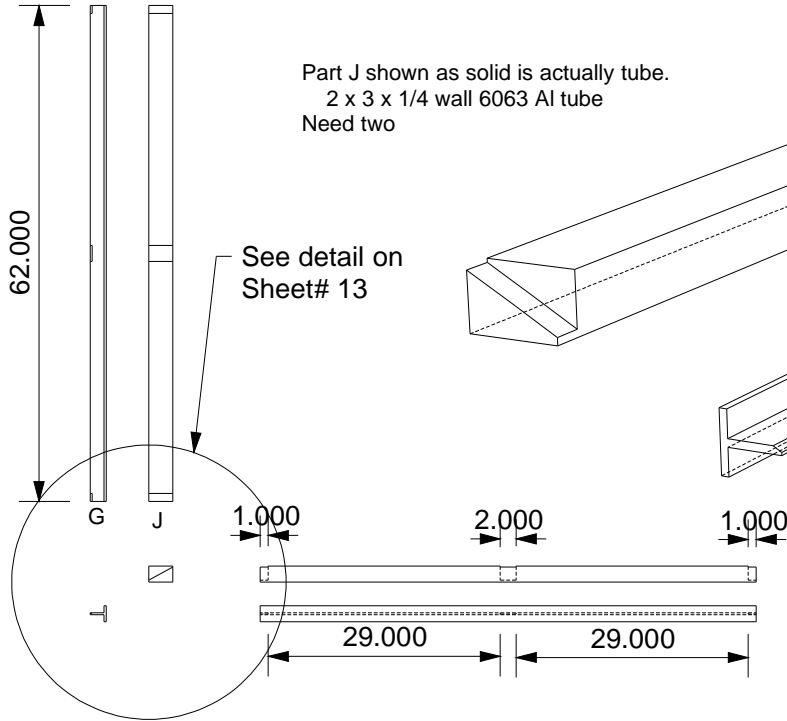
Part J shown as solid is actually tube.
 2 x 3 x 1/4 wall 6063 Al tube
 Need two

See detail on
 Sheet# 13

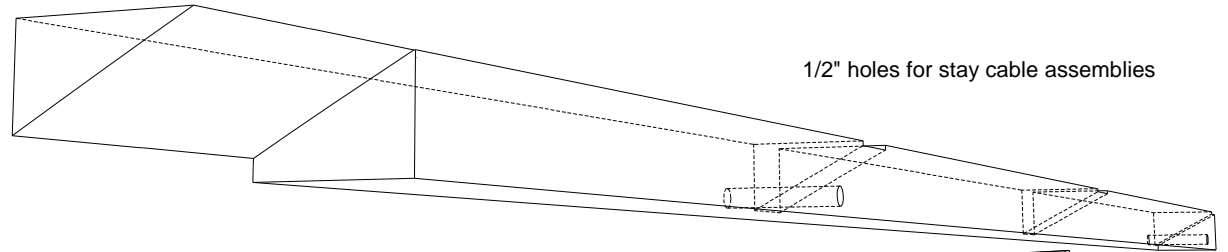


Sheet # 11

Perspective drawings not to scale

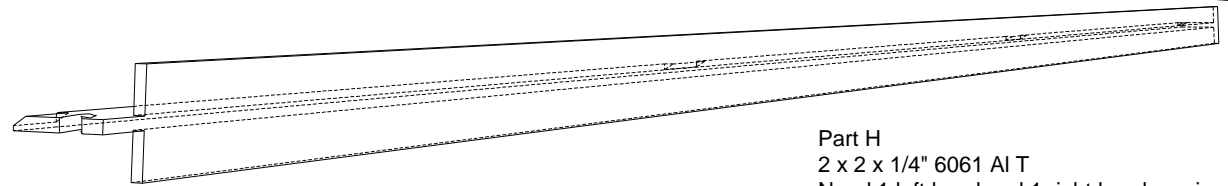


Part I shown as solid is actually tube
 2 x 3 x 1/4" wall 6063 Al tube
 Need 1 left hand and 1 right hand version

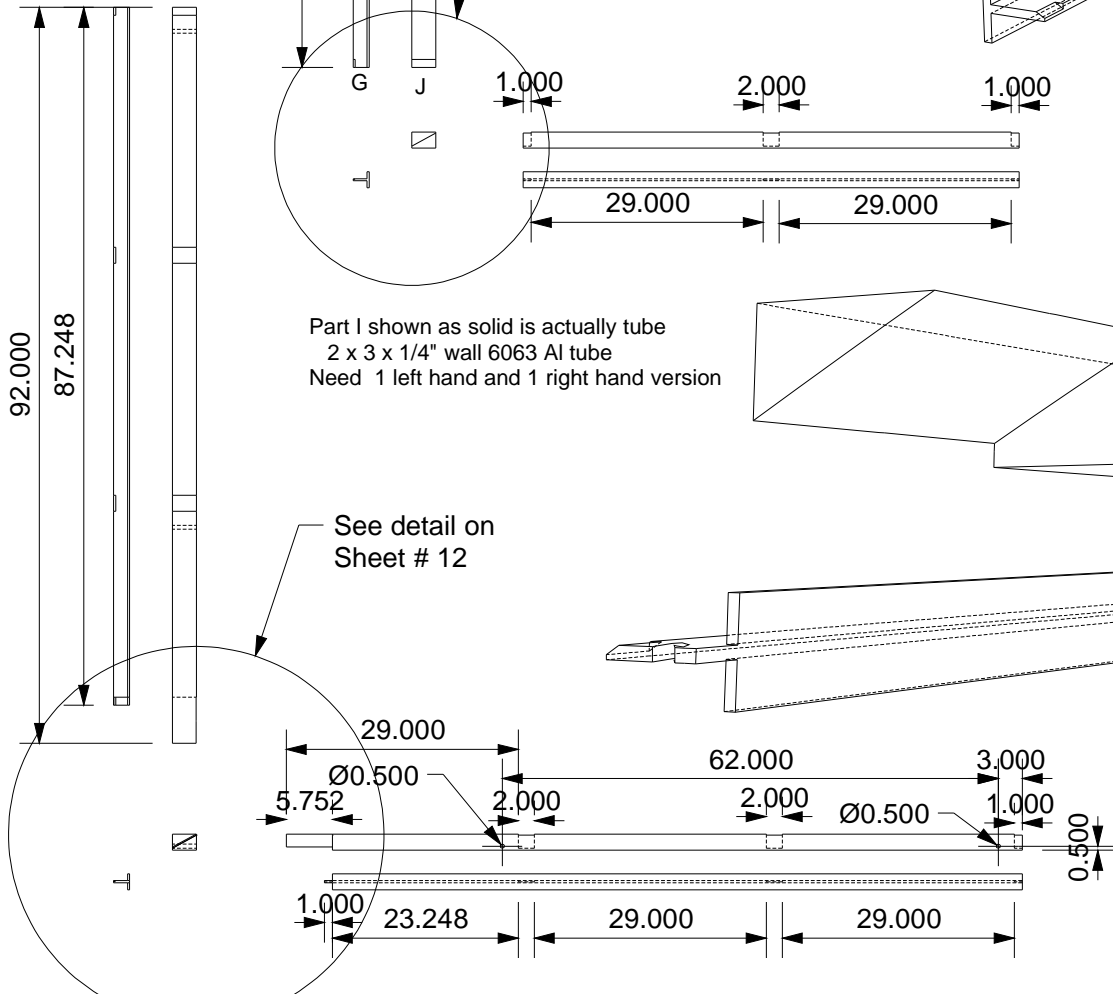


1/2" holes for stay cable assemblies

See detail on
 Sheet # 12



Part H
 2 x 2 x 1/4" 6061 Al T
 Need 1 left hand and 1 right hand version



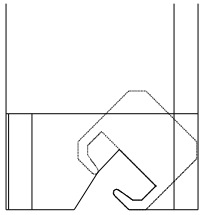
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Sutton Porch Awning

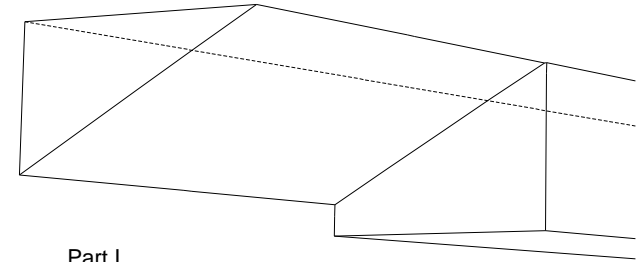
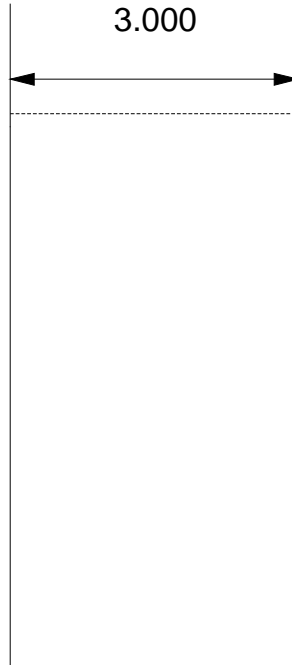
Sheet # 11

1/2" = 1 ft.

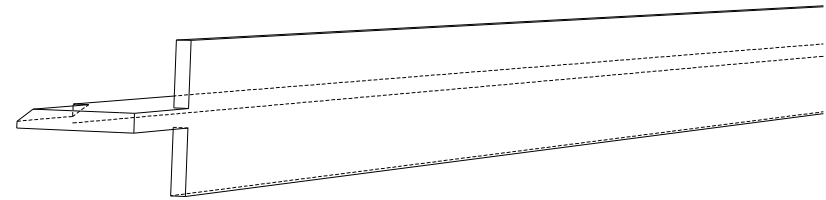
Sheet # 11



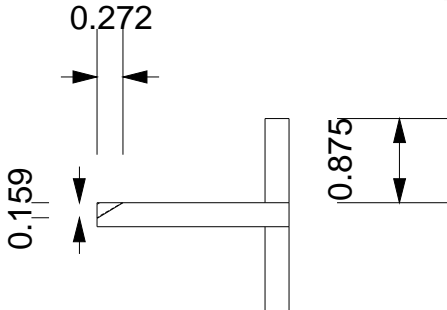
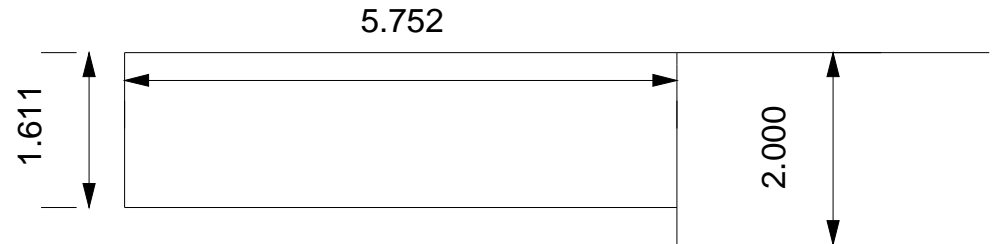
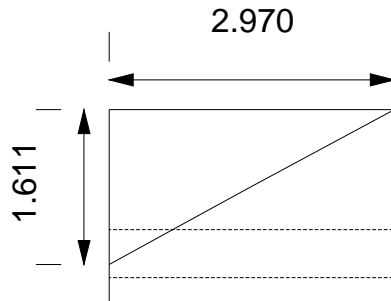
Part H
 Top cope is where the rolled piece of staplestitch channel is seated. the tang portion must be cut out to match the top of the side screen frame, illustrated above in ghosted silhouette.



Part I
 this cope allows for the 1/8" x 3" mosquito seal holder. The end meets the outer arch tube 1/8" above the lower edge of the arch.

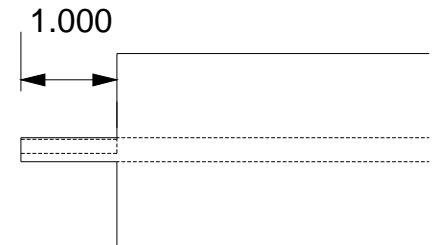


Part H
 Lower cope in this piece allows for the front end of the side screen which is mounted at a 45 and offset.



Part H

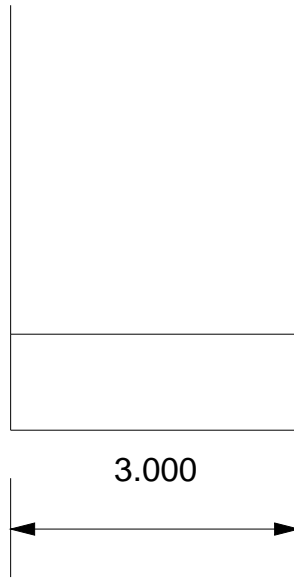
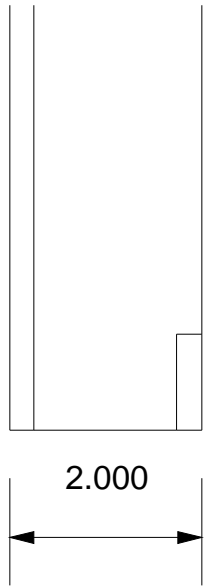
Part I
 Copes in the top of the tube for the 1" and 2" wide arch tubes are the same as those indicated for Part J on sheet



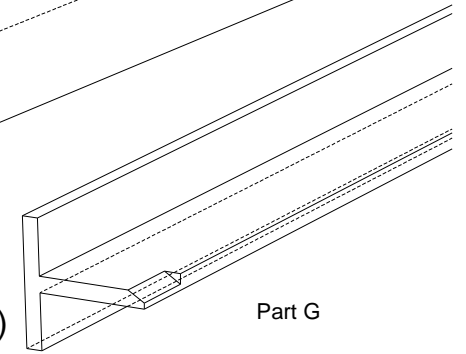
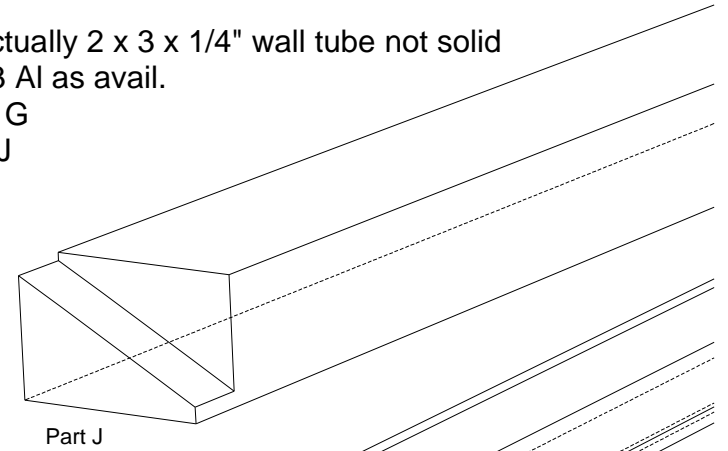
These two parts, H and I need come in left and right hand versions, we need one of each.

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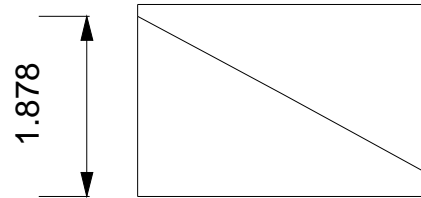
Sutton Porch Awning
Detail parts H & I
Half Scale
Sheet # 12



These are actually 2 x 3 x 1/4" wall tube not solid
6061 or 6063 Al as avail.
need 2 parts G
and 2 parts J

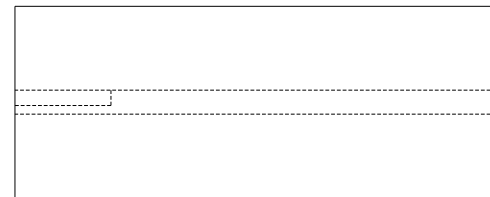
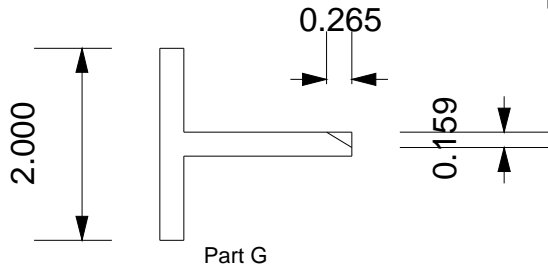
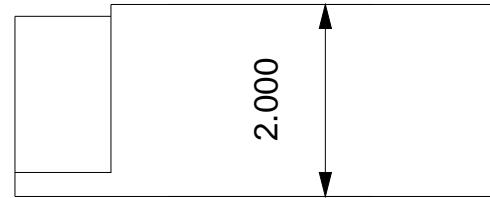


1.000" (or 2" for those tubes)



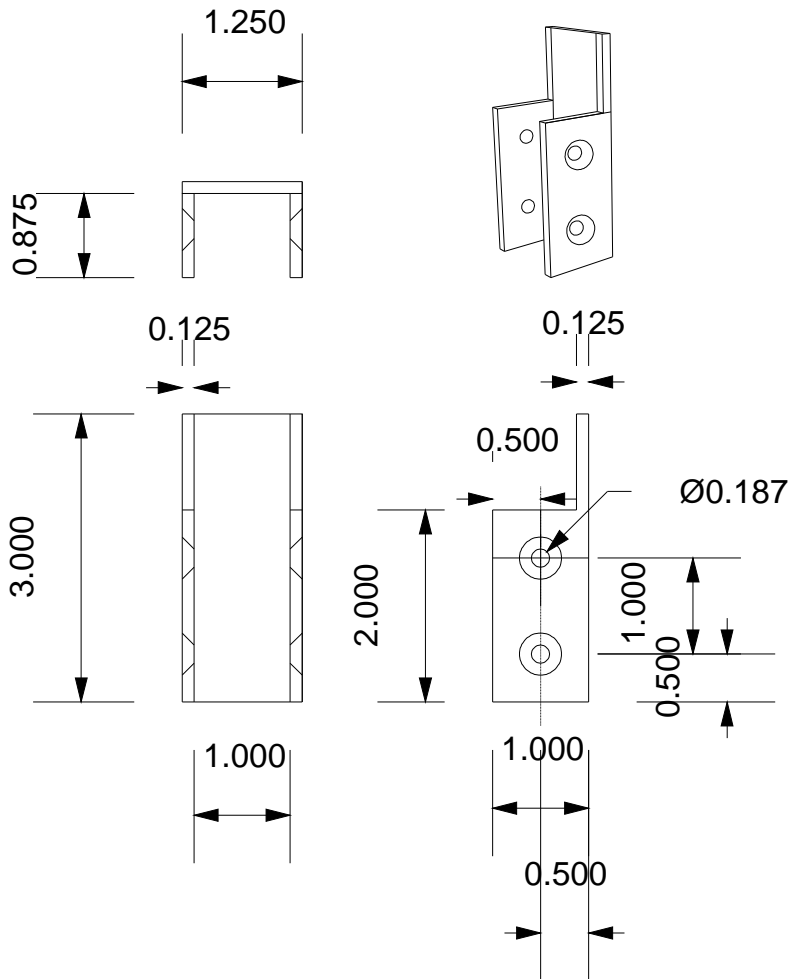
Part J
cope dimensions for all
intersections with arch tubes A and B on
parts I and J

0.250

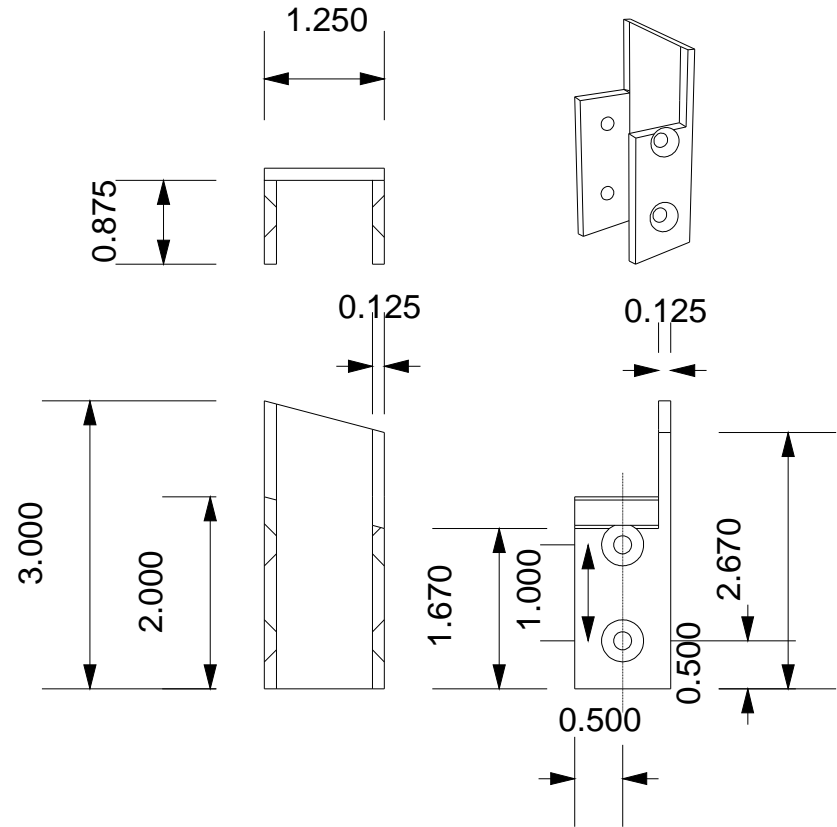


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Sutton Porch Awning
Detail parts J & G
Half Scale
Sheet # 13



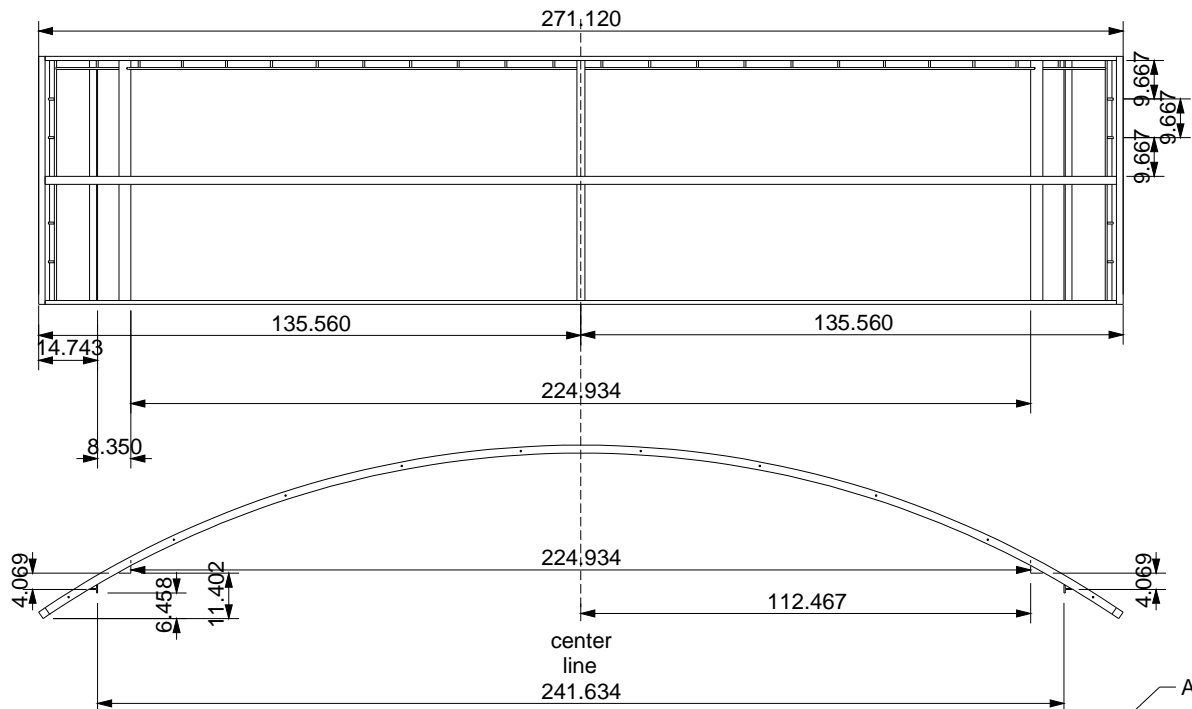
Part N cut from 1.25 sq tube
 1.25 x 1.25 x 1/8 wall Al tube cut and coped
 Need 4 (one for the front canopy arch and 3 for the bottom of the front screen)



Part M (left and right) cut from 1.25 sq tube
 1.25 x 1.25 x 1/8 wall Al tube cut and coped
 Need 2 (one left and one right)

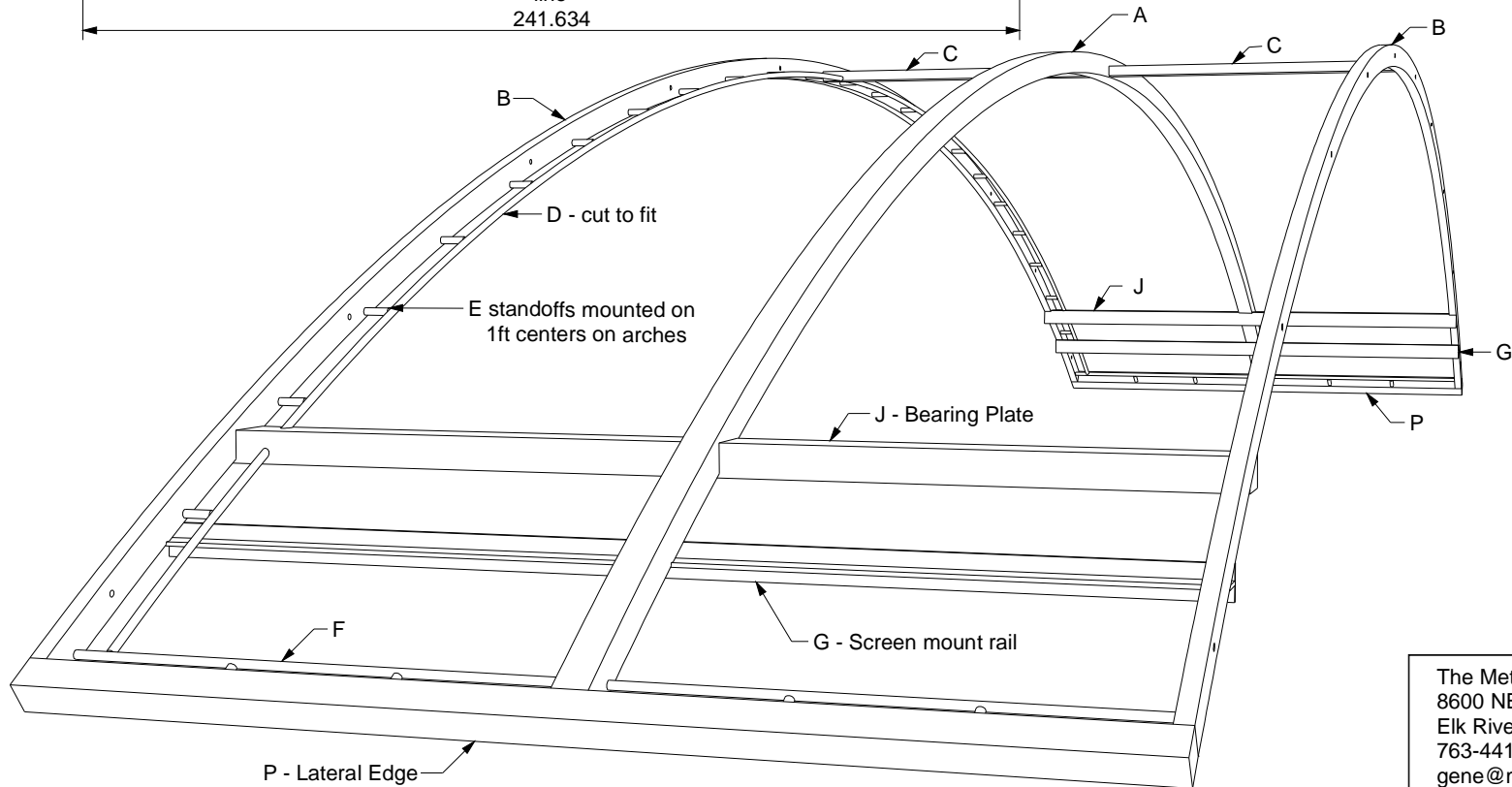
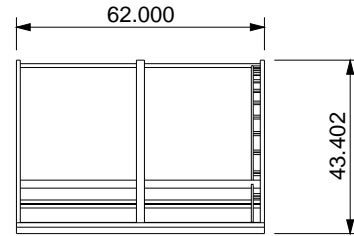
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Sutton Porch Awning
 Al. Comp. Parts M and N
 Half Scale
 Sheet # 14

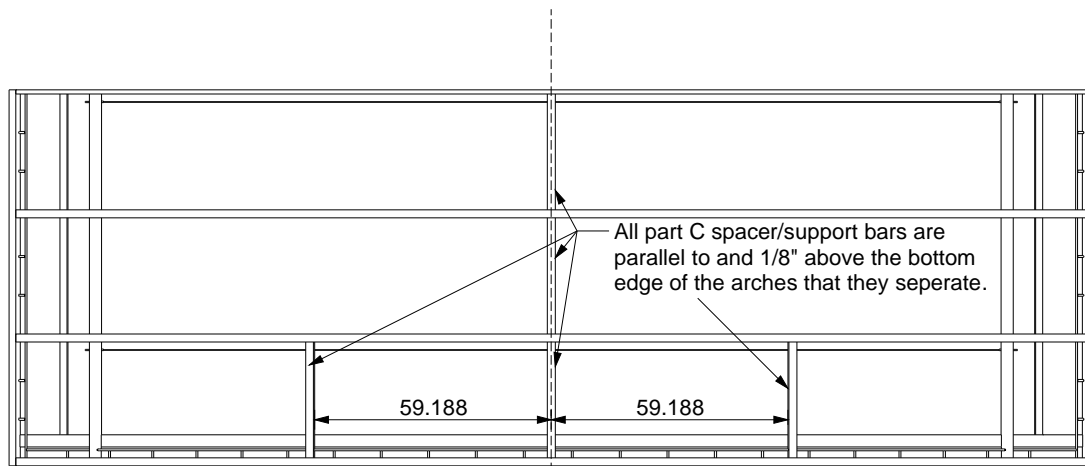


See Sheet 17 for additional details

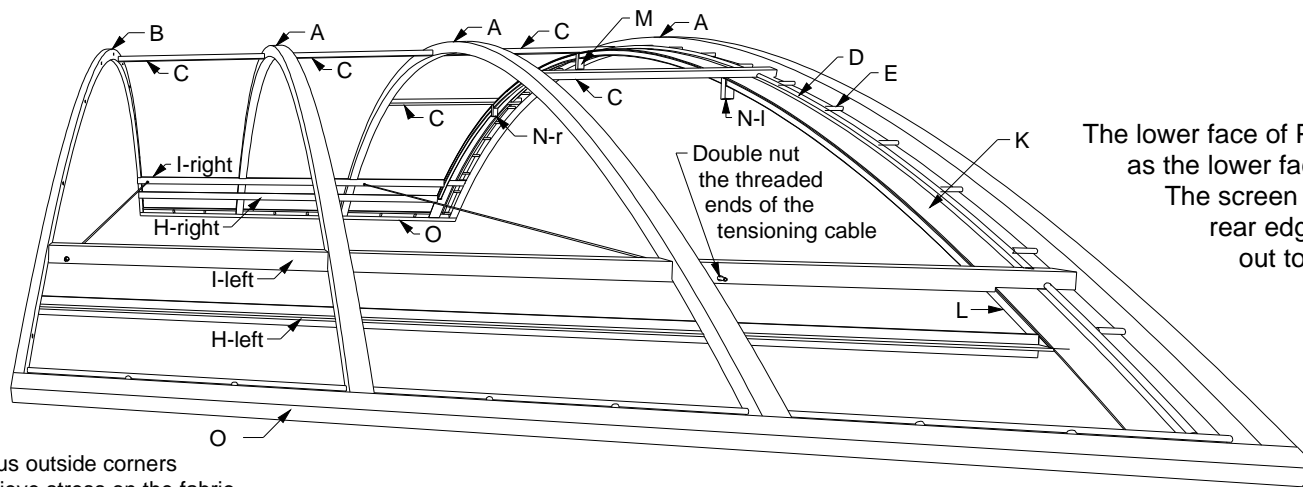
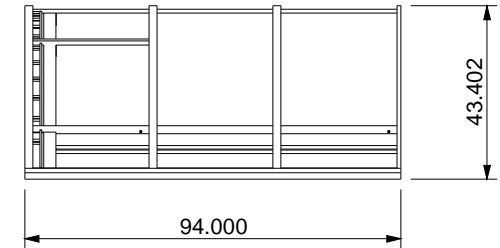
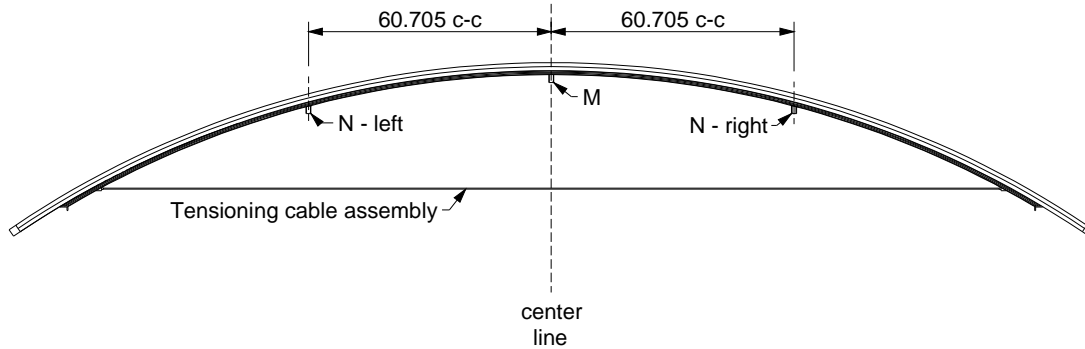
weld all joints solid, grind outer surfaces smooth
Grind/sand sooth 1/8 radius on outer edges of Lateral edge (part F)



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	Rear Canopy Assembly
	1/4" = 1 ft Sheet # 15



All dimensions and comments about positioning analogous parts shown on Sheet # 15 the rear assembly also apply here.
 W will focus on the unique parts of this assembly.



The lower face of Part K is in the same plane as the lower face of all the structural arches
 The screen mounting channel (L) is at the rear edge. The open channel faces out towards the front of the canopy.

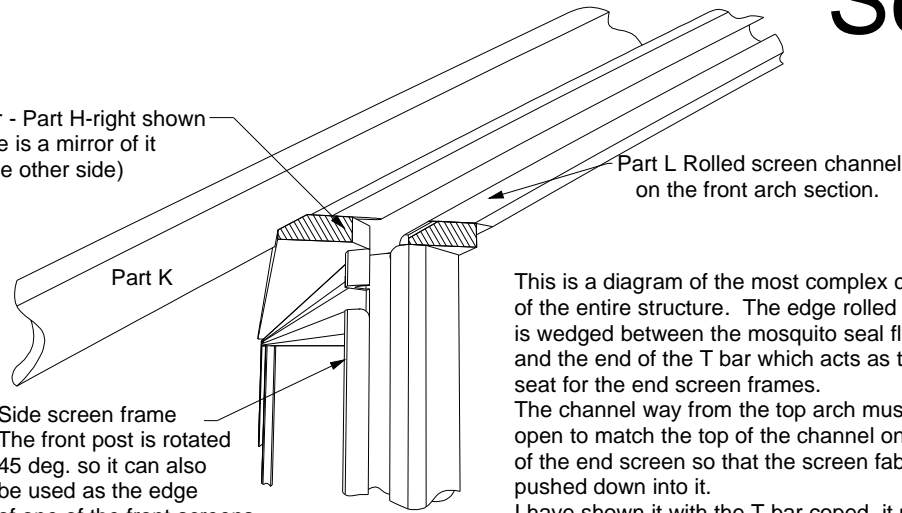
Radius outside corners to relieve stress on the fabric.

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Sutton Porch Awning
 Front Canopy Assembly
 1/4" = 1 ft
 Sheet # 16

Screen Frames

T bar - Part H-right shown
(there is a mirror of it
on the other side)



Screen Frames the front two are welded together in the shop the last frame by the house will be cut on site and simply screwed to the porch frame through the tube section at the back of the channel.

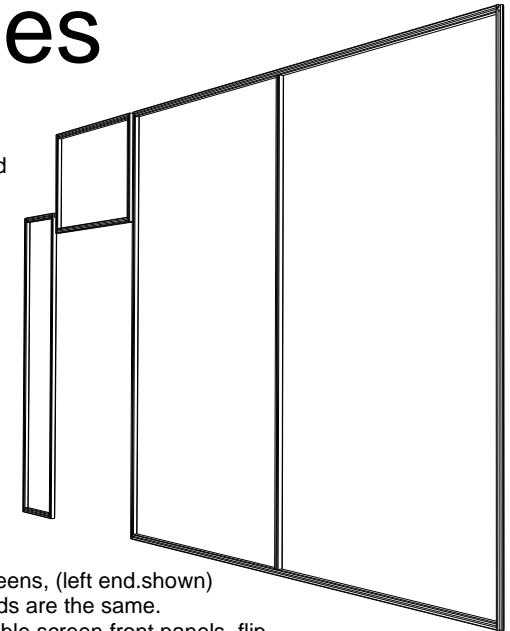
This is a diagram of the most complex corner of the entire structure. The edge rolled channel is wedged between the mosquito seal flat above and the end of the T bar which acts as the upper seat for the end screen frames.

The channel way from the top arch must be coped open to match the top of the channel on the corner of the end screen so that the screen fabric can be pushed down into it.

I have shown it with the T bar coped, it may be simpler to extend the rolled channel down further and miter and cope that. Either would be acceptable but all edges must mate and be smooth so as not to tear the screen.

Side screen frame
The front post is rotated 45 deg. so it can also be used as the edge of one of the front screens

*note that it is coped to match the horizontal member, so that the screen material can fit down into it and be secured with a snap fit part.



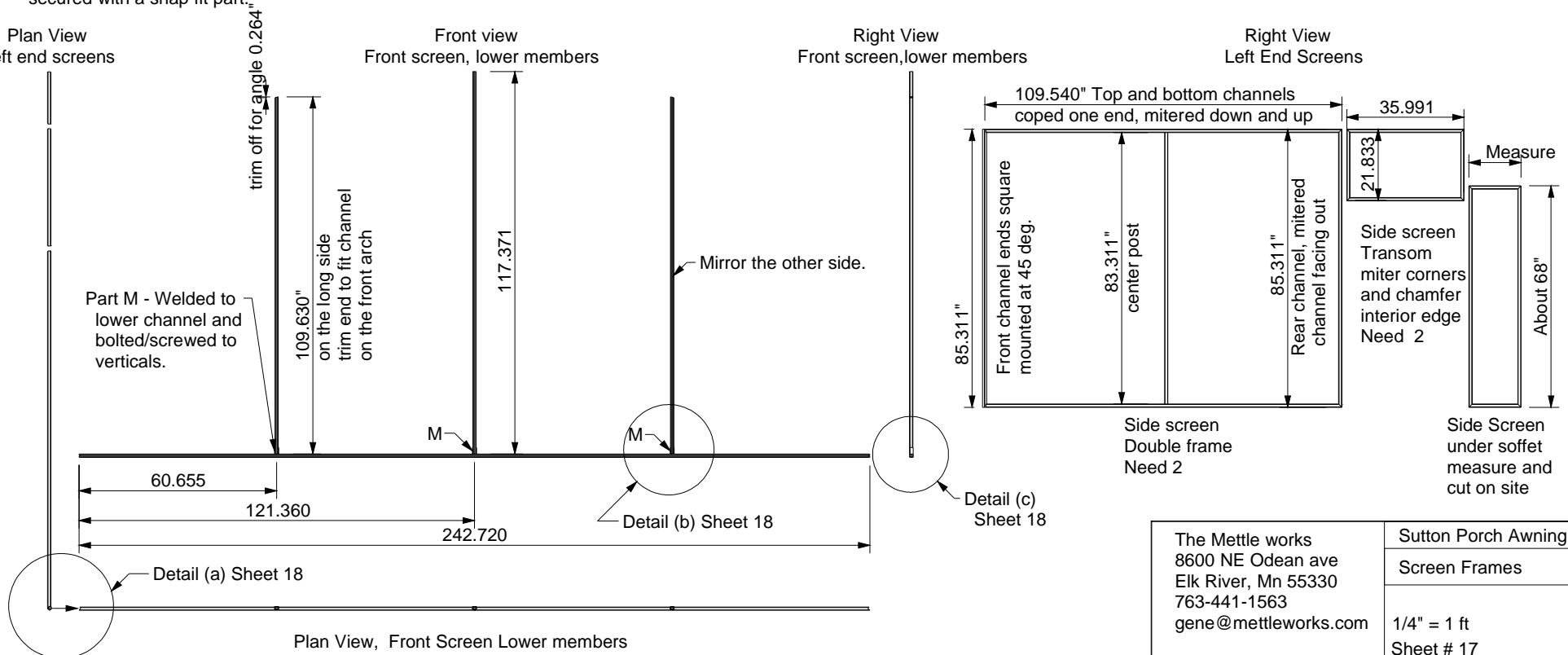
End screens, (left end shown)
Both ends are the same.
The double screen front panels flip top to bottom to work on the other end.

Plan View
Left end screens

Front view
Front screen, lower members

Right View
Front screen, lower members

Right View
Left End Screens

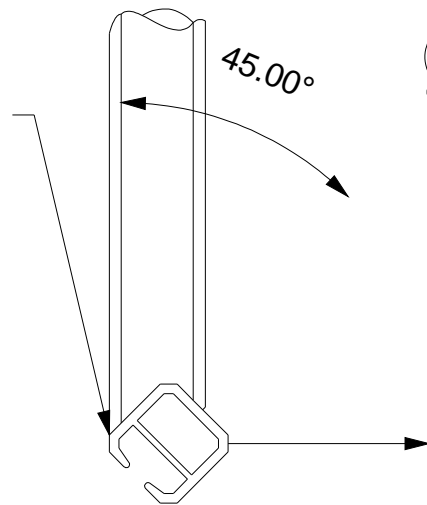


The Mettle works 8600 NE Odean ave Elk River, Mn 55330 763-441-1563 gene@mettleworks.com	Sutton Porch Awning
	Screen Frames
	1/4" = 1 ft Sheet # 17

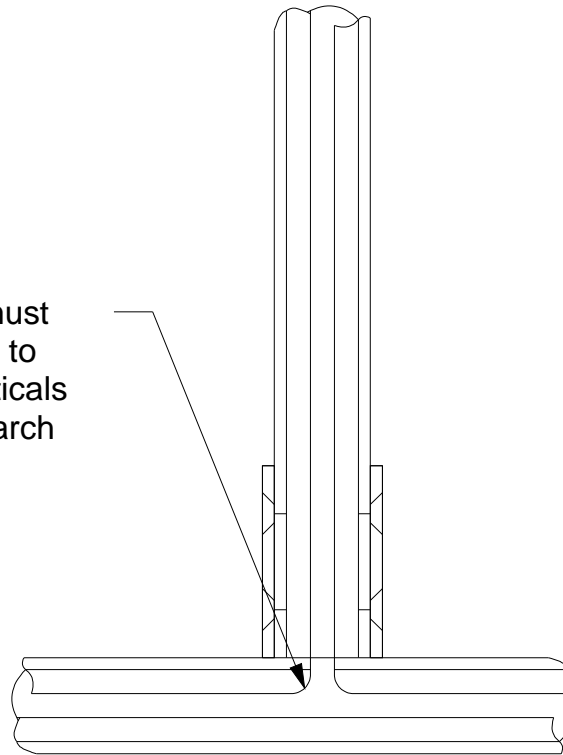
Screen Frame details

The horizontal channel must be coped and chamfered to mate with butt joined verticals here and also at the top arch and on the end screens

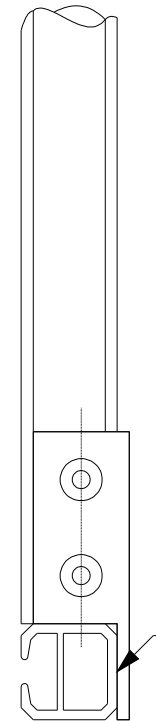
The octagonal corner face of the staplestitch channel should be flush with the face of the side channel when the cope is finished



Detail (a)

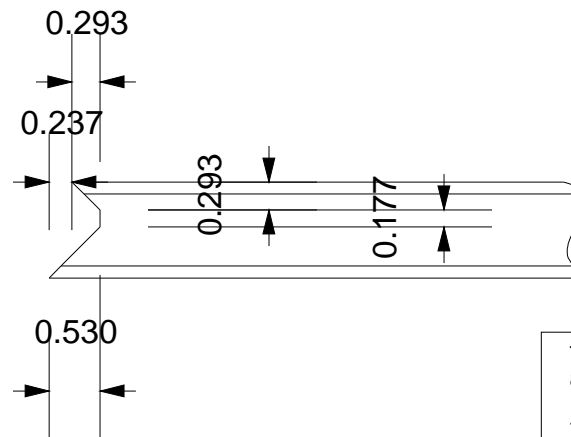


Detail (b)

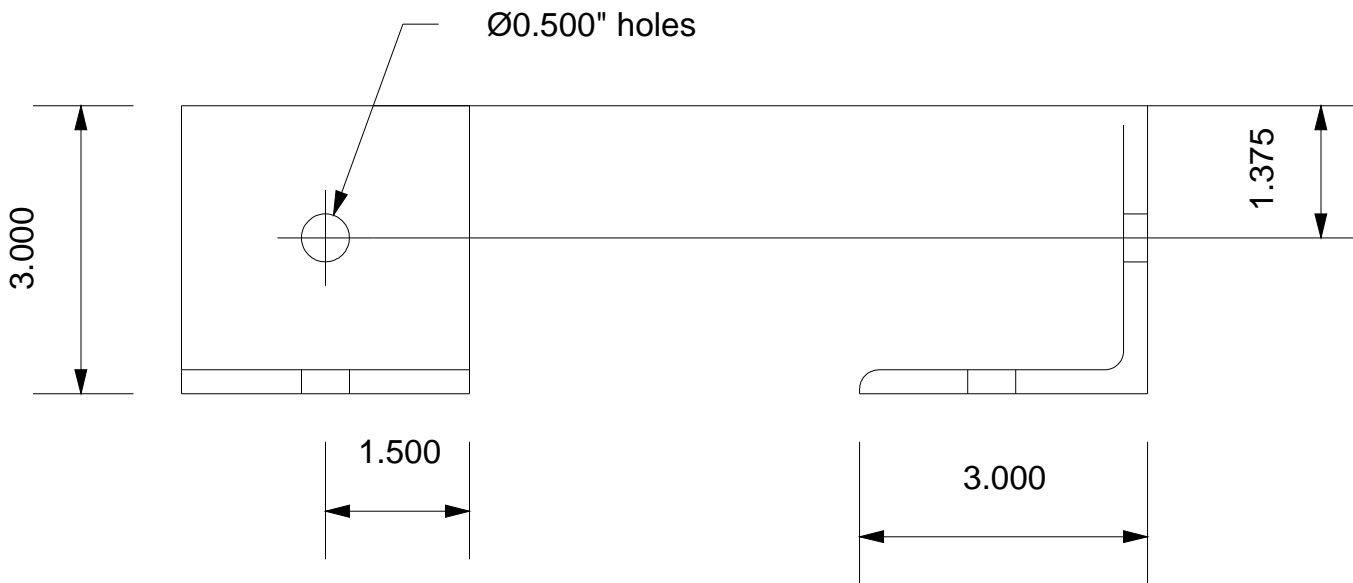
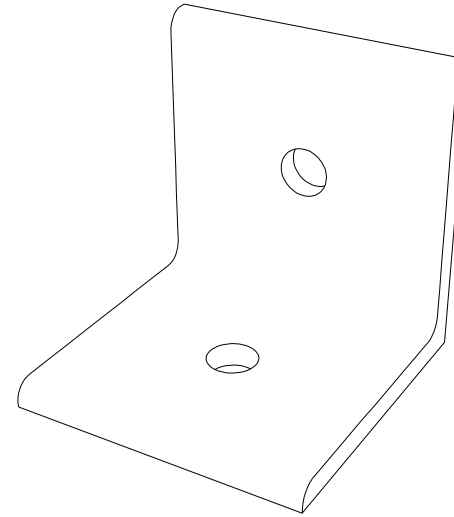
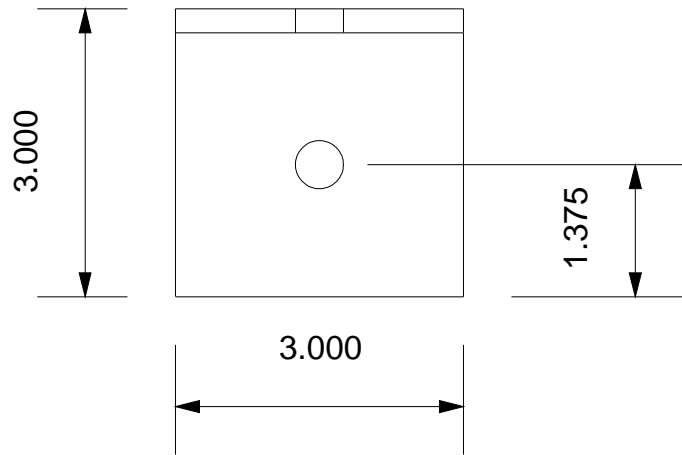


Weld brackets to the lower channel

Detail (c)



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	Al. Comp. Parts M and N
Half Scale	
Sheet # 18	



Stainless Steel anchor bracket
 material 3"x3"x1/4" 304 Stainless angle
 NEED: 9

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Sutton Porch Awning
Anchor Bracket
Half Scale Sheet # 19