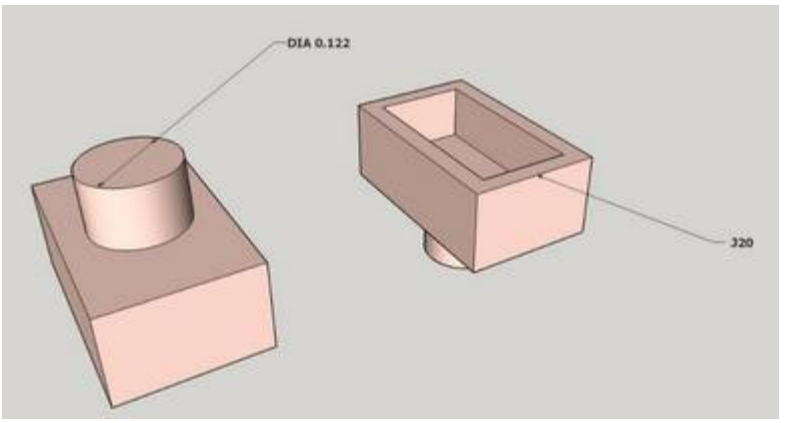
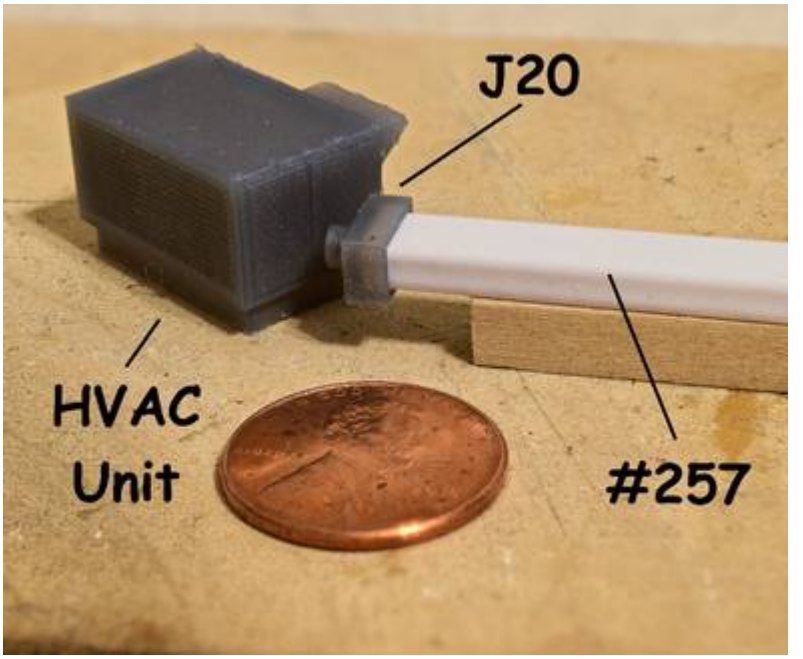
## Ed's Build of Rusty Stumps HO Scale HVAC Roof Top Kit #1 – M7005


The photo on the box is of my O scale build. When I build this HO version I plan to send Rusty Stumps photos which can be used instead.


The parts. There is an instruction sheet showing the kit as built with an assortment of Evergreen tubing, angle and a HVAC unit. In the baggie are the assorted HVAC fittings.




To connect the tubing to the HVAC unit we are using a J20 joiner. There are an assortment of joiners allowing you to connect tubing to any flat surface. In the case of the J20 there is a small stud on the back side. This fits a 1/8" hole you drill in the flat surface which allows you to cement the J20 firmly.

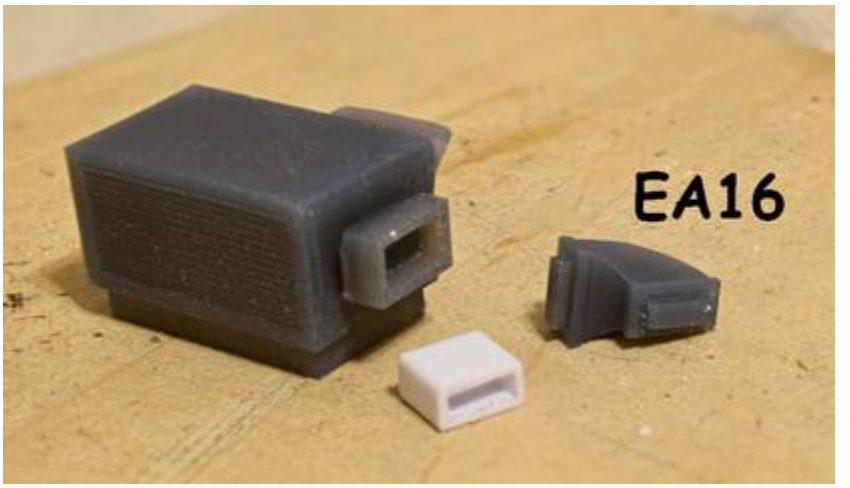



Here we can get a close look at the HVAC unit. Note the little ‘nibs’ on the unit. These are the remains of the support structures used during printing and need to be removed with sandpaper such as emery boards.

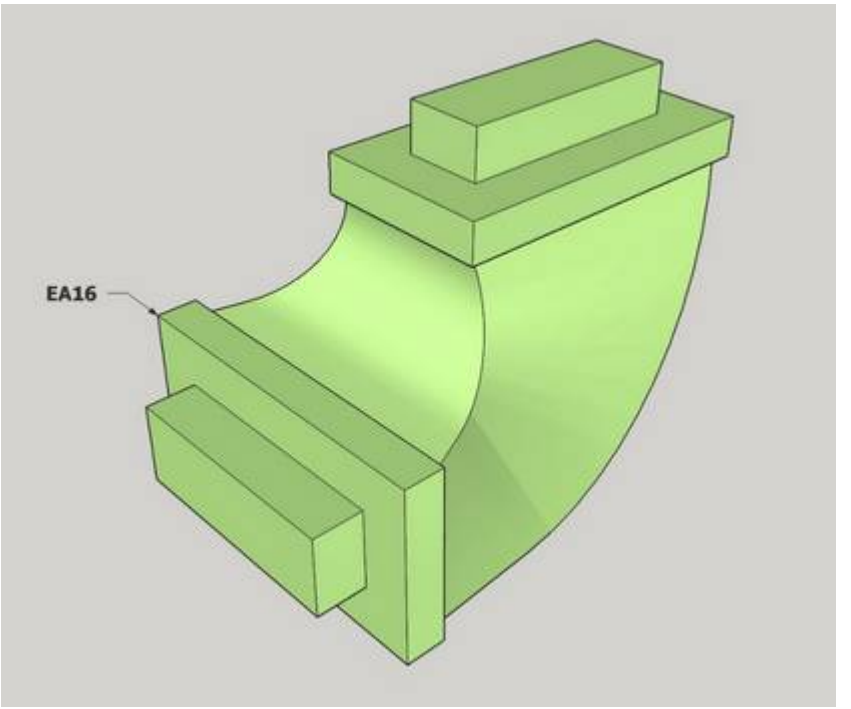
The ducting is Evergreen rectangular tubing - #257 - .125” x .250”. In HO this would be 10.875” x 21.75”.

In the photo I blocked the tubing up a bit for the photo. You must decide where you will be drilling the hole for the stud on the J20 fitting. In this instance I show it horizontally, but you could, if you wish mount it vertically. It is your world after all .. but the important thing is to follow the ‘measure twice cut once rule’ .. or in this case ‘drill’.

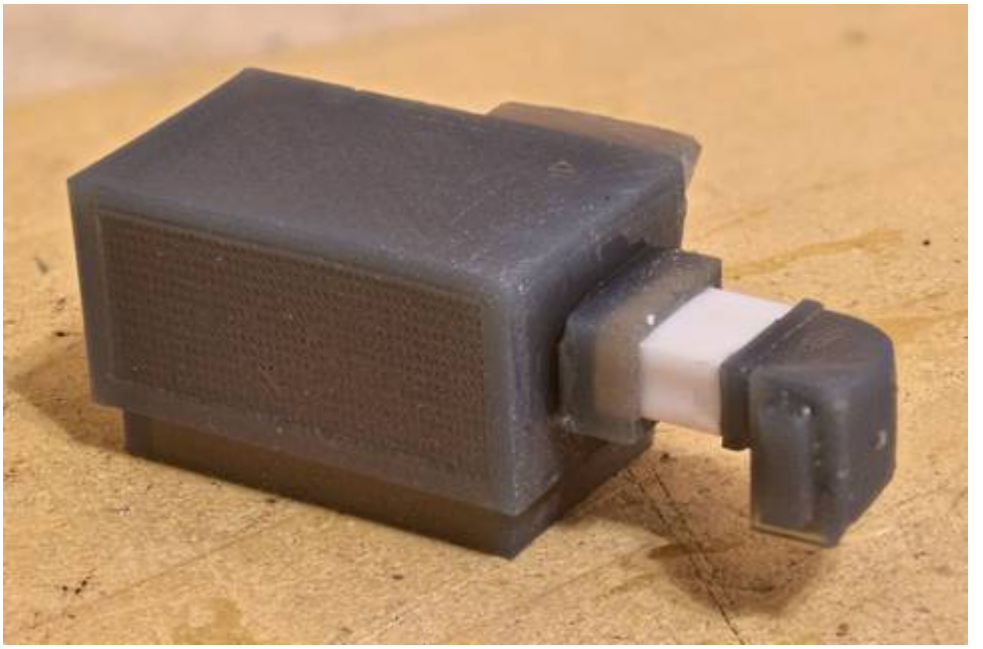
Rusty Stumps notes that “Parts may be glued, if needed, using CA (super glue) or similar types of glue. I have found that CA works fine for something like gluing the J20 to the HVAC unit – if you are precise in you work .. Epoxy allows time for you to adjust the fit. This is important as we glue on more of the ducting.




Next, we use elbow EA16 to twist the tubing 90°. I cut a ¼" length of tubing – one end fits into J20 and the other to EA16. Check the fit – a swipe across the studs with an emery board may be necessary.

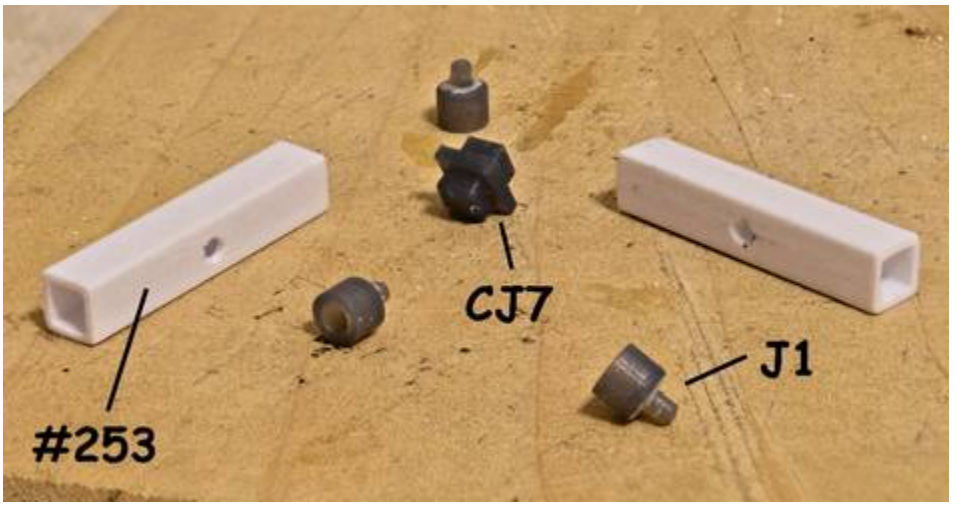



Here's a closer look at EA16. The studs that fit the ID of the tubing (Evergreen #257) may require a swipe with emery board as I said earlier – the dimensions of Evergreen tubing is at best nominal .. they can vary by a few thousands either way.



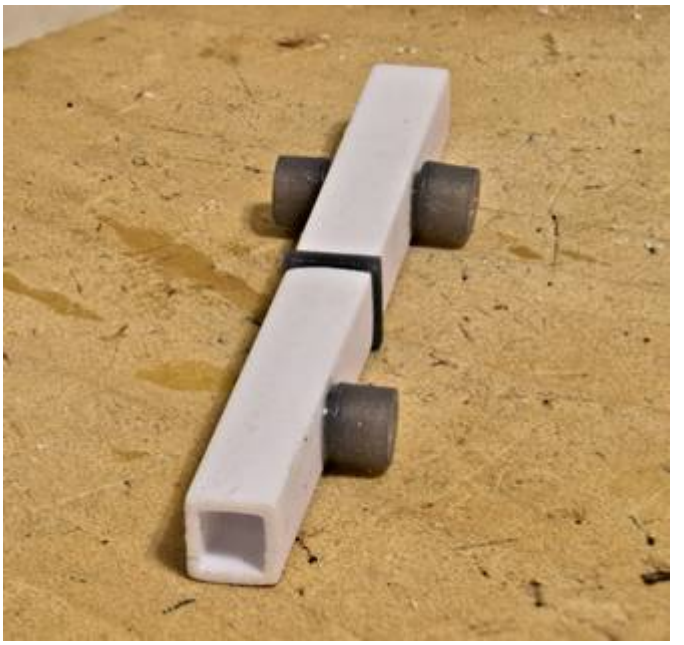
I made the short tube ¼” long .. ‘just because’. It could be as long as you need. Rusty Stumps supplies 1-1/2” of #257 tubing.

I just wanted to turn the tubing so the ¼” worked for me.




I skipped ahead to the main body of the ducting. Rusty Stumps supplies a 2” length of #253 tubing (3/16” sq.)

I cut the tubing in half so I had two one-inch lengths (in HO this would be a 16” sq. duct about 7-1/4 ft. in length). Again .. the beauty of this system is you can use whatever length of tubing you wish. I fully admit that I am guessing that 8 to 12-foot tubing would probably be ‘off the shelf’ – meaning … what could be carried on a truck. This is where the CJ7 (Center Joiner) comes into play – it represents the joint between different lengths of tubing/duct. I didn’t need to do anything to the CJ7 fitting but if necessary, swipe the stud with an emery board to clean it up. The holes for the J1 joiners are 1/16”.

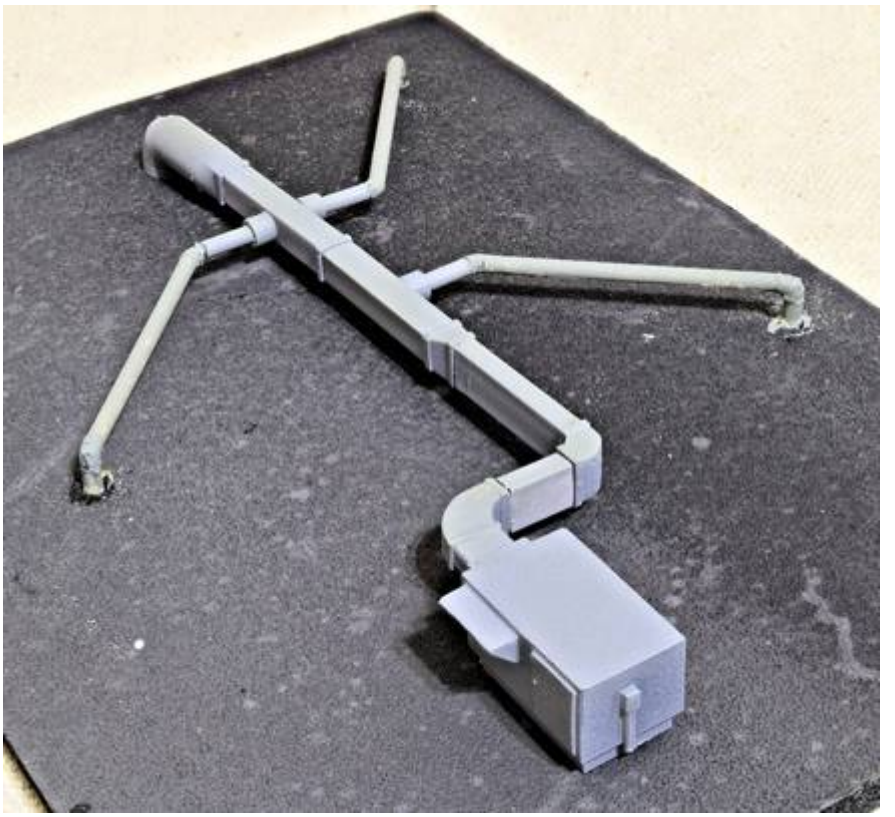


Everything glued up. Hopefully you will be able to do a better job than I did.


I decided to build up the feeder ducting (not sure what the correct term is) next. The reasoning behind this has to do with the position of the elbows. If you hold your arms out from your body you can think of the J1 joiners as your shoulders. Your upper arm is the middle length of tubing, your elbows the EB24 (45°) then your forearms the longer tubing and at the ends (your hands) turn 90° straight down .. the EB23 and finally the shortest tubing pass through the roof. I glued the EB24 – 45° elbow to the longest tube and the EB23 – 90° elbow to the shortest tube (the one that would go into the roof). This would allow me to align everything later easier.

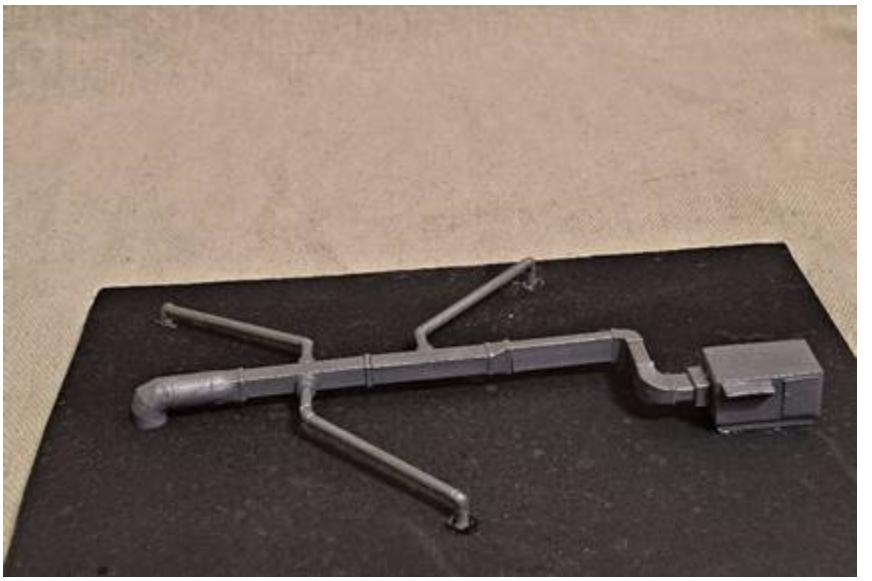
I glued up the main assembly – HVAC unit and the main ducting all the way to the end where the elbow turns down into the roof. I added the 3/32" 'shoulders' to give me something to attach the feeders to. I sprayed with gray primer and then used super glue to glue to a 'roof' I constructed from foam core with some 100-grit sandpaper.

With the main assembly glued down well per previous paragraph I could add the feeder tubing. I held the tubing with the EB24 45° elbow against each elbow and then marked the end where the EB23 elbow bent straight down. I then punched a hole through the foam core and inserted the short piece of tubing with the EB23 – 90° elbow. If the holes had to be slightly oblong to make everything align fine .. this will be coved later by tar paper etc. When I was happy with the alignment I used super glue to secure everything.



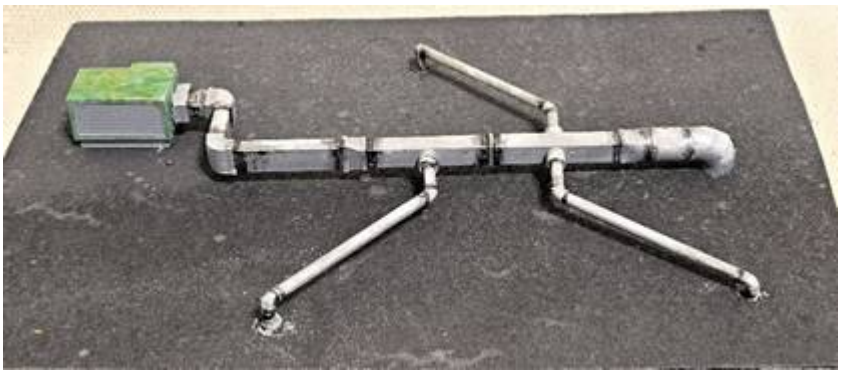
Once the glue had set up I used a brush to paint the feeder tubing gray (I used a gray craft store acrylic that was 'good nuff') for this.

No reason to be too careful here as we can cover any mistakes with tarpaper repairs to the roof.

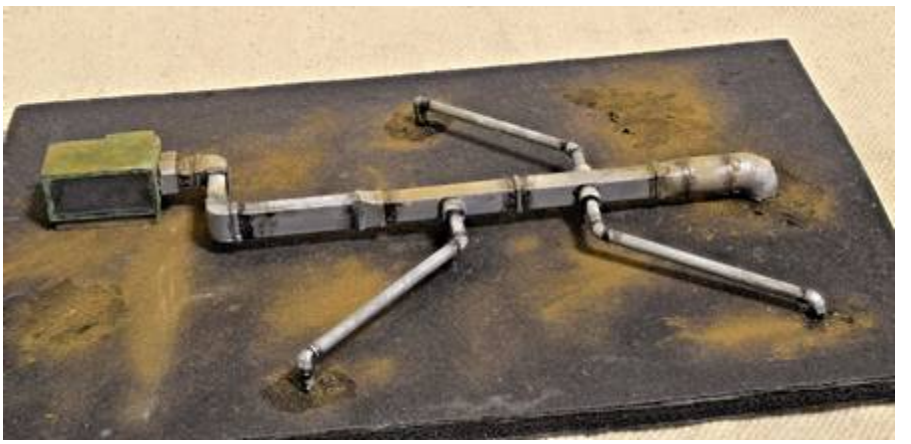


The gray primer looks pretty much like .. gray primer .. IMO. I turned to a FolkArt acrylic paint called 'Brushed Metal' – Brushed Silver I picked up at WalMart.

This gives a metallic sheen that I think makes it look much more like metal ducting.

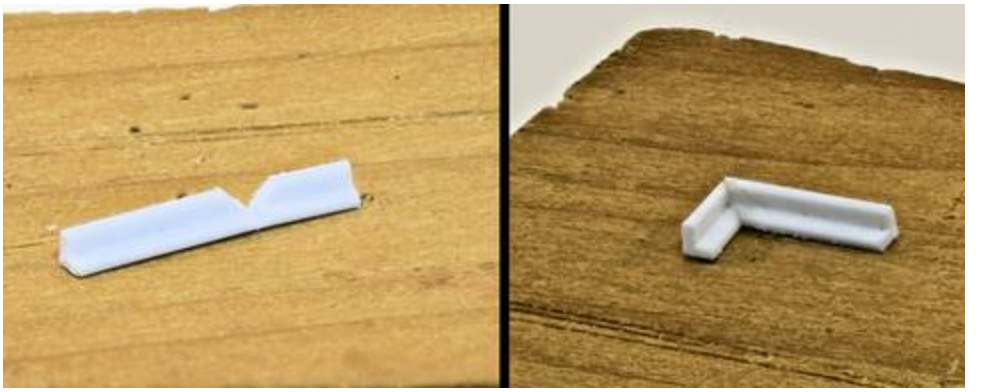


I used a couple of colors of acrylic greens to color the HVAC unit. Finally I used a gray to color where the joints would be so it looks like someone applied a sealant.

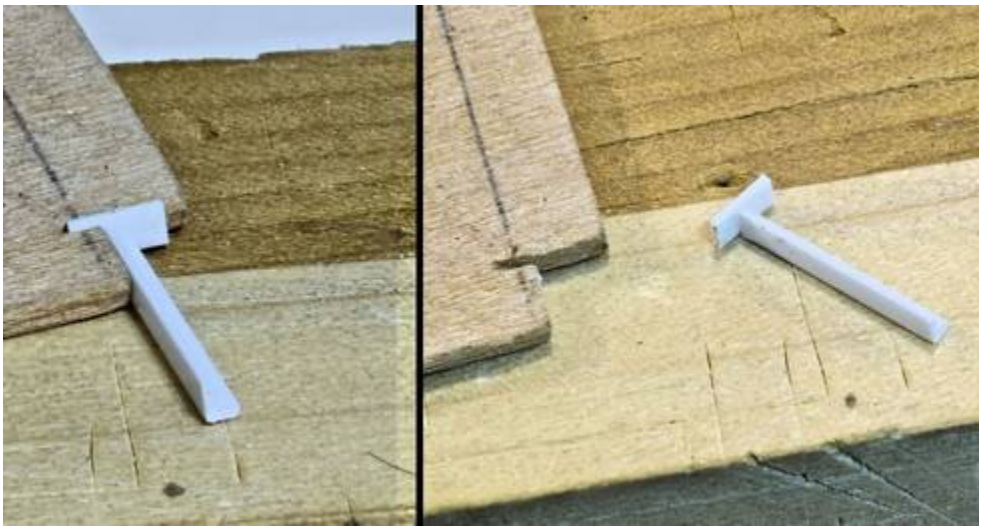


Some toilet paper secured with a black acrylic paint around where the tubing enters the roof and a dusting of weathering powder and it is 'getting there' ... as they say.

Supports are next. The ducting doesn't sit flat on the roof but off it a bit. There is a couple lengths of 1/16" Evergreen angle included for this. I used this to make two versions and another using staples.



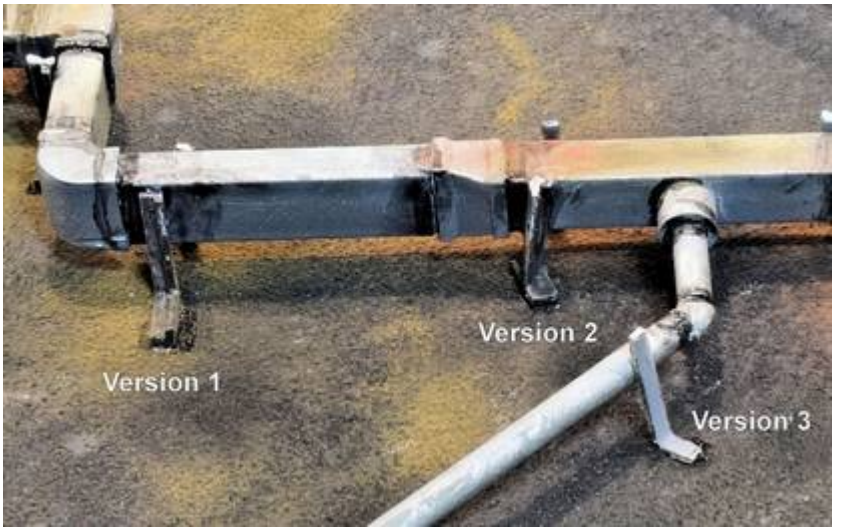
**Version 1** – I simply notched out part of the angle, bent it around and cemented to form a foot.



**Version 2** – Made a quick jig from some scrap balsa – a small slot to hold some flat-stock (not in the kit) and glued a length of the 1/16" angle to it.


**Version 3** – picked up a box of ¼" staples at Harbor Freight. I sprayed them with some gray primer.

With some side-cutters I snipped off bits of the staple to make a support. I really think this looks more in scale .. but that is JMO.




Here's a look at all three supports

Finished. One final point. This is only my build. By changing the length of the tubing, where the feeders come off the main, which side you put them on and so on allows a good bit of leeway .. even with the kit parts. You can purchase from a great selection of fittings and make pretty much whatever you want.

***Please use the back arrow to return to the main "How To" page and there is a link to the product page there.***