

A resin freight car kit primer

by Bill Welch

At the 2017 [RPM Chicagoland](#) event, Jeff Sankus and I coordinated “Resinators Unite” gatherings. These were intended to bring people together that are interested in building resin freight car models. Based upon attendance and discussion at these gatherings, there are many modelers interested in building resin freight car models but have not started the process. Even though most new resin kits feature a one-piece body, there are untold numbers of older kits begging to be built. That is the origin of this resin kit primer.

I wanted to write something to make the process of building one of the older flat kits less intimidating and at the same time encourage those who are holding back to jump in. What follows is a resin kit building primer. We will walk through a step-by-step build up of a basic house car with one advanced step to get to the point where adding the details begins. Let's get started building a Sunshine Models kit #91.16 representing a M&StL 1923 ARA Pratt truss XM-1 boxcar in the 24000-24998 car series.



TOOLS: I use a single edge razor blade for 99% of my cutting work. These never roll off of the workbench, they are very light and easy to grip, and a box of 100 at Home Depot or Lowe's is inexpensive. Cutting resin does not require a new blade, especially when trimming the flash away.

A variety of abrasives are helpful. Basic 200 to 800 grit wet-dry sandpaper can be found at your local hardware, auto parts, or big box home centers. Fine jewelers files can be used to remove smaller amounts of material.

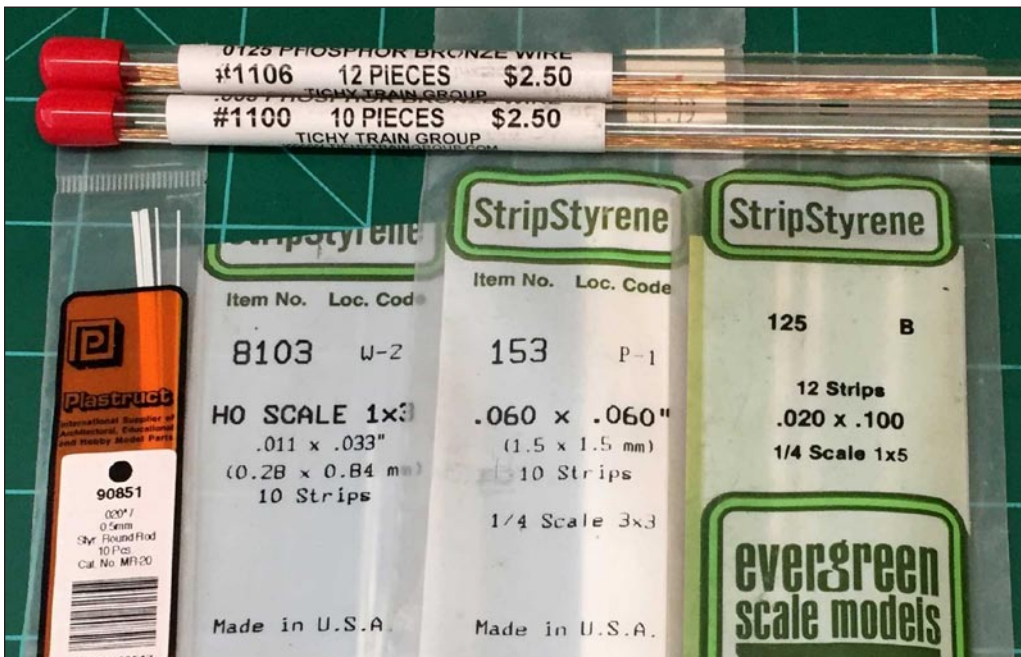
Tweezers are required for installing any small detail parts. A pin vise and drill bits will be needed for drilling holes. A small machinist square or two are also handy.

My drill was made for me years ago by the owner of a hobby shop. It consists of a can motor, flywheel, and chuck. A small variable speed model railroad transformer supplies the power and it is hooked up using alligator clips. Beginners can easily get by with a pin vise.



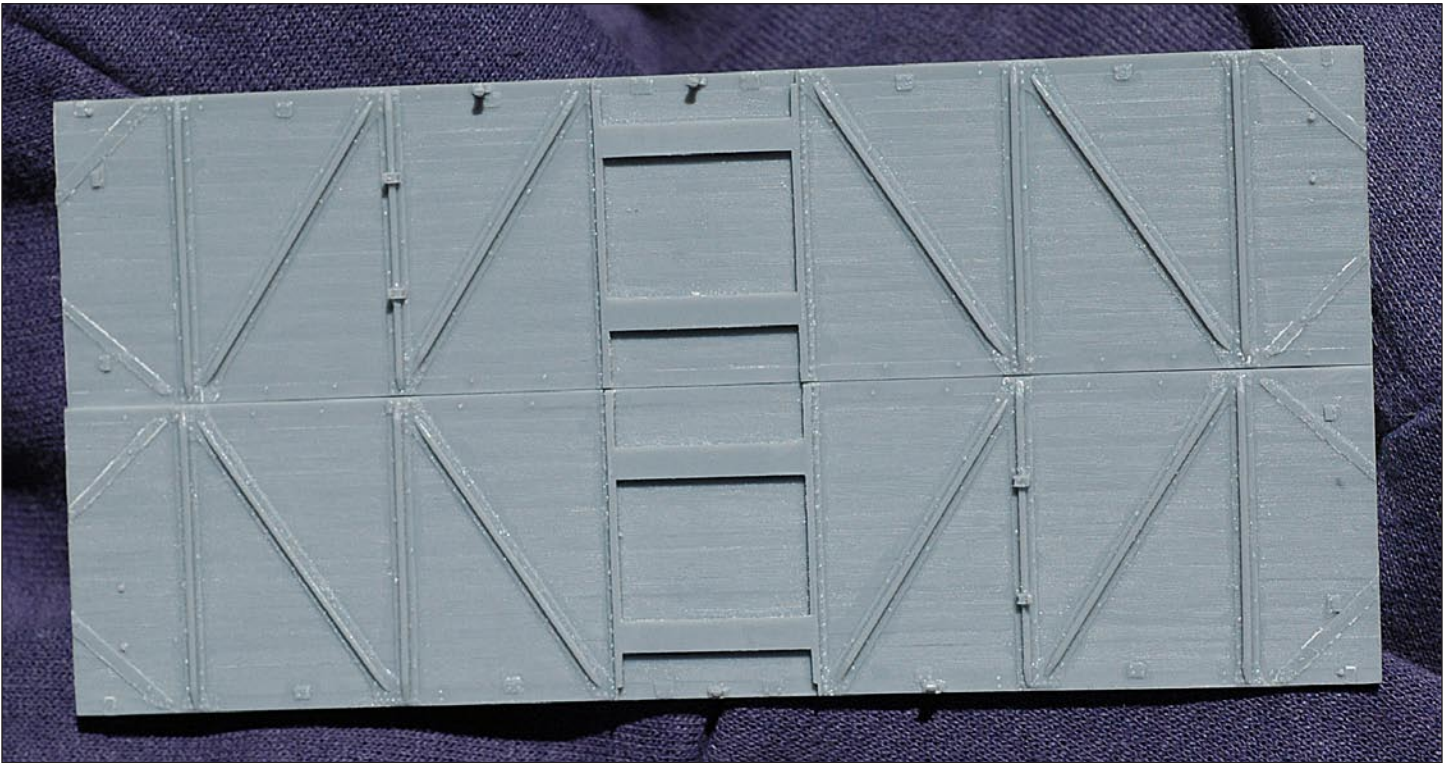
A scribe is seen below the drill and is very helpful to impress a dimple onto the resin material for the drill bit to find and stay at the point where you want a hole. A sewing needle mounted in a dowel, old pen, or pin vise makes a quick scribe that will assist in many future hobby tasks.

You will need a #50 drill bit to drill holes for the trucks and coupler screws if you are using 2-56 screws. The bits I use most often are #'s 79, 78, 77, 76, and 75.



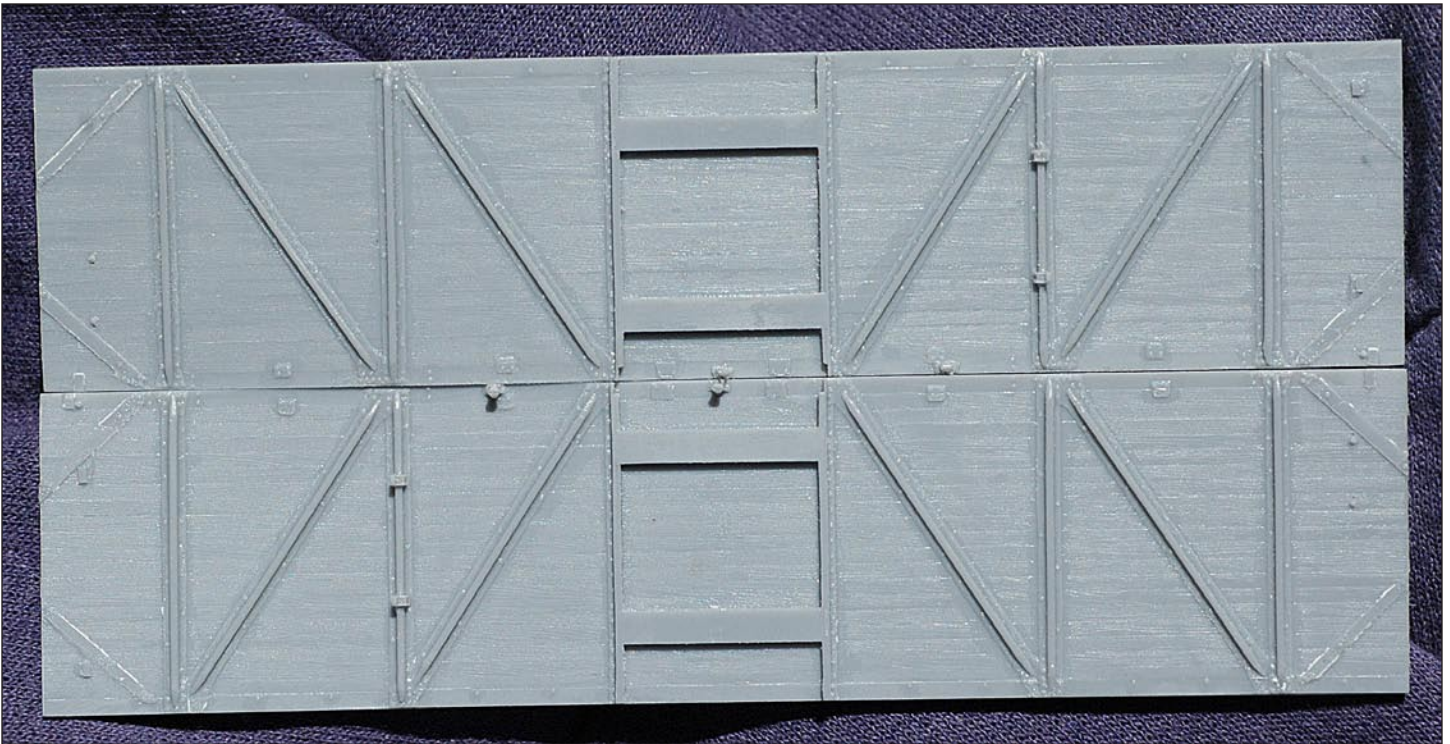
SUNDRIES: I use 0.015-inch brass wire for vertical brake staffs and sometimes for the train line; 0.012-inch brass wire for the brake rods and piping under the car; and 0.010-inch brass wire for the retainer valve pipe.

I keep a supply of Plastruct styrene rod in various sizes (0.010, 0.015, 0.020, 0.025, 0.030, 0.035) for plugging holes when I make a mistake. I often use the 0.015-inch diameter rod for the train line and 0.010 for ladder rungs. A selection of Evergreen sheet and smaller size dimensional strip styrene stock will assist with many projects.



It is essential for the length of each car side to match the other. The sides of these castings were very close in length. I used my NWSL "True Sander" to square the edges of each end. I work slowly to ensure the parts are completely flat and square along the edge so the end parts would fit. I check the sides several times as I work. The top of the sides must match each other as well as the bottom of the sides. It's easy to compare these parts by placing them back-to-back.

In the image above, the castings are placed top-to-top to compare where the details line up.

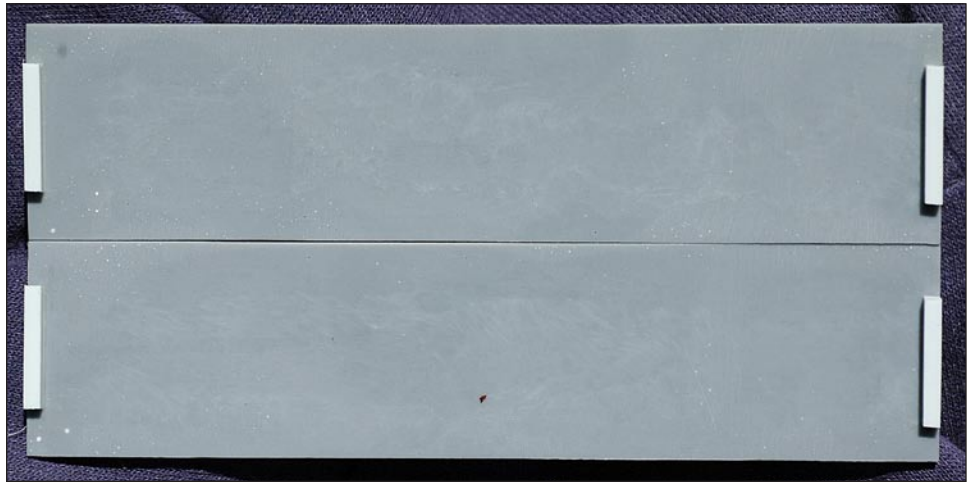


In this image, the castings are placed bottom-to-bottom to compare where the details line up. Once I was happy with the length of the sides and the edge of the ends were flat and square, I sanded the back of each end to rough them up a little in anticipation of the next step.

Next I cut four lengths of 0.100 x 0.100-inch Evergreen styrene (or 0.125 x 0.125-inch) and roughed them up, too. These styrene parts need to be short enough not to interfere with floor or roof. Liquid Testors® cement was applied to each end and the styrene parts were set into place one at a time.

I like using the Testors® styrene cement as it seems to have an ingredient that slows its cure time and stays tacky longer. The Testors® **does not bond** the resin parts, it only makes the styrene tacky to give time to place styrene parts exactly where you want them.

Work slowly to ensure each length of styrene is exactly even with the ends of the sides. Once all four corners were done, I went back and fixed each length of styrene in place with cyano-acrylate cement (CA) and allowed them to cure.

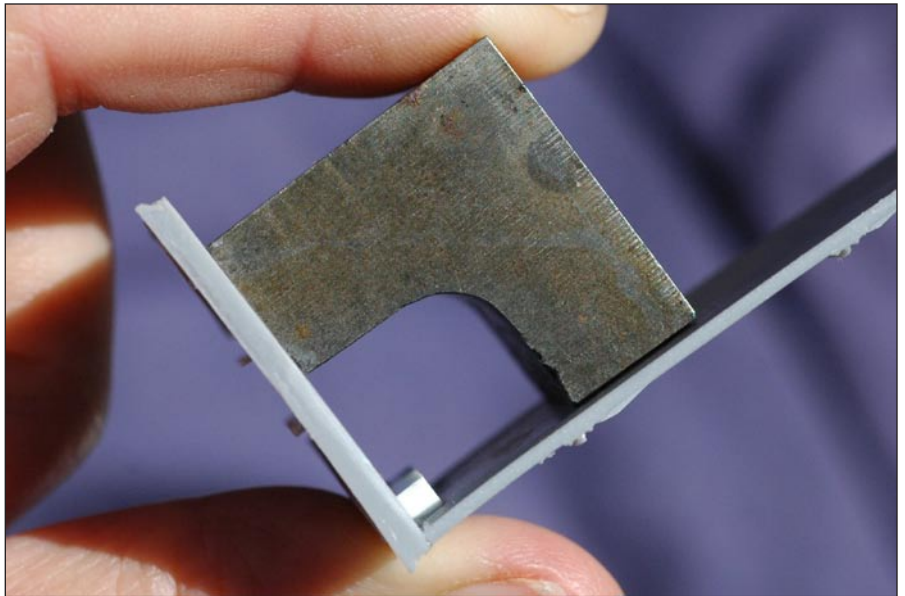


Meanwhile, I sanded the back of the end parts to thin the flash until I could flick it off with a fingernail. I have a piece of sandpaper affixed with spray adhesive to the back of a large piece of ceramic tile that is perfectly flat on its reverse side (purchased for 99 cents at Lowe's). This operation roughs up the backs of the ends to improve cement adhesion. At least that is what I tell myself.



Testors® is then applied to an edge of an end and the part is mated to a side. My habit is to do the left end of a side. The styrene provides additional surface for this mating while the tackiness created by the Testors® gives me time to align each end.

Once I was satisfied with this union, I ran a bead of CA into the inside joint, then held a machinist square against the two parts while the initial application of CA was curing. CA is also applied to the joint where the styrene meets the end. Check the outside joint and apply CA into any gaps to act as filler.



Now it's time to complete the rectangular structure. Keep the Testors® handy and a puddle of CA ready. I am left handed so I hold the structure in my right hand by one corner. After applying Testors® to the styrene, maneuver the joint until the two parts are aligned then wick in some CA. The other end will be loose. Just focus on the end you are gluing.

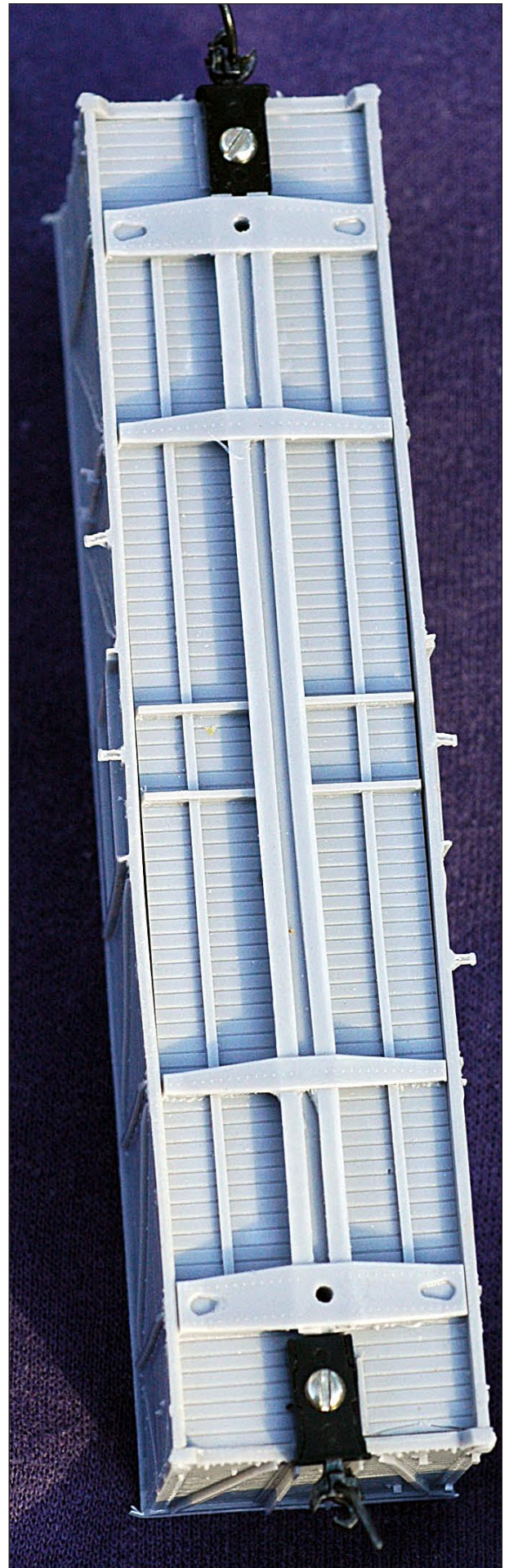
As the CA sets up check the alignment and hold it steady. If the parts move, nudge them back or pull them apart and wipe the CA away. Sand any cement away and retry. Once you have this third joint, the fourth will be easy.

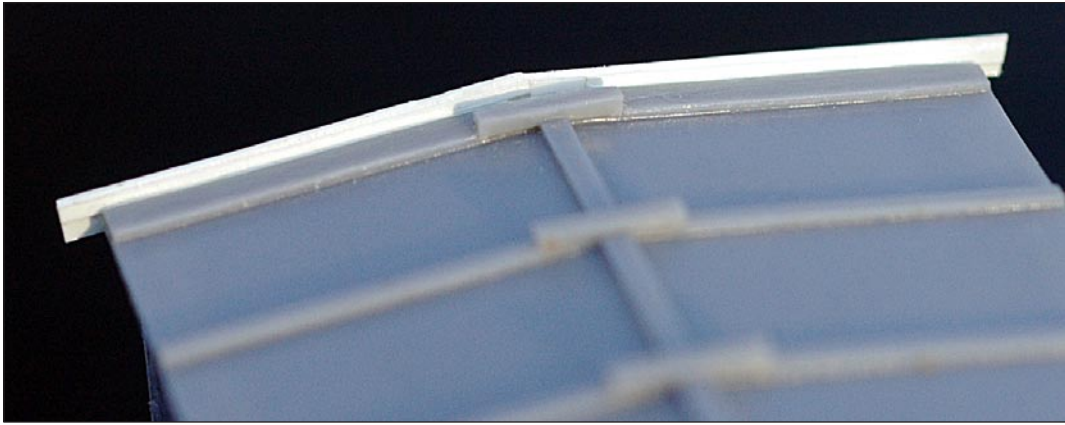
With the sides and ends joined I like to fit the floor. Sometimes an adjustment needs to be made in the length and width, which was the case with this model. This floor had a half board cast on both ends. When comparing the floor with body, it became apparent that the half boards needed to be removed. After sawing these off the piece was given a few strokes with a sanding block and the lengthwise fit was good.

The sides of the floor were too wide so I used the flat sanding surface to remove material. Make the same number of strokes for each side and check your progress regularly with the body assembly. Inevitably one end of the floor will fit the body better while the other end will require a little more sanding.

The floor on some kits may end up being short on the length and/or the width. Thin strips of styrene will need to be glued in place to make for a better fit.

Once the floor casting fits well, the B-end is marked with a Sharpie to note the brake wheel end of the car. I never glue the underframe or floor into a resin model until it has been painted. Many underframes were painted black so it is much easier to paint the part separately and avoid masking. I also prefer to work on a non-weighted model. If I glue the floor in too early, details are applied to a weighted model, which makes me uncomfortable.





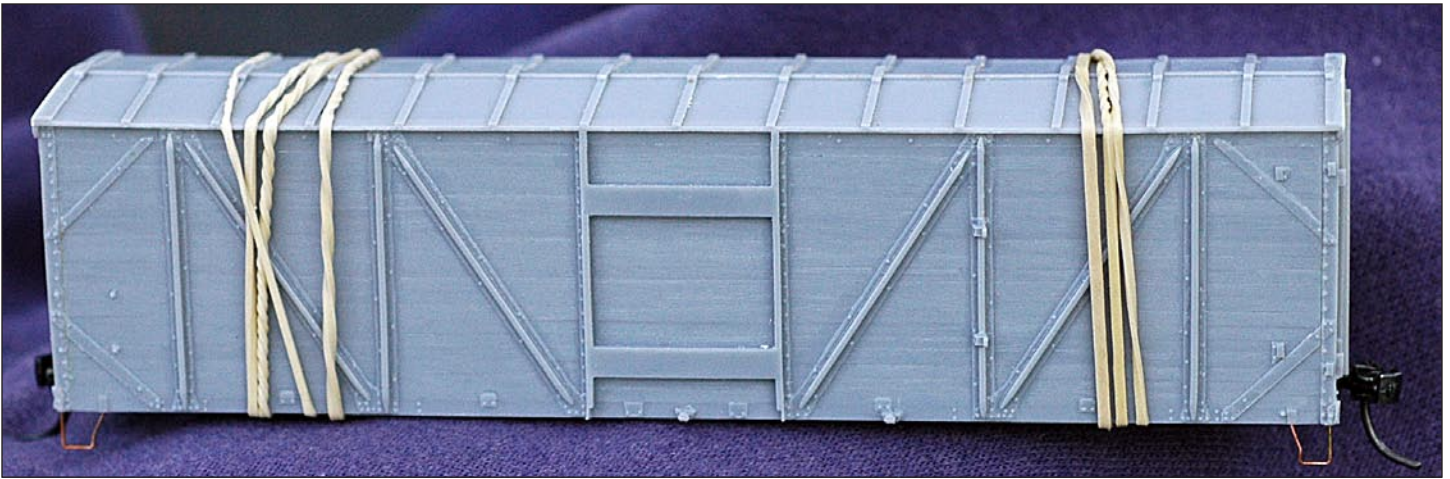
The roof was a very good fit, although a fraction short. Most people would not notice and a very good model can be built without any modification. At this point, I will steer off course and do what might be considered “advanced” work.

This car was built with a Murphy roof where the sheet metal is bent over the ends to cover and protect the wood fascia boards. To model this, laminate strips of 0.005-inch styrene to the ends. This did not produce enough overlap so I glued on another 0.005-inch layer.



This second application was just right. After everything had cured overnight, the excess material above the roofline was trimmed off. The outside edges were carefully sanded with 400-grit sandpaper to give the impression of bent metal.





At this point, the roof can be glued in place. Rubber bands were used on the very ends to hold the roof in place and carefully adjusted lengthwise so there was a little overlap on each end.

Once I was happy with the fit of the roof casting, CA was wicked under the roof eaves where the sides meet. Normally I apply glue on the inside of the structure. Going around the outside perimeter, I could ensure the proper roof overlap of the sides was maintained.

With this basic structure completed, I want you to continue your kit build. Consider signing up to join the [Resin Freight Car Builders discussion group](#) where you can ask questions, review and post photos, and hopefully increase your skills and enjoyment of this aspect of model railroading.

Meanwhile I will try to answer any questions you have via the [Resin Car Works blog](#).

The next page of info came via Eric Hiser, who attended the RPM Chicagoland Resinators Unite gathering and jotted down copious notes. We thought readers might appreciate another perspective on the presentation. We thank Eric for sharing his notes!

Eric Hiser's notes from RPM Chicagoland Resinator's clinic

Join the [Resin Freight Car Builders discussion group](#). It will inspire you and provide sources of help.

Tools you need include:

Umm saw – fine tooth saw that cuts better than the traditional razor saw. Cost is about \$12.

Drills – need #60 to #80, plus a few larger. Have spares, as this size tends to break. Carbide bits are mostly useful only in drill presses as they tend to break if there is any lateral motion. MSCdirect.com has drill bits and starter bits that can help.

Knives – xacto #11, single blade razor blades. Change often to keep sharp.

Flush cutting tweezers are very useful. Get Swiss-made; the American and Chinese ones do not mate fully.

Use CA, typically the type in blister packs at Home Depot. Several recommended the version manufactured by Lok-tite, but not sold under that name.

Have 0.006, 0.008, 0.010 and 0.012-inch diameter brass wire on hand for detail pieces.

Also useful to have 0.010-inch diameter fine plastruct rod to fill gaps if you mis-drill. Works better than putty.

You will need calipers, machinists and combine squares to measuring and square corners.

Machinists blocks, also known as 1-2-3 blocks, are useful.

Construction Tips

Some modelers use legos, which are machined to be perfectly square, as is Evergreen 1/10-inch square styrene. These can be used to help “square up” sides and ends. Another tip is to join corners with Barge cement or even Testors® on the styrene/legos, which makes them “tacky” and sticky so you can square everything up. Let sit for 15 minutes, then mate. Use 1/10- or 1/8-inch styrene stock.

Many modelers believe that using epoxy after the initial CA bond sets will make a stronger, permanent bond with better shear strength in case the model is ever dropped; CA may break apart because of low shear strength. Epoxy users like Ace Hardware Devcon two-ton epoxy.

If you need to break a CA bond, you can freeze the model for a couple of hours and the bond will give way if sharp pressure is applied without damaging the resin (YMMV).

Always wash the model before painting. Some modelers grit blast with baking soda; others use isopropyl alcohol to clean. Because some manufacturers use mold release, cleaning is necessary.

In terms of construction order, generally folks take following approach:

- i. Start with underframe, detail it, paint, then add trucks. T trucks generally can just be screwed into place without tapping
- ii. Build body, then paint (see prep details above)
- iii. Add weights (1/2 ounce nuts or other) over trucks
- iv. Assemble by adding whole to floor (NOTE: Westerfield Kits often put the roof on last.)