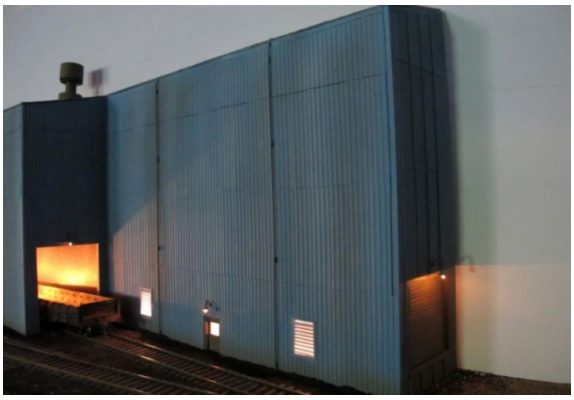
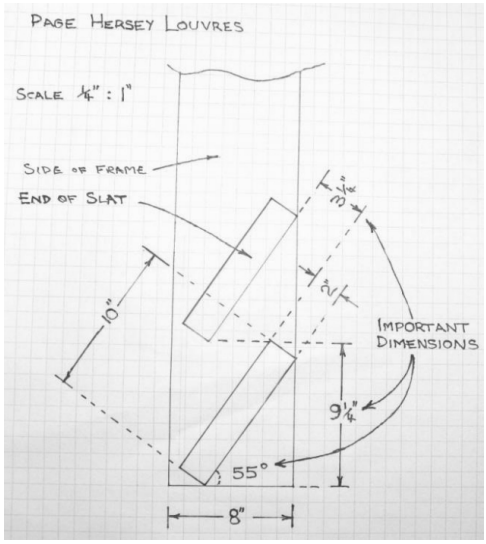
Published in the September 2011 issue of The Cinder Crusher, the newsletter of the International Division

Constructing Open Louvres for a Pipe Mill

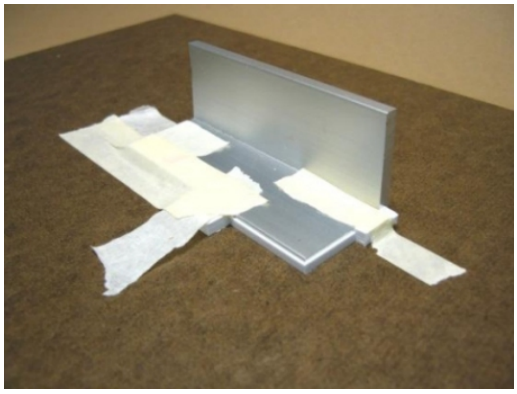
By Richard Sparrow



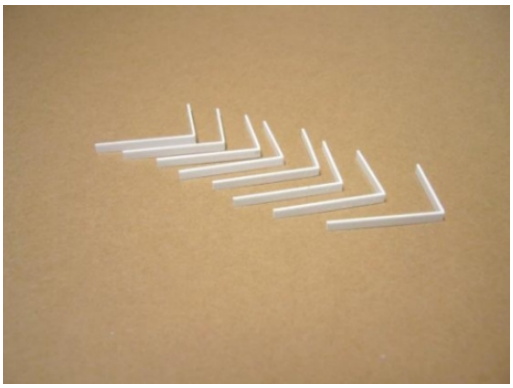
On the Welland section of my TH&B layout, I have modeled a representation of the old Page Hersey pipe mill. The model is a "flat" located up against the backdrop, and has a couple of industrial spurs disappearing into the mill. One of the significant features of large steel processing buildings like this is the louvres that help move air through the building. As the model building is lit from the interior , the louvres needed to be open so that the light shines through them. The only ready made units I have seen are solid, and so this meant scratch building, which I enjoy anyway . A lot of the fun in scratch building is working out a method of construction and after a few failed attempts to get the slats spaced evenly, and all at the same angle, I came up with the method shown and described below. These happen to be HO scale, but the method should work for any scale. Probably the most difficult part is to determine the height of the louvre frame so that the slats fit into the frame with only a little space left at the top or the bottom, and even spaces between all the slats. One way to determine the frame height is to make a large scale drawing on graph paper and then measure it. See Fig. 1 below . The trick is to determine the vertical height of the slats when they are sitting at an angle in the frame, and to make construction simple, it is best to choose slat material that matches a standard styrene or wood strip width. I used Evergreen HO "dimensional" strip of 2" x 8" for the frame, and 2" x 10" for the slats. From the drawing in Fig. 1, the vertical space for one slat is 9-1/ 4", and the angle of the slats from horizontal is about 55 degrees. The space between the flat surfaces of adjacent slats is 3-1/ 4". This last dimension will become important as we go through the assembly process below . Make the inside height dimension of the frame a multiple of the vertical slat height, (9-1/ 4"), plus a small space at the top and bottom of the frame. Of course, in practice at the worktable, the angle may not be cut to exactly 55 degrees, and other dimensions may be off slightly , but starting with a theoretically correct dimension can only help get closer to the required result.



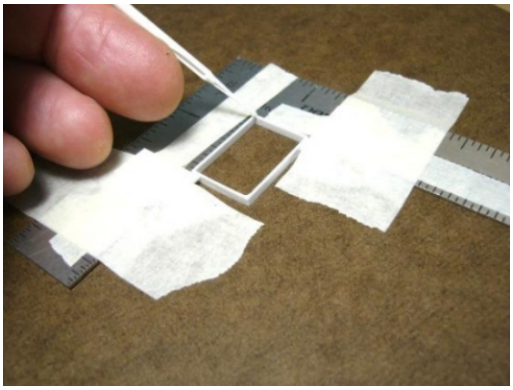
After deciding on the dimensions of the louvre frame, use a Chopper, or similar device to cut frame tops, bottoms and sides. Based on the required inside height dimension, determine whether the ends will go inside the sides or vice-versa, and allow for this when calculating the lengths of the frame components.Make up sets of one side and one top or bottom. A jig with an outside right angle corner ensures the corners are square. Tape stops in place to position the parts correctly and then apply a small amount of cement to the corner joint. Placing the jig on a non-absorbent surface will minimize sticking to the work surface.



Shown in the photo are 8 top/bottom and side sets, enough to make up 4 louvre frames

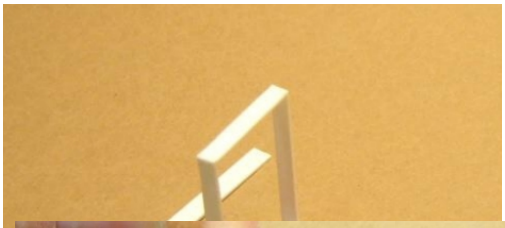


To make these half-frame sub-assemblies into complete frames, this time use a jig that forms an inside right angled corner to ensure the finished frame is square. Taping stops to the jig will help to hold the two sub-assemblies tight together while the cement is applied and allowed to harden. Taping the jig to the work surface keeps everything solid as you work.

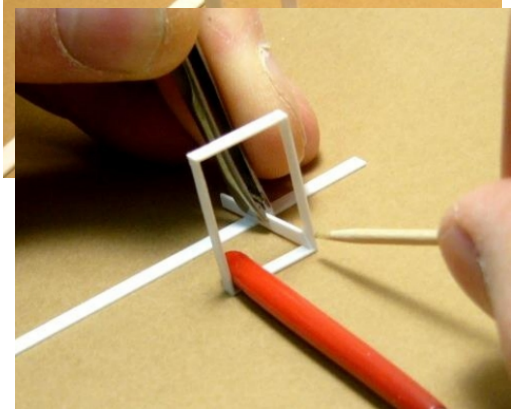


The next step is to add small triangular pieces that will position the first louvre slat at the correct angle. To do this, take a short length, about 1-1/ 2" or so of the same strip as used for the frame, and cut an angle on one end based on the angle at which the slats will sit. In the drawing in Fig. 1 this is 55 degrees. Stand the frame up on one end and hold it in place with a small weight. In

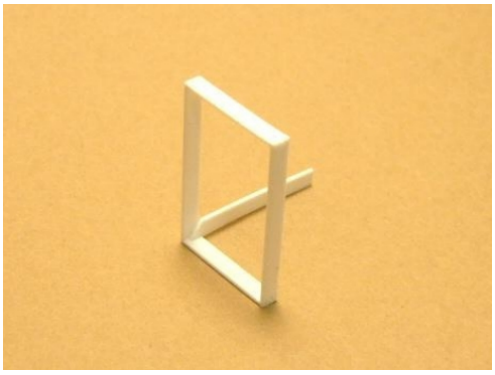
the photo this is the handle of a needle file. Place an extra length of the same strip behind the frame to support the piece you have just cut with the angle on one end.



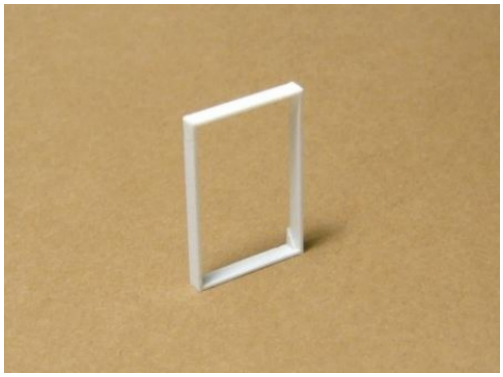
Take the piece of strip with the angled end, and cement it in place flat against the inside of the frame side member , with the slope of the angle facing towards you. Note that the point of the angled piece is set back from the front of the frame in order to leave room for the thickness of the slat plus a bit more. When installed, the slat will come almost flush with the front of the frame.



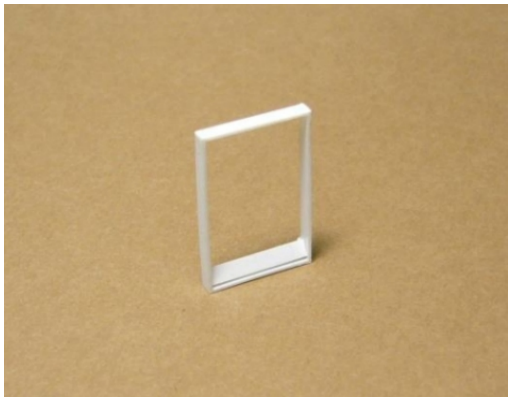
Here is a frame shown with the left side angled slat support in place, with the set -back of the angled point more clearly shown.



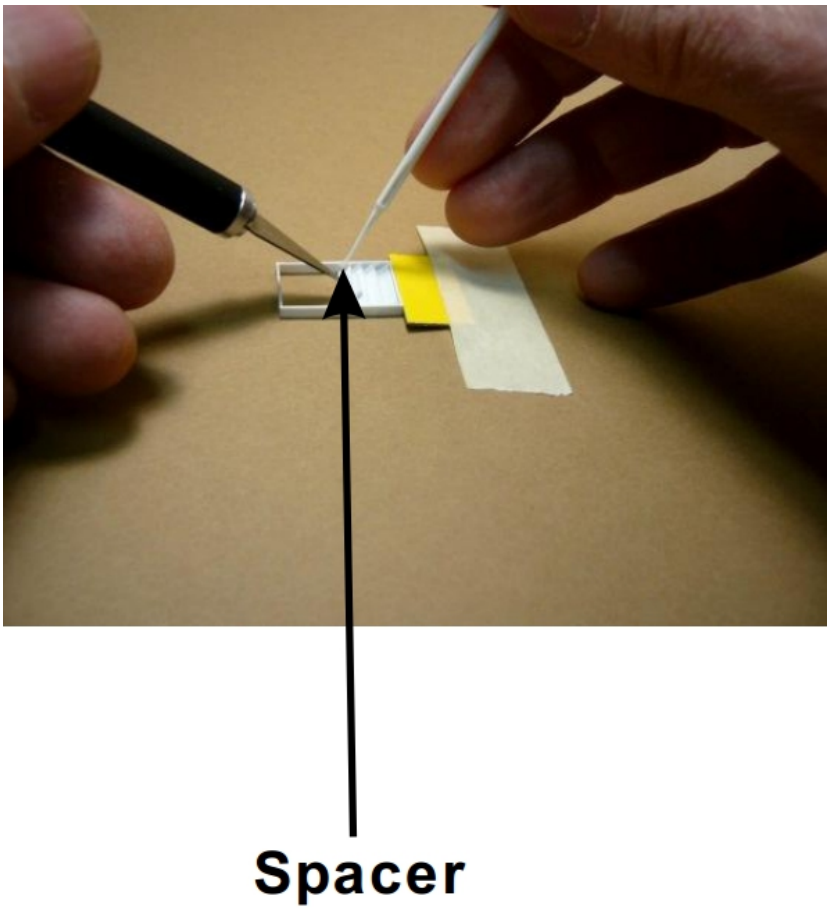
Once the cement has hardened, use a pair of flush sprue cutters, or a sharp craft knife to cut off the excess from the angled strip pieces flush with the back edge of the frame.



The first slat is in place here, resting on the slat support pieces, and flush with the back of the frame. The set-back from the front of the frame can be seen in this photo. In hindsight, there should be a little more space below the lower slat to allow room (in real life) for the slat to swivel closed.

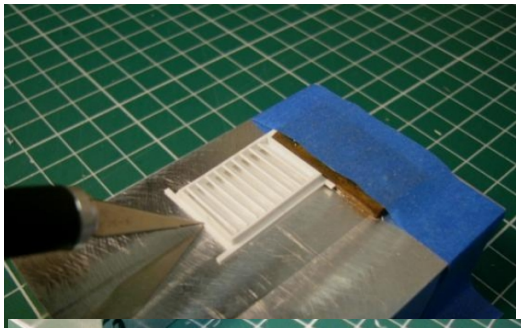


To cement the rest of the slats in place,lay the frame on its back and tape a support to the work table to stop the frame moving when you push against it. Make a spacer that is the thickness of the space between the slats on your sketch. In Fig. 1 this is 3-1/ 4" in HO which translates to about .037". Using a short length of .040" strip will be close, and it could be sanded down to .037". Cut it about 1/ 3 the width of the slats to keep it out of the way when cementing the slats. Place the spacer flat against the middle of the first slat. Now rest the second slat up against the spacer . Hold the new slat and spacer flat against the first slat with gentle pressure of a knife blade point. When the new slat is parallel to the first slat, with its back edge against the work surface, apply cement to the frame/slat joint. Make sure the spacer is clear of the area being cemented.



Once all the slats are in place the face frame is added. To avoid having to cut the face frame pieces to exact length, cut them long by about 2 strip widths. Position the first piece flush with one end of the frame, and work your way clockwise around the louvre frame as shown in the photo. The louvre sits on the work

surface and the face frame is flush with the front of the louvre. Again, use a support to push against so as to get tight joints, and a surface that will be easy to release the assembly from once the cement is semi hardened.



The last step in construction is to chop off the excess length of the face frame components. Installing a face frame, which butts flat against the outside wall of the building, allows a little fudge room in the size of the opening that has to be cut into the building wall. It can be slightly larger than the outside dimension of the louvre frame, and the face frame will hide any small gaps. All that remains is to install the new see-through louvres into the building and turn on the lights. Once the dimensions are worked out, several louvers can be made in an evening modeling session.