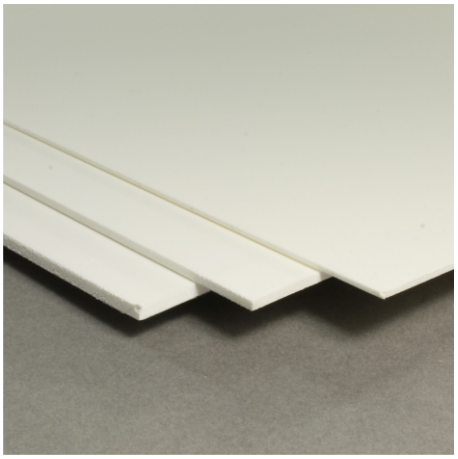


WORKING WITH FOAMED PVC

Written by David Neat author of 'Model-Making: Material and Methods' (BP00075)

Foamed PVC (Palight) available:

- **1, 2 & 3mm 210 x 297mm (RS12011/21/31)**
- **1, 2 & 3mm 301 x 603mm (RS12010/20/30)**

Foamed PVC is an extremely versatile sheet plastic. Of all the different brands I've tried over the years Palight has proved to be by far the easiest to work with by hand. In fact it's become my own first choice as the basis for almost everything I make!

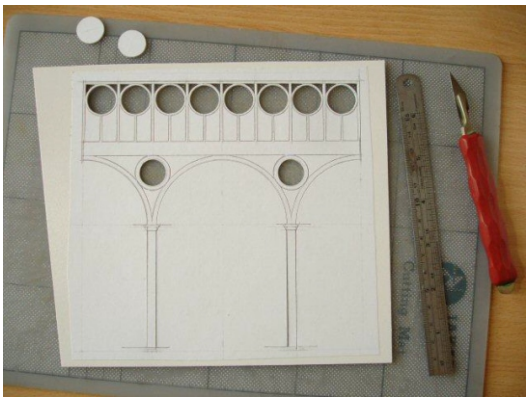
It can be easily cut with a scalpel, or carved, sanded, even embossed to a certain extent. It can be painted without any danger of warping (though it will usually require priming first) is not affected by humidity or (within reason) heat from strong lights. It is also incredibly light.

For example, when I use it to make larger-scale sets for stop motion animation it delivers the structural strength of MDF at a fraction of the weight! The only caveat in all this is the fact that it can only be glued with superglue, but on the other hand this gives a very strong bond and also once one has mastered the option of 'gluing from outside' it all becomes much easier!

I've chosen and illustrated three examples of its use: firstly using 1mm PVC (the thinnest available) for intricate forms; secondly using 2mm PVC for general construction; thirdly using PVC as one may not otherwise have expected, to create surface effects.

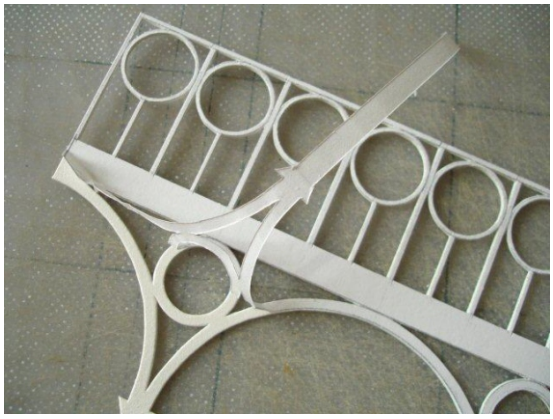
Although it's much easier to draw on foamed PVC with a pencil (unlike styrene or ABS) I prefer to work out a design on paper and spraymount a copy on the plastic.

In this photo (right) I have started cutting out the ironwork shape through the paper.



Curves are much easier with PVC than cardboard because the composition is much smoother, with no particles or fibres to affect the passage of the blade.

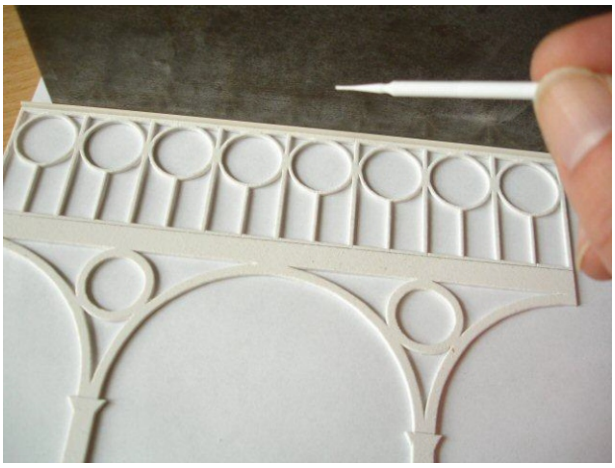
Cutting is easier also because it is more porous (foamed) on the inside and will 'give' a little under the blade causing much less friction.



If the paper cutting template is lightly fixed with spraymount (especially the repositionable type) it can be easily peeled off the form once cut.

In this case the PVC cut-out serves as a firm, cleanly cut basis upon which more detail, profiling or strengthening can be added on top.

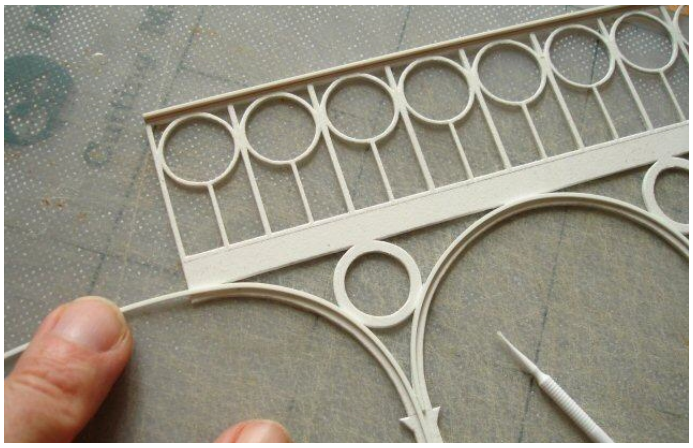
It's a constructional principle of 'building in layers' which I've developed for myself over the years and try to follow most of the time.



Here (right) I'm adding a strip of styrene (a harder plastic which can be bought in a wide variety of pre-made strip formats) to make a thicker top rail.

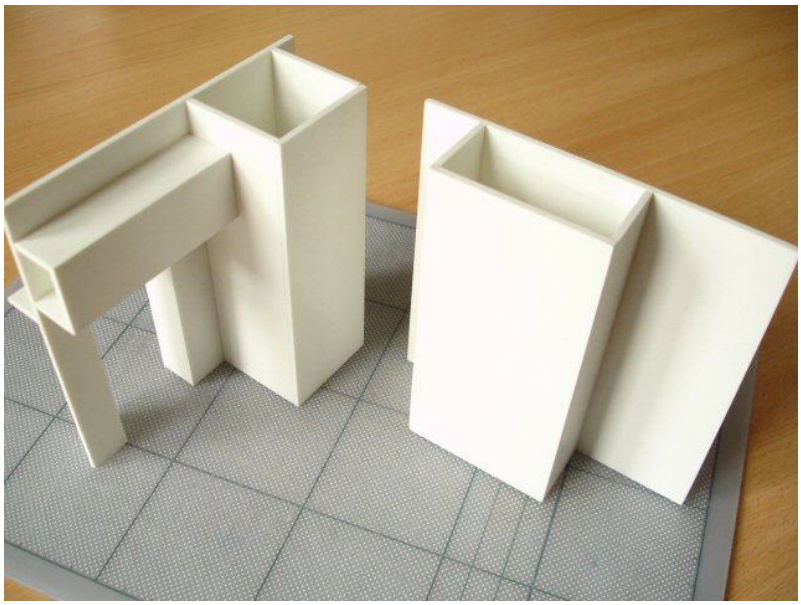
The easiest way to glue this in exactly the right place first time is to position a guide-block (in this case a metal block) against the top, press the cut length of styrene against it and run a little thin superglue (using a plastic gluing brush or cocktail stick if preferred) into and along the join.

The thin type of superglue will travel further into the join and set immediately. This is what I mean by 'gluing from outside'.



I am doing similar but this time with a very thin (c. 1mm) cut strip of the same PVC to give the arches more substance.
PVC is nicely bendable, especially in thin strips. The trick with bonding a strip in an exact curve is to fix the strip with a spot of glue at one end first, then curve and position the rest, spot-gluing at intervals to the other end.

I've cut the strip a little longer, to be trimmed off when the end is reached.



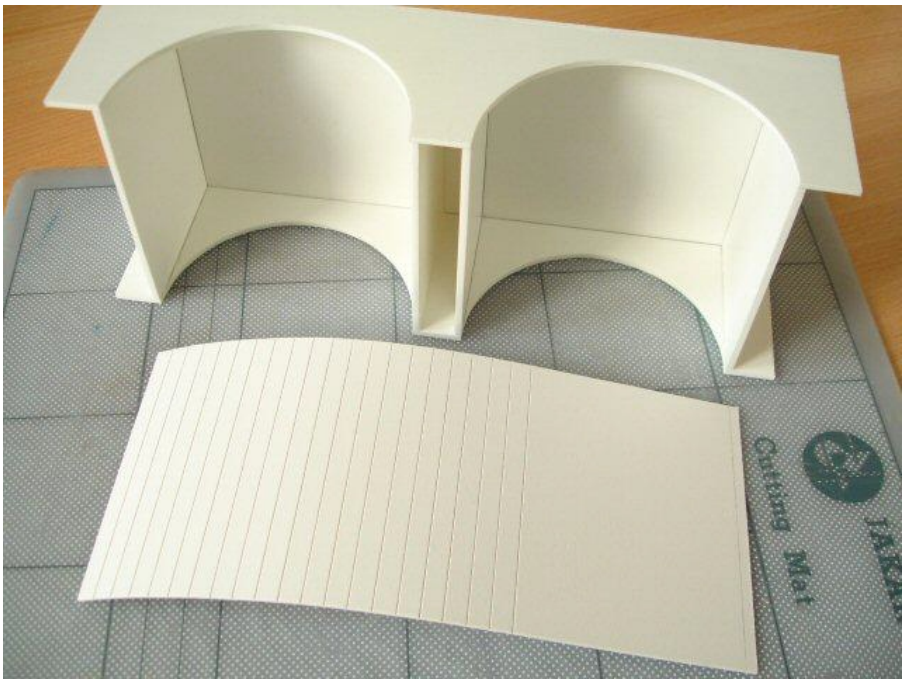
This example illustrates some of the benefits of using foamed PVC to construct walls etc.

Even thin PVC will retain its rigidity well. For example 1mm PVC can be used to represent walls up to 30cm high easily, as long as they're not load-bearing.

Because PVC sands well cut edges can be cleaned up if uneven and right-angles bettered prior to gluing together.

Also because PVC sands well the visible joins after gluing can also be sanded often to invisibility!

In the next example I am constructing a piece of vaulted ceiling by first making a framework box (2mm PVC) and then curving a thinner piece of PVC underneath it.

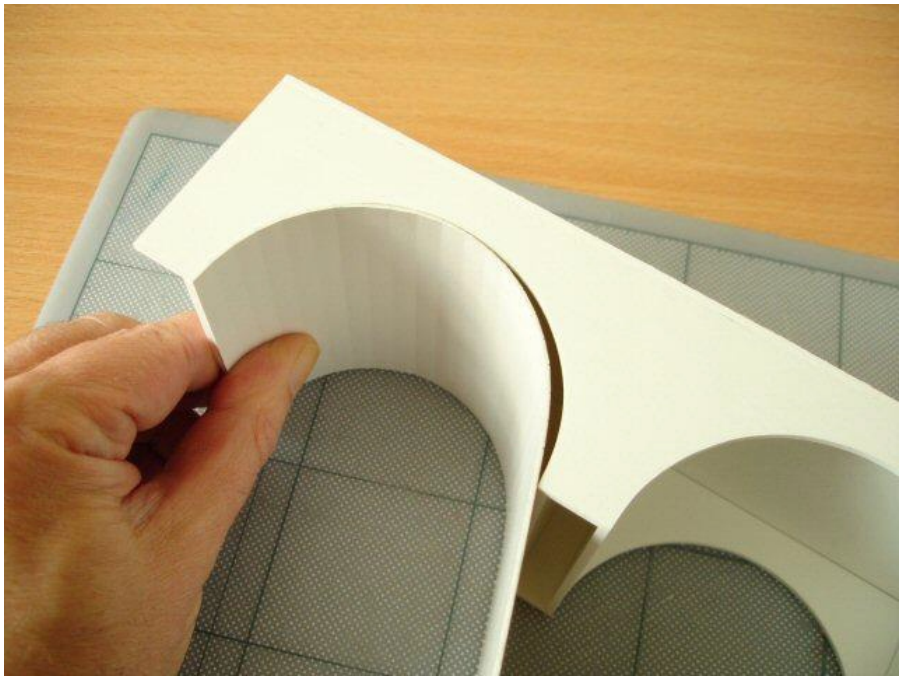


Circles are much easier to cut smoothly in PVC because there is no grain and the material 'gives' a little.

It is also possible to make a definite guiding groove in the soft surface using a compass fitted with two metal points.

Curves can also be perfected by sanding them.

Here I have scored the 1mm on one side to help it to bend.



The same can be done by heating it uniformly and securing it until cool on a curved surface such as a bottle.

The piece can be glued in position, in much the same way as the curved profiles on the ironwork example, by first securing one end, pressing the rest into position and 'spot gluing' from outside.

Here the end has been made purposely longer and can be easily trimmed off once the rest is glued.

Other plastics such as styrene or ABS can be sanded to modify the surface, but because foamed PVC 'gives' so much more it can also be inscribed or even embossed to create different textures.

Here is just one example where I have scraped the surface with coarse sandpaper to simulate wood.

To build up the structure of wood panelling I first cut out the raised areas (the frame) as continuous pieces, then pressed firmly with sandpaper (120 grit, mounted on a small block) along the length of each part.

'Grain follows length' almost always for any realistic wood construction.

I scraped those areas of the base piece which would remain visible as panels then stuck the frames into position (just spacing dots of superglue).

I used different thicknesses of 'half-round' profile styrene (also sanded) inside the panels and around the door frame.

The painting method and the choice of medium are fairly crucial in making this technique work.

Normally it wouldn't be reasonable to paint plastic with any water-based paint and expect it to stay, but because the surface is sanded it can grip quite well.

The paint needs to emphasize the scratches made by the sandpaper, settling well in the grooves but not too much on the surface.

Sometimes this can be achieved well with washes of thin paint, other times by rubbing in/rubbing off like a polish.

For this example I just used a regular 'System3' yellow ochre acrylic thinned down with a little water and 'rubbed into' the plastic surface using a medium-hard brush.

It takes some practise to find out for oneself what a particular painting medium might do and how best to use it.