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## How about Glass?

By Mike Carski

Whether we model indoors or outside, at sometime, we will add buildings to our railroad creation. The model buildings from Pola, Piko, and others are very good products and expensive, so when it comes to the windows, why use that cheap clear piece of acetate that is provided? It is flimsy, yellows with time and can melt if in direct sunlight. The only real alternative is REAL GLASS!

I can hear some of you now, you have to be kidding, I've never done anything like that before! Believe me, its easy and very inexpensive to do. With the help of some friends, I have worked out different ways to install real glass cheaply and safely. This article will show you what my colleagues and I came up with.

### Materials Needed:

Real glass can be purchased two ways, one is microscope slide covers, usually 1 by 2 inches in size, and .007 inches thick. These are perfect for large scale caboose and passenger car windows, but are way too small for the average windows in large scale buildings. The other way is a sheet of commercial thin window glass, also known as picture frame glass, is cheap, readily available, cuts easily, and looks great in large scale buildings.

Picture frame glass is usually .125 (1/8") thick and is the best to use. A 24X36 inch piece costs under \$10, and will do a dozen average buildings. A word about glass cutting: If you have never done it, you are in for a pleasant surprise. You will need a cutter, some lamp oil, a flat board, and a marking pen. Because of the low cost of this glass, mistakes and practice pieces are affordable.

Its possible that the first tries at cutting, might produce wavy edges, a piece of emory cloth, wrapped around a block of wood can be used to smooth out minor mistakes in straightness. When you sand, be gentle, not forceful. And finally, when cutting, you should be bare handed, so you can "feel" the material. Wearing gloves is a quick way of getting cut.

To get started, you need a cutter, these can be inexpensively purchased at hardware stores, Home Depot, Lowes, etc. If you are really serious about this, go to a stained glass supply shop.

Place your piece of glass on a flat surface, measure the width to be cut, mark the start and finish with the marking pen, line up those points with the flat board.

Take your glass cutter in your hand as if it were a ballpoint pen. Dip the cutter wheel into the lamp oil and position it at the beginning mark and as snug as possible against your guide board. Your thumb should be on the top edge of the board, and your first and second fingers keeping tension against the cutter.

Push down with some force, and drag the cutter toward you, you'll hear a slight raspy sound, that is the cutter wheel "scoring" the glass surface. Continue dragging until you have completely etched between the two marks.

Now take the "ball" end of the glass cutter and lightly tap the starting cut area, from the under side of the glass. A few light taps and the area you just "scored" will produce a "run" (the cut area separating).

Some glass, depending on quality might not "run" continuously all at once. If it stops, a few more light taps up and down the "scored" area will work.

Place one hand on the guide board, and grip the section you are trying to cut off, so the outside most edge goes laterally across your palm, you thumb on top of the glass, your fingers on the bottom, combine downward pressure with a slight 'snap' of the wrist, and the glass will separate at the cut.



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### Installation:

Starting with the wall areas, their inside contours will determine how the glass can be held in place. Look at the accompanying drawing 1-4, they show examples of different holders based on various wall and window shapes.

I have used plastic to make the holders, especially Plastruct structural shapes (gray color) because of its endurance outside.

You can use wood, but unless you soak it in a preservative, it will deteriorate over time. If you look at figures 1a, b, and c, these are the most useful I have found.

Attaching the plastic holder to the inside of the walls isn't difficult at all. If you are using Pola or Piko, the enclosed tube of cement will work, or you can use Plastruct's liquid cement or any of the professional grade cyanoacrylate glues.

When possible, I try to cut my glass oversize, to the edges are out of the line of sight. Using the holder in figure 1a, I would cut each piece 1/4" wider, and 1/8" higher than the 'outside' dimensions of the window frame. Figure 1b works well with many Pola European buildings and Piko's engine house, but not worth a darn on many other buildings.

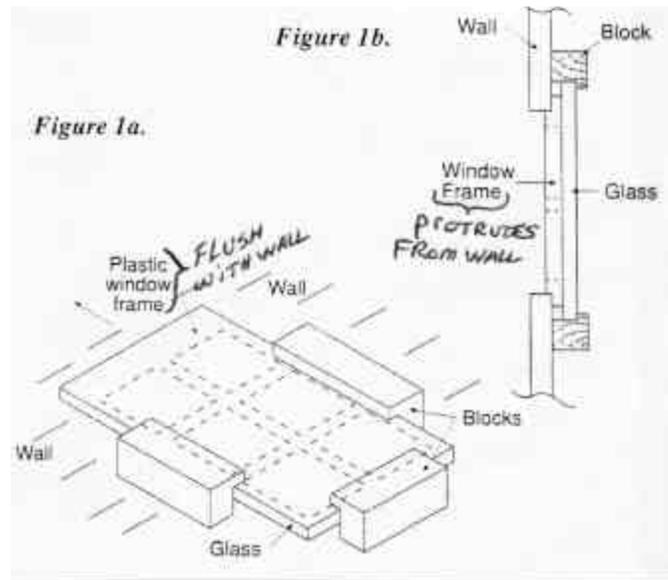
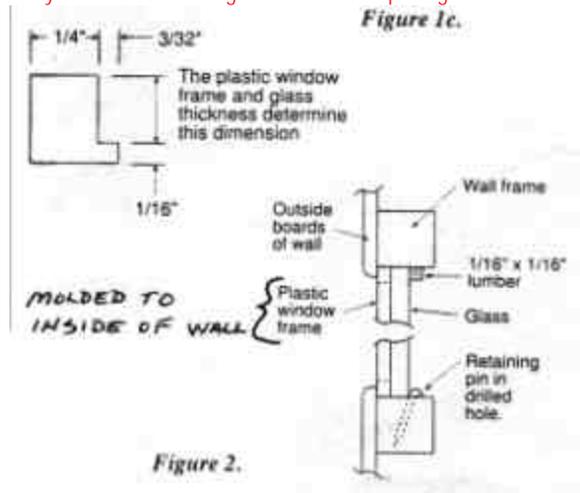


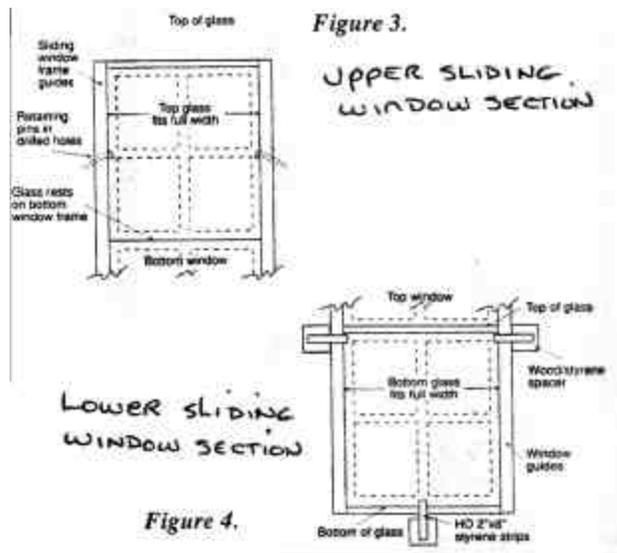
Figure 2 works well on the Pola mill and for transom windows over doors, and use 'O' gauge track spikes for the retaining pins. Another variation is the vertically sliding window as found in some Piko, and the Pola western series.



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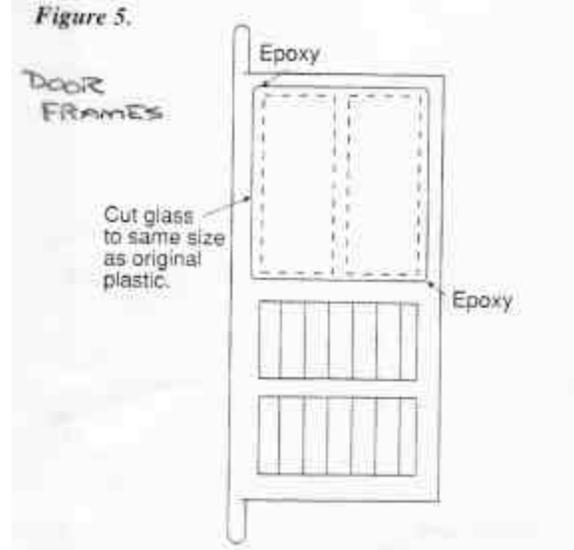


Figures 3 & 4 show how to handle these, the down side is, you have to forfeit the sliding feature with these methods. I challenge you the readers to develop a way of using real glass and maintain the slide feature!





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So far these different variations have worked on just about every kind of window. One final note on windows, use the marker pen to record the glass measurement on the inside of the building wall, in case of breakage.

As for doors, you want them to be openable, so you really can't use any of the holder systems from above. Remedy, either cut or grind the glass to the same size as the original plastic window.

Figure 5 shows this procedure. Most door frames have a rim on the backside that provides a natural place for the glass. Paint the edges first, then put a tiny dab of glue at two opposite corners, barely enough to hold it.

A word on 'grinding' glass, if you want to try it, use a "green stone" grinding wheel from a hardware store or stain glass shop.

I hope this article will help you retrofit your buildings with a realism they deserve. You may investigate other variations of holders.

Remember, only real glass looks like glass and its appearance is worth the extra effort.

If any of you decide to try this, and run into problems, call me, I will help you any way I can.