

Preservation Practices



by Hugh Phibbs

Double Glazing for Sealed Packages

Last month we looked at glazing options and the need for laminated glass in the creation of highly sealed framing packages. Acrylic sheet is shatter-resistant but will warp if its sides are exposed to differing levels of relative humidity. This makes it problematic for use in sealed packages since it will warp in toward the art if the conditions outside the package are much drier than the conditions inside the package.

As we noted last month, the fragility of glass makes it unsafe without lamination and the green color of ordinary flat glass makes it aesthetically unacceptable when it is laminated. The cost and availability of low iron, laminated glass are likely to keep it out of widespread application in commercial preservation framing. Given these facts, can a package be made that incorporates the break-resistance of acrylic and the non-warping, vapor-barrier potential of glass?

The simplest approach to this question would be to install a sheet of acrylic in front of a sealed package that has been made with glass. If the two glazing sheets are spaced apart with strips of matboard, they should not touch and Newton rings should be prevented. Also, the fact that there are two sets of reflections will not be evident enough to cause an aesthetic distraction.

This type of package will give some protection from breakage, but a strong

blow to the surface of the outer layer of glazing or severe corner-to-corner twisting could break the inner layer of glass. This would leave the art exposed to broken glass edges.

Reversing the layers of glass and acrylic can address this problem. This strategy, which was suggested by Virginia Ritchie, a museum preservation framer, will entail the creation of a thicker package, which must be strengthened to accommodate the acrylic sheet within, but it will eliminate any possibility of glass shards cutting the art.

Constructing the Sealed Package

This package can be made using aluminum/plastic laminate sheet and electrical-grade hot melt adhesive. (The sealing technique needed here is described in the preservation supplement on “The Science of Preservation Framing,” in the supplement section of the *PFM* website, pictureframingmagazine.com, or in the February 1999 issue of *PFM*.)

The hot melt that is used to seal the package can also be used to hold the acrylic sheet and the glass apart. While the bead of hot melt is being extruded onto the edges of the lite of glass, a similar bead can be set on the edges of the acrylic. This latter layer of glue should be thick enough to hold the glazing layers far enough apart to avoid Newton rings.

The fact that there will be an extra

layer of glazing, and the spacing needed to accommodate it, means that the package will be thicker than normal. In a normal package for a matted work, the laminate sheet should be at least one inch larger than the glazing on each side. Here the laminate should be an inch and a half larger than the glazing on all sides.

The other difference between this package and an ordinary one is the inclusion of the sheet of acrylic inside the package. If the walls of the package were not

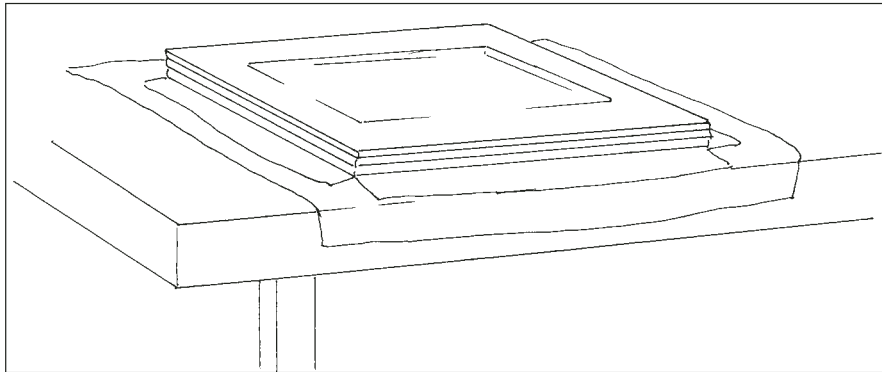


Figure 1: The portion of the laminate sheet that is not covered by the one inch strips of laminate should hang over the edge of the table. This will keep it from being touched by the tacking iron when the sheet is attached to the strips.

reinforced, the acrylic sheet inside the package might shift during handling and rupture the laminate that surrounds it. The laminate comprises four layers, (nylon on the outside, polyethylene, aluminum, and polyethylene), and if its integrity is challenged on the inner polyethylene side, it will begin to give way before the tougher nylon layer is reached.

The best way to prevent any threat to the sides of the package from the glazing involves reinforcing the sides with another layer of laminate. Strips of laminate roughly an inch wide, and as long as the vertical and horizontal dimensions of the glazing, should be prepared. The cleaned glazing combination can be fitted to the front of the mat package.

The laminate sheet can now be laid on the work surface with its polyethylene side up and the mat/glazing package can be laid in the center of the sheet. A one inch strip of appropriate length can be slipped between the back of the mat and the front of the sheet of laminate. The strip should be placed so that its polyethylene side is down and its nylon side is up. It should be adjusted so that it extends out from under the mat just far enough that it will cover

the side of the package when it is pulled around to the front of the glazing, but it will not extend around to the front of the glazing.

When this position has been achieved, the package can be carefully moved to the edge of the work surface and stationed at the proper distance so that the portion of the sheet not covered by the one inch strip can be folded down over the edge of the table. This will keep it from becoming stuck to the tacking iron when heat is used to attach the strip to the laminate sheet (see Figure 1).

The tacking iron, set at three quarters hot, is now used to bond the strips in place. When that has been completed, the laminate is pulled onto the hot melt glue on the front edges of the glass and bonded with heat, as usual. The finished package will look like the cross-section seen in Figure 2.

The added thickness of this type of package will make the closure of the front corners a bit more difficult. The

laminate will seal best if it is pulled onto the front of the glazing in a number of small folds, and the thicker side of this package will tend to reinforce the tendency of the laminate to fold only along the corner edge. A bit of practice at manipulating the laminate into multiple folds will lead to the production of fully successful corners and well-sealed packages.

The two layers of glazing will reduce the transmission of light and low iron or water white glass is very helpful here. It can be combined with UV-filtering acrylic to create a package that is both safe and attractive.

Using two layers of glazing will add to the cost of the frame and will require the use of a frame with a deeper rabbet. However, the labor required for the creation of a highly sealed package already increases its price and the preservation benefits that this technology confers on high value items should be worth the extra cost. ■

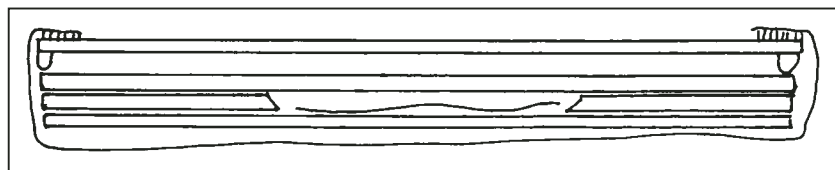


Figure 2: In this cross-section of the finished package, the laminate sheet has been pulled over to the front edges of the glass.