Preservation Practices

by Hugh Phibbs

Double Glazing for Unmatted Works

Last month we considered a design for the creation of a sealed package for matted works that incorporated both glass as a vapor barrier and acrylic sheet for shatter resistance. A similarly sealed package can be made for enclosing paintings and objects, as well. However, its design will differ from the matted package since it cannot be sealed with heat around the front margins of the glazing due to the proximity to the work inside the package.

Here, we will review the salient issues involved in the creation of such packages and consider how acrylic can be added inside the glass to enhance the safety of the package. (The full description of the creation of a painting package can be found in the preservation supplement on "The Science of Preservation Framing" in the supplement section of the PFM website—pictureframingmagazine.com.)

A package that has two layers of glazing will look best if the glazing materials are as clear as possible. Fortunately, low iron or water white glass is becoming more widely available in today's marketplace. This type of glass, with anti-reflective (AR) coatings, can be had from more than one vendor and will enhance the appearance of the work within. However, the AR glass will not cancel the reflections on the acrylic and some of its efficacy may be lost when it is combined with the acrylic. If an ultraviolet absorber is needed, it can be provided through the inclusion of an absorber in the acrylic or in a coating on the glass.

Whichever combination of glazing materials is used, the cost involved will be significantly less than the price of a lite of AR low iron laminated glass. That should bring the price of this package down from the budget range found only among museums and collectors of very high value art, and into a range that is realistic for preservation framing in general.

Assembling the Package

Creating the package begins with the glass being thoroughly cleaned and beads of electrical grade hot melt adhesive, (such as 3M 3797 or 3M 3748), being extruded onto the outer edges of both sides of the glass.

Strips of plastic/aluminum laminate, Marvelseal 360 or 470, or Mitsubishi PE/AL/PE/PET can be used. Whichever material is chosen, it can then be cut so that they are three to four inches wide and longer than each side of the glass by twice the width of the strips.

The polyethylene side of these strips can be bonded to the hot melt with a tacking iron, (set at three quarters heat), so that the strips lap onto the front of the glass by ⅛" and will overlap the neighboring strips at each end. When the hot melt is flattened and the surface of the laminate is finely wrinkled, the bond should be complete.

The overlapping ends of the strips can now be folded up above the front of the glass so that their polyethylene sides meet along a mitered line extending out from the corner of the glass for heat bonding there.

When the corners have been bonded, the glass can be turned over and four more strips of laminate, two inches wide and equal in length to the sides of the glass can be heat bonded to the inside of the outer strips. The inner strips should be positioned so that they lap onto the bead of hot melt on the inner surface of the glass and

they should be bonded onto the outer strips to a width, equal to the width of the tacking iron.

When this is complete for all four sides, the package can be stood on edge and heat applied to the outside of the outer strips at each corner. This will form a joint that is perpendicular to the plane of the glass. The package is now ready for installation in the frame.

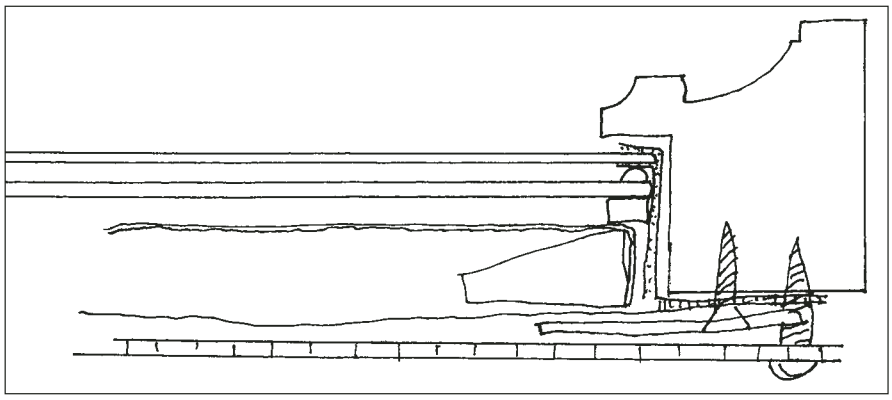

Figure 1: By enlarging the rabbet dimensions of the frame, the rabbet will cover the laminate at the edge of the glass and give adequate room for the artwork.

Installing Into A Frame

The bulk of the laminate that surrounds the edges of the glass will probably require that the frame be rabbeted out to accommodate it. The glass should not be cut smaller than normal to fit the frame, since that would make the package too tight for its painting.

If, instead, the rabbet dimensions of frame are enlarged, the frame will have a larger lip or rabbet width and should cover the laminate at the edge of the glass, while giving adequate room for the painting (see Figure 1). The acrylic that will fit inside the package should be sized so that it is 1/16" smaller than the glass. That will allow it to fit inside the package.

Its edges should be rounded with an edge seamer or a plastic file so that they will not puncture the walls of the package. A bead of hot melt can be extruded onto the edges of one side of the acrylic to form a spacer that will keep its surface from touching the surface of the glass.

The cleaned acrylic can be fitted inside the cleaned glass of the package, without bonding to the glass or package. This will allow for the two layers to be separated when a piece of framing detritus is spied in between them. A spacer of conservation-quality board or painted balsa can be tacked onto the surface of the acrylic with hot melt to keep the painting away from its surface, before the acrylic is installed in the package.

Finally, the painting is fitted into the package as it sits in the frame, and a sheet of laminate is heat bonded to the outer edges of the package, where they overlap the back side of the frame. The painting is secured with pressure applied through the back sheet of laminate by brass mending plates. These plates are screwed to the back of the frame through the bonded part of the package and a sheet of polypropylene double-wall is screwed to the frame through that same bonded outer portion of the package to protect the package and the painting from punctures (see Figure 1).

The contents of any such package must be properly conditioned to 50% relative humidity at 70°F before the package is sealed. This sort of enclosure, if properly conditioned and sealed, will protect its contents for as long as the seal is maintained. The longevity of such protection is even more important in a private setting than it is a museum, where works are routinely unframed as part of their maintenance.

Our increasing experience with such enclosures will inform our future designs, increasing their durability and powers of sequestration, but preservation must always be seen as a continuing enterprise, where items not left in even the most carefully designed enclosures forever, but are monitored regularly and carefully to ensure their safe maintenance. ■