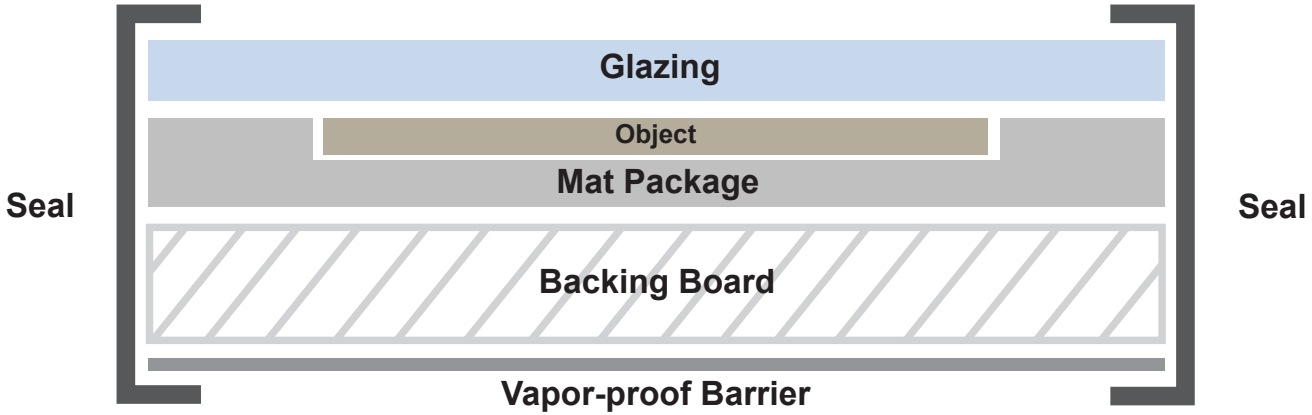
RIT | College of Art and Design
Image Permanence Institute

Sealed Frame Package Questionnaire Summary

Introduction

The Institute of Museum and Library Services awarded the Image Permanence Institute at Rochester Institute of Technology a National Leadership Grant for Museums to support a three-year research project designed to identify the most cost-efficient and environmentally responsible methods of preparing paper-based collection objects for transit and display. It will be the first research project to collect environmental data from multiple museums' shipping crates simultaneously. Laboratory experiments will include testing the safety and relative humidity buffering capacity of common crate packing and sealed frame package materials. Research will also involve identifying and testing new biodegradable and more environmentally responsible materials as possible replacements for materials currently in use for crate packing and sealed frame packages. In November 2020, as part of the first phase of this project, IPI distributed an online questionnaire via its electronic newsletter and conservation distribution lists to inform a current inventory of commonly used materials for sealed frame package components. This report summarizes the results of that questionnaire.

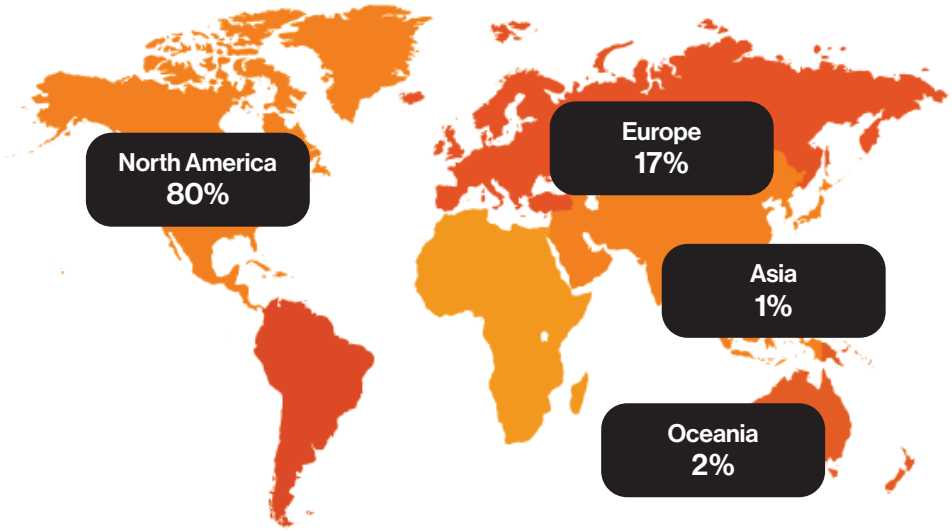


This diagram represents a cross section of the typical elements of a sealed frame package

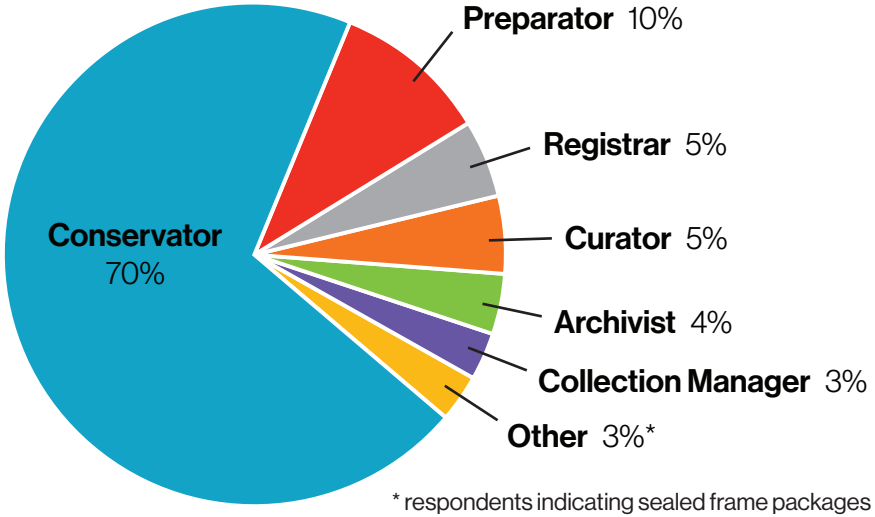
109 Respondents Working in

- 63 *Museums*
- 16 *Archives*
- 11 *Conservation Centers/Private Practice*
- 6 *Libraries*
- 3 *University Galleries/Collections*
- 3 *Multifunctional Institutions*
- 2 *Historic Sites*
- 2 *Art Galleries*
- 2 *Private Collections*
- 1 *Research Center*

Respondents by Region



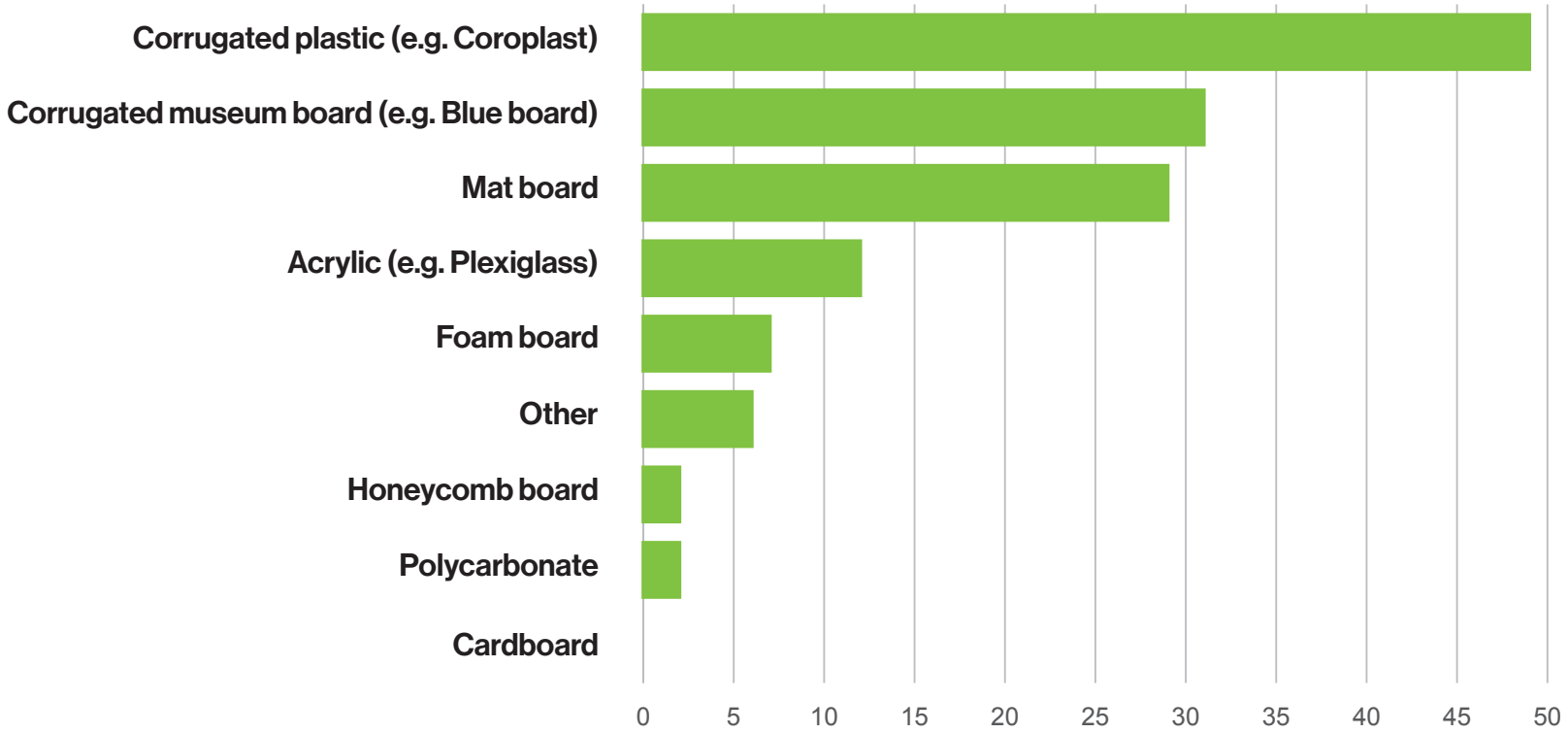
Who decides when a sealed frame package is necessary?

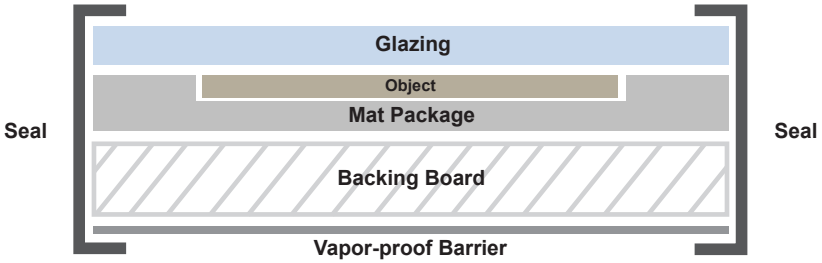


* respondents indicating sealed frame packages are standard practice

The primary goal of the questionnaire was to identify the most frequently used sealed frame package materials. In recognition that many institutions use more than one sealed frame package design, respondents were able to report multiple materials in response to each "materials used" question to account for different designs and/or uses. Therefore, the total number of responses to those questions varies considerably throughout this report.

What backing board materials are used?





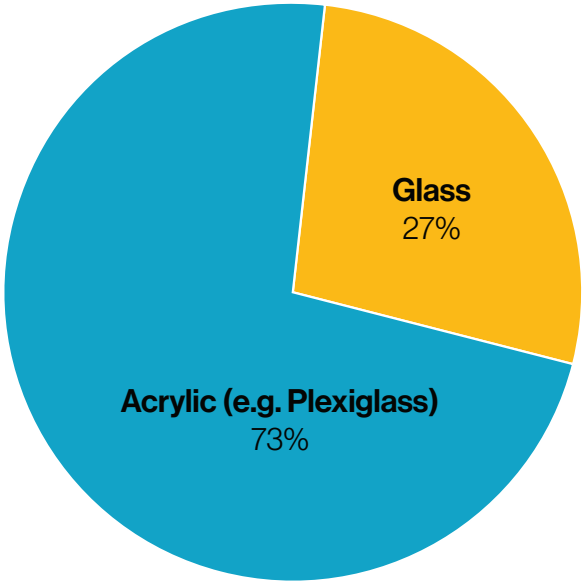
Main Points

28 of the 29 respondents that reported using **mat board** also reported using **another backing board** material. This likely indicates the mat board reported is the window back mat and is further substantiated by the designs submitted.

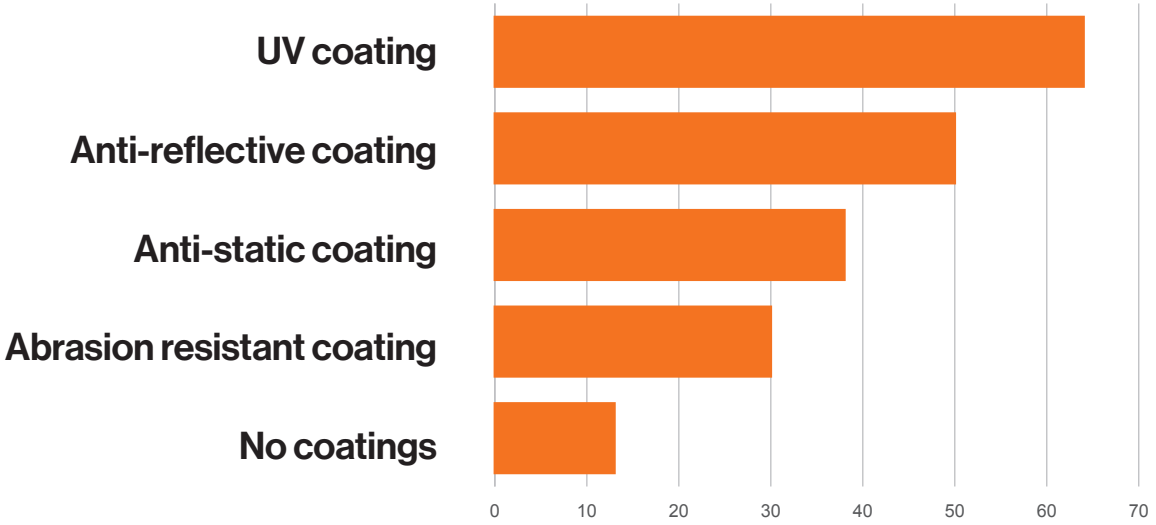
8 respondents are using one layer of **corrugated plastic** to serve as both the backing board and vapor-proof barrier in a single package .

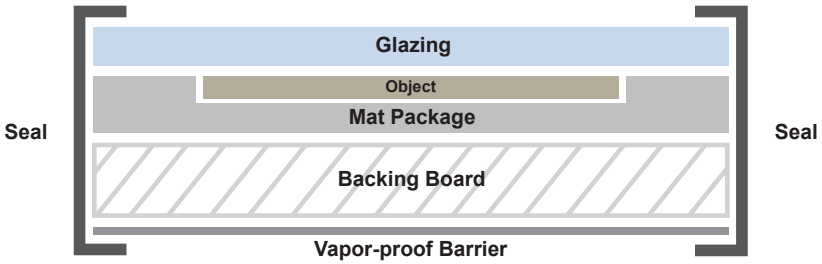
Glazing

What materials are used for glazing?



Are there any coatings applied to the glazing material?



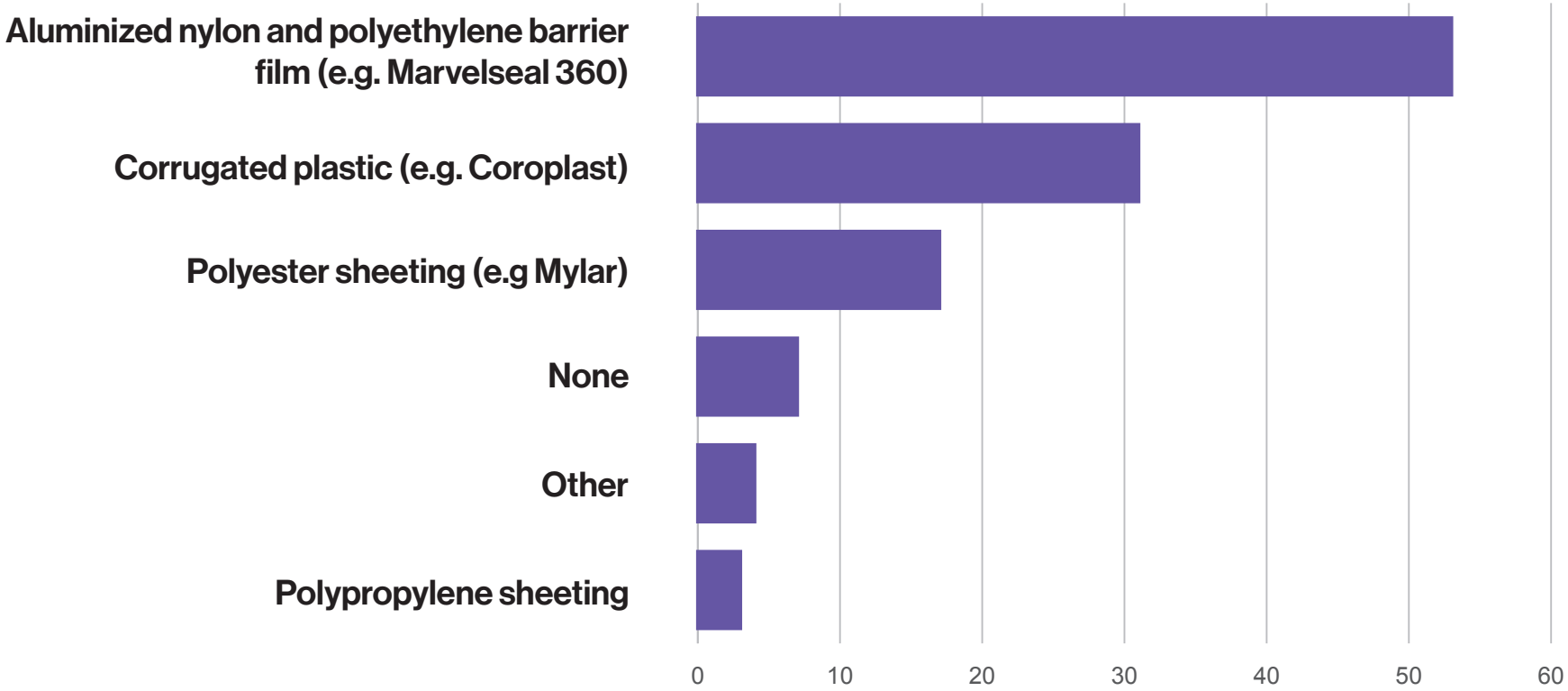


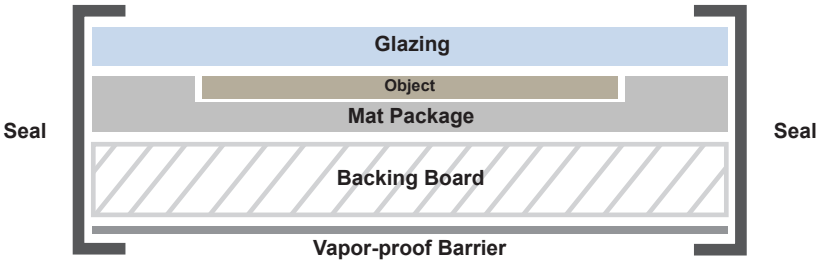
Main Points

Several respondents reported using **glass** and **acrylic** glazing.

Most respondents reported using glazings with **multiple coatings**. The most common was acrylic glazing with abrasion resistant, anti-reflective, anti-static, and UV coatings. The second most common was acrylic glazing with UV coating.

What materials are used for vapor-proof barriers?





Main Points

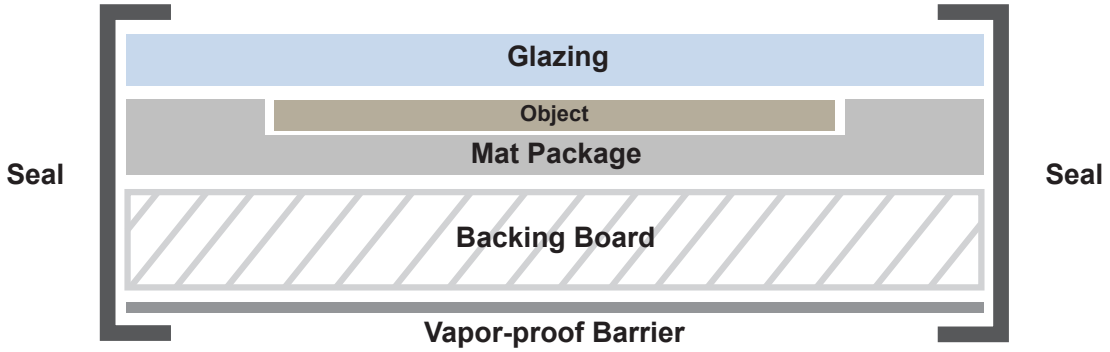
Many respondents reported using both **aluminized nylon and polyethylene barrier film (Marvelseal)** and **corrugated plastic** as a vapor-proof barrier.

Several respondents reported using multiple materials as a vapor-proof barrier. This data reflects respondents using more than one material as a vapor-proof barrier in a single package as well as respondents that use more than one sealed frame package design.

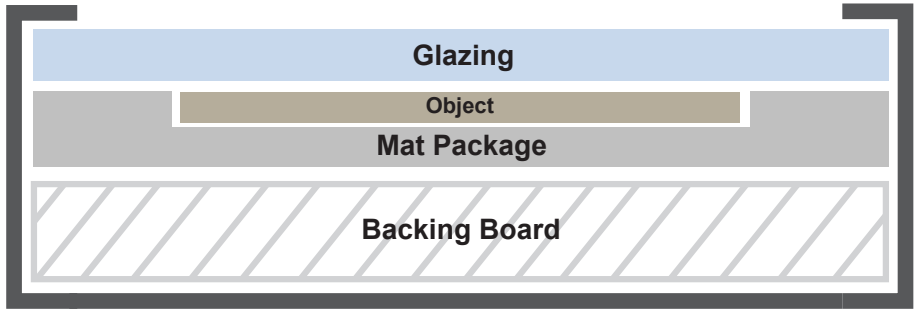
Sealing Techniques

The two methods of sealing include:

1) *Applying pressure sensitive tape around the perimeter of the package.*



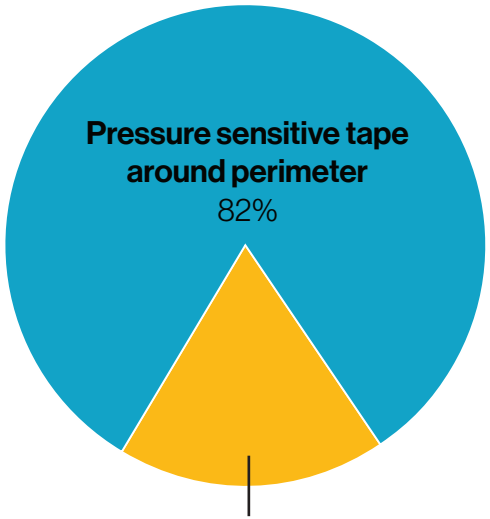
2) *Wrapping heat-set aluminized nylon and polyethylene barrier film across the backing board and around the front of the package, adhering it to the glazing with adhesive and/or heat.*



Vapor-proof Barrier and Seal

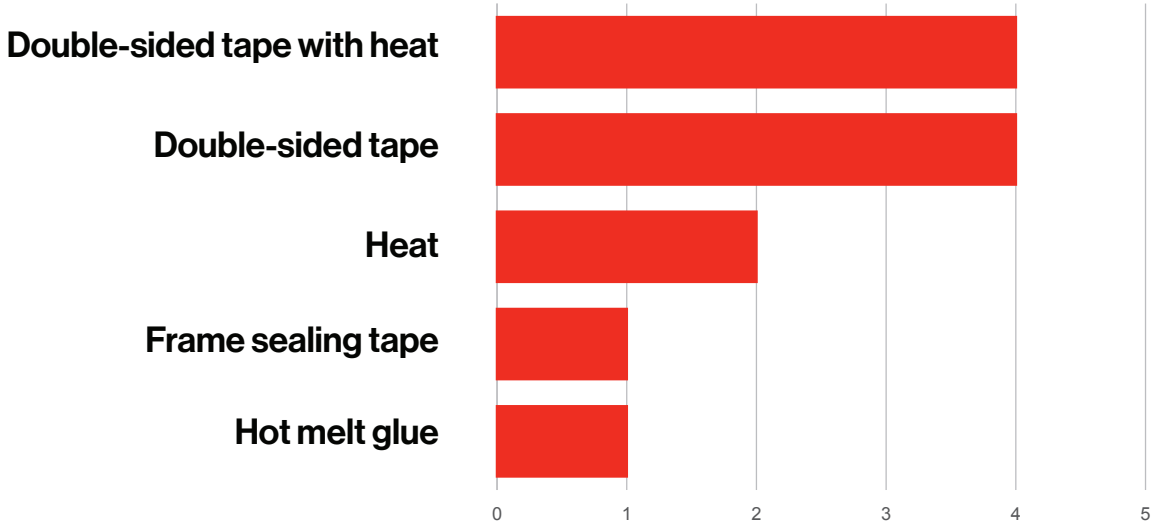
Sealing Techniques

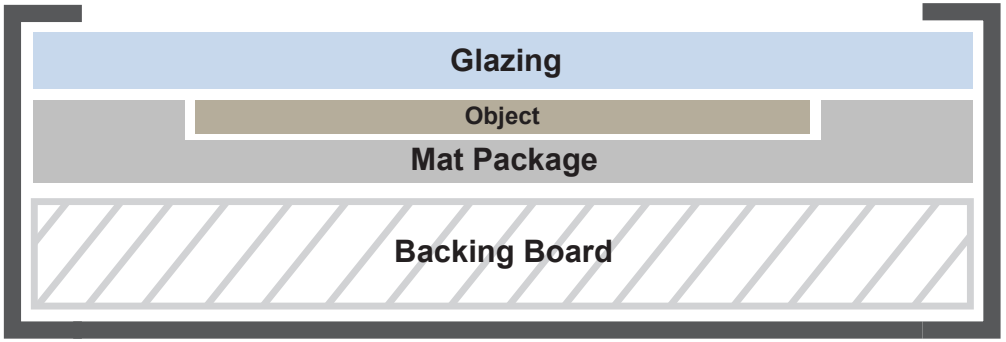
What technique is used to seal the components of sealed frame packages?



Heat-set aluminized nylon and polyethylene barrier film (e.g. Marvelseal 360) wrapped and adhered to glazing
18%

How is the aluminized nylon and polyethylene barrier film adhered to the glazing?

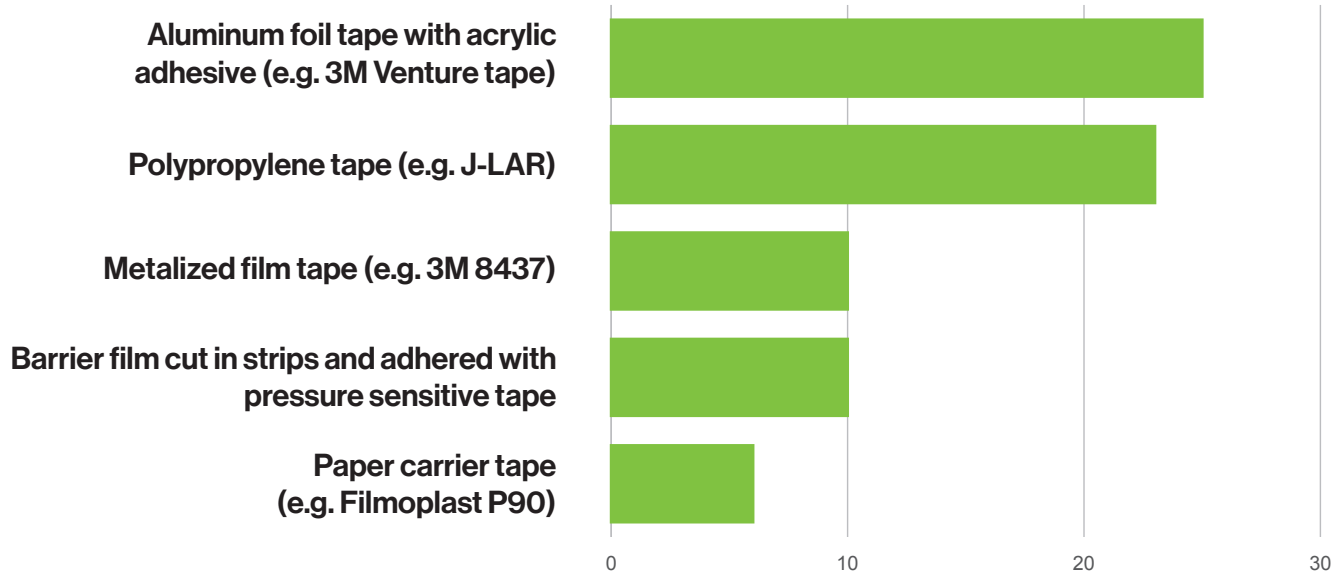




Vapor-proof Barrier and Seal

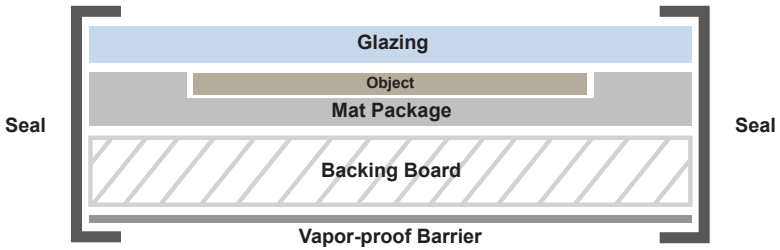
Sealing Techniques

What pressure sensitive tapes are used to bind sealed frame packages?

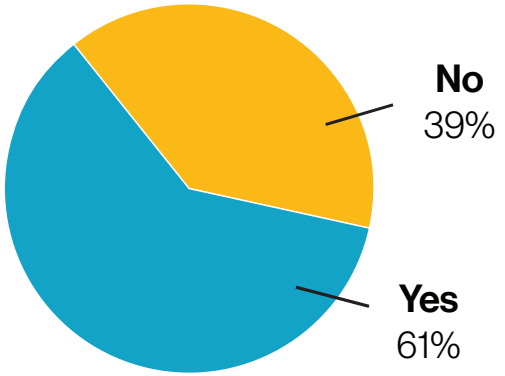


Main Points

Several respondents reported using more than one type of tape. This data reflects respondents using more than one tape in a single package as well as respondents using more than one sealed frame package design.



Do you reinforce the corners?

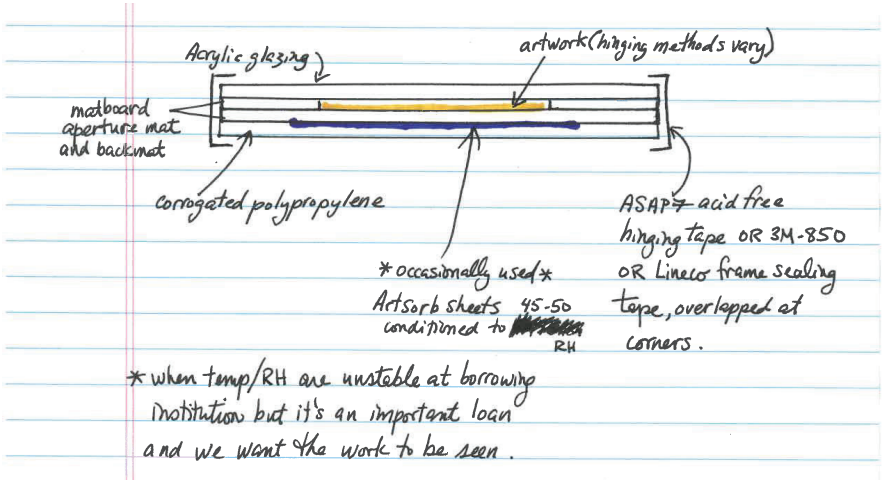


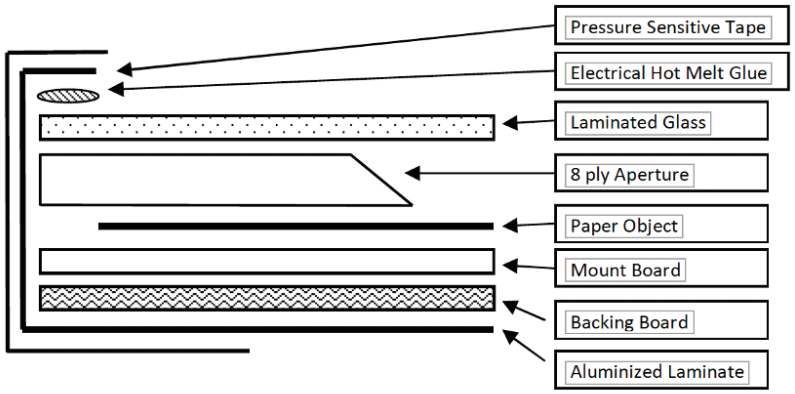
Designs

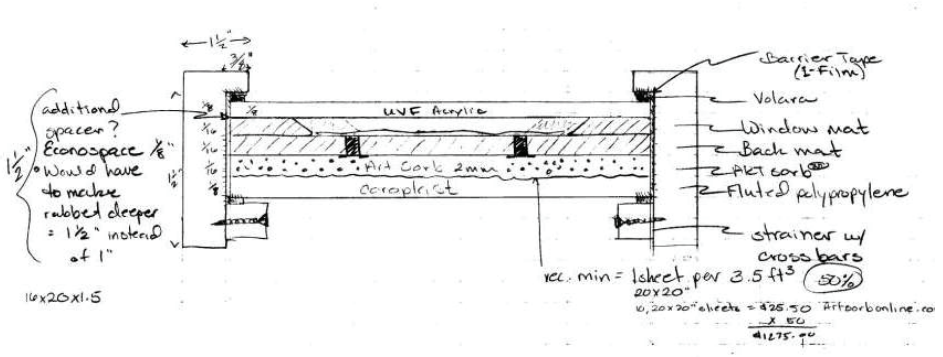
Questionnaire respondents were also asked to share schematics of their sealed frame package designs. More than 25 annotated designs were generously contributed. The 9 designs depicted here, and on the next page, illustrate the wide range of sealed frame package designs currently in use.

UV filtering Plexi
Front mat
Object
Back mat
Artsorb sheet
Coroplast
Marvelseal wrapped from back and attach sides with 3M415 adhesive tape

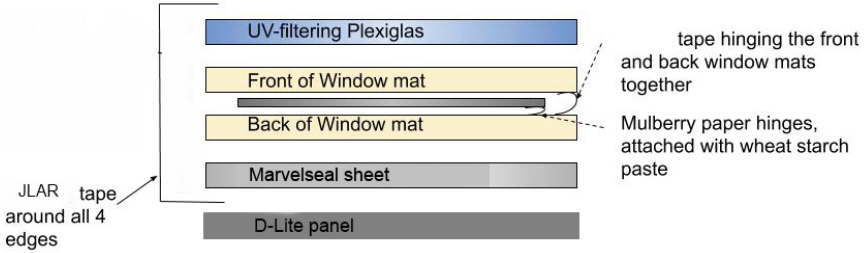
Optional Jlar
Occasionally if I am not getting good adhesion with the 415 alone (usually because the edges are not smooth due to coroplast, mat, plexi being slightly different sizes) then I will also add a layer of Jlar to the outside edges which is wrapped to front of plexi and back of package

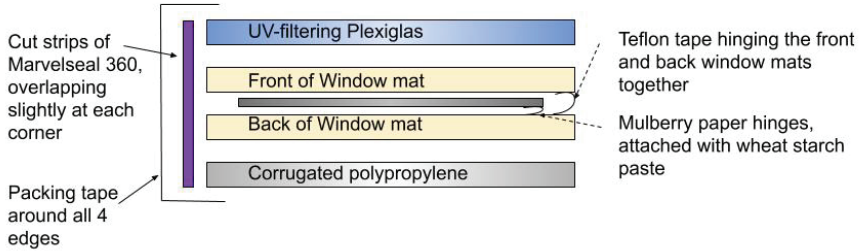


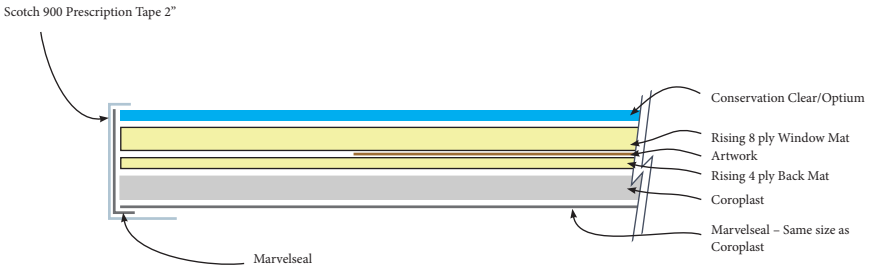


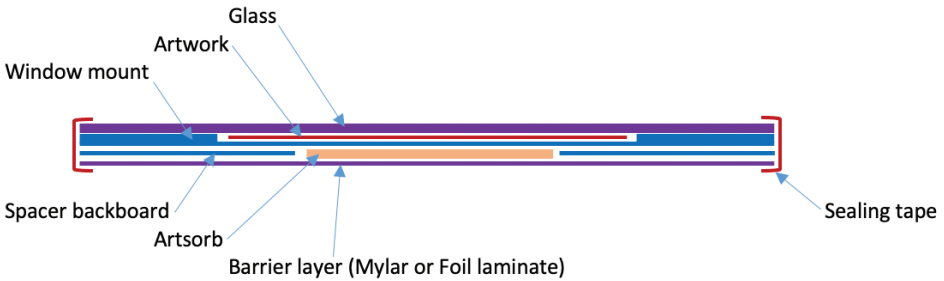


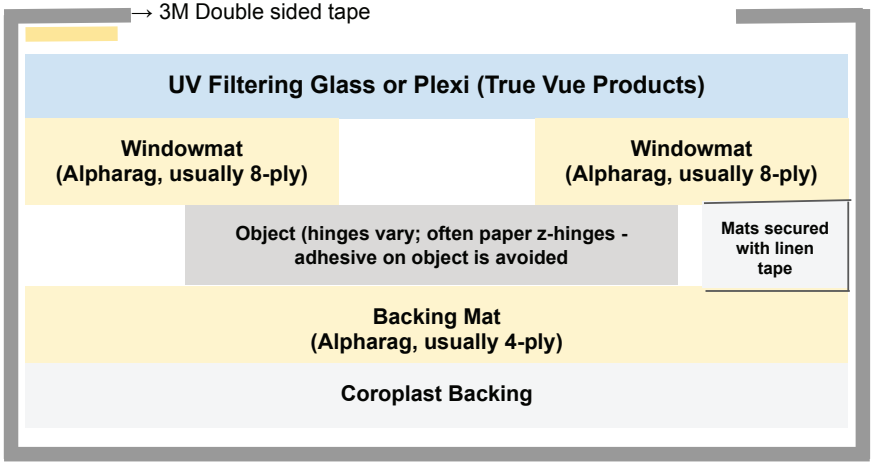
Designs Continued









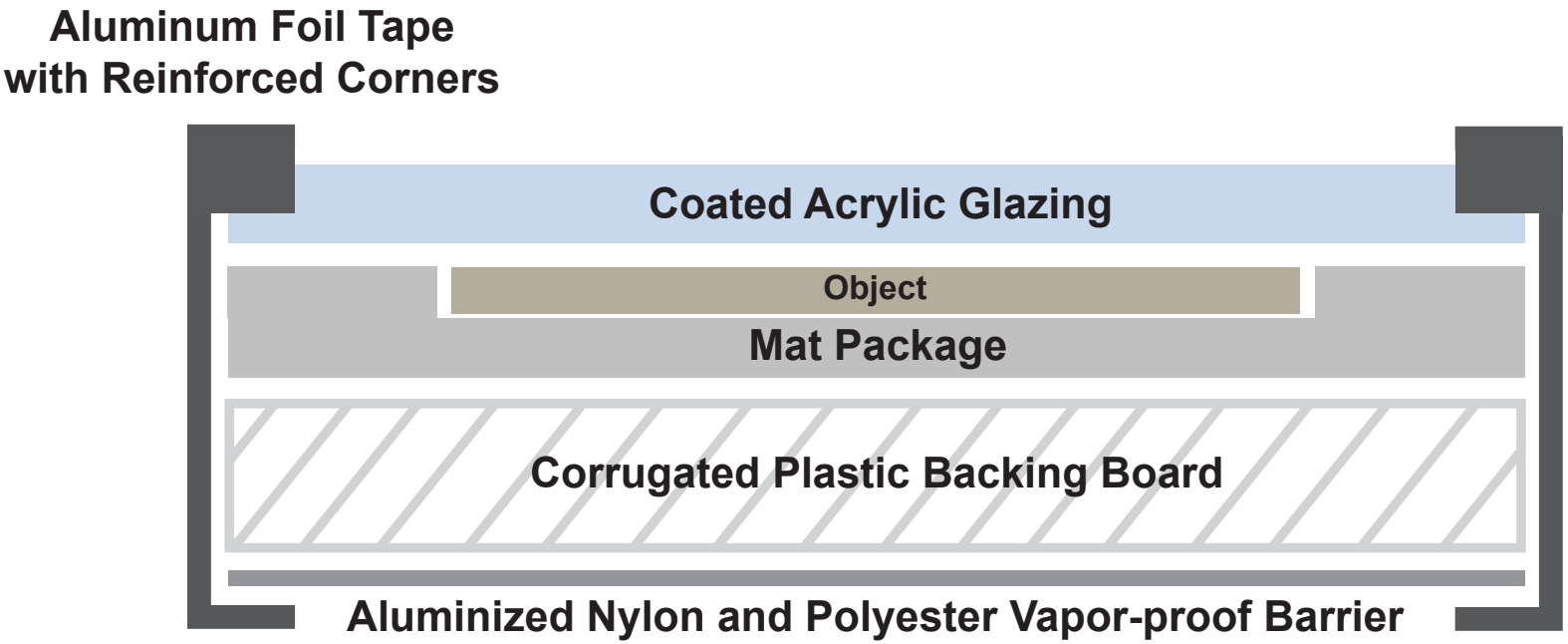


Marvel seal on back and around edges, with 3M double sided tape on front edge, heat sealed

Next Steps: Experimental Testing

The data summarized in this report will inform additional phases of the project. IPI will test a selection of seal materials and methods under several different temperature and relative humidity profiles. These materials will also be evaluated for cost and environmental waste comparisons. The ultimate goal is to provide guidelines for creating the most cost-efficient and environmentally responsible sealed frame packages that provide the desired preservation goals.

Questionnaire data demonstrated a wide variety of material combinations and designs for sealed frame packages. Overall, this material combination emerged as the most common.



Acknowledgments

Thank you to everyone who responded and provided us with thoughtful input and to the Institute of Museum and Library Services for funding this project.