

In Kind Replacement: Glass

Glass is an important architectural element but its fragile nature necessitates replacement from time to time. The technology of glass making has evolved in such a way that glass from different time periods carries signature features such as seeds, waves and other imperfections. Often, glazing rebates were carved to accept the curve of a specific piece of glass resulting in a one of a kind fit which is not likely to be replicated if replacement of the glass is necessary. The windows in some Historic New England buildings show the distinct etchings of the inhabitants – etchings that can never be reproduced. The following considerations are to be used when approaching a potential glass replacement task.

Guidelines for In Kind Replacement of Glass

- Document the damaged glass including the dimensions of the damaged glass and defining characteristics, or signature features, of the glass.
- The first priority is to repair the existing glass rather than replace the glass.
- If repair is not feasible then replacing the glass is required. Use a replacement or “Restoration” glass that matches the signature features. These signature features vary according to the time period and method used to create the glass.
- In keeping with Historic New England’s overall philosophy towards in-kind replacement the use of salvaged glass from other structures is not appropriate.
- New glass should be labeled before installation.

Technical Information about the In Kind Replacement of Glass

Document the existing material including the signature features of the glass.

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Attempt to repair the existing glass.

The standard rule of thumb is to repair broken glass before replacing. It is possible for a pane of glass to be repaired even after a crack has divided the glass into three parts. Stability of the repair is an important consideration when implementing a repair.

If the piece of glass has unique historic etchings then every effort shall be made to repair the glass and retain the etchings. Consultation with a conservator may be merited to determine repair options and to determine whether to archive the glass or return it to daily use/exposure..

Repair of the glass is possible with the use of HXTAL epoxy or its equivalent. The desired characteristics of the repair epoxy is for it to be a water clear epoxy that is slow curing and will not change color upon long exposure to UV light.

If the replacement of glass is required find a replacement or “Restoration” glass that matches the signature features.

If the piece of glass has broken into several pieces thus making repair untenable, the characteristic of the glass (degree of imperfections) and of any glass surrounding the broken piece shall be noted as well as the construction date of the feature, the building and the period of interpretation to determine the type of Restoration Glass to be used

Using flat modern glass to replace a textured historic pane of glass can spoil the aesthetics of the feature when viewing the window as a whole. The textured historic glass will catch light in a specific manner totally different than the flat glass. For this reason Historic New England uses “Restoration” glass to match the overall signature features of the historic glass which will then allow the replacement glass to aesthetically blend in.

Restoration glass is available through a number of different distributors and often categorized as 17th & 18th century glass, 19th glass and early 20th century glass. It is very important to compare the replacement glass to the original to find the closest match.

If the glazing rebate was significantly carved to accommodate a curved piece of glass, the rebate should be repaired if the gap left from a replacement piece of glass is 1/8” or greater. If less than 1/8” this gap can be filled with glazing compound during the bedding process.

The use of salvaged glass from other structures is not appropriate.

Though tempting to replace broken window panes with glass salvaged from buildings of similar types it is not in keeping with our overall approach and philosophy to do so. Historic New England feels that salvaged materials may present a false understanding to future scholars and sets a precedent of dismantling old buildings for their material.

New glass should be labeled before installation and documented in the final project report.

Replaced glass should be etched below the glazing line (“HNE New Glass 201Y”) and documented with indication of the lite, the sash, the window, the location and the building.