



In Kind Replacement: Wood

The majority of the wood used for the initial construction and even subsequent additions and alterations to the historic properties owned by Historic New England is indigenous to the region of the structure and represents “old growth” (e.g., eastern white pine, white oak, etc.). Old growth timber is typically characterized by tighter growth rings, thus leading to denser material with less sap wood. These characteristics result in less seasonal movement and a longer lifespan when maintained appropriately.

Old growth wood stock is minimally available in the 21st century such that maintenance repairs requiring the replacement of wood material cannot truly be made with material of the same inherent composition even if using the same species. Replacement with the same, yet modern version, of the species has proven to result in poor performance over the long term. Substitution of wood with a different species of wood with the same general properties (e.g., density, decay characteristics, environmental performance, etc.) can be implemented under appropriately documented circumstances. Substitutions of non-wood products is not an appropriate in kind replacement as it no longer mimics the original intent, it does not perpetuate the craftsmanship involved, and its general properties will not be the same.

Guidelines for In Kind Replacement of Wood

- Document the existing material being sure to document the species and dimension of the element as well as any additional significant characteristics such as detailing or other architectural evidence.
- Replace the wood matching the exact species.
 - If a deviation seems pertinent the following should be considered:
 - What is the desired performance of the element?
 - What is the independence and visual treatment of element?
 - Always replace wood with wood.
- The use of salvaged wood from other structures is not acceptable.
- Replicate the architectural evidence found in the element.
- Replication of tooling marks is generally not necessary for most repairs but the context of the repair and the overall appearance of the feature should be taken into account.
- New wood should be labeled before installation.

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Technical Information for In Kind Replacement of Wood

Document the Existing Material.

All efforts should be made to document the type of wood species, the dimensions of the element and any defining characteristics such as mortise pockets or hand planning. Be sure to include this information in the completion report.

Replace the Wood Matching the Exact Species

Always the first option.

If Deviating from Exact Material

In order to determine the appropriateness of deviation from the principle of replacing with the same wood species, desired performance of the element should be the first consideration.

- *A rotted pine sill existing in a below grade environment should be replaced with a species that will last in that environment. Black locust or white oak would be seen as an appropriate pine sill replacement as the characteristics of these replacement species are similar to those of the original old growth pine.*
- *The use of pine for a Dutchman in a sash repair (assuming the sash was constructed of pine) would be acceptable. In this case, there are no structural considerations; given appropriate maintenance, the Dutchman repair will perform appropriately in the sash context.*

A second criterion for recommending a different species in a repair is the independence and visual treatment of the piece.

- *If the piece to be repaired, replaced, or replicated is stand alone (e.g., fence post) and is to be painted/stained, then a wood species with better performance characteristics may be selected (e.g., a cedar or a mahogany species).*
- *An oak Dutchman spliced into a pine sill may result in adverse performance as the two woods may not move seasonally in a similar manner.*

Historic New England will not replace wood elements with non-wood elements in an effort to maintain the essential integrity of the element and to support the continued craftsmanship in the material.

Salvage Wood

Under no circumstances will building material salvaged from another structure (e.g., barn tear down) be permissible for use in Historic New England properties. Subsequent generations may deduce incorrect chronologies in the building's history.

Replication of Prior Building Evidence

When any structural timber is replaced, as much prior building evidence as possible is to be carried forward into the new wood piece. That is, replication of mortise pockets in size and placement will be cut into the new wood even if those pockets are not used at the time of replacement. These elements often convey an important historical chronology to the evolution of the building and removing those risks losing those “ghost marks”

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permanently. Photo documentation alone may not be enough to understand that evolution in future generations.

Replication of Tooling

Replication of tooling marks (adze marks, hand planning, saw marks, etc) is not a part of the normal operations of the property care team. Like salvage material it is felt that tooling marks may deceive future scholars. Certain circumstances, such as repairs in highly visible locations where the tooling marks play an important part of the visual appearance of the feature, may lend themselves to the replication of tooling marks. These circumstances should be reviewed before a repair is performed.

Labeling of New Wood

New wood should be labeled appropriately as identified in the “Documentation: Marking New Wood” white paper.