



2008 Workshop Series

# Substitute Materials and Replacements: Why We Say No, When to Say Yes

September 6 - Brookeville  
September 20 - Chestertown  
October 4 - Jefferson Patterson Park  
Funded by the Maryland Historic Trust

## PRESENTATION SUMMARIES

### Introduction

#### DESIGN REVIEW:

In order to conduct comprehensive design review, commissions should undertake an inventory of historic resources and develop an understanding of their significance. The commission should adopt criteria and standards and establish guidelines for design review. Finally, the commission should have in place a process that is fair and transparent, and fosters thorough and thoughtful review.

#### TREATMENT OPTIONS:

In almost all cases, an applicant will propose one of the following actions: *Repair*, *Replace In-Kind*; *Replace with Appropriate Substitute*; or a *Combination* of these treatments. The Secretary of Interior Standards for Rehabilitation calls for repair and replacement in-kind whenever possible. When replacement is warranted, the commission must carefully consider its appearance and characteristics, as well as its installation and performance over time.

#### WHY REPAIR IS FAVORED:

**Environmentally:** conserves resources, reduces waste, spares landfills, reuses embodied energy, eases energy consumptive transportation and manufacturing processes which almost always produce toxic by-products. Most historic buildings are already designed for maximum heating, cooling, light, and ventilation

**Economically:** Repair is far more labor intensive than replacement and labor tends to be local. Such labor also tends to be skilled labor which means higher wages going directly into the local economy. Techniques for repair and replacement in-kind tend to use local materials and create a local market for salvaged material contributing further to the local retail economy. Finally, repair ensures the preservation of historic materials and craftsmanship which retain authenticity and authenticity attracts heritage tourism

**Psychologically:** Repair and replacement celebrates craftsmanship and authenticity and strengthens our ties to the past. It becomes our way of understanding our past, preserving its distinctiveness and creating a sense of place.

# Siding

Siding is a character defining feature on most historic structures. Wood clapboards, stucco, and masonry — brick or stone — are the most common siding materials used in Maryland. Clapboards and stucco must be properly adhered, masonry must have proper mortar, all must provide a moisture barrier while at the same time allows ventilation. In most cases, siding fails because of underlying problems with installation rather than wholesale deterioration of the fabric itself.

If siding can not be repaired it should be replaced in-kind. It may be acceptable to replace with an appropriate substitute material under the following conditions

- Siding is not original.
- Original siding material is no longer available.
- Original siding material has failed and would fail again if replaced in-kind.
- Siding is being installed on an addition.

## WOOD SHINGLES OR CLAPBOARD:

**Treatment:** Repair and replace only those portions that have failed. In-kind replacement should use high quality wood and match the profile, texture and installation of the original.

**Substitutes:** Vinyl and aluminum siding are never an appropriate substitute because they do not match the original texture and profile of wood. Fiber cement, also known as Hardiplank, attempts to match the texture and profile of wood clapboards or wood shingles. It is paintable and rot resistant. It may be appropriate on additions.

## STUCCO

**Treatment:** In most cases damaged stucco can be patched. However, the existing material must be carefully analyzed to ensure that the patch will be compatible in terms of adhesion, texture, and profile.

**Substitute:** Synthetic stucco material does not have a proven performance record and, when used as a patch, may not bond with the original material. It should be avoided.

## MASONRY

**Treatment:** Masonry itself rarely fails. However, over time, repointing is almost always necessary. The mortar used for repointing should replicate the original to ensure that it will work in concert with the masonry material. Where bricks and, or stone have been damaged, new bricks and stone can be inserted during repointing. Masonry should never be subjected to power washing because it will damage the exterior finish.

**Substitutes:** Brick and masonry veneers are never appropriate as they can not match the profile and texture of the original.

# Porches and Details

Porches serve as the character-defining public face of many historic homes. They are utilitarian, serving as an exterior room, but also often possess distinctive decorative embellishments. Importantly, they also help define the streetscape offering rhythm, spatial qualities, and ornament. There are many types of porches. They can be one or more stories; extend over a portion of the facade, the entire facade, or wrap around. Some are recessed.

## REPAIR AND REPLACEMENT CONSIDERATIONS

When considering the repair and/or replacement of porches, the following features must be taken into consideration: the porch's roof or canopy; its columns, sidewalls, and piers; decorative features; baluster and balustrade; decking or floor; stairs and railing; and its apron and foundation.

If the porch, or specific porch features can not be repaired, they should be replaced in-kind. The only time substitute materials should be considered is when the original material has already been removed.

The following are important design considerations when repairing and replacing porches and porch details:

- Original wood floors are hardwood and should only be replaced as a last resort using high quality, durable wood such as cypress, redwood, fur, or marine grade woods such as mahogany – be sure to prime undersides.
- Often only the edging boards which are exposed to the elements will need to be replaced.
- Preserve or restore the original orientation of the stairs and the porch flooring.
- Composites, PVC, carpeting and other modern materials are not appropriate.
- Replacement apron lattices should match the size and orientation of the original. Lattice should never touch the ground.
- Modern building codes call for taller balustrades which can give a “caged” look to the porch and alter the historic character. Repair of deteriorated elements is a better option than wholesale replacement that will require code compliance.

# Landscape Features

Applications for alterations to historic landscapes present tremendous challenges to preservation commissions yet such spaces are often the glue that holds the district together and creates a sense of place. Important to consider will be:

- The historic development of the site including its period of significance.
- Site design including style, form, scale, proportion and rhythm.
- What materials remain from the period of significance, the patina of time.
- Materials, size, scale, quality, texture, irregularity and color.
- Material uses, form, function, technical specifications, suitability.

## The commission should encourage:

- Preservation of existing materials and arrangements wherever possible.
- The use of natural, vernacular materials from regional sources that show patina of time.
- The reuse of historic materials salvaged from on-site and/or reclaimed from comparable sites.
- The use of natural stone, cast stone, brick, metal or wood.
- Well crafted natural stone or brick walls.
- Woven wire, wrought iron or cast iron ornamental metal fencing in context with the site.
- Well designed wooden fences in context and scale.

## and discourage:

- Distressed, fake, faux, synthetic, stamped, modular or tumbled products that mimic natural materials.
- New highly engineered or pre-fabricated "suburban" materials.
- Fiberglass, plastics, resins or vinyl (lustrous).
- Concrete unit pavers / faux brick.
- Modular concrete split-faced block walls.
- Vinyl coated metal, tubular steel, aluminum or chain link fencing when located near public view.
- Faux wood or vinyl fence products.

These modern materials are discouraged since natural materials, to existing historic materials are readily available from local sources. Unlike traditional processes, modern manufacturing creates highly uniform materials that sharply contrast with natural or traditional materials and therefore are unacceptable in most cases.

Commissions should require the same level of commitment from the public sector for streetscapes and public open spaces as they do for individual, privately owned, landscapes.

*Shelley Rentsch*

# Windows

Windows are always a character defining feature of an historic building. When considering whether or not a replacement window is appropriate first individually assess the condition of each window including the following window components: sash, muntins, sill, frame, glass, operational hardware, and fittings. If one or more of these components are in disrepair, consider and address the possible causes: poor design, moisture infiltration, vandalism, lack of maintenance, or insects.

Most historic wood windows are made of old growth, extremely durable hard woods and their craftsmanship allows for easy repair. Repair should always be considered the preferred option.

If a window can not be repaired it should be replaced in-kind ensuring that the new window is appropriate and matches the original materials and characteristics:

- Type of material, i.e. wood, metal.
- Style, i.e. double hung, casement.
- Proportion of frame to opening, thickness of the sash.
- Configuration and number of window panes.
- Muntin profile.
- Color, natural or applied.
- Decorative details.
- Sill Pitch.

## SUBSTITUTE MATERIALS

The most common substitute window material is vinyl or aluminum. These are never acceptable substitutes for wood windows as they do not match the profile, texture, and character of wood windows.

## ENERGY EFFICIENCY

Many applicants seek to replace historic windows in order to make their buildings more energy efficient. It is important to remember the following facts: Only an estimated 12-15% of energy loss is through windows. Most energy loss is due to cold/heat infiltration at seals, not through glass. Historic windows in good repair have the same or increased thermal efficiency. Historic wood windows have proven performance over 60-100 years

In addition, energy efficiency can be achieved by repair and enhancement including:

- Restoring the proper fit between sash and frame
- Repairing broken windows
- Applying clear, non-reflective laminant to glass
- Installing sash locks
- Installing weatherstripping
- Adding exterior or interior storm windows

*Susan West Montgomery*

# Roofs

A weather-tight roof is critical to the preservation of a structure regardless of its age, size, or design. The roof sheds rain, shades from the sun, and buffers the weather. In most cases, the roof significantly contributes to the design and character of the building and its treatment needs to be carefully considered.

If a roof can not be repaired it should be replaced in-kind. It may be acceptable to replace with an appropriate material under the following conditions:

- Existing roofing material is no longer available
- Existing material has failed and would fail again
- Roof is not visible from the street
- Existing roof is not original

## WOOD SHINGLE

**Treatment:** In-kind replacement should use high quality wood and match the installation pattern (exposure length, overlap, etc) and decorative of the original.

**Substitutes:** Ceramic tile has been used as a replacement material and generally simulates the appearance and texture of wood shingles. However, it is very heavy and may not be supported by the existing roof structure, and it tends to be cost prohibitive. *Architectural* or *dimensional* shingles are not an acceptable replacement for wood shingle.

## SLATE:

**Treatment:** Slate roofs vary widely in terms of their quality and performance although many have lasted for more than 100 years. They usually begin to fail as shingles begin to delaminate. Good maintenance involves repair and replacement of individual shingles as they fail over time, this will prevent the need for wholesale replacement.

**Substitutes:** Original slate roofs should be replaced with slate. However, if the roof is not original and there is evidence that a slate roof existed, it may be appropriate to replace with one of a number of rubber or polymer based substitutes including *Duraslate*, *Majestic Slate* and others. These appear to replicate the texture, profile and character of slate, but their performance over time has not been thoroughly tested.

## ASPHALT SHINGLE

**Treatment:** Asphalt shingles are rarely defined as architecturally significant and often are not original. However, most commissions allow replacement in-kind so long as the new roof matches the old in terms of profile and texture. For example, ridge vents are never an appropriate addition during a replacement because they change the profile of the existing roof.

**Substitutes:** *Dimensional* or *architectural* shingles should not be allowed because they have an overly rusticated appearance.

## METAL SHINGLE:

There are no substitute material for metal shingles.

## METAL:

**Treatment:** The installations details of the new in-kind metal replacement roof must match the original in terms of seam width and profile.

**Substitutes:** No substitutes are acceptable.

## CLAY TILE

**Treatment:** Any tile replacement must replicate the profile, texture and color of the original. As with slate, clay tiles can be repaired and replaced individually.

**Substitutes:** Original clay tile roofs should be replaced with clay tile. However, if the roof is not original and there is evidence that a tile roof once existed; or if the specific tile is not available, concrete tiles, or a combination of mineral fiber and cement tiles that replicate the general look of clay tile may be acceptable.

Daniel Sams

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