

Replacing Historic Building Materials

Informational Guidelines

The Burlington Department of Planning and Zoning has developed the following informational guidelines to assist property owners who may be considering the replacement of traditional building materials on a historic building. These guidelines are intended to be informational and educational only – not regulatory.

Burlington is blessed with an extensive collection of older buildings. When taken together these buildings define the distinctive character of the city and its neighborhoods, and tell a rich story about our community's past.

A building's historic character is far more than just how it looks or who may have lived there. The historic character of a building is also defined and expressed through the original materials used to build it and the craftsmanship exhibited in its creation. This is especially relevant here in Burlington where many of these traditional materials provide a direct connection to significant historical events, industries, economic movements and individual artisans. Examples include locally quarried slate that is representative of a significant Vermont industry and related developmental influences throughout the Champlain Valley; or wood windows, siding, trim and other ornamentation manufactured by local craftsmen right on Burlington's waterfront during the city's industrial heydays of the mid-late 1800's. As these historic materials are replaced over time, the value and historic character of the building is diminished and the story about these past industries and craftsmen is lost.

When is it time to replace original historic material?

The simple answer is "when you have considered and undertaken efforts to avoid and/or mitigate the loss of distinctive materials, features, finishes, and construction techniques or examples of craftsmanship." By their very nature, historic buildings – and the features and materials that comprise them – are irreplaceable. **Once they are changed or lost, they are gone forever.** So too is the story they can tell us about when they were built, for

whom, by whom, and the unique circumstances, materials, and expertise of craftsmen of the time.

This is most easily addressed by following these simple steps:

- **First, Maintain** distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property;
- **Then, Repair** in kind deteriorated historic features rather than replace them whenever possible; and,
- **Finally, Replace only** what is beyond repair and where the severity of deterioration requires replacement.

Proper maintenance is the most cost effective method of extending the life of a building. As soon as a building is constructed, restored, or rehabilitated, physical care is needed to slow the natural process of deterioration. Regular repair and maintenance also helps reduce the amount of unnecessarily discarded building materials going into our landfills.

However, at some point almost all materials will come to the end of their useful life and require replacement. In cases where the severity of deterioration indeed requires replacement, the extent of replacement should be limited to only what is actually beyond repair and where the severity of deterioration requires replacement. Wholesale replacement (all of the siding, roof or windows by example) is discouraged except in the most extreme cases of neglect or unwillful loss.

Be an informed and careful consumer!

Lots of people are handy with a saw and a hammer, but that doesn't mean everyone is familiar with the nuances of maintaining a historic building or has the craftsmanship necessary to succeed in repairing or replicating those features. You have made a significant financial and personal investment in your historic property and want to make sure that you are getting what you really need rather than just what someone wants to sell you. Determining when replacement is actually a necessity should be based upon things like:

- A report from one or more skilled contractors and/or design professionals with experience in the rehabilitation of historic

structures regarding the soundness of the feature, the degree and extent of failure, and its suitability for repair/rehabilitation;

- Consideration of a range of alternative maintenance and repair efforts that would help to avoid and/or mitigate the loss of distinctive materials, features, finishes, and construction techniques or examples of craftsmanship;
- The replacement should be limited to extent of the actual failure. Wholesale replacement of a traditional material should be considered in only the most extreme cases of neglect.
- Comparative cost estimates from at least 2 independent skilled contractors with experience in the rehabilitation of historic structures to ensure you are getting a fair deal for comparable work; or if applicable;
- A written communication from the Building Inspector that the replacement is required in order to meet specific life safety requirements of the Building Code.

When submitting an application for a zoning permit that involves the replacement of traditional building materials on historic buildings, including any or all of this information along with the application itself can be very helpful and is encouraged.

Replace With What?

Regardless of the longevity of the original material and the commitment to ongoing maintenance and repair by the property owner, at some point nearly all materials will come to the end of their useful life and require replacement. The choice of a suitable replacement material should be guided by what is being replaced (e.g. its shape, design, dimensions, texture, pattern, physical characteristics) - **never** by what is most easily and economically available.

When deteriorated, damaged, or lost features of a historic building are damaged beyond repair and require replacement, **in-kind replacement with traditional materials is almost**

always the best choice. Every material has different physical and chemical characteristics with regard to expansion, contraction, fading, warping, conduction of heat and moisture, pliability, corrosiveness, etc. Choosing a substitute material with different thermal properties by example can cause cracking and displacement in other nearby materials which can cause water damage. Traditional materials have already demonstrated their ability to work well given the specific conditions of the site and other nearby materials over a very long period of time. When historic features and materials are replaced in-kind, the compatibility with surrounding materials is assured and any change in visual appearance is minimized. Traditional materials are often the “greenest” choice as well given that they come from natural materials that have been available for more than a century rather than derived from synthetics.

However the use of a substitute material may be acceptable after reasonable alternatives that would avoid and/or mitigate the loss of the original have been considered and exhausted – even on our most significant historic buildings. The use of a substitute material is often a good choice in situations such as where:

- traditional materials are no longer reasonably available;
- the necessary skilled craftsmen are no longer available to do the work;
- there are inherent flaws in the original materials that merit/require its replacement;
- there are code-required changes that necessitate replacement of the original material and use of a substitute; or,
- there are unique characteristics of the location where replacement materials are proposed; such as unavoidable chronic moisture problems or severe inaccessibility.

Replacement In-kind: the replacement of a building feature with the same material and matching the original in design, dimensions, texture, performance, and visual appearance (e.g. wood replacing wood, slate replacing slate, redstone replacing redstone, etc.).

What should I look for in selecting a substitute material?

Should it become necessary to consider the use of a substitute material, the selection of a suitable replacement should take into consideration each of the following factors:

- Limited Extent: The use of a substitute replacement material should be limited and the extent of its application minimized. Wholesale replacement of a traditional material should be considered in only the most extreme cases of neglect.
- Matching Dimension and Design: It is essential that the substitute replacement materials match the original with regard to its placement, extent, profile, proportion, design, dimensions, texture, and pattern. Unusual and distinctive examples of historic details and design elements should never be covered, removed or altered. The new siding should match the reveal or exposure of the original wood clapboard siding. Glossy and/or faux-wood grain textured siding should not be used; instead the textural finish should be smooth or a modest brush stroke.
- Repairable: Substitute replacement materials should have the capability of being easily repaired or modified without the need for extensive (and expensive) replacement should damage or failures occur in the future.
- Similar Physical Properties and Performance: Substitute replacement materials should have similar physical properties durability, and performance characteristics (e.g. chemical composition and corrosiveness, thermal expansion and contraction, moisture transmission, density, pliability, compressive and tensile strength) to that of the original traditional material in order to minimize unanticipated impacts on surrounding materials and/or inconsistent characteristics in performance, durability, and aging.
- Do no harm: Substitute replacement materials should be installed in a manner that does not cause damage to other features of the structure, and their use should not be detrimental to the function and integrity of other materials and systems of the structure.

- Reversible: Substitute replacement materials should not inhibit the ability of a future property owner to remove the substitute material and restore the structure using traditional materials. Traditional materials being replaced by a substitute should be documented with regard to placement, extent, profile, proportion, design, dimensions, texture, and pattern in order to provide a point of reference for a future property owner to restore the structure using traditional materials.

For information on substitute materials that have been successfully used in the past, please consult the Replacement Materials Matrix available from the Department of Planning & Zoning. When submitting an application for a zoning permit that involves the replacement of traditional building materials with a substitute material, including some of this information along with the application itself can be very helpful and is encouraged.