

WHEN AND HOW TO REPLACE HISTORIC BUILDING MATERIALS

Determining When to Replace, Rather Than Repair, Historic Material

The term “substitute materials” describes building materials that have the potential to match the appearance, physical properties, and related attributes of historic materials enough to make them appropriate alternatives in preservation projects if historic materials require replacement. However, imitation and substitute materials should not be confused, as they are very different in nature. Imitation materials use alternate materials to mimic a different material whereas, substitute materials potentially match the appearance, physical properties, and elements of historic materials when replacement is necessary.

When is it appropriate to replace building materials on a historic building rather than trying to repair the existing, historic materials? First, if practical, the existing features should always be repaired rather than replaced. If, however, the feature has deteriorated beyond repair or components of the material are

missing, it may need to be replaced. When possible, it should be replaced with like-kind material. If this is not feasible, using a quality substitute material may be appropriate. When considering the use of a substitute material, one should begin with the following questions about the conditions and location where it will be used:

- What is the significance or visibility of the historic feature? Will it require a precise match?
- Is the entire feature being replaced or just a piece of it?
- Are pre-existing conditions contributing to the failure of the existing material? If so, how will they be addressed/corrected?
- Is the need for replacement due to the original material having deficiencies from exposure over time?
- Will the material need to resist any environmental hazards i.e. flooding or fire?

The use of substitute materials is most successful when both the original materials and the substitute materials are thoroughly understood by all those involved in the project. If a substitute material is not a physical and visual match, given the specific conditions of the building and the project, then it should not be used to replace the distinctive, character-defining materials and features of a building.



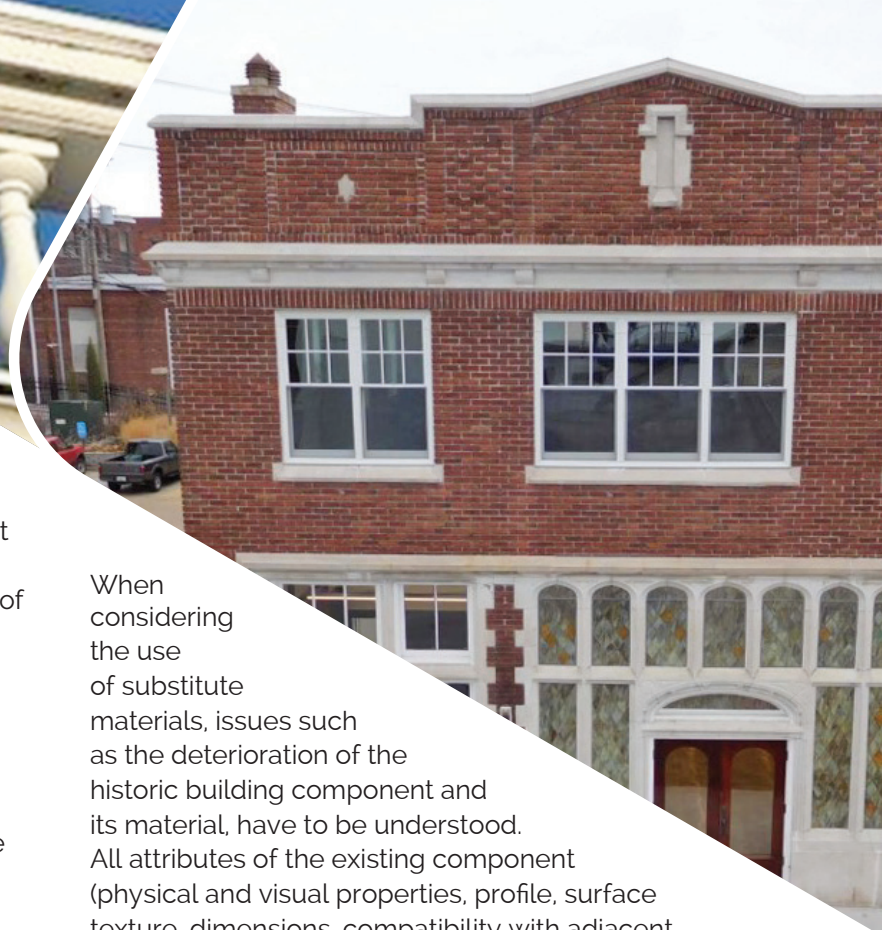


How to Replace Materials on a Historic Building

Once all reasonable options for repair and replacement have been considered and the need for substitute materials has been established, the choice of the type of substitute materials takes place. Developing technologies allow for a wide variety of materials to choose from that imitate historic materials. Replacing historic building materials should always respect the historic integrity of the building.

Substitute material must meet three basic criteria to be considered:

- Must be compatible with the historic materials in appearance so that it matches the appearance of the historic material.
- The physical properties must match the historic materials.
- Must meet certain performance expectations over time.



When considering the use of substitute materials, issues such as the deterioration of the historic building component and its material, have to be understood. All attributes of the existing component (physical and visual properties, profile, surface texture, dimensions, compatibility with adjacent materials, and performance) should be identified for evaluating a possible replacement material.

The physical and visual properties of the substitute materials available also need to be assessed and compared to the original material for compatibility. The suitability of a given substitute replacement material should be determined as well as any specific performance or application needs.

See page 12 of Preservation Brief 16 for a table chart of substitute replacements for common historic features.

For more information on "The Use of Substitute Materials on Historic Building Exteriors", please refer to Preservation Brief 16.

Bibliography:

Service, National Park. "Evaluating Substitute Materials in Historic Buildings." National Park Service, October 2023. <https://www.nps.gov/>.

Sandor, John, David Trayte, and Amy Elizabeth Uebel. "Preservation Briefs 16: The Use of Substitute Materials on Historic Building Exteriors." National Park Service, 2023. <https://www.nps.gov/>.



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