

## WINDOWS

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### REPLACEMENT GUIDELINES:

- For windows that are visible from a public way, windows composed of original materials (i.e., sawn wood) are always preferred, and generally required
- Historical windows are composed of individual panes of glass, held together in sawn wooden frames (muntins). Simulated Divided Lites (SDLs) are generally not appropriate replacements. However, the proximity of the windows to the public way may allow for the use of SDLs provided that the spacer bars are dark in color and the other architectural components of the windows (muntins, rails, stiles, and sill) are all historically accurate.
- In most cases, glass panes should be vertically oriented (they should be taller, rather than wider) to be historically appropriate.
- Replacement window "inserts" are not appropriate and are generally not approved as they reduce the open space of the windows. Full frame replacements are preferred.
- There are numerous manufacturers in New England that continue to make windows that mirror historically appropriate specifications such as having 5/8" muntins, double-thick sills/stools (Brosco, Green Mountain Window, etc.). *Applicants seeking to replace windows should research their options prior to submitting an application for a COA.*
- Applicants must provide detailed information on the existing and proposed windows - including photos that show the existing window in detail, as well as "cut sheets" for the proposed replacements.
- Aluminum clad windows, vinyl clad windows, and windows constructed of composite materials are generally not appropriate in the historic districts. The Commission has made exceptions for windows with direct and immediate ocean exposure; however, applicants should always strive to use natural materials as their first course of action.
- Generic storm windows (ex. metal "triple tracks") are not under OHDC purview; however, window manufacturer-specific screens and storm panels (ex. "energy panels") are under the Commission's purview and will require a COA.

### Background:

#### Windows & Sustainability in Historic Design:

When historic doors and windows have been properly sealed against air infiltration and augmented with storm-windows, they meet a number of important sustainability goals including the reduction of waste, reuse of existing materials, and increased energy efficiency. While homeowners often are convinced that replacement windows may solve their energy and renovation problems, outlined here are other cost-effective steps which will increase the efficiency of older windows while also maintaining historic integrity.

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It also should be noted that heat loss through windows is not a problem unique to historic buildings; windows in new construction often have the same issues due to poor installation or function of the windows. Reducing air infiltration should be the first priority of any preservation- retrofitting plan.

In many ways historic structures are inherently sustainable, whether through their use or their original design. Due to Marblehead's variable weather and environment, buildings here traditionally have an overall window area that makes up less than 20 percent of the overall wall area. Windows typically are moderate in size and tend to be more prominent on the south-facing wall. South-facing windows maximize solar-heat gain in the winter and can be opened to promote air circulation in the summer. This traditional fenestration balances both the heat loss in winter and the need for light and cooling in the summer.

**Non-invasive Techniques:**

Many energy efficiency techniques recommended to historic building owners do not require any alteration to historic buildings. Some of these techniques include: interior hangings and curtains to help insulate in the winter and stop radiant heat gain in the summer; and the deliberate use of landscaping to block the wind in the winter and provide shade to the building in the summer. These simple techniques will reduce energy consumption through a decreased need for heating and air-conditioning. (James, Brad, Andrew Shapiro, Steve Flanders, and Dr. David Hemenway. "Testing the Energy Performance of Wood Windows in a Cold Climate": A Report to The State of Vermont Division for Historic Preservation Agency of Commerce and Community Development, August 30, 1996: 5. The study went on to conclude that "Over the course of the study, it became apparent that replacing an historic window does not necessarily result in greater energy savings than upgrading that same window.")

**Existing Buildings:**

- Historic windows should be preserved and restored, taking advantage of the embodied energy represented in the existing material.
- Wood storm windows are encouraged.
- Sash locks should be repaired or installed.
- If traditional weather-stripping exists it should be replaced in kind. If it does not, then weather-stripping may be installed where needed.
- Passive energy saving measures such as shutters, as well as the use of curtains are highly encouraged.

**New construction and additions:**

- Traditional fenestration proportions (approximately 20% of overall wall area) should be considered in the design stages.
- Single-paned wooden windows are generally required on windows visible from a public way and should be properly weatherized during installation.
- Storm windows are encouraged.

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- Passive energy saving measures such as shutters and curtains are highly encouraged.
- Windows may be caulked on the interior. Care should be taken to choose a caulk that is chemically compatible with interior surfaces.

**Alternative Materials:**

As it pertains to these guidelines, the phrase *alternative materials* refers to any “green” or “sustainable” material that is intended as a substitute for traditional building materials. At this time alternative materials are not likely to be considered for use inside the Old and Historic Districts. However, building owners are encouraged to use sustainably harvested lumber or reclaimed materials whenever possible.

**Replacement:**

The selection of replacement windows should not begin with what is commercially available, but rather with what is being replaced. A major concern with most replacement windows is that they do not accurately replicate the historic appearance of the existing windows. Replacement sash should match the historic sash in pane size and configuration, glazing, muntin detailing and profile, and historic trim. Frequently, the profiles of replacement elements, such as muntins, sash, frames, and moldings, are flatter and wider or narrower and thinner than the historic profiles. A stock window may duplicate the exact number of original panes, but a change in relief affects the character of the historic window, which in turn alters the overall appearance of the entire building.