



## HISTORIC DISTRICT DEVELOPMENT STANDARDS

### HISTORIC BUILDING BRIEF No. 2

# Windows

#### General Guidelines

- Retain and repair whenever possible; replace original windows only when too deteriorated to repair.
- For best energy efficiency, weather-strip windows and use storm windows.
- Ultimate goal is sustainability and stewardship of historic components and materials.

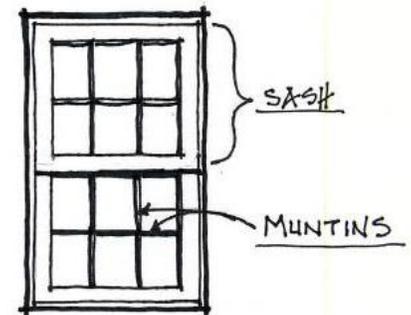
#### History

- Windows are an important character defining feature of a building.
- Large sheets of glass were expensive to produce, so early windows had small panes separated by wood muntins; over time larger panes were used.
- Ultimately, number and arrangement of panes became the overriding design element.
- Originally constructed of wood because it was readily available and easy to work.
- Most early windows were double-hung and were oriented vertically to allow for good light and ventilation - hot air would escape out the top and cooler air would flow in the bottom. They often appear in pairs or triplets to increase overall window size.
- Windows were set into walls to decrease potential for water infiltration and to allow space for operating mechanisms, usually ropes and pulleys.



#### Repair and Maintenance

- Properly maintained wood windows have greatly extended service and contribute to a building's historic character; it is not unusual for them to work for 150 years or more.
- Repairs can be labor intensive, but are typically not complicated.
- If considering replacement, think twice; money is often better spent on repairing existing windows.
- Badly deteriorated windows can be restored by applying consolidants or wood putties to split, checked or rotting wood.
- Windows that cannot be stabilized may require replacing parts of the original window.



#### Replacement Windows

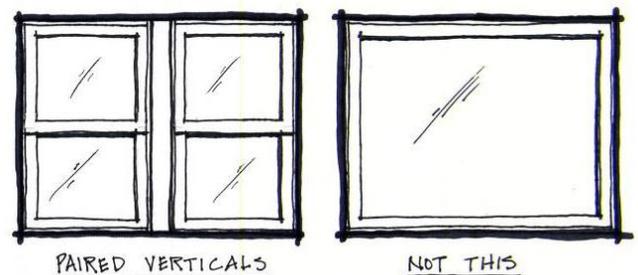
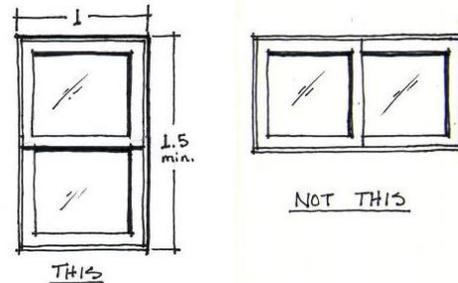
- Replacement of original windows is a last resort after all repair possibilities have been explored.
- If windows are missing or not reparable, match replacements as closely as possible in terms of size, materials, profile and pane configuration.
- If replacing windows with muntins, use either an external muntin or true divided light window. These muntins are often much wider and flatter than the originals so they change the look and reduce glass coverage.
- Avoid internal or "between the glass" muntins – they don't create a sense of depth like the original window, resulting in a "fake" appearance.
- Replacement windows have a much shorter life span than original windows and may require replacement in just a few years, often before installation cost is recovered in energy savings.

# Windows

- Vinyl windows don't fit with historic buildings; they can't be worked like wood; they can't be painted so they are often stark white, a color not usually found on historic buildings; they yellow, crack, and shrink over time due to ultraviolet light exposure.

## Windows in Additions

- Use wood, aluminum clad wood or fiberglass.
- They should be single/double-hung sash or casement in operation.
- Line up together, generally at the top of the opening, for each story of a building.
- Orientation should be vertical, that is, taller than they are wide, with a minimum ratio vertically to horizontally of 1.5 to 1. If a wider opening is preferred, pairs of vertical windows should be used.
- Have a 1/1 light configuration, as large areas of glazing are readily available, so muntins are not needed.
- They should be surrounded by exterior trim on the top and sides, with trim at least four inches wide.
- Inset a minimum depth of two inches from the finished exterior wall.



## Energy Efficiency

- Most heat is lost because of air infiltration between the window sash and the frame, not through the glass. Despite widespread misconceptions, replacing old windows with new, double-glazed windows will not save money, will not significantly increase the energy efficiency of a house, and will probably cost more in the long term.
- Appropriate weather-stripping, insulating the window frame cavity and installing sash locks will significantly reduce air infiltration.
- Exterior storm windows should be considered as thermally efficient, cost-effective and reversible solutions for historic buildings, as they allow for the retention of original windows.
- Interior storm windows can work, but there is potential for condensation damage.
- Storm windows should be the same size as the underlying window. Matte finish anodized or coated frames are best, preferably coated or painted to match the existing color of the windows.
- "Mill aluminum" (shiny) windows should not be used.

## Additional Reading

- National Park Service Preservation Briefs:
  - No. 3: Conserving Energy in Historic Buildings [www.nps.gov/hps/tps/briefs/brief03.htm](http://www.nps.gov/hps/tps/briefs/brief03.htm)
  - No. 9: The Repair of Historic Wooden Windows [www.nps.gov/hps/tps/briefs/brief09.htm](http://www.nps.gov/hps/tps/briefs/brief09.htm)
- Window Preservation Guidance, Washington Department of Archaeology and Historic Preservation, <http://www.dahp.wa.gov/window-preservation-guidance>
- The Real Cost of Removing Historic Windows, <http://www.apti.org/publications/Past-Bulletin-Articles/Sedovic-36-4.pdf>

Second in a series of educational briefs to encourage successful rehabilitation of Ashland's historic buildings. For additional briefs contact: