

## Historic Metals

Historically, metals were used for a variety of applications. Cast iron columns, railings, and skylights; copper or zinc roofs, gutters, and downspouts; wrought iron balcony and stair railings; and other structural and decorative features were common and can still be found on many historic buildings. More recent historic buildings have incorporated steel and aluminum components. In some cases, a building component may be constructed from one type of metal and then plated (coated) with a different metal.

Like other materials, metal must be appropriately maintained. Damage can be caused by moisture, weathering, corrosion, impact damage, and failure of the material or its connections. For example, galvanic corrosion is an electrochemical reaction caused when two different metals, such as aluminum and steel, come into direct contact with one another and an electrolyte.

### 4.14 Preserve historically significant architectural metals.

- Identify the type of metal used and how it is expected to perform over time; regularly inspect the condition of metal components.
- Maintain protective coatings (including paint) on exposed metals, to prevent corrosion.
- If necessary, identify and consult with building restoration or conservation professionals who have expertise in specific types of metal (such as steel windows or cast iron).

### 4.15 Repair a metal feature, rather than replace it.

- Some metal building components may appear to be decorative, but may actually be structural. If you are not sure, consult with a qualified engineer or architect before beginning repair work.
- If the repair involves “hot” techniques such as welding, brazing, or soldering, be sure to use materials appropriate for the specific type of metal being repaired. Consult a qualified welder.
- For patching, splicing, reinforcing, and other “cold” repairs, use stainless steel parts and fasteners.

### 4.16 Replace a metal feature in kind only when it is beyond repair.

- Match the replacement to the original feature in design, character, and finish.
- Ensure that the new metal is compatible with the original. Avoid combining metals that would result in galvanic corrosion.
- If a connector fails between two pieces of metal, replace it with another appropriate connector, rather than using caulk or other adhesive to join the pieces of metal together.



*Historically, metals were used for a variety of applications, including columns, roofs, balcony railings, and other decorative features.*



Installation of fiber-cement siding



Faux-stone, panelized wall cladding (not appropriate for the Houston Heights Historic Districts)

## Alternative Materials

An alternative material is one which is different from that used originally for a specific application. Such materials may also be called “substitute,” “replacement,” “synthetic,” or “imitation” materials, and can include:

- Vinyl siding
- PVC or composite decking
- Aluminum siding
- Cementitious fiber siding
- Synthetic stucco (EIFS)
- Panelized brick
- Other non-original material

Substitute materials may sometimes be used to replace historic architectural features, such as a resin-cast cornice used in place of a stamped metal cornice. An alternative material may be traditional when used for other applications, but new for the particular detail being considered.

Alternative materials may be considered by the HAHC on a case-by-case basis as replacement materials or for use on a new addition or new building in a historic district. In evaluating alternative materials, HAHC will consider:

- **Potential impact on historic significance.** Because removing original material diminishes the integrity of a historic building, retaining the original material is always preferred. If this is not possible, an alternative material may be considered if it conveys the character of the original—including detail and finish—to the extent that is feasible.
- **Durability.** An alternative material should have proven durability in similar applications.
- **Appearance.** An alternative material should have a similar profile, texture, and finish to the original. For example, some synthetic siding has an exaggerated rusticated finish that is an inaccurate representation of original clapboard; many vinyl products have a glossy sheen that is out of character with painted wood or metal.
- **Cost.** Some alternative materials are promoted because their initial costs appear to be less than repairing or maintaining the original material. The lifecycle of a new material, and its long-term costs, should be considered.
- **Environmental impacts.** Consider the impacts associated with manufacture, transportation, installation, and ability to recycle.
- **Location.** Rear walls are not typically regulated (except on corner lots); parts of the building away from the street can be treated more flexibly than front walls or walls closer to the street.

# PARTS OF A BUILDING

## Siding

Siding is often identified by its *profile*, or the shape of the cut end of a board. Some particularly distinctive shapes are beveled, drop, and shiplap siding. The 117 and 105 profiles are particularly common in many of Houston's historic districts. The size of the *reveal* (the portion of the siding board that is visible after installation) and the finish of the siding, whether smooth or textured, also contribute to the overall visual impact of siding.

The most common types of siding found on historic houses in the Houston Heights Historic Districts are wood siding and decorative shingles (on gables).

In modern construction, siding usually covers a framed structural system. Shiplap siding, used in some early types of construction methods, may also serve as part of the structure of a building. As a result, structural siding must not be removed unless you have taken precautions to protect the structural integrity of the building. Please consult with the Planning staff in the Historic Preservation Office if you are unsure whether this applies to your project.

## Wood Siding

### 4.17 Preserve and maintain wood siding in good condition.

- Keep siding painted or stained to provide a protective coating against the weather.
- Regularly inspect siding for damage, and re-attach loose siding to prevent water intrusion into the wall.

### 4.18 Replace wood siding in kind.

- Replace the least amount of siding necessary. Wholesale replacement is not recommended and requires a COA.
- Match the original siding in size, profile, and thickness.
- Choose a durable and sustainable species of wood, such as cedar, cypress, or Douglas fir.
- Changing to a synthetic material is not recommended.

### 4.19 Determine whether siding components are damaged beyond repair.

- Individual pieces of siding may be replaced in-kind, per the ordinance. If more than 50% of siding on one wall/elevation is damaged beyond repair, it may be replaced with siding of the same material, profile, and finish. This requires a COA. Please contact the Historic Preservation Office staff for information about the documentation required to substantiate this level of damage.



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Typical siding profiles in the Heights: (left) 105 and (right) 117





### Asbestos Siding

Asbestos-cement siding was made by combining Portland cement with asbestos fibers. Developed by the Johns-Manville Company, asbestos siding was popular between 1900 and 1950 for its durability and resistance to fire, termites, and rot. Asbestos siding can be painted.

#### 4.20 Do not attempt to remove or cover asbestos siding yourself. Contact a qualified professional.

- Asbestos siding does not need to be removed; if left alone, it is not dangerous. However, breaking, cutting, sanding, or otherwise destroying any material containing asbestos is dangerous and creates a health hazard by releasing asbestos fibers into the air. Do not clean asbestos siding with a pressure washer, which can break it.



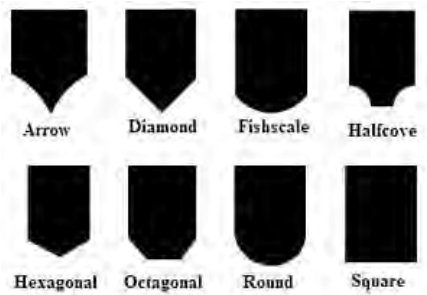
### Decorative Shingles

Decorative shingles are used to create a textured wall surface. They often are used on front gables, particularly on Queen Anne and Folk Victorian houses. Fish-scale, dog-ear (octagonal), sawtooth, diamond, square, and rectangular shapes are common, and these may be combined and painted to create patterns and designs.



Decorative shingles are often made of cedar, which is moisture-resistant but not "waterproof." Shingles should be kept painted, stained, or sealed with an appropriate coating for best protection against weathering. Even so, cedar shingles may crack or deteriorate over time, and broken shingles should be replaced as needed.

Examples of decorative shingles in various shapes and patterns



Typical shapes for decorative wood shingles

#### 4.21 Preserve and maintain decorative wood shingles in good condition.

- Keep shingles painted or stained to provide a protective coating against the weather.
- Regularly inspect shingles for damage and to ensure that they are still nailed securely. Re-attach loose shingles to prevent water intrusion into the wall.

#### 4.22 Replace decorative shingles in kind.

- Replace the fewest shingles necessary.
- Match the original shingles in size, shape, and thickness.
- Choose a durable and sustainable species of wood, such as cedar or Douglas fir.
- Back-prime and paint all surfaces before installation.



## Windows

Most windows are character-defining features and can help with the identification of architectural styles. This information applies to all types of windows, as well as window-like wall openings, such as gable vents, which provide ventilation for attic spaces.

The proportion, profile, lite pattern, material, and location of windows all contribute to the character of a window. For example, Queen Anne houses often have tall, narrow windows, reflecting the more vertical orientation of that architectural style. On the other hand, Craftsman houses tend to be more horizontally oriented, and their windows similarly are likely to be less tall, although still vertical in dimension. Windows on a Craftsman house are often arranged in pairs or horizontal *ribbons* (multiple windows, side-by-side) within a single frame. Some windows are more decorative than others, with leaded glass or multiple panes in an upper sash; these windows are usually found at the front of a house and are particularly important to preserve.

Windows in historic buildings were historically made of wood. Metal windows are also found in historic buildings; steel windows were common in industrial settings, and aluminum windows became popular in residential construction in the mid-20th century.

### Wood Windows

Historic wood windows that were built before 1940 are likely to have been constructed with old-growth timber, which grew slowly and naturally, resulting in strong wood with a tight grain. Lumber available today is farmed to grow quickly, resulting in a product that is not as hard, strong, or stable. The quality of historic wood windows is usually far superior to a new wood window, and historic windows should be preserved and repaired, not replaced. In many cases, a historic window that is damaged or deteriorated can be repaired by re-glazing, patching, and splicing wood elements. A homeowner with a few hand tools can complete most window repairs, with no special skills needed.

Although studies have shown that 90% of energy loss from a building is through attics, doors, and floors — not windows — historic windows can be made more energy efficient. Repair and weatherization is usually less expensive than replacement. If an original window has been so damaged that it cannot be repaired, however, its replacement should be in character with the historic building.

#### 4.23 Preserve the proportions of historic window openings.

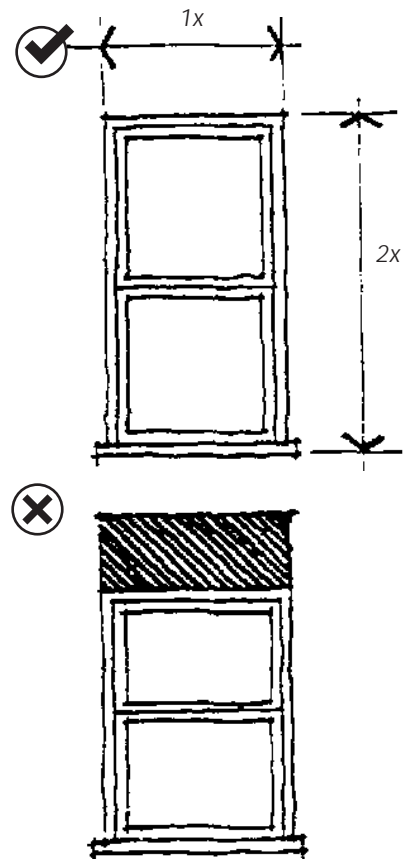
- Preserve the original size and shape of a window opening.
- Restore altered window openings on primary façades to their original configuration, when feasible.
- Do not significantly increase the amount of glass on a primary façade as it will negatively affect the integrity of the structure.

### PLEASE NOTE:

The National Park Service publishes Preservation Brief No. 9: *The Repair of Historic Wooden Windows*, which is available free of charge online at <https://www.nps.gov/tps/how-to-preserve/briefs/9-wooden-windows.htm>.

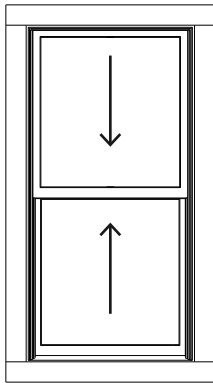


A house with intact historic windows.

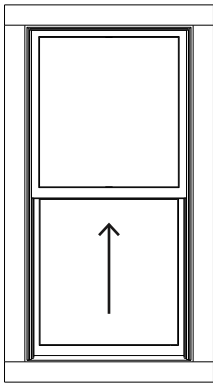


Choose a window that fits the opening; don't use a smaller window and fill in above it.

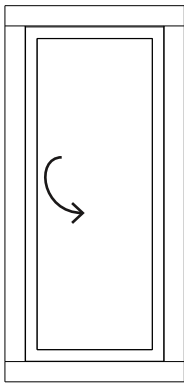
TYPICAL WINDOW TYPES



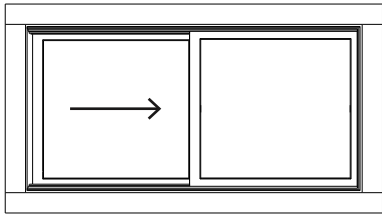
Double-Hung Window



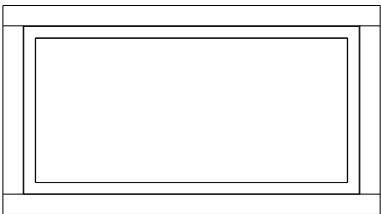
Single-Hung Window



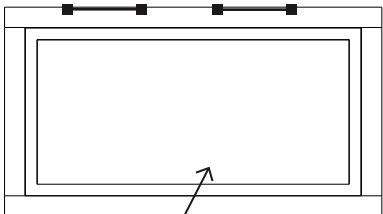
Casement Window



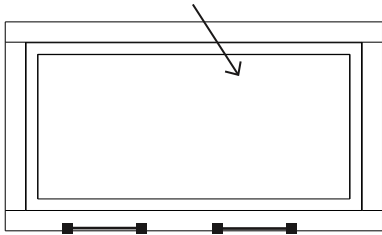
Sliding Sash Window



Fixed Window



Awning Window (hinged at top)



Hopper Window (hinged at bottom)