HISTORIC WINDOW REPLACEMENT GUIDELINES

These guidelines were prepared to assist property owners with evaluating energy efficiency, repair, or replacement of historic windows. If Steps 1 & 2 below have been completed and historic windows are too deteriorated for repair, these guidelines will help property owners meet the Residential Historic Preservation grant program requirements. Note: if applying for grant funds reimbursement, no work can proceed before City Council approval of the grant application.

Step 1: Energy Audit (optional). An energy audit can be a good place to start when looking for the best options for improving your historic building's energy performance. NV Energy provides free, personalized, online and in-home energy assessments and helpful energy-saving tips for residential customers.

Energy audits usually recommend a number of energy efficiency measures, such as replacing incandescent light bulbs with compact fluorescent bulbs; adjusting thermostats; installing attic insulation and vents; planting shade trees; and window repairs and weatherization measures, such as interior insulated blinds, curtains and shades; window films; and installation of thicker glass into existing window frames and sashes. These can be more efficient and cost effective to implement before big ticket items like window replacement.

Step 2: Window Inspection (required). A window inspection is required to determine the condition of the historic window(s) and if repair and/or replacement is appropriate. Utilizing a contractor or professional trained in historic window repair and evaluation is a must. You may contact the City of Boulder City for a list of registered contractors who are qualified to conduct this inspection. The homeowner is responsible for the cost of this inspection which averages around $500. The cost is dependent on level of evaluation, documentation, number of windows, access, and other variables.

Step 3: Window Inventory (required). If applying for funds from the Residential Historic Preservation Grant program to repair or replace historic windows, a window inventory is required. Homeowners must submit a clear photograph of each window visible from the street (including side windows that may be closer to the street frontage), showing the type, style, and condition of each window slated for repair or replacement. See page 5 of this document for a graphic with instructions on how to complete a window inventory. Please contact the City's Community Development Department at 702-293-9282 if assistance is needed.

Step 4: Review the Boulder City Historic District Design Guidelines for your property (required). Depending upon your property's contributing status, the design guidelines will provide information on the appropriate window style and type for your home. Window types and definitions can be found on following pages. You can access the design guidelines via the City's Boulder City Historic District interactive webmap. Instructions for using the webmap are here.

Step 5: Choose the Appropriate Window for your Property. If repair is not practicable, the Boulder City Historic District Design Guidelines and Residential Historic Preservation Grant program requires that original windows be replaced like-for-like (also referred to as "in-kind"). For example:

- An original double-hung window shall be replaced with a single- or double-hung window.
- A divided-light casement window shall be replaced with a divided-light casement window (see below for representative images).
- Window replacements should match the historic materials; however, some newer frames, such as those with wood frames on the interior and metal on the exterior for increased durability, and some composite materials such as fiberglass, are allowed. **However, vinyl of any kind, even as a composite material, is prohibited**.
- Dimensions of replacement windows must match the dimensions of original windows as close as possible, including opening dimensions, and frame, mullion, and muntin widths. Replacing window components, while leaving original frames intact, is preferred.
- Profiles of mullions and muntins for replacement windows must match the profiles of original windows as close as possible.
- Dual pane windows are acceptable. It is often possible to insert dual panes into existing original windows.
- Replacement windows must have matching divided-light pattern to the original windows. **See below for examples.**

WINDOW TYPES

The *Double-hung* and *Casement* window types are the most common types of windows seen in the Boulder City Historic District. Below are descriptions of each:

***Double Hung*:** Two operable sashes that slide up and down. In the District, original windows were wood frame and double-hung, and all had "divided-light" sashes. Some, as in the image below, were "two-over-two," which means two "lights" on each the lower and upper sashes. Others were six-over-one, which means there were six lights on the upper sash, and one light on the lower sash. One-over-one, double-hung windows were not original to the District, but some were installed during the District's period of significance (1931 – 1945) and are considered historic.

The *single-hung* type is similar to double-hung, having two sash elements with one above the other; however, only one sash will move. **The single-hung type was not original to the District; however, it is an appropriate replacement.**

Photo: Example of a double-hung, "two-over-two" window within the District. The frame is not visible from the exterior.

Casement: Hinged windows that swing open, usually to the outside. Casement windows have two sashes with smaller panes of glass (divided lights) separated by thin wood members called muntins. In the District, these windows were wood or metal frame, and always divided-light style.

Photo: Example of a casement window within the District. The frame is not visible from the exterior.

EXAMPLES OF ACCEPTABLE AND PROHIBITED DIVIDED-LIGHT, DUAL-PANE WINDOWS

Preferred option for window replacements: True divided-light, wood-frame window with separate panes of glass between muntin bars.

Acceptable option for window replacements: Simulated divided-light window with a spacer bar that resembles the depth of a true divided-light window.

Prohibited: Simulated divided-light window with a grille placed between the panes.

Window cutaway graphics courtesy of Marvin Windows https://www.marvin.com/products/design-options/divided-lites

DEFINITIONS

Frame: The fixed, non-operable frame of a window designed to receive and hold the sash or casement and all necessary hardware.

Light: a pane of glass in a window, often separated by muntins.

Mullion: A vertical member separating (and often supporting) windows.

Muntin: A secondary frame member to hold panes (lights) within a window.

Pane: A flat sheet of glass cut to fit a window opening. After installation in a window sash, a pane is often referred to as a **"light."**

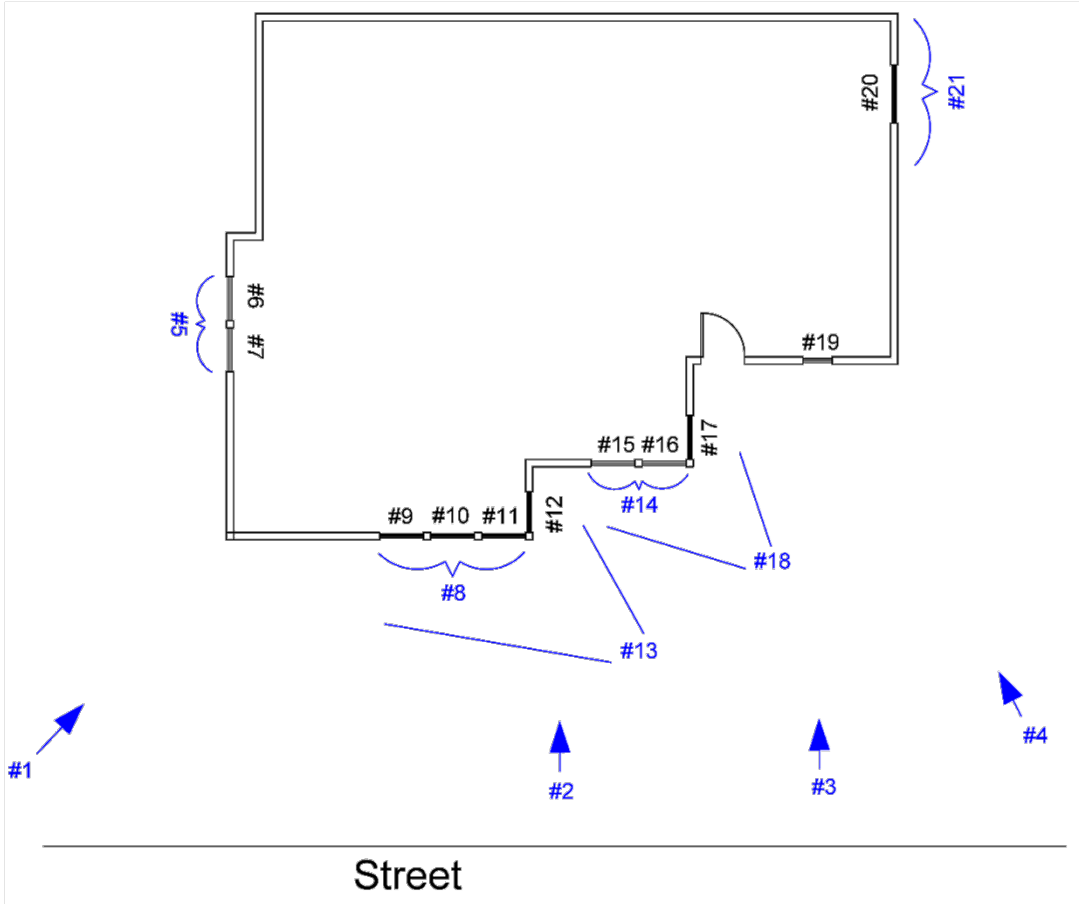
Rail: A horizontal member passing from one stile to another.

Sash: Any framework of a window; may be movable or fixed.

Sill: The horizontal bottom member of a window frame.

Stile: One of the vertical structural members of a window frame.

Definitions courtesy of Dictionary of Architecture and Construction, Fourth Edition, 2005. Author: Cyril M. Harris.



Window Inventory Instructions

Note: Blue numbers and brackets refer to overview photographs, and black numbers refer to close-up photographs of individual windows.

1. Step back from the home and take overview photographs from the street, as noted by blue arrows in the graphic (i.e., photos 1 – 4). Take as many as are needed to see what windows are visible from the street. If on a corner lot, additional photographs may be necessary.
2. Take closer photographs of portions of the façade (i.e., photos 13 and 18).
3. Take photos of window groupings, as noted by blue brackets in the graphic (i.e., photos 5, 8, 14, and 21).
4. Take one straight-on photo of each individual window (i.e., photos 6 – 7, 9 – 11, 12, 15 – 17, and 19 – 20).