Installation of Egress Windows in Housing Area Apartment Building #51 (HEA-00469)

Introduction

Description of Undertaking

Denali National Park and Preserve (DENA) is planning to replace 6 single and 36 pair single pane windows with more thermally efficient multi-pane windows in the Employee Six Unit Housing (Building #51) (HEA-00469). Building #51 contains six housing units and the park's primary conference and training room. Replacing windows with modern thermally efficient windows will reduce building energy use and improve resident comfort by eliminating condensation on the windows and sills.

The windows in bedroom areas will be replaced with windows that meet the code mandated size requirements for egress. The current windows in the bedroom areas are undersized for egress and have a tendency to freeze shut in the winter due to condensation buildup on the glazing and sill. Second story windows that are frozen shut and undersized for egress represent a legitimate safety concern for resident in the event of a fire.

The most significant change to the building with the instillation of the new windows is that the rough openings are going to need to be made taller by removing one of the two bottom sill studs at each window. The removal of these studs will not affect the structural integrity of the building and will not be visible once the new windows are installed. By removing one of the bottom sill studs, windows that most closely match the existing windows can be installed. Removing one of the bottom sill studs has two potential impacts. The first of these is that there would be some potential for the sills to sit in snow and perhaps leak; this will be mitigated by sound flashing. Secondly, the windows from the exterior will be 1 ½" taller than the current windows. Given the overall construction of the building and its current appearance, this change in window size will have a minimal impact on the external appearance of the building and will not adversely affect the historic property's integrity of location, design, setting, materials, workmanship, feeling or association, which qualifies the property for consideration for inclusion within *the National Register of Historic Places*.

Built in 1958, the Six Unit Apartment was born out of the momentum of Mission 66, and was constructed at a time when housing at the park was so inadequate that qualified individuals had to be turned away from much needed positions because there was no housing. The building was designed by architect Leonard Mosias, who was contracted through the Western Office of Design and Construction, the western design branch of the National Park Service during the 1950s. The Six Unit Apartment is very much a product of its era straight modern lines dominate the two story apartment building, which is free of both the decorative frills of earlier periods, as well as the woodsy, rustic character that is so often associated with National Park Service

architecture. Upon its completion, Building 51, with its basement recreation hall became the primary social center for the whole park, with movies, potlucks and holiday parties. Climate conditions however, have not been favorable for the building, and it has suffered through bursting pipes and myriad repairs. Despite this fact, the structure remains today largely the same as when it was constructed, and is still home to park employees and their families.

Replacement Window Specification:

- Aluminum-clad pine wood window for exterior wall that are rated as egress windows.
- Window type: Rectangular double-hung.
- Rough opening: 2' 10-3/4" wide x 5' 7" tall.
- Wall type and thickness: Wood stud wall (2x4 wood studs). Exterior face of cedar siding to interior face of wall board = 5-3/8". Provide jamb extension if necessary.
- Glass type: Triple pane including three panes separated by two gasket seals in a single glass unit.
- Window performance requirements: SHGC 0.34 or greater. U-Factor 0.25 or less. Provide Low-e coating on glass suitable for a northern climate, Marvin LoE2-272 or equivalent, or provide heat mirror coating.
- Glass size: 28" x 29" or as necessary to meet egress requirements.
- Mullions: Simulated divided lite, equal lite pattern in each sash, divided with one horizontal mullion.
- Exterior clad casing: 1-5/16" wide, Brickmold profile, Marvin A898 or equivalent. Casing to be field applied. With aluminum drip cap, Marvin A100 or equivalent. Clad sub-sill profile 9/16" tall, Marvin A246 or equivalent.
- Interior wood casing: profile 1-1/4" wide x 2" tall, Marvin SPC 3 pine or equivalent.
- Interior finish of all windows is to be primed white. Exterior finish is factory finished white.
- Hardware: Bronze sash lock and keeper.
- Sash lifts: Two sash lifts, mortised, recessed or flush mount, installed symmetrically on lower sash rail. Color: white.
- Insect screen: full screen, high transparency mesh, aluminum color to match shiny aluminum or gray. Field installed.

Legal location for the undertaking

NW ¼, Section 8, T14S, R7W, Fairbanks Meridian. South alignment of the Residential Loop Road, south side of road near curve. Denali National Park Headquarters, Denali National Park and Preserve, Denali Borough, AK

Local Environment

The project occurs within the Alaska Range west of the Nenana River approximately 3.5 miles west of the Park entrance, on the south alignment of the Residential Loop Road, Denali National Park Headquarters, Denali National Park and Preserve, Denali Borough, AK. Tundra ground cover and a spruce-poplar forest dominate vegetation within the project area. Plants include spruce, poplar, aspen, mosses, ferns, grasses, fireweed, and blueberries.

Records Checks

Denali National Park and Preserve cultural resource records and GIS data were reviewed previous to this project. There have been multiple pedestrian archaeological surveys in the Area of Potential Effect (APE) within the past 30 years (Davis 1980; Davis 1981; Davis 1983, p.c. Jeremy Karchut to Phoebe Gilbert 4.25.2012). The APE for this project (Figure 1) is Building #51 and the surrounding area that the building is visible from. The APE for this project is 6.5 acres and extends into the Park Headquarters Historic District (HEA-00147). The Park Headquarters Historic District comprises 11.91 acres and was nominated to the National Register of Historic Places in 1987, with SHPO concurrence in 2004. The period of significance for the district is between 1926 and 1941.

A Determination of Eligibility for the Employee Housing Six Unit Apartment (HEA-00469) was submitted on July 6, 2012 to the SHPO. DENA recommended that Building #51 is eligible for listing on the National Register of Historic Places under Criterion A, at the state level for its association with the national Mission 66 development program, as well as its impact on the living and recreation patterns of park employees at Mount McKinley during the 1950s and 1960s, which is the proposed period of significance for Building #51.

Results of Inventory

The proposed APE has been previously inventoried (Davis 1983) and no new inventory was conducted for this report.

References

Davis, Craig

1980 Field Notes, Archaeological Surveys within Denali National Park and Preserve.

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1981 Field Notes, Archaeological Surveys within Denali National Park and Preserve.

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1983 Field Notes, Archaeological Surveys within Denali National Park and Preserve.

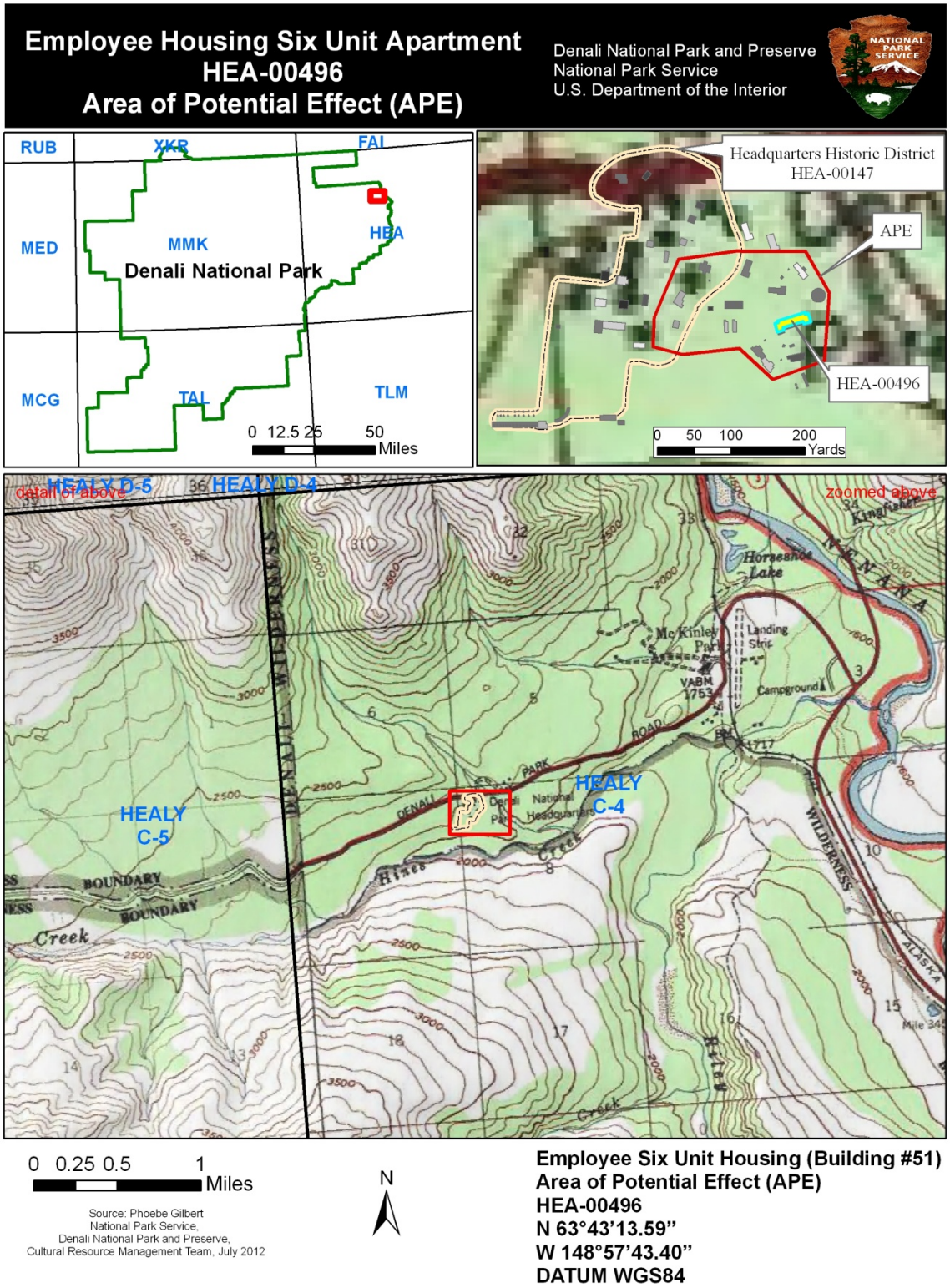


Figure 1: Area of Potential Effect

Figure 2: Historic Photograph of Building #51, 1963. Individual Building Report File, DENA Maintenance Files.

Figure 3: NW façade Employee Housing Six Unit Apartment Building. (Gebhart 2010). DENA 21077, DENA Museum collection.

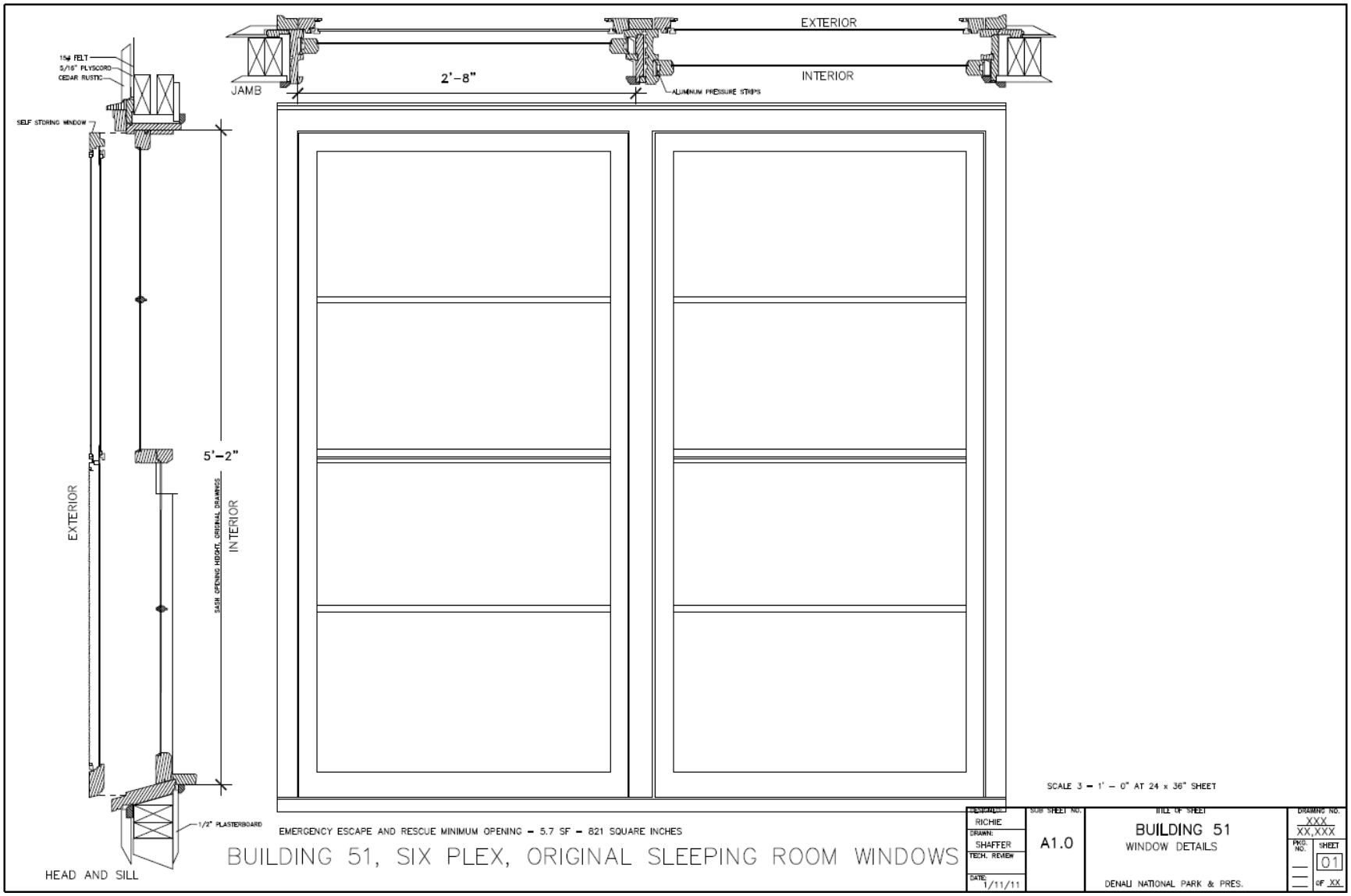


Figure 4: Specifications of Original Sleeping Room Windows

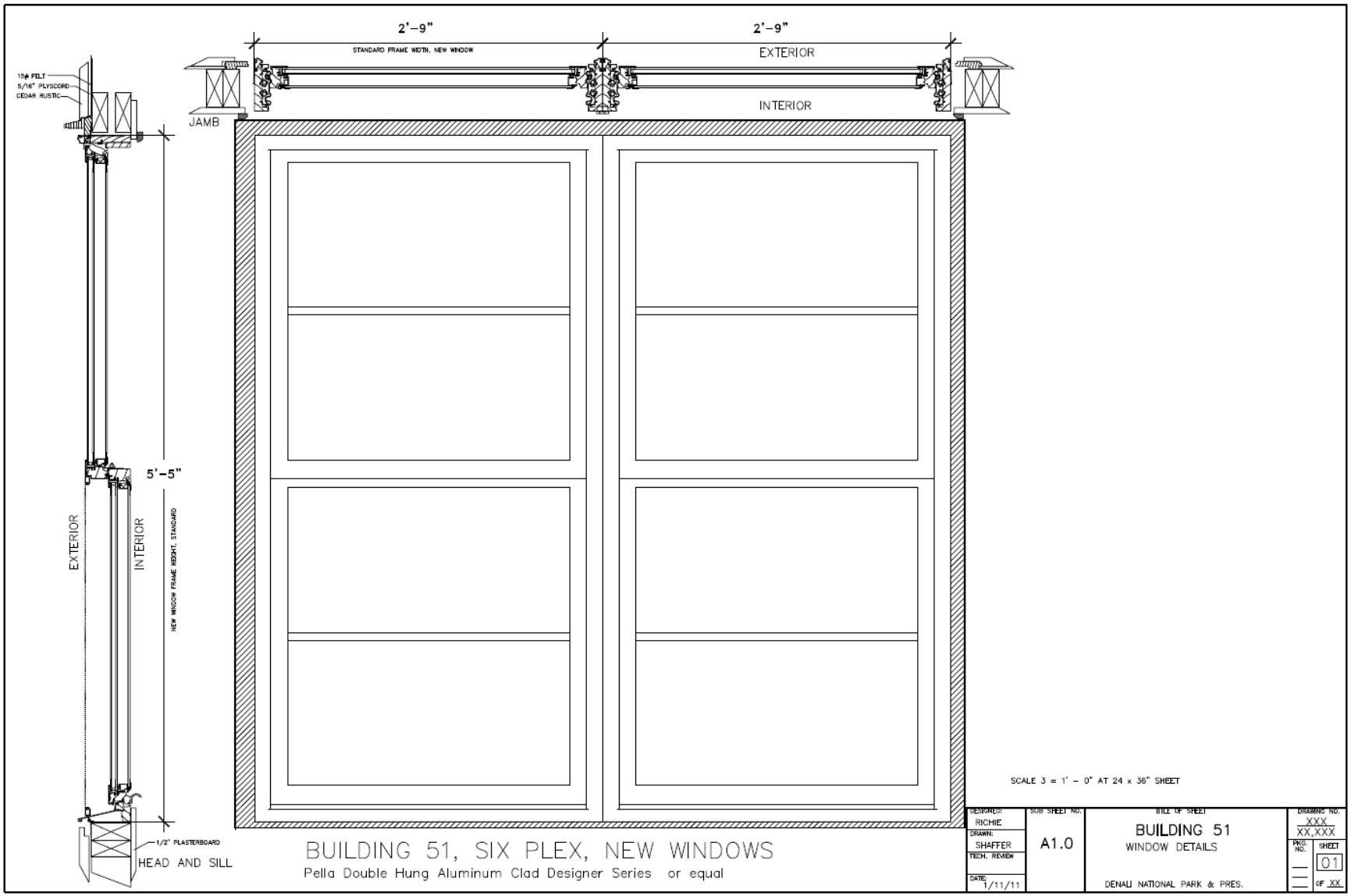


Figure 5: Specifications of New Sleeping Room Windows

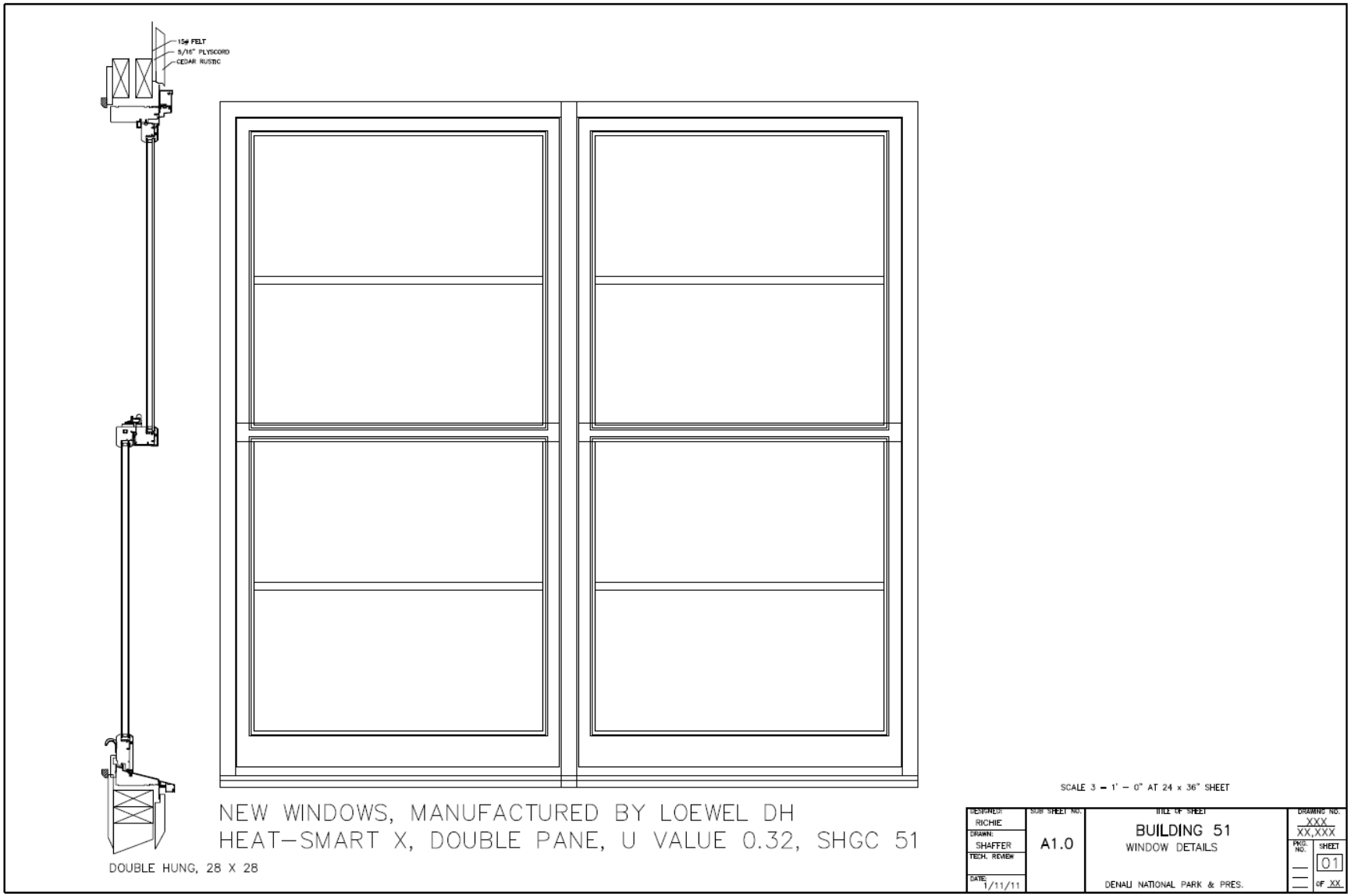


Figure 6: Replacement Windows

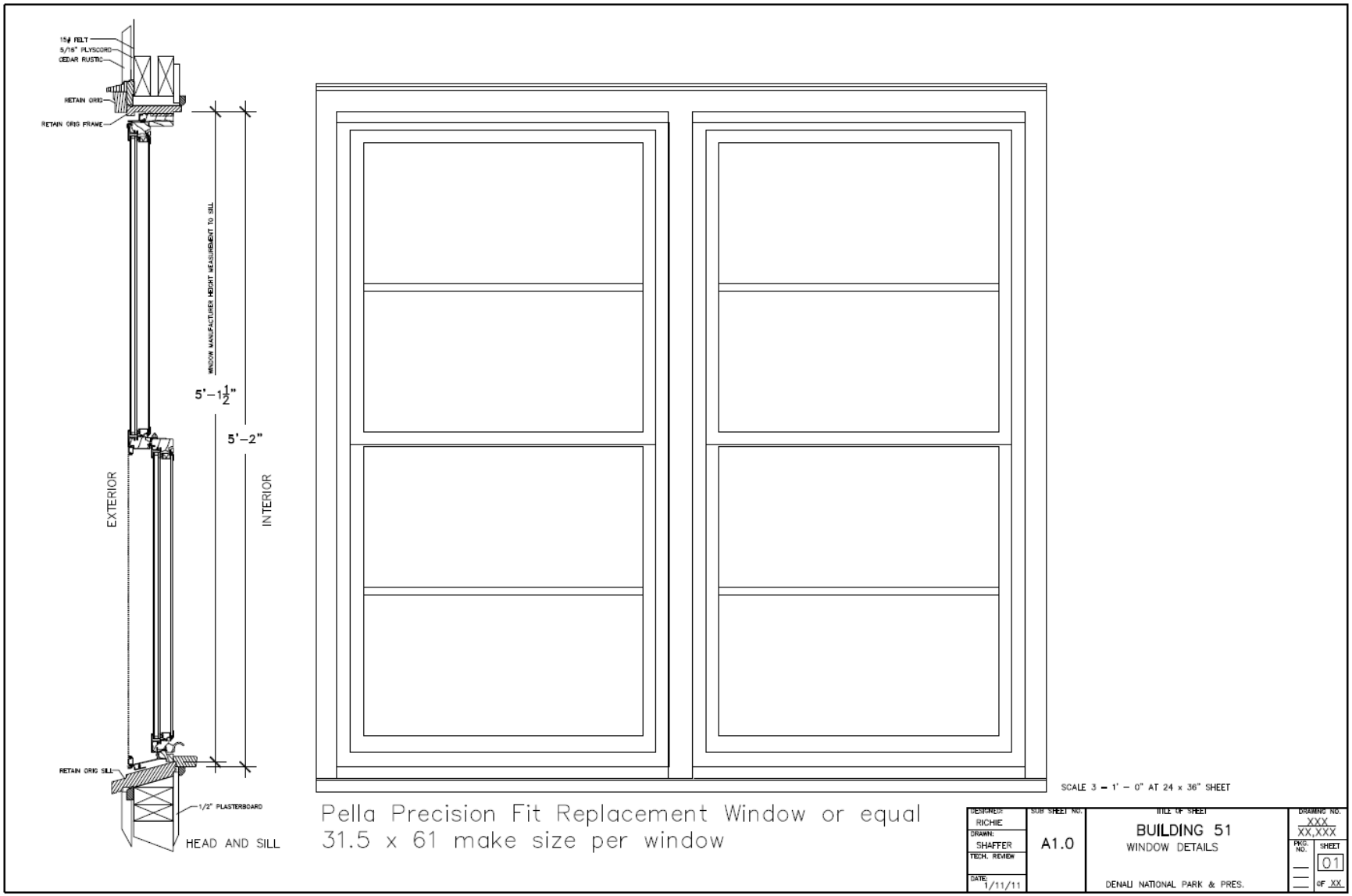


Figure 7: Replacement Windows

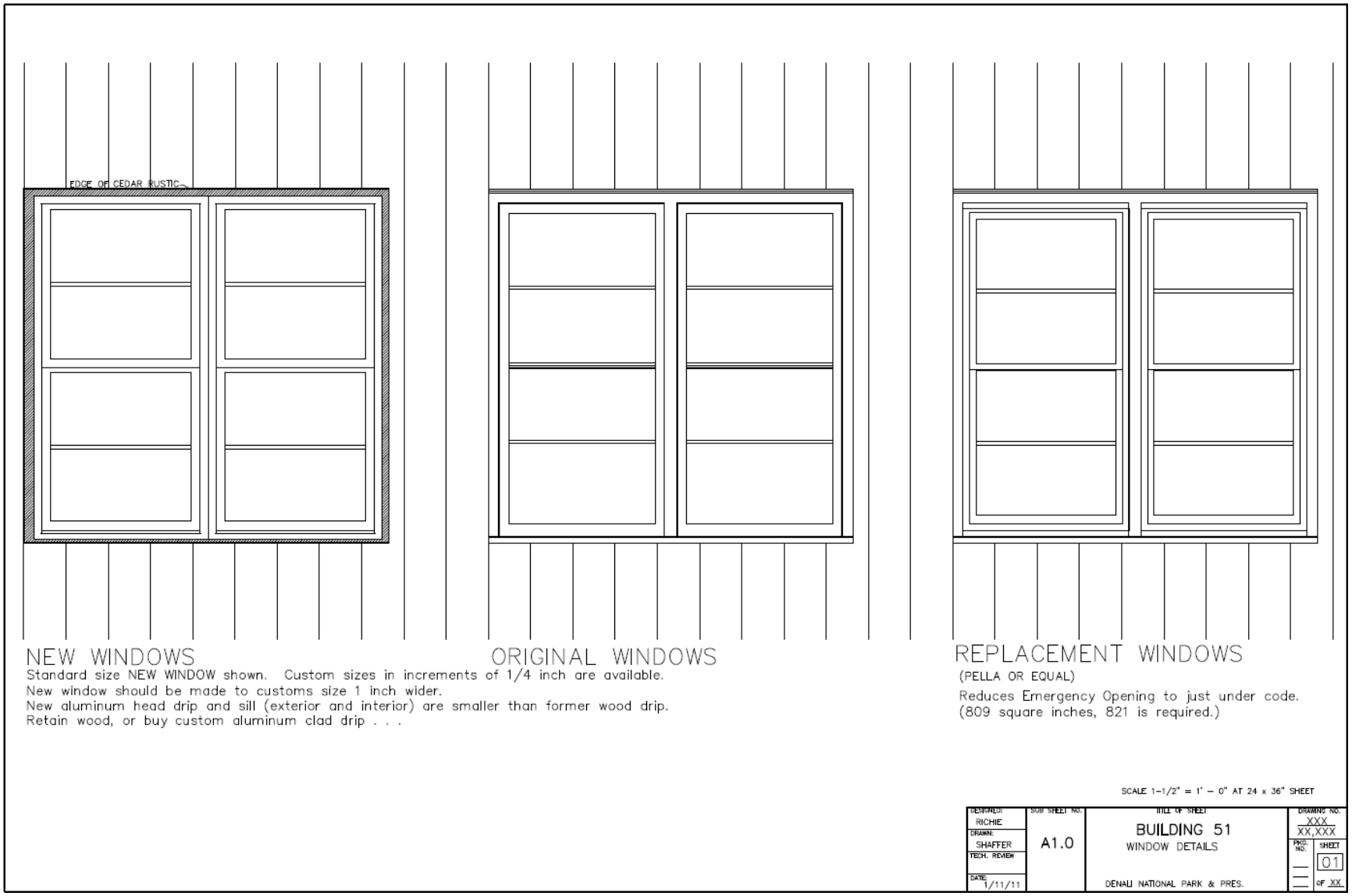


Figure 8: Comparison of Original and Replacement Windows

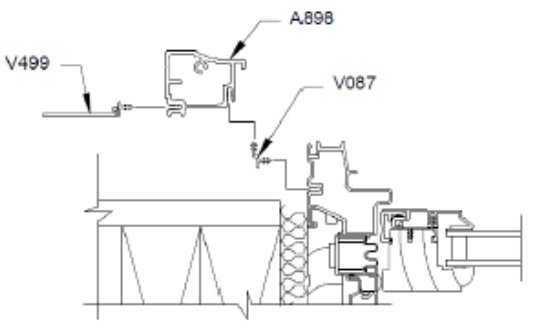
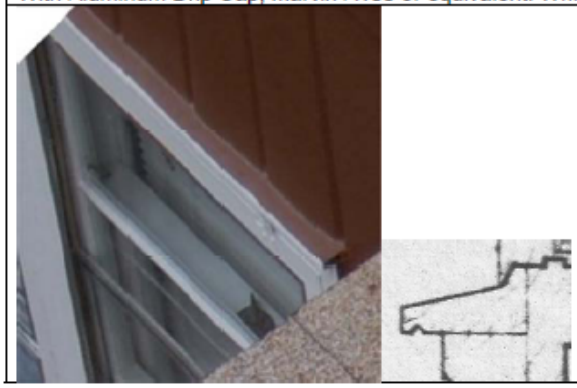
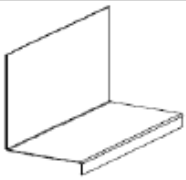
Existing	Proposed
Exterior clad casing:1-5/16" wide. Marvin profile A898 or equivalent. Profile is to be brick mold or equivalent. Field applied.	
	 **Clad Brick Mould Casing*** Used to simulate a wood Brick Mould Casing for Clad units.
With Aluminum Drip Cap, Marvin A100 or equivalent. White.	
	 **Drip Cap - Aluminum** A100 - For use at Head Jamb. For use with wood or clad units including Brick Mould Casing Available in Bronze, Brown, Evergreen, Pebble Gray and White

Figure 9: Comparison of Original and Replacement Clad Casing

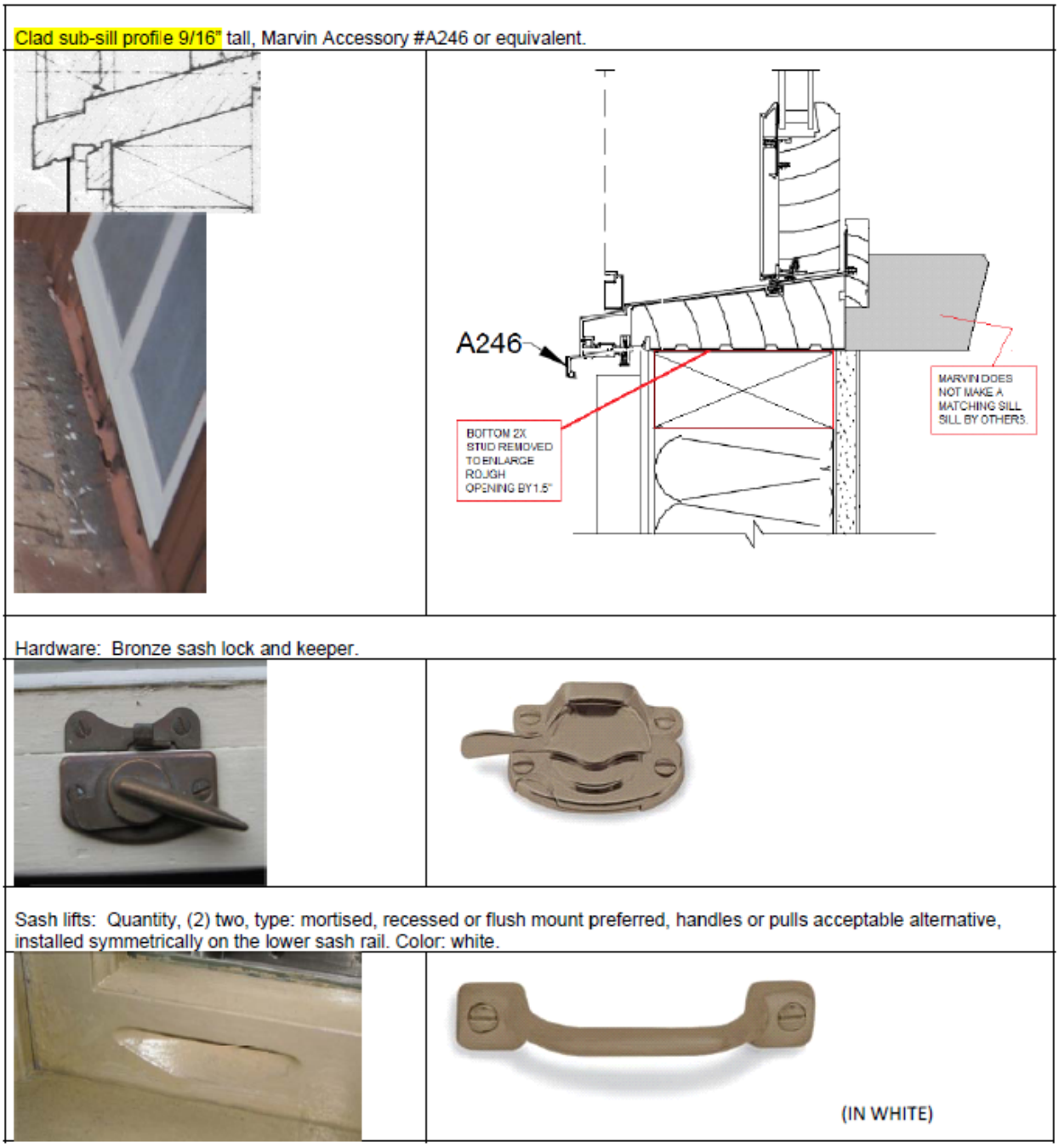


Figure 10: Comparison of Clad Sub-Sill Profile, Hardware, and Sash Lifts

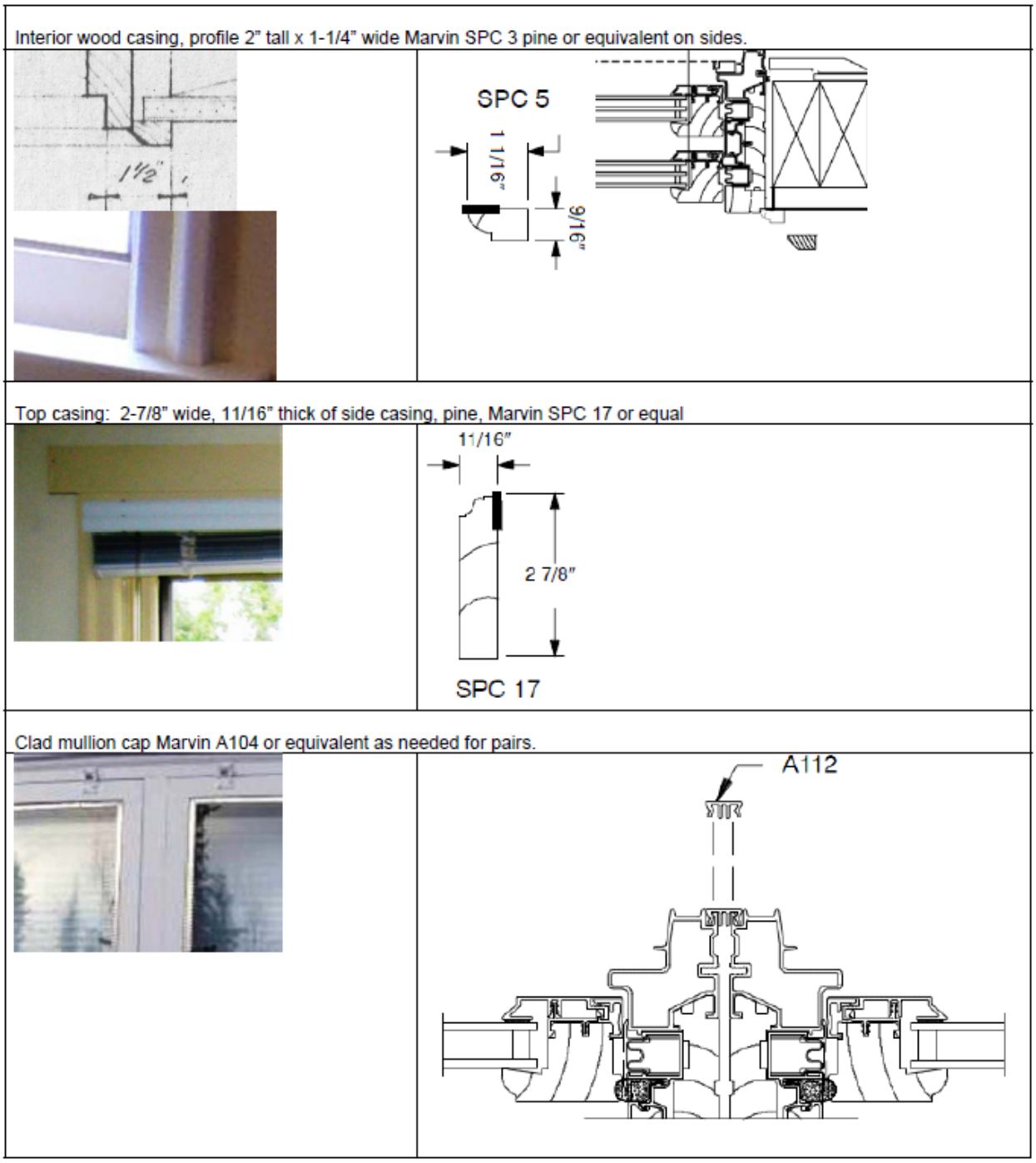
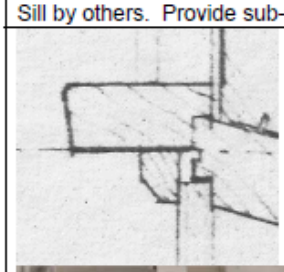
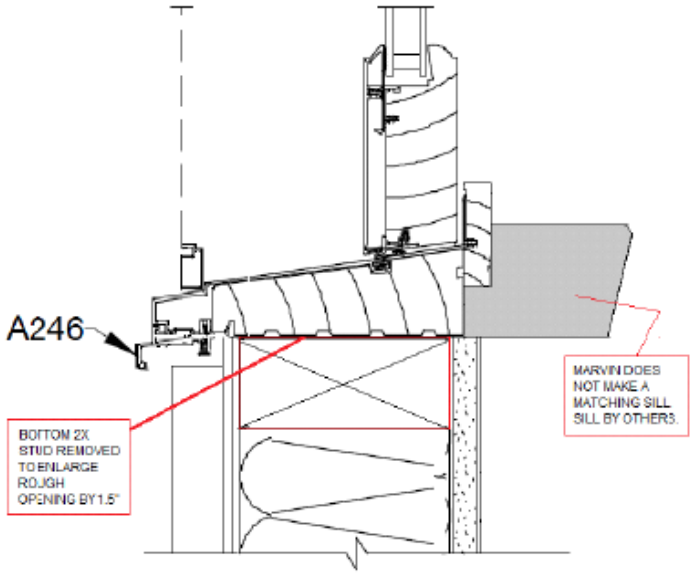


Figure 11: Details of Interior Wood Casing, Top Casing, and Clad Mullion Cap

Sill by others. Provide sub-sill pine wood trim to match window trim Marvin SPC 5 or equal.

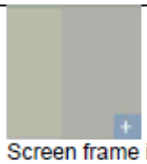




Interior color: Primed white, field painted cream – presently sash lifts are spec'ed white(?)

Color to be white?

Insect screen frame: Clad aluminum color: to match shiny aluminum or gray.



Screen frame is clad. Clad color = Cadet Gray.

Figure 12: Details of Replacement Sill, Original Interior Color, and the Insect Screen Frame.

Figure 13: Comparison of Replacement Window (A), and Original Window (B). The replacement windows that were ordered were not those that were delivered and installed. The vertical mullions should not be present. This will be mitigated by removing by hand the vertical mullions (Figure's 14 and 15) and replacing the horizontal mullions with ones that are not notched.

Figure 14: Removal of Vertical Mullions in Replacement Windows

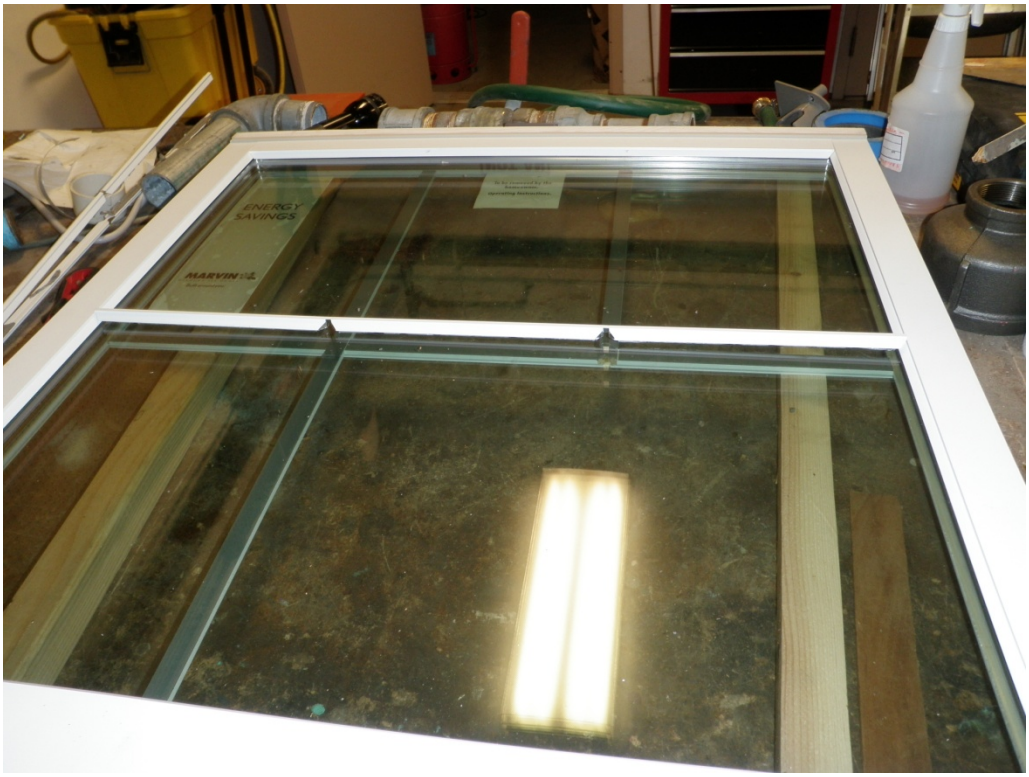


Figure 15: After Removal of Vertical Mullions but Before Replacement of Solid Horizontal Mullions in Replacement Windows.