BUILDINGWORK
architecture design preservation

FIRE STATION 13: SELECTIVE WINDOW REPLACEMENT

Seattle Landmarks Preservation Board Briefing Packet
November 30, 2022

INTRODUCTION

NAME Building Fire Station 13

ADDRESS 3601 Beacon Ave S, Seattle, WA 98108

Building History

Fire Station 13 is located at the corner of Beacon Avenue South and South Spokane Street, in the Beacon Hill neighborhood. The original station was built in 1928, with subsequent additions constructed in 1987 and 2010. The original architect is unknown; the original drawings are by the City Building Department and noted as “drawn by Baker.”

The 1928 portion of the building is a reinforced concrete structure with stucco finish, with stucco-clad Mission / Spanish Revival architectural features including cast stone elements and detailing at the windows, corners, and apparatus bay. The 1987 addition is a wood framed structure with EIFS, and the 2010 addition is a wood framed structure with stucco finish. The exterior of the 1928 portion of the building and a portion of the parcel have been protected as a designated landmark since 2010.

All the original single-pane, true divided lite steel windows were replaced as part of the 1987 work with double-pane, simulated divided lite aluminum windows. The original cast stone sills remain.

Project Scope

This project proposes replacement of five non-original aluminum windows on the north elevation at street level with new high-performance fiberglass windows manufactured by Cascadia Windows and Doors. Four of the selected windows have failed; they no longer perform adequately for thermal or acoustic properties and have condensation inside the insulated glass units. For aesthetic consistency, this project will also replace a fifth window immediately adjacent to the four failed windows.

Project Goals and Program

Fire Station 13 is owned by the City of Seattle and operated by the Seattle Fire Department. The Owner’s primary goals in replacing selected windows are:

1. Reducing outside traffic noise intruding on the building interior from adjacent busy arterials,
2. Improving energy efficiency, and
3. Protecting the building’s integrity and performance with properly sealed windows.

Traffic noise: Both South Spokane Street and Beacon Avenue South are busy arterials. Noise levels of freight vehicles stopping at the traffic light have been measured outside the subject windows at up to 99 decibels. The windows to be replaced are approximately 12 to 18 feet from the edge of the South Spokane Street pavement. Three of these windows are for sleeping rooms; the traffic noise is particularly disruptive because fire station personnel regularly require sleep during daytime hours.

Energy efficiency: While there are several historic window products on the market that more closely imitate the look of the original steel windows and existing non-original aluminum windows, none meet the current requirements of the Seattle Energy Code. The City of Seattle’s Climate Action Strategy includes a goal of reducing building energy emissions by 38 percent from 2008 levels by 2030. In order to lead by example, the Owner prioritizes energy efficiency in all its renovation work. Therefore, we have selected the Cascadia Universal Series fiberglass windows for this project, a high performing window that exceeds Seattle Energy Code requirements and is manufactured in the Pacific Northwest, reducing greenhouse gas emissions due to transportation costs.

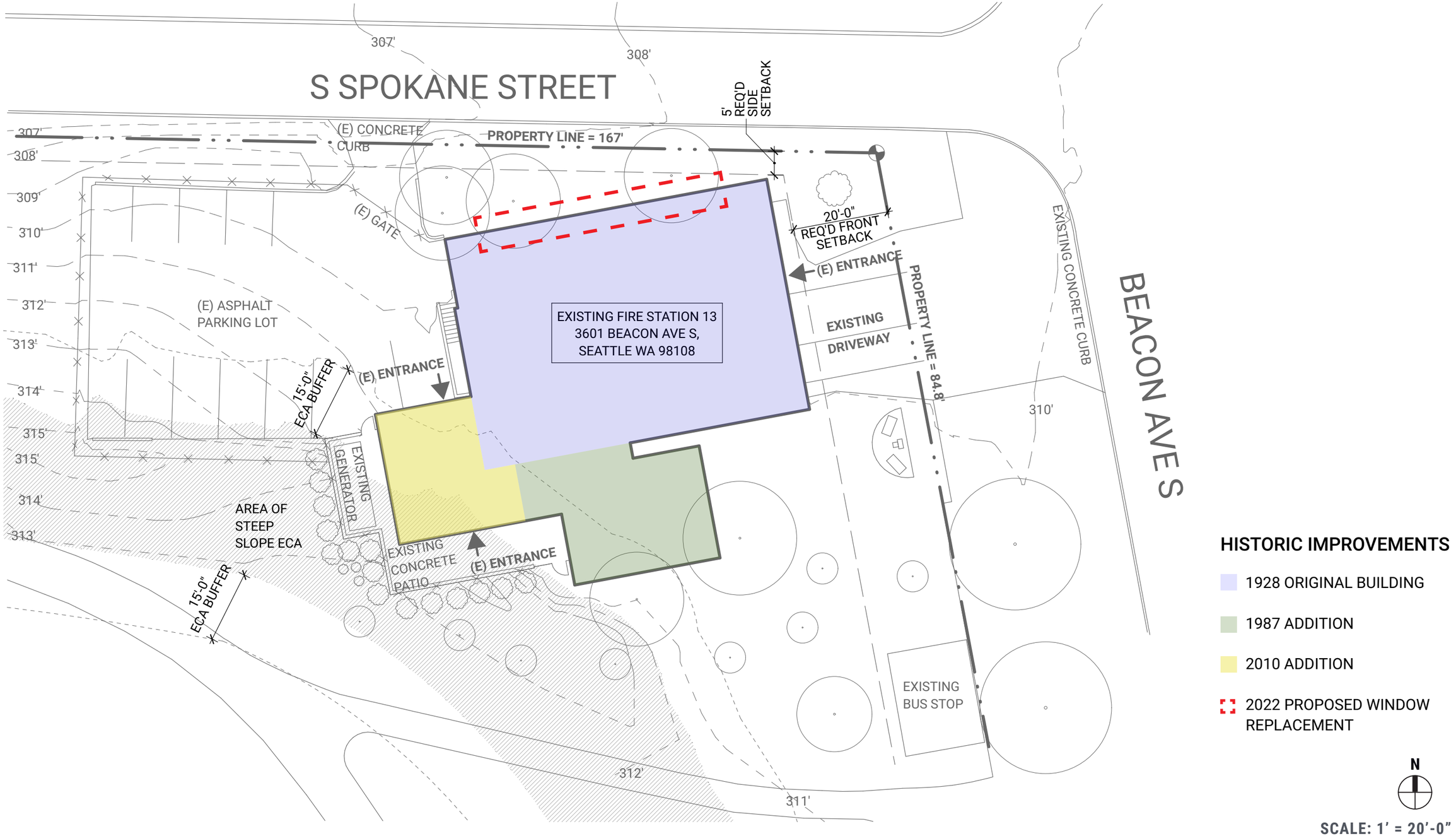
Building integrity: Since the seals have failed in several windows, we anticipate the windows will continue to experience regular internal condensation. This additional moisture will degrade the windows over time and the window performance likely will continue to worsen. If air and vapor infiltration continue unabated, and the windows continue to degrade, damage to the building wall assembly may occur. This is especially concerning for a designated landmark building.

Summary

This project is an important opportunity to replace failing non-original windows with new high-performance windows. The window replacement will provide a better interior environment for fire station personnel in terms of acoustic separation and thermal comfort. The high-performance windows will help advance the City of Seattle’s Climate Action Strategy goal of reducing building energy emissions and ensure the building’s integrity is protected in the long-term.

We look forward to discussing this project with the Landmarks Preservation Board.

FIRE STATION 13 SITE PLAN



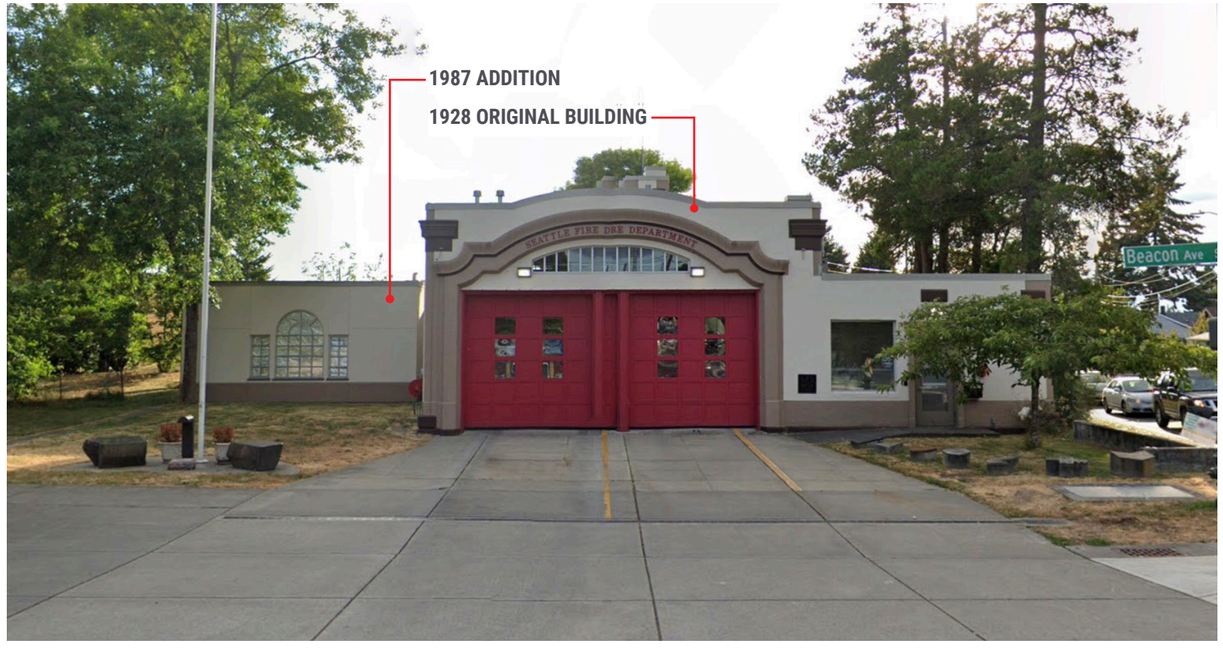
HISTORIC IMPROVEMENTS

- 1928 ORIGINAL BUILDING
- 1987 ADDITION
- 2010 ADDITION
- 2022 PROPOSED WINDOW REPLACEMENT

N

SCALE: 1' = 20'-0"

EXISTING CONDITIONS



View at East facade of Fire Station 13, taken from Beacon Ave S. Google street view.

View at Northeast facade of Fire Station 13, taken from Beacon Ave S. Google street view.

View at Northwest facade of Fire Station 13, taken from S Spokane St. Google street view.

View at Southwest facade of Fire Station 13, taken from Jefferson Park Trail. Google street view.

EXISTING CONDITIONS

View at North facade of Fire Station 13, taken from S Spokane St.

Close-up of a typical non-original window to be replaced.

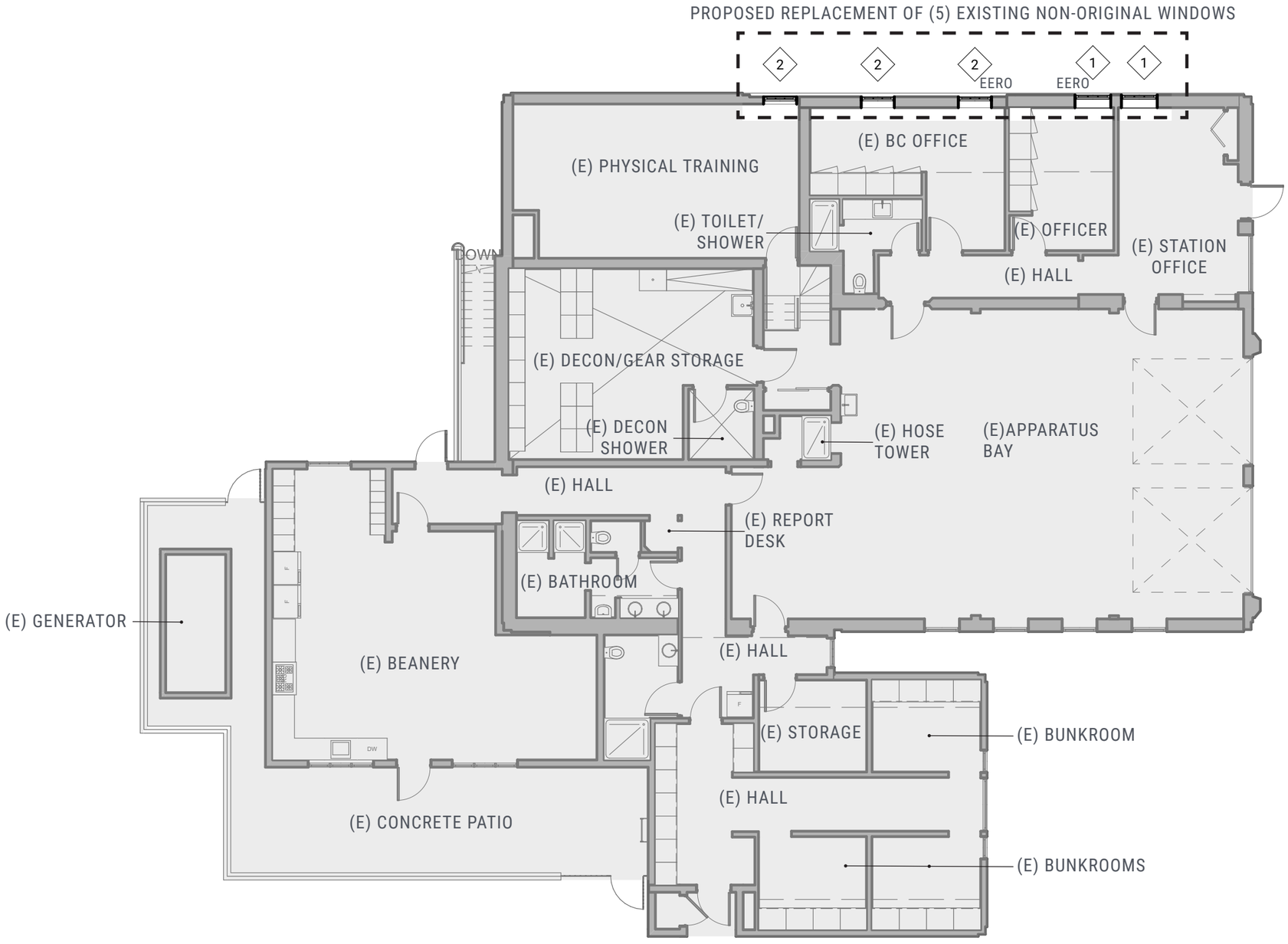
EXISTING CONDITIONS

Example of condensation between panes of an existing non-original window.

Example of degraded frame condition at an existing non-original window.

Interior view of one of the existing non-original windows to be replaced.

PROPOSED MAIN FLOOR PLAN

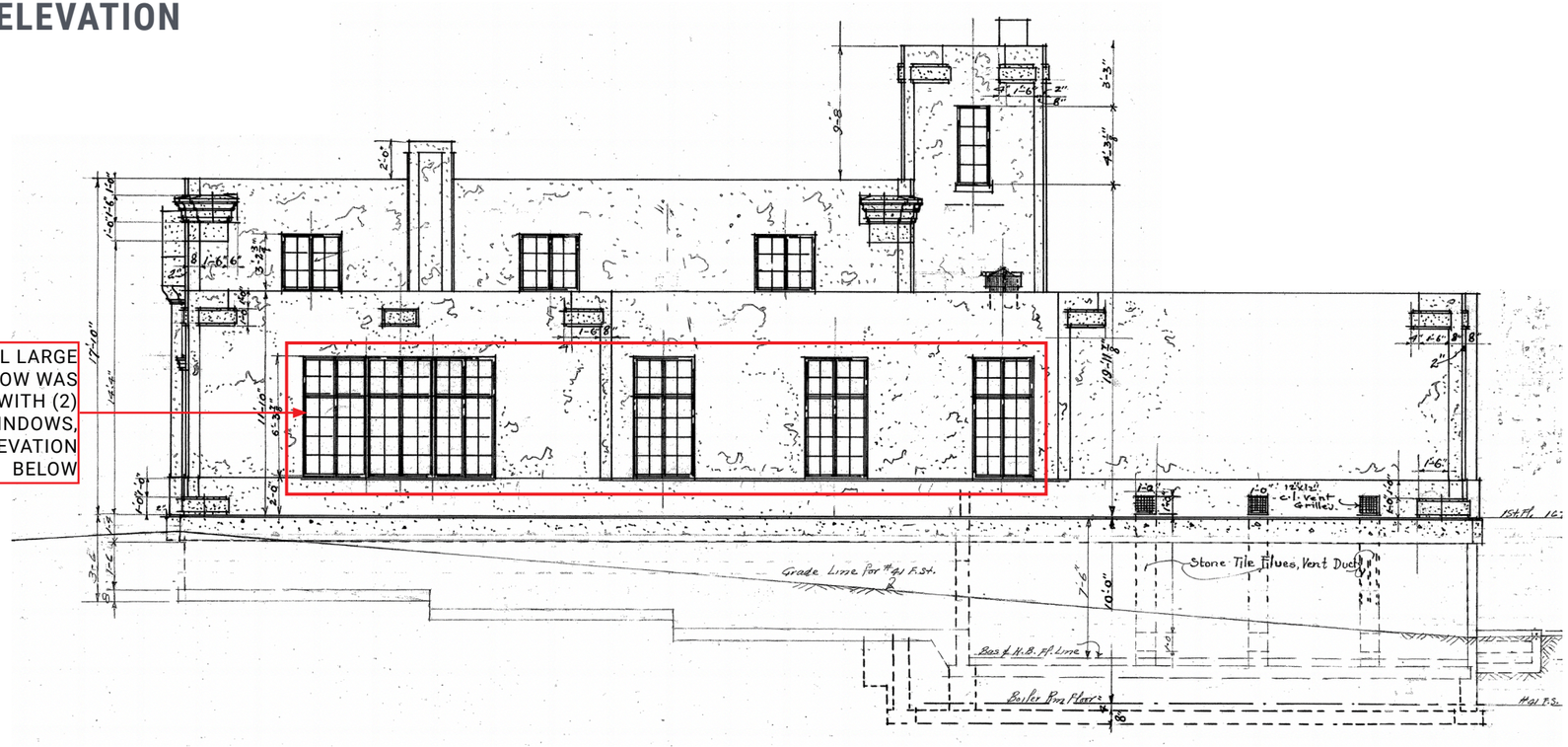


N

SCALE: 3/32” = 1’-0”

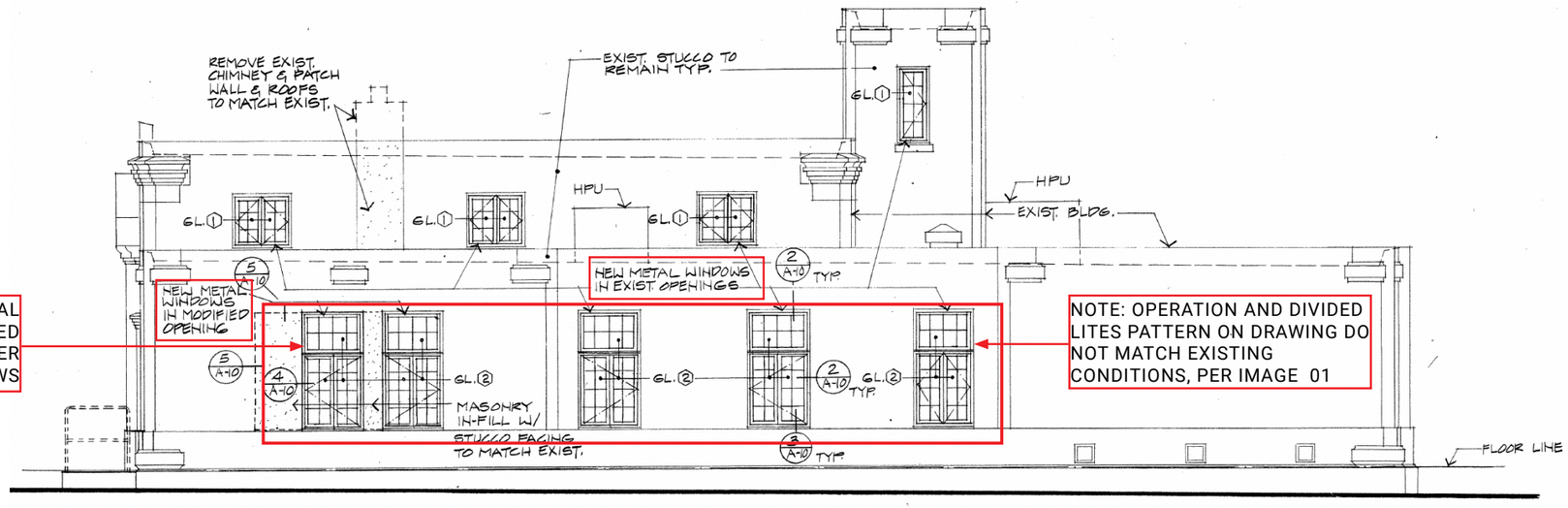
NORTH ELEVATION

THIS ORIGINAL LARGE WINDOW WAS REPLACED WITH (2) SMALLER WINDOWS, SEE ELEVATION BELOW



ORIGINAL NORTH ELEVATION FROM 1927 SHOWING THE ORIGINAL WINDOWS

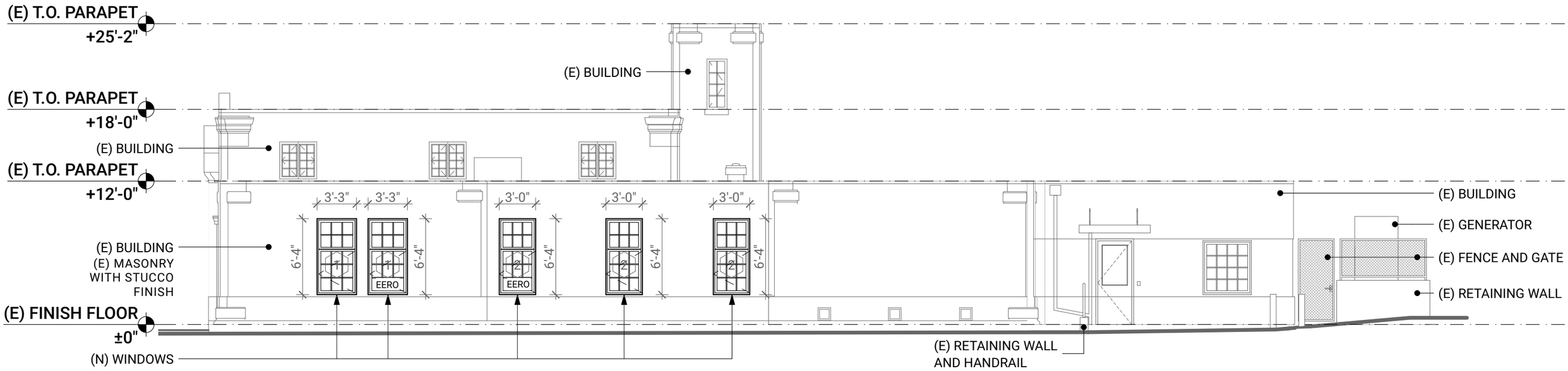
(1) LARGE ORIGINAL WINDOW REPLACED WITH (2) SMALLER WINDOWS



NOTE: OPERATION AND DIVIDED LITES PATTERN ON DRAWING DO NOT MATCH EXISTING CONDITIONS, PER IMAGE 01

NORTH ELEVATION FROM 1985 SHOWING THE WINDOW REPLACEMENT

NORTH ELEVATION



2022 NORTH ELEVATION

PROPOSED PRODUCT INFORMATION

PROPOSED WINDOW REPLACEMENT: CASCADIA UNIVERSAL SERIES FIBER GLASS WINDOWS, DOUBLE GLAZED WITH LAMINATED INTERIOR PANE AND SIMULATED DIVIDED LITES AND CARDINAL LOW-E 270 COATING ON SURFACE #2

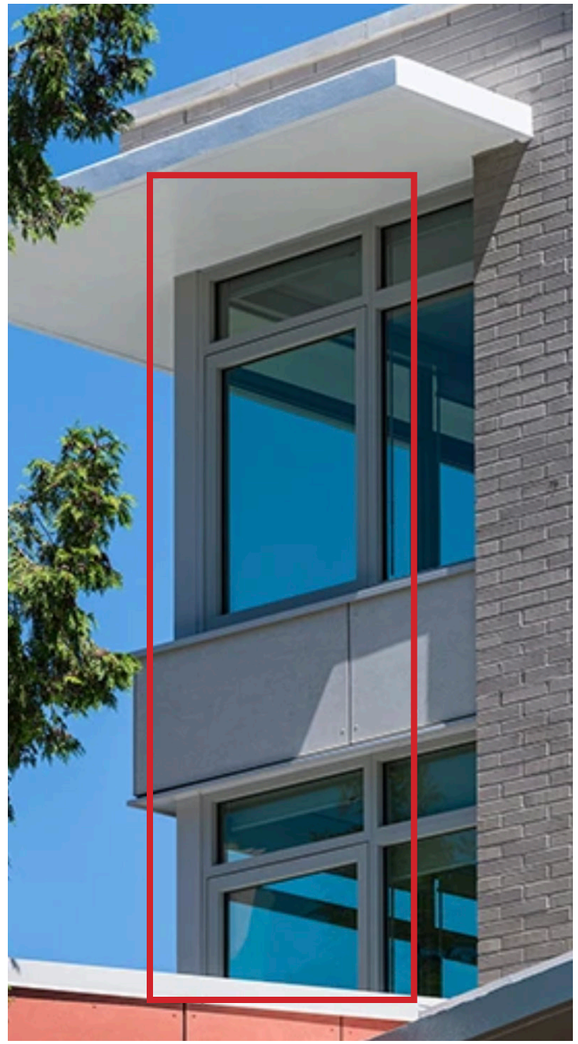
EXAMPLE OF CASCADIA WINDOW WITH DIVIDED LITES

CLOSE UP VIEW OF CASCADIA WINDOW FRAME AND GLAZING

CLOSE UP VIEW OF DIVIDED LITES EXAMPLE

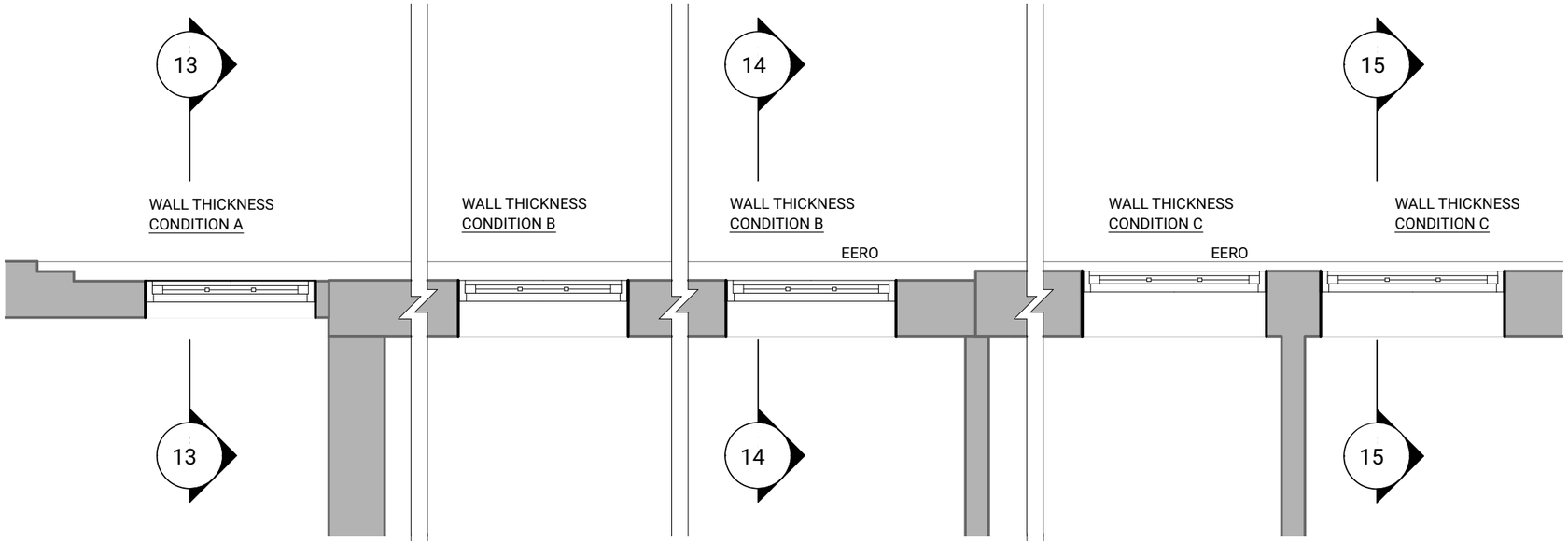
WINDOW FINISH: METALLIC CHAMPAGNE (HAS METALLIC APPEARANCE SIMILAR TO CLEAR ANODIZED ALUMINUM)

EXAMPLE OF CASCADIA WINDOW GLAZING



EXAMPLE OF CASCADIA WINDOW - TOP FIXED AND BOTTOM CASEMENT

EXISTING AND PROPOSED WINDOWS

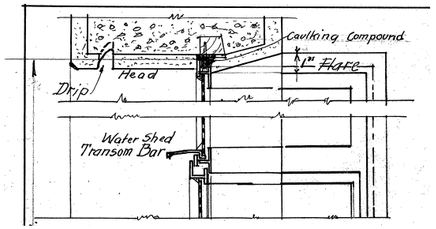


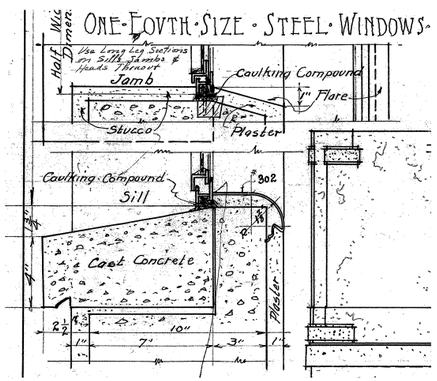
EXTERIOR PHOTO OF CONDITION A

EXTERIOR PHOTO OF CONDITION B

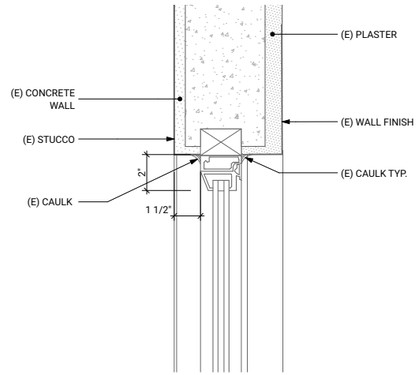
EXTERIOR PHOTO OF CONDITION C

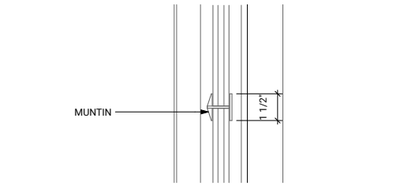
WINDOW DETAILS - CONDITION A

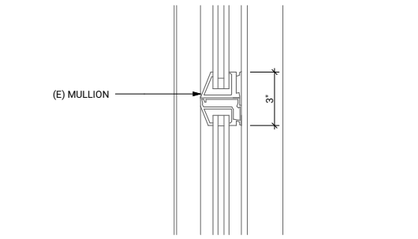


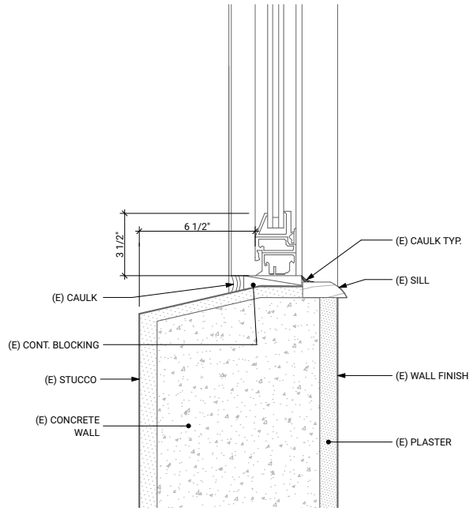


ORIGINAL WINDOW DETAIL CONDITION 1927

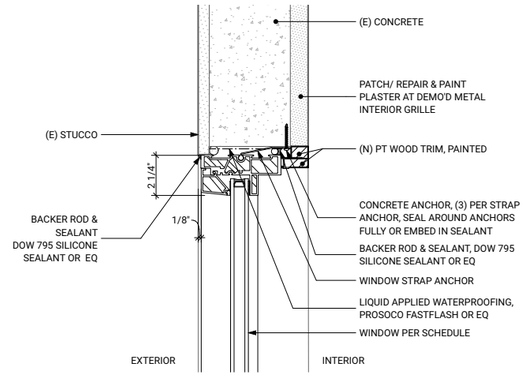


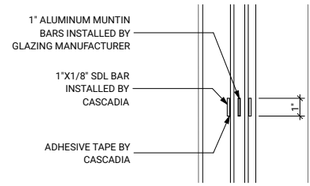


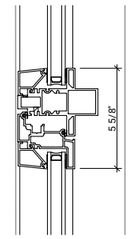


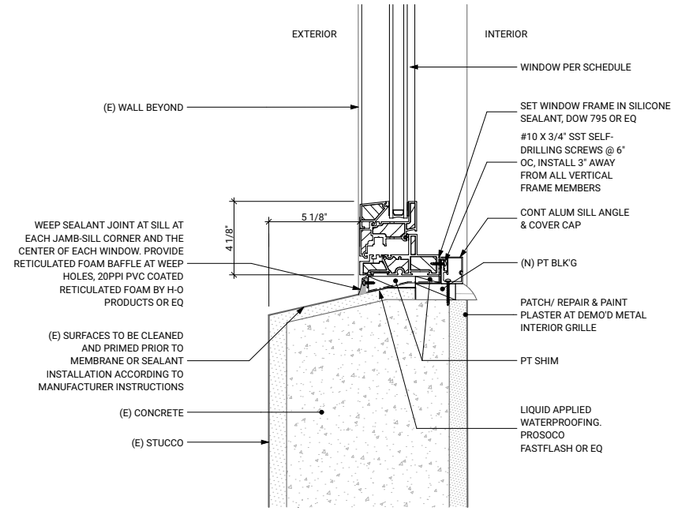


WINDOW DETAILS FROM 1985 RENOVATION - CONDITION A



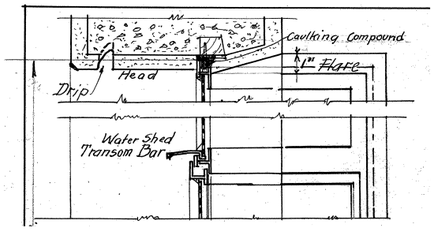


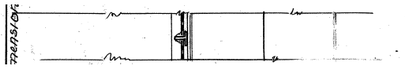


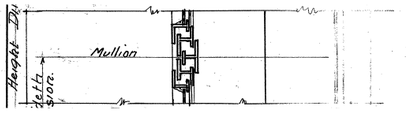


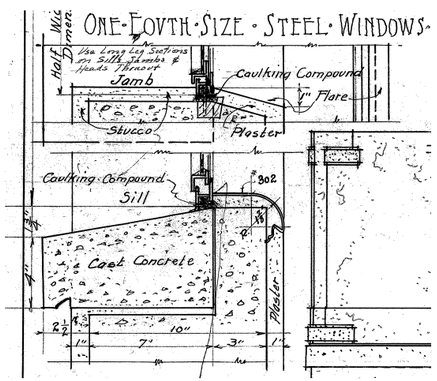
WINDOW DETAILS 2022 PROPOSED WINDOW REPLACEMENT - CONDITION A

WINDOW DETAILS - CONDITION B

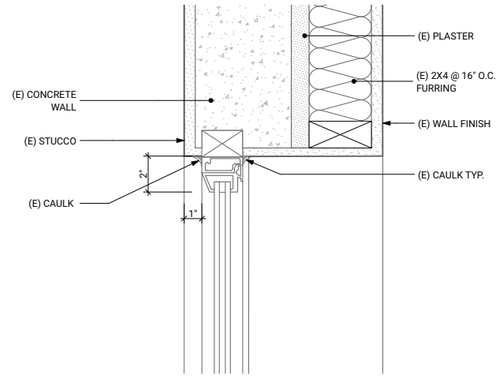


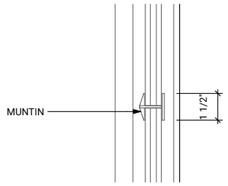


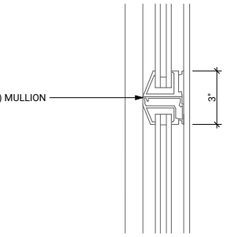


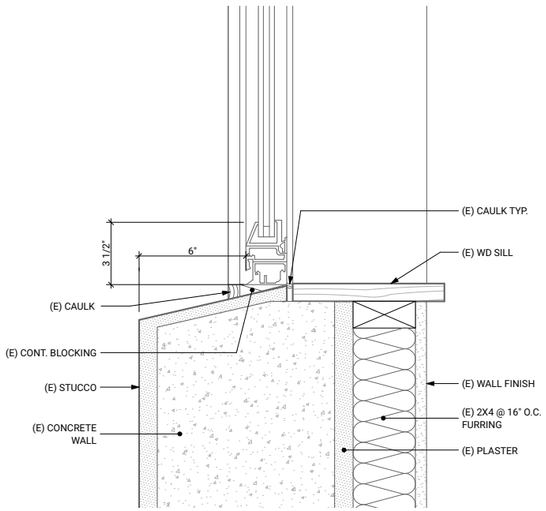


ORIGINAL WINDOW DETAIL CONDITION 1927

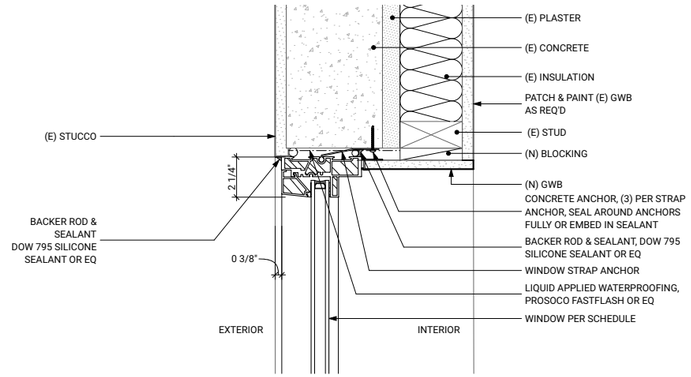


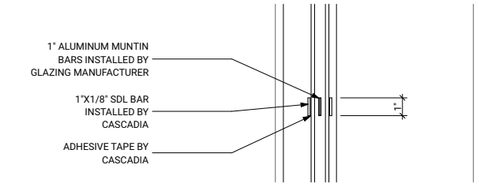


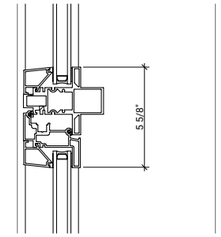


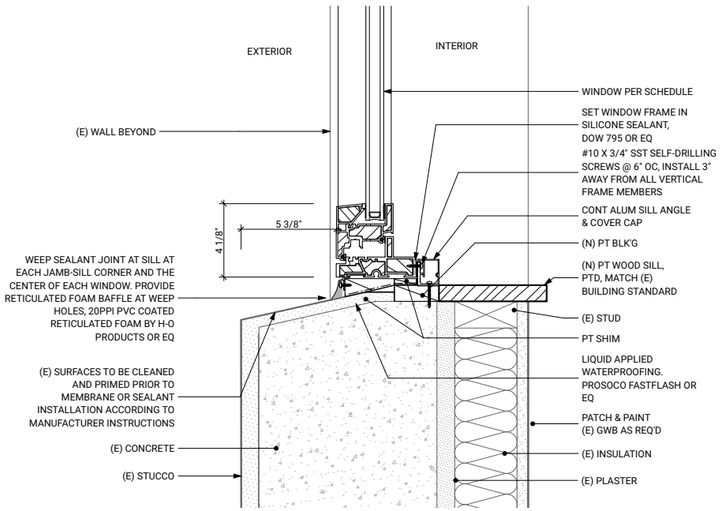


WINDOW DETAILS FROM 1985 RENOVATION - CONDITION B



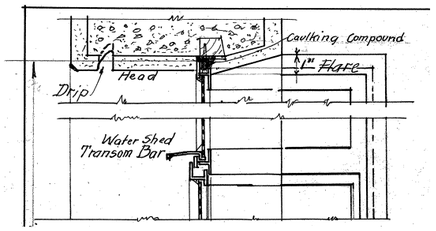






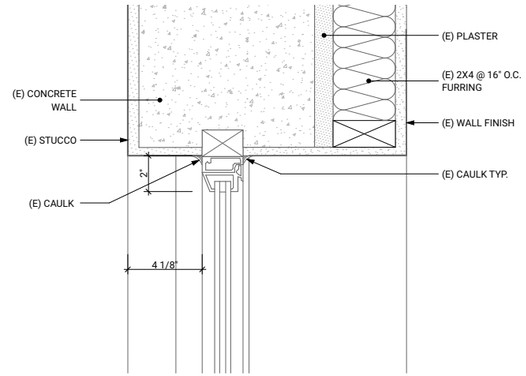
WINDOW DETAILS 2022 PROPOSED WINDOW REPLACEMENT - CONDITION B

WINDOW DETAILS - CONDITION C

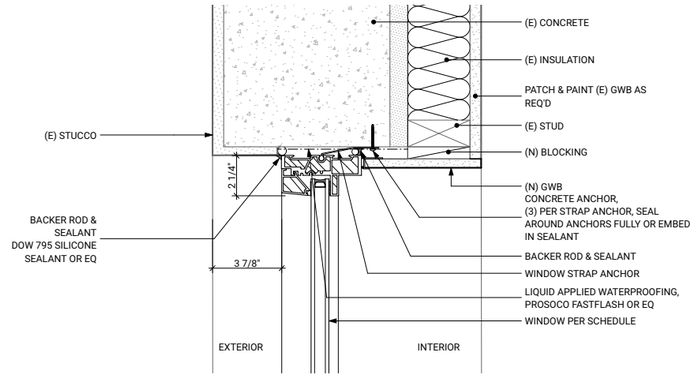


ONE-EOVTH·SIZE·STEEL·WINDOWS·

ORIGINAL WINDOW DETAIL CONDITION 1927

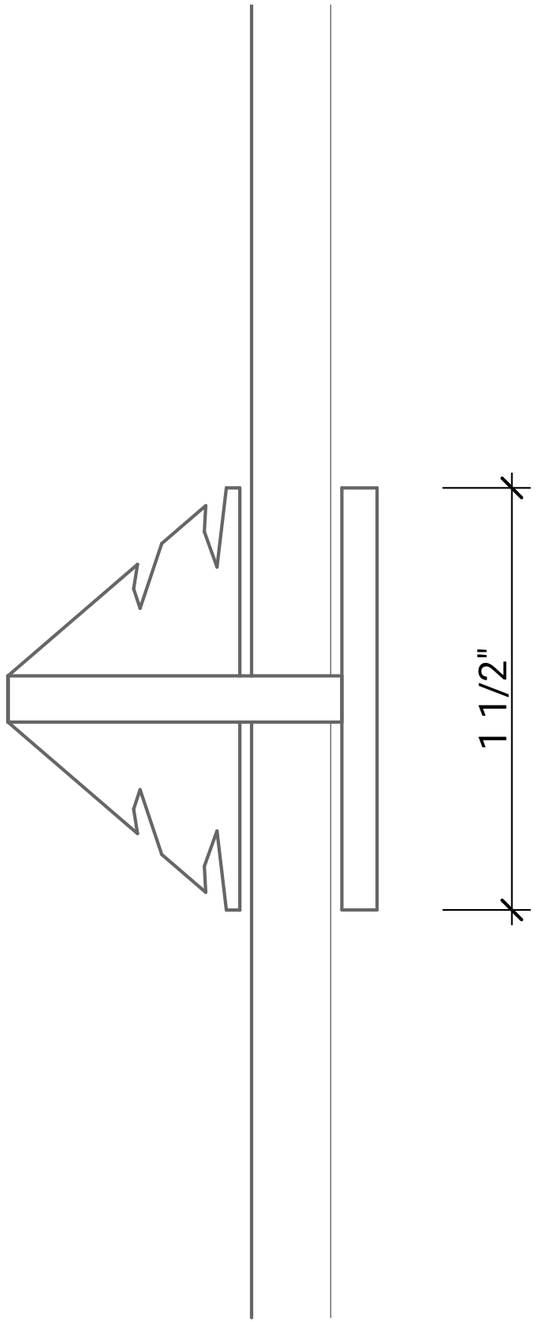


WINDOW DETAILS FROM 1985 RENOVATION - CONDITION C

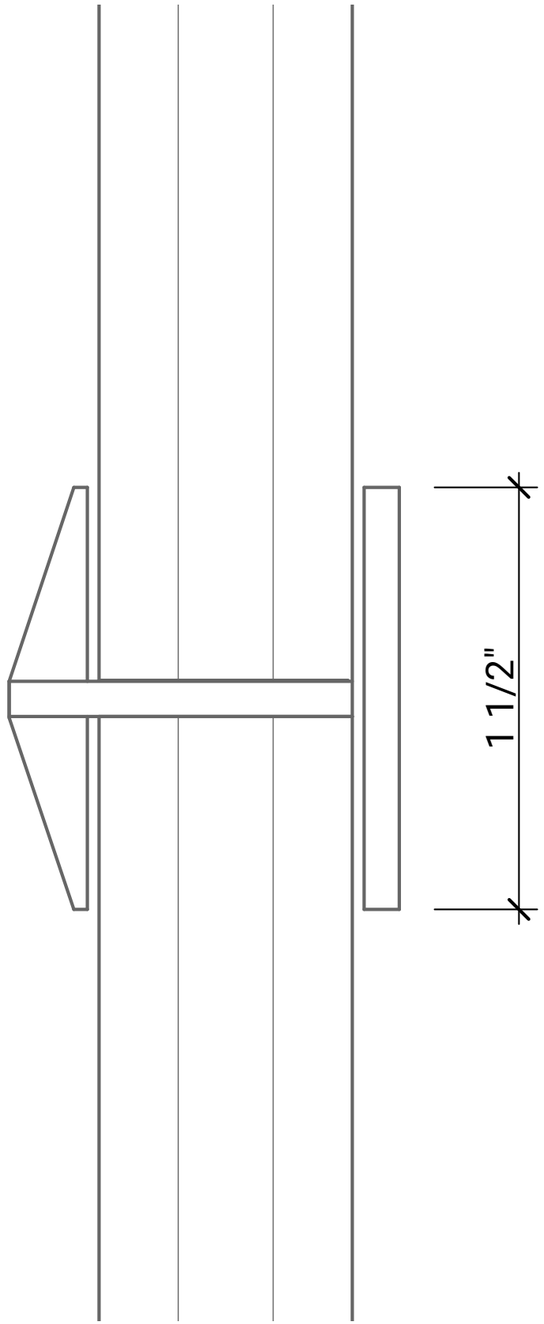


WINDOW DETAILS 2022 PROPOSED WINDOW REPLACEMENT - CONDITION C

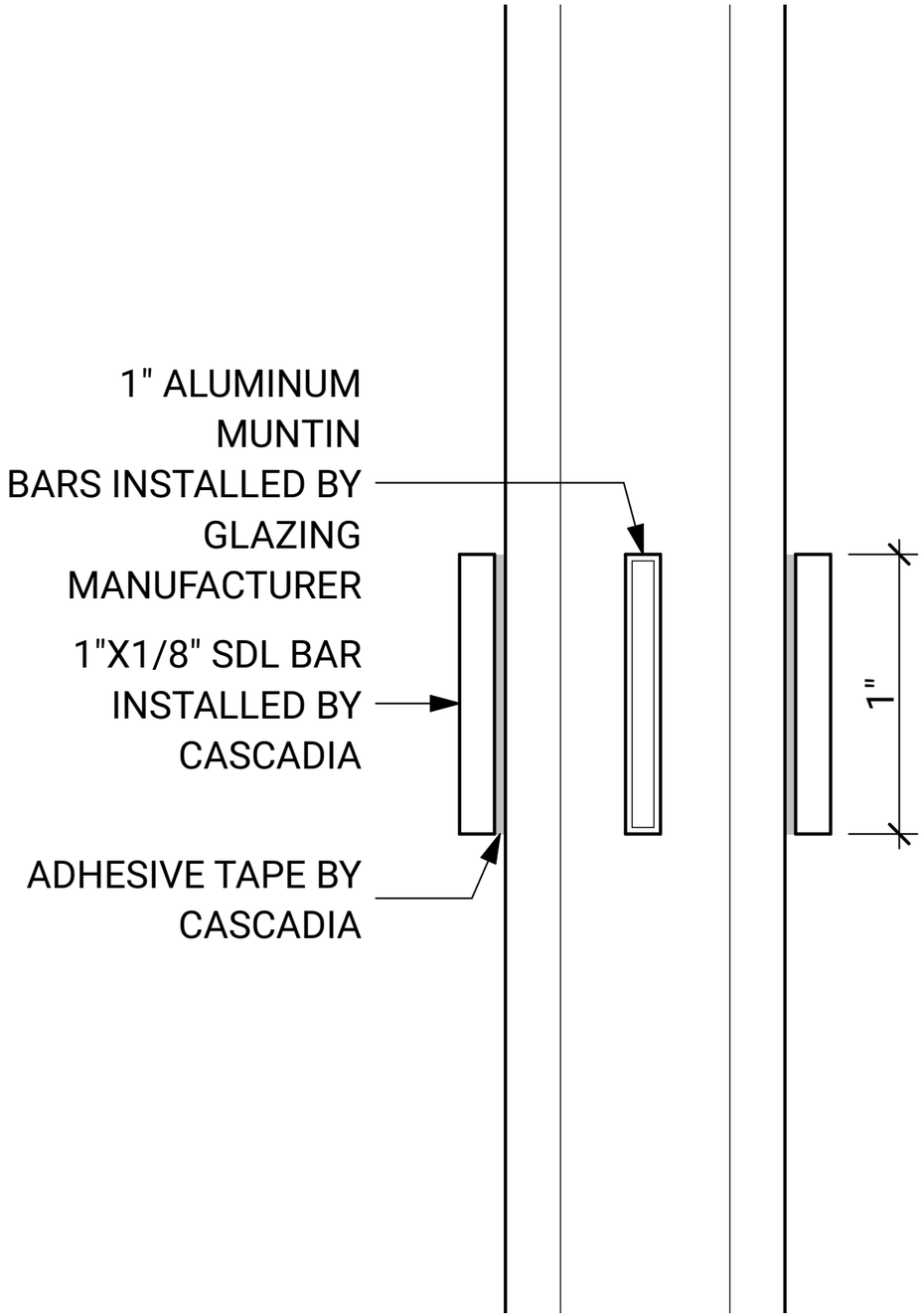
WINDOW DETAILS - MUNTIN



ORIGINAL WINDOW MUNTIN DETAIL CONDITION 1927



WINDOW MUNTIN DETAIL FROM 1985 RENOVATION



WINDOW MUNTIN DETAIL 2022 PROPOSED WINDOW REPLACEMENT

EXISTING AND PROPOSED WINDOWS

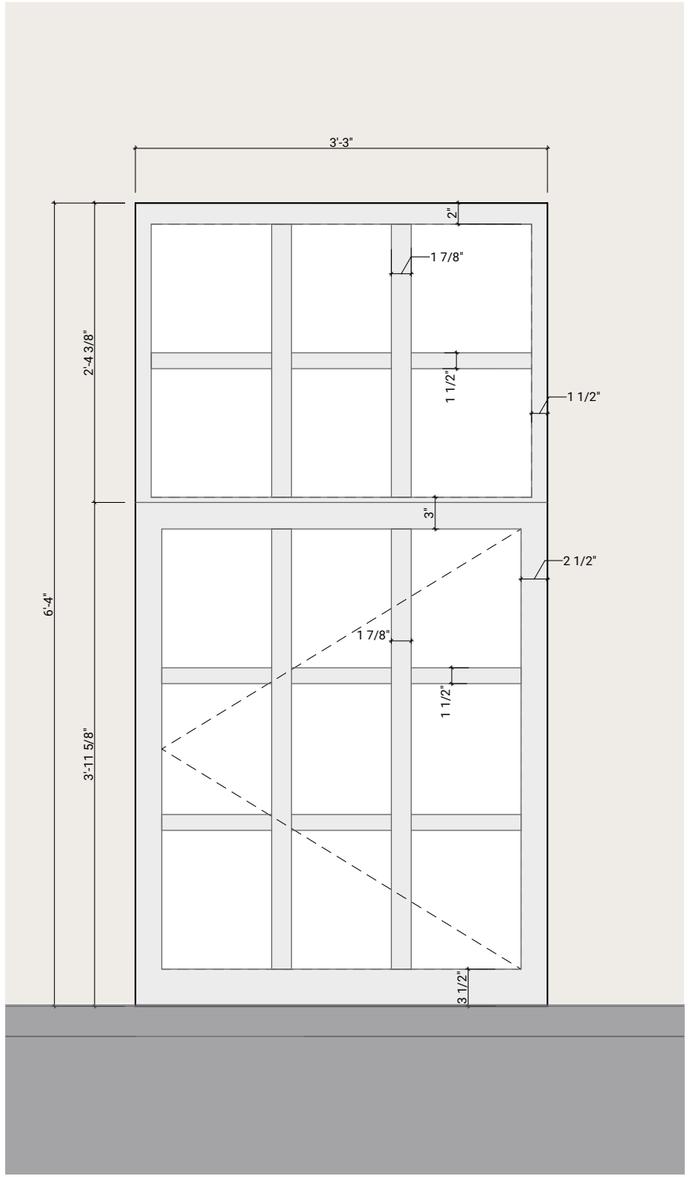


IMAGE 01. EXISTING SIMULATED DIVIDED LITE PATTERN AND DIMENSIONS OF ALL (5) NON-ORIGINAL WINDOWS TO BE REPLACED.

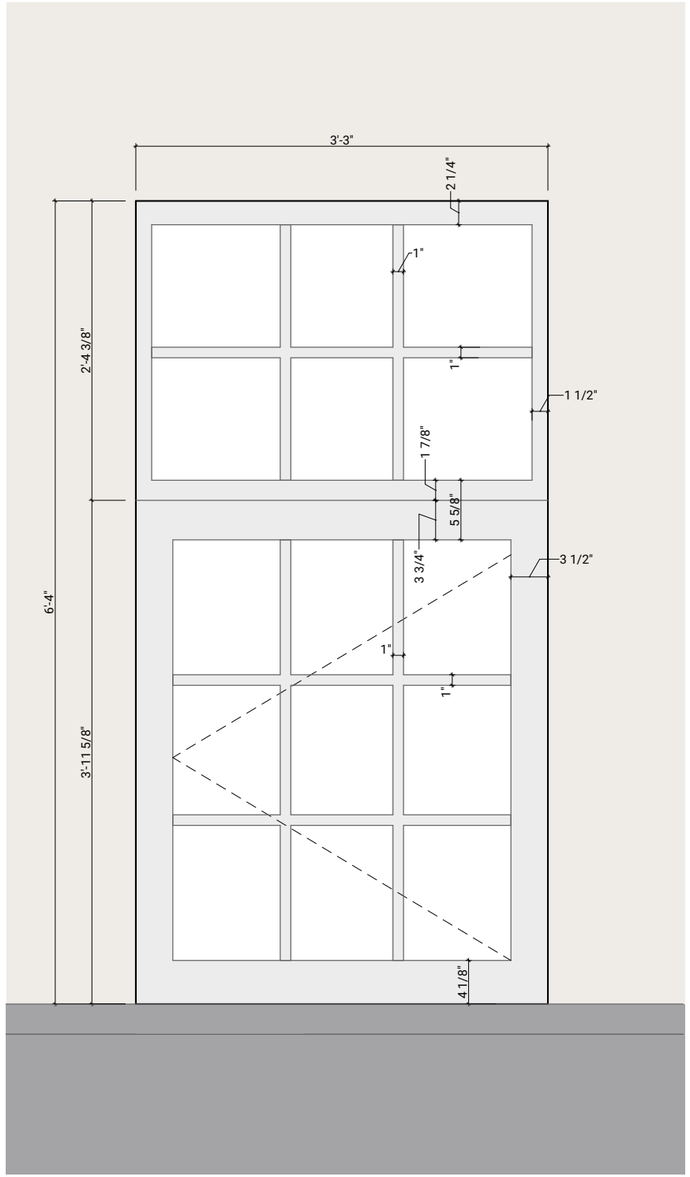


IMAGE 02. PROPOSED SIMULATED DIVIDED LITE PATTERN AND DIMENSIONS OF ALL (5) REPLACEMENT WINDOWS.

EXISTING AND PROPOSED WINDOWS

IMAGE 03. ACTUAL DIVIDED LITE PATTERN AND CASEMENT OPERATION OF ALL (5) NON-ORIGINAL WINDOWS TO BE REPLACED.

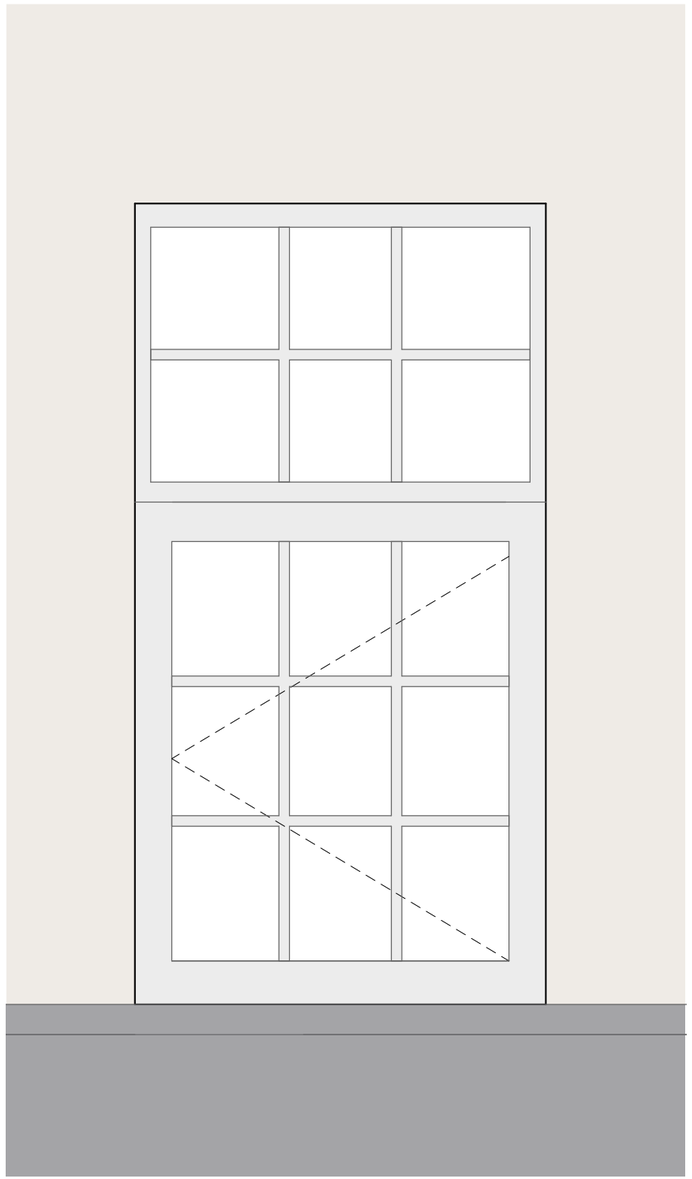


IMAGE 04. PROPOSED WINDOW REPLACEMENT: CASCADIA UNIVERSAL SERIES FIBER GLASS WINDOWS, DOUBLE GLAZED WITH LAMINATED INTERIOR AND SIMULATED DIVIDED LITES.