

HISTORIC AND DESIGN REVIEW COMMISSION

April 21, 2021

HDRC CASE NO: 2021-164
ADDRESS: 315 E PECAN ST
LEGAL DESCRIPTION: NCB 413 BLK 11 LOT 3-4- 5, 6 & E 27.8 FT OF 2
ZONING: D,HE
CITY COUNCIL DIST.: 1
LANDMARK: St Mark's Episcopal Church
APPLICANT: Tobin Hays/Ford, Powell and Carson Architects and Planners
OWNER: Eric Nelson/ST MARKS EPISCOPAL CHURCH
TYPE OF WORK: Window replacement
APPLICATION RECEIVED: February 04, 2021
60-DAY REVIEW: Not applicable due to City Council Emergency Orders
CASE MANAGER: Stephanie Phillips

REQUEST:

The applicant is requesting a Certificate of Appropriateness to replace all existing six over six wood windows on the 1920s Parish Hall and 2012 addition with new aluminum clad wood windows to match the historic windows in profile, inset, configuration, and detailing.

APPLICABLE CITATIONS:

Historic Design Guidelines, Chapter 2, Exterior Maintenance and Alterations

1. Materials: Woodwork

A. MAINTENANCE (PRESERVATION)

- i. *Inspections*—Conduct semi-annual inspections of all exterior wood elements to verify condition and determine maintenance needs.
- ii. *Cleaning*—Clean exterior surfaces annually with mild household cleaners and water. Avoid using high pressure power washing and any abrasive cleaning or stripping methods that can damage the historic wood siding and detailing.
- iii. *Paint preparation*—Remove peeling, flaking, or failing paint surfaces from historic woodwork using the gentlest means possible to protect the integrity of the historic wood surface. Acceptable methods for paint removal include scraping and sanding, thermal removal, and when necessary, mild chemical strippers. Sand blasting and water blasting should never be used to remove paint from any surface. Sand only to the next sound level of paint, not all the way to the wood, and address any moisture and deterioration issues before repainting.
- iv. *Repainting*—Paint once the surface is clean and dry using a paint type that will adhere to the surface properly. See *General Paint Type Recommendations* in Preservation Brief #10 listed under Additional Resources for more information.
- v. *Repair*—Repair deteriorated areas or refasten loose elements with an exterior wood filler, epoxy, or glue.

B. ALTERATIONS (REHABILITATION, RESTORATION, AND RECONSTRUCTION)

- i. *Facade materials*—Avoid removing materials that are in good condition or that can be repaired in place. Consider exposing original wood siding if it is currently covered with vinyl or aluminum siding, stucco, or other materials that have not achieved historic significance.
- ii. *Materials*—Use in-kind materials when possible or materials similar in size, scale, and character when exterior woodwork is beyond repair. Ensure replacement siding is installed to match the original pattern, including exposures. Do not introduce modern materials that can accelerate and hide deterioration of historic materials. Hardiboard and other cementitious materials are not recommended.
- iii. *Replacement elements*—Replace wood elements in-kind as a replacement for existing wood siding, matching in profile, dimensions, material, and finish, when beyond repair.

6. Architectural Features: Doors, Windows, and Screens

A. MAINTENANCE (PRESERVATION)

- i. *Openings*—Preserve existing window and door openings. Avoid enlarging or diminishing to fit stock sizes or air conditioning units. Avoid filling in historic door or window openings. Avoid creating new primary entrances or window openings on the primary façade or where visible from the public right-of-way.
- ii. *Doors*—Preserve historic doors including hardware, fanlights, sidelights, pilasters, and entablatures.
- iii. *Windows*—Preserve historic windows. When glass is broken, the color and clarity of replacement glass should match the original historic glass.
- iv. *Screens and shutters*—Preserve historic window screens and shutters.
- v. *Storm windows*—Install full-view storm windows on the interior of windows for improved energy efficiency. Storm window may be installed on the exterior so long as the visual impact is minimal and original architectural details are not obscured.

B. ALTERATIONS (REHABILITATION, RESTORATION, AND RECONSTRUCTION)

- i. *Doors*—Replace doors, hardware, fanlight, sidelights, pilasters, and entablatures in-kind when possible and when deteriorated beyond repair. When in-kind replacement is not feasible, ensure features match the size, material, and profile of the historic element.
- ii. *New entrances*—Ensure that new entrances, when necessary to comply with other regulations, are compatible in size, scale, shape, proportion, material, and massing with historic entrances.
- iii. *Glazed area*—Avoid installing interior floors or suspended ceilings that block the glazed area of historic windows.
- iv. *Window design*—Install new windows to match the historic or existing windows in terms of size, type, configuration, material, form, appearance, and detail when original windows are deteriorated beyond repair.
- v. *Muntins*—Use the exterior muntin pattern, profile, and size appropriate for the historic building when replacement windows are necessary. Do not use internal muntins sandwiched between layers of glass.
- vi. *Replacement glass*—Use clear glass when replacement glass is necessary. Do not use tinted glass, reflective glass, opaque glass, and other non-traditional glass types unless it was used historically. When established by the architectural style of the building, patterned, leaded, or colored glass can be used.
- vii. *Non-historic windows*—Replace non-historic incompatible windows with windows that are typical of the architectural style of the building.
- viii. *Security bars*—Install security bars only on the interior of windows and doors.
- ix. *Screens*—Utilize wood screen window frames matching in profile, size, and design of those historically found when the existing screens are deteriorated beyond repair. Ensure that the tint of replacement screens closely matches the original screens or those used historically.
- x. *Shutters*—Incorporate shutters only where they existed historically and where appropriate to the architectural style of the house. Shutters should match the height and width of the opening and be mounted to be operational or appear to be operational. Do not mount shutters directly onto any historic wall material.

FINDINGS:

- a. The property addressed 315 E Pecan St is the site of St. Marks Episcopal Church. The church was constructed circa 1877 and was designed by Richard Upjohn in the Neogothic style. The property also contains a Parish Hall constructed circa 1920 and additional ancillary buildings. The site is an individually listed local landmark and was added to the National Register of Historic Places in 1998. The applicant is requesting approval to replace all six over six wood windows in the circa 1920 Parish Hall with new Marvin brand aluminum clad windows to match the existing size, proportion, configuration, inset, and divided lite details as closely as possible.
- b. DESIGN REVIEW COMMITTEE – The applicant met with the Design Review Committee on site on April 14, 2021. Representatives from the parish, architectural team, and general contracting team were present. The DRC observed a majority of the first floor windows from the interior and exterior, several of the stairwell windows from the interior, and observed upper level windows at a distance from the exterior and interior. The DRC observed several window assemblies on various floors that exhibited missing glass and other damage from a scaffolding collapse at a neighboring structure in 2019. There were also some windows that featured dry rot, incompatible repair techniques like caulking and putty infill, and missing muntins on the interior and exterior. Overall, DRC found that a majority of the windows were in repairable condition based on the observable conditions on the site, but recognized that some damage may be presently concealed by paint, previous repairs, and the observable distance for upper level windows.
- c. WINDOW REPLACEMENT: ENERGY EFFICIENCY AND MAINTENANCE – The applicant has expressed concern to staff regarding the need to improve the energy efficiency of the structures, as well as minimize maintenance over time, especially on the upper floors of the Parish Hall that are difficult to access without

scaffolding. In terms of efficiency, in most cases, windows only account for a fraction of heat gain/loss in a building. Improving the energy efficiency of historic windows should be considered only after other options have been explored such as improving attic and wall insulation. The original windows feature single-pane glass which is subject to radiant heat transfer. Products are available to reduce heat transfer such as window films, interior storm windows, and thermal shades. Additionally, air infiltration can be mitigated through weatherstripping or readjusting the window assembly within the frame, as assemblies can settle or shift over time. Over 112 million windows end up in landfills each year, and about half are under 20 years old. Historic wood windows were constructed to last 100+ years with old growth wood, which is substantially more durable than modern wood and clad products, and original windows that are restored and maintained over time can last for decades. Replacement window products have a much shorter lifespan, around 10-20 years, and cannot be repaired once they fail. On average, over the lifetime of an original wood window, replacement windows will need to be again replaced at least 4 times. The total lifecycle cost of replacement windows is also much more energy intensive than the restoration of existing windows, including material sourcing, manufacture, transportation, and installation. Finally, window repair and restoration utilizes the local labor of craftspeople. Staff generally encourages the repair and restoration of original windows whenever possible.

- d. WINDOW REPLACEMENT – The applicant has proposed to replace all existing six over six wood windows on the circa 1920s Parish Hall and circa 2012 addition with new Marvin brand aluminum clad wood windows to match the historic as closely as possible in proportion, size, inset, configuration, and detailing. According to the Historic Design Guidelines, wood windows should be repaired in place and restored whenever possible, unless there is substantial evidence that the windows are deteriorated beyond repair. If a window assembly is deemed irreparable, the window should be replaced in-kind in terms of materiality, configuration, inset, proportion, style, and detailing. As noted in finding b, staff concurs with the applicant that several windows exhibit conditions that make them eligible for replacement. These assemblies are located in various portions of the buildings. Staff finds that the applicant should prioritize restoration of the original wood windows on the first floor and may submit a proposal for relocation of upper floor windows to replace first floor windows that are deteriorated beyond repair (more than 50 percent of original wood components require replacement) as noted in the recommendation. Staff finds the upper floor windows eligible for replacement with the requested aluminum clad windows as long as the replacement product can match the size, configuration, true divided lites, and inset as demonstrated by the applicant.

RECOMMENDATION:

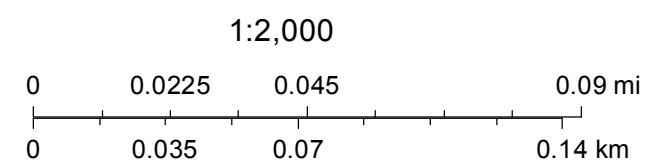
Staff recommends approval of window replacement based on findings a through d with the following stipulations:

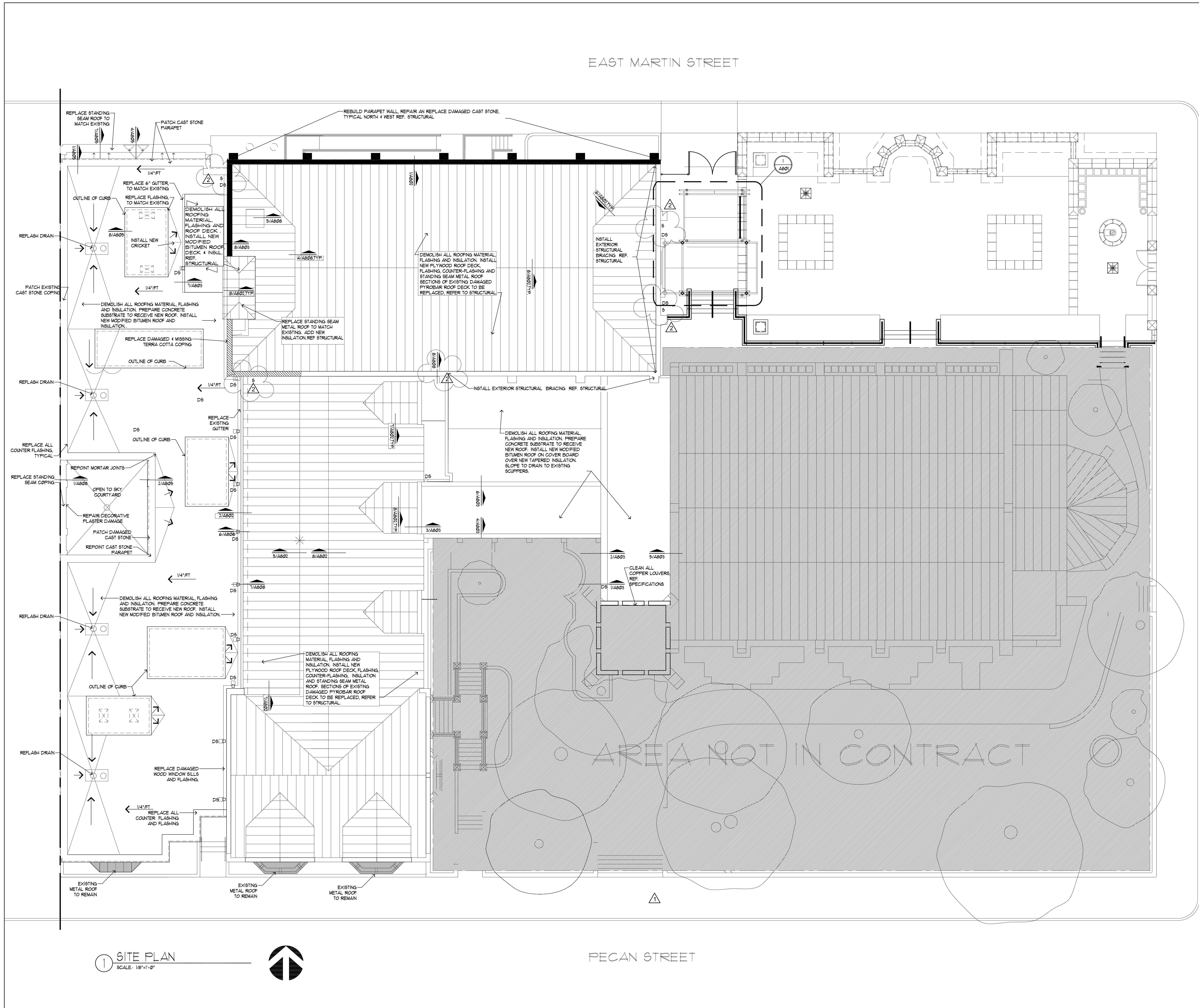
- i. That the applicant restores the original wood windows on the first floor as noted in finding d. If, when undergoing repair, the applicant finds evidence of deterioration beyond repair of an assembly (more than 50 percent of original wood components require replacement) on the first floor, the applicant may relocate repairable windows from the upper floors or other portions of the building where matching windows are available. Updated repair and/or relocation plans are required to be submitted to staff over the course of construction for review and approval, in addition to extensive documentation illustrating deterioration beyond repair.
- ii. That the new replacement windows for the upper stories match the existing in terms of size, configuration, true divided lites, and inset. Openings shall not be modified to accommodate stock sizes. Final drawings and product specifications are required to be submitted to staff for review and approval prior to the issuance of a Certificate of Appropriateness, and a mock up must be installed on site for field verification.
- iii. That any other existing windows to be replaced and not relocated be carefully removed and stored on site for future use.

City of San Antonio One Stop



April 15, 2021

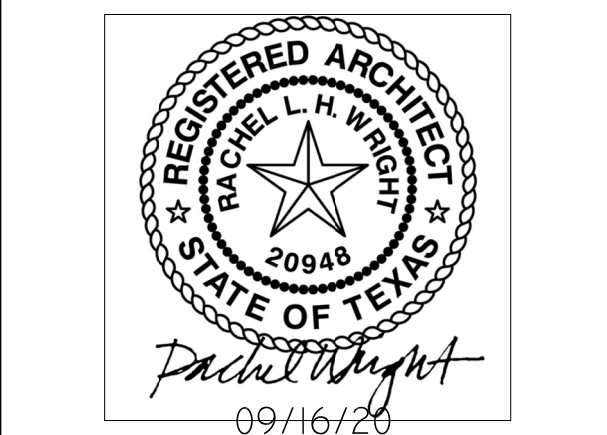




ST. MARK'S EPISCOPAL CHURCH
SCAFFOLDING
COLLAPSE PROJECT
315 PECAN STREET
SAN ANTONIO, TEXAS

FORD
POWELL
& CARSON
ARCHITECTS & PLANNERS, INC.

1138 East Commerce Street
San Antonio, Texas 78205
210-226-1246 / Fax 210-226-6482
This document authorized by Rachel Wright
is for construction it may be used for
regulatory approval, permit, and construction.



Revisions		
Mark	Date	Description
△	08/25/20	ASI #1
△	09/16/20	ASI #2

Date	08/18/20	Checked By	AC
Project Number	74425	Drawn By	TH/CR

SITE PLAN

Sheet Number
A101







5907
United







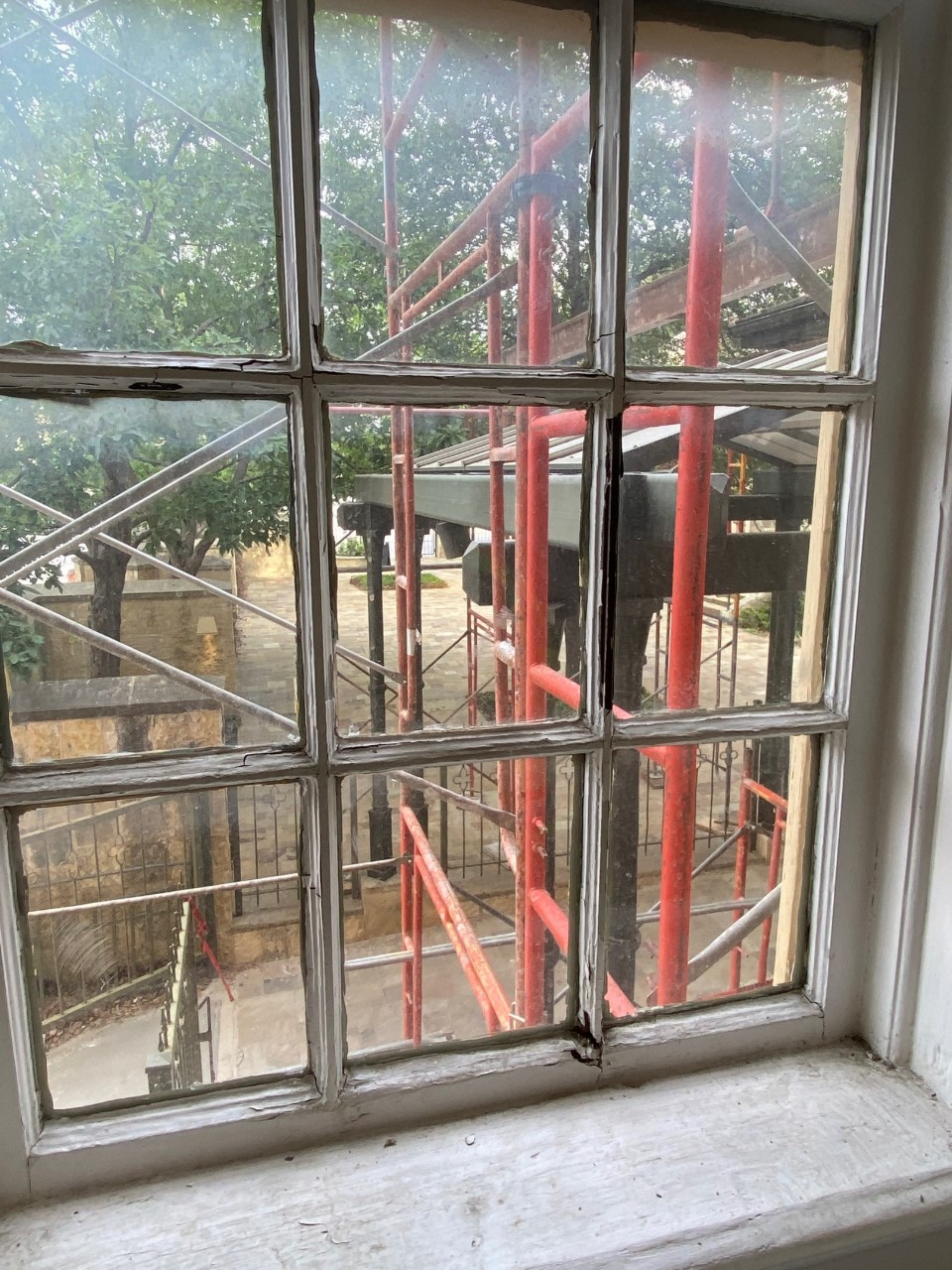








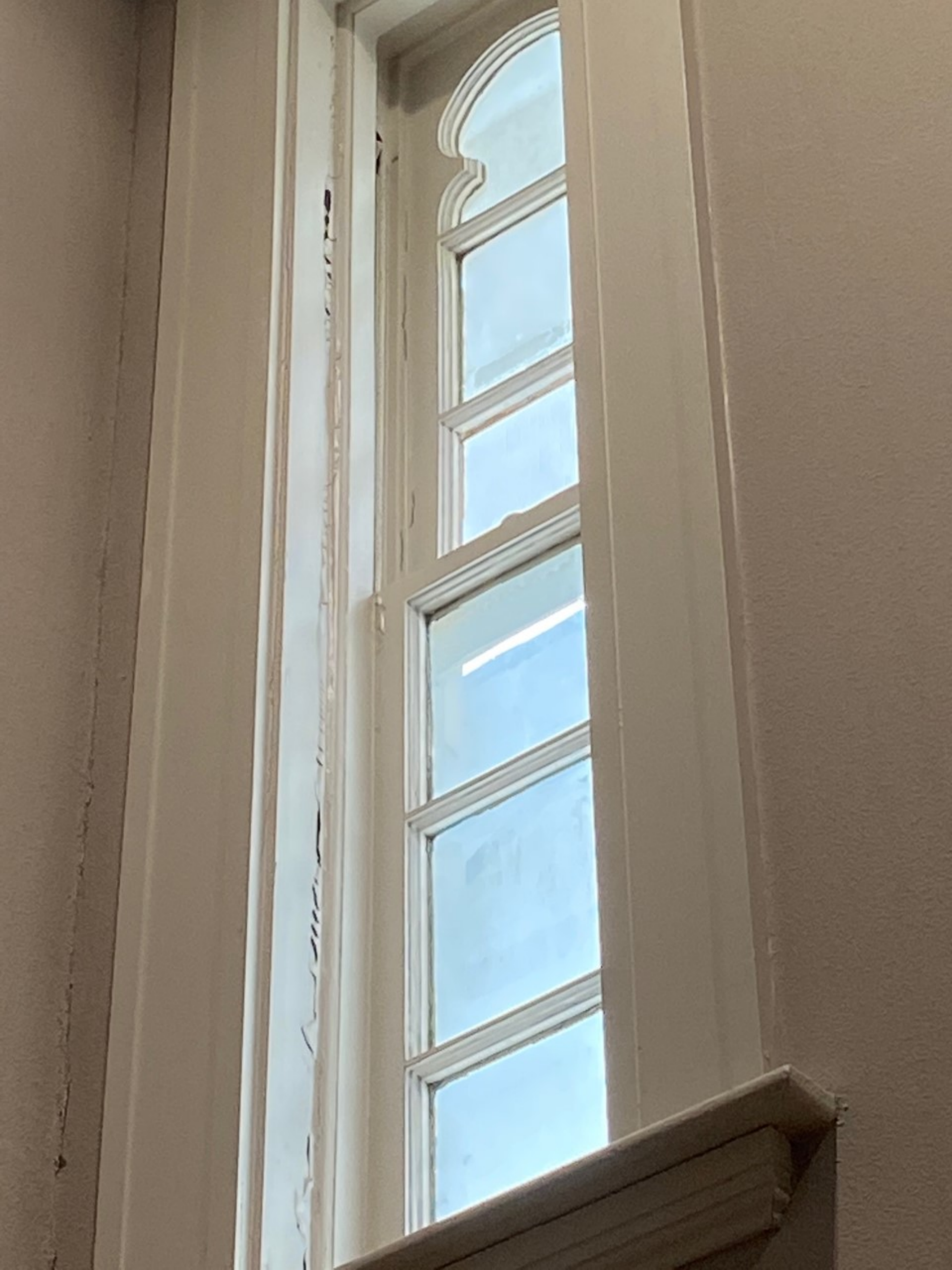






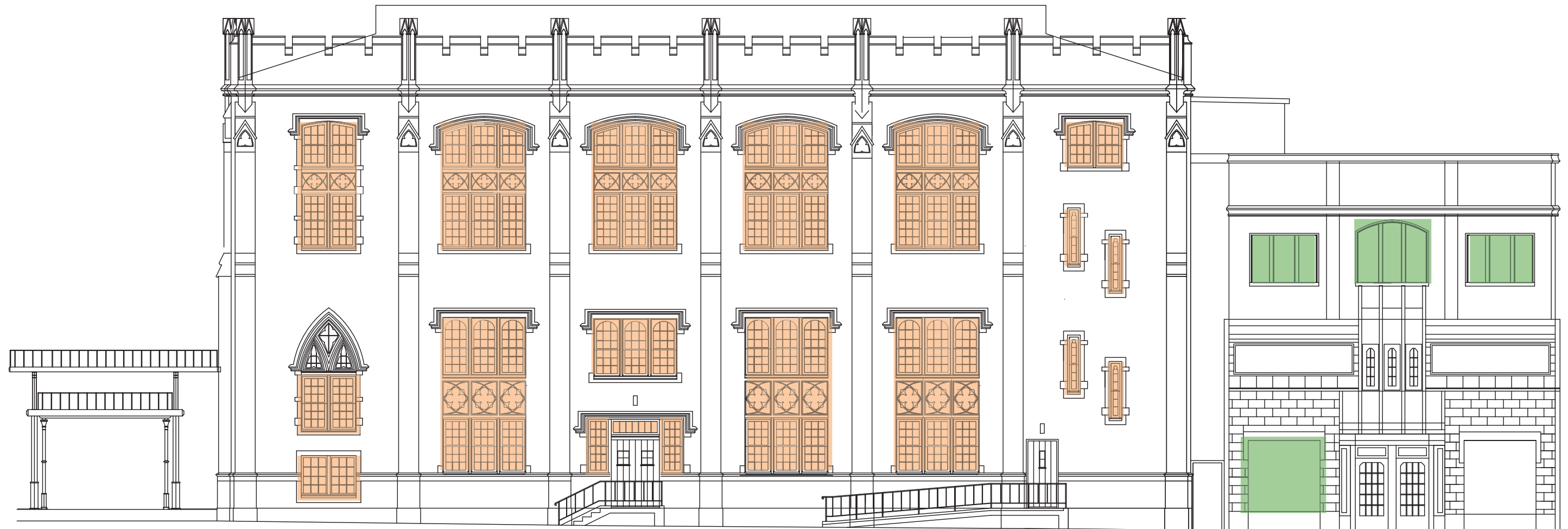












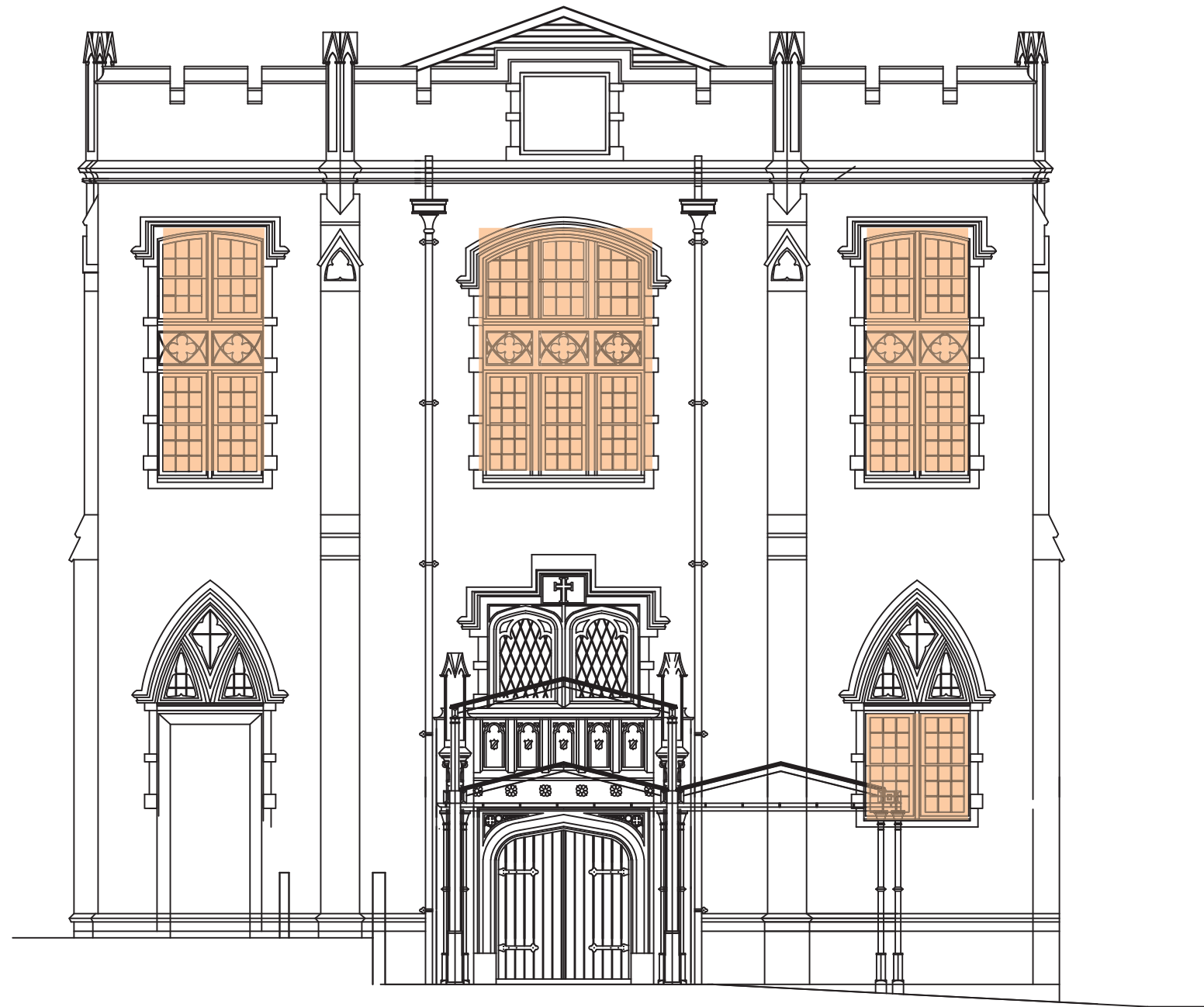
NORTH ELEVATION

■ RESTORE WINDOW
■ REPLACE WINDOW

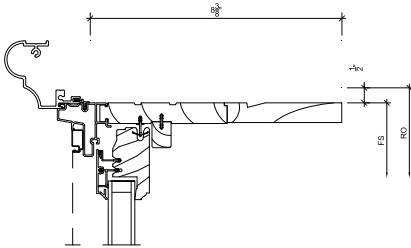
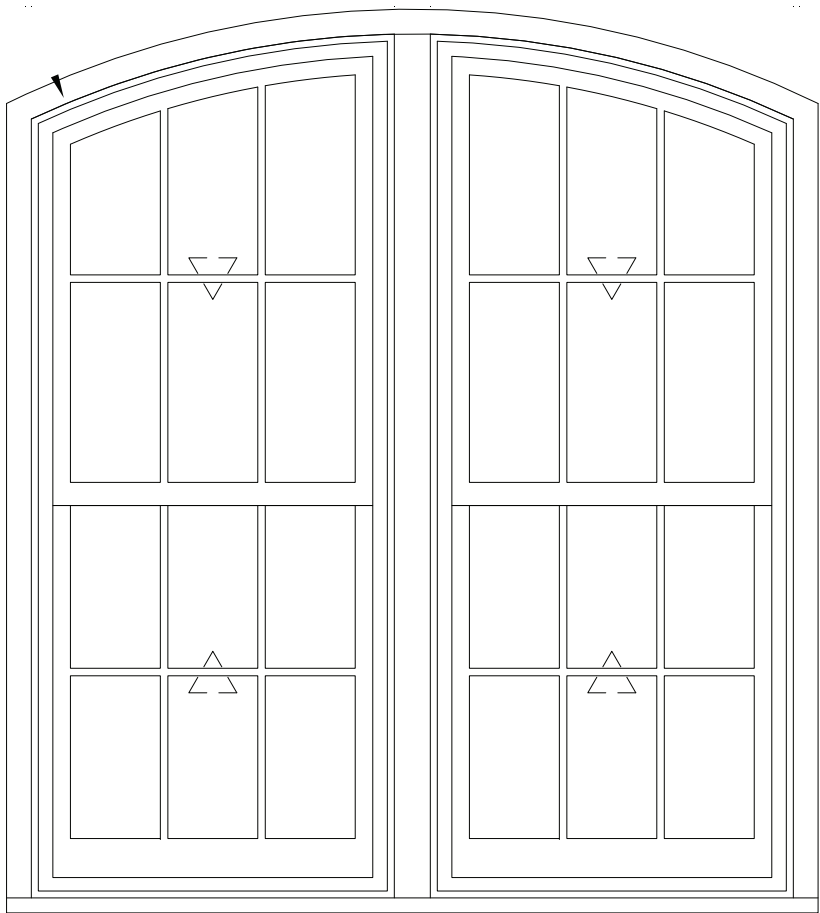
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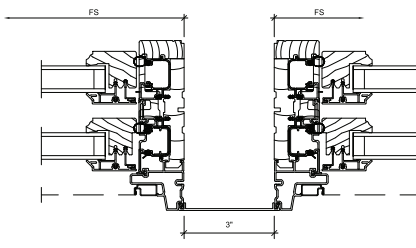
SOUTH ELEVATION
REPLACE WINDOW



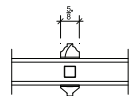
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REPLACE WINDOW



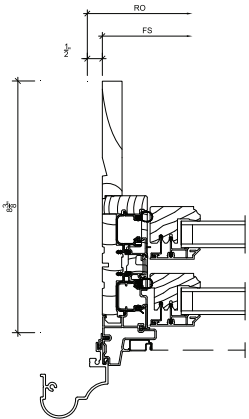
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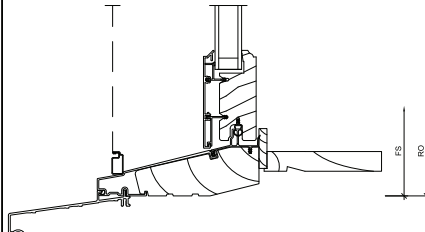
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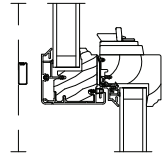
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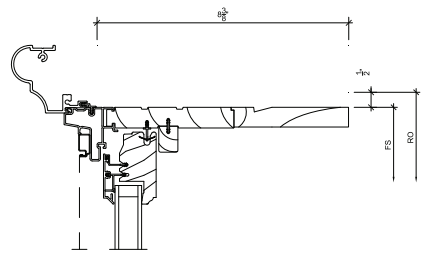
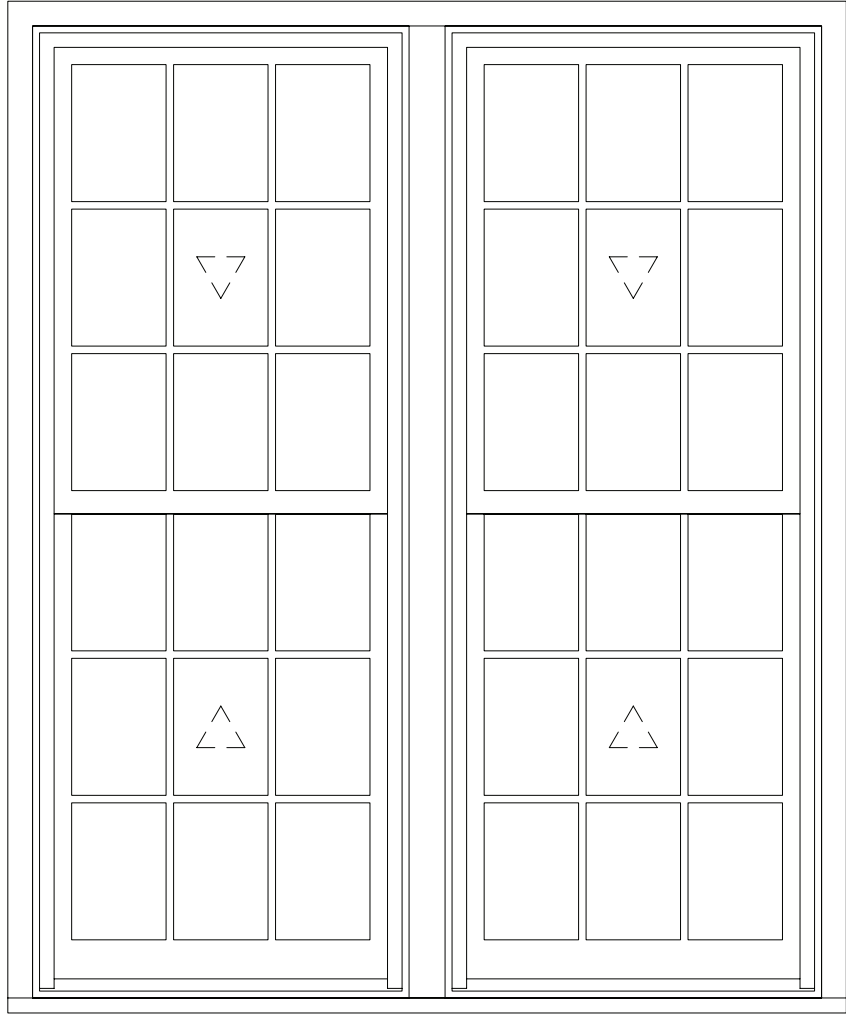
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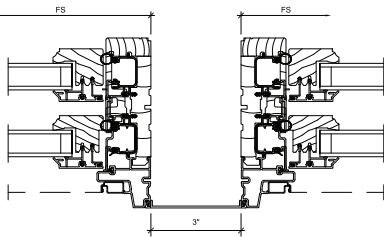


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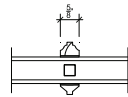
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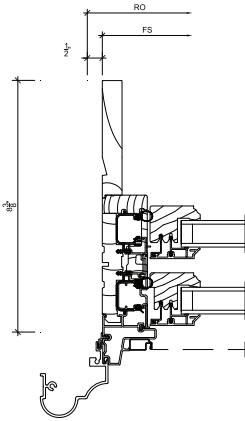
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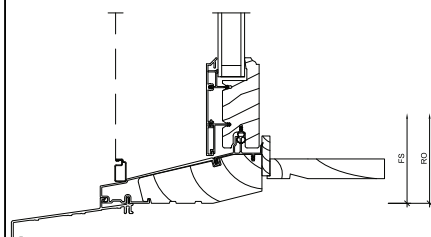
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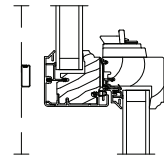
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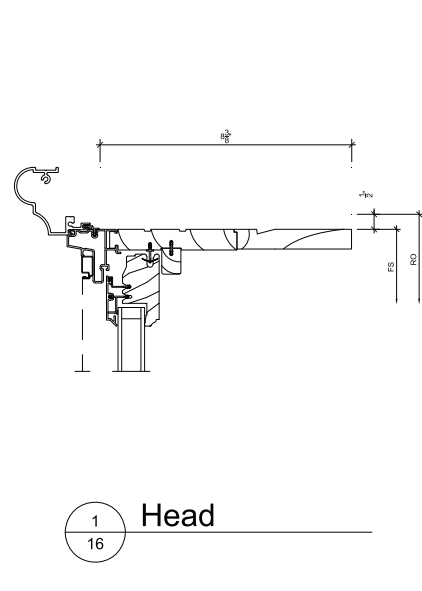
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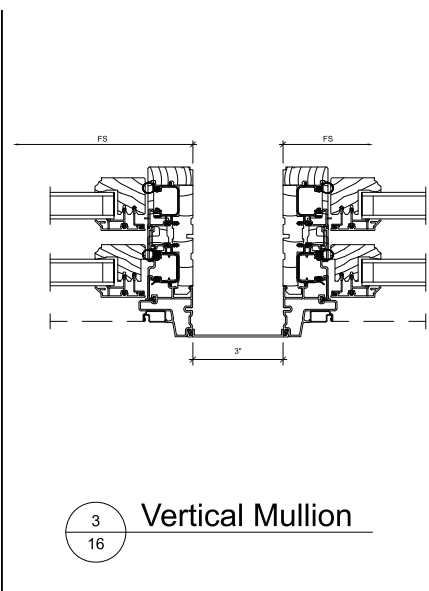
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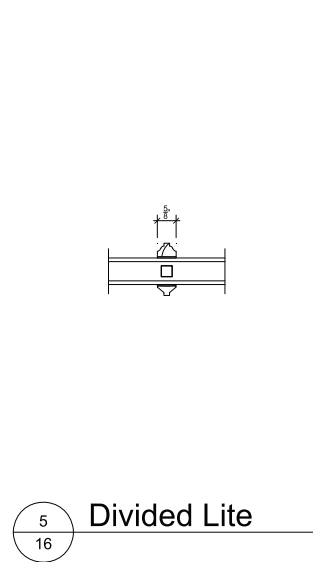
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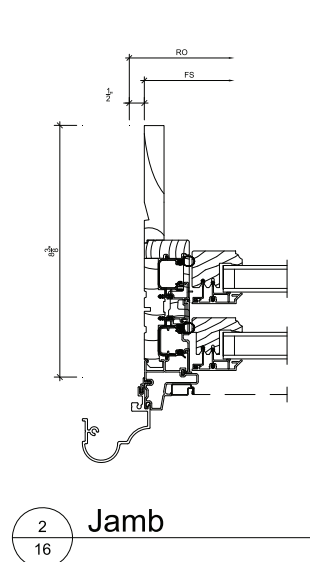
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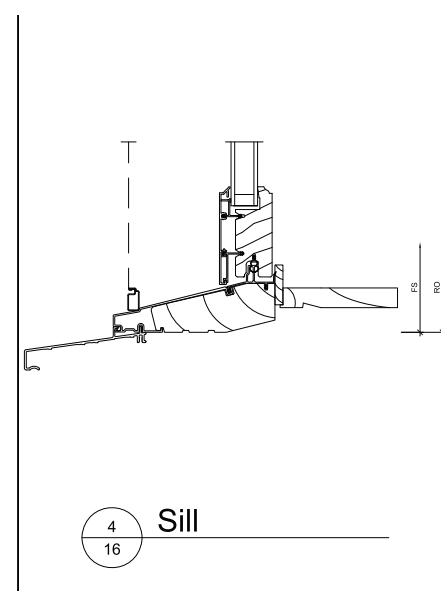
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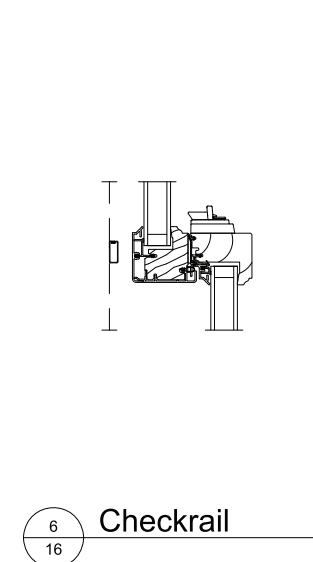
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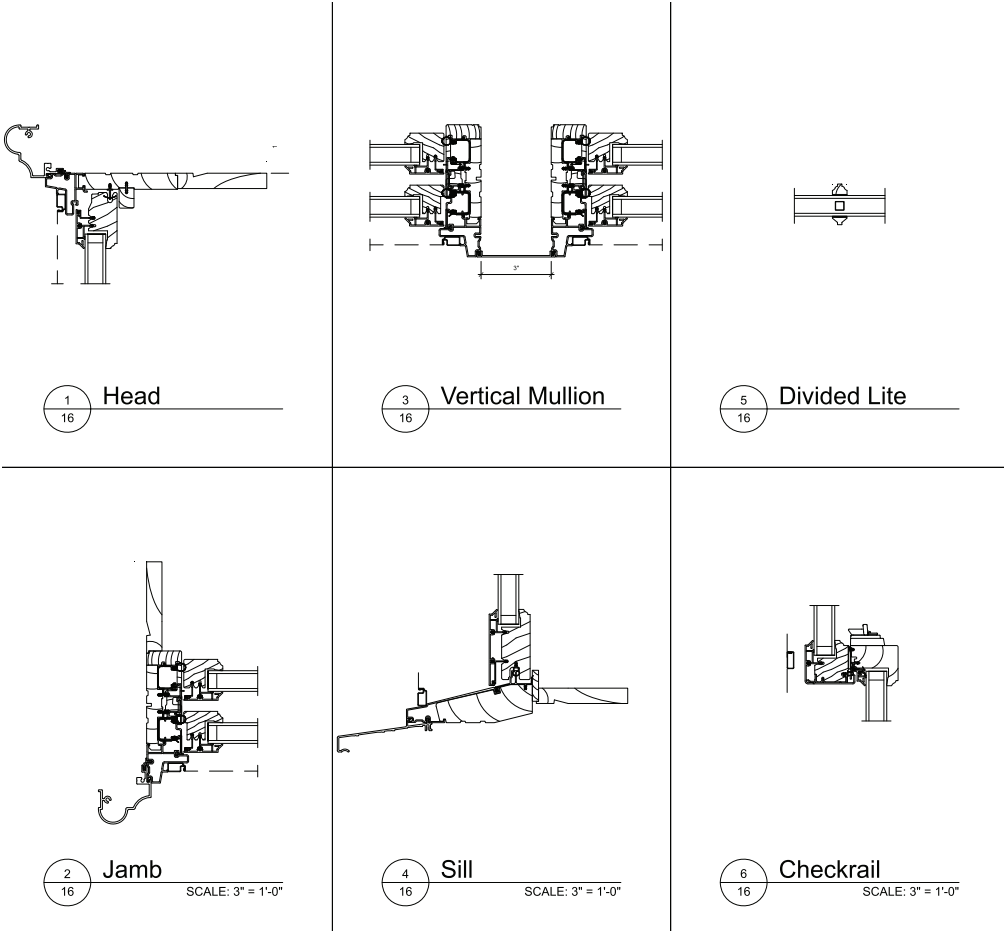
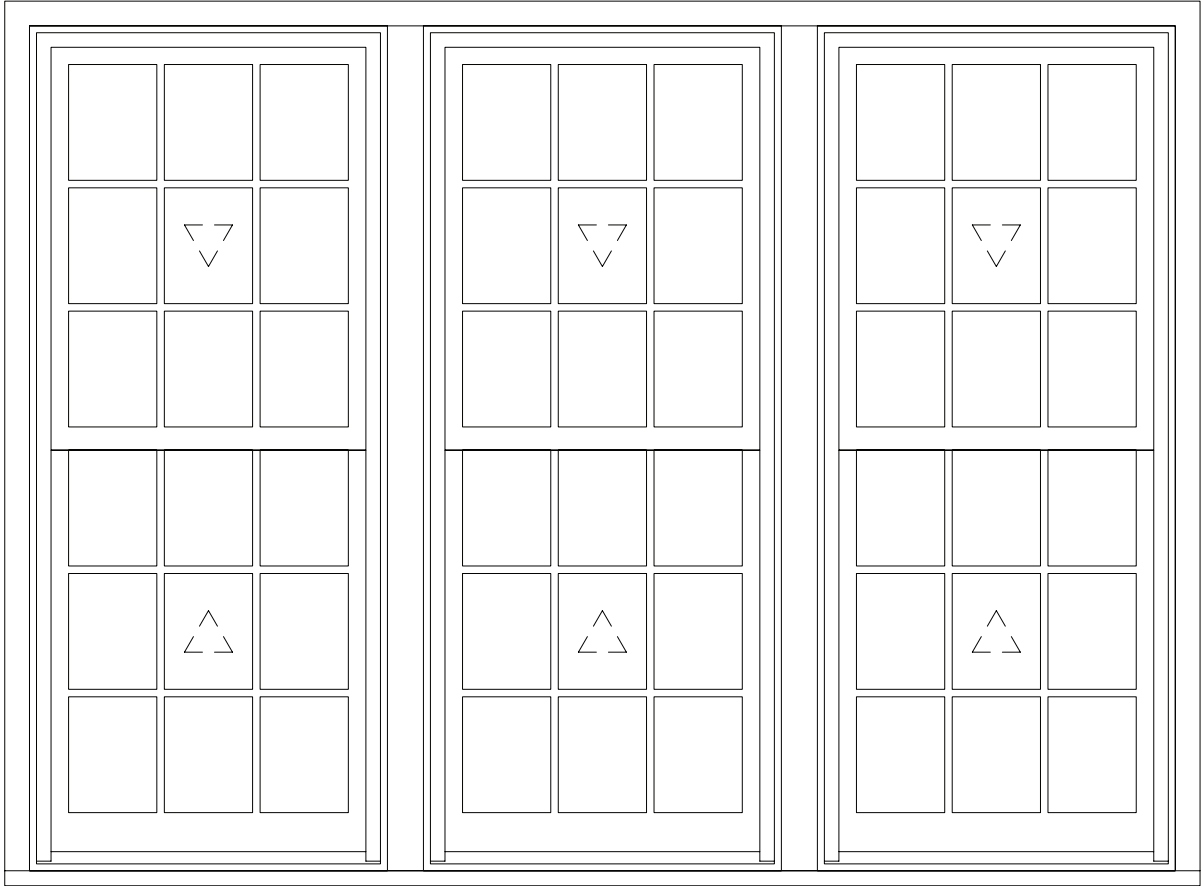


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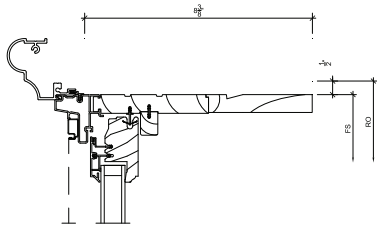
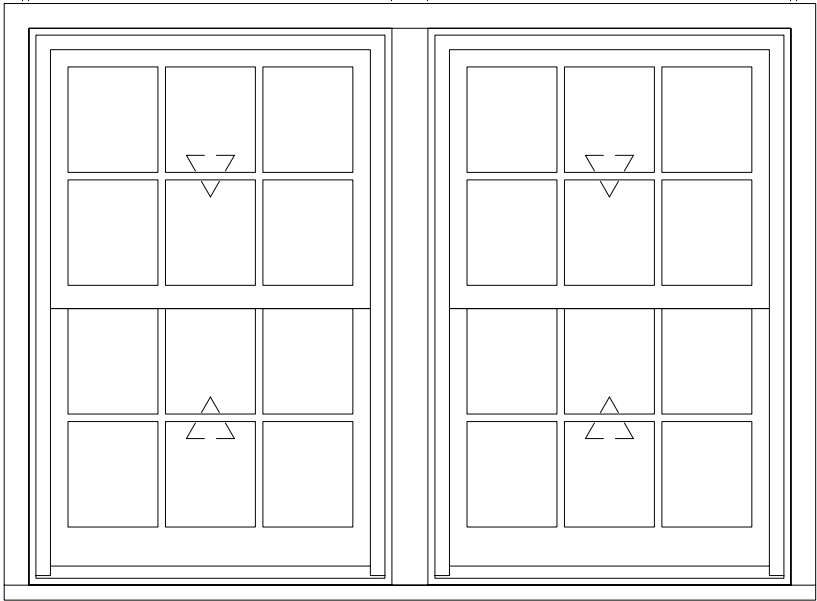


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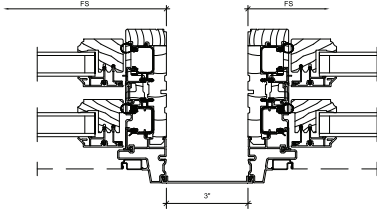
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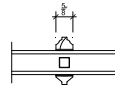
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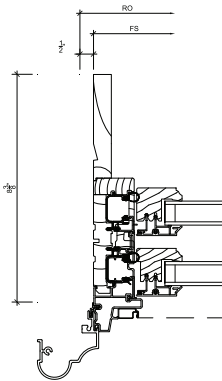
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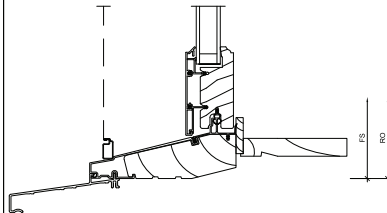
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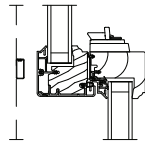
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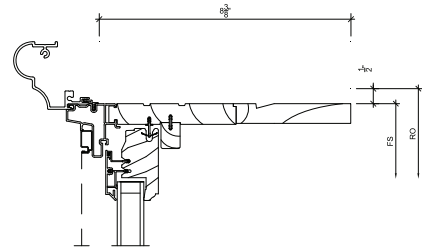
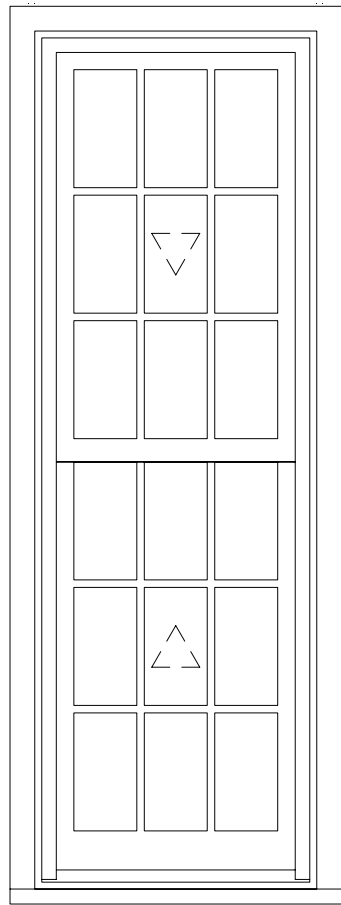
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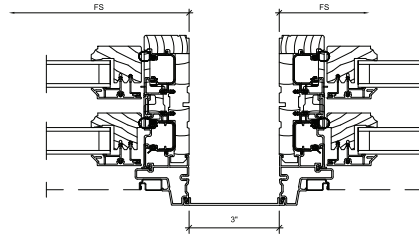
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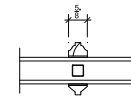
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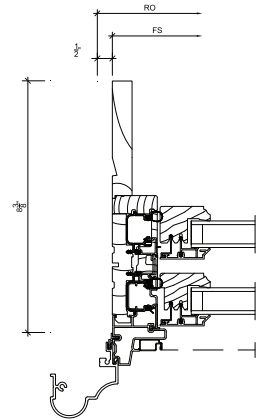
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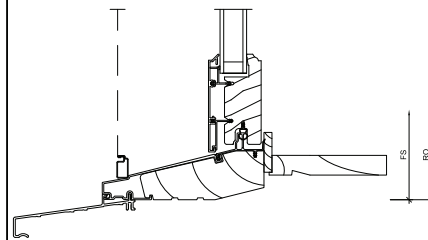
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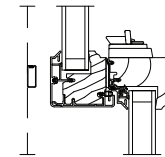
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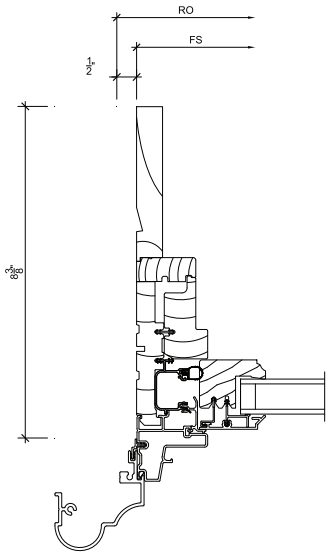
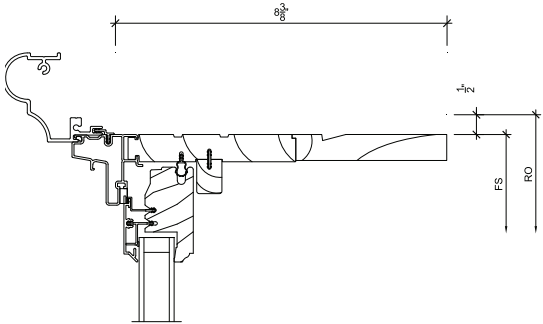
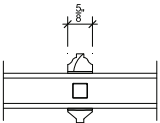
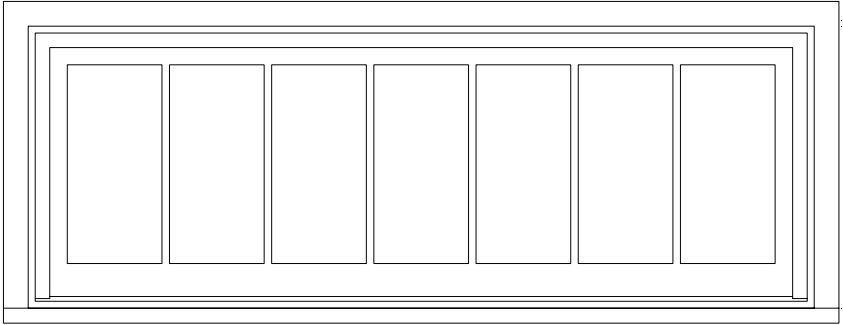
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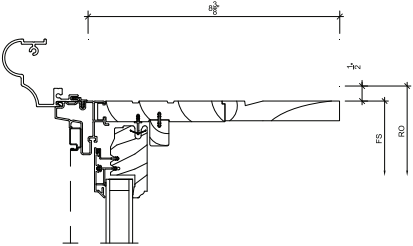
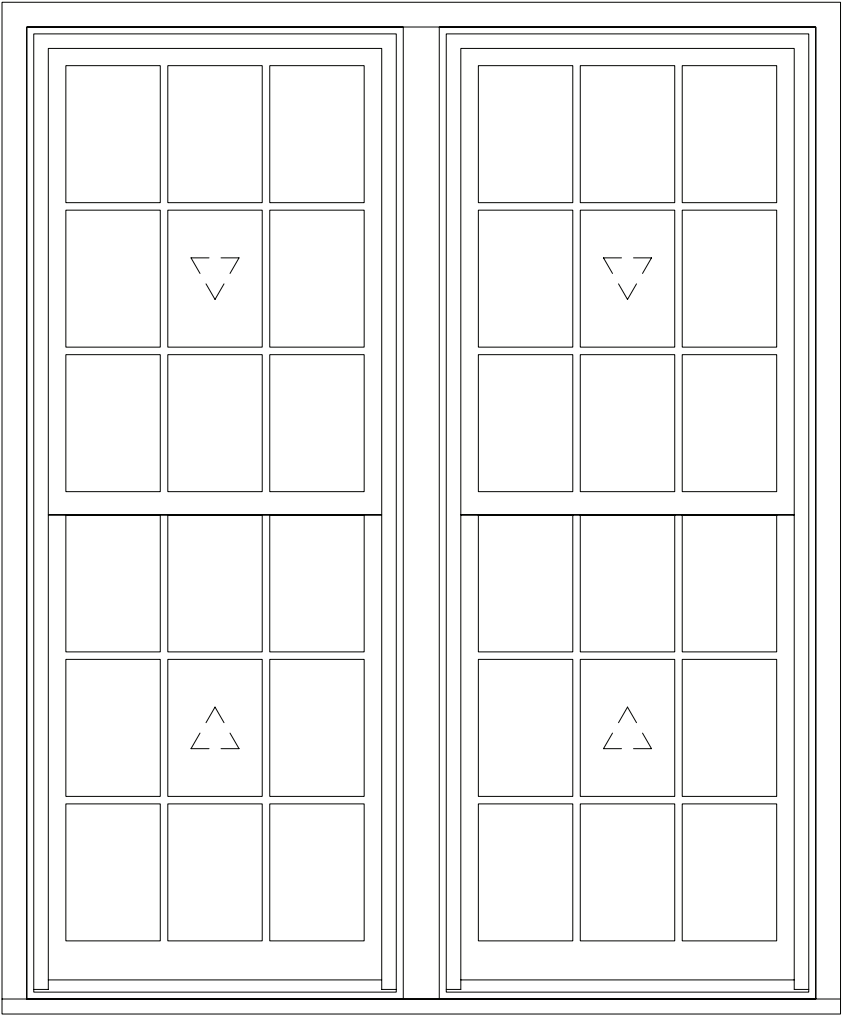
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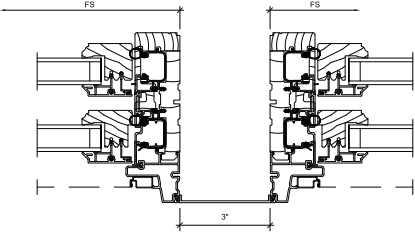
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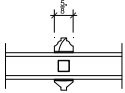
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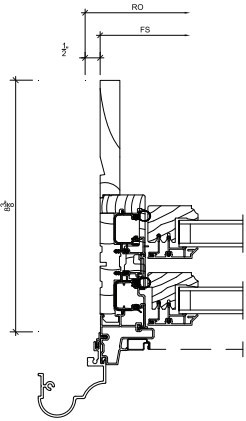
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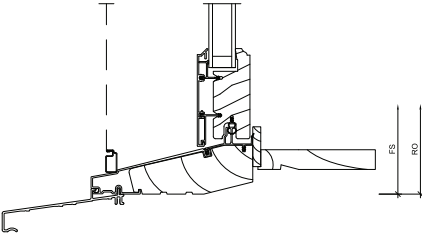
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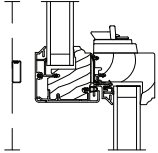
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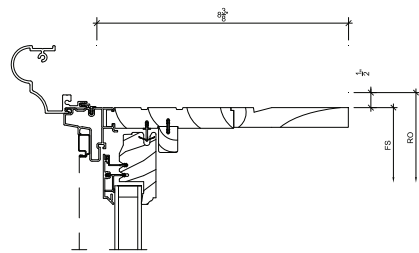
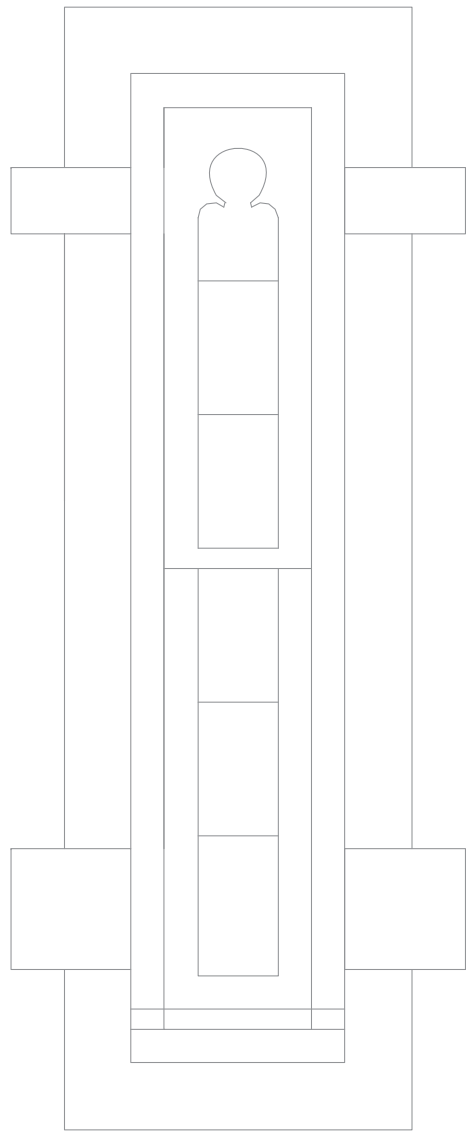
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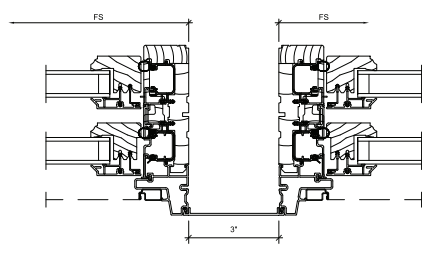
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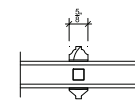
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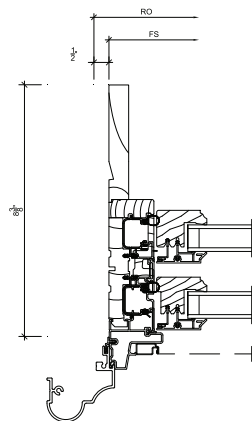
1
16 Head



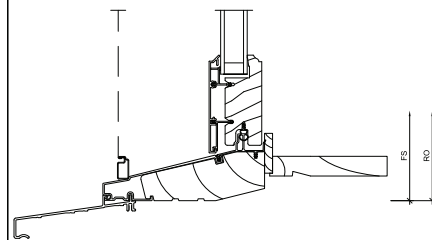
3
16 Vertical Mullion



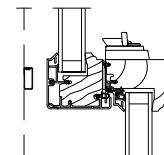
5
16 Divided Lite



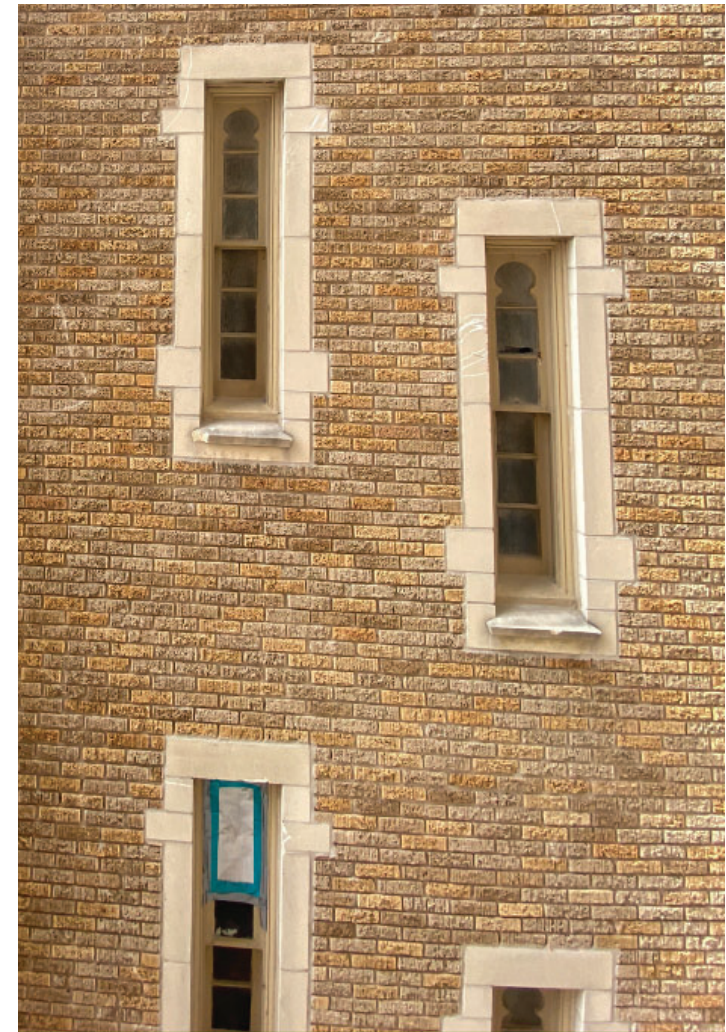
2
16 Jamb



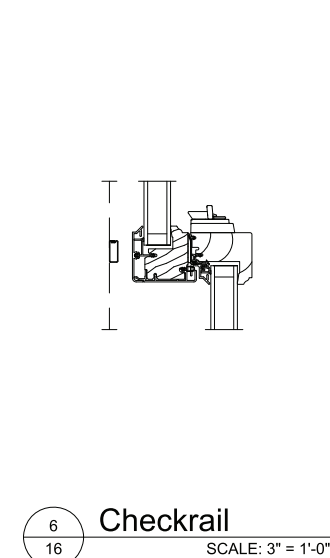
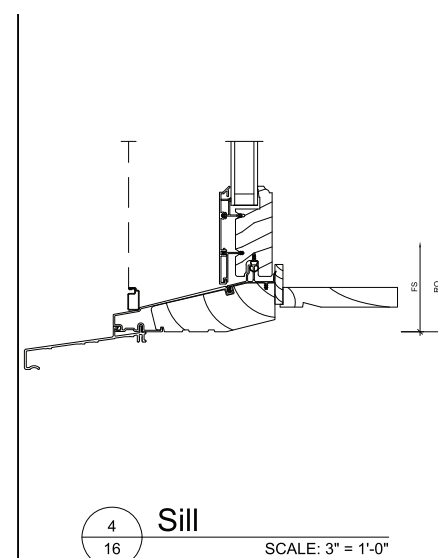
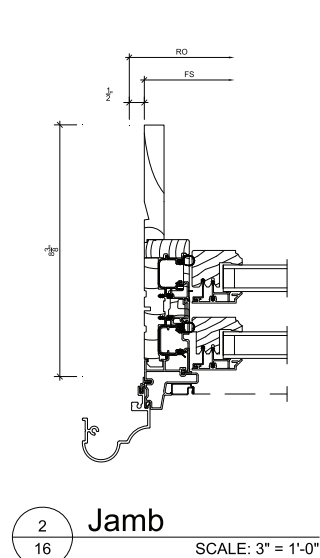
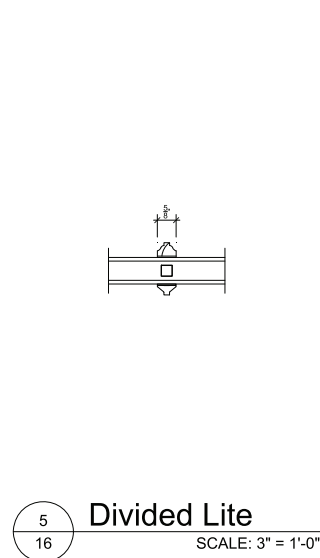
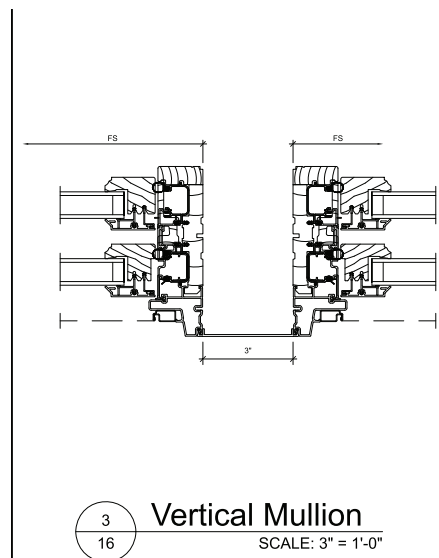
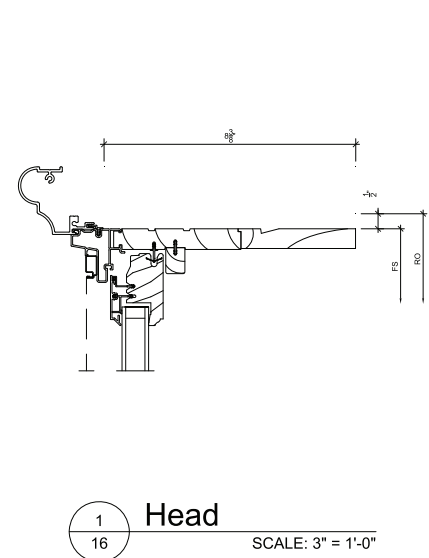
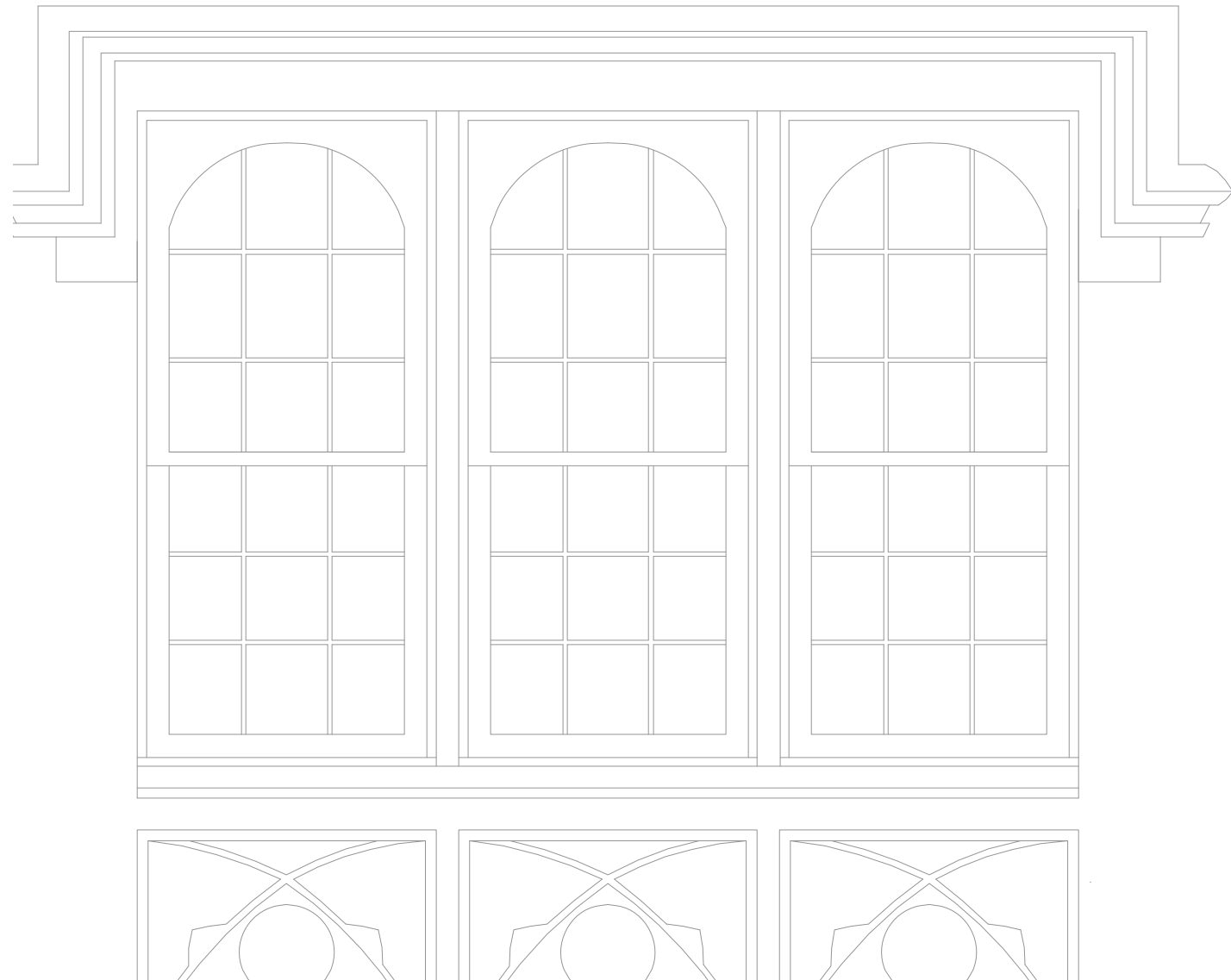
4
16 Sill



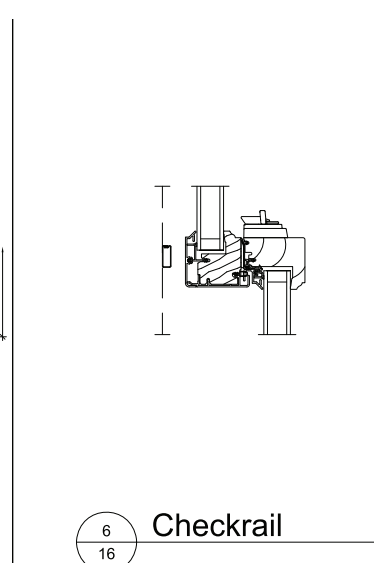
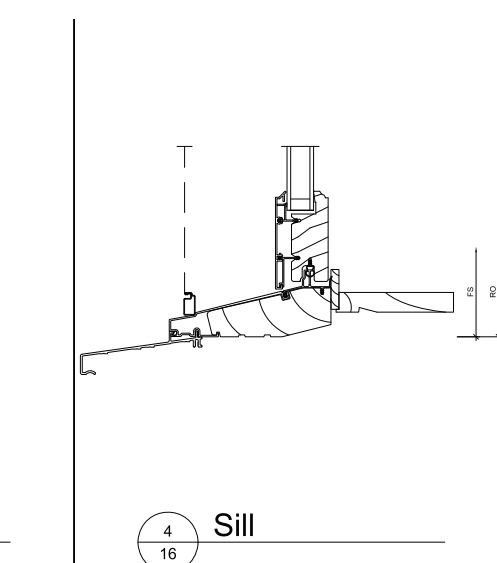
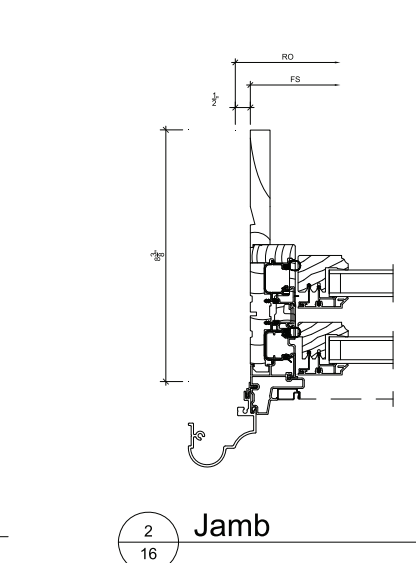
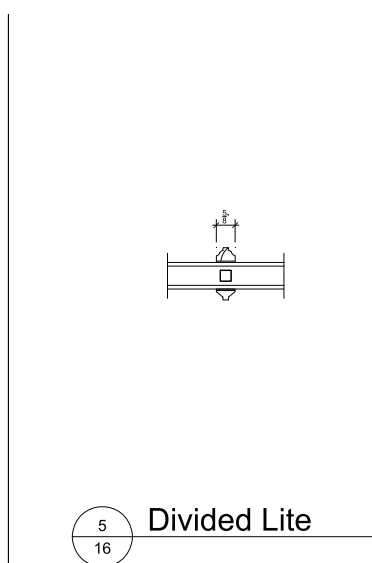
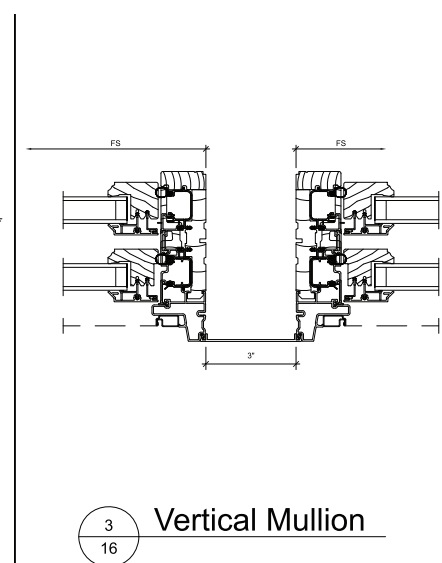
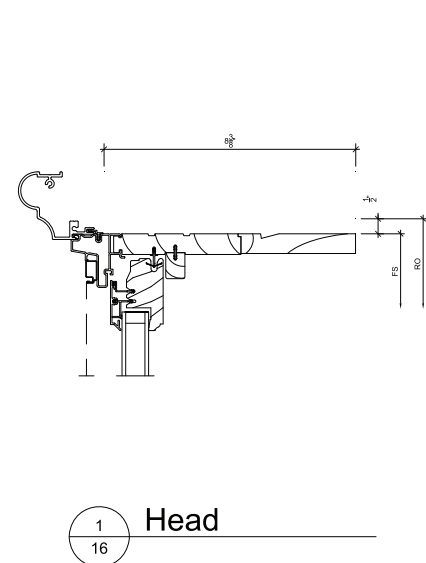
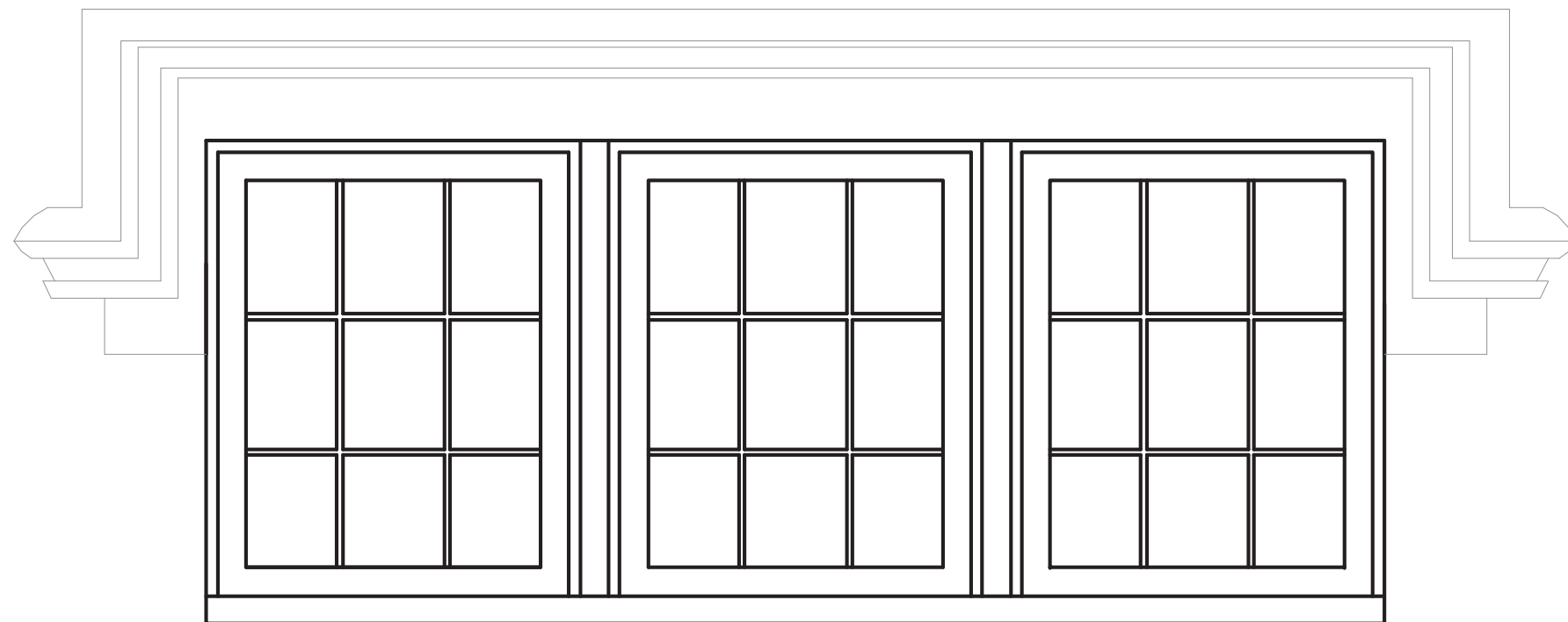
6
16 Checkrail



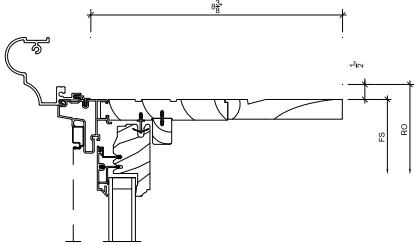
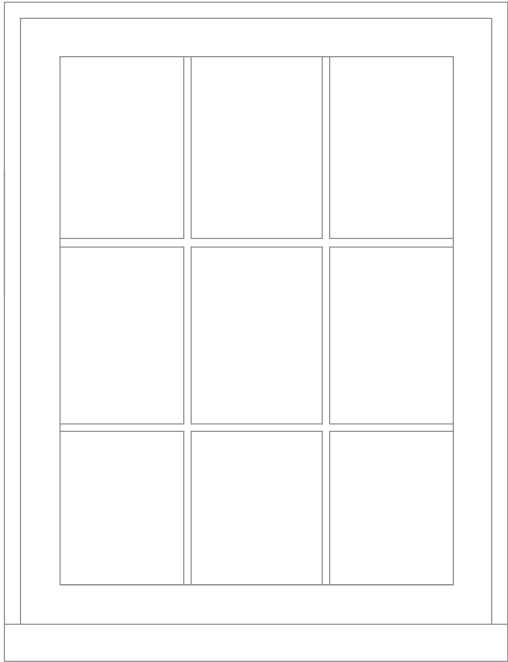
fpc



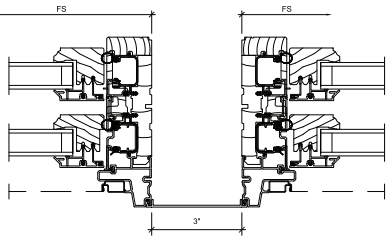
fpc



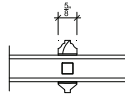
fpc



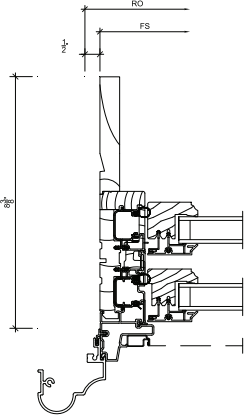
1 Head
16



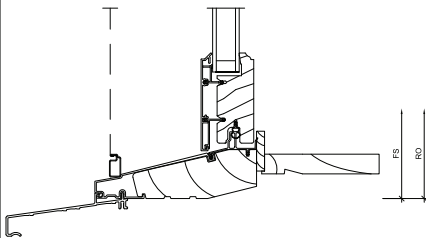
3 Vertical Mullion
16



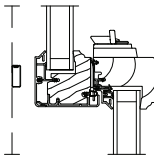
5 Divided Lite
16



2 Jamb
16

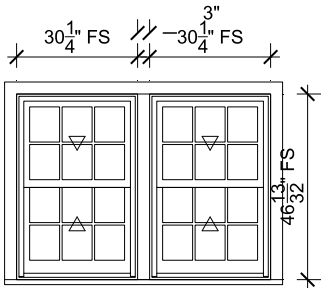


4 Sill
16



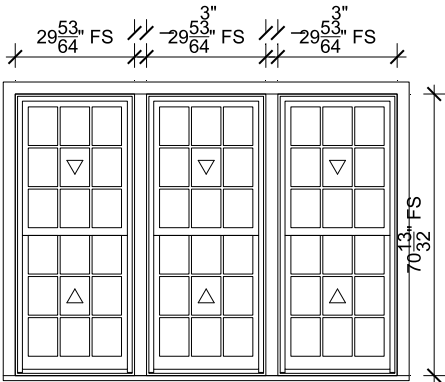
6 Checkrail
16





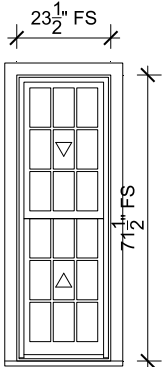
1 NORTHSIDE FIRST FLOOR
SCALE: 1/4" = 1'-0"

- 1/7 Head
- 2/7 Jamb
- 3/7 Vertical Mullion
- 4/7 Sill
- 1/8 Divided Lite
- 2/8 Checkrail



2 NORTHSIDE FIRST FLOOR
SCALE: 1/4" = 1'-0"

- 1/7 Head
- 2/7 Jamb
- 3/7 Vertical Mullion
- 4/7 Sill
- 1/8 Divided Lite
- 2/8 Checkrail



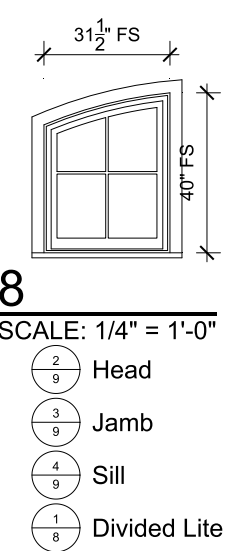
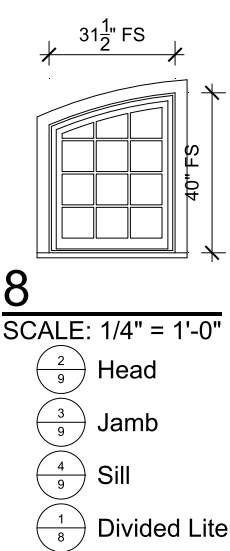
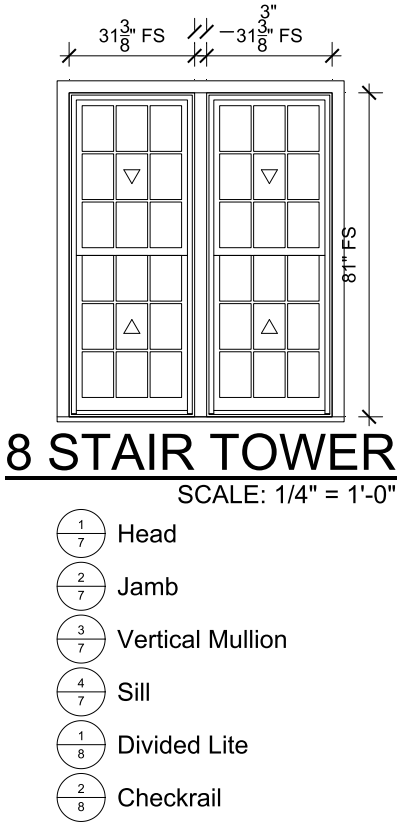
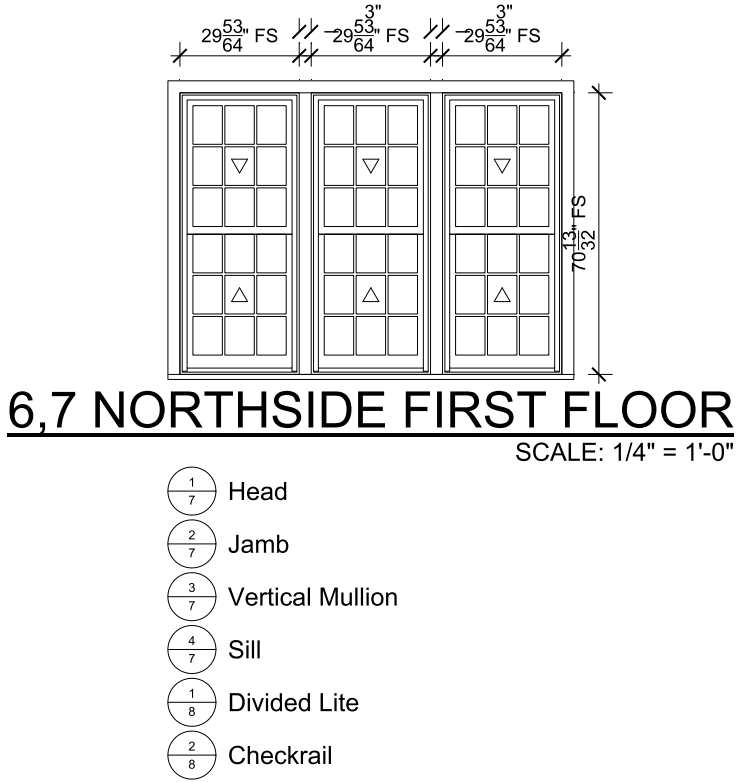
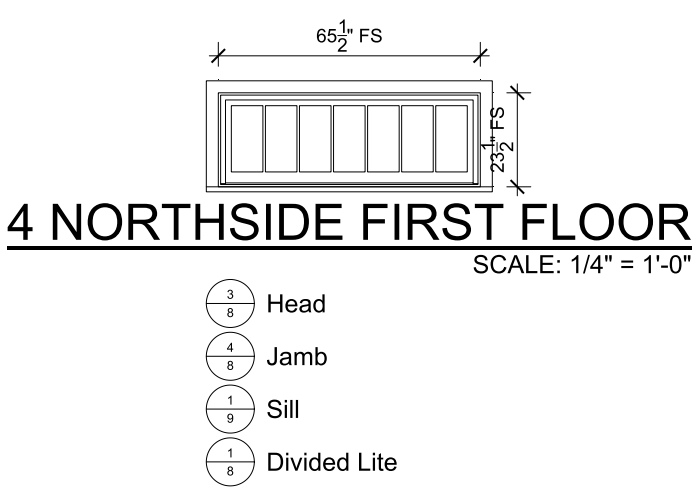
3,5 NORTHSIDE FIRST FLOOR
SCALE: 1/4" = 1'-0"

- 1/7 Head
- 2/7 Jamb
- 4/7 Sill
- 1/8 Divided Lite
- 2/8 Checkrail




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PROJ/JOB: GUIDO CONSTRUCTION / GUIDO CONST. 315 PECAN ALUM CLAD
DIST/DEALER: GUIDO LUMBER COMPANY
DRAWN: MATT VOGES
QUOTE#: TWBRB5U PK VER:0003.05.00 CREATED: 12/07/2020 REVISION:



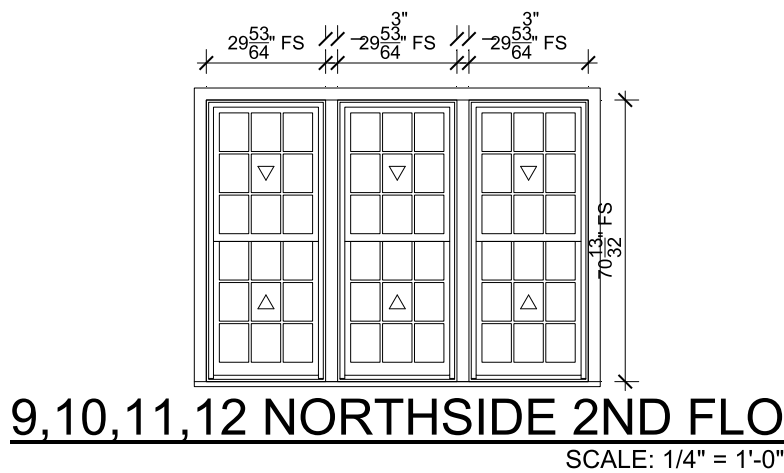
FOR DESIGN INTENT ONLY, NOT FOR MANUFACTURE.



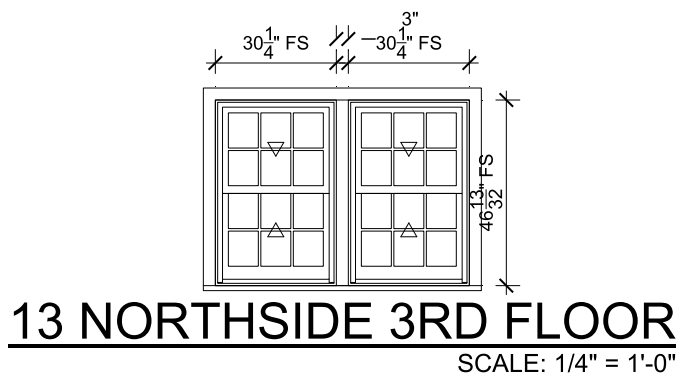
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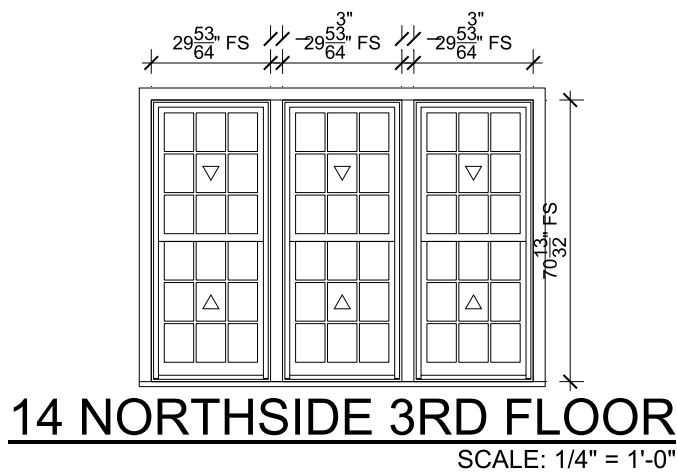
SHEET
2
OF 12



- 1
7 Head
- 2
7 Jamb
- 3
7 Vertical Mullion
- 4
7 Sill
- 1
8 Divided Lite
- 2
8 Checkrail



- 1
7 Head
- 2
7 Jamb
- 3
7 Vertical Mullion
- 4
7 Sill
- 1
8 Divided Lite
- 2
8 Checkrail



- 1
7 Head
- 2
7 Jamb
- 3
7 Vertical Mullion
- 4
7 Sill
- 1
8 Divided Lite
- 2
8 Checkrail

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DIST/DEALER: GUIDO LUMBER COMPANY

DRAWN: MATT VOGES

QUOTE#: TWBRB5U PK VER: 0003.05.00 CREATED: 12/07/2020 REVISION:

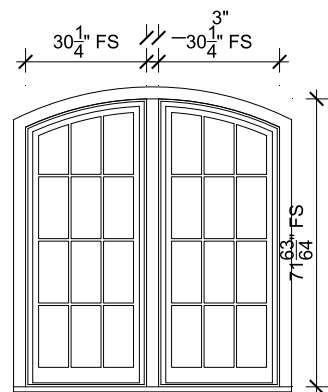
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SHEET

3

OF 12

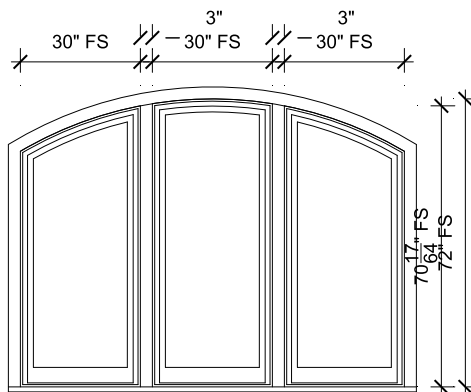
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15 NORTHSIDE FOURTH FLOOR

SCALE: 1/4" = 1'-0"

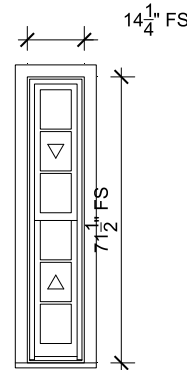
- 1/10 Head
- 2/10 Jamb
- 3/10 Vertical Mullion
- 4/10 Sill
- 1/8 Divided Lite



16 NORTHSIDE FOURTH FLOOR

SCALE: 1/4" = 1'-0"

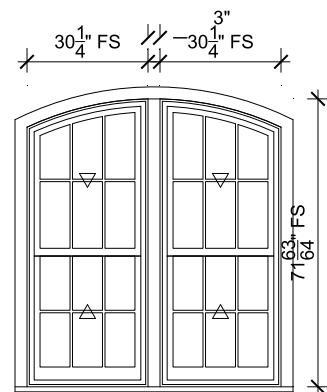
- 2/9 Head
- 3/9 Jamb
- 3/10 Vertical Mullion
- 1/11 Sill
- 1/8 Divided Lite



17

SCALE: 1/4" = 1'-0"

- 1/7 Head
- 2/7 Jamb
- 4/7 Sill
- 1/8 Divided Lite
- 2/8 Checkrail



* 18 NORTHSIDE FOURTH FLOOR

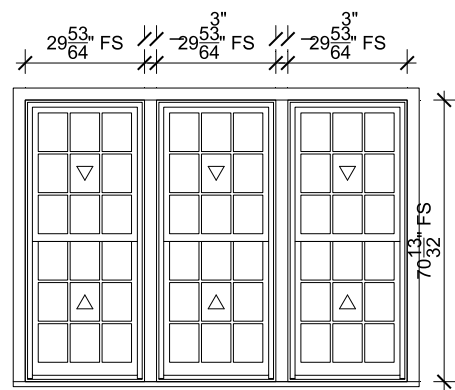
SCALE: 1/4" = 1'-0"

- 2/11 Head
- 3/11 Jamb
- 4/11 Vertical Mullion
- 1/12 Sill
- 1/8 Divided Lite
- 2/12 Checkrail

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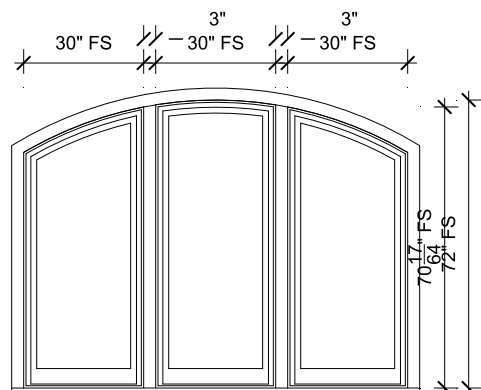
* The quote for this unit has an error on it. Please verify availability prior to order.

PROJ/JOB: GUIDO CONSTRUCTION / GUIDO CONST. 315 PECAN ALUM CLAD
DIST/DEALER: GUIDO LUMBER COMPANY
DRAWN: MATT VOGES
QUOTE#: TWBRB5U PK VER:0003.05.00 CREATED: 12/07/2020 REVISION:



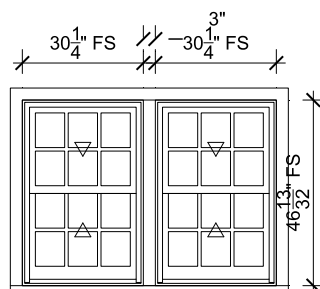
14 3RD FLOOR
SCALE: 1/4" = 1'-0"

- $\frac{1}{7}$ Head
- $\frac{2}{7}$ Jamb
- $\frac{3}{7}$ Vertical Mullion
- $\frac{4}{7}$ Sill
- $\frac{1}{8}$ Divided Lite
- $\frac{2}{8}$ Checkrail



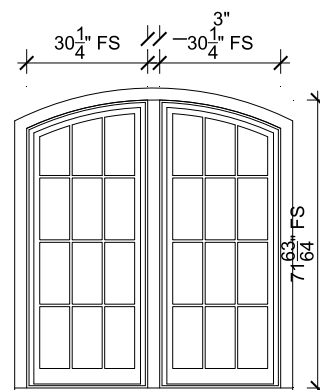
16 3RD FLOOR
SCALE: 1/4" = 1'-0"

- $\frac{2}{9}$ Head
- $\frac{3}{9}$ Jamb
- $\frac{3}{10}$ Vertical Mullion
- $\frac{1}{11}$ Sill
- $\frac{1}{8}$ Divided Lite



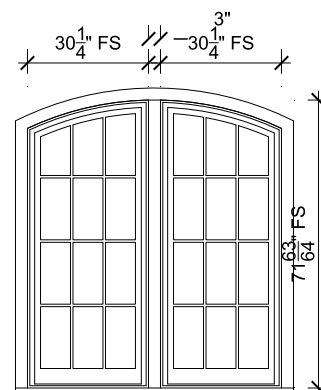
13 3RD FLOOR
SCALE: 1/4" = 1'-0"

- $\frac{1}{7}$ Head
- $\frac{2}{7}$ Jamb
- $\frac{3}{7}$ Vertical Mullion
- $\frac{4}{7}$ Sill
- $\frac{3}{12}$ Divided Lite
- $\frac{2}{8}$ Checkrail



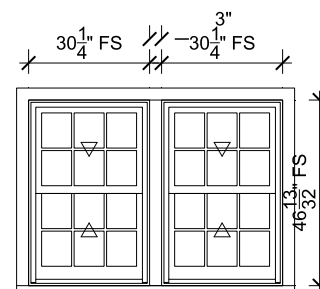
15 3RD FLOOR
SCALE: 1/4" = 1'-0"

- $\frac{1}{10}$ Head
- $\frac{2}{10}$ Jamb
- $\frac{3}{10}$ Vertical Mullion
- $\frac{4}{10}$ Sill
- $\frac{1}{8}$ Divided Lite



15 STAIRS
SCALE: 1/4" = 1'-0"

- $\frac{1}{10}$ Head
- $\frac{2}{10}$ Jamb
- $\frac{3}{10}$ Vertical Mullion
- $\frac{4}{10}$ Sill
- $\frac{1}{8}$ Divided Lite



13 STAIRS
SCALE: 1/4" = 1'-0"

- $\frac{1}{7}$ Head
- $\frac{2}{7}$ Jamb
- $\frac{3}{7}$ Vertical Mullion
- $\frac{4}{7}$ Sill
- $\frac{1}{8}$ Divided Lite
- $\frac{2}{8}$ Checkrail

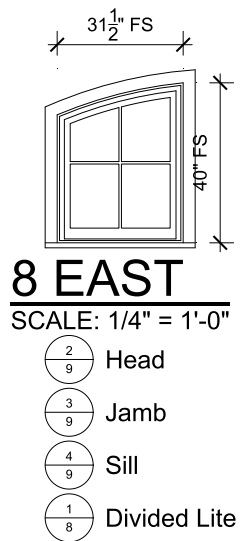
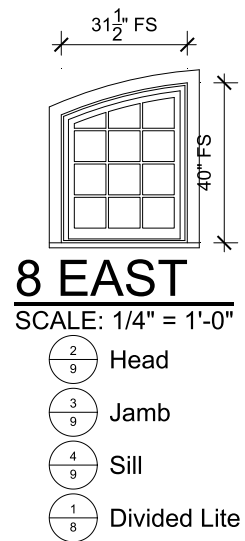
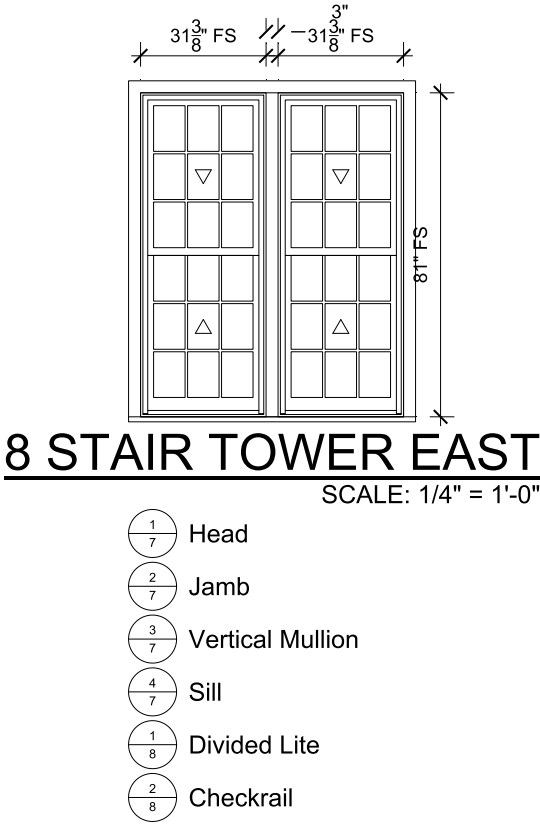
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DRAWN: MATT VOGES
QUOTE#: TWBRB5U PK VER:0003.05.00 CREATED: 12/07/2020 REVISION:

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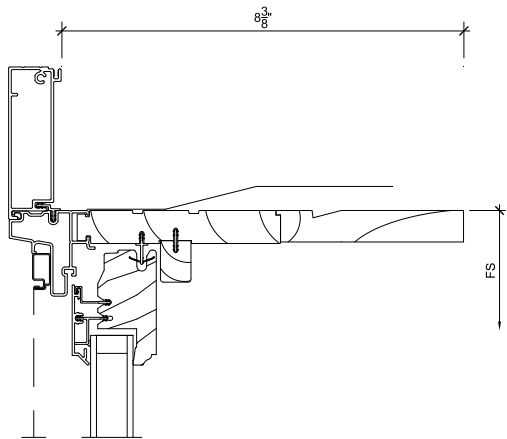
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1
7

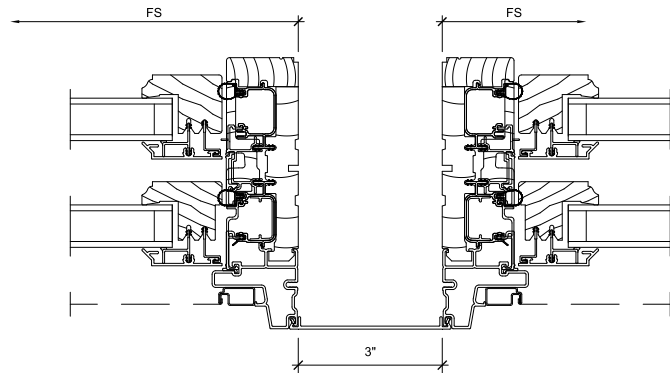
Head



SCALE: 3" = 1'-0"

3
7

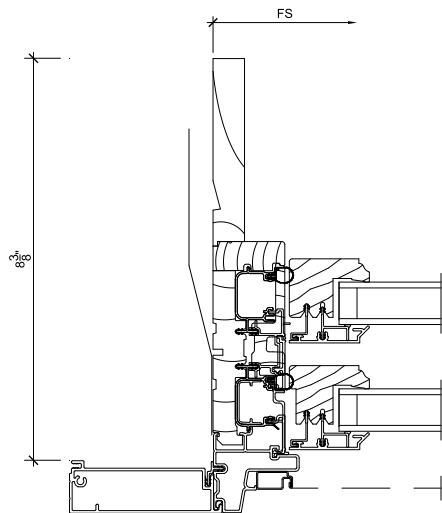
Vertical Mullion



SCALE: 3" = 1'-0"

2
7

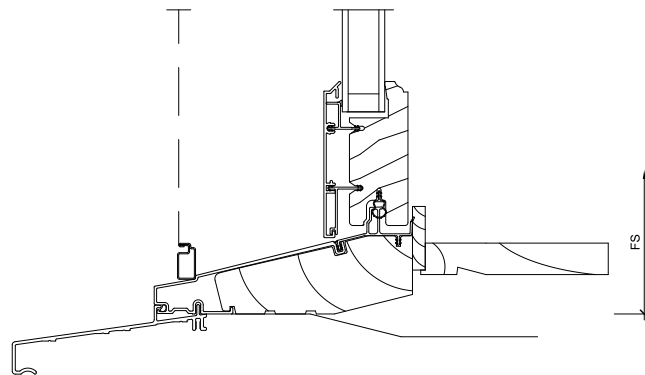
Jamb



SCALE: 3" = 1'-0"

4
7

Sill



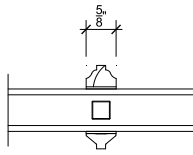
SCALE: 3" = 1'-0"

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DRAWN: MATT VOGES
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OF 12



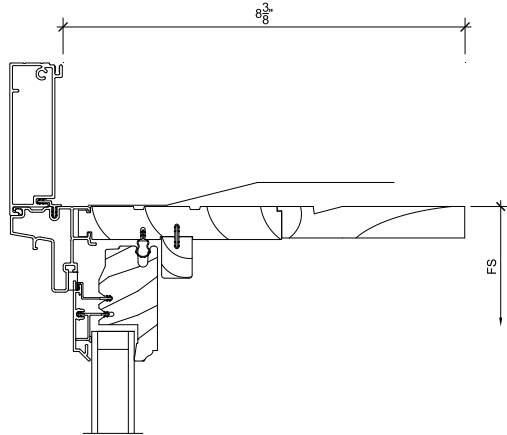
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1
8

Divided Lite

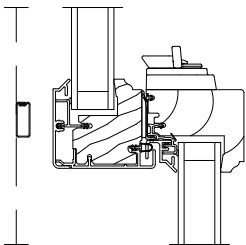
SCALE: 3" = 1'-0"



3
8

Head

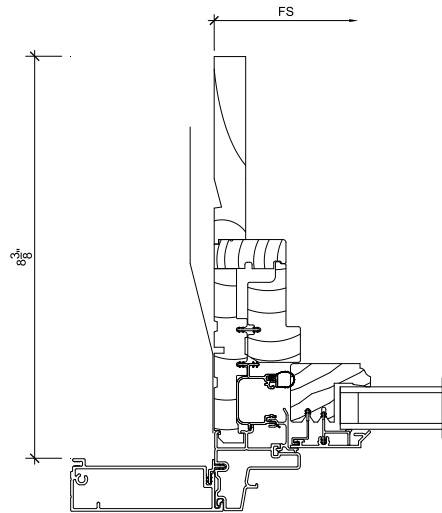
SCALE: 3" = 1'-0"



2
8

Checkrail

SCALE: 3" = 1'-0"



4
8

Jamb

SCALE: 3" = 1'-0"



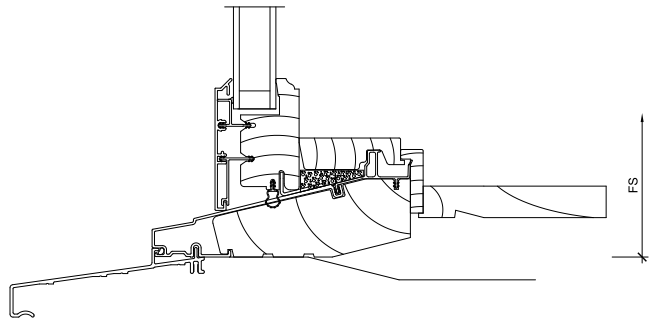
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QUOTE#: TWBRB5U PK VER:0003.05.00 CREATED: 12/07/2020 REVISION:

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8
OF 12

1
9

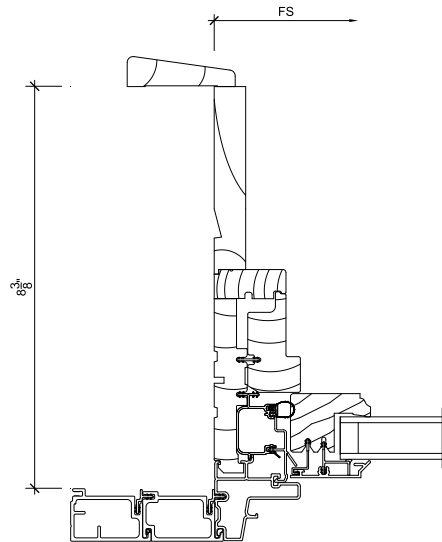
Sill



SCALE: 3" = 1'-0"

3
9

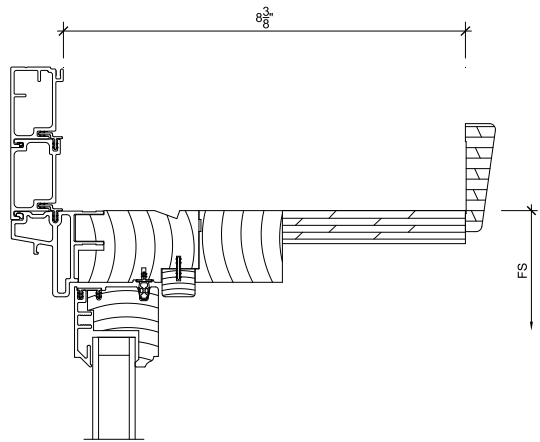
Jamb



SCALE: 3" = 1'-0"

2
9

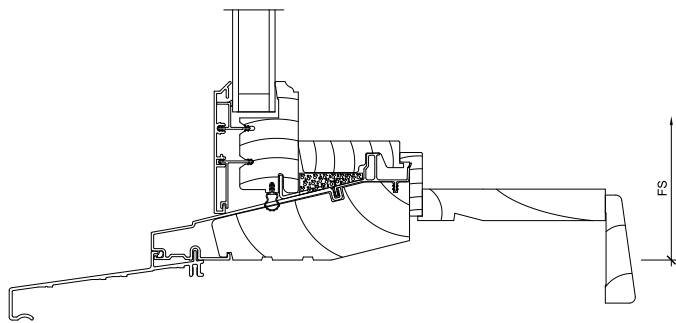
Head



SCALE: 3" = 1'-0"

4
9

Sill



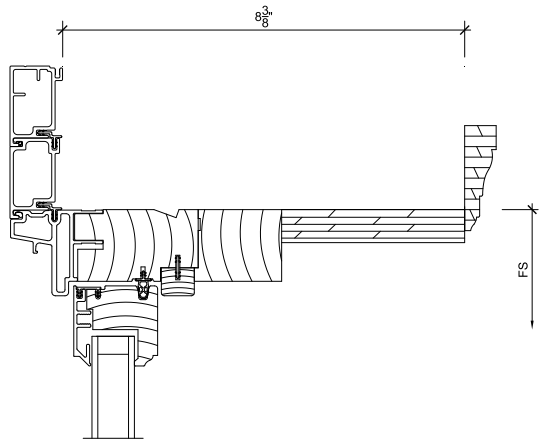
SCALE: 3" = 1'-0"

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DIST/DEALER: GUIDO LUMBER COMPANY
DRAWN: MATT VOGES
QUOTE#: TWBRB5U PK VER:0003.05.00 CREATED: 12/07/2020 REVISION:

SHEET
9
OF 12

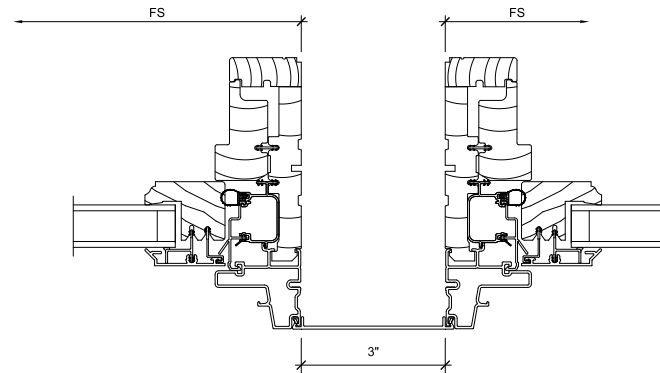


ORDERING PRODUCTS WITH REFERENCE TO SHOP DRAWINGS:
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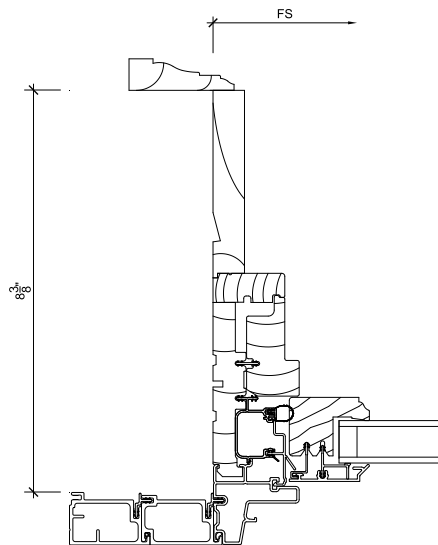
1
10 Head

SCALE: 3" = 1'-0"



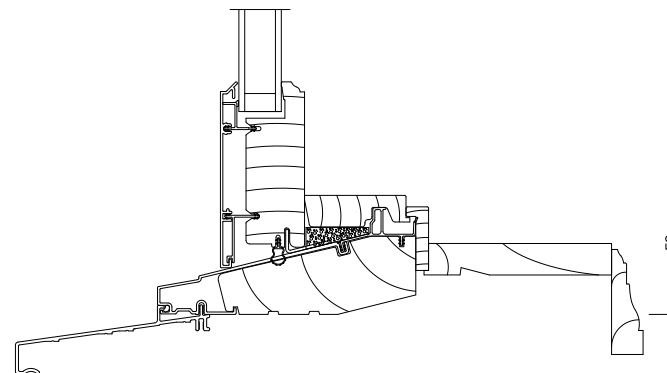
3
10 Vertical Mullion

SCALE: 3" = 1'-0"



2
10 Jamb

SCALE: 3" = 1'-0"



4
10 Sill

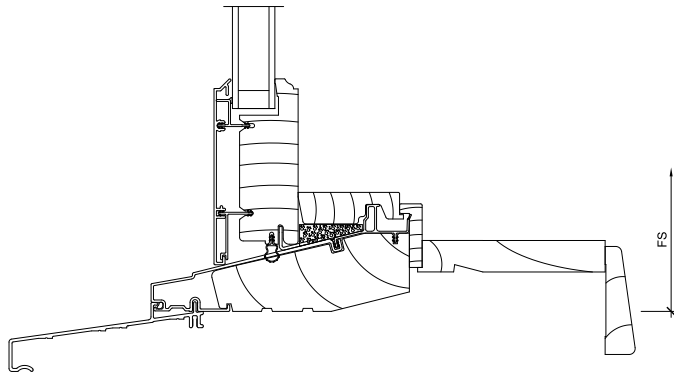
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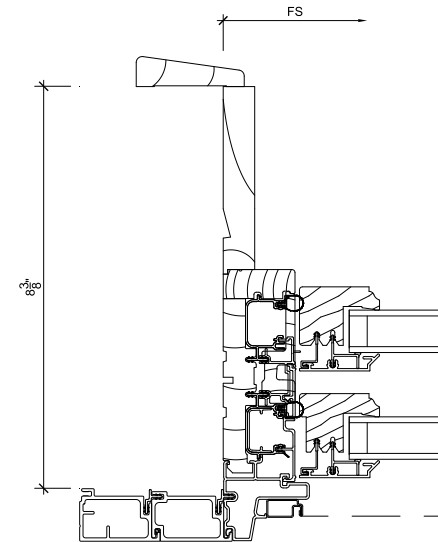
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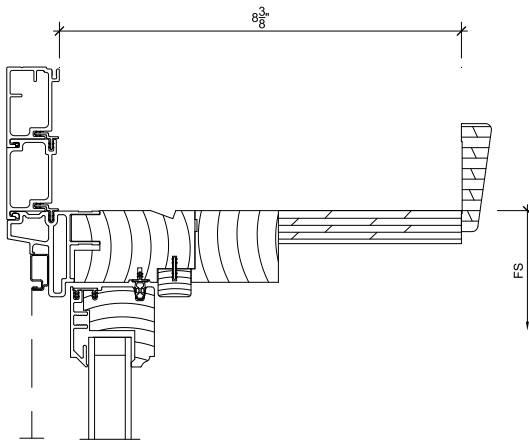
1
11 Sill

SCALE: 3" = 1'-0"



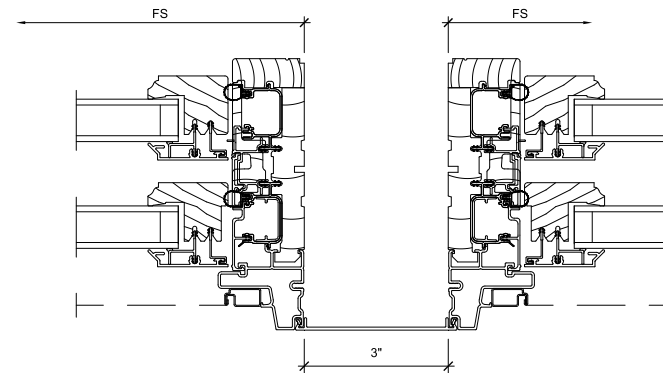
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11 Jamb

SCALE: 3" = 1'-0"



2
11 Head

SCALE: 3" = 1'-0"



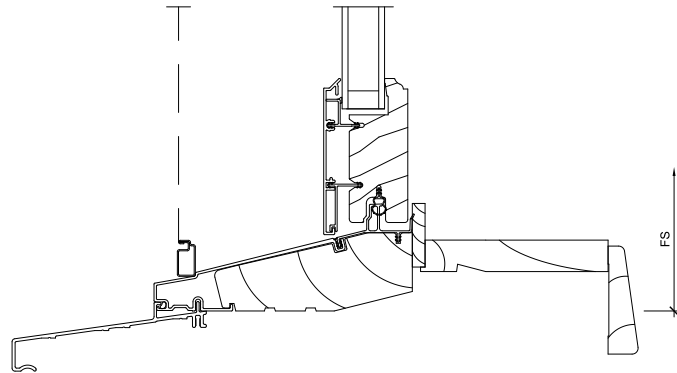
4
11 Vertical Mullion

SCALE: 3" = 1'-0"



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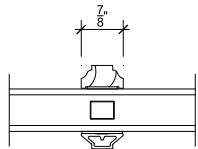
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DIST/DEALER: GUIDO LUMBER COMPANY
DRAWN: MATT VOGES
QUOTE#: TWBRB5U PK VER:0003.05.00 CREATED: 12/07/2020 REVISION:



1
12

Sill

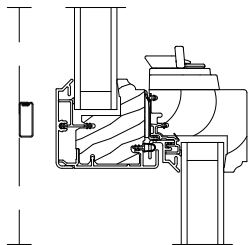
SCALE: 3" = 1'-0"



3
12

Divided Lite

SCALE: 3" = 1'-0"



2
12

Checkrail

SCALE: 3" = 1'-0"

4
12

NOT USED

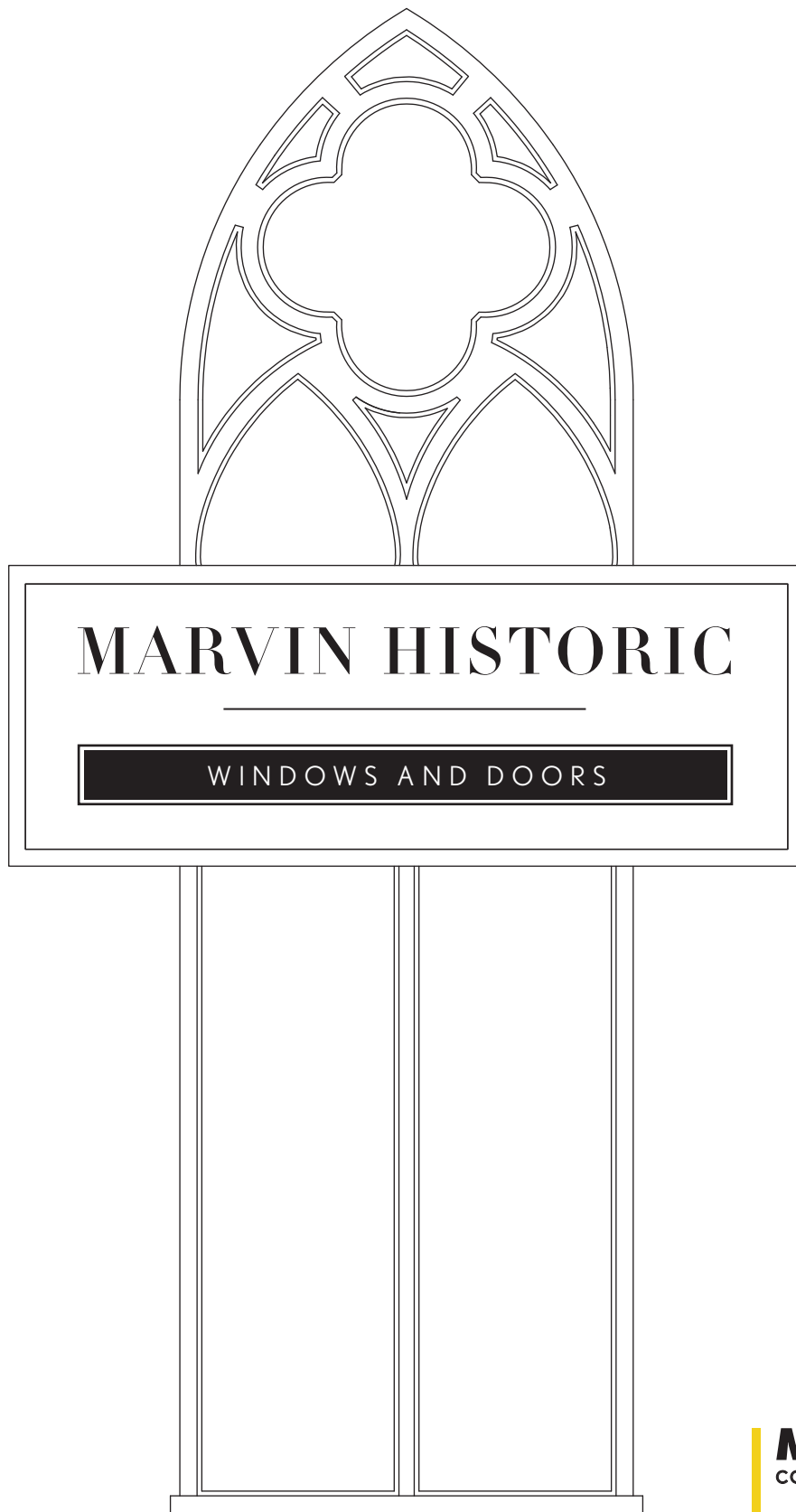
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OF 12





MARVIN HISTORIC

OUR HISTORY MAKES US UNIQUELY QUALIFIED TO HANDLE YOUR PIECE OF HISTORY.

For four generations, Marvin® has built a reputation for doing the tough window replacement projects that no one else can do. We've been solving historic rehabilitation challenges longer than anyone else, and we know the ins and outs - collaborating early on with architects, facilities managers and general contractors, reviewing products and options, navigating the National Parks Service guidelines, discussing window specifications with local historic commissions, and attending field testing. We offer the best project-based solutions and do what it takes to achieve excellent performance and historical accuracy.

Building: St. Mary's Church | Potsdam, NY

Architect: Jerry MacNeil Architects Ltd. **Contractor:** J.T. Erectors

Units & Applications: Fifteen custom Mahogany exterior and interior Gothic Revival wood window units, 3 at 70" x 216 1/2", 11 at 58" x 195", one at 171" x 276 1/2" integrating a 14 ft. diameter Rose Window. Pieces of Honduran mahogany were assembled in six layers with staggered finger jointing. Digital measurements using various technologies enabled accurate sizing to accommodate fixed masonry and glass dimensions. Designs downloaded directly to Marvin's CNC equipment for a paperless project.



MARVIN HISTORIC EXPERTISE

"BEEN THERE, DONE THAT," IS SOMETHING WE'VE BEEN SAYING FOR OVER 100 YEARS.

With Marvin® products on over 500 college and university campuses and countless government, religious and Main Street buildings, Marvin is a proven leader in replacement windows for existing commercial buildings. At every level and every step of the way, Marvin surrounds your project with an unmatched level of expertise. You'll work with one of Marvin's Architectural Project Managers, who bring a deep understanding of building science to every project and provide invaluable consultation services from initial budget estimates to completion. On the product and fabrication side, Marvin Technical Services, along with the Architectural Department, can engineer solutions to address structural reinforcement, profile replication, panning, mulls or other manufacturing or construction challenges.

Building: Savannah Law School | Savannah, GA

Architect: Lynch Associates

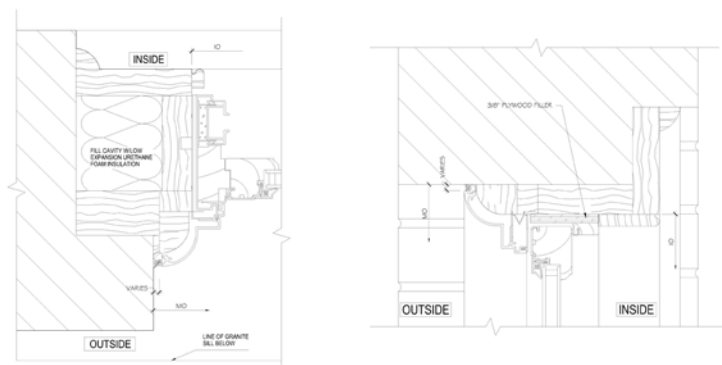
Units & Applications: The federal tax credit restoration and rehabilitation project replaced windows in 100 openings with Marvin Wood Ultimate Double Hung and Wood Ultimate Double Hung Magnum units, single glazed with authentic divided lites and 7/8" muntins.



MARVIN HISTORIC SOLUTIONS

WHEN IT COMES TO MEETING STRICT HISTORICAL STANDARDS, MARVIN SETS THE STANDARD.

No matter the scale or scope of the historic replacement project, Marvin® does all the little things that make the biggest difference. From exact sizing to the ability to replicate intricate historic profiles, Marvin's attention to detail is unsurpassed. Marvin's vast array of products and custom solutions are painstakingly engineered to meet the most exacting historical specifications, while delivering state-of-the-art performance.



Building: 311 Summer Street | Boston, MA

Architect: ADD Inc. Architectural Firm **Contractor:** Shawmut Design and Construction

Units & Applications: Plans for aluminum full-frame replacement windows with a pre-fit panning system resulted in reduced glazing dimensions, which were unacceptable to local historic preservation authorities. The Marvin solution installed panning over the existing frames and used Marvin's Tilt Pac® for sash replacement. Rapid prototyping was used to develop extruded aluminum panning that precisely replicated the existing profile. This allowed for installation of a sash that had the same amount of glass as previous windows. An aluminum extrusion was made to fill the arched masonry opening on the exterior. The same extrusion was installed as the vertical mullion cover. Panning was attached to the frame and followed the edge of the milled infill panel on the exterior, squaring off with the window on the interior.



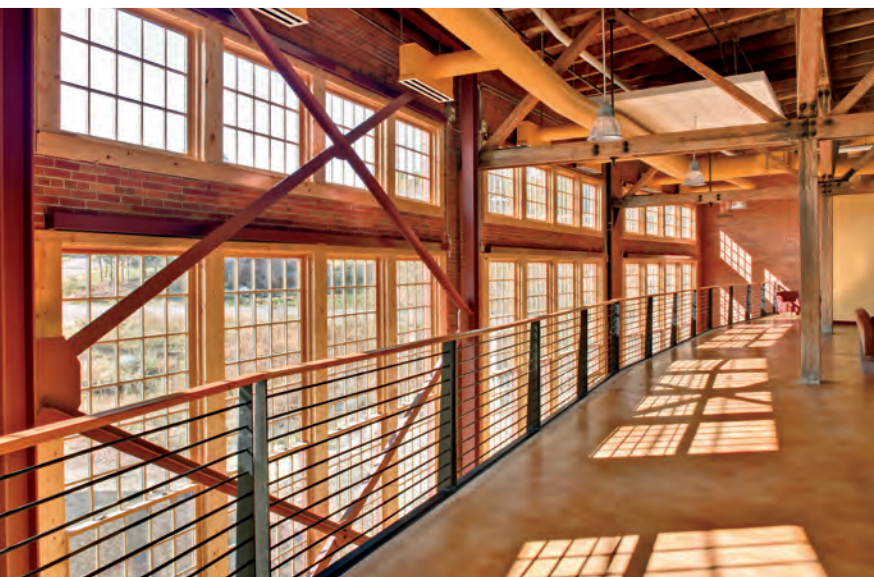
MS
MARVIN SIGNATURE
THE MARK OF AN ORIGINAL

WE MAKE THE IMPOSSIBLE, POSSIBLE.

For historic replacement projects that require a higher level of craftsmanship, attention to detail and expertise, Marvin® Signature Services is called upon to deliver fully custom, one-of-a-kind solutions to the most challenging architectural problems. From custom Direct Glaze Windows to location-specific replications like Nantucket and Boston sashes, the highly specialized craftspeople of Marvin Signature Services are capable of engineering windows that are every bit as unique and beautiful as the originals that inspired them. If you can dream it, Marvin Signature Services can build it.

Learn more at:

[MARVINWINDOWS.COM/SIGNATURE](https://marvinwindows.com/signature)



Building: Evanston Roundhouse | Evanston, WY

Architect: Myers-Anderson

Contractor: Hogan and Associates

Units & Applications: The original criteria required re-use of existing operating windows with wood trim for rough openings over twenty feet wide. Budget and schedule considerations suggested that a different solution was needed. Window manufacturers submitted proposals and Marvin® won the bid based on detailed rapid prototypes. Restoration costs were estimated to be 2-3 times more expensive than custom-made aluminum-clad Marvin units with custom clad casing and subsills. Clad Magnum Double Hungs with 2" checkrail, enhanced by 7/8" simulated divided lites with spacer bars were used, along with casement wood sashes and picture windows.

HISTORIC WINDOWS BUILT WITH A CRITICAL EYE FOR HISTORIC DETAIL.

HISTORIC DETAILS



INTERIOR & EXTERIOR SASH LUG

Replication sometimes requires exterior or interior lugs. Exterior sash lugs are applied by 'slide on' attachment method, while interior sash lugs are available as part of the stile or can be clip on. Factory applied, or field application kits are available.



CHAIN AND PULLEY

A chain and pulley balance system can contribute to the authentic appearance of replacement windows. Available in a variety of styles and finishes, the hardware and counterbalanced sash provide smooth operation, even for very large hung windows.



DIVIDED LITES

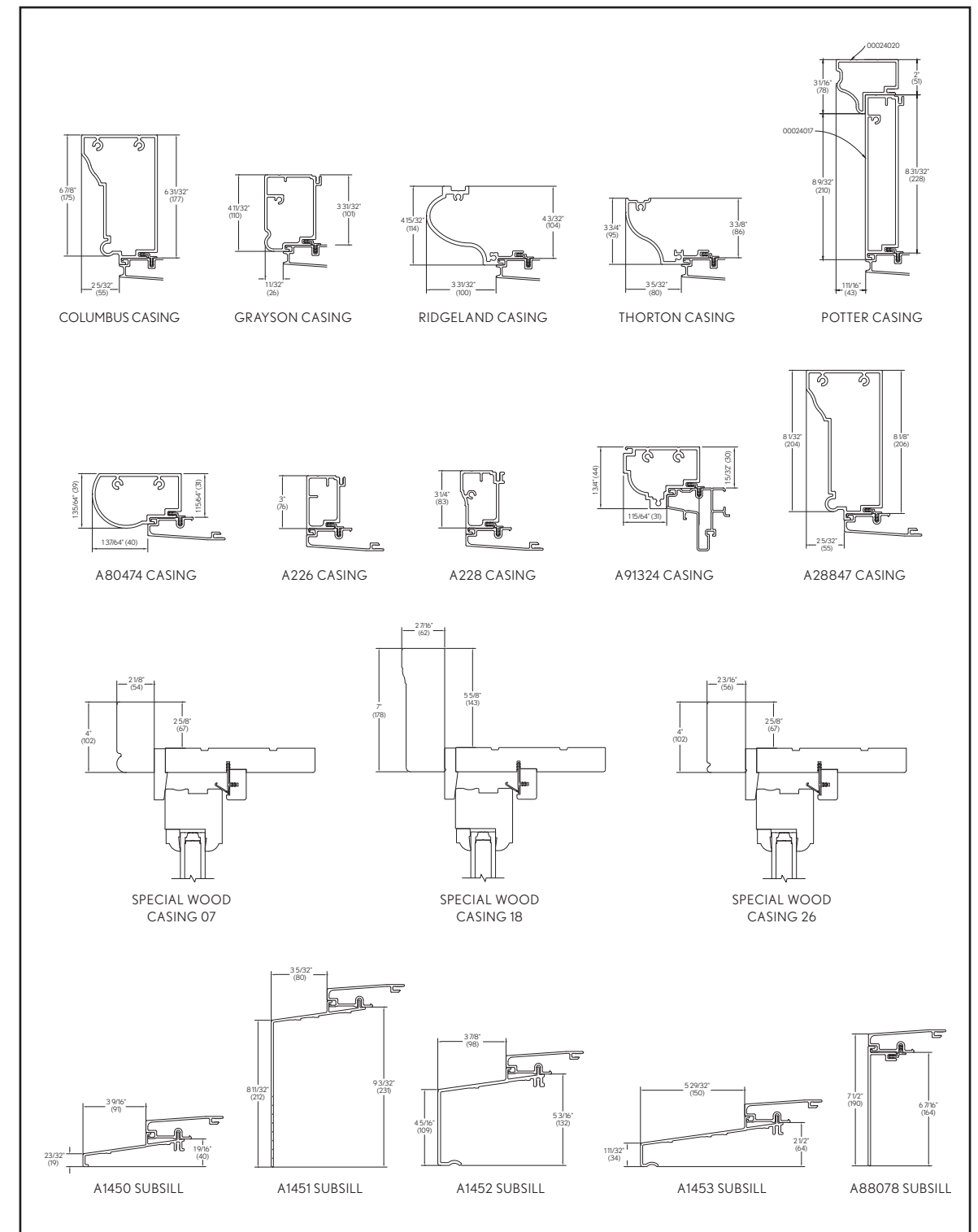
Marvin® offers a variety of ways to replicate historic window pane patterns. Patterns can feature an array of muntin widths, unique muntin profiles, rectangular or radius cuts and more. Custom divided lites available.



GLASS AND GLAZING

Marvin offers a broad array of decorative and specialty glass options, including Restoration glass or Circa glass to meet National Park Service guidelines. Additional glazing options are available to meet requirements for sound abatement, Sea Turtle Conservation Codes and California fire zone specifications.

Marvin® offers hundreds of clad and wood casing options and has the capability to create custom casings to match existing profiles. Our clad casings are made of extruded aluminum, which features an extremely durable factory applied finish that resists chalking, fading, pitting, corrosion and marring, and is backed by a 20-year warranty against chalk and fade. Meets AAMA 2605.



CLAD COLORS

Marvin's low-maintenance, clad-wood products feature an extruded aluminum exterior finish in commercial-grade paint that meets AAMA 2605 certification for superior resistance to fading and chalking. Marvin's palette of nineteen durable colors includes a spectrum of rich colors and three fresh, pearlescent finishes.



Custom Colors: For projects that require new replica windows to match the existing originals, Marvin® can create a custom color. Like our standard exterior finish colors, custom colors are backed by a 20-year warranty.*



*Some colors may not qualify for the 20-year warranty. Contact your Marvin representative for details.

EXTERIOR WOOD SPECIES

Marvin® offers three high-quality exterior wood species, including Pine, Vertical Grain Douglas Fir and Mahogany. Factory-primed pine available.



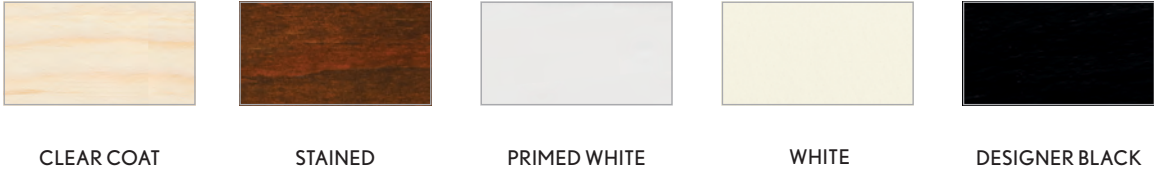
INTERIOR WOOD SPECIES

Marvin offers six high-quality interior wood species, including Pine, Cherry, Douglas Fir, Mahogany, Vertical Grain Douglas Fir and White Oak. Specialty species include Maple, Black Walnut and Western Red Cedar.*



INTERIOR FINISH OPTIONS

Before a factory-finished window is assembled, every wood component is conditioned, sanded and baked to ensure complete coverage. All finishes are water-based and have no Volatile Hazardous Air Pollutants (VHAP). State approved procedures are used to contain Volatile Organic Compounds. All meet WDMA TM 14-09 standards.



*Available for wood exterior trim packages.

ULTIMATE DOUBLE HUNG NEXT GENERATION



DESIGN

- Rich wood interior offers beauty and warmth with six standard wood species and ten interior finish options
- Narrow checkrail provides a sleek aesthetic to maximize daylight opening while maintaining historical accuracy
- Design versatility with an array of simulated divided lite patterns, interior and exterior color options, ten hardware finishes and hundreds of roundtop sizes
- Exclusive autolock activates when the sashes are closed, locking the window
- Durable exterior cladding made with the industry's highest level of certification, AAMA 2605, extruded aluminum and backed by a 20-year warranty against chalking and fading
- Expansive sizes up to 5 feet wide by 10 feet high
- Available with several options for commercial applications including CW Performance, a Both-Sash-Stationary option, and custodial locking hardware

PERFORMANCE

- First-rate energy efficiency meets ENERGY STAR® standards in energy efficiency with multiple glass options for various regions, climates and weather needs
- Sash balance systems enable smooth operation even at the largest sizes
- Aluminum inter-lock eliminates drafts and improves the window's overall structural integrity
- Traditional sill 14 degree bevel provides optimal water management while maintaining a classic look
- Superior weather performance with top in class ratings including CW performance on all sizes, LC-PG50 on most sizes, and IZ3 certified coastal options
- Certified Light Commercial Performance Class on all sizes and optional Commercial Performance available on all sizes

DESIGN AND PERFORMANCE REQUIREMENTS

PRODUCT	AIR TEST TO PSF	WATER TESTED TO PSF	STRUCTURAL TESTED TO PSF	CERTIFICATION RATING	OVERALL WIDTH	OVERALL HEIGHT
Clad Ultimate Double Hung Next Generation (CW)	157	7.5	45	CW-PG30	59 1/4	119 1/2
Clad Ultimate Double Hung Next Generation (CW)	157	7.5	60	CW-PG40	55 1/4	119 1/2
Clad Ultimate Double Hung Next Generation (CW)	157	7.5	75	CW-PG50	53 1/4	103 1/2
Clad Ultimate Double Hung Picture Next Generation (CW)	157	7.5	75	CW-PG50	61 1/4	103 1/2
Clad Ultimate Double Hung Next Generation (LC)	157	6	60	LC-PG35	59 1/4	95 1/2
Clad Ultimate Double Hung Next Generation (LC)	157	6	60	LC-PG35	45 1/4	119 1/2
Clad Ultimate Double Hung Next Generation (LC)	157	7.5	75	LC-PG50	55 1/4	95 1/2
Clad Ultimate Double Hung Next Generation (LC)	157	7.5	75	LC-PG50	49 1/4	107 1/2
Clad Ultimate Double Hung Transom Next Generation (LC)	157	7.5	75	LC-PG50	73 1/4	27 11/16

CERTIFIED MULLS

ASSEMBLY	TYPE	MAX MULLION SPAN	MAX TRIBUTARY	MULL DESIGN PRESSURE
1 High, 2 or more units wide	CUDH NG to CUDH NG only	71 1/2" (1816 mm)	45 1/4" (1149) wide	DP50
1 Wide, 2 or more units high	CUDHT NG over CUDHP NG only	69 1/4" (1759 mm)	53 19/32" (1361) wide	DP50
Multiple Wide x High w/ 1" LVL	LVL must be in vertical mull	75" (1922 mm)	45 11/16" (1161) wide	DP50
Multiple Wide x Multiple High w/ 3/8" (10 mm) MRF	CUDHT NG over CUDH NG only	83 3/16" (2113mm)	45 3/8" (1153) wide	DP65

Note: the entire assembly will have the lowest design pressure of any unit or mull in the assembly.

ULTIMATE INSERT DOUBLE HUNG



DESIGN

- The Ultimate Insert Double Hung is designed to meet historic design daylight criteria
- Frame thickness: ²¹/₃₂" (17mm) head jamb, 1 ⁵/₁₆" (33mm) composite side jamb*
- Frame depth: 3 ¹/₄" (83mm) to accommodate standard double hung pocket depths*
- Frame bevel: 8 degree or 14 degree*
- Balance system: Coil spring block and tackle with nylon cord and fiber filled nylon clutch
- Field installed half screen or full screen; half screen covers bottom sash opening
- Optional Magnum Screen (Extruded aluminum surround with charcoal hi-transparency fiberglass mesh)

INSTALLATION

- Through jamb installation

PERFORMANCE

- Meets U-factor/SHGC of 0.30/0.30 with one-lite Low E2 with argon insulating glass
- Optional tripane glass, coatings, and gas fills available for U-factor/SHGC as low as 0.21/0.18 or 0.22/0.41

*Clad unit specifications listed. Ask your Marvin® representative for wood unit specifications.

DESIGN AND PERFORMANCE REQUIREMENTS

PRODUCT	AIR TEST TO PSF	WATER TESTED TO PSF	STRUCTURAL TESTED TO PSF	CERTIFICATION RATING	OVERALL WIDTH	OVERALL HEIGHT
Aluminum Clad Insert Double Hung	157	4.5	45	LC-PG30-H	45	77 3/8
Aluminum Clad Insert Double Hung Picture	157	6	60	CW-PG40-FW	68	77 5/8
Aluminum Clad Insert Double Hung Transom	157	6	60	LC-PG40-TR	75 5/8	28
Wood Insert Double Hung	157	6	60	LC-PG30-H	35 3/8	81
Wood Insert Double Hung	157	6	60	LC-PG30-H	45 3/8	61
Wood Insert Double Hung	157	6	45	LC-PG30-H	45 3/8	81
Wood Insert Double Hung 1 5/8" Picture	157	6	60	LC-PG40-FW	61 3/8	57
Wood Insert Double Hung 2" Picture	157	6	60	LC-PG40-FW	69 3/8	81
Wood Insert Double Hung Transom	157	6	60	LC-PG40-TR	73 3/8	26 1/2



BEFORE



AFTER

The Marvin® Ultimate Insert Double Hung is a frame-in-frame application, designed to seamlessly fit an opening when full-frame replacement is not the optimal solution.

WOOD ULTIMATE MAGNUM DOUBLE HUNG



DESIGN

- Fits oversized openings up to 5' x 10'
- Rectangular, polygon and round top shapes available
- Available as single hung, double hung, triple hung, picture and transom windows
- Options for historic packages include energy panels and ogee lugs
- Adjustable constant force spiral balance system meets AAMA 902-99 Class 5 specifications
- Fiber filled nylon clutch
- Designed to balance sash from 10 lbs to 130 lbs
- Available prepped for field-applied stool and apron
- Fixed sash in wood units available in 1 5/8" and 2"
- Custodial locking hardware available

INSTALLATION

- Through jamb installation
- Optional flexible metal nailing fin

PERFORMANCE

- Meets U-factor/SHGC of 0.30/0.30 with one-lite Low E2 with argon insulating glass
- Optional U-factor/SHGC as low as 0.20/0.17 or 0.22/0.40 with optional coatings and gas fills on Tripane glass, without combination
- Depending on glass options, the STC range for clad units is 27 - 34, OITC range is 22-29. Wood unit STC range is 28-34, OITC range is 24-29

DESIGN AND PERFORMANCE REQUIREMENTS

PRODUCT	AIR TEST TO PSF	WATER TESTED TO PSF	STRUCTURAL TESTED TO PSF	CERTIFICATION RATING	OVERALL WIDTH	OVERALL HEIGHT
Wood Ultimate Magnum Double Hung	157	7.5	75	LC-PG50-H	53 3/8	105
Wood Ultimate Magnum Double Hung	157	5.25	52.5	LC-PG35-H	59 3/8	121
Wood Ultimate Magnum Double Hung Picture	157	7.5	75	CW-PG50-FW	61 3/8	105
Wood Ultimate Magnum Double Hung Round Top	157	7.5	75	CW-PG50-H	53 3/8	111 3/8
Wood Ultimate Magnum Double Hung Round Top	157	5.25	52.5	CW-PG35-H	59 3/8	121 3/8



STORM & SCREEN COMBINATIONS

A combination unit is composed of two glass panels and one screen panel. Panels can be arranged in many ways: glass above screen, screen above glass or glass above glass. One of the glass panels slides behind the other for self storage when the screen is in use. Panels can be easily removed from the interior for cleaning.



TWO-LITE WOOD STORM SASH OR SCREEN

A wood frame containing non-removable glass. The storm sash can be removed during the summer and replaced with a wood framed screen. Available only for wood windows.

SIMULATED DOUBLE HUNG HOPPER



DESIGN

- Double hung appearance with the lower sash designed as a hopper for ease of operation
- A good solution for hard-to-reach areas, like over a radiator or built-in bookshelves
- Multi-lock system and hopper style operation for limited accessibility
- High energy efficiency; high-performance seal controls air infiltration
- Upward-directed airflow provides comfortable ventilation
- Available with multiple handle and finish options
- Minimum RO width: 18 3/8" Minimum RO height: 40"

INSTALLATION

- Adjustable hinges
- Through jamb installation
- Factory applied jamb extensions available
- Factory-installed half screen

PERFORMANCE

- Meets U-factor/SHGC of 0.31/0.30 with one-lite Low E2 with argon insulating glass
- Optional U-factor/SHGC as low as 0.20/0.17 or 0.21/0.44 with optional coatings and gas fills on Tripane glass
- Depending on glass options, the STC range is 32-37; the OITC range is 28-34

DESIGN AND PERFORMANCE REQUIREMENTS

PRODUCT	AIR INFILTRATION	WATER TESTED TO PSF	STRUCTURAL TESTED TO PSF	CERTIFICATION RATING	OVERALL WIDTH	OVERALL HEIGHT
Clad Simulated Double Hung Hopper	0.05 L/s/m² (0.01 cfm/ft²)	220 Pa (4.60 psf)	1440 Pa (±30.09 psf)	CW-PG30-AP	59 3/8"	128 5/8"



Locking points in the window's multi-lock system are located at the checkrail and at the jambs.



The unobtrusive screen tucks neatly under the checkrail.



Designed for replacement or new construction, this window can provide a perfect solution in university, government, and other institutional applications.

ULTIMATE DOUBLE HUNG NEXT GENERATION ROUND TOP



DESIGN

- Fits openings up to 5' x 10'
- Available in various radius shapes including eyebrow, elliptical, half circle, and custom angles
- Available in variations of standard double hung rectangular window on the interior with arched exterior casing
- Matches other Next Generation product profiles
- Arched window unit can include transom
- Balance system provides block and tackle balance or hybrid spiral balance based on weight
- Note:** CW performance class option provides class five spiral balances on all sizes
- Custodial locking hardware available
- Wood jambs minimize visibility of jamb carrier system

PERFORMANCE

- First-rate energy efficiency meets ENERGY STAR® standards in energy efficiency with multiple glass options for various regions, climates and weather needs
- Sash balance systems enable smooth operation even at the largest sizes
- Aluminum inter-lock eliminates drafts and improves the window's overall structural integrity
- Traditional sill 14 degree bevel provides optimal water management while maintaining a classic look
- Superior weather performance with top in class ratings including LC-PG50 on most sizes and IZ3 certified coastal options

DESIGN AND PERFORMANCE REQUIREMENTS

PRODUCT	AIR TEST TO PSF	WATER TESTED TO PSF	STRUCTURAL TESTED TO PSF	CERTIFICATION RATING	OVERALL WIDTH	OVERALL HEIGHT
Clad Ultimate Double Hung Round Top Next Generation	1.57	7.5	75	LC-PG50	45 1/4	87 1/2
Clad Ultimate Double Hung Round Top Next Generation	1.57	7.5	75	LC-PG50	49 1/4	107 1/2
Clad Ultimate Double Hung Round Top Next Generation	1.57	7.5	75	LC-PG50	49 1/4	107 1/2
Clad Ultimate Double Hung Round Top Next Generation	1.57	5.43	52.5	LC-PG35	59 1/4	119 1/2
Clad Ultimate Double Hung Round Top Next Generation	1.57	5.43	52.5	LC-PG35	59 1/4	119 1/2
Clad Ultimate Single Hung Round Top Next Generation	1.57	7.5	75	CW-PG50	49 1/4	107 1/2
Clad Ultimate Double Hung Round Top Next Generation	1.57	7.5	75	CW-PG50	49 1/4	107 1/2
Clad Ultimate Double Hung Round Top Picture Next Generation	1.57	7.5	75	CW-PG50	74 1/2	103 1/2
Clad Ultimate Double Hung Round Top Picture / Transom Next Generation	1.57	7.5	75	CW-PG50	74 1/4	103 1/2

ROUND TOP RADIUS SHAPES



EYEBROW RADIUS
OPERATING
DOUBLE HUNG

HALF CIRCLE
TRANSOM

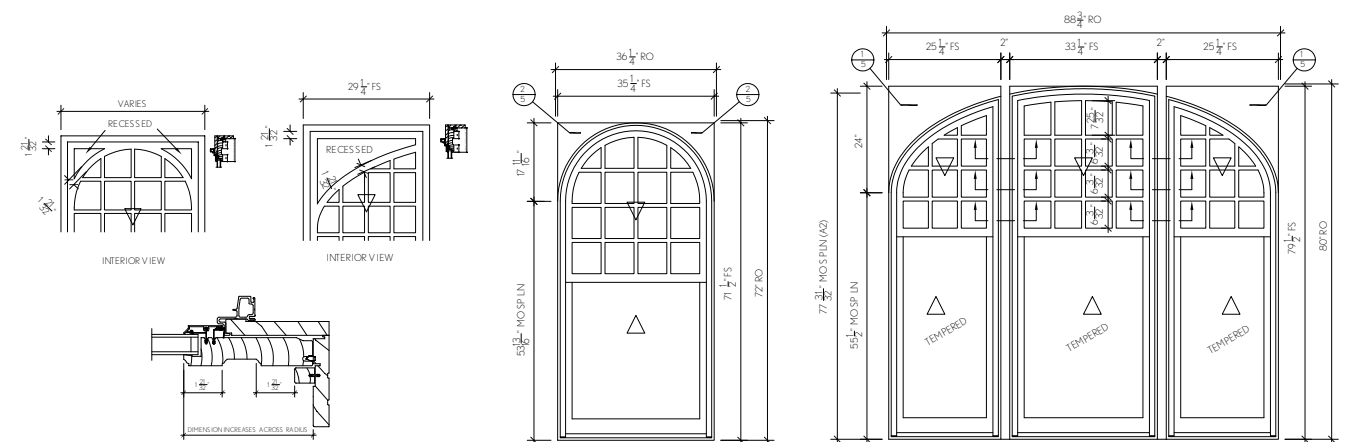
EYEBROW
TRANSOM

HALF CIRCLE RADIUS
OPERATING
DOUBLE HUNG

HALF EYEBROW
OPERATING
SINGLE HUNG

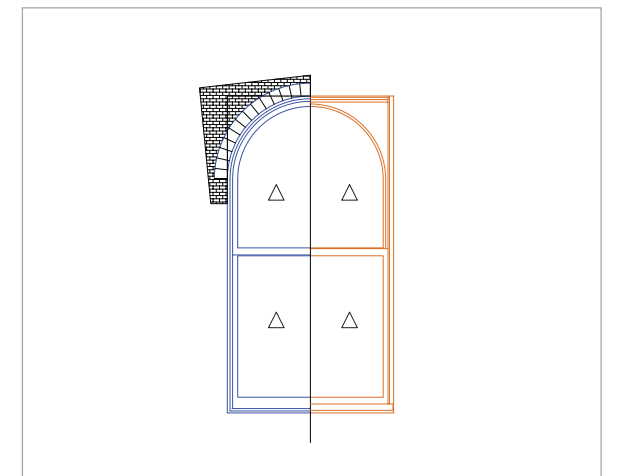


— ROUND TOP VARIATIONS —



Some projects call for window units or assemblies designed with graceful radius curves on the exterior and rectangular, operating hung windows on the interior. Marvin® has a range of radius variations for design flexibility.

— ROUND TOP WITH RECTANGULAR FRAMING —



EXTERIOR INTERIOR

Building: Central Union Mission | Washington, D.C.

Architect: Cox Grate + Spack Architects **Contractor:** Forrester Construction

Units & Applications: Marvin Clad Ultimate Double Hung Windows and Round Top Transoms were used with Thorton casings to match original window profiles. Custom flashing solutions addressed waterproofing issues in the existing masonry.



MARVIN HISTORIC WINDOWS

IT'S OUR JOB TO MAKE HISTORY REPEAT ITSELF.

While a majority of projects require variations of traditional double hung windows, it's possible to achieve meticulously detailed historic looks with other products. From casement and awning to direct glaze and polygon shapes, Marvin® offers a complete family of windows that can be customized to match the specialized requirements of certain historic projects.



ULTIMATE
CASEMENT WINDOW



SPECIALTY SHAPES



DIRECT GLAZE



Building: Druid Hill Conservatory | Baltimore, MD

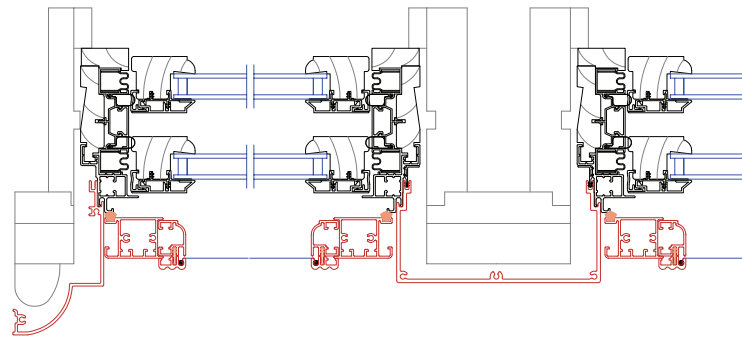
Architect: Kann Associates **Contractor:** Graziano Construction and Development Company, Inc.

Units & Applications: Two new greenhouse structures were constructed, sited symmetrically to a Baltimore landmark called the Palm House, built in 1888. Designers of the new buildings sought detailing in the original Palm House architectural drawings in order to match them, but found none. Marvin developed shop drawings and worked with the designer and contractor to address anchorage and structural engineering, custom flashing and panning, thermal and water performance. Clad awnings, casements, polygon units, clad variation #5 mill plates to replicate round tops on the original building, tempered glass with simulated divided lite, custom clad color, custom casing and sill adapter were used.

CASE STUDY #1: MUNICIPAL BUILDING RENOVATION

Challenge | Exactly replicate in extruded aluminum the original wood mulls with decorative appliqué.

Marvin® Technical Services Solution | To replicate this ornate appliqué, a mull from the original windows was scanned with a 3D scanner. The decorative wood mull in the photo is the only known original appliqué that exists. The scan was used to create an exact replica of the mulls and plinths. Before the appliqué was milled, it was printed in 3D and sent over to the historic review board. A mock-up of the proposed window assemblies was installed on site for approval before the order for the window assemblies was submitted. A complex project, the 145 openings required both standard and custom window products. Besides the milled appliqués, the project required six new dies and 5 sizes of milled plinths.



SIDE JAMB VERTICAL MULL

Note: Detail shows the relationship of the daylight opening to the brick. Special sized stile and rail components might be required to match both the glass DLO and the brick to DLO dimensions.

CASE STUDY #3: OLD MAIN WINDOW REHABILITATION

Challenge | Meet the strict requirements of the local Historic Preservation Commission.

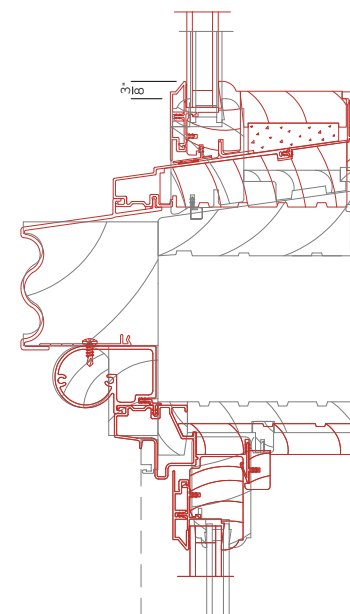
Marvin Technical Services Solution | The Marvin Architectural Project Manager supported Macalester College by providing detailed drawings, attending HPC meetings with facilities personnel, and answering HPC questions about the proposed window replacement project. When the Commission determined that the transom bottom rail was too tall, Marvin adjusted the design and the plan was approved. The particular challenge of this project was that custom casings for the replacement windows needed to match existing profiles to the exterior, and to marry up with interior jamb extensions and trim, which would not be rebuilt to accommodate new window units. For some openings, the Architectural Project Manager designed custom jamb extensions, which were milled and applied in the factory.



CASE STUDY #2: STATE UNIVERSITY WINDOW REPLACEMENT

Challenge | Replace windows in 84 openings to match original profiles.

Marvin® Technical Services Solution | The Marvin Architectural Project Manager mapped out the existing window conditions, measuring every component and how the window related to the brick opening. He then developed a CAD drawing based on existing conditions research, and overlaid proposed product solutions using Marvin Ultimate Insert Double Hung Windows. Custom casings and mull covers were required to match the original profiles. Marvin created rapid prototypes to demonstrate how window components could be replicated in extruded aluminum to exactly match the original wood profiles. Approval based on the review of rapid prototyping was written into the specs. This project filled 84 window openings with 1-wide x 2-high and 2-wide x 2-high assemblies.



**REVISED PROPOSED
DOUBLE HUNG
HORIZONTAL MULL**

3





MARVIN HISTORIC

LET'S MAKE HISTORY.

Sometimes, we renovate more than just a building. In the case of the CARADCO building in Dubuque, Iowa, we were part of a project that helped start the rejuvenation of an entire section of town. This project is the perfect example of what we do best at Marvin: Applying four generations of expertise with state-of-the-art tools and technologies to replicate windows that seamlessly combine modern performance with rich period detail to meet the high standards of historic commissions, architects and occupants alike.

Get your next project started by contacting your local Marvin Architectural Project Manager, or by visiting:

[MARVINWINDOWS.COM/COMMERCIAL](https://marvinwindows.com/commercial)



Building | CARADCO Building, Dubuque, Iowa, built 1888

Developer | Gronen Properties / Gronen Renovations

Units & Applications | The Caradco building was honored by winning the National Trust for Historic Preservation Tony Goldman Award in 2015. This award celebrates projects that embody a bold, large-scale approach to historic preservation that catalyzes entire commercial districts. The rehabilitation required the replacement of wood windows in 300 openings. One elevation called for radius windows. Marvin® Ultimate Magnums were required in some openings. In the majority of openings, Marvin Wood Ultimate Double Hung Windows with simulated divided lites, a standard product, were used. Each opening was unique and needed to be measured separately.

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