

ISSUE: Certificate of Appropriateness for alterations.

APPLICANT: Todd B. Catlin and Daniel W. Lee

LOCATION: Old and Historic Alexandria District
512 Queen Street

ZONE: RM/Residential Townhouse Zone

STAFF RECOMMENDATION

Staff recommends approval of the Certificate of Appropriateness for alterations with the following conditions:

1. The limewash must be at least fifty percent translucent and the underlying red brick must show through;
2. The applicant must provide a sample of the limewash treatment for staff to review prior to initiating limewash or submitting the windows for building permits; and,
3. Replacement windows must either match the existing one-over-one configuration or should be a Colonial Revival style six-over-six configuration and must comply with the *Alexandria New and Replacement Window Performance Specifications in the Historic Districts*.

GENERAL NOTES TO THE APPLICANT

1. **APPEAL OF DECISION:** In accordance with the Zoning Ordinance, if the Board of Architectural Review denies or approves an application in whole or in part, the applicant or opponent may appeal the Board's decision to City Council on or before 14 days after the decision of the Board.
2. **COMPLIANCE WITH BAR POLICIES:** All materials must comply with the BAR's adopted policies unless otherwise specifically approved.
3. **BUILDING PERMITS:** Most projects approved by the Board of Architectural Review require the issuance of one or more construction permits by Department of Code Administration (including signs). The applicant is responsible for obtaining all necessary construction permits after receiving Board of Architectural Review approval. Contact Code Administration, Room 4200, City Hall, 703-746-4200 for further information.
4. **ISSUANCE OF CERTIFICATES OF APPROPRIATENESS AND PERMITS TO DEMOLISH:** Applicants must obtain a copy of the Certificate of Appropriateness or Permit to Demolish PRIOR to applying for a building permit. Contact BAR Staff, Room 2100, City Hall, 703-746-3833, or preservation@alexandriava.gov for further information.
5. **EXPIRATION OF APPROVALS NOTE:** In accordance with Sections 10-106(B), 10-206(B) and 10-307 of the Zoning Ordinance, any Board of Architectural Review approval will expire 12 months from the date of issuance if the work is not commenced and diligently and substantially pursued by the end of that 12-month period.
6. **HISTORIC PROPERTY TAX CREDITS:** Applicants performing extensive, certified rehabilitations of historic properties may separately be eligible for state and/or federal tax credits. Consult with the Virginia Department of Historic Resources (VDHR) prior to initiating any work to determine whether the proposed project may qualify for such credits.



2

I. APPLICANT'S PROPOSAL

The applicant requests a Certificate of Appropriateness to apply a limewash to all elevations and replace the existing one-over-one windows with two-over-two windows, at 512 Queen Street.

Site context

The subject property is set back 91'- 3" from Queen Street. The alley to the south, behind the subject property, is public. The alley to the west is private. The proposed alterations on all four elevations will be visible from the right-of-way and public alley.

II. HISTORY

The three-bay, two-story Colonial Revival style, brick single-family detached residence at 512 Queen Street was constructed in **1965**. Prior to the Board's approval of construction of the current property (4/14/1965), a two-story flounder house with a one-story 1950s addition was located on the site. The flounder house was constructed by 1885 when the Sanborn Fire Insurance Maps were first published.



Photo 1: Former flounder form house at 512 Queen Street.

Previous BAR Approvals

In 1969 and 1980, the Board approved garden walls and a gate at the front of the lot facing Queen Street.

On May 21, 2008, the BAR approved a Permit to Demolish (BAR Case # 2008-0066) to remove a portion of the garden to accommodate a larger tandem parking pad. The demolition was never undertaken.

More recently, in 2018, the BAR approved a permit to demolish/capsulate and certificate of appropriateness for an enlarged parking pad and new garden walls (BAR Case # 2018-00288/289, 7/25/18) which is under construction but not yet completed.

III. ANALYSIS

Certificate of Appropriateness

Limewash

Staff has no objection to the application of a translucent limewash on this specific mid-20th century brick building in this location in the middle of the block. Limewash (or whitewash) is a breathable alternative to painting an unpainted masonry building. The zoning ordinance specifically prohibits painting unpainted masonry without BAR approval [section 10-209(B)(4)] in order to preserve the original local red brick character of Old Town. The subject property is a later building and is considered a background building within the Old and Historic District. It is set back 91'-3" from Queen Street and is constructed of modern, hard fired brick from the 1960s. Some of the original bricks were randomly treated with a thin glaze to look like weathered paint on brick recycled from another structure. The proposed white limewash will create a more uniform faux patina of age (recalling weathered white paint on red brick) on this Colonial Revival style building that is consistent with similar treatments during this period and will not detract from the building's architectural character. Staff recommends approval of the proposed limewashing with the condition that the underlying red brick show through the limewash and the limewash must be *at least 50 percent translucent*. An example of this treatment on a later structure is the Patina store approved by the BAR at 605 Franklin Street (Photo 2). The applicant must provide a sample for staff to review prior to initiating the painting or for submitting for building permits for window replacement.



Photo 2: Limewash at Patina, 605 Franklin St.



Photo 3: Proposed alterations at 512 Queen St.

Window Replacement

The applicant also proposes replacement of the existing one-over-one (1/1) sash windows with two-over-two (2/2), fiberglass insert windows, noting that the previous flounder house at 512 Queen Street, shown in Photo 1, had two-over-two windows. However, there is no record that this was the original window configuration of the flounder house, nor is there any historic or

architectural relationship between the windows in the previous wood-frame flounder on this parcel and the windows of the existing brick, side-gable 1960s Colonial Revival style house. The Colonial Revival style attempts to recall the buildings of the late 18th century colonial period of America. Glass in these windows was imported and, therefore, expensive and required between 6 and 12 panes in each window sash.

Windows with 2/2 sash used large panes of cylinder glass and were, therefore, premium windows used on the primary façade of structures in the late 19th century. Secondary facades or service buildings generally had less expensive windows with smaller glass panes. Given the period of its construction, it is likely that the original windows in the flounder -- which historically was the service ell of a building constructed prior to constructing the primary block of the building -- were a less expensive six-over-six configuration like the flounder form, shed roofed houses directly across the street at 511 and 513 Queen Street (Photo 4). Therefore, the window style of an unrelated structure should not be considered as a precedent for the house there now.



Photo 4: Shed roofed flounder form houses on the 500 block of Queen St.

Staff supports the use of fiberglass insert windows, which are permitted by the BAR's window policy for later buildings. However, staff recommends that the configuration of the replacement windows either match the existing one-over-one configuration, as previously approved by the BAR to indicate the later period of this house, or be a six-over-six, multi-light configuration. Both designs are appropriate for this 1960s Colonial Revival, single-family structure. The proposed two-over-two configuration is typical of Victorian period buildings and is not an appropriate replacement.

Summary

With the conditions above, staff recommends the approval of one-over-one, or six-over-six multi-light fiberglass insert windows and the approval of translucent limewash because:

1. The dwelling is set back over 91' from the front lot line, in the middle of the block;
2. Limewash is a breathable membrane that is unlikely to trap moisture within the wall and harm the structure in the future;
3. The existing structure is not historic, and is a later building that was constructed in 1965, using hard fired brick that was originally glazed to look aged;

4. The proposed limewash will be a minimum of 50% translucent so the original brick color will show through; and
5. Brick with a faux patina of age is a characteristic of the Colonial Revival style, such as the mid-20th century period this house.

STAFF

Amirah Lane, Historic Preservation Planner, Planning & Zoning
Al Cox, FAIA, Historic Preservation Manager, Planning & Zoning

IV. CITY DEPARTMENT COMMENTS

Legend: C- code requirement R- recommendation S- suggestion F- finding

Zoning

- F-1 Proposed scope of work changes the materials, color, and design of the building that are the purview of the Board of Architectural Review. No zoning review needed.

Code Administration

- C-1 Alterations require a building permit and plan review prior to the start of construction.

Transportation and Environmental Services

- R-1 The building permit must be approved and issued prior to the issuance of any permit for demolition, if a separate demolition permit is required. (T&ES)
- R-2 Applicant shall be responsible for repairs to the adjacent city right-of-way if damaged during construction activity. (T&ES)
- R-3 No permanent structure may be constructed over any existing private and/or public utility easements. It is the responsibility of the applicant to identify any and all existing easements on the plan. (T&ES)
- F-1 After review of the information provided, an approved grading plan is not required at this time. Please note that if any changes are made to the plan it is suggested that T&ES be included in the review. (T&ES)
- F-2 If the alley located at the rear of the parcel is to be used at any point of the construction process the following will be required:
For a Public Alley - The applicant shall contact T&ES, Construction Permitting & Inspections at (703) 746-4035 to discuss any permits and accommodation requirements that will be required.
For a Private Alley - The applicant must provide proof, in the form of an affidavit at a minimum, from owner of the alley granting permission of use. (T&ES)
- C-1 The applicant shall comply with the City of Alexandria's Solid Waste Control, Title 5, Chapter 1, which sets forth the requirements for the recycling of materials (Sec. 5-1-99). (T&ES)
- C-2 The applicant shall comply with the City of Alexandria's Noise Control Code, Title 11, Chapter 5, which sets the maximum permissible noise level as measured at the property line. (T&ES)
- C-3 Roof, surface and sub-surface drains be connected to the public storm sewer system, if available, by continuous underground pipe. Where storm sewer is not available applicant must provide a design to mitigate impact of stormwater drainage onto adjacent properties and to the satisfaction of the Director of Transportation & Environmental Services. (Sec.5-

6-224) (T&ES)

- C-4 All secondary utilities serving this site shall be placed underground. (Sec. 5-3-3) (T&ES)
- C-5 Any work within the right-of-way requires a separate permit from T&ES. (Sec. 5-2) (T&ES)
- C-6 All improvements to the city right-of-way such as curbing, sidewalk, driveway aprons, etc. must be city standard design. (Sec. 5-2-1) (T&ES)

Alexandria Archaeology

No archaeology oversight necessary for this project.

V. ATTACHMENTS

1 – Supplemental Materials

2 – Application for BAR 2020-00025: 512 Queen Street

BAR Case # _____

ADDRESS OF PROJECT: 512 QUEEN STREET

DISTRICT: ☒ Old & Historic Alexandria ☐ Parker - Gray ☐ 100 Year Old Building

TAX MAP AND PARCEL: 064.04-09-08 ZONING: RM

APPLICATION FOR: *(Please check all that apply)*

☒ CERTIFICATE OF APPROPRIATENESS

☐ PERMIT TO MOVE, REMOVE, ENCAPSULATE OR DEMOLISH
(Required if more than 25 square feet of a structure is to be demolished/impacted)

☐ WAIVER OF VISION CLEARANCE REQUIREMENT and/or YARD REQUIREMENTS IN A VISION
CLEARANCE AREA (Section 7-802, Alexandria 1992 Zoning Ordinance)

☐ WAIVER OF ROOFTOP HVAC SCREENING REQUIREMENT
(Section 6-403(B)(3), Alexandria 1992 Zoning Ordinance)

Applicant: ☒ Property Owner ☐ Business *(Please provide business name & contact person)*

Name: TODD B CATLIN & DANIEL W. LEE

Address: 512 QUEEN ST

City: ALEXANDRIA State: VA Zip: 22314

Phone: 860 387-8078 E-mail: TBCATLIN@GMAIL.COM

Authorized Agent *(if applicable):* ☐ Attorney ☐ Architect ☐ _____

Name: _____

Phone: _____

E-mail: _____

Legal Property Owner:

Name: _____

Address: SAME

City: _____ State: _____ Zip: _____

Phone: _____ E-mail: _____

- ☐ Yes ☒ No Is there an historic preservation easement on this property?
☐ Yes ☐ No If yes, has the easement holder agreed to the proposed alterations?
☐ Yes ☒ No Is there a homeowner's association for this property?
☐ Yes ☐ No If yes, has the homeowner's association approved the proposed alterations?

If you answered yes to any of the above, please attach a copy of the letter approving the project.

NATURE OF PROPOSED WORK: *Please check all that apply*

- ☐ NEW CONSTRUCTION
- ☐ EXTERIOR ALTERATION: *Please check all that apply.*
- | | | | |
|--------------------------------------|---|--|-----------------------------------|
| <input type="checkbox"/> awning | <input type="checkbox"/> fence, gate or garden wall | <input type="checkbox"/> HVAC equipment | <input type="checkbox"/> shutters |
| <input type="checkbox"/> doors | <input checked="" type="checkbox"/> windows | <input type="checkbox"/> siding | <input type="checkbox"/> shed |
| <input type="checkbox"/> lighting | <input type="checkbox"/> pergola/trellis | <input checked="" type="checkbox"/> painting unpainted masonry | |
| <input type="checkbox"/> other _____ | | | |
- ☐ ADDITION
- ☐ DEMOLITION/ENCAPSULATION
- ☐ SIGNAGE

REVISED
1/20/2020

DESCRIPTION OF PROPOSED WORK: *Please describe the proposed work in detail (Additional pages may be attached).*

- PROPOSE TO LINE WASH (NOT PAINT)

EXISTING 1960'S MOTTLED BRICK HOUSE
(CONSTRUCTED 1965)

- REPLACE EXISTING WINDOWS WITH

MARVIN INFINITY (WWW.INFINITYWINDOWS.COM)

FIBERGLASS REPLACEMENT WINDOWS, 2 OVER
2, BLACK/DARK GRAY EXTERIOR.

SUBMITTAL REQUIREMENTS:

Items listed below comprise the **minimum supporting materials** for BAR applications. Staff may request additional information during application review. Please refer to the relevant section of the *Design Guidelines* for further information on appropriate treatments.

Applicants must use the checklist below to ensure the application is complete. Include all information and material that are necessary to thoroughly describe the project. Incomplete applications will delay the docketing of the application for review. Pre-application meetings are required for all proposed additions. All applicants are encouraged to meet with staff prior to submission of a completed application.

Demolition/Encapsulation : *All applicants requesting 25 square feet or more of demolition/encapsulation must complete this section. Check N/A if an item in this section does not apply to your project.*

- N/A
- ☐ ☐ Survey plat showing the extent of the proposed demolition/encapsulation.
- ☐ ☐ Existing elevation drawings clearly showing all elements proposed for demolition/encapsulation.
- ☐ ☐ Clear and labeled photographs of all elevations of the building if the entire structure is proposed to be demolished.
- ☐ ☐ Description of the reason for demolition/encapsulation.
- ☐ ☐ Description of the alternatives to demolition/encapsulation and why such alternatives are not considered feasible.

Additions & New Construction: Drawings must be to scale and should not exceed 11" x 17" unless approved by staff. Check N/A if an item in this section does not apply to your project.

- ☐ ☒ N/A Scaled survey plat showing dimensions of lot and location of existing building and other structures on the lot, location of proposed structure or addition, dimensions of existing structure(s), proposed addition or new construction, and all exterior, ground and roof mounted equipment.
- ☐ ☐ FAR & Open Space calculation form.
- ☐ ☐ Clear and labeled photographs of the site, surrounding properties and existing structures, if applicable.
- ☐ ☐ Existing elevations must be scaled and include dimensions.
- ☐ ☐ Proposed elevations must be scaled and include dimensions. Include the relationship to adjacent structures in plan and elevations.
- ☐ ☐ Materials and colors to be used must be specified and delineated on the drawings. Actual samples may be provided or required.
- ☐ ☐ Manufacturer's specifications for materials to include, but not limited to: roofing, siding, windows, doors, lighting, fencing, HVAC equipment and walls.
- ☐ ☐ For development site plan projects, a model showing mass relationships to adjacent properties and structures.

Signs & Awnings: One sign per building under one square foot does not require BAR approval unless illuminated. All other signs including window signs require BAR approval. Check N/A if an item in this section does not apply to your project.

- ☐ ☒ N/A Linear feet of building: Front: _____ Secondary front (if corner lot): _____.
- ☐ ☐ Square feet of existing signs to remain: _____.
- ☐ ☐ Photograph of building showing existing conditions.
- ☐ ☐ Dimensioned drawings of proposed sign identifying materials, color, lettering style and text.
- ☐ ☐ Location of sign (show exact location on building including the height above sidewalk).
- ☐ ☐ Means of attachment (drawing or manufacturer's cut sheet of bracket if applicable).
- ☐ ☐ Description of lighting (if applicable). Include manufacturer's cut sheet for any new lighting fixtures and information detailing how it will be attached to the building's facade.

Alterations: Check N/A if an item in this section does not apply to your project.

- ☒ ☒ N/A Clear and labeled photographs of the site, especially the area being impacted by the alterations, all sides of the building and any pertinent details.
- ☐ ☐ Manufacturer's specifications for materials to include, but not limited to: roofing, siding, windows, doors, lighting, fencing, HVAC equipment and walls.
- ☐ ☐ Drawings accurately representing the changes to the proposed structure, including materials and overall dimensions. Drawings must be to scale.
- ☐ ☐ An official survey plat showing the proposed locations of HVAC units, fences, and sheds.
- ☐ ☐ Historic elevations or photographs should accompany any request to return a structure to an earlier appearance.

BAR Case # _____

ALL APPLICATIONS: Please read and check that you have read and understand the following items:

- ☒ I have submitted a filing fee with this application. (Checks should be made payable to the City of Alexandria. Please contact staff for assistance in determining the appropriate fee.)
- ☒ I understand the notice requirements and will return a copy of the three respective notice forms to BAR staff at least five days prior to the hearing. If I am unsure to whom I should send notice I will contact Planning and Zoning staff for assistance in identifying adjacent parcels.
- ☒ I, the applicant, or an authorized representative will be present at the public hearing.
- ☒ I understand that any revisions to this initial application submission (including applications deferred for restudy) must be accompanied by the BAR Supplemental form and revised materials.

The undersigned hereby attests that all of the information herein provided including the site plan, building elevations, prospective drawings of the project, and written descriptive information are true, correct and accurate. The undersigned further understands that, should such information be found incorrect, any action taken by the Board based on such information may be invalidated. The undersigned also hereby grants the City of Alexandria permission to post placard notice as required by Article XI, Division A, Section 11-301(B) of the 1992 Alexandria City Zoning Ordinance, on the property which is the subject of this application. The undersigned also hereby authorizes the City staff and members of the BAR to inspect this site as necessary in the course of research and evaluating the application. The applicant, if other than the property owner, also attests that he/she has obtained permission from the property owner to make this application.

APPLICANT OR AUTHORIZED AGENT:

Signature: _____

Printed Name: _____

Date: _____

OWNERSHIP AND DISCLOSURE STATEMENT

Use additional sheets if necessary

1. Applicant. State the name, address and percent of ownership of any person or entity owning an interest in the applicant, unless the entity is a corporation or partnership, in which case identify each owner of more than three percent. The term ownership interest shall include any legal or equitable interest held at the time of the application in the real property which is the subject of the application.

Name	Address	Percent of Ownership
1. Todd B. Catlin	512 Queen St	50%
2. Daniel W. Lee	512 Queen St	50%
3.		

2. Property. State the name, address and percent of ownership of any person or entity owning an interest in the property located at _____ (address), unless the entity is a corporation or partnership, in which case identify each owner of more than three percent. The term ownership interest shall include any legal or equitable interest held at the time of the application in the real property which is the subject of the application.

Name	Address	Percent of Ownership
1.		
2.		
3.	N/A	

3. Business or Financial Relationships. Each person or entity listed above (1 and 2), with an ownership interest in the applicant or in the subject property is required to disclose any business or financial relationship, as defined by Section 11-350 of the Zoning Ordinance, existing at the time of this application, or within the 12-month period prior to the submission of this application with any member of the Alexandria City Council, Planning Commission, Board of Zoning Appeals or either Boards of Architectural Review.

Name of person or entity	Relationship as defined by Section 11-350 of the Zoning Ordinance	Member of the Approving Body (i.e. City Council, Planning Commission, etc.)
1.		
2.	N/A	
3.		

NOTE: Business or financial relationships of the type described in Sec. 11-350 that arise after the filing of this application and before each public hearing must be disclosed prior to the public hearings.

As the applicant or the applicant's authorized agent, I hereby attest to the best of my ability that the information provided above is true and correct.

1/17/2020
Date

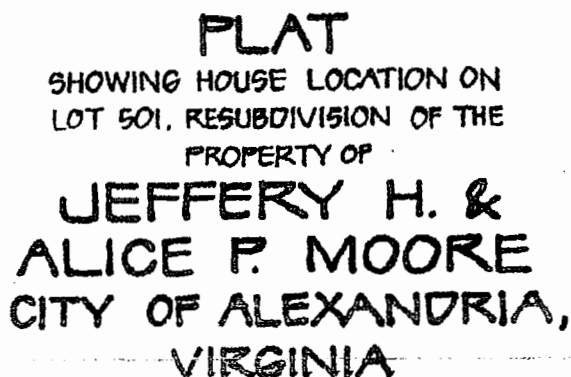
TODD B. CATLIN
Printed Name


Signature

1/17/2020 DANIEL W LEE



NOTE:
TELEPHONE &
ELECTRIC UNDER.



MAY 11, 1993

QUEEN STREET











512 QUEEN STREET
PROPOSED



← 512 QUEEN STREET
ORIGINAL STRUCTURE
PHOTO PRE 1965

NOTE 2 OVER 2 WINDOWS.
WHITE PAINT





Lancaster Lime Works
NATURAL LIME FOR PRESERVATION AND BUILDING

Lime Wash

Product Name: Lime Wash

Manufacturer:

Lancaster Lime Works
1630 Millersville Pike
Lancaster, PA 17603
717.207.7014
<http://lancasterlimeworks.com>

Product Description:

Lancaster Lime Works Lime Wash is a non-hydraulic, pre-mixed Lime Wash with the ideal mixture of our lime putty and water. It is made by mixing high-calcium (98%), High PH (12+), carbonating, high surface area, low-magnesium, (slaked) lime putty (calcium hydroxide) with clean non-chlorinated water. The lime is aged for at least one month in the bucket with the surface covered with water to prevent carbonation before being made into lime wash. It will keep like this indefinitely as long as carbon dioxide is excluded.

Designed to replace historic lime washes, it reduces the absorption of water, and allows rapid escape of moisture. With high plasticity and superior workability, it forms a strong bond with masonry units.

Basic Use:

Lancaster Lime Works Lime Wash is excellent for application over a wide variety of stucco, brick and stone, providing excellent strength, durability, breathability, and flexibility. It is especially suitable for very porous and soft masonry units.

A thin coat of Lime Wash must be applied to thoroughly dampened masonry for successful curing. Curing occurs when the Lime Wash slowly dries out over 24+ hours (this is called the carbonation process), and applying to dry masonry or any porous substrate without dampening could lead to flash drying and lime wash failure. Protect installed lime wash from drying heat and winds and frost. Additional coats may be applied after previous coats have carbonated. Carbonation usually takes 24 hours.

Allow 2 weeks of warm weather conditions (above 40 deg F.) for proper curing.

Lime Wash should be re-mixed in the bucket for 5-10 minutes just prior and during application to provide correct workability and consistent consistency and color. Water should not be added unless a thinner coat is desired.

Application should be done using brushes or a sprayer. If a sprayer is used, a thorough back-brushing must be done immediately after application.

This is a non-hydraulic lime wash, and installers should thoroughly familiarize themselves with the LLW Lime Wash Installation Guide, which can be found on the website.

Lancaster Lime Works Lime Wash is packaged in 5 gallon plastic pails with lids. It requires thorough mixing before application.

Compatible with Lancaster Lime Works mortars and Stucco.

Limitations:

Alkali-stable pigments can be used up to 20% of the dry binder weight of the lime wash. Other additives should not be added to the Lime Wash if maximum "breathability" is desired. Lancaster Lime Works Old Fashioned Casein can be added as per technical instructions.

Installations should not be waterproofed or sealed in any way. Not recommended for below-grade exterior applications, or for locations that are constantly wet. Cleaning should be done with very weak acids (such as white vinegar), being careful not to allow cleaners to come into contact with the lime wash. Cleaning with acid degrades surface lime and leaves behind salts which can later cause efflorescence.

Application with a roller is not recommended.

Lancaster Lime Works Lime Wash must not be installed over any substrate that contains salt or other compounds that may cause product failure.

Contractors are responsible for ensuring that installers are properly trained in the correct application of the product.

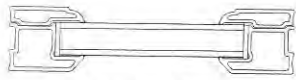
Training is offered by LLW

Technical Data and Services:

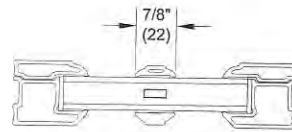
Available upon request. Call our offices at 717.207.7014.

Safety/Health:

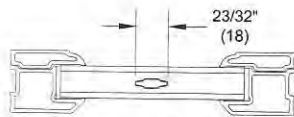
Refer to our lime SDS for safety information. Caustic. Wear eye and skin protection at all times when handling.



Insulating Glass



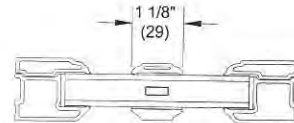
Insulating Glass
7/8" SDL w/ spacer bar



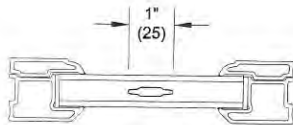
Insulating Glass
23/32" GBG



Insulating Glass
SDL Simulated Rail
w/spacer bar



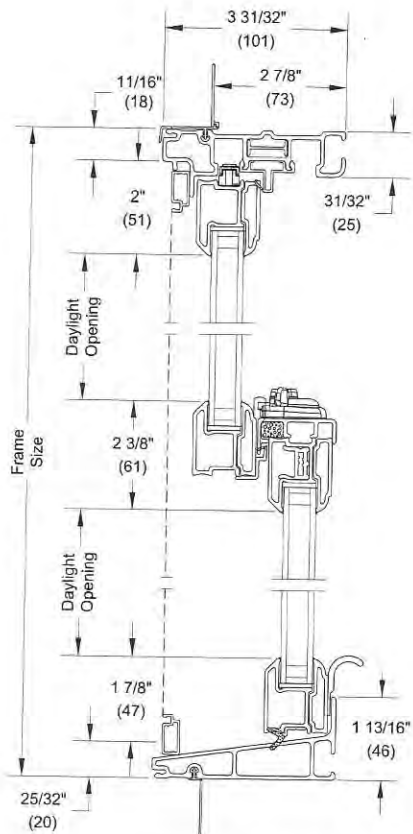
Insulating Glass
1 1/8" SDL w/ spacer bar



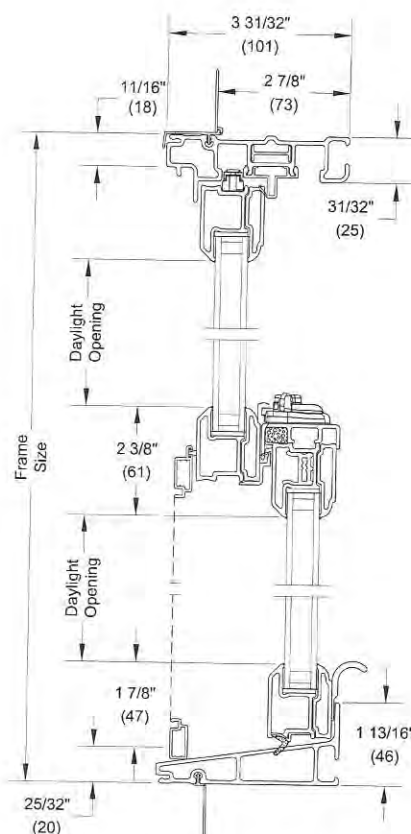
Insulating Glass
1" GBG

Infinity Double Hung Section Details: Operator

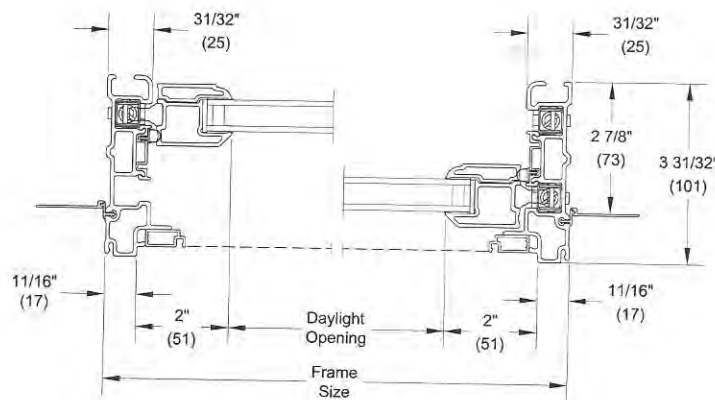
Scale: 3" = 1' 0"



Head Jamb and Sill
NDH w/ Full Screen



Head Jamb and Sill
NDH w/ Half Screen



Jambs

Infinity Insert Double Hung

Unit Features

Infinity Insert Double Hung: NINDH

Infinity Insert Double Hung Transom: NINDT

Infinity Insert Double Hung Picture: NINDP

Ultrex® Pultruded Fiberglass Frame:

- Frame thickness: 7/8" (22) head jamb, 7/8" (22) side jamb, 25/32" (20) sill with 8 degree bevel
- Frame depth: 3 1/4" (83)
- Exterior colors: Stone White, Sierra, Cashmere, Pebble Gray, Bahama Brown, Bronze, Ebony
- Interior colors: Stone White, Sierra, EverWood™

Ultrex® Pultruded Fiberglass Sash:

- Sash thickness: 1 3/8" (35)
- Different sash option allows unequal sash heights, unique lite cuts for each sash or different glazing in each sash
- Operable sash tilt to interior for cleaning and removal
- Sash are replaceable but cannot be re-glazed
- Exterior colors: Stone White, Sierra, Cashmere, Pebble Gray, Bahama Brown, Bronze, Ebony
- Interior colors: Stone White, Sierra, EverWood™

Hardware:

- Lock and keeper:
 - Mounted at the center of the top check rail or 12" (305) on center from either end on dual lock unit
 - Zinc die-cast
- Sash lift:
 - Factory drilled for a bottom sash lift
 - Single lock units receive single lift, dual locks unit receive double lifts
 - Zinc die-cast
- Balance system:
 - Coil spring block and tackle with nylon cord and fiber filled nylon clutch
 - Allows the sash to raise or lower from desired position
- Bottom sash tilt latches:
 - Spring loaded tilt latches attached to upper corners of sash and operated with a button on the lock for easy tilting and sash removal
 - Tilt latches are mounted to the window stile and hidden under the check rail cover for a clean look
- Top sash tilt latches:
 - Spring loaded tilt latches attached to upper corners of sash
 - Injection molded nylon - white or beige
 - Hidden from view in the frame header when window is closed
- Top sash hanger (fixed upper sash only):
 - Attached to the frame securing the top sash making it stationary
 - Metal stamped
 - Color: white or beige
- Optional factory applied Window Opening Control Device
 - Available on all operable units
 - Color: white or beige
 - This device works in accordance to ASMT F2090-17 Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms.

Weather Strip:

- Frame:
 - Jamb: foam filled bulb with flexible TPE skin
 - Color: white or beige
 - Parting stop: PVC with flexible hinged wand seal
 - Color: white or beige
- Sash:
 - Bottom sash: beige, hollow foam bulb type
 - Check rail: beige, PVC with flexible hinged wand seal
- Stationary units:
 - Continuous, foam weather strip at perimeter of sash
 - Color: gray

Unit Features

Insect Screens:

- Full screen
- Optional half screen
- Extruded aluminum frame: 0.050" wall thickness
- Standard screen mesh material: charcoal fiberglass
 - Optional screen mesh material: high transparency screen
- Corners are mitered and joined with an internal corner key, which are not visible
- Friction fit pins are integrated into the side of the screen
- Frame color: matches exterior frame color

Glass:

- Glazing seal: silicone bedding on interior and exterior
- Standard glass: Low E2 with Argon or air
- Optional glazing available: Low E1 with Argon or air, Low E3 with Argon or air, Low E3/ERS with Argon or air, tempered, obscure
- Decorative glass options include Glue Chip, Rain, Reed, Narrow Reed, or Frost
- Decorative glass is not available with Low E1, Low E3/ERS or STC/OITC
- Rain, Reed and Narrow Reed not available with SDL
- SDL available on Frost, annealed or tempered
- SDL available on Glue Chip, tempered glass required
- Insulating glass will be altitude adjusted with capillary tubes for higher elevations
- Argon gas is not available for elevations that require capillary tubes

Simulated Divided Lites (SDL):

- 7/8" (22) or 1 1/8" (29) SDL bar (interior and exterior)
- 2 11/32" (30) simulated rail (interior and exterior) - picture unit only
- Exterior color: matched to unit exterior
- Interior color: matched to interior - ABS material
- Pattern: equal rectangular, cottage, prairie, check rail

Grilles-Between-the-Glass (GBG):

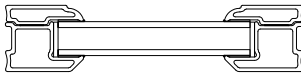
- 23/32" (18) or 1" (25) contoured aluminum bar
- Exterior: color matched to unit exterior
- The exterior GBG color is designed to best match the unit exterior color when used with Low E glass. The use of different types of glazing options may alter the exterior GBG color appearance.
- Interior color: White, Satin Taupe, Sierra, Bronze
- Pattern: equal rectangular, cottage, prairie, check rail
- GBG's are not available with dual 4.7mm glass panes. Refer to OMS for availability.

NOTE: GBG may not be available or may require tempered glass if the glass size is greater than 16 square feet or if the short side dimension is greater than 48". Please contact your local Infinity Retailer or Infinity Support at 800-372-1072 to determine if GBG is available for glass sizes exceeding these dimensions.

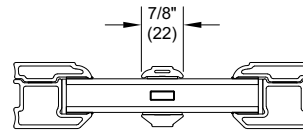
Head/Seat Board:

- Use with bow and bay assemblies
- Factory installed interior head board available in bare pine or oak
- Factory installed interior seat board available in bare pine or oak
- Factory installed insulated seat board with white or beige exterior aluminum skin
- Bay cable support
- Bow and bay jamb available from 4 9/16" (116) - 8 9/16" (217)

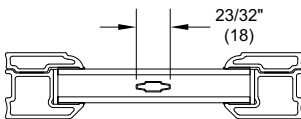
Lite Options



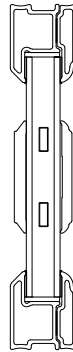
Insulating Glass



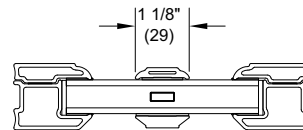
Insulating Glass
 7/8" SDL w/ spacer bar



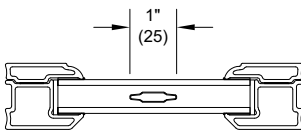
Insulating Glass
 23/32" GBG



Insulating Glass
 SDL Simulated Rail
 w/spacer bar



Insulating Glass
 1 1/8" SDL w/ spacer bar



Insulating Glass
 1" GBG

Minimum and Maximum Guidelines

Minimum and Maximum Inside Opening Guidelines - Standard Size												
Insert Standard Size Double Hung		Inside Opening								Max Glass Size		
		Min Width		Min Height		Max Width		Max Height		Sash Size	Sq. Feet	Sq. Meters
		in	mm	in	mm	in	mm	in	mm			
NINDH	Equal Sash	14 1/2	(368)	25 3/4	(654)	48 3/8	(1229)	95 3/4	(2432)	regular	13 51/64	1.281
NINDH	Cottage Style	14 1/2	(368)	29 13/16	(757)	48 3/8	(1229)	71 3/4	(1822)	small	8 3/32	0.752
										large	13 33/64	1.255
NINDH	Oriel Style	14 1/2	(368)	29 13/16	(757)	48 3/8	(1229)	95 3/4	(2432)	small	11 1/32	1.025
										large	18 3/8	1.708
NINDP NINDT	Picture Transom	18 3/8	(467)	16 1/8	(410)	75 1/4	(1911)	74 1/2	(1892)	regular	30	2.787

Minimum and Maximum Inside Opening Guidelines - Expanded Size												
Insert Expanded Size Double Hung		Inside Opening								Max Glass Size		
		Min Width		Min Height		Max Width		Max Height		Sash Size	Sq. Feet	Sq. Meters
		in	mm	in	mm	in	mm	in	mm			
NINDH	Equal Sash	48 13/32	(1230)	25 3/4	(654)	54 3/8	(1381)	84 3/4	(2153)	regular	13 25/32	1.279
NINDH	Cottage Style	48 13/32	(1230)	29 13/16	(757)	54 3/8	(1381)	59 3/4	(1518)	small	7 9/16	0.701
										large	12 19/32	1.169
NINDH	Oriel Style	48 13/32	(1230)	29 13/16	(757)	54 3/8	(1381)	84 3/4	(2153)	small	11	1.023
										large	18 3/8	1.706

NOTE: Fixed upper sash required on certain sizes. Contact Infinity Support for more information.

For Glue Chip, Frost, and Rain, maximum short frame side is 63 1/8".

For Reed and Narrow Reed, vertical pattern orientation maximum frame width size 63 1/8".

For Reed and Narrow Reed, horizontal pattern orientation maximum sash height 61 1/8" for operating unit, 63 1/8" for transom and picture units.

Tempered glass may be required if the glass size is greater than 23 square feet. Please contact your local Infinity Retailer or Infinity Support at 800-372-1072 to determine available glass options on units exceeding this size.

Certified Sizes and Ratings

Product	Air Tested to psf	Water Tested to psf	Design Pressure (DP)	Certification Rating	Max Overall Width		Max Overall Height	
					in	mm	in	mm
Fiberglass Insert Double Hung (NINDH)	1.57	4.6	30	LC-PG30-H	48	(1219)	96	(2438)
Fiberglass Insert Double Hung (NINDH)	1.57	3.76	25	LC-PG25-D	54	(1372)	85	(2159)
Fiberglass Insert Double Hung Picture (NINDP)	1.57	4.5	30	LC-PG30-FW	72	(1829)	72	(1829)
	1.57	4.5	30	LC-PG30-FW	60	(1524)	74 3/4	(1899)
	1.57	4.5	25	LC-PG25-FW	74 7/8	(1902)	74 3/4	(1899)

30° Bay Minimum and Maximum Guidelines and Projection

Minimum and Maximum Guidelines									
30 Degree Bay		Frame Size							
		Min Width		Min Height		Max Width		Height	
		in	mm	in	mm	in	mm	in	mm
1:2:1 Ratio	O-P-O	59 1/2	(1511)	27 7/16	(697)	141 1/16	(3583)	73 15/16	(1878)
	O-O-O	59 1/2	(1511)	27 7/16	(697)	96 5/16	(2446)	86 15/16	(2208)
1:1:1 Ratio	O-P-O	45 3/8	(1153)	27 7/16	(697)	136	(3454)	73 15/16	(1878)
	O-O-O	45 3/8	(1153)	27 7/16	(697)	136	(3454)	86 15/16	(2208)

30 Degree Bay - 1:1:1 Ratio							
RO Width		Flanker Inside Opening		Center Inside Opening		Projection	
in	mm	in	mm	in	mm	in	mm
50	(1270)	16 3/16	(411)	16 3/16	(411)	8 3/4	(222)
55	(1397)	18	(457)	18	(457)	9 5/8	(244)
60	(1524)	19 13/16	(503)	19 13/16	(503)	10 9/16	(268)
65	(1651)	21 11/16	(551)	21 11/16	(551)	11 1/2	(292)
70	(1778)	23 1/2	(597)	23 1/2	(597)	12 3/8	(314)
75	(1905)	25 5/16	(643)	25 5/16	(643)	13 5/16	(338)
80	(2032)	27 3/16	(691)	27 3/16	(691)	14 3/16	(360)
85	(2159)	29	(737)	29	(737)	15 1/8	(384)
90	(2286)	30 13/16	(783)	30 13/16	(783)	16 1/16	(408)
95	(2413)	32 5/8	(829)	32 5/8	(829)	16 15/16	(430)
100	(2540)	34 1/2	(876)	34 1/2	(876)	17 7/8	(454)
105	(2667)	36 5/16	(922)	36 5/16	(922)	18 13/16	(478)
110	(2794)	38 1/8	(968)	38 1/8	(968)	19 11/16	(500)
115	(2921)	40	(1016)	40	(1016)	20 5/8	(524)
120	(3048)	41 13/16	(1062)	41 13/16	(1062)	21 9/16	(548)
125	(3175)	43 5/8	(1108)	43 5/8	(1108)	22 7/16	(570)
130	(3302)	47 7/16	(1205)	45 7/16	(1154)	23 3/8	(594)
135	(3429)	47 5/16	(1202)	47 5/16	(1202)	24 5/16	(618)

30° Bay Minimum and Maximum Guidelines and Projection

30 Degree Bay - 1:2:1 Ratio							
RO Width		Flanker Inside Opening		Center Inside Opening		Projection	
in	mm	in	mm	in	mm	in	mm
60	(1524)	14 5/8	(371)	28 7/8	(733)	7 15/16	(202)
65	(1651)	15 15/16	(405)	31 9/16	(802)	8 5/8	(219)
70	(1778)	17 5/16	(440)	34 1/4	(870)	9 5/16	(237)
75	(1905)	18 5/8	(473)	36 15/16	(938)	9 5/16	(237)
80	(2032)	20	(508)	39 5/8	(1006)	10 5/8	(270)
85	(2159)	21 5/16	(541)	42 1/4	(1073)	11 5/16	(287)
90	(2286)	22 5/8	(575)	44 15/16	(1141)	11 15/16	(303)
95	(2413)	24	(610)	47 5/8	(1210)	12 5/8	(321)
100	(2540)	25 5/16	(643)	50 5/16	(1278)	13 5/16	(338)
105	(2667)	26 11/16	(678)	53	(1346)	14	(356)
110	(2794)	28	(711)	55 11/16	(1414)	14 5/8	(371)
115	(2921)	29 3/8	(746)	58 3/8	(1483)	15 5/16	(389)
120	(3048)	30 11/16	(779)	61 1/16	(1551)	16	(406)
125	(3175)	32 1/16	(814)	63 11/16	(1618)	16 5/8	(422)
130	(3302)	33 3/8	(848)	66 3/8	(1686)	17 5/16	(440)
135	(3429)	34 11/16	(881)	69 1/16	(1754)	18	(457)
140	(3556)	36 1/16	(916)	71 3/4	(1822)	18 11/16	(475)

45° Bay Minimum and Maximum Guidelines and Projection

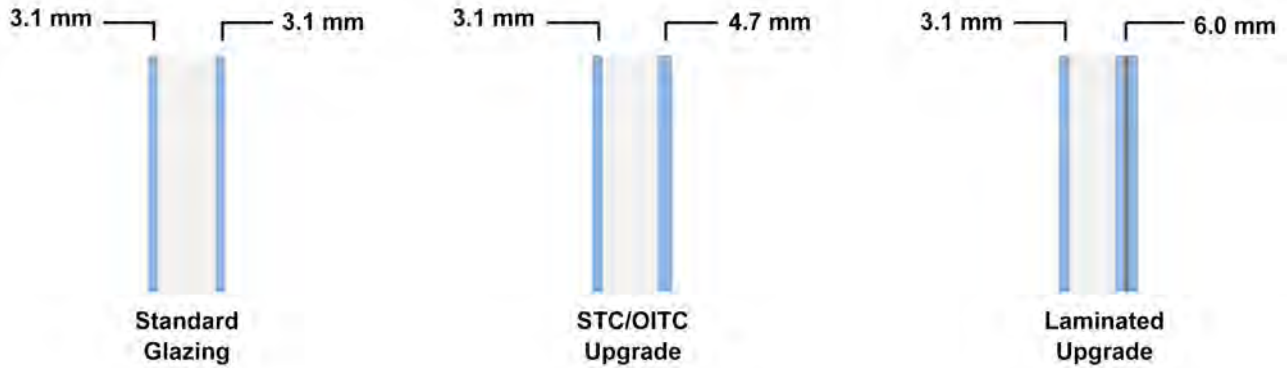
Minimum and Maximum Guidelines									
45 Degree Bay		Frame Size							
		Min Width		Min Height		Max Width		Max Height	
		in	mm	in	mm	in	mm	in	mm
1:2:1 Ratio	O-P-O	56 5/16	(1430)	27 7/16	(697)	119 1/8	(3026)	73 15/16	(1878)
	O-O-O	56 5/16	(1430)	27 7/16	(697)	90	(2286)	86 15/16	(2208)
1:1:1 Ratio	O-P-O	42 3/16	(1072)	27 7/16	(697)	86 9/16	(2199)	73 15/16	(1878)
	O-O-O	42 3/16	(1072)	27 7/16	(697)	86 9/16	(2199)	86 15/16	(2208)

45 Degree Bay - 1:1:1 Ratio							
RO Width		Flanker Inside Opening		Center Inside Opening		Projection	
in	mm	in	mm	in	mm	in	mm
50	(1270)	17 3/4	(451)	17 3/4	(451)	13 3/4	(349)
55	(1397)	19 13/16	(503)	19 13/16	(503)	15 3/16	(386)
60	(1524)	21 7/8	(556)	21 7/8	(556)	16 11/16	(424)
65	(1651)	23 15/16	(608)	23 15/16	(608)	18 1/8	(460)
70	(1778)	26	(660)	26	(660)	19 5/8	(498)
75	(1905)	28 1/16	(713)	28 1/16	(713)	21 1/16	(535)
80	(2032)	30 1/8	(765)	30 1/8	(765)	22 9/16	(573)
85	(2159)	32 3/16	(818)	32 3/16	(818)	24	(610)

45 Degree Bay - 1:2:1 Ratio							
RO Width		Flanker Inside Opening		Center Inside Opening		Projection	
in	mm	in	mm	in	mm	in	mm
60	(1524)	15 9/16	(395)	30 3/4	(781)	12 1/4	(311)
65	(1651)	17	(432)	33 11/16	(856)	13 1/4	(337)
70	(1778)	18 1/2	(470)	36 5/8	(930)	14 5/16	(364)
75	(1905)	19 15/16	(506)	39 9/16	(1005)	15 5/16	(389)
80	(2032)	21 7/16	(545)	42 1/2	(1080)	16 3/8	(416)
85	(2159)	22 7/8	(581)	45 7/16	(1154)	17 3/8	(441)
90	(2286)	24 3/8	(619)	48 3/8	(1229)	18 7/16	(468)
95	(2413)	25 13/16	(656)	51 1/4	(1302)	19 1/2	(495)
100	(2540)	27 1/4	(692)	54 3/16	(1376)	20 1/2	(521)
105	(2667)	28 3/4	(730)	57 1/8	(1451)	21 9/16	(548)
110	(2794)	30 3/16	(767)	60 1/16	(1526)	22 9/16	(573)
115	(2921)	31 11/16	(805)	63	(1600)	23 5/8	(600)

STC/OITC Glass Values

STC/OITC ratings are shown in the chart below. Infinity's STC/OITC values are provided by third party ASTM testing and reports. The STC/OITC Upgrade option incorporates variable glass thickness or laminate (L) to increase STC/OITC performance and improve sound abatement.



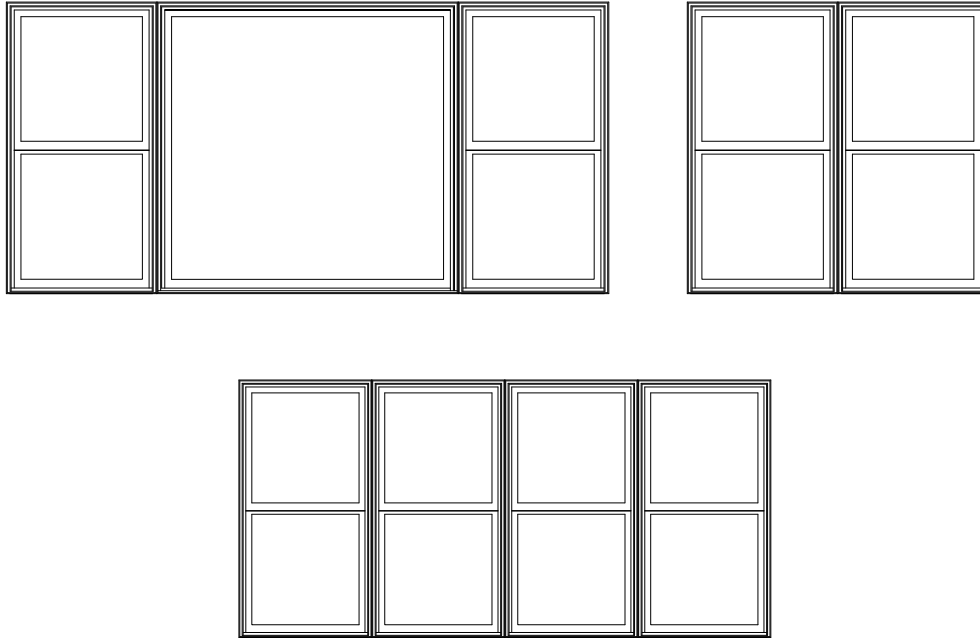
Product Type	Exterior Glazing	Airspace	Interior Glazing	STC	OITC
Insert Double Hung	1/8" (3.1)	15/32" (11.5)	1/8" (3.1)	27	23
	1/8" (3.1)	13/32" (9.8)	3/16" (4.7)	31	27
	1/8" (3.1)	5/16" (8.0)	1/4" (6.0L)	31	27
Insert Double Hung Picture	1/8" (3.1)	15/32" (11.5)	1/8" (3.1)	27	24
	1/8" (3.1)	13/32" (9.8)	3/16" (4.7)	32	28
	1/8" (3.1)	5/16" (8.0)	1/4" (6.0L)	33	27

Mulling Guidelines

Factory Mull Insert Double Hung Assemblies

- Assemblies up to 4 units wide by 1 unit high
 - MAXIMUM INSIDE OPENING not to exceed 112 3/8" (2854) x 85 1/4" (2165)

NOTE: Field mulling beyond the above limitations is not recommended.



Inside Opening Assemblies

- WIDTH:
 - Frame Width = Unit Inside Opening Width MINUS 3/8"
 - Total Inside Opening Width = ADD all frame widths PLUS 3/8" (3/8" x number of mulls)
- HEIGHT: Not applicable

Measurement Conversions: Operable Units

Insert Double Hung Operating Unit - 8 Degree Sill						
Unit Measurements		Width		Height		
From	To					
Inside Opening		in	mm		in	mm
OM of Frame @ Exterior	Inside Opening	+ 3/8	(10)		-1/4	(6)
Frame		in	mm		in	mm
Daylight Opening	OM of Frame @ Exterior	+ 5 3/16	(132)	× 2	+ 7 5/8	(194)
Top Sash		in	mm		in	mm
OM of Frame @ Exterior	OM of Top Sash	-1 15/16	(49)	÷ 2	-9/16	(14)
Daylight Opening	OM of Top Sash	+ 3 1/4	(83)		+ 3 1/4	(83)
Bottom Sash		in	mm		in	mm
OM of Frame @ Exterior	OM of Bottom Sash	-1 15/16	(49)	÷ 2	-1/8	(4)
Daylight Opening	OM of Bottom Sash	+ 3 1/4	(83)		+ 3 1/4	(83)
Top Sash (Cottage Sash)		in	mm		in	mm
OM of Frame @ Exterior	OM of Top Sash	-1 15/16	(49)	× 0.4	+	(0)
Daylight Opening	OM of Top Sash	+ 3 1/4	(83)		+ 3 1/4	(83)
Bottom Sash (Cottage Sash)		in	mm		in	mm
OM of Frame @ Exterior	OM of Bottom Sash	-1 15/16	(49)	× 0.6	-11/16	(17)
Daylight Opening	OM of Bottom Sash	+ 3 1/4	(83)		+ 3 1/4	(83)
Top Sash (Oriel Sash)		in	mm		in	mm
OM of Frame @ Exterior	OM of Top Sash	-1 15/16	(49)	× 0.6	-1 3/32	(28)
Daylight Opening	OM of Top Sash	+ 3 1/4	(83)		+ 3 1/4	(83)
Bottom Sash (Oriel Sash)		in	mm		in	mm
OM of Frame @ Exterior	OM of Bottom Sash	-1 15/16	(49)	× 0.4	+ 13/32	(10)
Daylight Opening	OM of Bottom Sash	+ 3 1/4	(83)		+ 3 1/4	(83)
Glass		in	mm		in	mm
Daylight Opening	Glass	+ 1 1/16	(27)		+ 1 1/16	(27)
Full Screen		in	mm		in	mm
OM of Frame @ Exterior	OM of Screen	-2 7/32	(56)		-1 11/16	(43)
Daylight Opening	OM of Screen	+ 2 31/32	(76)	× 2	+ 5 15/16	(151)
Half Screen		in	mm		in	mm
OM of Frame @ Exterior	OM of Screen	-2 7/32	(56)	÷ 2	+ 1/16	(1)
Daylight Opening	OM of Screen	+ 2 31/32	(76)		+ 3 27/32	(98)
Cottage Screen		in	mm		in	mm
OM of Frame @ Exterior	OM of Screen	-2 7/32	(56)		-1 11/16	(43)
Daylight Opening (S1)	OM of Screen	+ 2 31/32	(76)	÷ 0.4	+ 6 13/32	(163)
Oriel Screen		in	mm		in	mm
OM of Frame @ Exterior	OM of Screen	-2 7/32	(56)		-1 11/16	(43)
Daylight Opening (S1)	OM of Screen	+ 2 31/32	(76)	÷ 0.6	+ 5 17/32	(140)

NOTE: IO to Frame Size Height Conversion is on next page

Measurement Conversions: Transom and Picture

Insert Double Hung Transoms - 8 Degree Sill					
Unit Measurements		Width		Height	
From	To				
Inside Opening		in	mm	in	mm
OM of Frame @ Exterior	Inside Opening	+ 3/8	(10)	-1/4	(6)
Frame		in	mm	in	mm
Daylight Opening	OM of Frame @ Exterior	+ 5 3/16	(132)	+ 5 1/4	(133)
Sash		in	mm	in	mm
OM of Frame @ Exterior	OM of Sash	-1 15/16	(49)	-2	(51)
Daylight Opening	OM of Sash	+ 3 1/4	(83)	+ 3 1/4	(83)
Glass		in	mm	in	mm
Daylight Opening	Glass	+ 1 1/16	(27)	+ 1 1/16	(27)

Insert Double Hung Picture - 8 Degree Sill					
Unit Measurements		Width		Height	
From	To				
Inside Opening		in	mm	in	mm
OM of Frame @ Exterior	Inside Opening	+ 3/8	(10)	-1/4	(6)
Frame		in	mm	in	mm
Daylight Opening	OM of Frame @ Exterior	+ 5 3/16	(132)	+ 5 1/4	(133)
Sash		in	mm	in	mm
OM of Frame @ Exterior	OM of Sash	-1 15/16	(49)	-2	(51)
Daylight Opening	OM of Sash	+ 3 1/4	(83)	+ 3 1/4	(83)
Glass		in	mm	in	mm
Daylight Opening	Glass	+ 1 1/16	(27)	+ 1 1/16	(27)

Infinity Double Hung Measurement Conversions		
Inside Opening to Frame Size @ Exterior		
Existing Sill Angle	Conversions	
8° and greater	1/4	(6)
7°	3/16	(5)
6°	1/8	(3)
5°	1/16	(2)
4°	0	(0)
3°	- 1/16	(2)
2°	- 1/8	(3)
1°	- 3/16	(5)
0°	- 1/4	(6)

Measurement Conversions: Egress

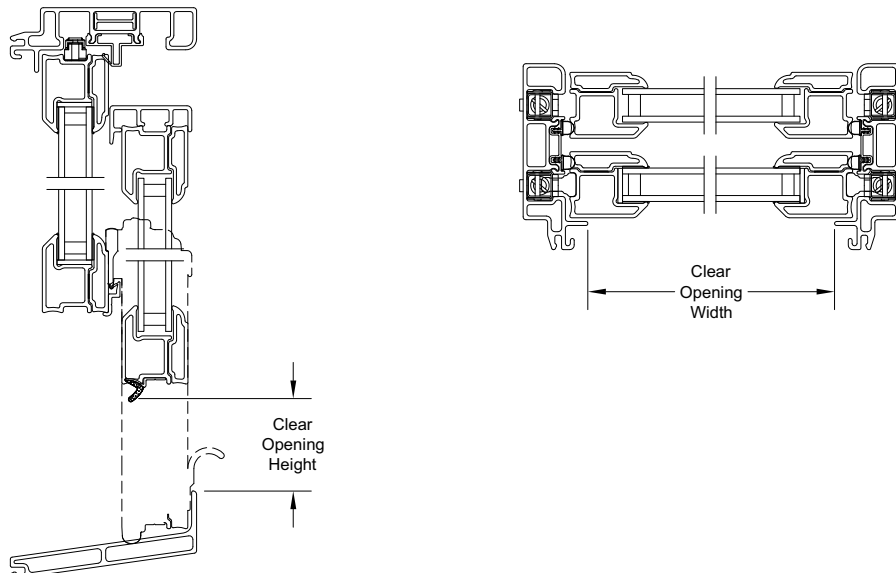
Egress Conversions		
Equal Sash Egress Minimum Opening and Conversions from Frame Size		
Minimum Value for Net Clear Opening	Desired Dimension	Formula
20 in	Egress opening width, in	= NINDH frame OM width - 2.694
24 in	Egress opening height, in	= (NINDH frame OM height / 2) - 5.722
5.7 ft ²	Egress opening area, ft ²	= ((Egress opening width, in) x (Egress opening height, in)) / 144

Egress Conversions		
Cottage Style Egress Minimum Opening and Conversions from Frame Size		
Minimum Value for Net Clear Opening	Desired Dimension	Formula
20 in	Egress opening width, in	= NINDH frame OM width - 2.694
24 in	Egress opening height, in	= (NINDH frame OM height x SR) - 5.172
5.7 ft ²	Egress opening area, ft ²	= ((Egress opening width, in) x (Egress opening height, in)) / 144

Egress Conversions		
Oriel Style Egress Minimum Opening and Conversions from Frame Size		
Minimum Value for Net Clear Opening	Desired Dimension	Formula
20 in	Egress opening width, in	= NINDH frame OM width - 2.694
24 in	Egress opening height, in	= (NINDH frame OM height x SR) - 5.406
5.7 ft ²	Egress opening area, ft ²	= ((Egress opening width, in) x (Egress opening height, in)) / 144

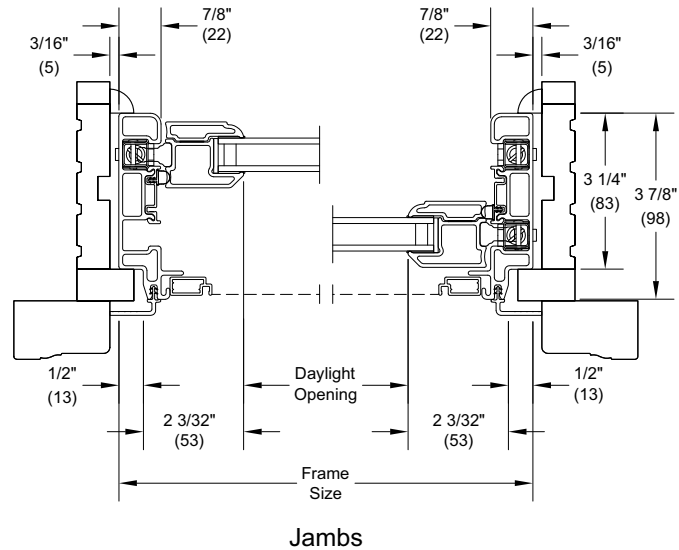
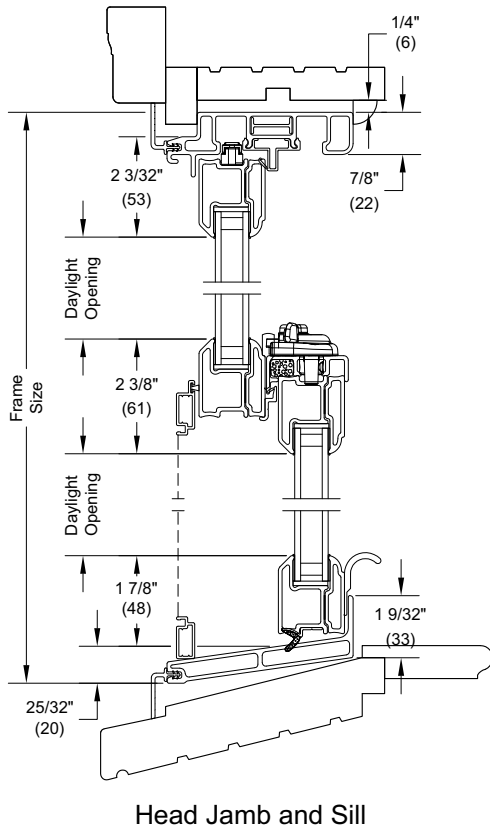
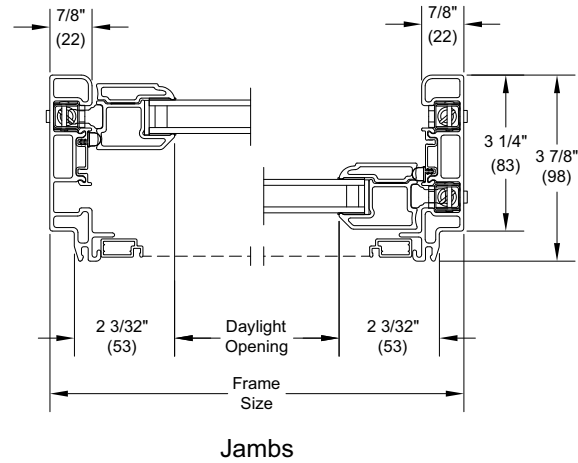
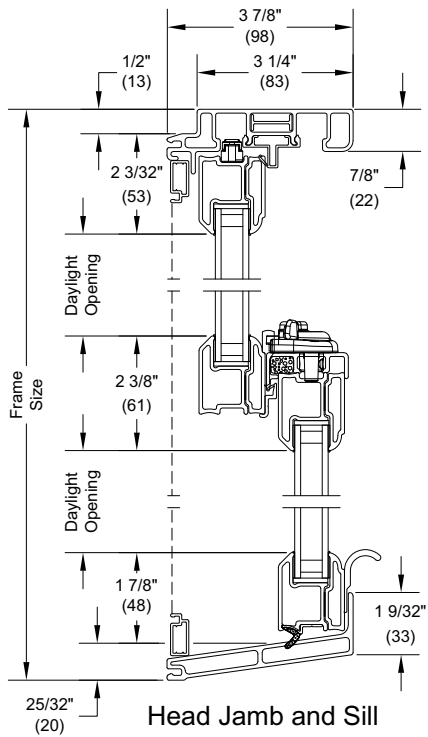
NOTE: SR is the sash ratio of the smallest sash to the glass height (2/5 or 1/3)

Must meet/exceed all three minimum values to meet egress. Limited travel may affect egress opening height.



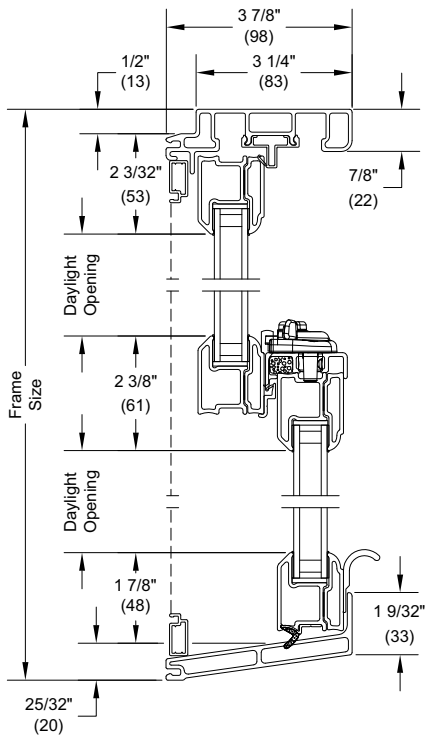
Section Details: Operator

Scale: 3" = 1' 0"

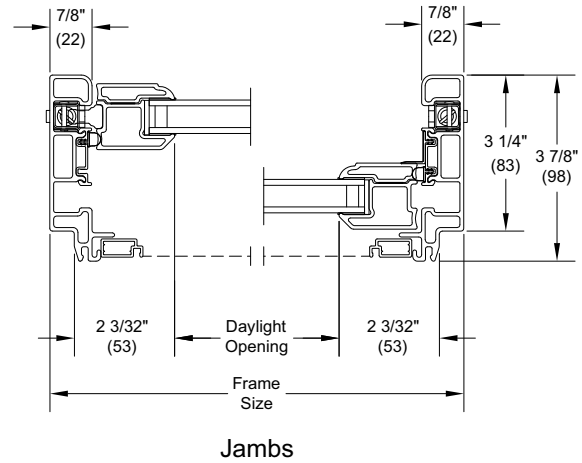


Section Details: Fixed Upper Sash

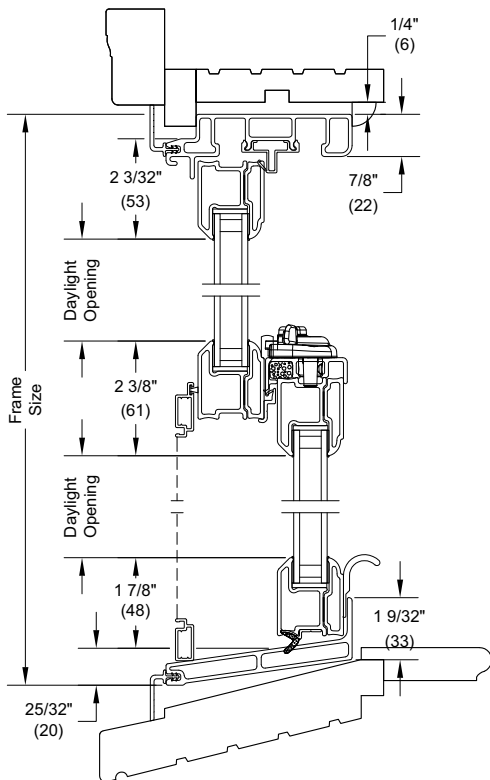
Scale: 3" = 1' 0"



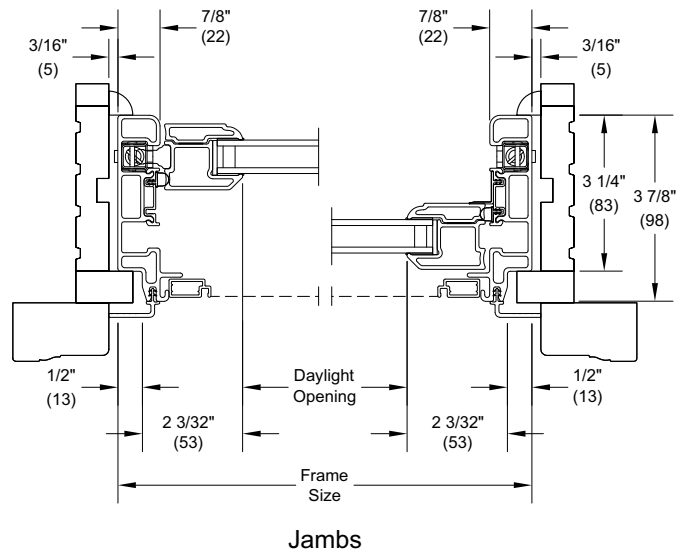
Head Jamb and Sill



Jamb



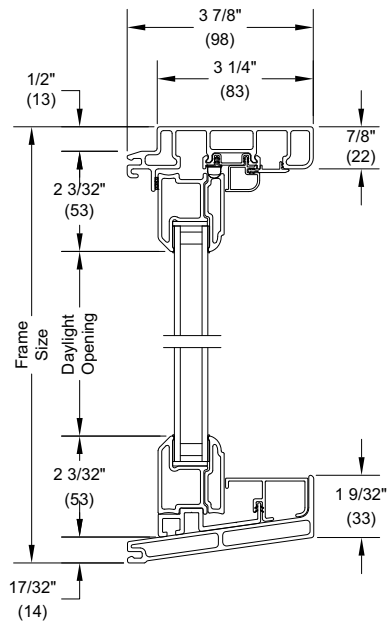
Head Jamb and Sill



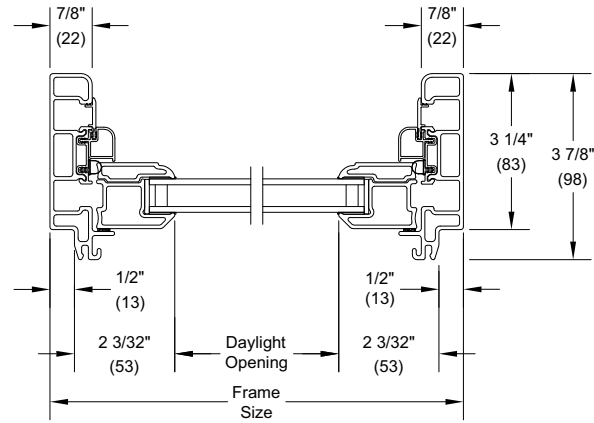
Jamb

Section Details: Transom/Picture

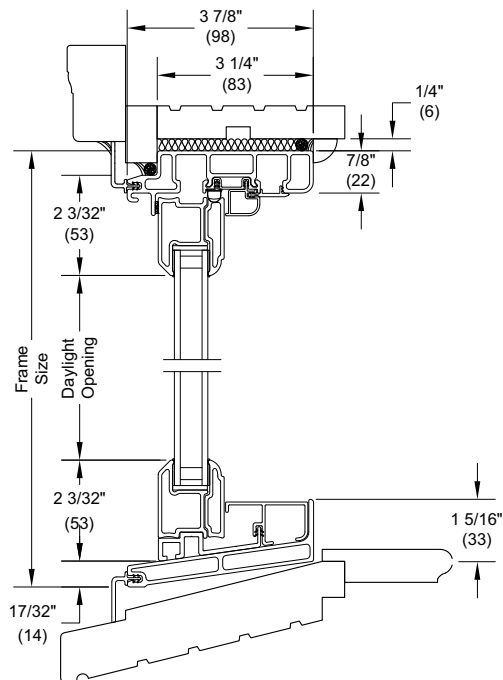
Scale: 3" = 1' 0"



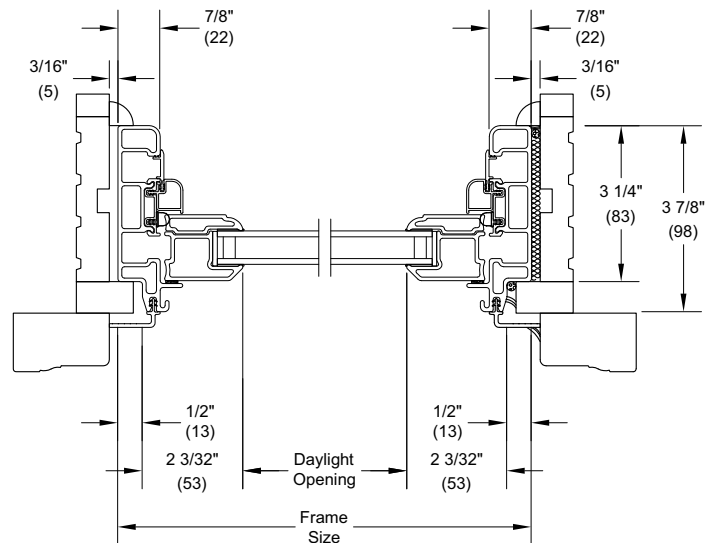
Head Jamb and Sill



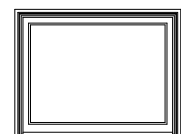
Jambs



Head Jamb and Sill

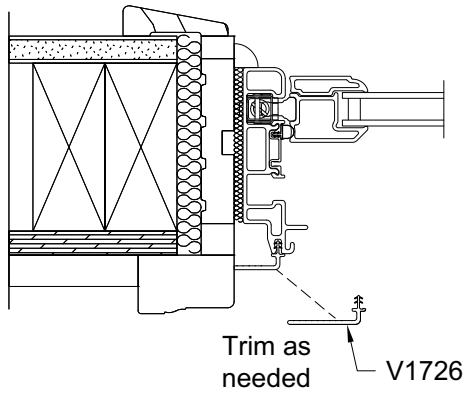


Jambs

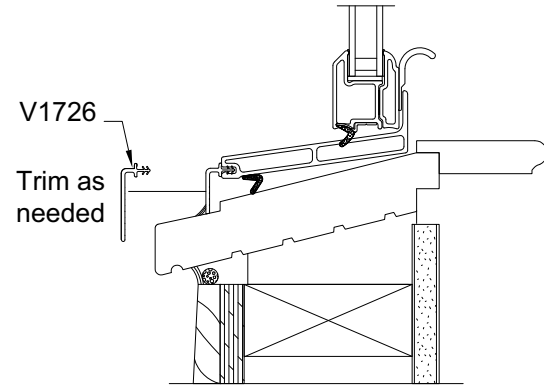


Section Details: Frame Expander and Panning Application

Scale: 3" = 1' 0"



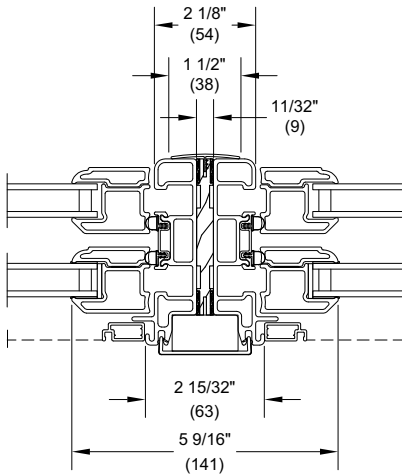
Jamb Frame Expander



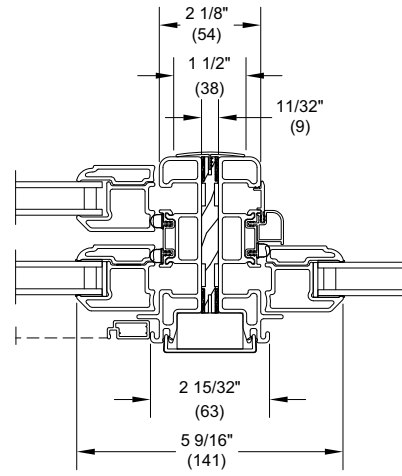
Sill Frame Expander

Section Details: Mullions

Scale: 3" = 1' 0"



Vertical Mullion Operator/Operator

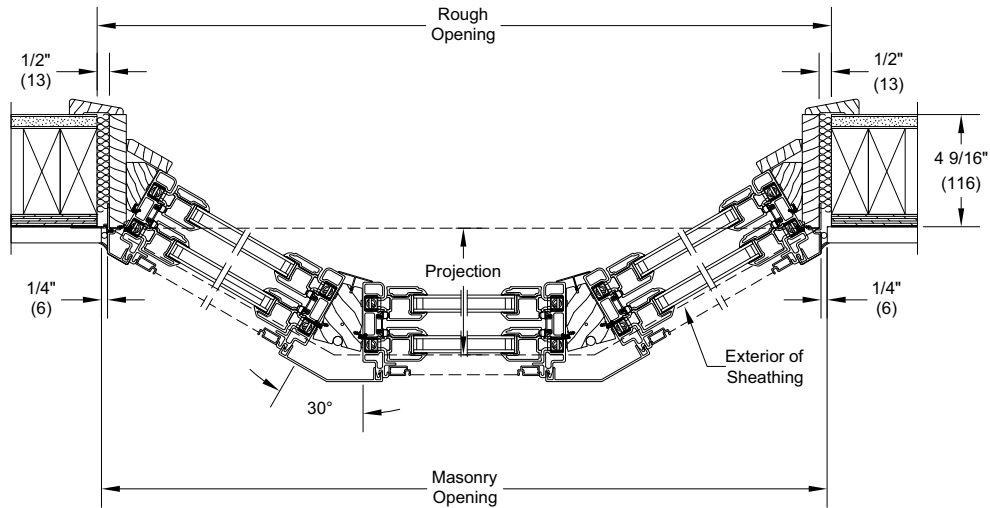


Vertical Mullion Operator/Picture

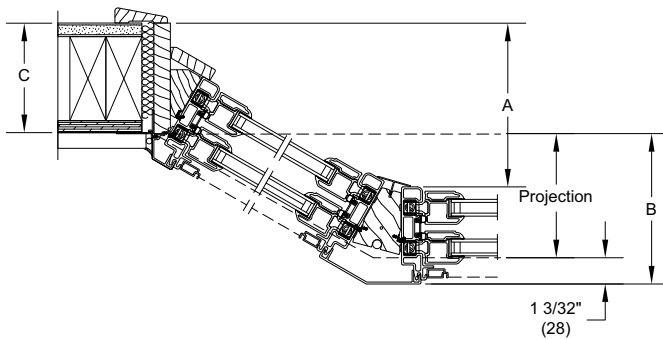
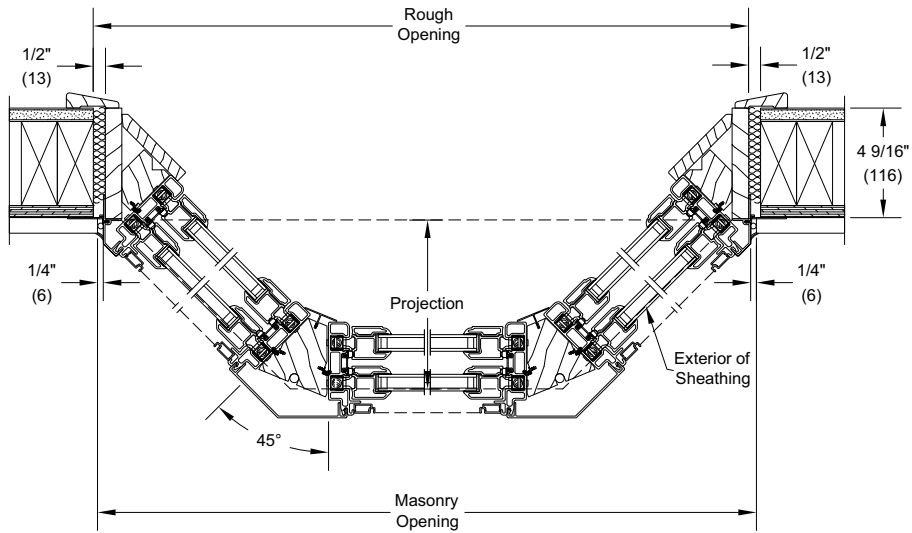
Section Details: 30° and 45° Bay Unit/Projection

Scale: 3" = 1' 0"

30° Bay



45° Bay



NINDH Bay
A= Projection 2 15/16 + Jamb Depth

Section Details: Vertical Bay

Scale: 3" = 1' 0"

