ISSUE: Permit to Demolish/Capsulate (partial), Certificate of Appropriateness for addition and alterations

APPLICANT: Paul O'Sullivan

LOCATION: Old and Historic Alexandria District
333 Green Street

ZONE: RM/Residential Townhouse Zone

STAFF RECOMMENDATION

Staff recommends approval of the Permit to Demolish/Capsulate (partial) and Certificate of Appropriateness for an addition and alterations with the condition that the applicant select a rain screen siding with a smooth/grain-free finish.

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.

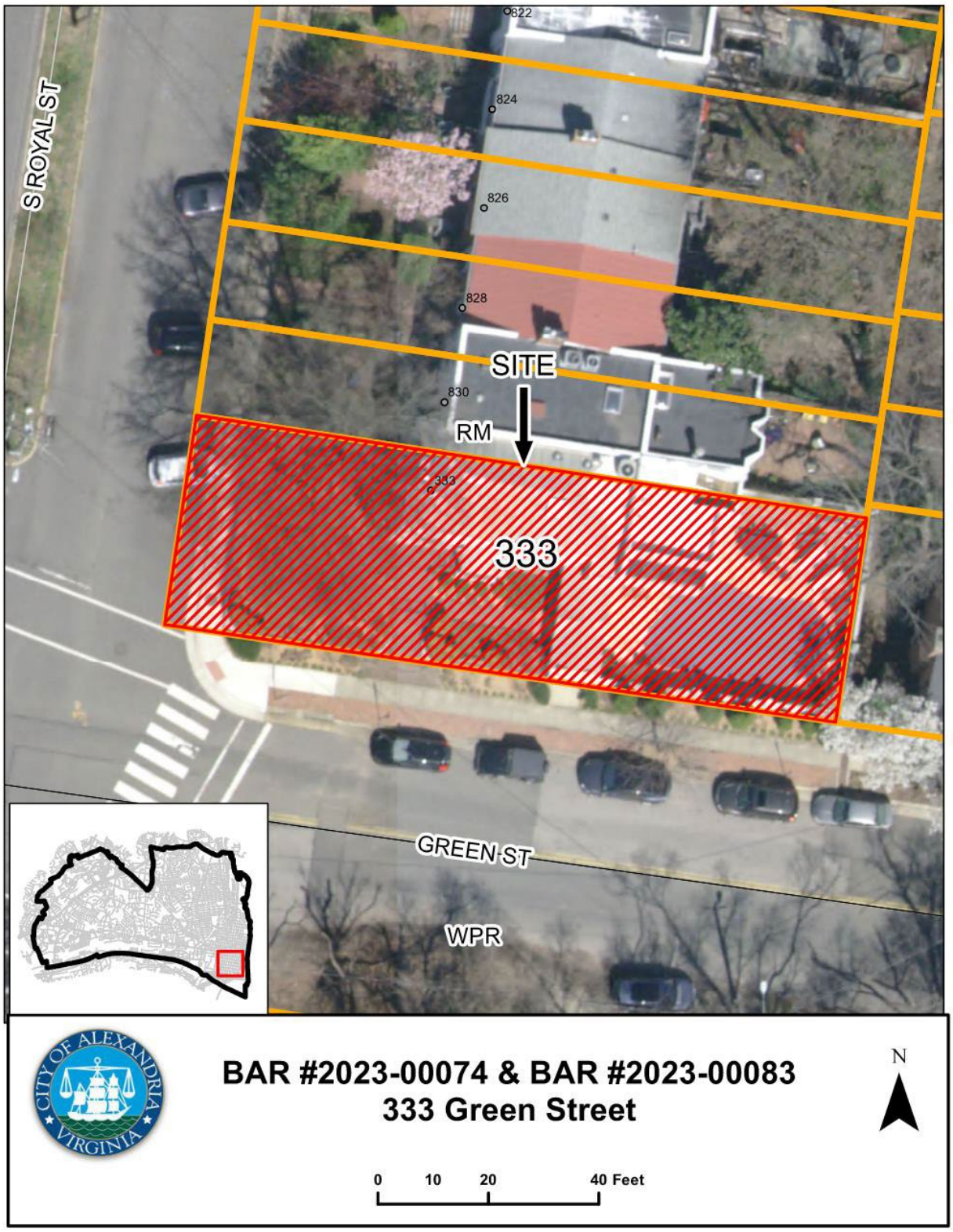
2. COMPLIANCE WITH BAR POLICIES: All materials must comply with the BAR's adopted policies unless otherwise specifically approved.

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.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CITY OF ALEXANDRIA VIRGINIA
BAR #2023-00074 & BAR #2023-00083
333 Green Street
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Note: Staff coupled the applications for a Permit to Demolish (BAR2023-00083) and Certificate of Appropriateness (BAR2023-00074) for clarity and brevity. The Permit to Demolish requires a roll call vote.

I. APPLICANT'S PROPOSAL

The applicant requests a Permit to Demolish/Capsulate (partial) and Certificate of Appropriateness to enclose the existing roof deck and exterior access stairs over the east side of the property to create a third-story addition, as well as alterations, at 333 Green Street.

The application also includes the following alterations which comply with the BAR Policy for Administrative Approval: in-kind replacement of the standing seam metal roof, storefront system window replacement (5), and relocation of existing rooftop HVAC compressor.

Site context
The subject property is located across from Jones Point Park.

II. HISTORY

According to the City's real estate records, the townhouse at 333 Green Street was constructed as part of the Yates Garden subdivision circa **1952.** It was originally a two-bay, two-story painted brick end unit townhouse; a later addition greatly enlarged it. From 1966 to 1983, the Board approved several alterations for the property including an addition, a pool, skylight, window alterations and a new portico and stoop.

Previous BAR Approvals
BAR2016-00357 Staff administrative approved the replacement of a door (8/11/2018).
BAR2010-00284 The Board approved replacement windows (10/20/2010).

III. ANALYSIS

Permit to Demolish/Capsulate
In considering a Permit to Demolish/Capsulate, the Board must consider the following criteria set forth in the Zoning Ordinance, §10-105(B) which relate only to the subject property and not to neighboring properties. The Board has purview of the proposed demolition/capsulation regardless of visibility.

Standard	Description of Standard	Standard Met?
(1)	Is the building or structure of such architectural or historical interest that its moving, removing, capsulating or razing would be to the detriment of the public interest?	No
(2)	Is the building or structure of such interest that it could be made into a historic shrine?	No
(3)	Is the building or structure of such old and unusual or uncommon design, texture and material that it could not be reproduced or be reproduced only with great difficulty?	No

(4)	Would retention of the building or structure help preserve the memorial character of the George Washington Memorial Parkway?	N/A
(5)	Would retention of the building or structure help preserve and protect an historic place or area of historic interest in the city?	No
(6)	Would retention of the building or structure promote the general welfare by maintaining and increasing real estate values, generating business, creating new positions, attracting tourists, students, writers, historians, artists and artisans, attracting new residents, encouraging study and interest in American history, stimulating interest and study in architecture and design, educating citizens in American culture and heritage, and making the city a more attractive and desirable place in which to live?	No

The analysis of the standards indicated above relate only to the portions of the roof area and wall area proposed for demolition/capsulation. In the opinion of staff, none of the criteria for demolition and capsulation are met and the Permit to Demolish/Capsulate should be granted. The areas proposed for demolition/capsulation are not of unusual or uncommon design and can easily be replicated.

Certificate of Appropriateness

Staff has no objection to the proposed addition and alterations. The *Design Guidelines* states that an approach to a design for a residential addition is one which creates a distinct yet compatible contrast with the original building through the use of differing materials, colors, and abstraction of the principal design elements of the original building.

The proposed rooftop addition will be 9'- 6" in height and constructed over the existing addition. The overall height will increase to 32'-10 $^{3/8}$", which is still below RM zone's maximum permitted height of 35 feet. The applicant is proposing to use rain screen siding with a wood grain finish on the addition. The use of smooth/grain-free finish siding on later buildings and additions, is a method used to distinguishing these buildings from early buildings. Staff has no objection to the use of the rain screen siding, as it is a solid phenolic core material. However, staff recommends that the applicant select a smooth/grain-free finish option.

While the addition will be visible, it does not obscure, or dilute the architectural importance of the original structure. With the condition noted above, staff recommends approval of the proposed addition and alterations.

STAFF

Amirah Lane, Historic Preservation Planner, Planning & Zoning
Tony LaColla, AICP, Land Use Services Division Chief, Planning & Zoning

III. CITY DEPARTMENT COMMENTS

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

Zoning

C-1 Proposed roof deck enclosure & addition plans complies with zoning.

Code Administration

C-1 Building permit is required for review.

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

F-1 No archaeology comments.

V. ATTACHMENTS

1 – Supplemental Materials
2 – Application for BAR2023-00083 & BAR2023-00074: 333 Green Street

APPLICATION
BOARD OF ARCHITECTURAL REVIEW

_____ **Filing Fees Paid**

_____ **Date of Submission**

_____ **Board of Architectural Review Hearing Date**

Applicants must send written notice of public hearings by regular mail to all abutting property owners at least 10 days prior to the Board of Architectural Review hearing, and not more than 30 days prior to the hearing.

Send notices by first-class U.S. mail between the dates of

_____ and _____

INSTRUCTIONS

1. **FILING INSTRUCTIONS:** Applications for the Board of Architectural Review (BAR) must be in and complete a minimum of 30 days prior to the hearing date. A schedule of hearing dates and corresponding submission deadline dates is maintained in the Department of Planning and Zoning and may be obtained online at www.alexandriava.gov/preservation or by calling (703) 746-3833. All applications and fees are due no later than 5:00 pm on the day of the application filing deadline. The City recommends that applicants consult City Staff as early as possible in the conception and formulation of plans. For new buildings and additions, applicants should meet with Staff a minimum of 30 days prior to any formal submission to discuss and review proposed plans.

2. **APPLICATION FORMS:** Complete the form titled "Application, Board of Architectural Review." Please use black ink or type. Sign the form and include a daytime phone number and emailaddress.

3. **APPLICATION SUPPORTING MATERIALS:** Consult the Submittal Requirements beginning on page 7 of this application as well as the Application Requirements section of the appropriate chapter in the Design Guidelines to determine required materials. Drawings must be reproduced at a standard graphic scale. Applications without the required supporting materials will be deemed incomplete and will not be scheduled for hearing by theBAR.

4. **FILING FEE:** Applicants must submit the appropriate filing fees with each application. Checks must be made payable to the City of Alexandria. A copy of the fee schedule is available online at www.alexandriava.gov/preservation or in the Department of Planning & Zoning.

5. **PROPERTY OWNER NOTIFICATION:** Applicants must send written notice by first-class U.S. mail to all abutting property owners at least 10 days prior to the Board of Architectural Review public hearing (not counting the date of the hearing), and not more than 30 days prior to the hearing. Applicants must use the notice forms supplied with the application form and complete all information blocks in order for the notice to be considered valid. (See attached detailed instructions on "Notice Requirements" for additional information on page 4.)

6. **PROPERTY POSTING**: The subject property will be posted by City staff with a placard identifying the upcoming BAR hearing. The placard will identify the location of the case, as well as therequest being made to the Board. The placard will be posted approximately 10 days before the public hearing.

7. **CONSENT TO SITE VISIT**: By applying to the Board, an applicant consents to allow City staff and Board members to visit the subject property for purposes of inspection in the course of the review and consideration of the proposal.

8. **REVIEW BY OTHER AGENCIES:** It is the policy of the Boards not to review applications which do not meet other applicable city regulations. This policy ensures that the project approved by the Board can, in fact, be undertaken. In cases where there is an historic preservation easement on the property or the property is under a homeowner's association, a copy of the letter approving the project must accompany the application at the time of submission. Applications without approval letters will not be accepted and will be deferred until the letter is received and the application is complete.

9. **DEFERRED APPLICATIONS:** An application may be deferred for public hearing by staff for one or more of the following reasons: incomplete application (including lack of supporting materialsand

improper written notice), non-compliance with zoning requirements, or failure to meet the submission deadline. Once an application has been deferred, staff will inform the applicant of what is required to resolve outstanding issues. Deferred applications will not be processed and cannot be docketed for public hearing until all outstanding issues are resolved.

The Board may also defer an application for restudy *during* a public hearing for a variety of reasons including, but not limited to: submission of additional information/materials; revision of the project scope of work; or, to address other concerns. When revised information is received by BAR staff the application will be redocketed for a BAR hearing. The applicant should consult with staff to determine whether abutting property owners should be notified of the new hearing date.

BOARD OF ARCHITECTURAL REVIEW PROCESS

STAFF REPORTS: Staff reports outlining staff's recommendation to the Board are available approximately five days prior to the hearing date. Applicants are encouraged to access the city's website at www.alexandriava.gov/preservation for a copy of the report. Hard copies of the reports are available at the Department of Planning & Zoning on the Monday prior to the hearing date.

MEETING ATTENDANCE: The applicant or an authorized representative must be present at the public hearing to represent the application and respond to Board questions.

EXPIRATION DATE OF BOARD OF ARCHITECTURAL REVIEW APPROVALS: Any approval granted by the Board of Architectural Review is valid for a period of one year from the date the Board approves the project. If construction has not been commenced and substantially undertaken within one year of the date of the approval, the approval becomes null and void. However, any period of time during which the project was on appeal to the City Council or Circuit Court is excluded from the 12 month period.

APPEAL OF THE BOARD OF ARCHITECTURAL REVIEW DECISION: Any final decision of the BAR can be appealed to City Council. Appeals can be made by 1) the applicant or 2) citizens through a petition signed by at least 25 property owners within the relevant District. Appeals must be filed with the City Clerk (Room 2300, City Hall) within 14 days of the BAR's decision. There is a $200 filing fee for the appeal process.

RECONSIDERATION OF AN APPLICATION: If an application for a Certificate of Appropriateness or Permit to Demolish is denied, the Board of Architectural Review shall not consider an application for the same proposal within one year unless the new application differs in a substantial way.

FOR ASSISTANCE WITH ANY OF THESE PROCEDURES
CONTACT BAR STAFF AT (703) 746-3833.

NOTICE REQUIREMENTS

The law requires legal advertisements for each application heard by the Board of Architectural Review so that people interested in, or affected by, the proposed application are made aware of the hearing and have an opportunity to express their views.

If incorrect notice is given, the request cannot be heard and must be deferred until proper notice is made.

Three types of notice are required:

1. Written notice **completed by the applicant**.
2. Legal notice published by the City in the newspaper prior to the hearing.
3. Placard posting on the subject property by the City prior to the hearing.

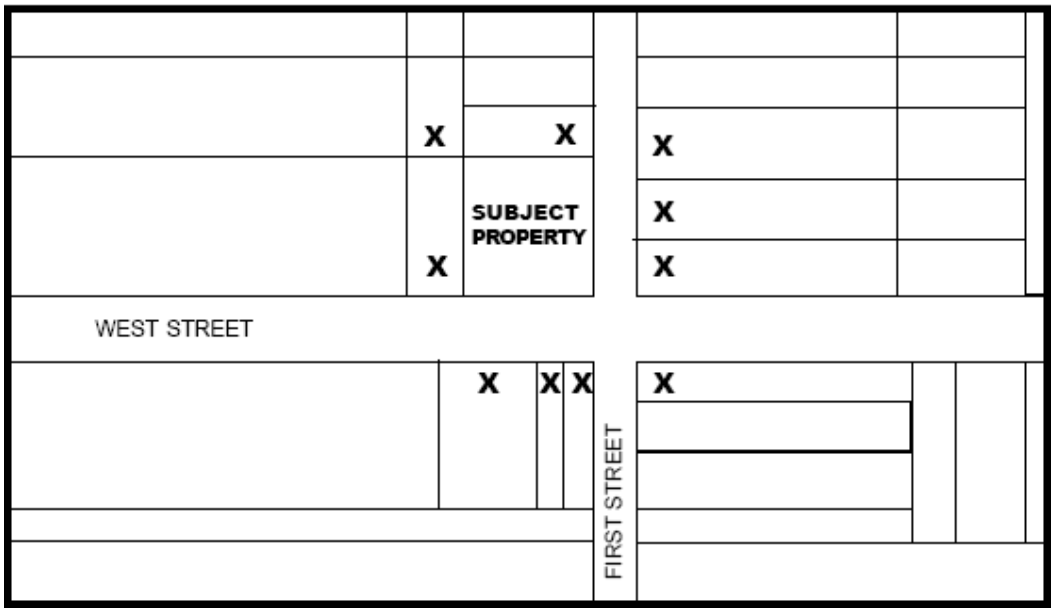
FREQUENTLY ASKED QUESTIONS

1. **What is written notice?** Written notice is a letter sent by the applicant to the owners of those properties that abut the subject property. The notice describes the application before the BAR and gives the date when the public hearing on the application will take place.

2. **What form should I use for the written notice?** Use the attached form, **Notice of Public Hearing**, to identify surrounding property owners of the proposal before the Board. In the *Issue Description* section of the notice form, describe in detail the project for which you are seeking approval. Prior to mailing, date and sign the form, and provide your telephone number and email address (if feasible) so that recipients of the notice may contact you with questions or concerns.

3. **To whom must I send written notice?** Written notice must be sent to the owner of the subject property if the applicant is not the property owner and to the owner(s) of each abutting property. An abutting property is one that touches the property in question as well as any property that directly faces (and, in the case of a corner lot, diagonally faces) the property in question. Below is a sample sketch showing a hypothetical subject property and the property owners required by law to be notified. This is a sample only and is not to be used as a final authority when sending notice. If in doubt, it is advisable to provide notice to additional properties.

X = Property owners to be notified



4. **How do I determine the abutting properties?** Consult the tax maps in the Department of Planning and Zoning to determine the correct map, block and lot numbers of the abutting properties. Use that information to fill out the attached **Property Owners List** form.

5. **How do I find the name and address of the owners of those properties?** Visit our City website at www.alexandriava.gov and follow the link for Real Estate and perform a Real Estate Assessments Search for each property. You may also contact the Office of Real Estate Assessments on the second floor of City Hall, 301 King Street, Room 2600. For each search, look up the name and mailing address of the property owner for each parcel you have listed on the Property Owners List. Fill in that information on the same form under the *Adjoining Property Owner's Name and Mailing Address* and *Tax Assessment Map Number* sections.

6. **What do I do in the case of a condominium property?** Legal notice to an abutting property that is in condominium ownership may be provided in only one of two ways:

- By sending notice to each and every condominium unit owner; or,
- By sending notice to the president of the condominium association.

In order to find the name and mailing address of the unit owners, use the records of the Office of Real Estate Assessments, as you would for any other owner of property. These records will provide the official name and address of each property owner. You may consult the City's Department of Citizen Assistance for the name and address of the association president, but you should also call the condominium association to confirm the information.

7. **How must the notice be mailed?** A copy of the **Notice of Public Hearing** form must be mailed to each property owner listed on the **Property Owners List** (plus the owner of the property, if the applicant is not the owner). The notices must be sent by first-class U.S. mail. Hand-delivered notices are not sufficient.

8. **When must the notice be sent?** The notices must be sent at least 10 days but not more than30 days prior to the public hearing. Consult the BAR schedule for notification deadline dates.

9. **What documents must be submitted to show that I sent notice correctly?** After you have sent the notice letters, the following documents must be submitted to the Department of Planning and Zoning:

- The attached **Certification of Notice** form. This form tells the City that you have sent the appropriate form to the correct list of owners and that you have sent it at the right time. You must sign this form.
- A copy of the **Notice of Public Hearing** form that you sent to the property owners.
- A copy of the **Property Owners List**, filled in with the names and mailing addresses of the abutting properties to whom you have sent notice.

10. **When must the above documents be submitted?** The above documents must be submitted to the Department of Planning and Zoning at least five days prior to the hearing date.

11. **If my case is deferred do I need to send notice again?** It is likely that you will have to notify abutting property owners of the new hearing date, which will be determined after BAR receives revised information.

If you fail to send correct legal notice as described above, the application will not be heard as scheduled and will be deferred to the next scheduled hearing date or until proper notice is sent. If you have any questions about the notice process, contact BAR staff at (703) 746-3833 for assistance.

BAR Case # _____

ADDRESS OF PROJECT: 333 Green St., Alexandria, VA 22314

DISTRICT: ■ **Old & Historic Alexandria** ☐ **Parker – Gray** ☐ **100 Year Old Building**

TAX MAP AND PARCEL: map = 080.04, PID 080.04-15-16 **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: Paul O'Sullivan

Address: 333 Green St.

City: Alexandria State: VA Zip: 22314

Phone: 703-309-9828 E-mail : os.designbuild@gmail.com

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

Name: _____ Phone: _____

E-mail: _____

Legal Property Owner:

Name: Amy & Paul O'Sullivan

Address: 333 Green St.

City: Alexandria State: VA Zip: 22314

Phone: 703-309-9828 E-mail: os.designbuild@gmail.com

☐ **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.

BAR Case # _____

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

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

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

- Enclose existing exterior roof deck and associated existing roof deck exterior access stair over the East side of the house.
  - Enclosed roof deck and stair will be conditioned with the rest of the residence.
  - Exterior materials to enclose addition shall be cementitious panels, HPL panels, and aluminum clad glazing
  - Roof shall be low sloped with a TPO membrane
- Replace existing, non-thermally broken storefront 5 ganged windows with 5 ganged aluminum clad windows
- Relocation of existing rooftop HVAC compressor
- Replace existing standing seam metal roof with standing seam metal roof
- Replace existing standing seam metal roof over existing attached storage with standing seam metal roof

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.

BAR Case # _____

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: Paul J. O'S

Printed Name: Paul O'Sullivan

Date: 03-02-23

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. Paul O'Sullivan	333 Green St., Alexandria, VA 22314	50%
2. Amy O'Sullivan	333 Green St., Alexandria, VA 22314	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 333 Green St., Alexandria, VA 22314 (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. Paul O'Sullivan	333 Green St., Alexandria, VA 22314	50%
2. Amy O'Sullivan	333 Green St., Alexandria, VA 22314	50%
3.		

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 the12-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.		
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.

02-13-23	Paul O'Sullivan	Paul J. O'S
Date	Printed Name	Signature

Department of Planning & Zoning
Floor Area Ratio and Open Space Calculations

B

A. Property Information

A1. 333 Green St., Alexandria, VA 22314 (Street Address) | RM (Zone)

A2. 4,787.00 (Total Lot Area) **X** 1.50 (Floor Area Ratio Allowed by Zone) **=** 7,180.50 (Maximum Allowable Floor Area)

B. Existing Gross Floor Area

Existing Gross Area		Allowable Exclusions**	
Basement	938.00	Basement**	938.00
First Floor	1,352.00	Stairways**	107.00
Second Floor	1,122.00	Mechanical**	
Third Floor	0.00	Attic less than 7'**	373.00
Attic	373.00	Porches**	43.00
Porches		Balcony/Deck**	
Balcony/Deck		Lavatory***	95.00
Lavatory***		Other**	
Other**		Other**	
B1. Total Gross	3,785.00	**B2. Total Exclusions**	1,556.00

B1. 3,785.00 Sq. Ft. — Existing Gross Floor Area*

B2. 1,582.00 Sq. Ft. — Allowable Floor Exclusions**

B3. 2,203.00 Sq. Ft. — Existing Floor Area Minus Exclusions *(subtract B2 from B1)*

Comments for Existing Gross Floor Area

See attached FAR xcel sheet with itemized breakdown of exclusions per floor and exclusion justification

C. Proposed Gross Floor Area

Proposed Gross Area		Allowable Exclusions**	
Basement		Basement**	
First Floor	109.00	Stairways**	52.00
Second Floor	109.00	Mechanical**	
Third Floor	578.00	Attic less than 7'**	
Attic		Porches**	
Porches		Balcony/Deck**	
Balcony/Deck		Lavatory***	49.00
Lavatory***		Other**	
Other		Other**	
C1. Total Gross	796.00	**C2. Total Exclusions**	101.00

C1. 796.00 Sq. Ft. — Proposed Gross Floor Area*

C2. 101.00 Sq. Ft. — Allowable Floor Exclusions**

C3. 695.00 Sq. Ft. — Proposed Floor Area Minus Exclusions *(subtract C2 from C1)*

D. Total Floor Area

D1. 2,898.00 Sq. Ft. — Total Floor Area *(add B3 and C3)*

D2. 7,180.50 Sq. Ft. — Total Floor Area Allowed by Zone *(A2)*

E. Open Space (RA & RB Zones)

E1. 3,001.00 Sq. Ft. — Existing Open Space

E2. 1,428.00 Sq. Ft. — Required Open Space

E3. 2,911.00 Sq. Ft. — Proposed Open Space

Notes

**Gross floor area is the sum of all areas under roof of a lot, measured from the face of exterior walls, including basements, garages, sheds, gazebos, guest buildings and other accessory buildings.*

*** Refer to the Zoning Ordinance (Section 2-145(B)) and consult with Zoning Staff for information regarding allowable exclusions. Sections may also be required for some exclusions.*

****Lavatories may be excluded up to a maximum of 50 square feet, per lavatory. The maximum total of excludable area for lavatories shall be no greater than 10% of gross floor area.*

The undersigned hereby certifies and attests that, to the best of his/her knowledge, the above computations are true and correct.

Signature: Paul J. O'K 17 Date: 03-02-23

FAR calculations for 333 Green St., Alexandria, VA 22314

ZONE	RM (Residential Medium	
Total Lot area	4,787	sf
FAR allowed for RM	1.50	
Max Allowable floor area	7180.50	sf

EXISTING GROSS FLOOR AREA

	Existing Gross Floor Area (SF)	Allowable Exclusion (SF)	Exclusion Justification
Basement	938	938	Ceiling of basement is < 4'-0" from average finish grade, also includes stairs to Basement
First Floor	1,352	105	Front Portico = 43 sf Stairs with intermediate landing = 62 sf
Second Floor	1,122	140	1 lav = 45 sf 1 lav = 50 (max allowable) sf Stairs with intermediate landing = 45 sf
Third Floor	0		
Attic	373	373	entire sloped ceiling < 7'-0" from finished floor
Porches			
Balcony/Deck			
Lavatory			
Other			
Other			
Totals	3,785	1,556	

Existing Floor Area Minus Exclusions	**2,229**

Exclusion breakout per City of Alexandria FAR form. (See adjacent for breakout of exclusions per floor)	
Basement	938
Stairways	107
Mechanical	0
Attic Less than 7	373
Porches	43
Balcony/Deckj	
Lavatory	95
Other	
Other	
Totals	1,556

PROPOSED GROSS AREA

	Proposed Gross Floor Area (SF)	Allowable Exclusion (SF)	Exclusion Justification
Basement	938	938	Ceiling of basement is < 4'-0" from average finish grade, also includes stairs to Basement
First Floor	1,461	105	Front Portico = 43 sf Stairs with intermediate landing = 62
Second Floor	1,231	154	1 lav = 45 sf 1 lav = 50 (max allowable) sf Stairs with intermediate landing (inluding new interior access to 2nd floor = 59 sf
Third Floor	578	101	1 lav = 49 sf Stairs with intermediate landing = 52 sf
Attic	373	373	entire sloped ceiling < 7'-0" from finished floor
Porches			
Balcony/Deck			
Lavatory			
Other			
Other			
Totals	4,581	1,671	

Existing Floor Area Minus Exclusions	**2,910**

Exclusion breakout per City of Alexandria FAR form. (See adjacent for breakout of exclusions per floor)	
Basement	938
Stairways	173
Mechanical	
Attic Less than 7	373
Porches	
Balcony/Deckj	
Lavatory	144
Other (Portico)	43
Other	
Totals	1,671

NOTES:
*Gross floor area is the sum of all areas under roof of a lot, measured from the face of exterior walls, including basements, garages, sheds, gazebos, guest buildings and other accessory buildings.

** Refer to the Zoning Ordinance (Section 2-145(B)) and consult with Zoning Staff for information regarding allowable exclusions. Sections may also be required for some exclusions.

***Lavatories may be excluded up to a maximum of 50 square feet, per lavatory. The maximum total of excludable area for lavatories shall be no greater than 10% of gross floor area.

Demo Calcs

Project: 333 Green St.
Date: 3/3/2023

*****Note: All SF is based on plan view area takeoffs****

2ND FLOOR Demo	
Square feet	**LOCATION**
16	Storefront window
62	Storefront window sloped glazing including sloped precast
14	Sloped metal roof between original and 1980's addition
2nd Floor total **92**	

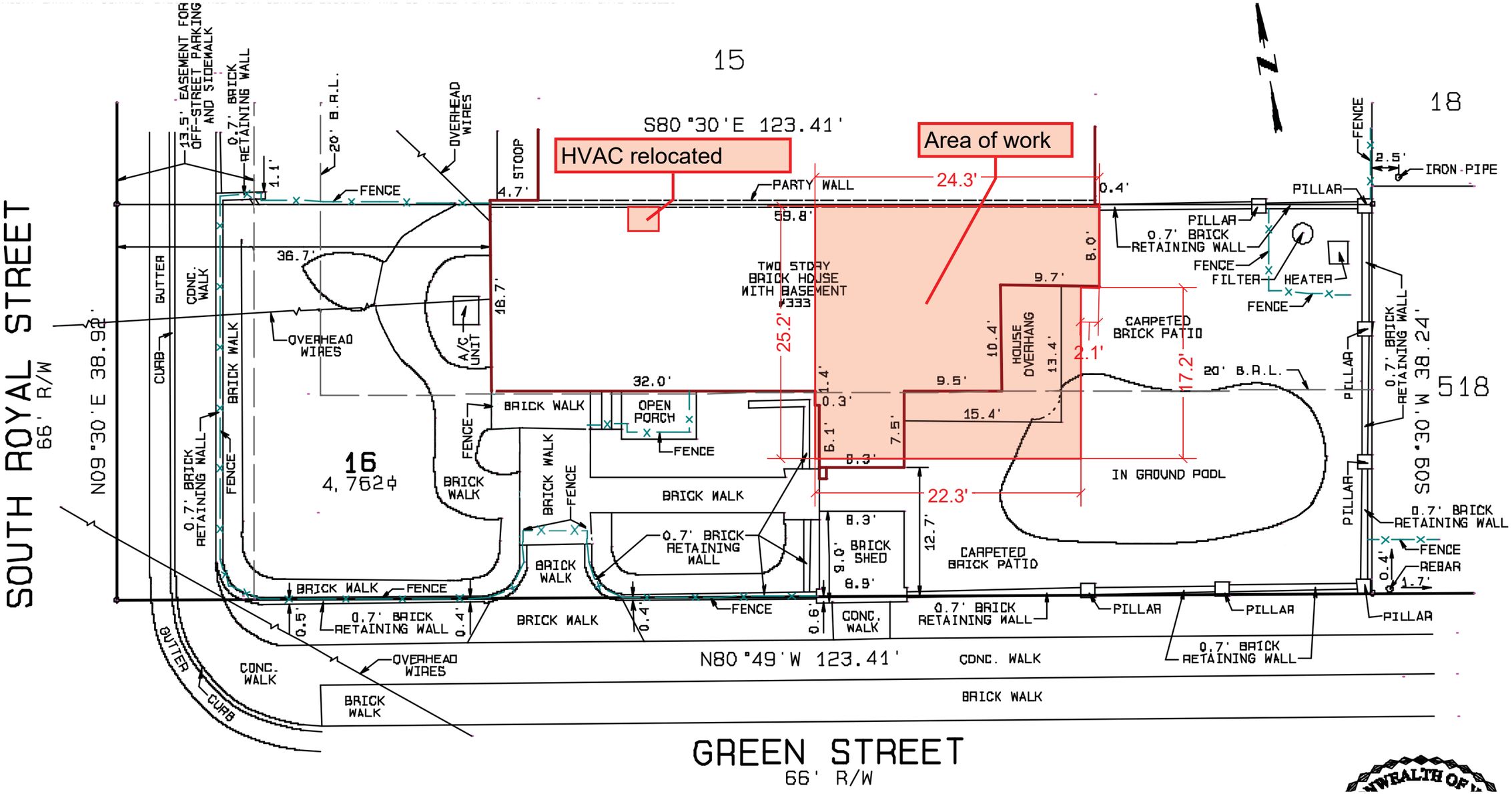
ROOF LEVEL Demo	
Square feet	**LOCATION**
648	Hipped standing seam metal roof replacement
63	interstitial TPO membrane roof between hip and roof deck (to be enclosed by addition)
319	Roof deck including stair (to be enclosed by addition)
Roof Level total **1030**	

Total GROSS		
Demo	**1122**	**SQUARE FEET**

333 Green Street Addition

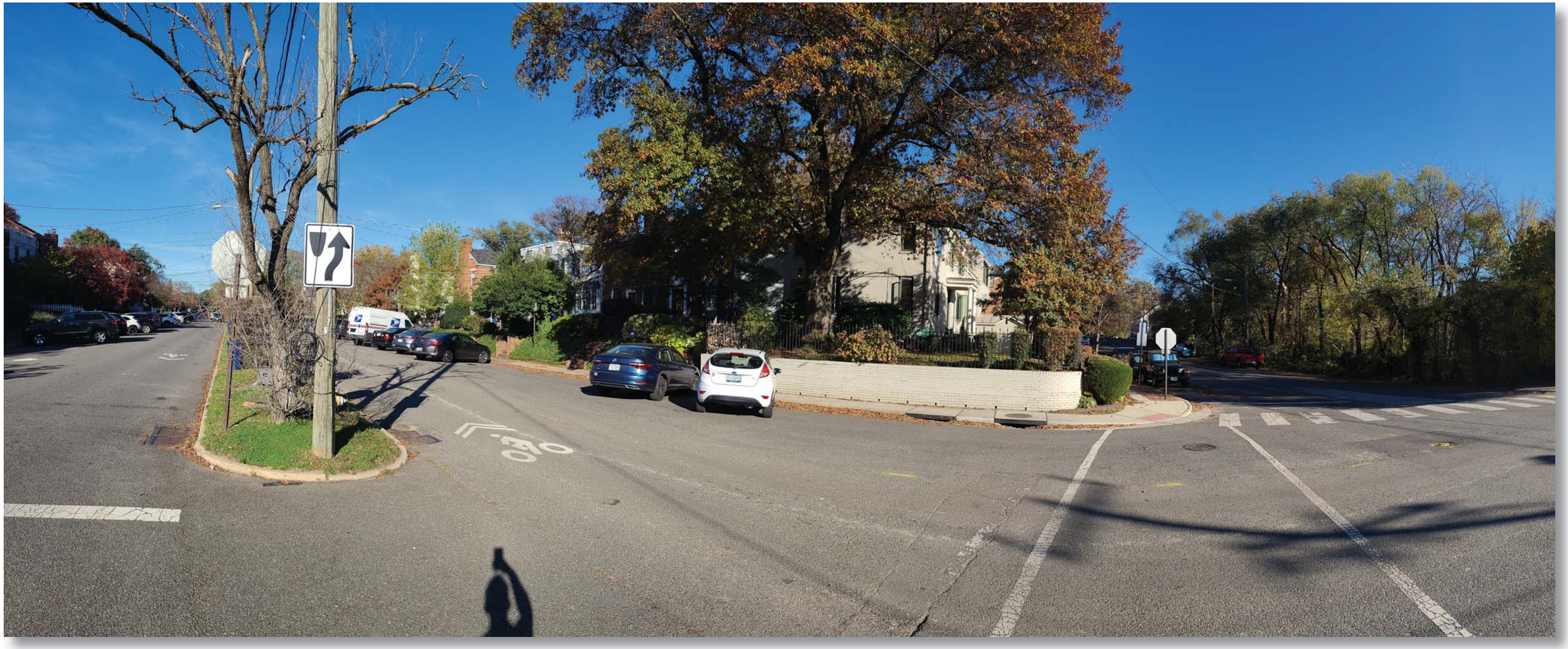
Alexandria Board of Architectural Review Package

OS Design-Build, LLC.
333 green st.
alexandria, va 22314
703-309-9828

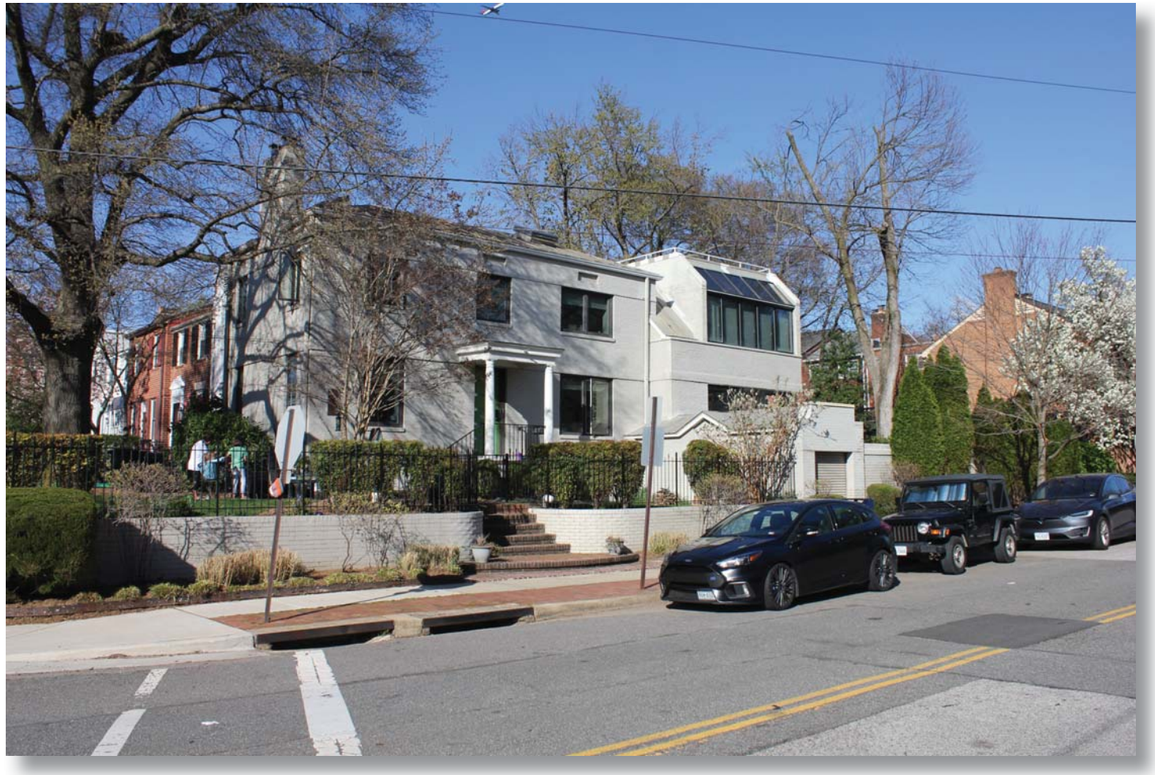

Area of work
HVAC relocated
15
16
4,762±
18
518
S80°30'E 123.41'
N09°30'E 38.92'
S09°30'W 38.24'
N80°49'W 123.41'
SOUTH ROYAL STREET
66' R/W
GREEN STREET
66' R/W
PARTY WALL
24.3'
59.8'
0.4'
4.7'
STOOP
36.7'
18.7'
TWO STORY
BRICK HOUSE
WITH BASEMENT
#333
25.2'
9.7'
8.0'
10.4'
HOUSE
OVERHANG
13.4'
2.1'
17.2'
CARPETED
BRICK PATIO
20' B.R.L.
32.0'
1.4'
0.3'
9.5'
15.4'
6.1'
7.5'
8.3'
22.3'
IN GROUND POOL
OPEN
PORCH
BRICK WALK
FENCE
A/C
UNIT
OVERHEAD
WIRES
13.5' EASEMENT FOR
OFF-STREET PARKING
AND SIDEWALK
0.7' BRICK
RETAINING WALL
4.1'
20' B.R.L.
GUTTER
CONC.
WALK
CURB
BRICK WALK
0.7' BRICK
RETAINING WALL
FENCE
PILLAR
IRON PIPE
2.5'
0.7' BRICK
RETAINING WALL
FILTER
HEATER
0.7' BRICK
RETAINING WALL
8.3'
8.0'
BRICK
SHED
8.9'
12.7'
CARPETED
BRICK PATIO
REBAR
1.7'
0.4'
0.5'
0.6'
CONC.
WALK
BRICK WALK
PILLAR
0.7' BRICK
RETAINING WALL
OVERHEAD
WIRES
CONC. WALK
BRICK WALK
GUTTER
CURB

West elevation @ Royal Street

West elevation @ Royal Street



West elevation @ Royal Street



Southwest elevation @ corner of Royal Street & Green Street

South elevation @ Green Street

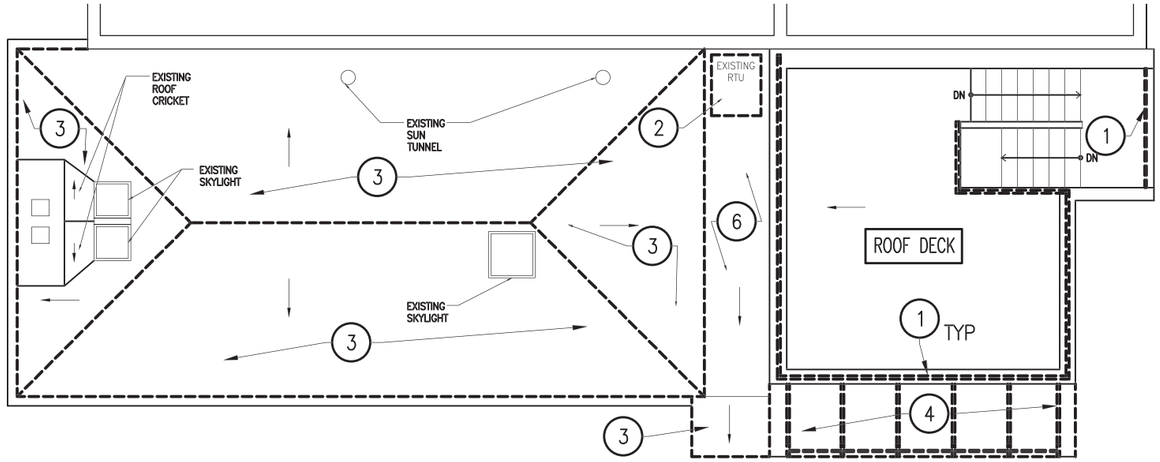
Southeast elevation @ Royal Street

Southeast elevation @ Royal Street

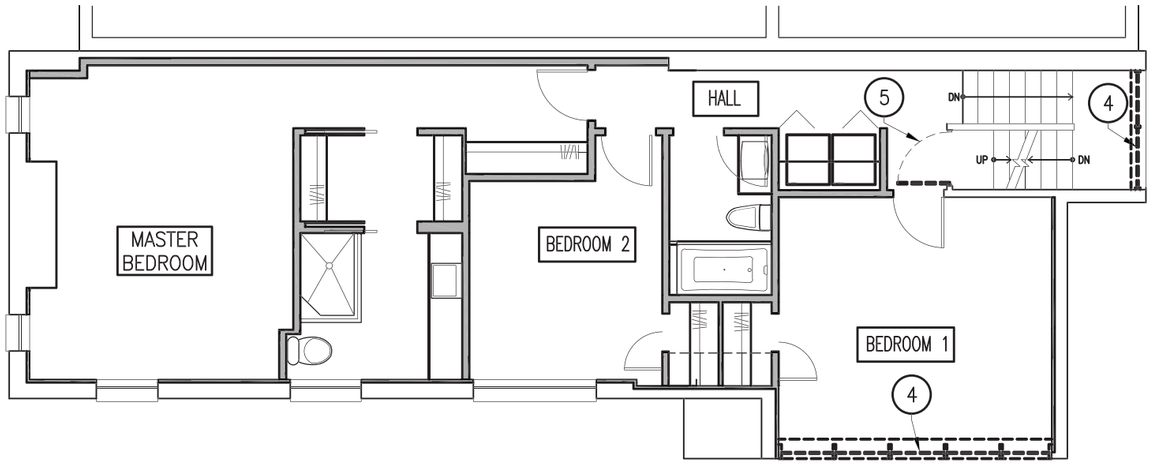
South partial elevation with context

Sideyard looking East

Site



Existing Roof Plan



Existing 2nd Floor Plan

(#) DEMO ELEVATION KEYNOTES

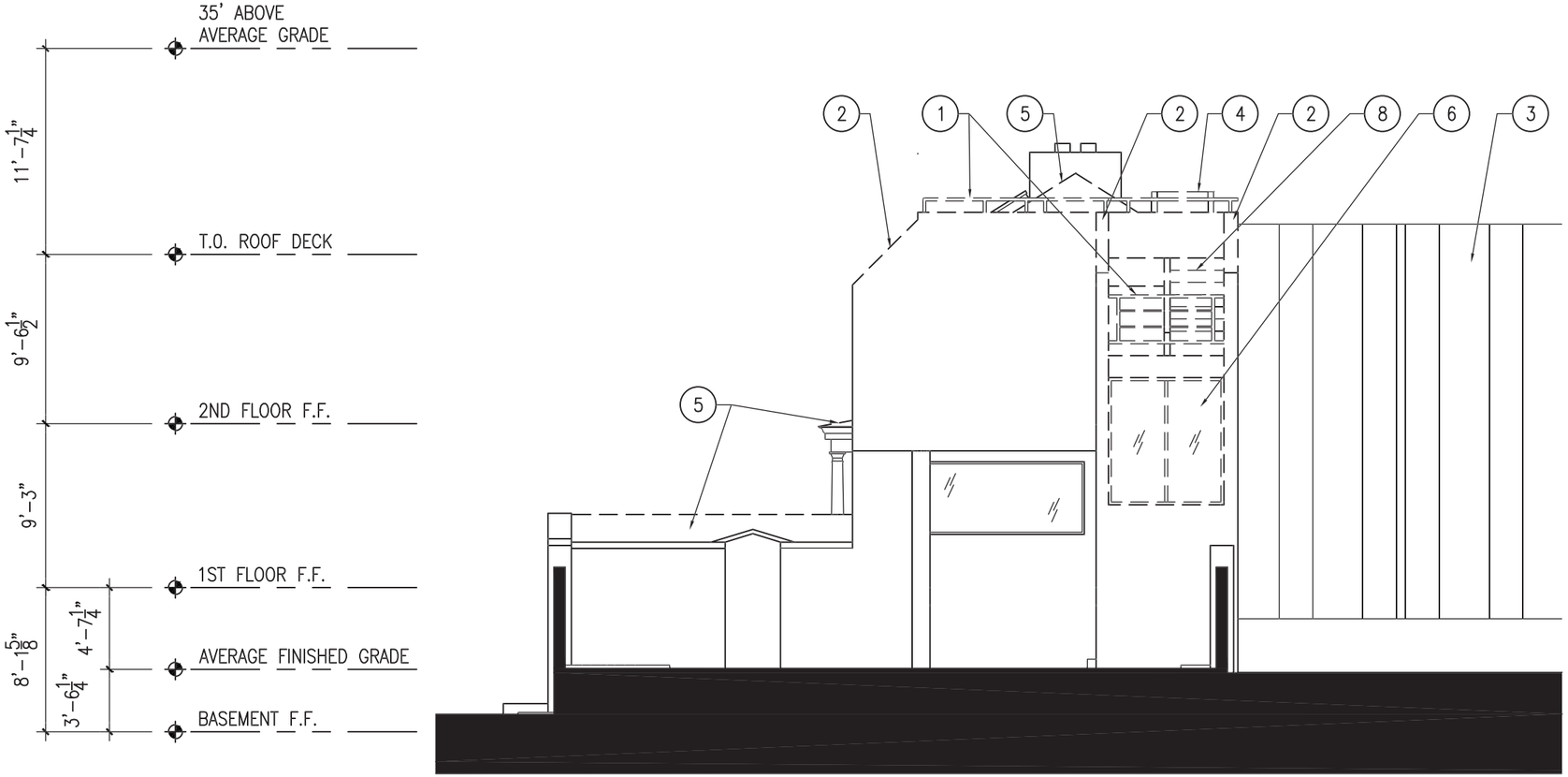
1. DEMO EXISTING GUARDRAIL
2. SALVAGE EXISITNG RTU FOR REUSE
3. DEMO EXISTING STANDING SEAM METAL ROOF
4. DEMO EXISTING STOREFRONT SYSTEM
5. DEMO EXISTING EXTERIOR DOOR
6. DEMO EXISTING MEMBRANE ROOF

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

(#) DEMO ELEVATION KEYNOTES

1. DEMO EXISTING GUARDRAIL
2. DEMO EXISTING PRECAST COPING
3. EXISTING ADJACENT NEIGHBOR STRUCTURE
4. SALVAGE EXISITNG RTU FOR REUSE
5. DEMO EXISTING STANDING SEAM METAL ROOF
6. DEMO EXISTING STOREFRONT SYSTEM
7. EXISTING TO REMAIN PARTY WALL BEYOND
8. DEMO EXISTING EXTERIOR STAIR

South Elevation



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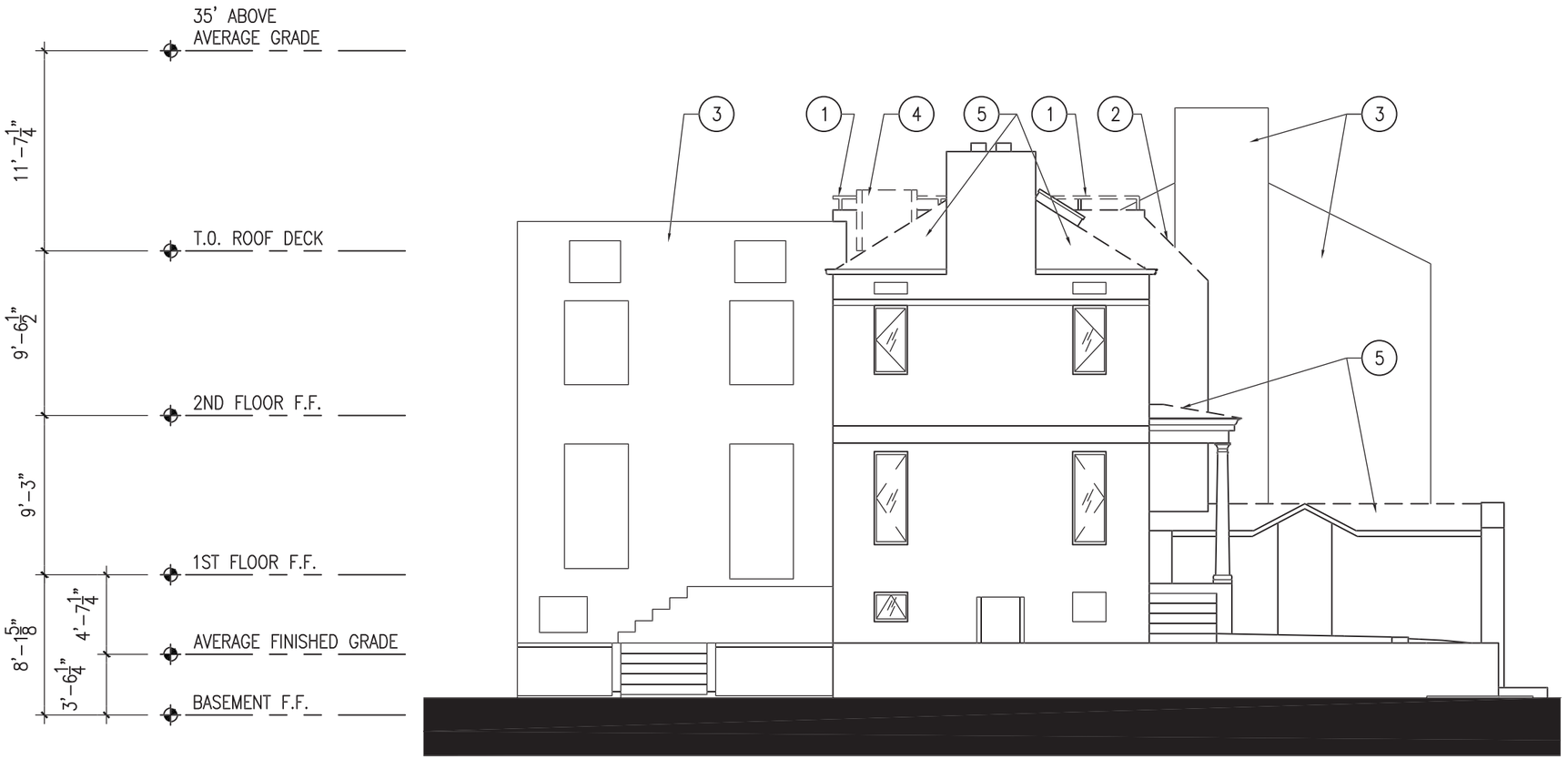
5. DEMO EXISTING STANDING SEAM METAL ROOF
6. DEMO EXISTING STOREFRONT SYSTEM
7. EXISTING TO REMAIN PARTY WALL BEYOND
8. DEMO EXISTING EXTERIOR STAIR

8' 0' 4' 8' 16'

SCALE: 1/8" = 1'-0"

East Elevation



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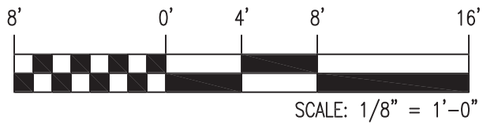


West Elevation

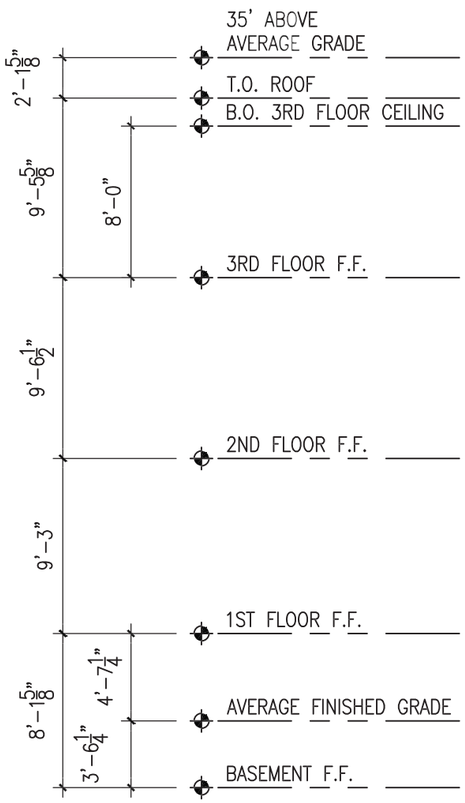
(#) ELEVATION KEYNOTES

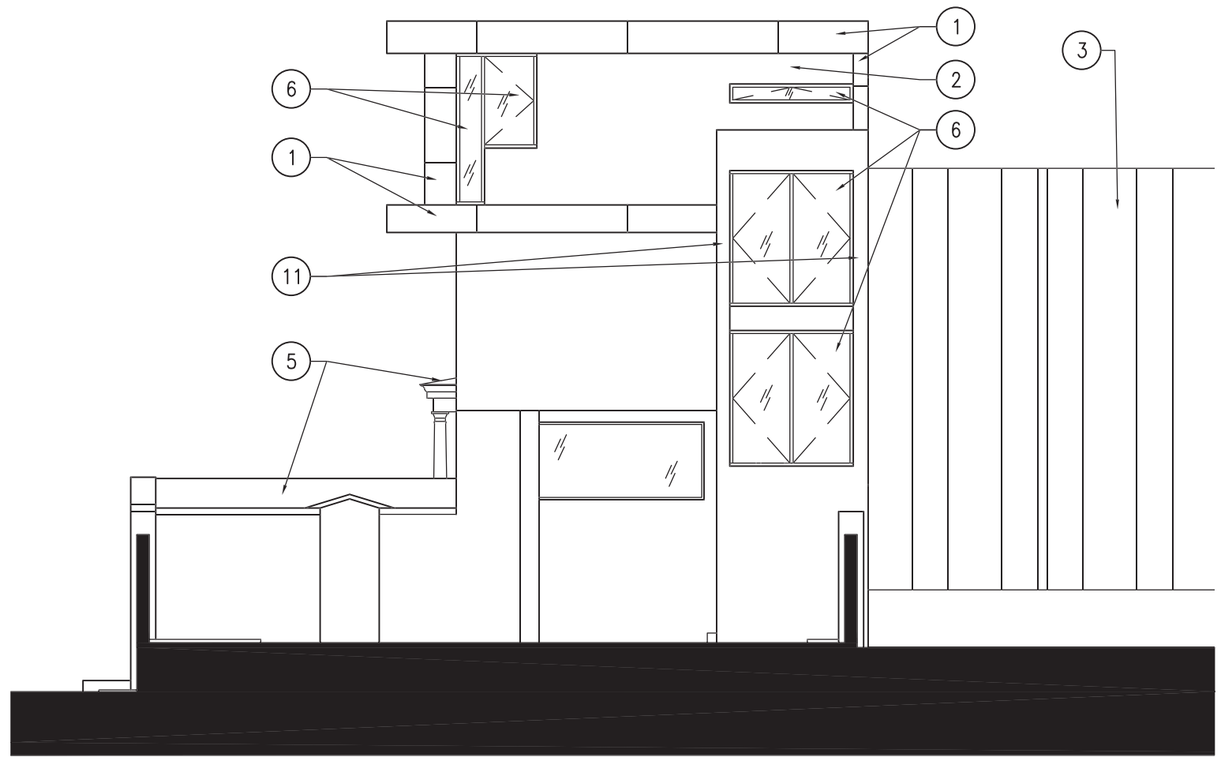
1. MAIN SIDIING
2. ACCENT SIDING
3. EXISTING ADJACENT NEIGHBOR STRUCTURE
4. RELOCATED RTU
5. STANDING SEAM METAL ROOF
6. GLAZING
7. EXISTING TO REMAIN PARTY WALL BEYOND
8. ROOF CRICKET
9. FIXED LOUVERS OVER GLAZING
10. DOWNSPOUT
11. BRICK

8' 0' 4' 8' 16'

SCALE: 1/8" = 1'-0"

South Elevation





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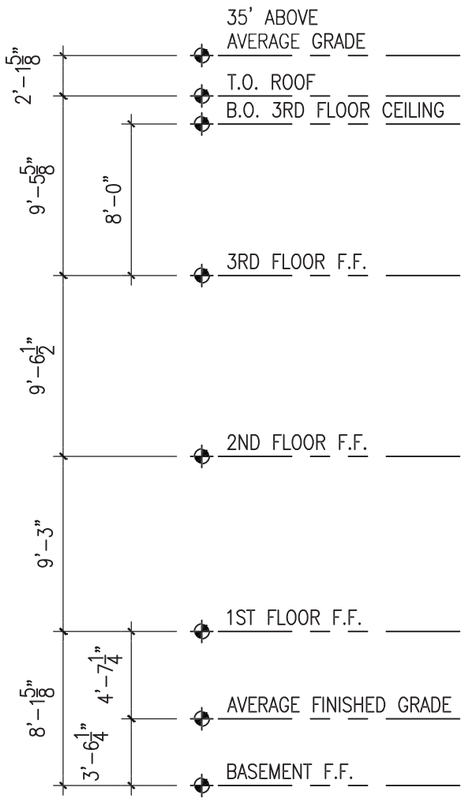
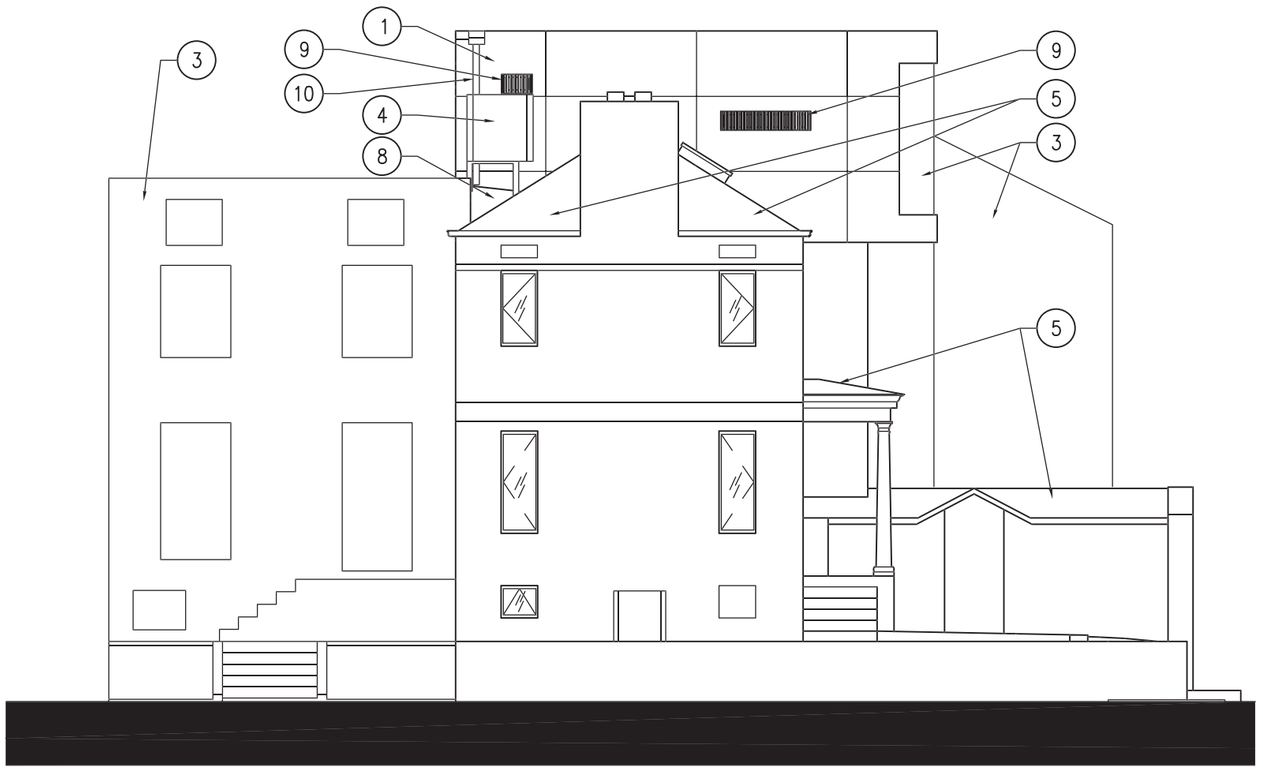
7. EXISTING TO REMAIN PARTY WALL BEYOND
8. ROOF CRICKET
9. FIXED LOUVERS OVER GLAZING
10. DOWNSPOUT
11. BRICK

8' 0' 4' 8' 16'

SCALE: 1/8" = 1'-0"

East Elevation





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8. ROOF CRICKET
9. FIXED LOUVERS OVER GLAZING
10. DOWNSPOUT
11. BRICK

8' 0' 4' 8' 16'

SCALE: 1/8" = 1'-0"

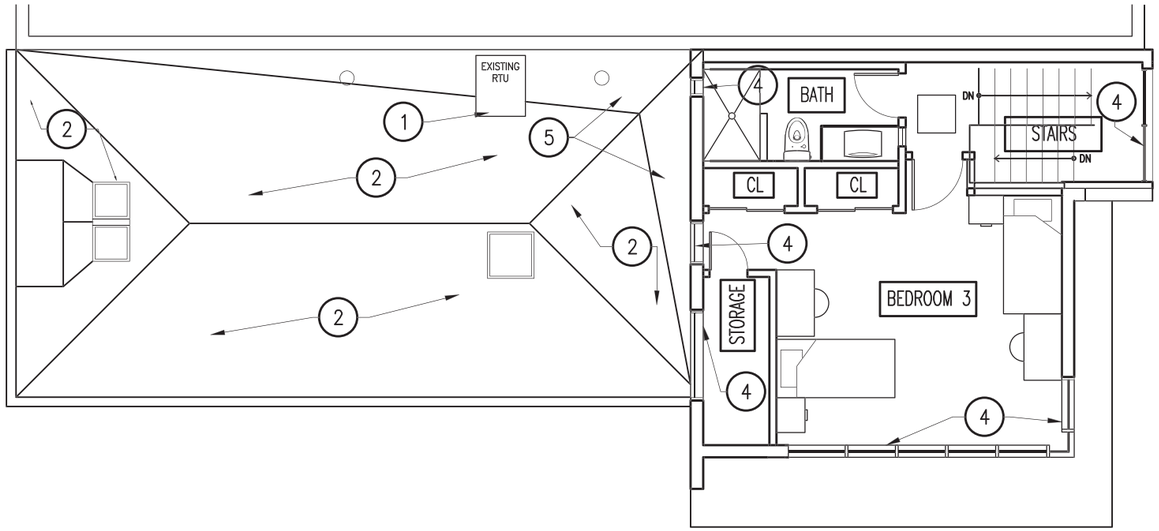
West Elevation

@ Corner of Green Street & Royal Street

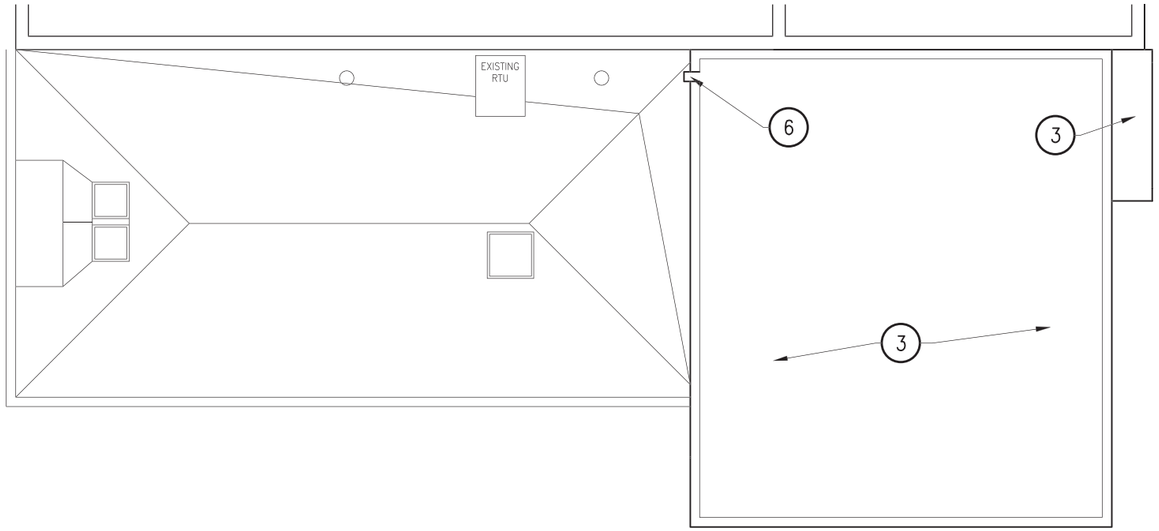
@ Green Street Looking Northwest

Birds Eye @ Green Street Looking Northwest

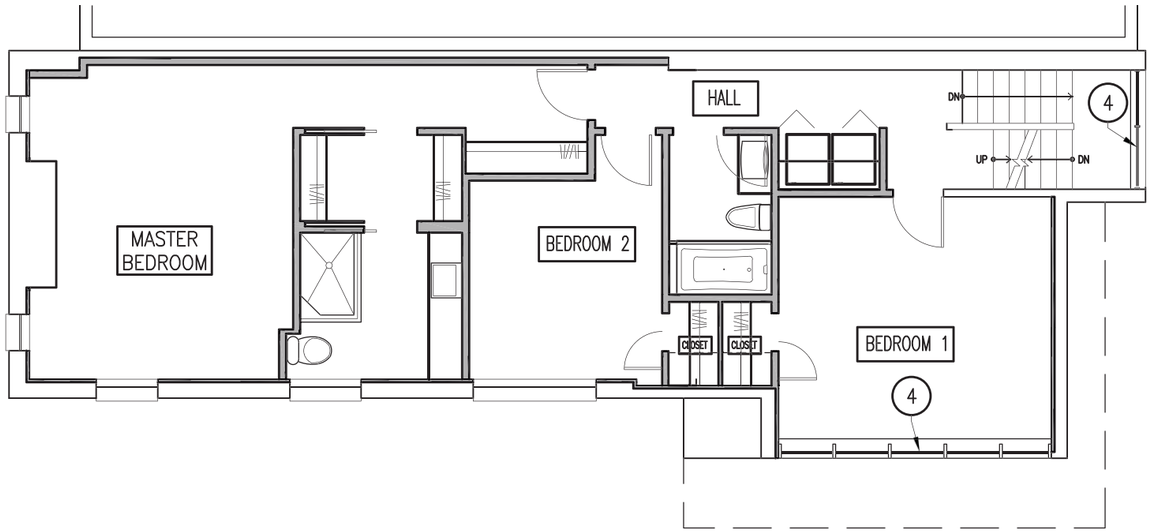
Site



Proposed Main Roof & 3rd Floor Plan



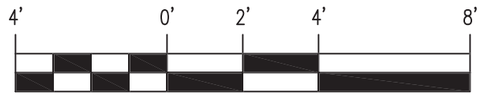
3rd Floor Roof Plan



Proposed 2nd Floor Plan

(#) PLAN KEYNOTES

1. RELOCATED RTU
2. STANDING SEAM METAL ROOF
3. MEMBRANE ROOF
4. GLAZING
5. ROOF CRICKET
6. DOWNSPOUT



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

(#) ELEVATION KEYNOTES

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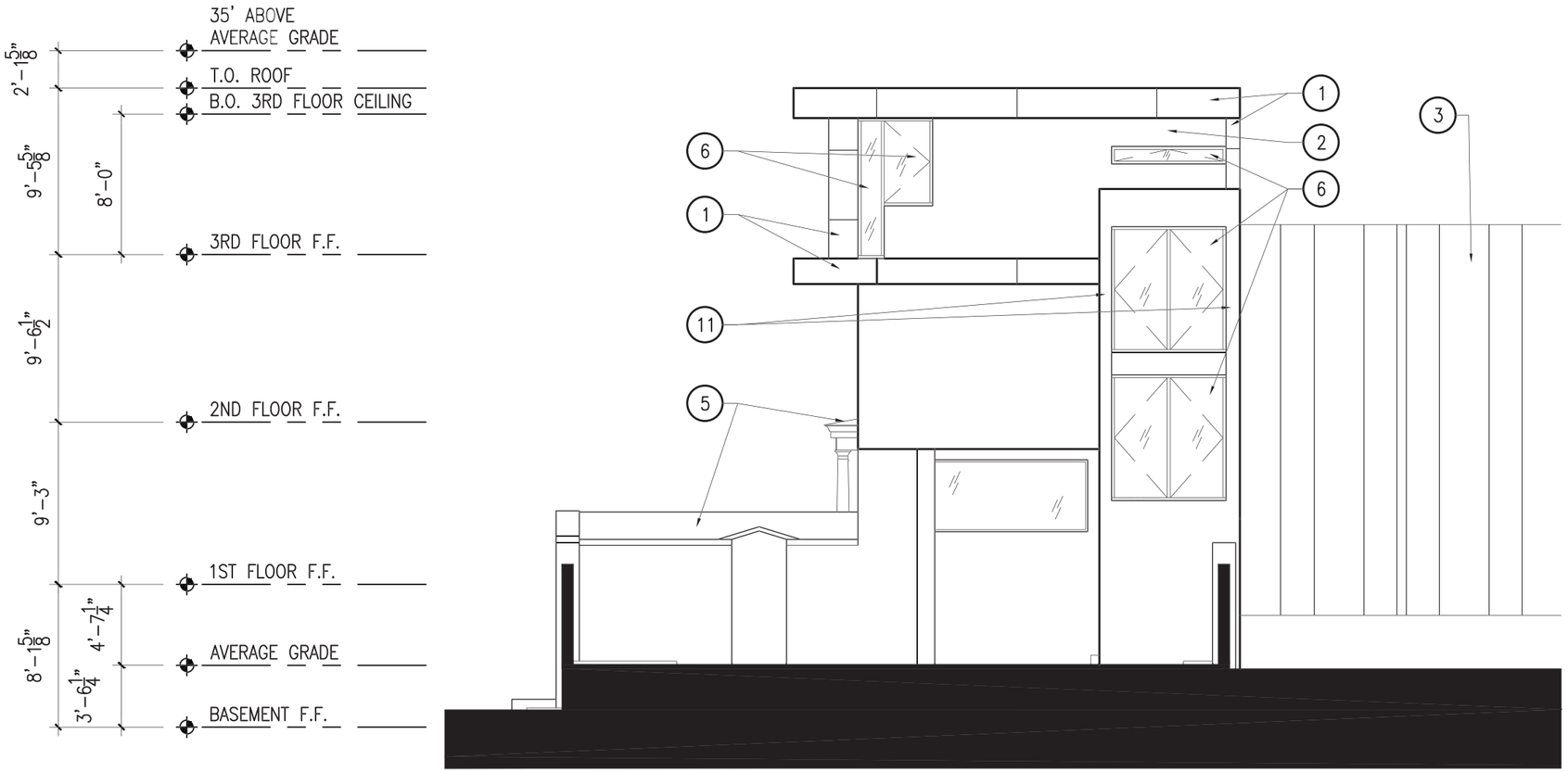
3. EXISTING ADJACENT NEIGHBOR STRUCTURE
4. RELOCATED RTU
5. STANDING SEAM METAL ROOF
6. GLAZING
7. EXISTING TO REMAIN PARTY WALL BEYOND
8. ROOF CRICKET
9. FIXED LOUVERS OVER GLAZING
10. DOWNSPOUT
11. BRICK

8' 0' 4' 8' 16'

SCALE: 1/8" = 1'-0"

South Elevation



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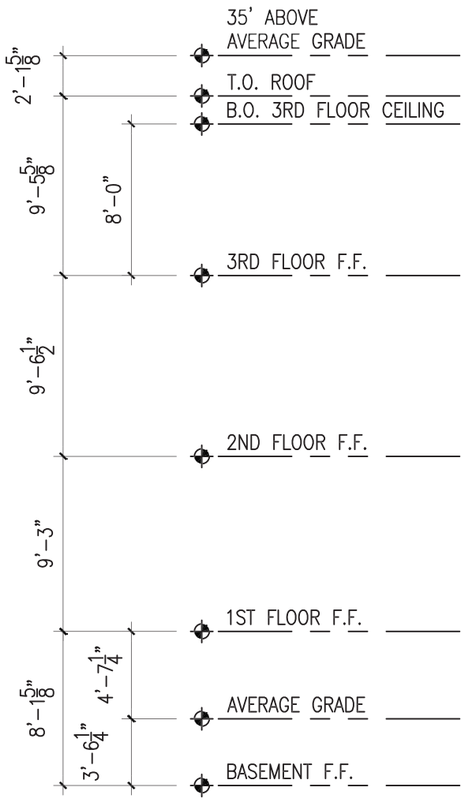
10. DOWNSPOUT
11. BRICK

8' 0' 4' 8' 16'

SCALE: 1/8" = 1'-0"

East Elevation



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8' 0' 4' 8' 16'

SCALE: 1/8" = 1'-0"

West Elevation

@ Corner of Green Street & Royal Street

@ Green Street Looking Northwest

Birds Eye @ Green Street Looking Northwest

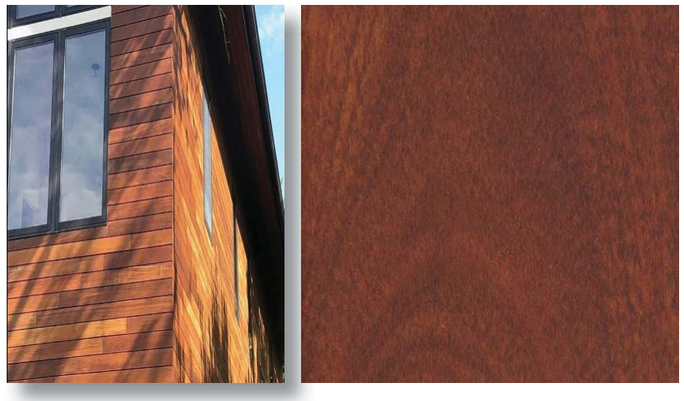
Metal roof examples (standing seam metal @ ±21” o.c.

Metal roof profile

Low slope roof (fluid applied OR TPO (Thermoplastic Polyolefin) membrane color - white

Windows - aluminum clad. exterior color - dark bronze, (Marvin Ultimate Casement)

Metal roof color - dark bronze



Accent Siding Rain Screen - Phenolic Panel (7-5/8” OR 3-1/2” tall, lengths vary), matte finish

Main Siding Rain Screen - engineered stone panel (8x10 nominal), matte finish

MATERIAL DATA (23 ºC RF 45-60 %):		Value	Unit	Reference
Thickness		6,0 ± 0,6	mm	STENI quality system
Weight		12,0 ± 5 %	kg/m²	STENI quality system
Density		1960 ± 3 %	kg/m³	STENI quality system
Length and width		± 2	mm	STENI quality system
Edge straightness		± 1	mm	STENI quality system
Drilling position tolerance		± 3	mm	STENI quality system
Diagonal deviation		≤ 3	mm	STENI quality system
SURFACE:				
Front side of panel: (electron beam cured acrylic with gloss)	M (Matt) HM (Half Matt) HG (High Gloss)	1-4 6-20 60-75	BYK 60º	ISO 6504, ASTM standard
Front side quality of coat: (uniform surface expression free from surface defects such as stars, blisters, craters, pinholes and scratches)	*Product for outside use;* (5 m distance 90º viewing with normal daylight without sun) *Product for inside use;* (3 m distance 90º viewing with normal illumination)	Not visible		EN 12206-1:2004, 4.5.2
The coating shall be free from defects extending down to the substrate.		Not accepted		EN 12206-1:2004, 4.5.2
Edge of panel:	*Untreated;* (small defects adjoining to surface) *Treated;* (small defects without coating)	Accepted		STENI quality system
Back side of panel is untreated and partly calibrated by sanding. Minor defects.		Accepted		STENI quality system
Color-deviation between colour batches (Deviation from master)		3	∆E	CIE 15:2004
Color-deviation within one colour batch		0,5	∆E	CIE 15:2004
PHYSICAL DATA:				
Flexural strength		≥ 30	N/mm^2	CSTB method
Elasticity module		≥ 5000	N/mm^2	EN ISO 178
Impact strength		≥ 20	kJ/m^2	ISO 172-82
Tensile strength (length and width direction)		≥ 15	N/mm^2	ISO/R 527-66
Critical radius		< 3,5	m	
Hard/soft body impact		Category 1		EAD-090062
Surface hardness:	Ball impression 250 N Permanent impression	0,14 0,03	mm	NT Build 059
Resistance of pull through panel (drilled hole d=5,5mm) Steni fixing screw (4,0 * 28/ 33)		1,0	kN	EN 320:1993
Emission After 28 days (23 °C 50 % RH)	TVOC Formaldehyde ∑VOC carcinogenic	270 1 <1	µg/(m^2 h)	EN ISO 16000-9:2006
Thermal conductivity λ_p		0,55	W/(m K)	SINTEF NBI
THERMAL PROPERTIES:				
Dimensional stability. Cumulative change max		0,04	%	NS EN 438-2:2005, part 18
Temperature expansion (-20 °C to +65 °C)		0,021- 0,026	mm/(m K)	SINTEF NBI
Water vapor resistance		$30 \cdot 10^{10}$	$(m^2sPa)/kg$	ASTM E 96-66
Water vapor resistance S_d		58,5	M	SINTEF NBI
Permeability of water vapour		$33 \cdot 10^{-13}$	kg/(m²s Pa)	ASTM E 96-66
Water absorption 1 m deep: (25 ºC 100% RH)	After 24 hours After 28 days	ca. 0,5 ca. 2,0	%	ASTM D-570
Frost resistance		> 300	Cycle	SINTEF NBI
FIRE RESISTANCE:				
Used as ventilated facade panel (rain screen)		B-s1,d0	Euro Class	EN 13501-1
ENVIRONMENTAL:				
Global warming		17	CO_2 ekv/m^2	SINTEF NEPD 0097E rev 1
Total energy		179	MJ/m^2	SINTEF NEPD 0097E rev 1

AREA OF USE
STENI Colour is a robust façade panel designed to be used as exterior ventilated cladding. It is suitable for all types of structures, and also for use as interior cladding. STENI Colour is particularly well-suited for areas where there is a lot of moisture.

ORIGIN
STENI Colour is manufactured by STENI AS in Larvik, Norway. STENI AS has developed and manufactured unique façade panels since 1965.

COMPOSITION
STENI Colour is a fibre-glass reinforced cured stone-composite panel with a core of crushed natural stone.

SURFACES
STENI Colour has a smooth surface (front) of electron beam cured acrylic with up to a 15-year colour fastness warranty. Choose from many standard colours. On request, STENI Colour can also be delivered in custom colours following the NCS Colour System or RAL. Standard gloss levels are matt (**M**), half matt (**HM**) or high gloss (**HG**). STENI Colour is a white panel dyed throughout. The edges of the panel are untreated, but can be delivered treated on request. The back of the panel is untreated.

FORMAT
STENI Colour is available in a thickness of 6 mm. Production width is 1,195 mm. Standard widths are 295, 395, 595, 795, 895 and 1,195 mm. Panels are manufactured to maximum length of 3,495 mm. Standard lengths are 850 to 3,495 mm.

UNIQUE PROPERTIES
STENI Colour is a highly resistant material that maintains its technical properties under extreme climatic conditions. These panels have excellent resistance against a variety of chemicals. Unique properties include:

- ✓ Minimalist and exclusive design
- ✓ High durability with up to a 60-year functional warranty
- ✓ Elastic and bendable
- ✓ Robust with high impact resistance
- ✓ Water impermeable and stable in humid and cold climates
- ✓ Easily washable surface that can withstand high-pressure washers up to 100 bar
- ✓ Flame-retardant, surface fire class rating: B-s1,d0

ENVIRONMENT
STENI Colour has an environmental product declaration (EPD), which is registered with EPD-Norway, IBU and ECO Platform. This product is classified by ECOproduct and Byggvarubedömningen.
At STENI AS, we manufacture our products in Norway, using green energy from hydropower plants. LCC (Life Cycle Cost) is among the best on the market.

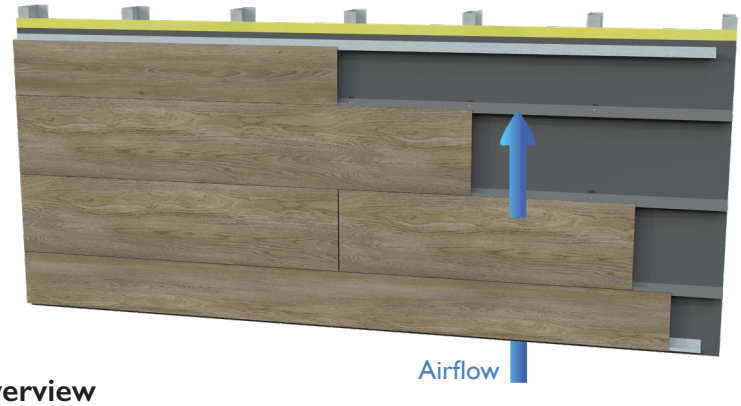
STONEWOOD™ ARCHITECTURAL PANELS
PROUDLY MADE IN AMERICA

TECHNICAL DATA SHEET

STONEWOOD STACK EXTERIOR PLANK SYSTEM

SOLID PHENOLIC CORE MACHINED-KERFED PLANKS AND HORIZONTAL RAIL ATTACHMENT SYSTEM

PRODUCT DESCRIPTION

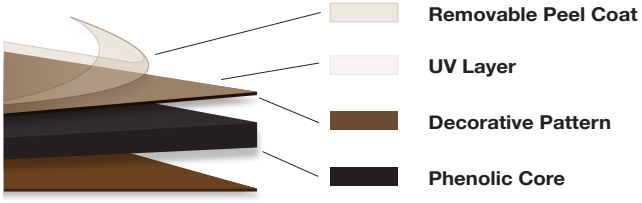


Stonewood Stack Overview

Solid phenolic core machined-kerfed planks and horizontal rail attachment system for use as a exterior cladding in a ventilated façade system. Stonewood Stack planks are required to have **unobstructed air flow** behind the planks. Shims are required and supplied by the installer.

Material Composition

Stonewood is manufactured with a core of phenolic resin impregnated kraft paper and a decorative pattern. These layers are compressed at high pressure and temperature creating a highly durable, non-porous panel. The panel is further safeguarded by a UV-protective layer and a clear peel coat for shipping and handling.



The exposed panel edges and the horizontal reveals —between the panels—are the natural core of the phenolic panel. As the natural core ages it will develop a patina, turning from dark grey to light grey.

Phenolic Benefits:

- **Solid core phenolic panels** are strong, highly durable, and impervious to moisture and bacteria.
- **Non-porous surface** is easy to clean and graffiti resistant.
- **UV protective layer** filters 99% of damaging UV rays.
- **Suited** for all construction types and climates.
- **Fabricate** in the field or factory.
- **Class A or B** fire ratings.
- **Optional Forest Stewardship Council** (FSC) certification (FSC C115183)
- **Made in America.**

Stonewood Stack Benefits:

- Kerfed groove plank **slides** onto corresponding horizontal rail
- Concealed fasteners **create clean look**, showcasing planks.
- Uniquely suited for use on **large low-rise continuous surfaces** offering quick and easy installation.
- **Reduced installation error,** no field drilling or threaded fasteners are required to secure planks.
- Plank joint placement **can vary** without additional support structure.
- Simplified specification.

Fabrication

Planks for Stonewood Stack (SS) system can be cut to width in the field or factory.

Plank Sizes x 96" L

Stack	Height	Weight Per Plank
Stack 8	7 5/8"	11.5 lbs.
Stack 12	11 5/8"	17.5 lbs.
Stack 16	15 3/4"	23.7 lbs.

Note: all panels are 5/16" thick

Construction Types

Stonewood panels can be used in all construction types:

- Commercial
- Hospitality
- Mixed-use
- Municipal
- Multi-family
- Healthcare
- Institutional

DESIGN OFFERING

Over 300 colors are available in wood grains, abstract and solids. View complete Design Offering and order samples at Stonewoodpanels.com.

TECHNICAL AND ENVIRONMENTAL

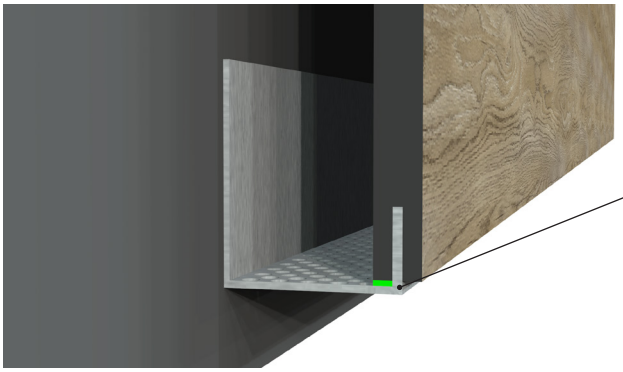
Approvals:

- ASTM E-84 Class A or B rating
- Passed NFPA 285 with Class A-285 8mm panels
- NEMA Test Results
- ASTM D-790: Flexural Strength, Flexural Modulus
- ASTM D-638 Tensile Modulus

Visit Stonewoodpanels.com for in-depth testing and report documents.

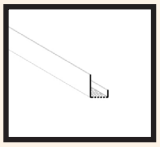
STONEWOOD STACK DETAILS

Machine-grooved planks slide onto the horizontal rails. Plank joint placement can vary for added design flexibility without additional fasteners or supports.

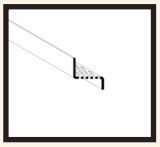


The factory-machined kerf slides in on the horizontal rail and is fully engaged the length of the plank.

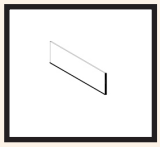
PARTS OVERVIEW



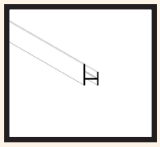
CRB40
Horizontal Bottom Termination Panel Attachment



CRB41
Horizontal Top Termination Panel Attachment

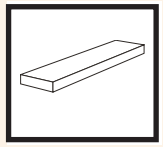


CRB42
Horizontal Closure at Edges



CRHB
Horizontal Intermediate Panel Attachment

XEB
Vertical Termination Edge Closure



Shim ¼"
Shim Panel Attachment, Provided by Installer

Seal Bond 105
Fixed Point Sealant

INSTALLATION

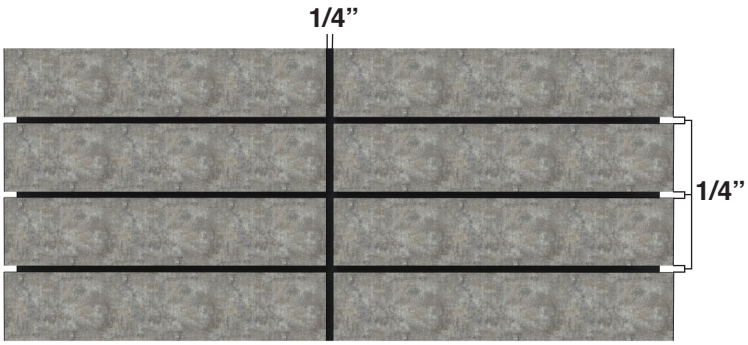
- Ensure the CRB40 bottom rail is LEVEL and FLUSH and free from debris
- Each plank requires a fixed point at the center
- Shims must be installed behind rails to ensure proper air flow behind planks
- The start and termination planks must be 8" or 12" planks

Visit Stonewoodpanels.com for comprehensive installation instructions and details.

Details

Complete detail packet available at Stonewoodpanels.com. Packet includes terminations, soffit and fascia transitions.

Panel-to-Panel Joints



Maintain a minimum distance of 1/4" between planks to accommodate hygrothermal movement of the panels.

Storage and Handling

Panels have a peel coat to protect the surface during transportation and fabrication. The peel coat is not intended for long term storage. It is the responsibility of the installing contractor to remove the peel coat on all panels prior to vacating the premises. Follow storage and handling instructions as outlined on Stonewoodpanels.com.

Cleaning

When cleaning Stonewood Architectural Panels, use a progressive approach starting with the gentlest cleaning method. It is best to use the least amount of cleaning agents and do not scrub to remove debris. Follow cleaning methods as outlined on Stonewoodpanels.com.

Repair

There is no approved method to repair panels. Damaged panels must be replaced. Contact Stonewood Customer Service for additional information, 262-567-4427.

Limitations

Stonewood Architectural Panels are designed to be installed on a continuous substructure. Panels are not to be installed such that they span areas where there is a discontinuity in the substructure, such as vertical or horizontal expansion joints. It is the responsibility of the project designer to ensure that panels do not span these substructure discontinuities.

MANUFACTURING LOCATION

Wisconsin, USA

AVAILABILITY

Available in the United States and Canada.

WARRANTY

Standard 10 year warranty is available.

Construction Details

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Ultimate Wood Direct Glaze Polygon - 2x6 Frame with Wood Siding 3
Ultimate Direct Glaze Polygon - 2x4 Frame with Stucco 4
Ultimate Wood Direct Glaze Polygon - 2x4 Frame with Stucco 5
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Modern Casement - 2x6 Frame with Wall Sheathing 17

Introduction

Marvin Windows and Doors is an industry leader in providing high quality and energy efficient windows and doors. To obtain these results, Marvin windows and doors need to be properly installed and maintained. Failure to review and utilize these construction methods can result in poor product performance, premature failure and unnecessary call backs. It is the responsibility of the architect, builder, installer, and subcontractors to comply with code requirements for their area and to utilize the best method for attachments and fastener selections.

This chapter covers the water seal requirements of the window and door installation and provides visual detail in drawing format of our installation instructions.

The water seal method can be thought of as primary and secondary methods and systems;

- **Primary water seal**: window exterior seal to the exterior coating or finish of the building
- **Secondary water seal**: window seal to the wall weather resistive barrier so that any leakage within the wall is managed and controlled.
- **Window panning system**: drains the RO area to the wall resistive barrier
- **RO air area seal**: prevents RO pressurization and air movement through the RO
- **Wall thermal barrier**: provides continuity of the wall system by installation placed around the window in the RO gap. Marvin has two systems for this; (1) batten installation system and (2) spray foam
- **Vapor seal**: is the least important of the seal systems. The vapor barrier provides continuity across the RO with the wall vapor barrier.

Units must be shimmed in the opening, true, level, and square. Shim a minimum of 3/8” above sill plate to provide unit clearance over panning.

Contact your Marvin representative if you have questions or need further technical assistance at 1-800-346-3363.

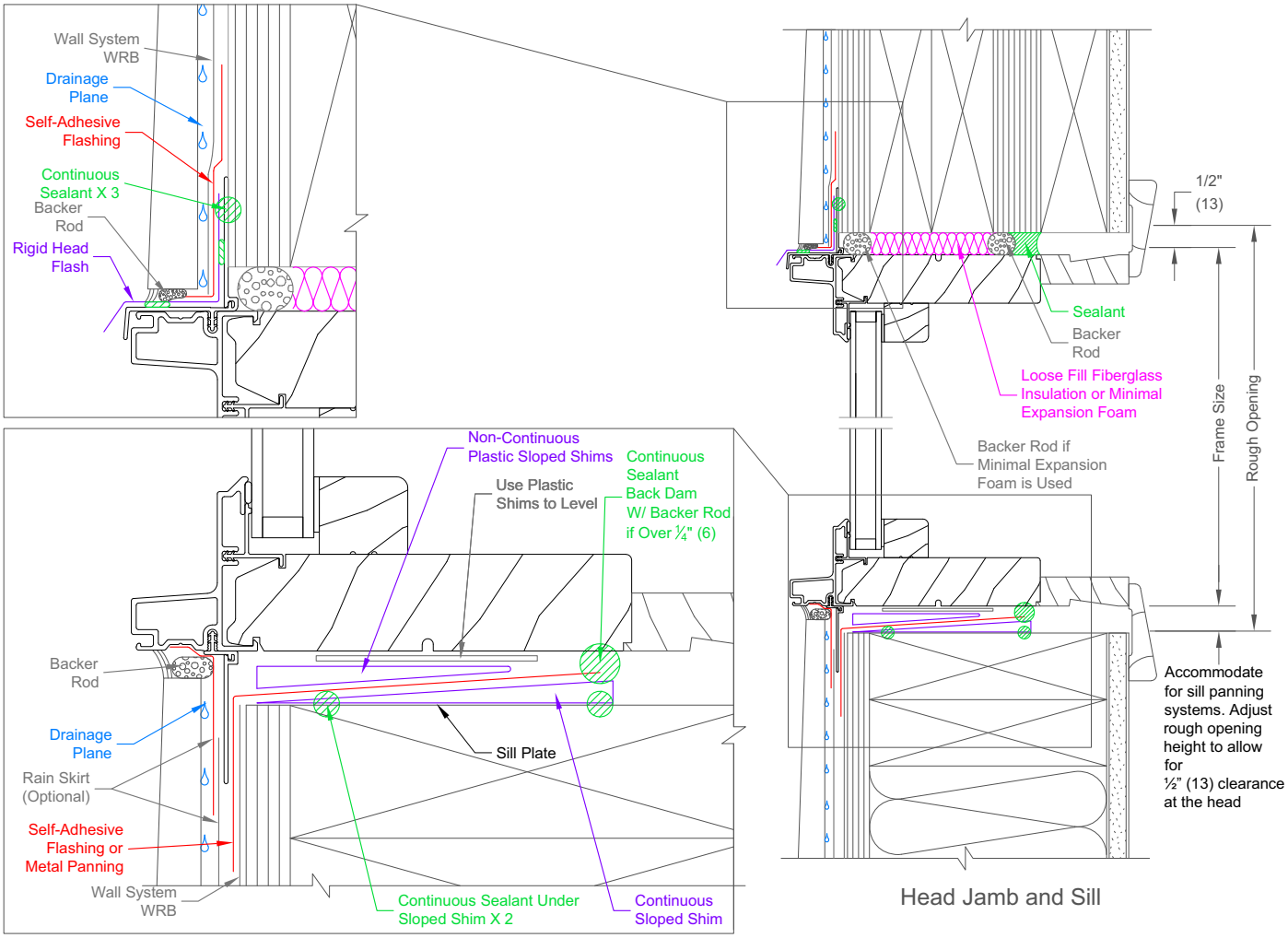
NOTE: Details shown not typical and subject to change without notice. Always refer to your local code for proper construction and rough opening preparation.

***Important!** Details are shown with small spaces between items for clarity, visualization, and illustrative purposes. Actual assembly details may vary. Contact Marvin Architectural for project specific aids.*

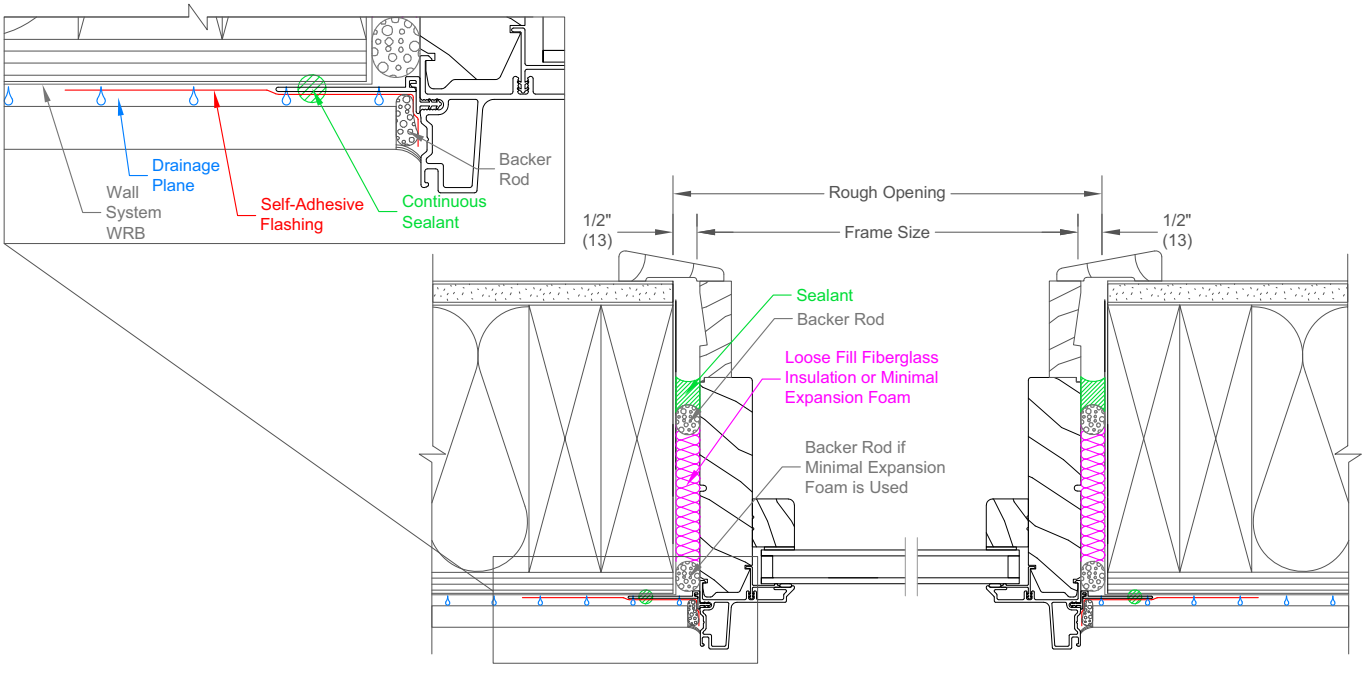
Step by step instructions with color illustrations on Marvin’s recommended rough opening preparation can be found at http://www.marvin.com/roprep/

Ultimate Direct Glaze Polygon - 2x6 Frame Wood Siding

Scale: 3" = 1"0"



Head Jamb and Sill



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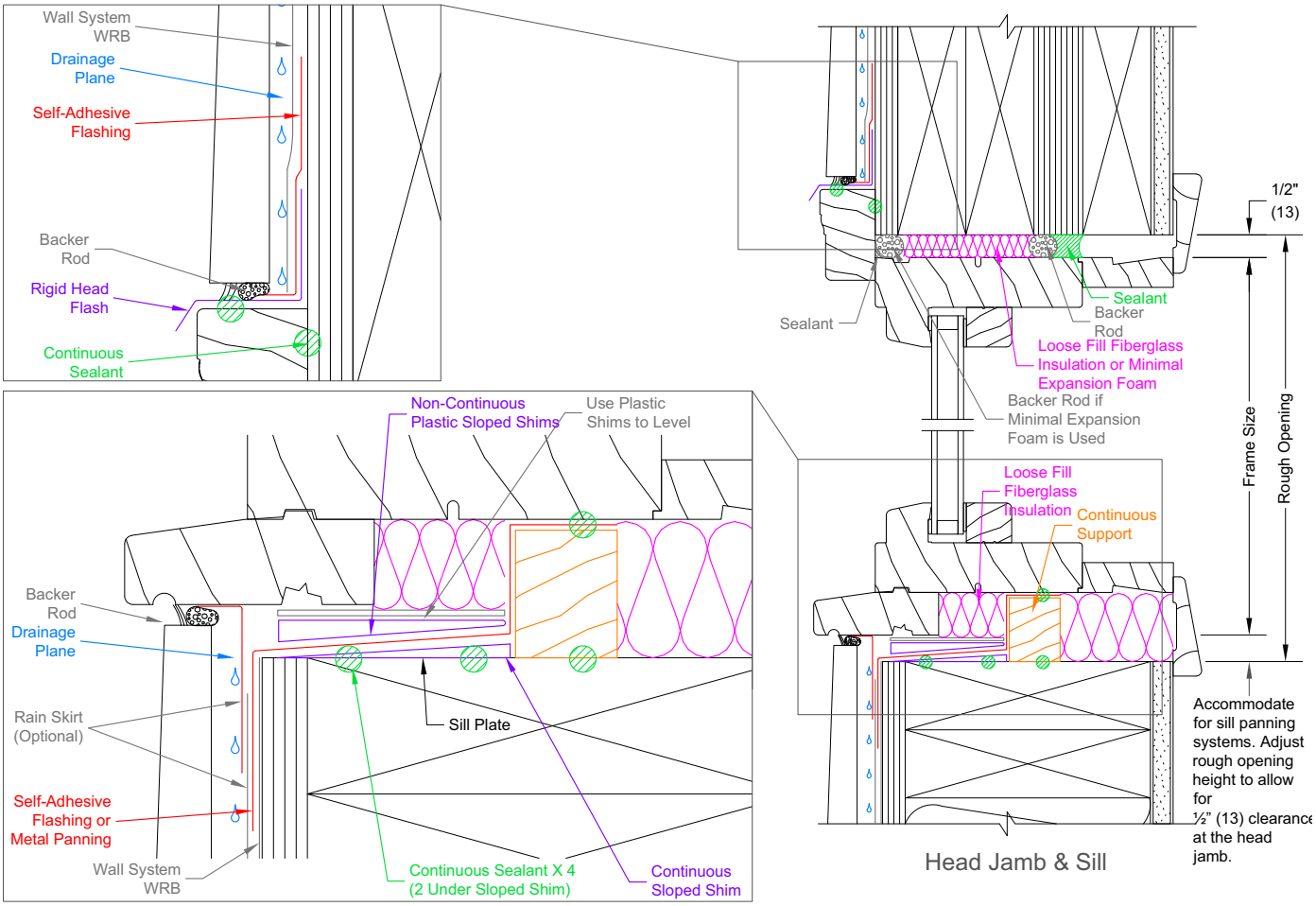
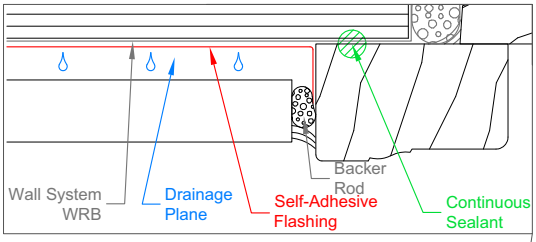
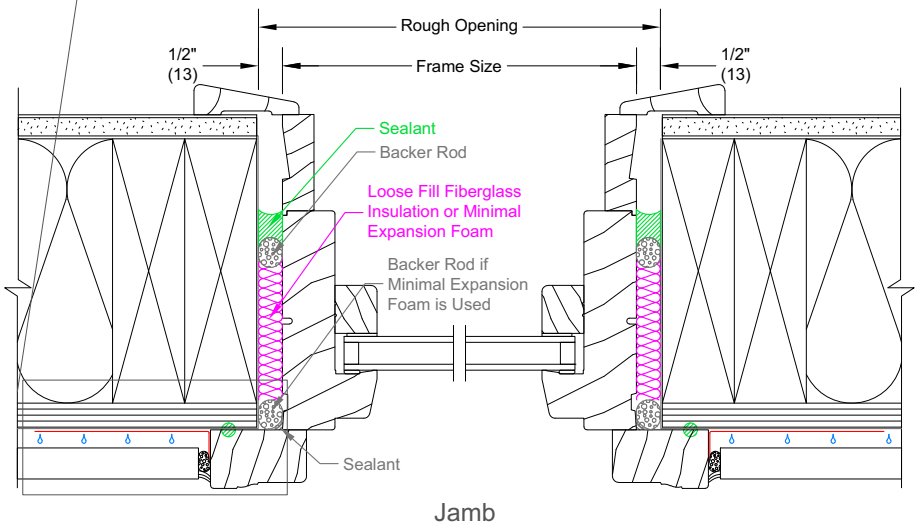
Ultimate Wood Direct Glaze Polygon - 2x6 Frame with Wood Siding

Scale: 3" = 1"0"



Head Jamb & Sill





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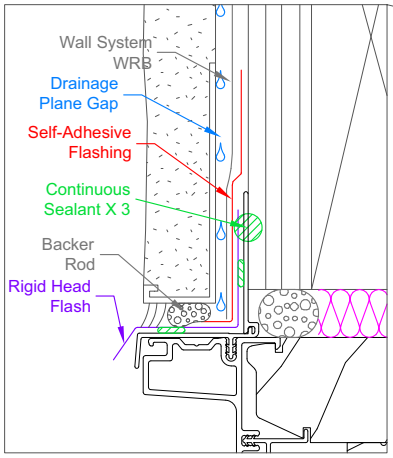
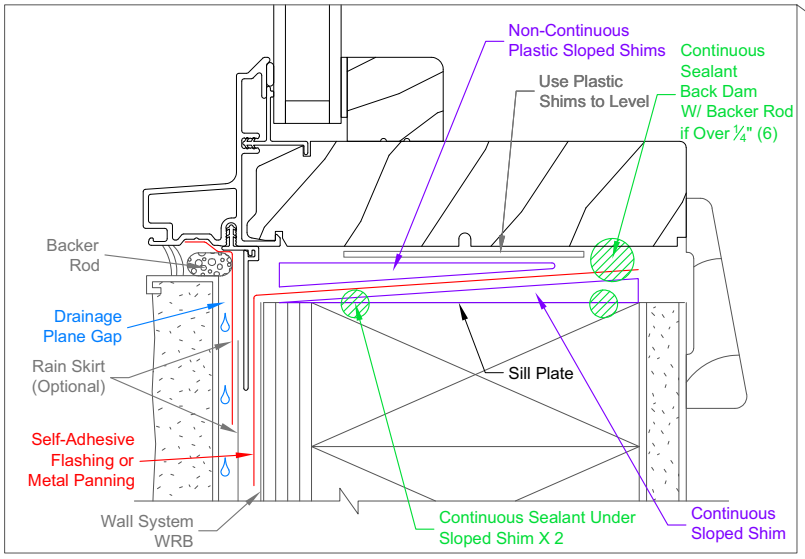
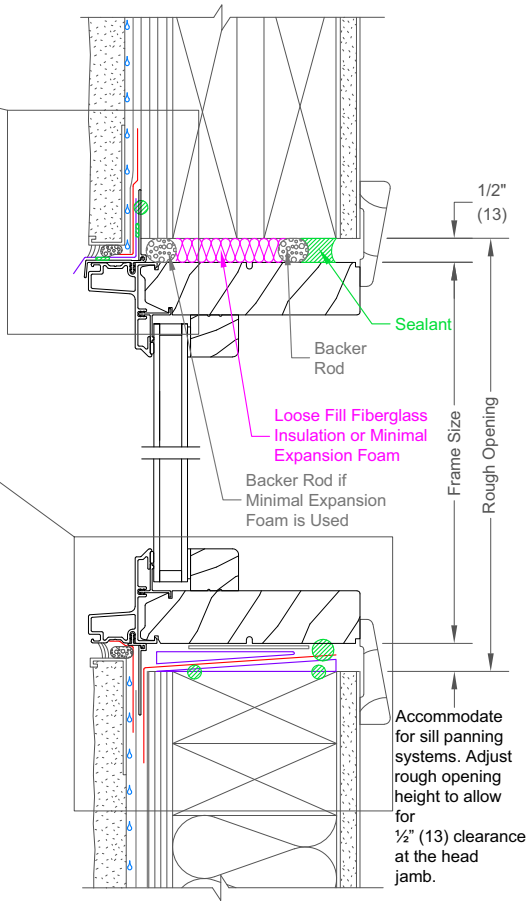
Ultimate Direct Glaze Polygon - 2x4 Frame with Stucco

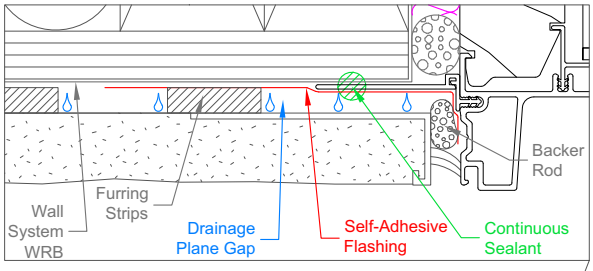
Scale: 3" = 1'0"



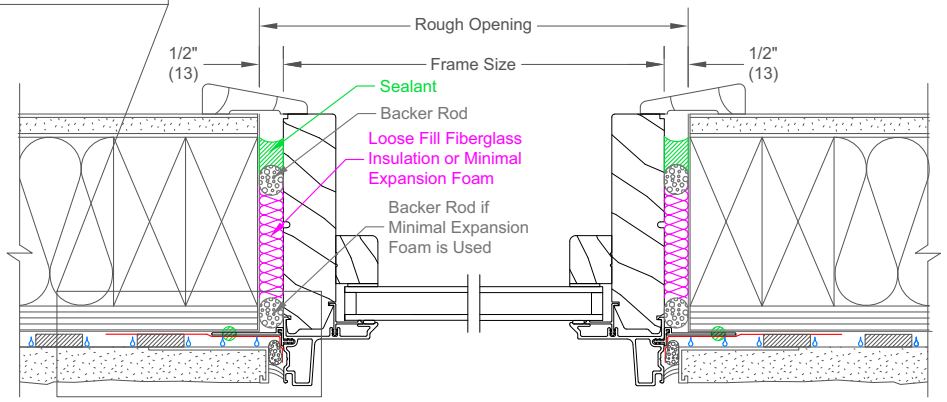




Head Jamb and Sill



NOTE: Engineered water management stucco product. See stucco manufacture for specific details required by water management system.



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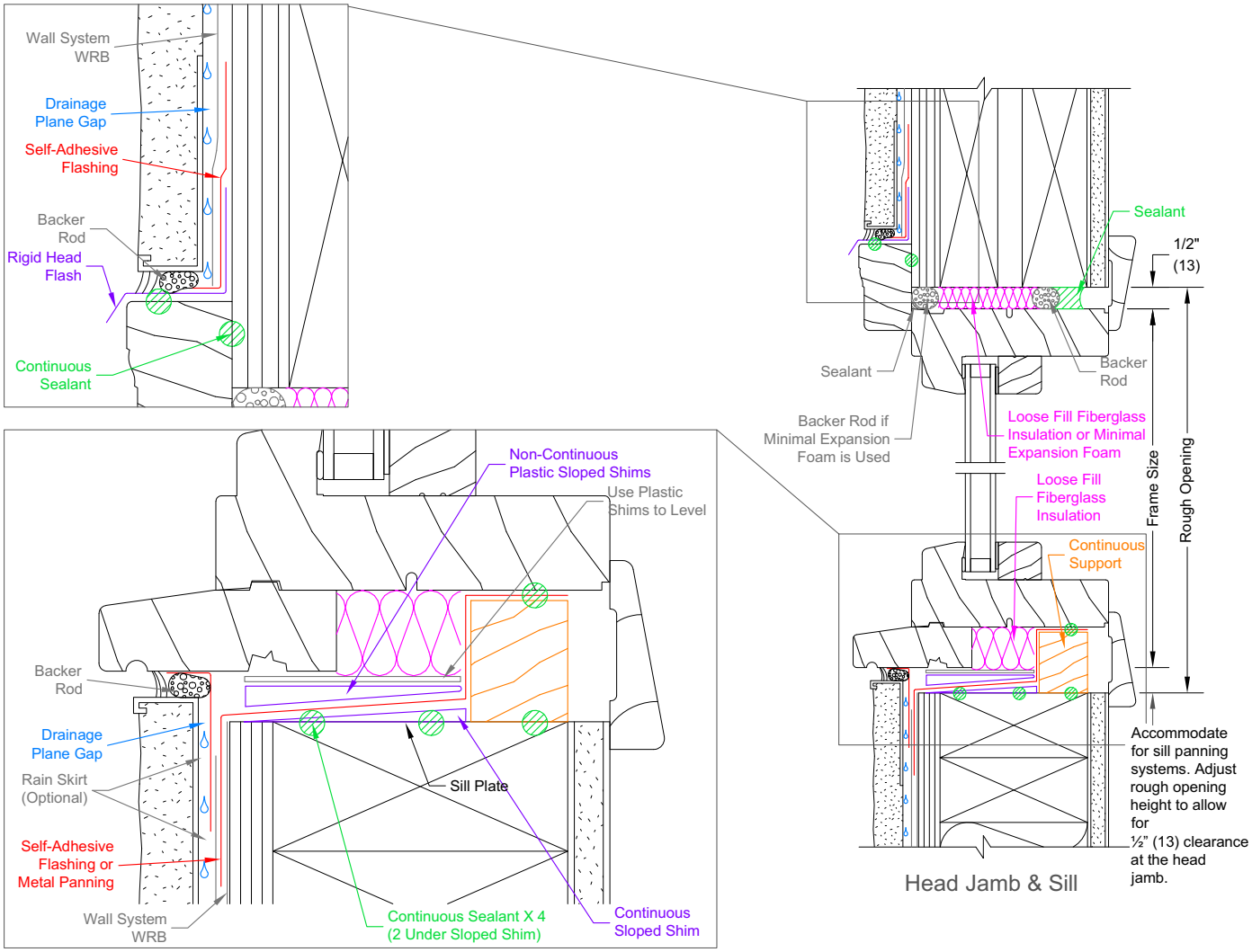
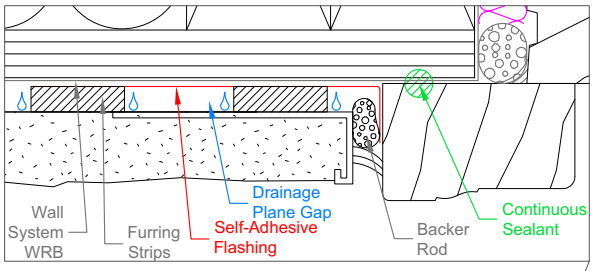
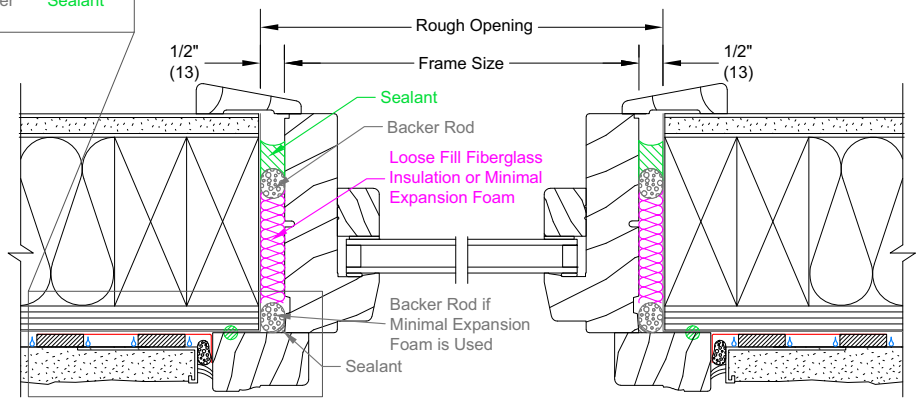
Ultimate Wood Direct Glaze Polygon - 2x4 Frame with Stucco

Scale: 3" = 1'0"



Head Jamb & Sill





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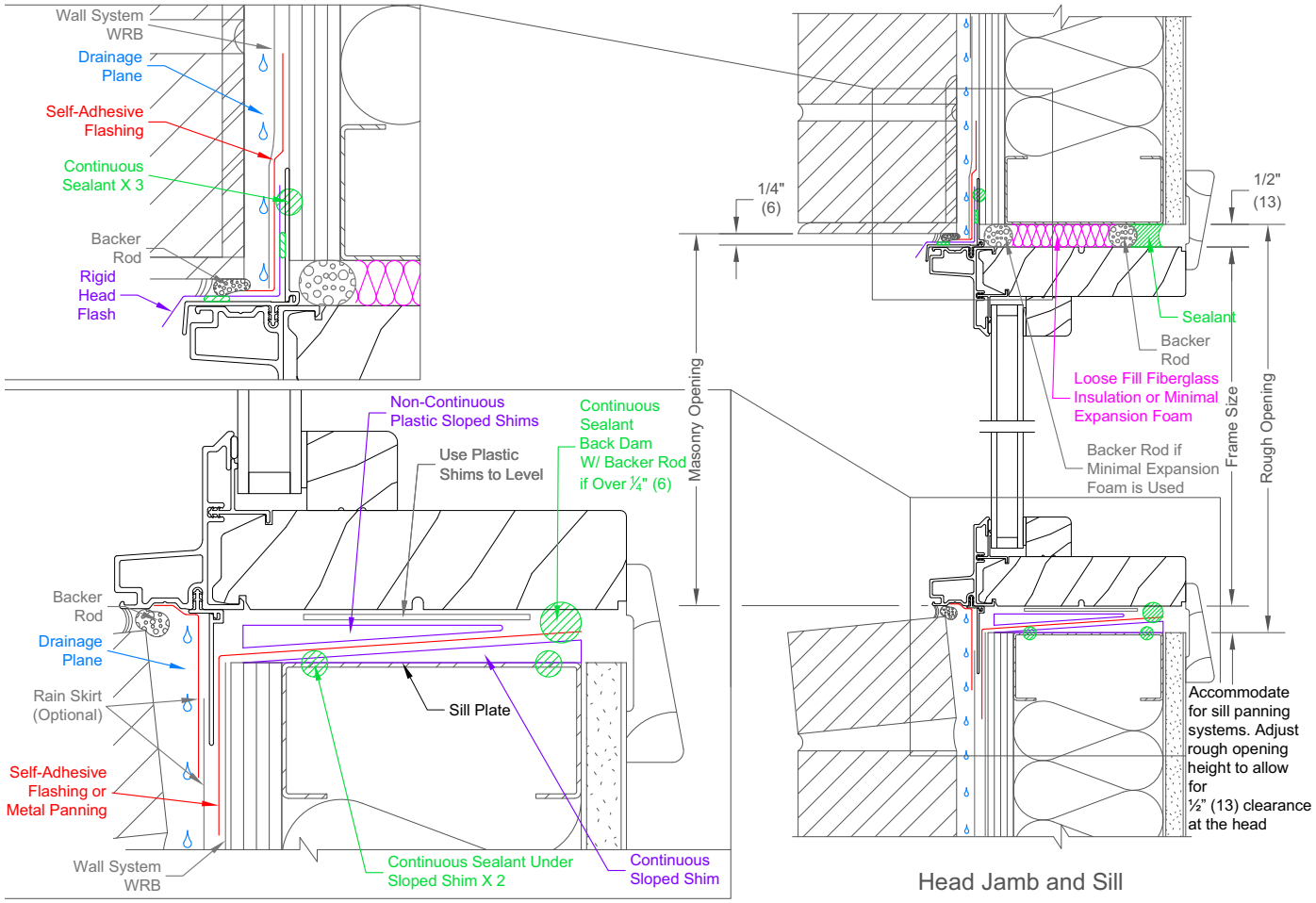
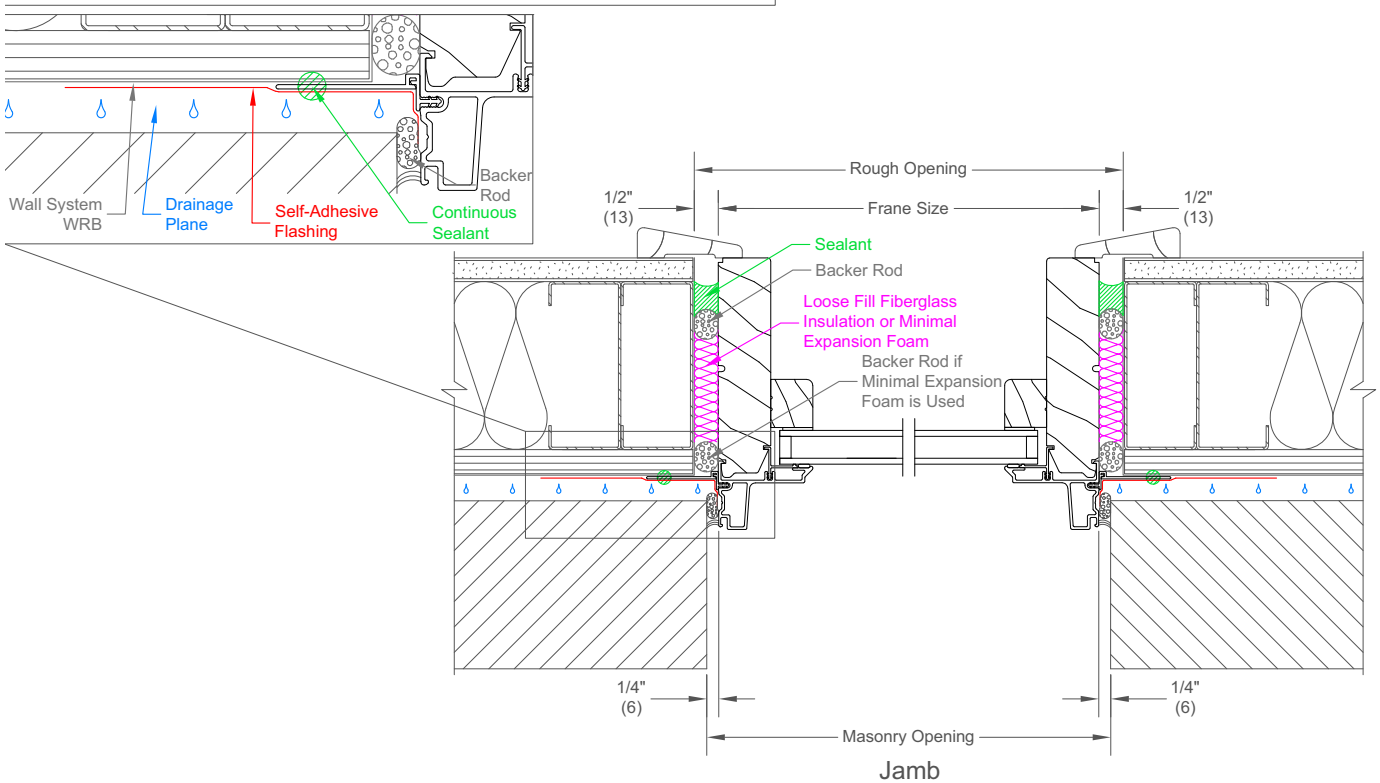
Ultimate Direct Glaze Polygon - 2x4 Steel Stud with Brick Veneer

Scale: 3" = 1'0"



Head Jamb and Sill



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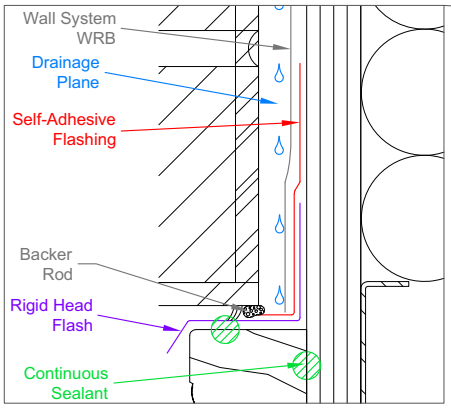
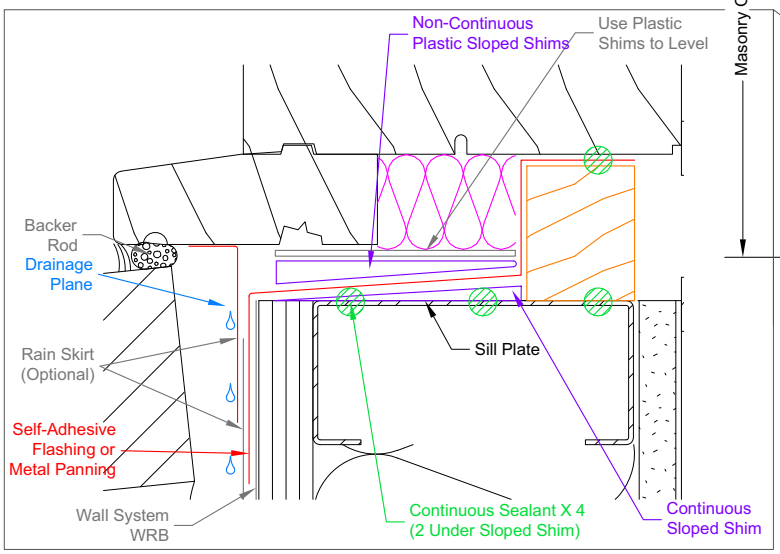
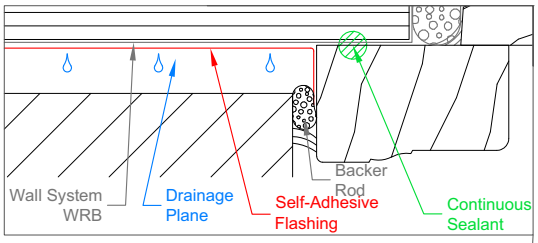
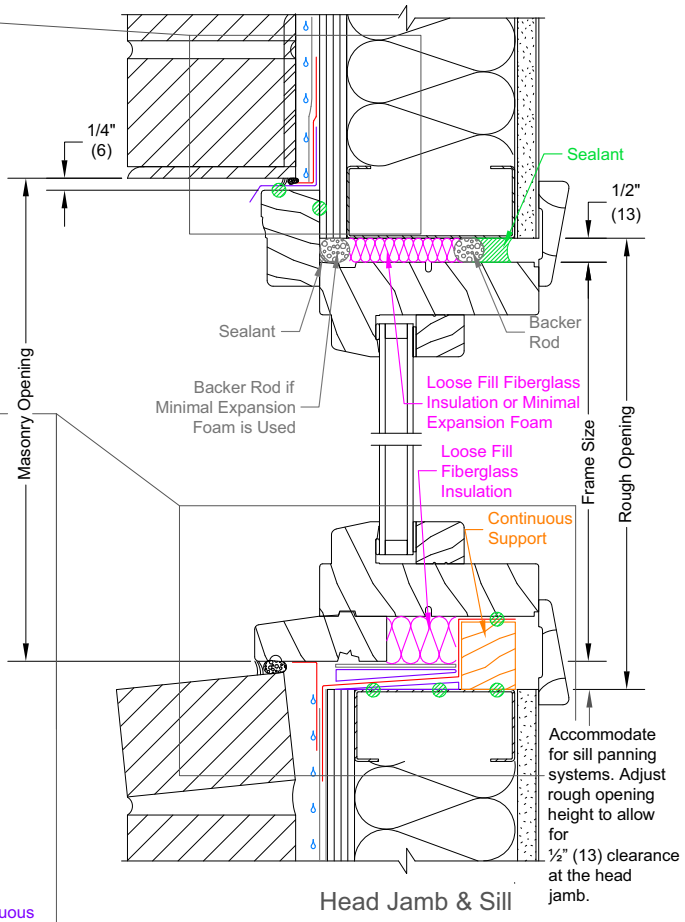
Ultimate Wood Direct Glaze Polygon - 2x4 Steel Stud with Brick Veneer

Scale: 3" = 1'0"

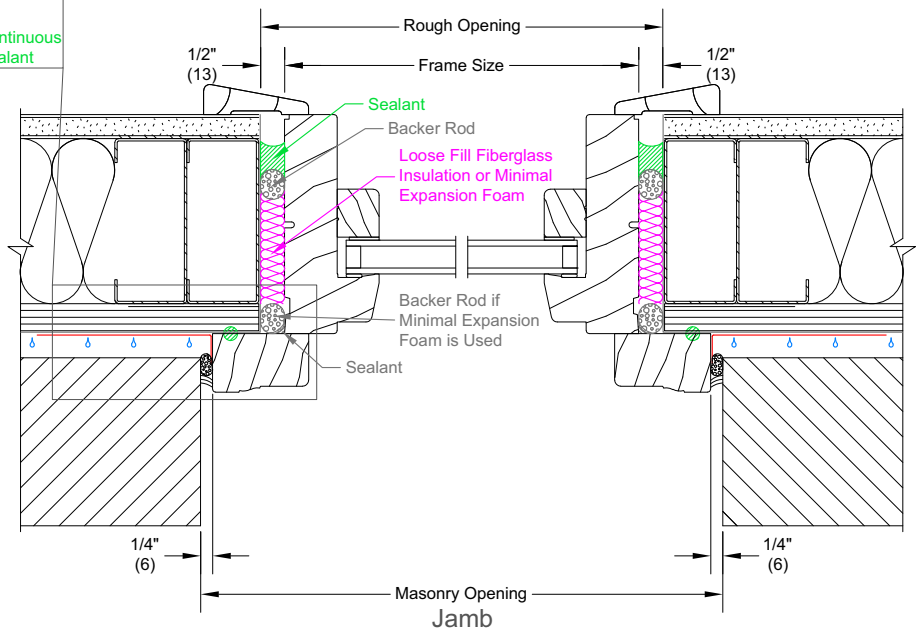








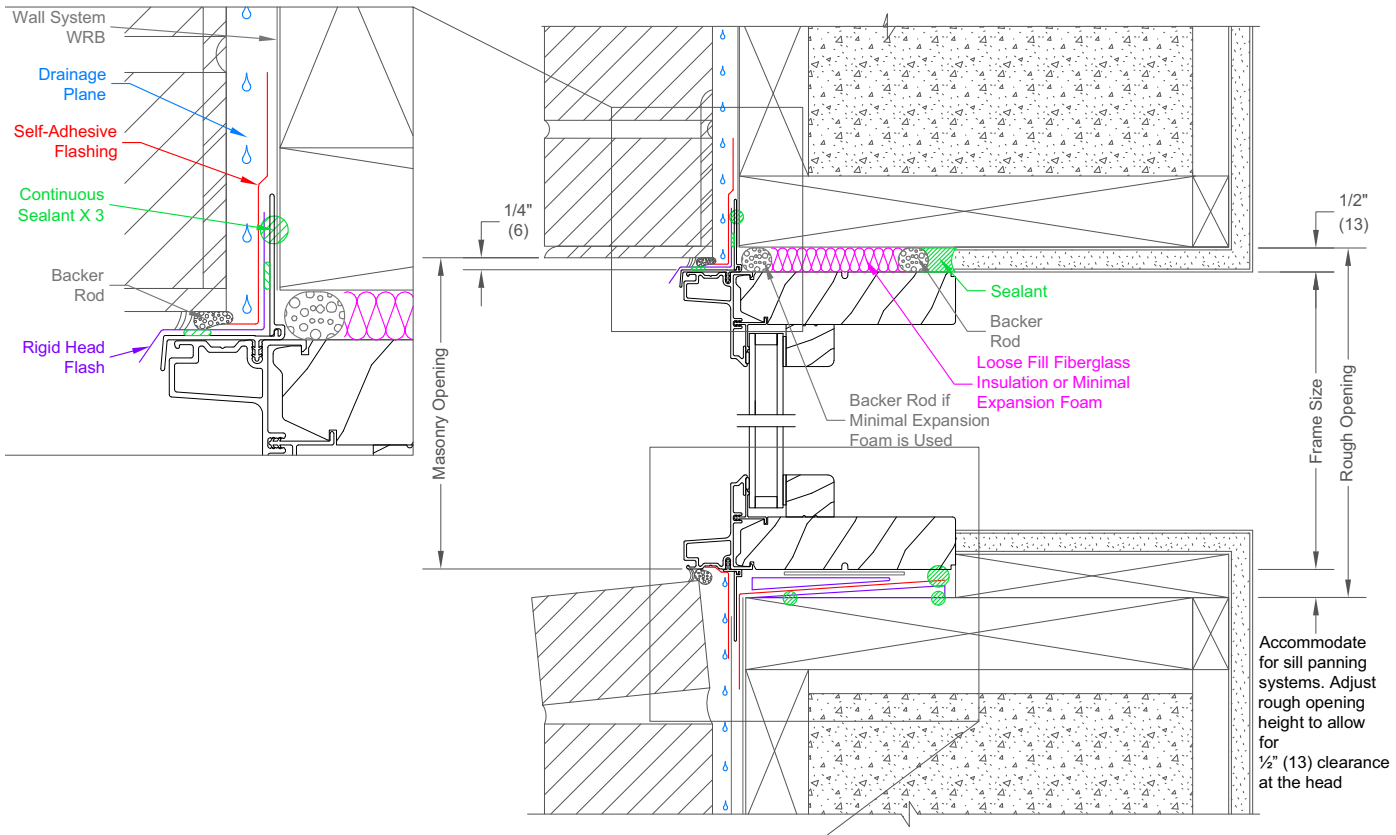
Head Jamb & Sill



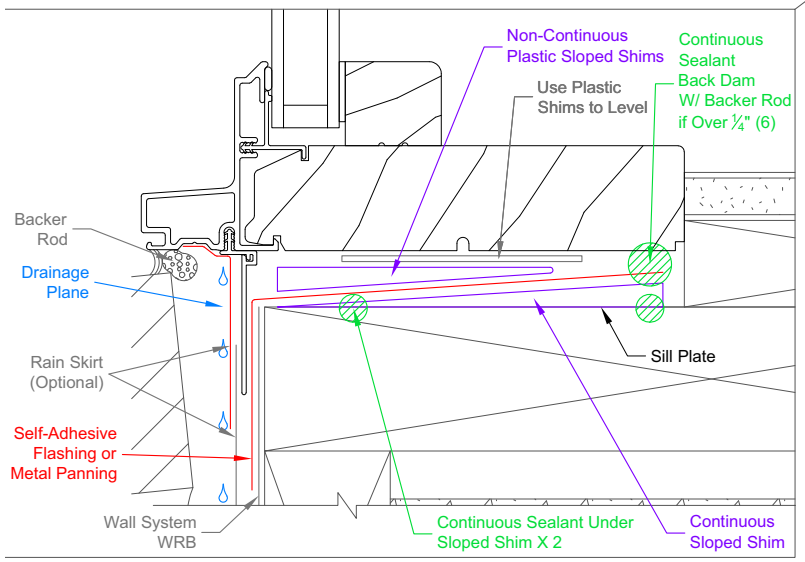
Jamb

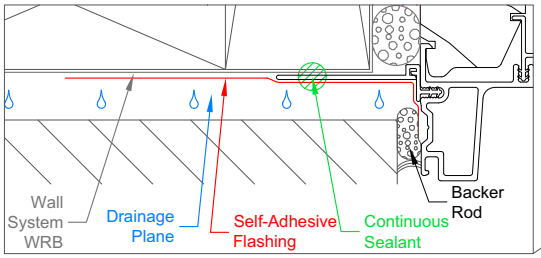
Ultimate Direct Glaze Polygon - Concrete Block with Brick Veneer

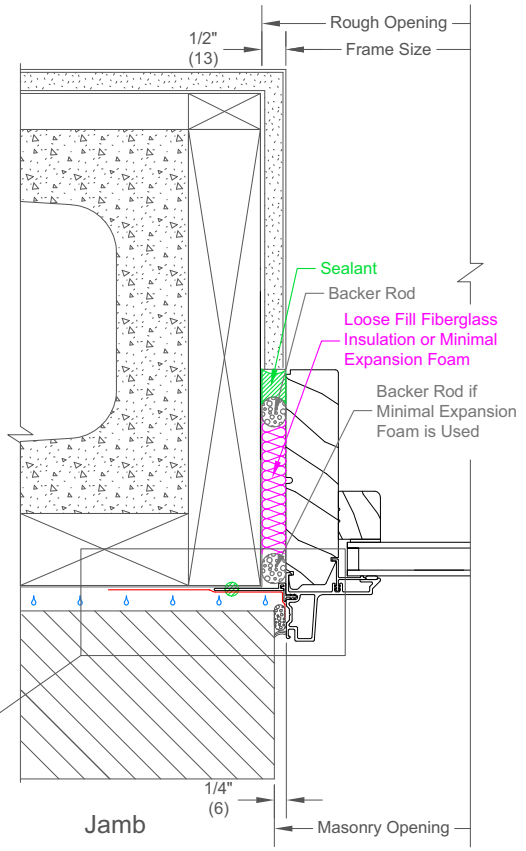
Scale: 3" = 1'0"



Head Jamb and Sill

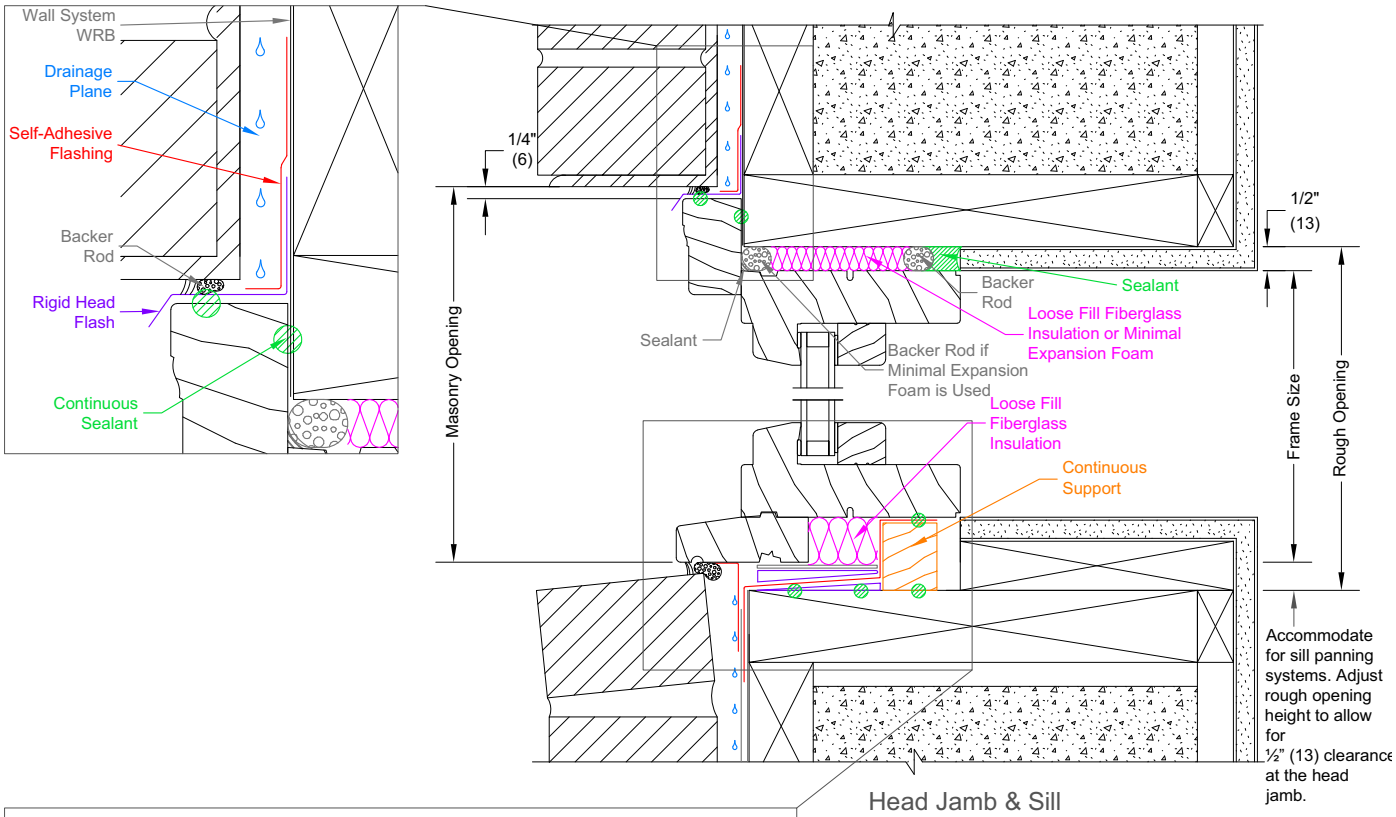




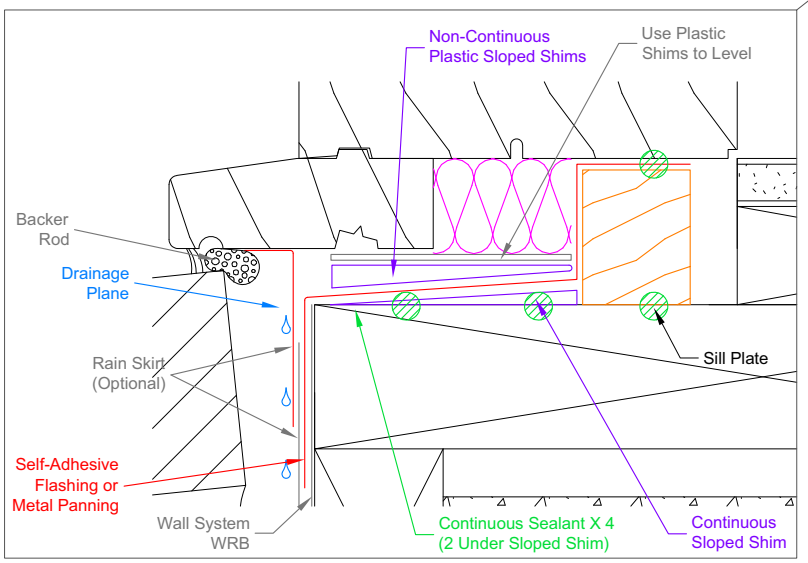


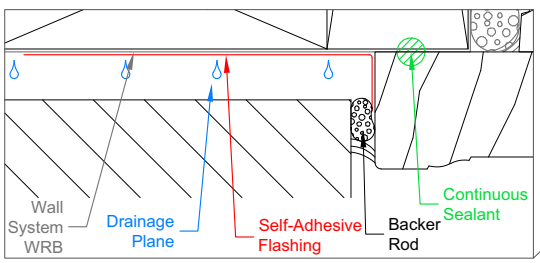
Ultimate Wood Direct Glaze Polygon - Concrete Block with Brick Veneer

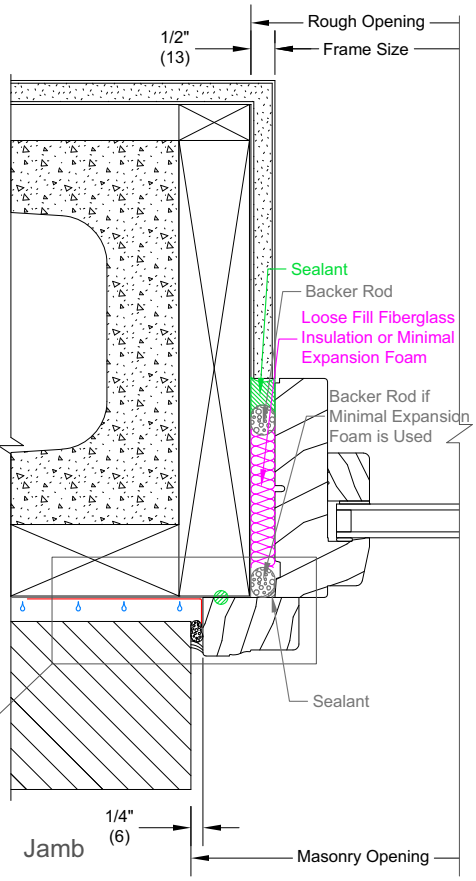
Scale: 3" = 1'0"



Head Jamb & Sill



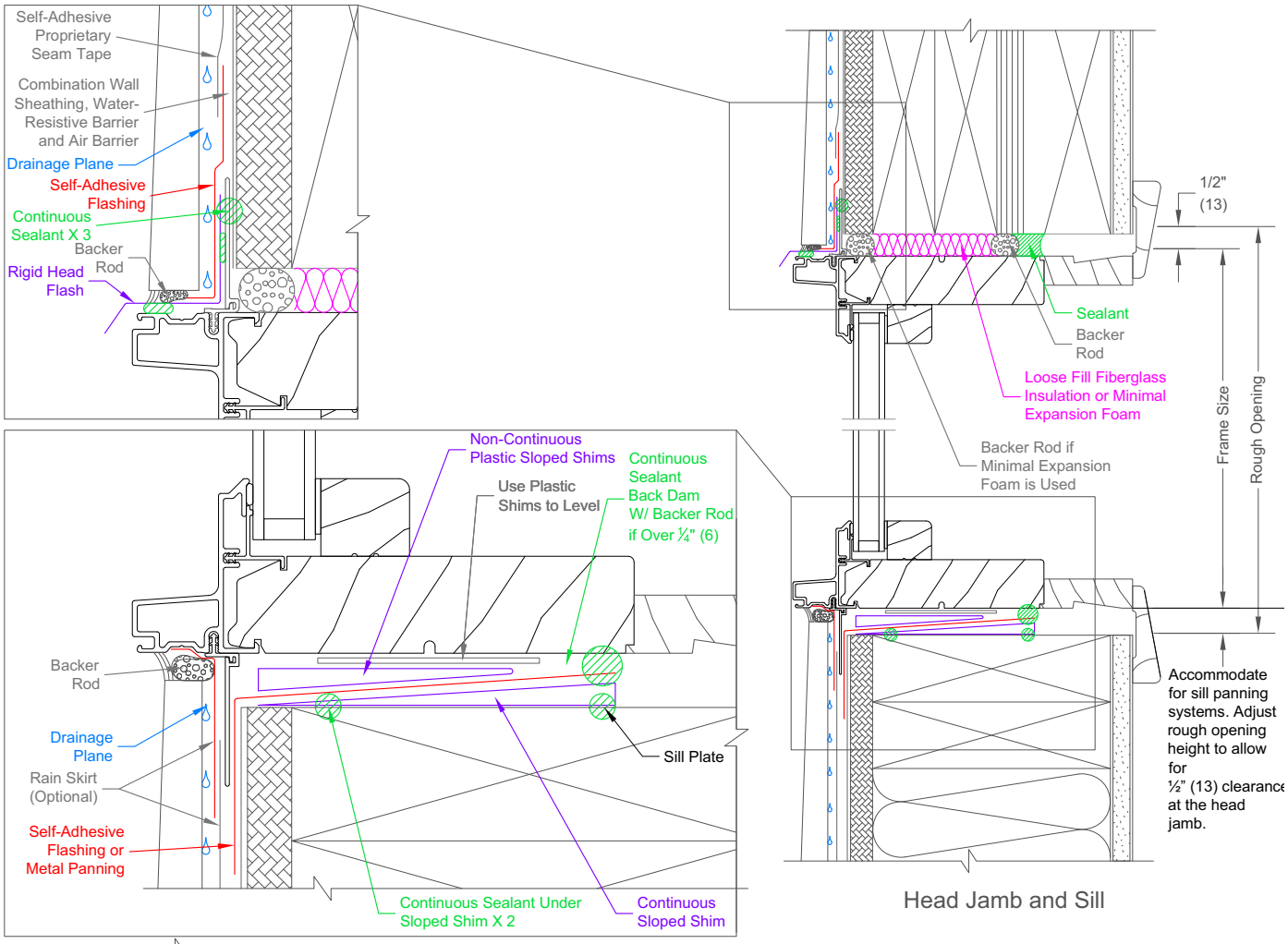




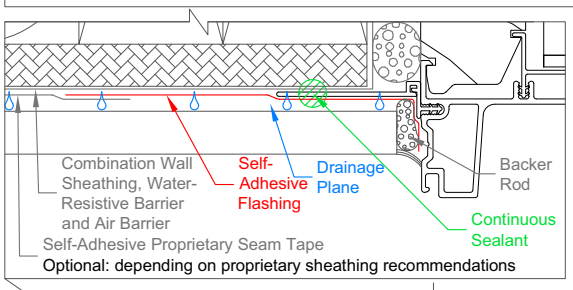
Jamb

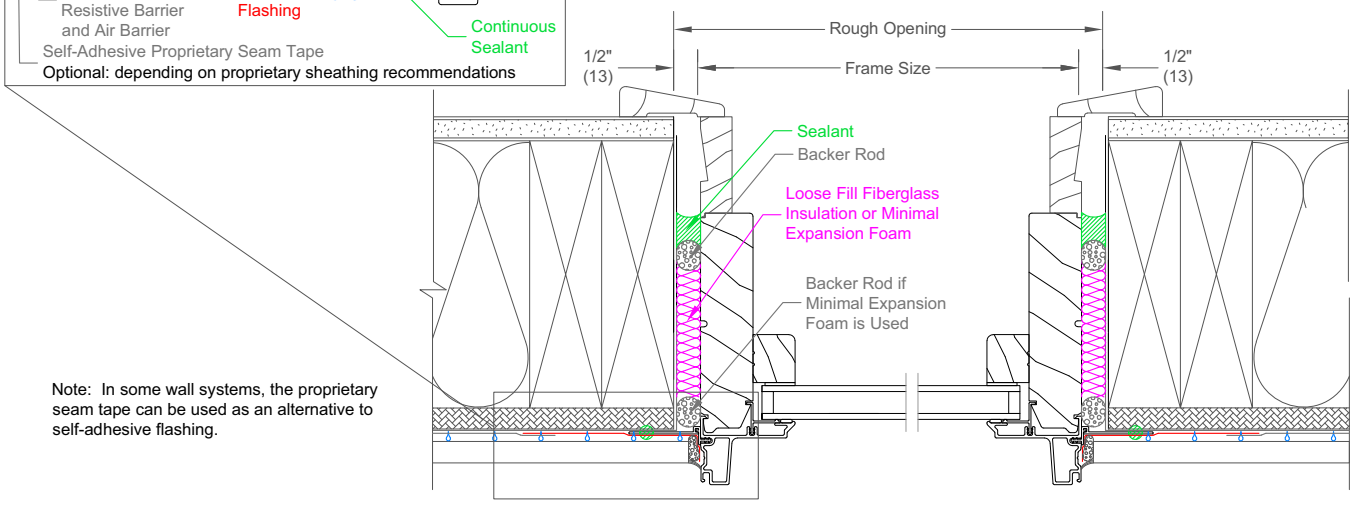
Ultimate Direct Glaze Poly - Wood Siding Combination Wall Sheathing, WRB and Air Barrier

Scale: 3" = 1'0"



Head Jamb and Sill



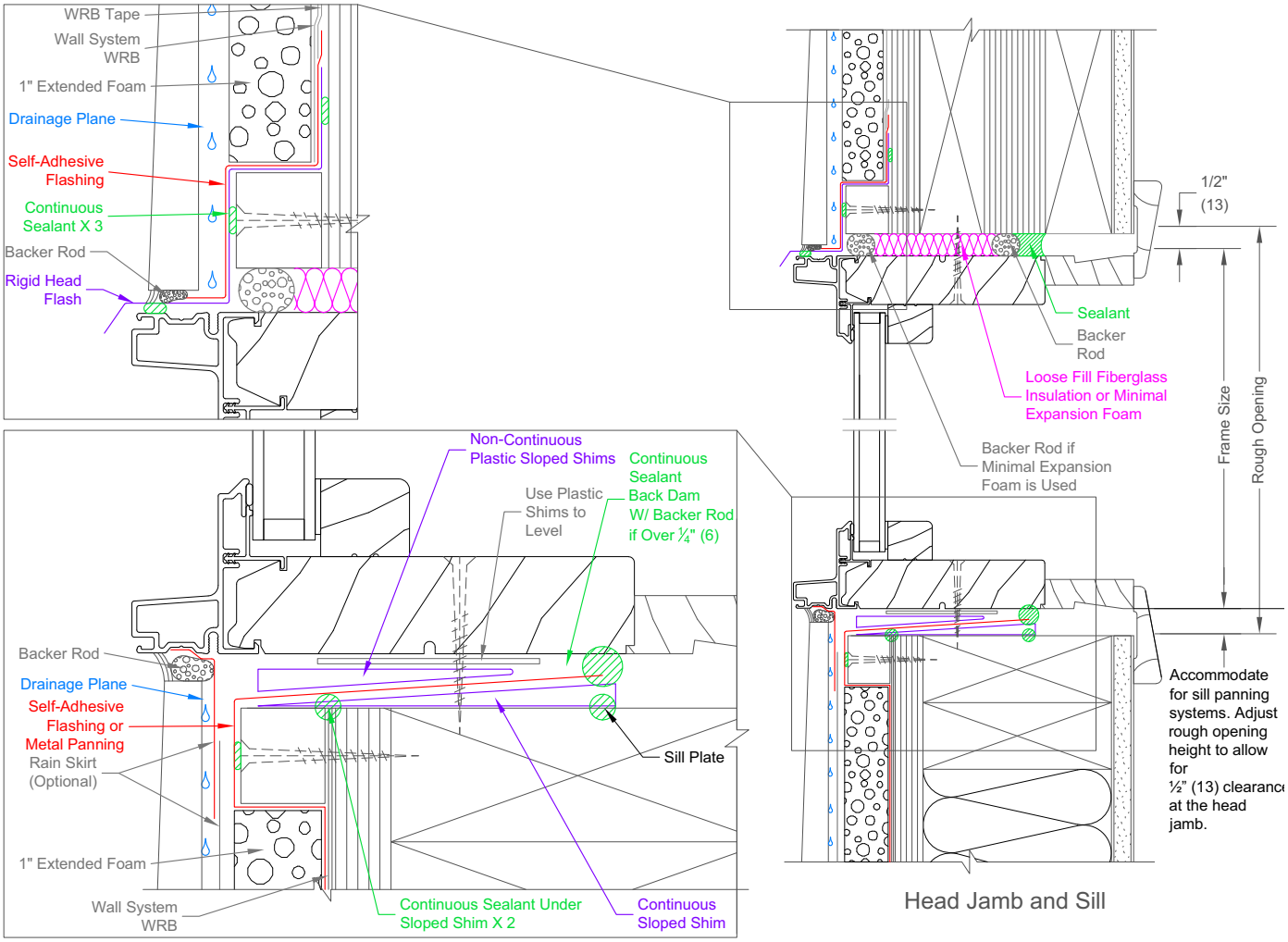


Note: In some wall systems, the proprietary seam tape can be used as an alternative to self-adhesive flashing.

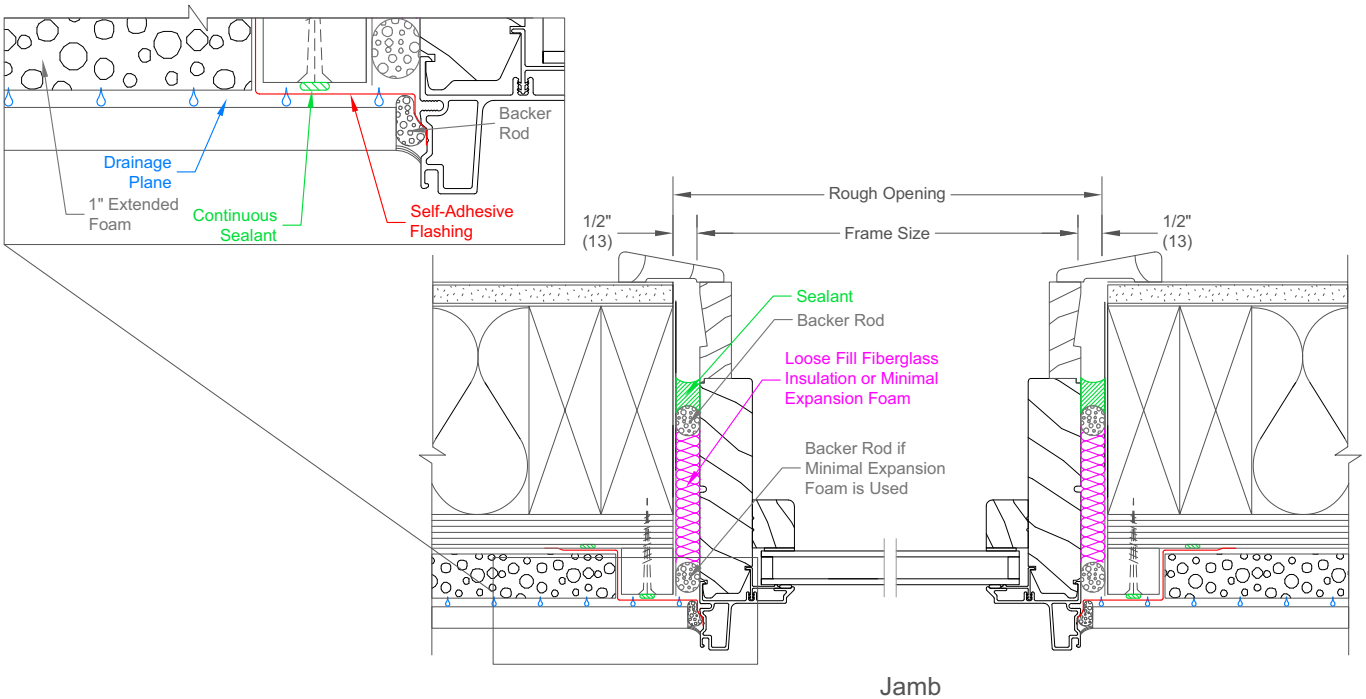
Jamb

Ultimate Direct Glaze Polygon - Foam Plastic Insulated Sheathing (FPIS) over WRB

Scale: 3" = 1'0"



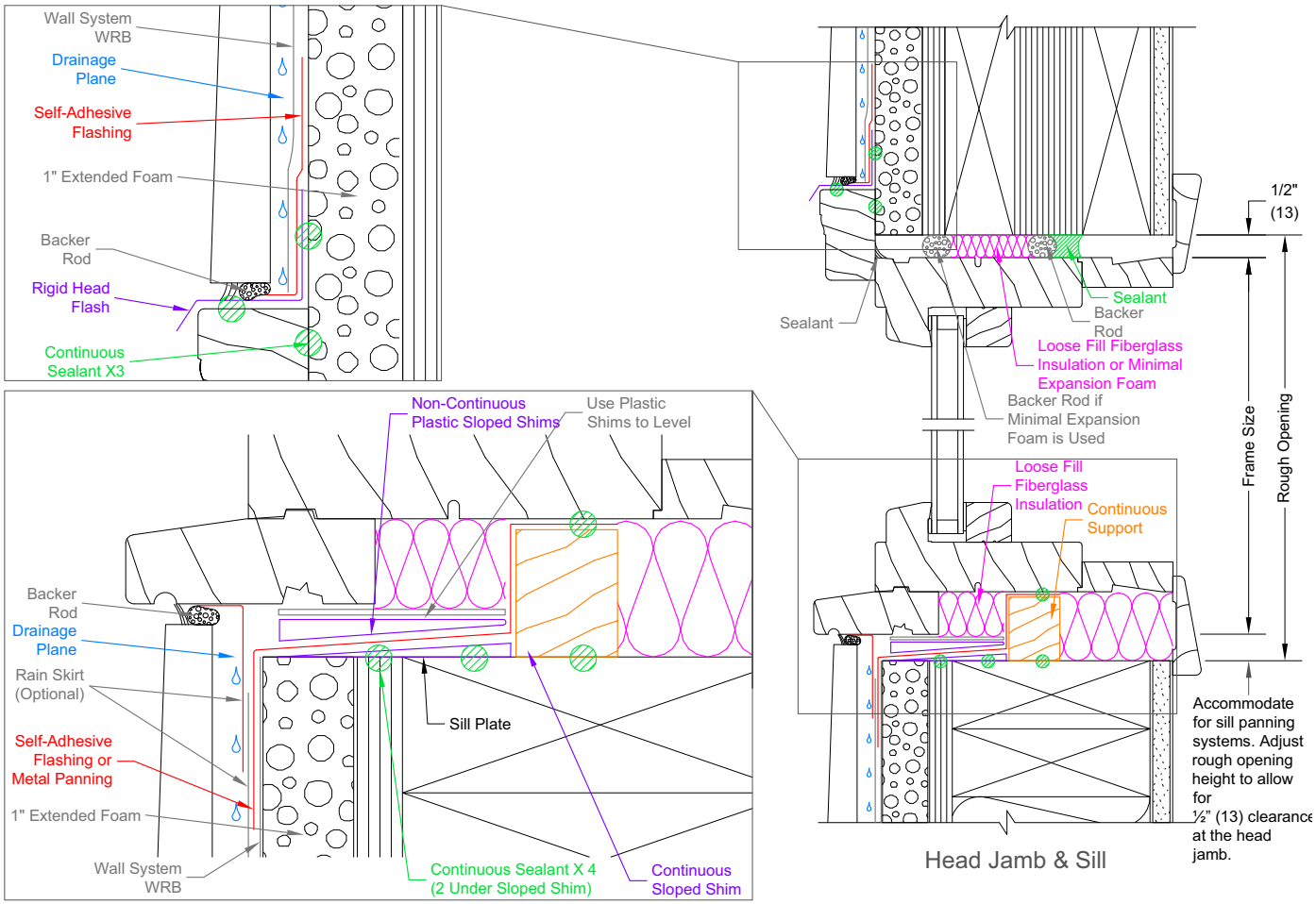
Head Jamb and Sill

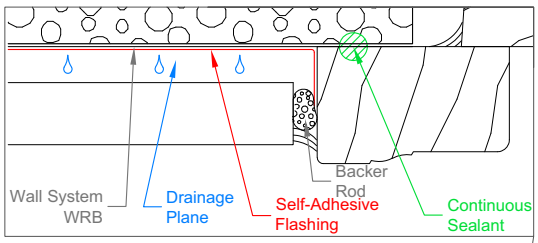


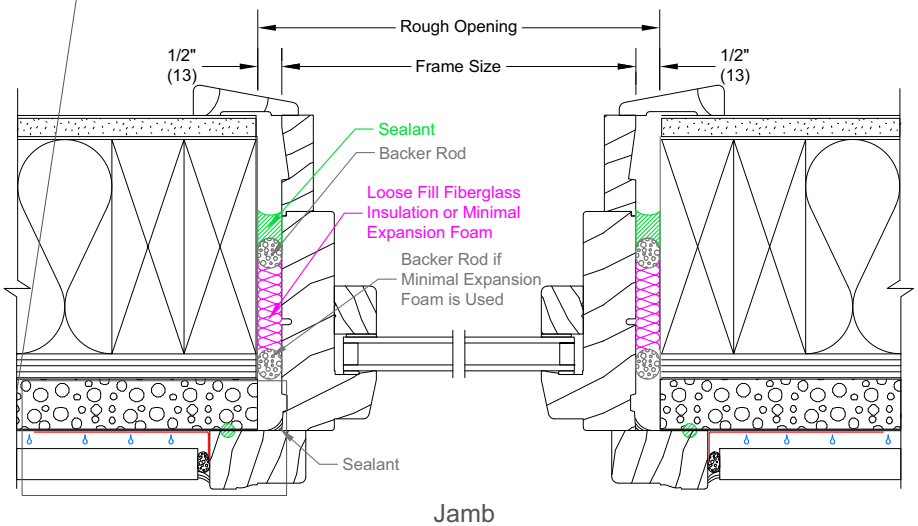
Jamb

Ultimate Wood Direct Glaze Polygon - Foam Plastic Insulated (FPIS) under WRB

Scale: 3" = 1'0"



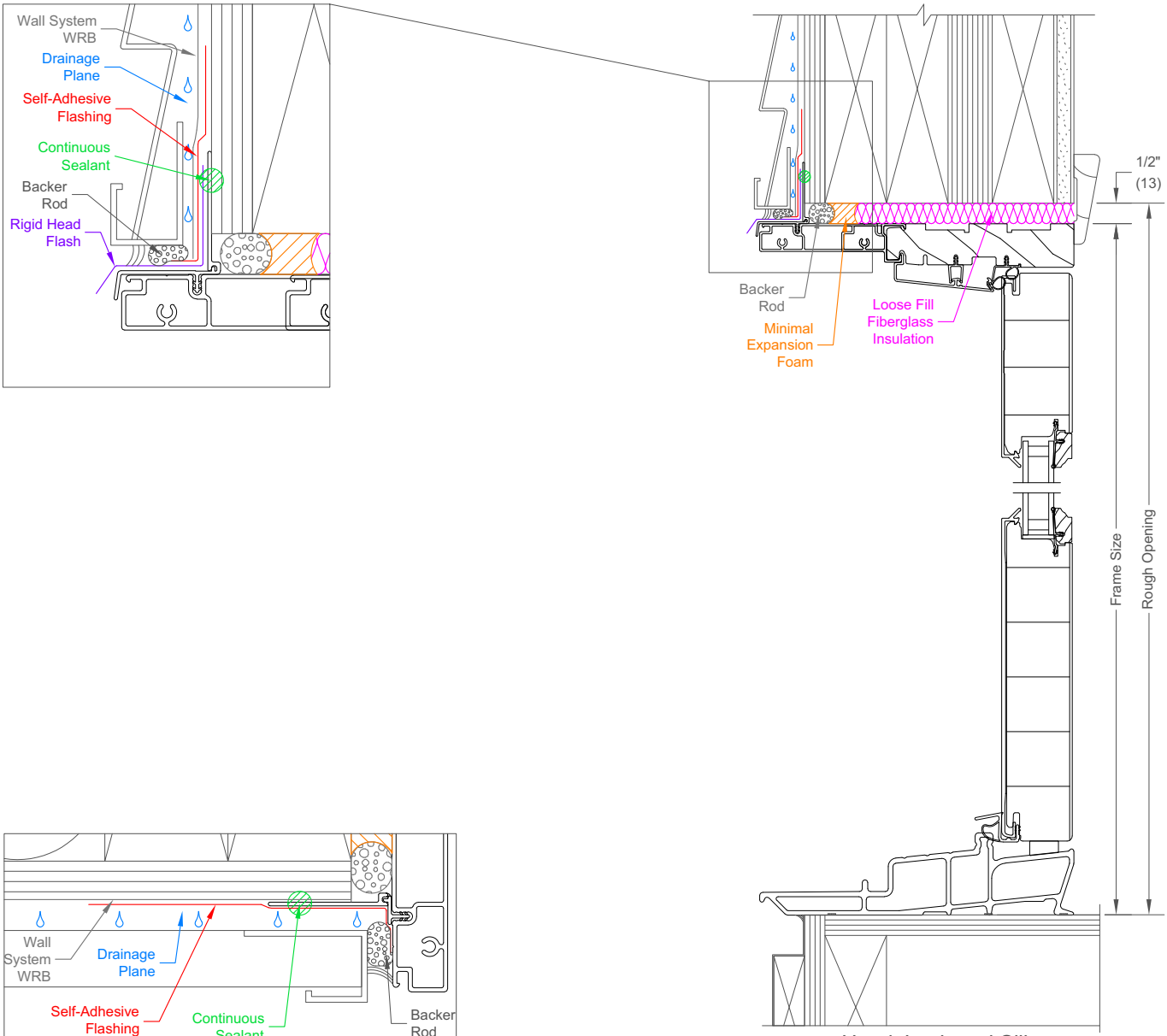




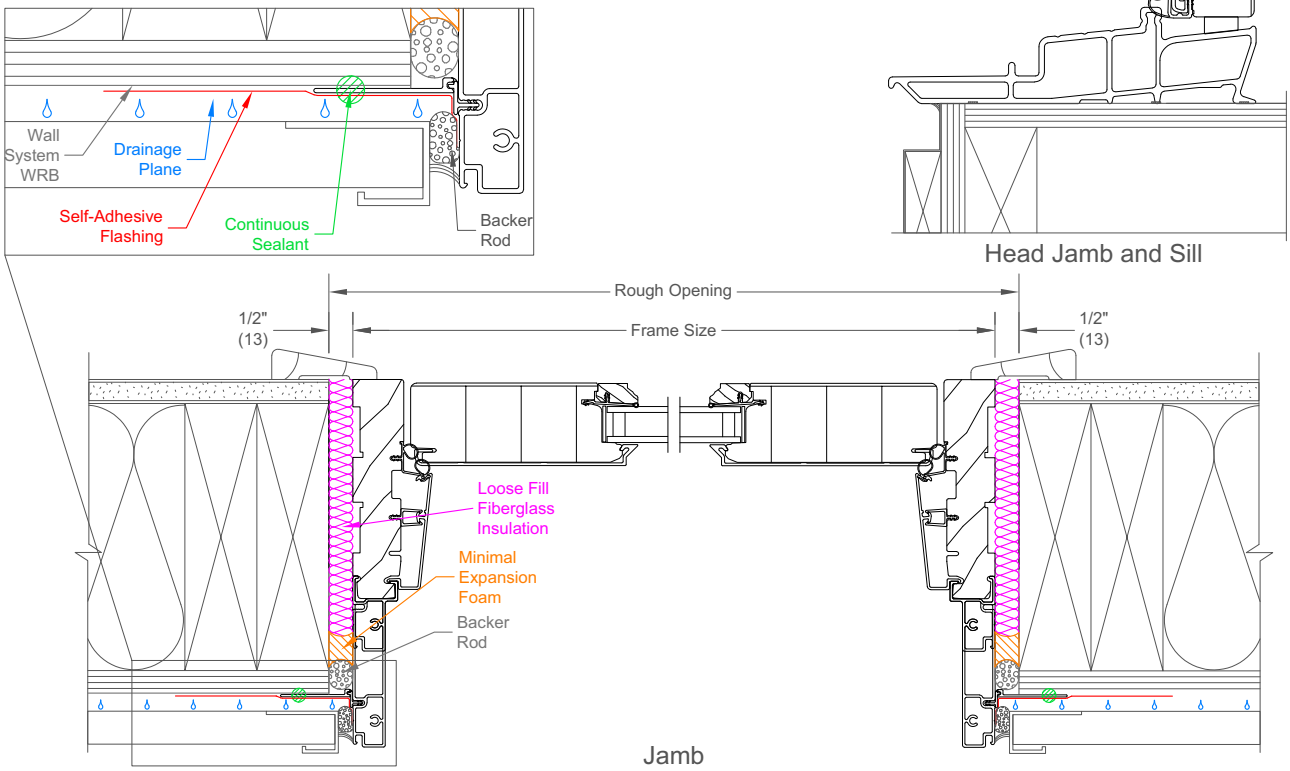
Note: The wall system WRB could be the outer surface of the foam if the edges and seams are sealed and taped.

Ultimate Inswing French Door - Frame with Steel Siding

Scale: 3" = 1"0"



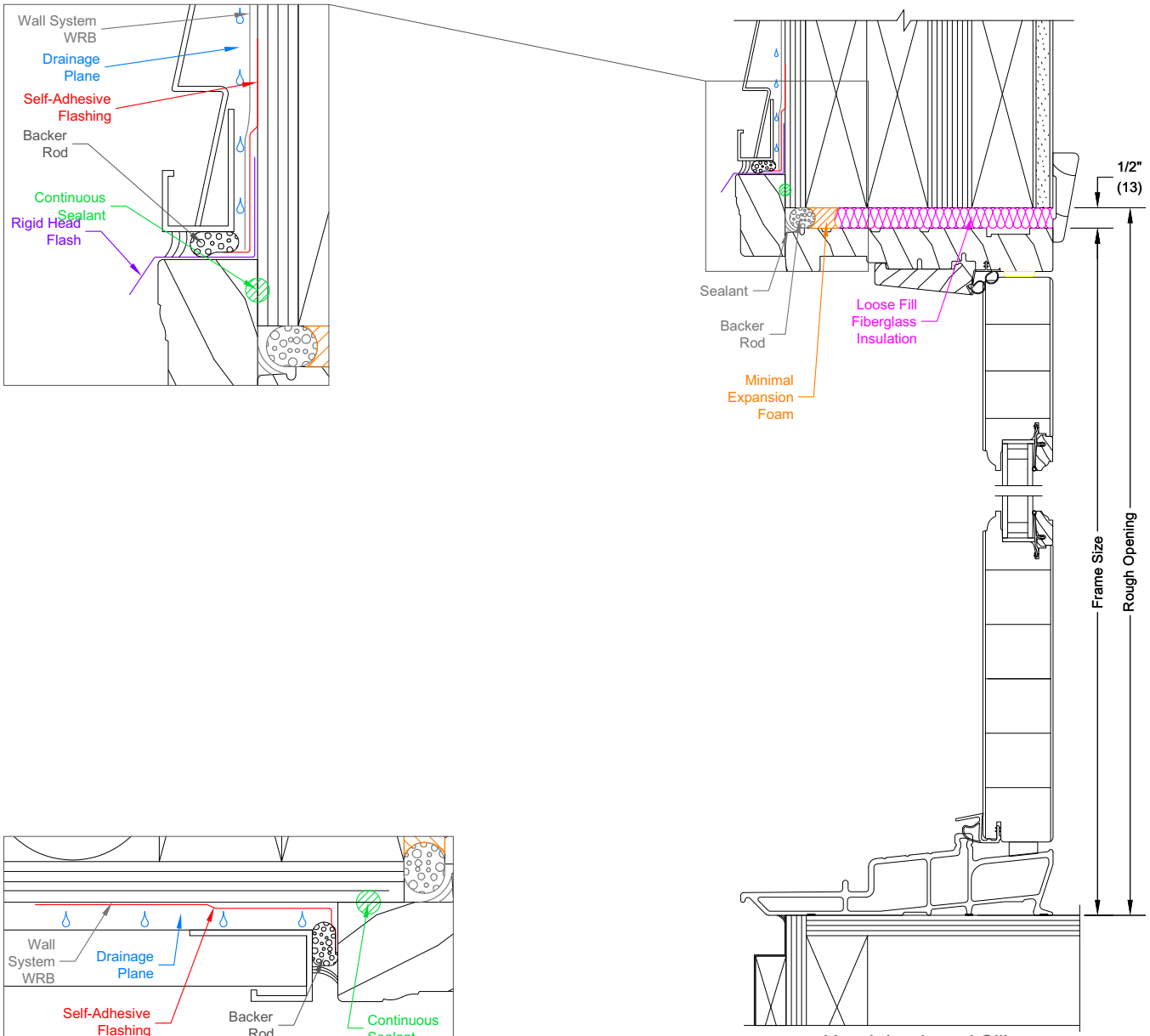
Head Jamb and Sill



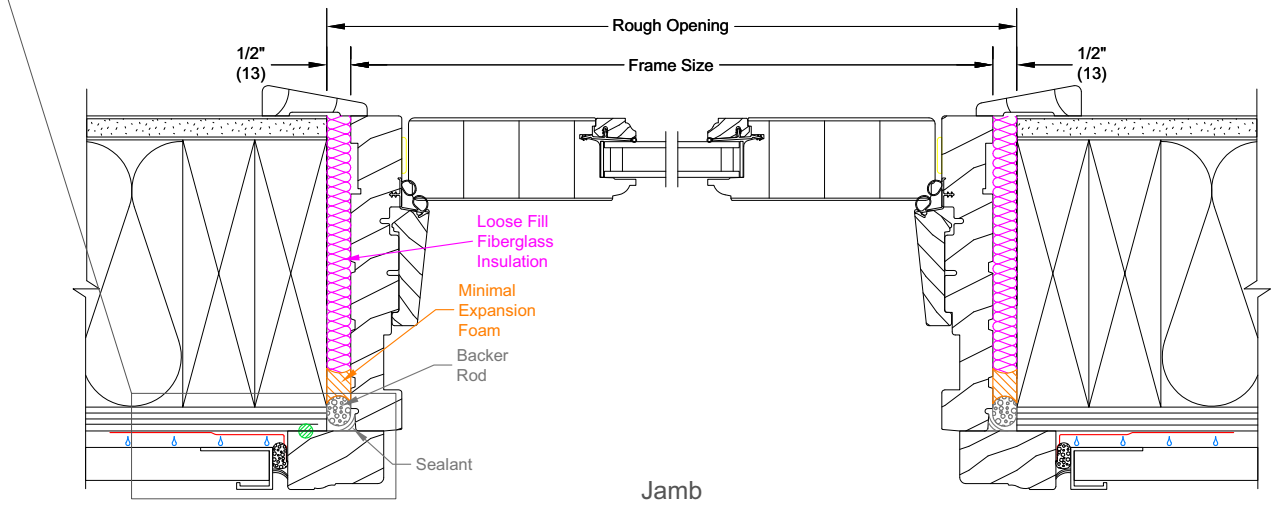
Jamb

Ultimate Wood Inswing French Door - 2x6 Frame with Steel Siding

Scale: 3" = 1'0"

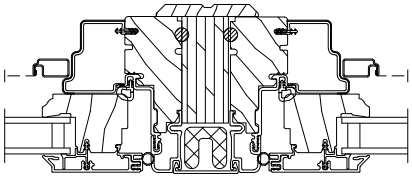


Head Jamb and Sill

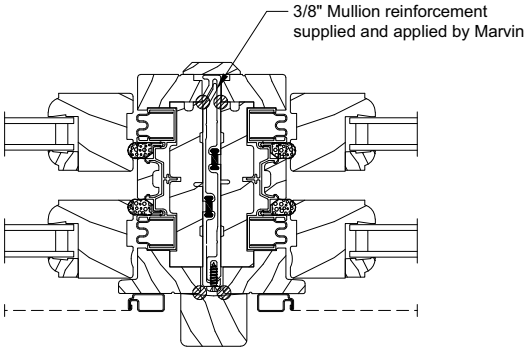


Jamb

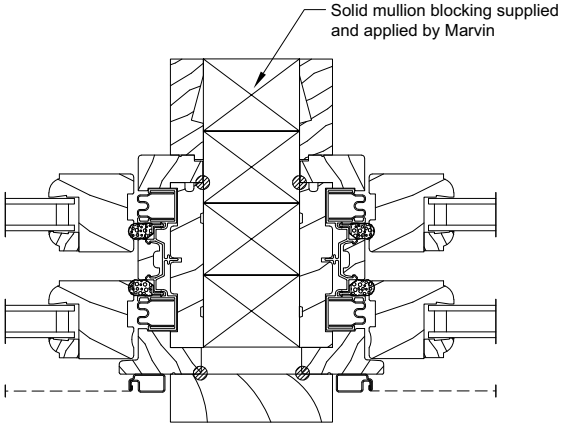
Structural Support Options



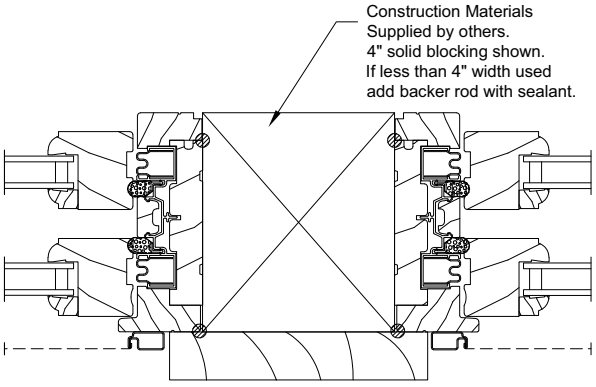
LVL Vertical Mullion



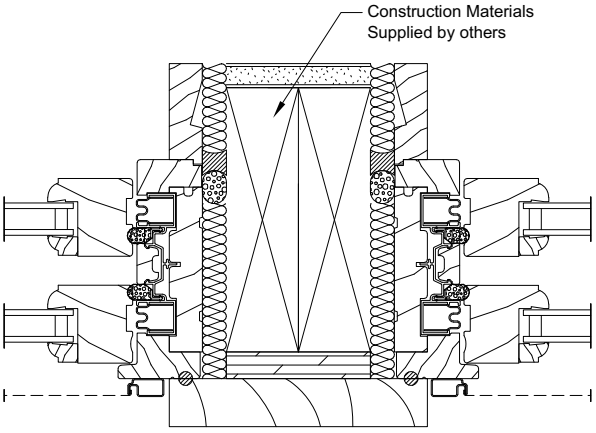
3/8" Vertical Mullion



Solid Wood blocking
Vertical Mullion



4" Space Vertical Mullion detail
With 4 9/16" Jambs



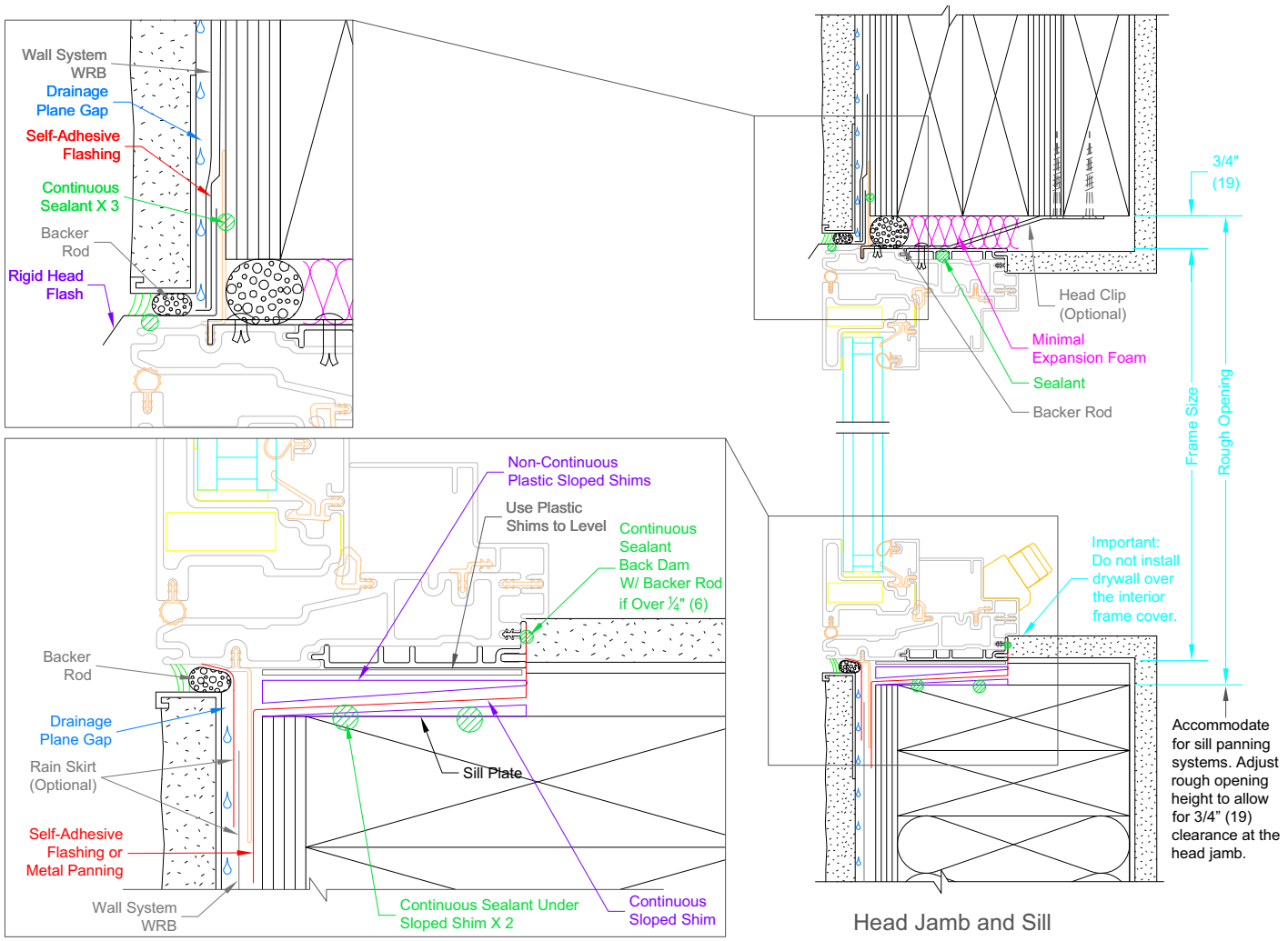
4" Stud Pocket mullion detail
With 6 9/16" Jambs

Continuous Sealant
Loose Fill Fiberglass Insulation
Backer Rod
Adhesive Flash

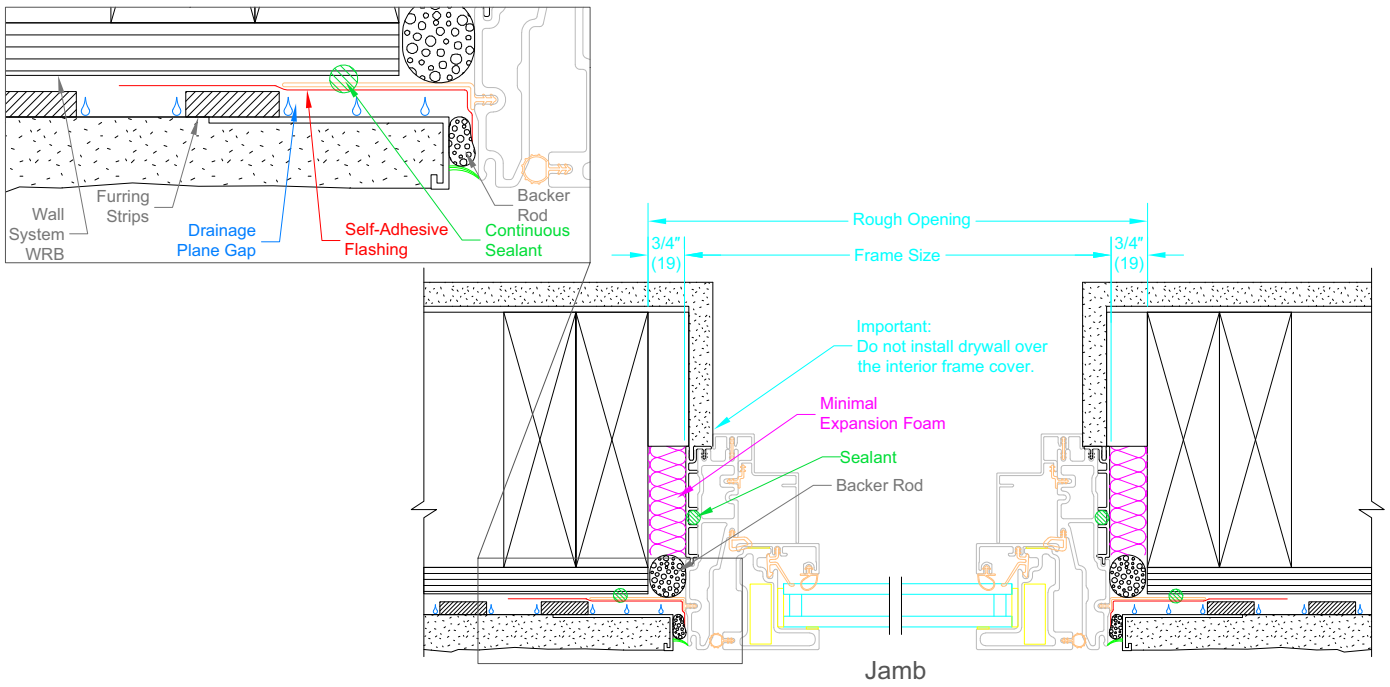
NOTE: For structural support options, please contact your Marvin representative

Modern Casement - 2x6 Frame with Stucco

Scale: 3" = 1'0"



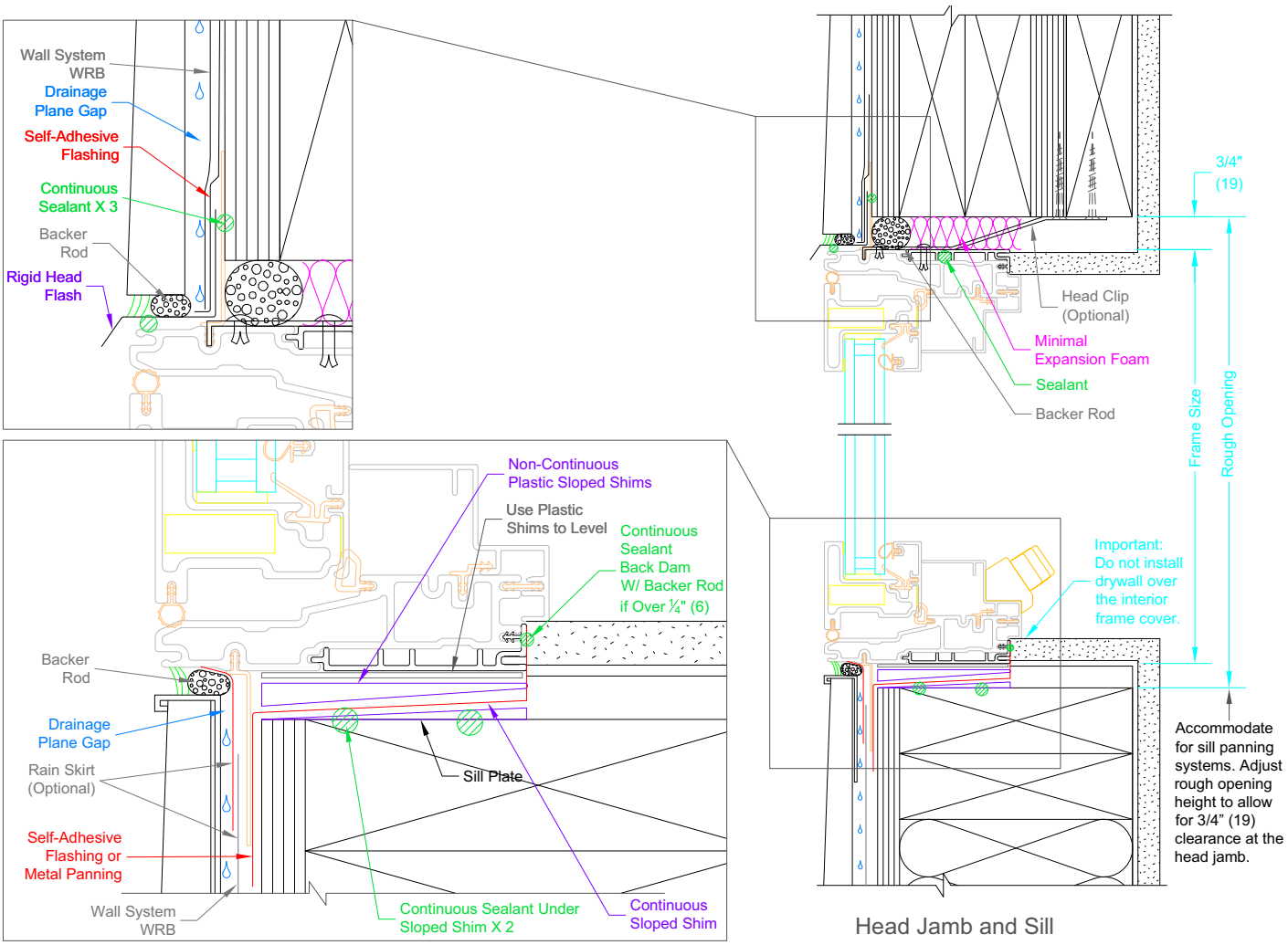
Head Jamb and Sill



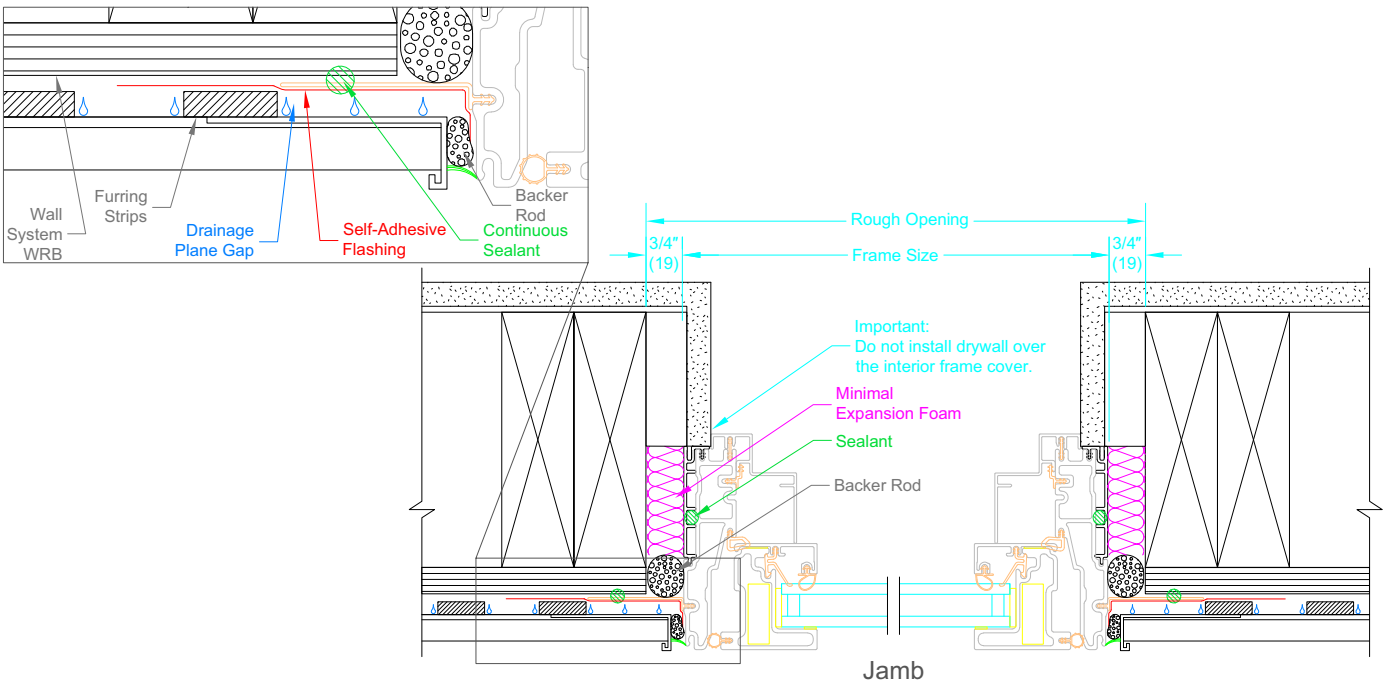
Jamb

Modern Casement - 2x6 Frame with Wall Sheathing

Scale: 3" = 1'0"



Head Jamb and Sill



Jamb

Ultimate Casement, Awning and Picture

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Unit Features

Ultimate Casement: UCA
Ultimate Awning: UAWN
Ultimate Casement Picture: UCAP
Ultimate Casement Narrow Frame: UCANF
Ultimate Awning Narrow Frame: UAWNNF
Ultimate Casement Narrow Frame Picture: UCANFP
Ultimate Casement Corner: UCACNR

UCA, UCANF, UAWN, UAWNNF Hardware:

- Folding handles
  - Color: Satin Taupe
    - Optional colors: White, Bronze, Matte Black, Satin Chrome, Satin Nickel, Oil Rubbed Bronze, Brass, Antique Brass
- Locks used are a concealed multi-point sequential system
- Stainless steel packages are available for coastal application
- Aluminum pole crank (Optional)
  - Color: mill finish
  - Sizes: 60" (1524), 96" (2438), 138" (3505)

NOTE: Pole crank operate locks

UCA/UCANF Hardware:

- Casement operator includes a crank hardware system that allows the window to open to a full 90 degrees with a minimal reduction of egress net clear opening
  - All steel is covered with an E-Gard™ protection coat and the standard track is stainless steel
  - Operation force at handle is 5 lbs. (2 kg) or less
- Casement hinges allow the user the ability to slide the sash across the frame opening so the sash exterior will rotate toward the user for the easy wash mode
  - Each unit includes one single arm operator or dyad operator depending upon the width of the unit
  - Frame OM width of 20" (508) to under 24" (610) use an 18" (457) wash/egress hinge
  - Frame OM widths greater than 24" (610) use a 22" (559) wash/egress hinge
  - Frame OM widths less than 20" (508) use a dyad hinge (dyad hinges do not have the special easy wash mode feature)
- Optional Factory installed Window Opening Control Device (WOCD)
  - The standard operation of the WOCD limits the operation of the sash to an opening of less than 4" (102)
  - The sash arm detaches from the lock housing by a two-step function actuation to allow the normal operation of the unit.
  - The WOCD re-engages when the unit is fully closed
  - Hardware meets the ASTM F2090-17
  - WOCD is Coastal compliant.
  - Minimum operable unit size: 20" (508) x 19 1/8" (486)
  - Maximum operable unit size:
    - 44" (1118) width
    - If the width is greater than 36" (914) and less than 44" (1118), then 92" (2337) maximum height
    - If the width is less than or equal to 36" (914), then 96 1/8" (2442)
  - Components
    - The WOCD hardware is handed
    - The Lock Housing and sash arm are comprised of multiple stainless steel, injection-molded components, and a single stainless steel spring
    - The Lock Housing fits within a pocket on the jamb.
    - The Sash Arm will fit within a pocket between the jamb/sill cover and the locking hardware.
- Hinges used are steel coated with an E-Gard™ protection coat and hinge track is stainless steel
- Each unit contains two hinges that connect stiles of sash to jamb material
- Hinges are designed to support up to a 210 lb. (95 kg) sash
- Optional power drive operator:
  - Motor is metal cased
  - Motor cover is plastic
  - Cover colors: Satin Taupe, White and Bronze
  - Field installed
  - Available for all size CN 16 and wider
- Remote control available as an option

Unit Features

UAWN/UAWNNF Hardware:

- Optional Op-O-Lock Hardware (only available with UAWN)
  - Requires a folding handle
  - Minimum frame OM width is 28" (711)
  - Minimum frame height is 15 1/8" (384)
  - Maximum frame OM width is 72" (1829)
  - Maximum frame OM height is 47 1/8" (1197)
- Custodial Sash Limiters
  - If Casement frame OM is larger than 36" (914) x 102" (2591), 40" (1016) x 92" (2337), or 44" (1118) x 71.125" (1807) custodial limiters will be applied, limiting travel
  - If Awning frame OM is larger than 72" (1829) x 72" (1829) custodial limiters will be applied, limiting travel

Optional Glass:

- 1" Tripane Low E1 outer piece and Low E1 Argon inner piece
- 1" Tripane Low E2 outer piece and Low E2 Argon inner piece
- 1" Tripane Low E3 outer piece and Low E1 Argon inner piece

Mulling:

- For mull performance, refer to the General Mulling chapter of the ADM.

Unit Features

Lock Status Sensor (Optional):

- Available for UCA, UCANF, UAWN, UAWNNF
- Refer to **Lock Status Sensor Installation Instructions** for requirements.
- Lock Status Sensor detects a locked or unlocked status. It allows easy integration with home automation systems using a wired or wireless connection.
  - For wired option, check with local codes on potential contractor requirements for low voltage networking connections.
  - Wireless option available. Requires purchase of secondary transmitter for operation. Marvin will prep for this option.
- Wireless Lock Status Sensor is located within the frame.
- Sensor Location
  - UCA/UCANF – will always be on locking side
  - UAWN/UAWNNF – will always be on right-hand locking side (from exterior)
- For Wired or Wireless, Black or White Magnet Covers available only visible on secondary surface. Cover color dependent upon interior finish.
  - White: Prime and White Painted Interior Finish
  - Black: Bare and all other finish options

Egress and Vent Openings: Casement - Full and Narrow Frame

CN	Clear Opening Width		Clear Opening Height		Egress Opening			Opening Vent Width		Opening Vent Height		Vent Opening	
	ft - in	mm	ft - in	mm	ft^2	m^2	E	ft - in	mm	ft - in	mm	ft^2	m^2
1614	0-6 13/32	(163)	0-8 1/64	(203)	0.36	(0.03)		0-11 1/64	(280)	0-8 1/64	(203)	0.61	(0.06)
1616	0-6 13/32	(163)	0-10 1/64	(254)	0.44	(0.04)		0-11 1/64	(280)	0-10 1/64	(254)	0.77	(0.07)
1618	0-6 13/32	(163)	1-0 1/64	(305)	0.53	(0.05)		0-11 1/64	(280)	1-0 1/64	(305)	0.92	(0.09)
1620	0-6 13/32	(163)	1-2 1/64	(356)	0.62	(0.06)		0-11 1/64	(280)	1-2 1/64	(356)	1.07	(0.10)
1624	0-6 13/32	(163)	1-6 1/64	(457)	0.80	(0.07)		0-11 1/64	(280)	1-6 1/64	(457)	1.38	(0.13)
1628	0-6 13/32	(163)	1-10 1/64	(559)	0.98	(0.09)		0-11 1/64	(280)	1-10 1/64	(559)	1.68	(0.16)
1632	0-6 13/32	(163)	2-2 1/64	(661)	1.16	(0.11)		0-11 1/64	(280)	2-2 1/64	(661)	1.99	(0.18)
1636	0-6 13/32	(163)	2-6 1/64	(762)	1.33	(0.12)		0-11 1/64	(280)	2-6 1/64	(762)	2.30	(0.21)
1640	0-6 13/32	(163)	2-10 1/64	(864)	1.51	(0.14)		0-11 1/64	(280)	2-10 1/64	(864)	2.60	(0.24)
1644	0-6 13/32	(163)	3-2 1/64	(965)	1.69	(0.16)		0-11 1/64	(280)	3-2 1/64	(965)	2.91	(0.27)
1648	0-6 13/32	(163)	3-6 1/64	(1067)	1.87	(0.17)		0-11 1/64	(280)	3-6 1/64	(1067)	3.21	(0.30)
1654	0-6 13/32	(163)	4-0 1/64	(1219)	2.13	(0.20)		0-11 1/64	(280)	4-0 1/64	(1219)	3.67	(0.34)
1656	0-6 13/32	(163)	4-2 1/64	(1270)	2.22	(0.21)		0-11 1/64	(280)	4-2 1/64	(1270)	3.83	(0.36)
1660	0-6 13/32	(163)	4-6 1/64	(1372)	2.40	(0.22)		0-11 1/64	(280)	4-6 1/64	(1372)	4.13	(0.38)
1664	0-6 13/32	(163)	4-10 1/64	(1473)	2.58	(0.24)		0-11 1/64	(280)	4-10 1/64	(1473)	4.44	(0.41)
1672 T	0-6 13/32	(163)	5-6 1/64	(1677)	2.93	(0.27)		0-11 1/64	(280)	5-6 1/64	(1677)	5.05	(0.47)
1678 T	0-6 13/32	(163)	6-0 1/64	(1829)	3.20	(0.30)		0-11 1/64	(280)	6-0 1/64	(1829)	5.51	(0.51)
1684 T	0-6 13/32	(163)	6-6 1/64	(1981)	3.47	(0.32)		0-11 1/64	(280)	6-6 1/64	(1981)	5.97	(0.55)
1692 T	0-6 13/32	(163)	7-2 1/64	(2185)	3.82	(0.36)		0-11 1/64	(280)	7-2 1/64	(2185)	6.58	(0.61)
1696 T	0-6 13/32	(163)	7-6 1/64	(2286)	4.00	(0.37)		0-11 1/64	(280)	7-6 1/64	(2286)	6.89	(0.64)
1814	0-8 13/32	(213)	0-8 1/64	(203)	0.47	(0.04)		1-1 1/64	(331)	0-8 1/64	(203)	0.72	(0.07)
1816	0-8 13/32	(213)	0-10 1/64	(254)	0.58	(0.05)		1-1 1/64	(331)	0-10 1/64	(254)	0.90	(0.08)
1818	0-8 13/32	(213)	1-0 1/64	(305)	0.70	(0.07)		1-1 1/64	(331)	1-0 1/64	(305)	1.09	(0.10)
1820	0-8 13/32	(213)	1-2 1/64	(356)	0.82	(0.08)		1-1 1/64	(331)	1-2 1/64	(356)	1.27	(0.12)
1824	0-8 13/32	(213)	1-6 1/64	(457)	1.05	(0.10)		1-1 1/64	(331)	1-6 1/64	(457)	1.63	(0.15)
1828	0-8 13/32	(213)	1-10 1/64	(559)	1.28	(0.12)		1-1 1/64	(331)	1-10 1/64	(559)	1.99	(0.18)
1832	0-8 13/32	(213)	2-2 1/64	(661)	1.52	(0.14)		1-1 1/64	(331)	2-2 1/64	(661)	2.35	(0.22)
1836	0-8 13/32	(213)	2-6 1/64	(762)	1.75	(0.16)		1-1 1/64	(331)	2-6 1/64	(762)	2.71	(0.25)
1840	0-8 13/32	(213)	2-10 1/64	(864)	1.98	(0.18)		1-1 1/64	(331)	2-10 1/64	(864)	3.07	(0.29)
1844	0-8 13/32	(213)	3-2 1/64	(965)	2.22	(0.21)		1-1 1/64	(331)	3-2 1/64	(965)	3.44	(0.32)
1848	0-8 13/32	(213)	3-6 1/64	(1067)	2.45	(0.23)		1-1 1/64	(331)	3-6 1/64	(1067)	3.80	(0.35)
1854	0-8 13/32	(213)	4-0 1/64	(1219)	2.80	(0.26)		1-1 1/64	(331)	4-0 1/64	(1219)	4.34	(0.40)
1856	0-8 13/32	(213)	4-2 1/64	(1270)	2.92	(0.27)		1-1 1/64	(331)	4-2 1/64	(1270)	4.52	(0.42)
1860	0-8 13/32	(213)	4-6 1/64	(1372)	3.15	(0.29)		1-1 1/64	(331)	4-6 1/64	(1372)	4.88	(0.45)
1864	0-8 13/32	(213)	4-10 1/64	(1473)	3.38	(0.31)		1-1 1/64	(331)	4-10 1/64	(1473)	5.24	(0.49)
1872 T	0-8 13/32	(213)	5-6 1/64	(1677)	3.85	(0.36)		1-1 1/64	(331)	5-6 1/64	(1677)	5.97	(0.55)
1878 T	0-8 13/32	(213)	6-0 1/64	(1829)	4.20	(0.39)		1-1 1/64	(331)	6-0 1/64	(1829)	6.51	(0.60)
1884 T	0-8 13/32	(213)	6-6 1/64	(1981)	4.55	(0.42)		1-1 1/64	(331)	6-6 1/64	(1981)	7.05	(0.66)
1892 T	0-8 13/32	(213)	7-2 1/64	(2185)	5.02	(0.47)		1-1 1/64	(331)	7-2 1/64	(2185)	7.77	(0.72)
1896 T	0-8 13/32	(213)	7-6 1/64	(2286)	5.25	(0.49)		1-1 1/64	(331)	7-6 1/64	(2286)	8.14	(0.76)
2014	1-0 57/64	(327)	0-8 1/64	(203)	0.72	(0.07)		1-3 1/64	(381)	0-8 1/64	(203)	0.84	(0.08)
2016	1-0 57/64	(327)	0-10 1/64	(254)	0.90	(0.08)		1-3 1/64	(381)	0-10 1/64	(254)	1.04	(0.10)

NOTE: Refer to Product Performance Chapter for International Building Code. Net Clear Opening drawings are pictured with the conversion tables.

Egress and Vent Openings: Casement - Full and Narrow Frame

CN	Clear Opening Width		Clear Opening Height		Egress Opening			Opening Vent Width		Opening Vent Height		Vent Opening	
	ft - in	mm	ft - in	mm	ft^2	m^2	E	ft - in	mm	ft - in	mm	ft^2	m^2
2018	1-0 57/64	(327)	1-0 1/64	(305)	1.08	(0.10)		1-3 1/64	(381)	1-0 1/64	(305)	1.25	(0.12)
2020	1-0 57/64	(327)	1-2 1/64	(356)	1.25	(0.12)		1-3 1/64	(381)	1-2 1/64	(356)	1.46	(0.14)
2024	1-0 57/64	(327)	1-6 1/64	(457)	1.61	(0.15)		1-3 1/64	(381)	1-6 1/64	(457)	1.88	(0.17)
2028	1-0 57/64	(327)	1-10 1/64	(559)	1.97	(0.18)		1-3 1/64	(381)	1-10 1/64	(559)	2.30	(0.21)
2032	1-0 57/64	(327)	2-2 1/64	(661)	2.33	(0.22)		1-3 1/64	(381)	2-2 1/64	(661)	2.71	(0.25)
2036	1-0 57/64	(327)	2-6 1/64	(762)	2.69	(0.25)		1-3 1/64	(381)	2-6 1/64	(762)	3.13	(0.29)
2040	1-0 57/64	(327)	2-10 1/64	(864)	3.04	(0.28)		1-3 1/64	(381)	2-10 1/64	(864)	3.55	(0.33)
2044	1-0 57/64	(327)	3-2 1/64	(965)	3.40	(0.32)		1-3 1/64	(381)	3-2 1/64	(965)	3.96	(0.37)
2048	1-0 57/64	(327)	3-6 1/64	(1067)	3.76	(0.35)		1-3 1/64	(381)	3-6 1/64	(1067)	4.38	(0.41)
2054	1-0 57/64	(327)	4-0 1/64	(1219)	4.30	(0.40)		1-3 1/64	(381)	4-0 1/64	(1219)	5.01	(0.47)
2056	1-0 57/64	(327)	4-2 1/64	(1270)	4.48	(0.42)		1-3 1/64	(381)	4-2 1/64	(1270)	5.22	(0.48)
2060	1-0 57/64	(327)	4-6 1/64	(1372)	4.83	(0.45)		1-3 1/64	(381)	4-6 1/64	(1372)	5.63	(0.52)
2064	1-0 57/64	(327)	4-10 1/64	(1473)	5.19	(0.48)		1-3 1/64	(381)	4-10 1/64	(1473)	6.05	(0.56)
2072 T	1-0 57/64	(327)	5-6 1/64	(1677)	5.91	(0.55)		1-3 1/64	(381)	5-6 1/64	(1677)	6.88	(0.64)
2078 T	1-0 57/64	(327)	6-0 1/64	(1829)	6.45	(0.60)		1-3 1/64	(381)	6-0 1/64	(1829)	7.51	(0.70)
2084 T	1-0 57/64	(327)	6-6 1/64	(1981)	6.98	(0.65)		1-3 1/64	(381)	6-6 1/64	(1981)	8.13	(0.76)
2092 T	1-0 57/64	(327)	7-2 1/64	(2185)	7.70	(0.72)		1-3 1/64	(381)	7-2 1/64	(2185)	8.97	(0.83)
2096 T	1-0 57/64	(327)	7-6 1/64	(2286)	8.06	(0.75)		1-3 1/64	(381)	7-6 1/64	(2286)	9.39	(0.87)
2414	1-4 57/64	(429)	0-8 1/64	(203)	0.94	(0.09)		1-7 1/64	(483)	0-8 1/64	(203)	1.06	(0.10)
2416	1-4 57/64	(429)	0-10 1/64	(254)	1.17	(0.11)		1-7 1/64	(483)	0-10 1/64	(254)	1.32	(0.12)
2418	1-4 57/64	(429)	1-0 1/64	(305)	1.41	(0.13)		1-7 1/64	(483)	1-0 1/64	(305)	1.59	(0.15)
2420	1-4 57/64	(429)	1-2 1/64	(356)	1.64	(0.15)		1-7 1/64	(483)	1-2 1/64	(356)	1.85	(0.17)
2424	1-4 57/64	(429)	1-6 1/64	(457)	2.11	(0.20)		1-7 1/64	(483)	1-6 1/64	(457)	2.38	(0.22)
2428	1-4 57/64	(429)	1-10 1/64	(559)	2.58	(0.24)		1-7 1/64	(483)	1-10 1/64	(559)	2.91	(0.27)
2432	1-4 57/64	(429)	2-2 1/64	(661)	3.05	(0.28)		1-7 1/64	(483)	2-2 1/64	(661)	3.43	(0.32)
2436	1-4 57/64	(429)	2-6 1/64	(762)	3.52	(0.33)		1-7 1/64	(483)	2-6 1/64	(762)	3.96	(0.37)
2440	1-4 57/64	(429)	2-10 1/64	(864)	3.99	(0.37)		1-7 1/64	(483)	2-10 1/64	(864)	4.49	(0.42)
2444	1-4 57/64	(429)	3-2 1/64	(965)	4.46	(0.41)		1-7 1/64	(483)	3-2 1/64	(965)	5.02	(0.47)
2448	1-4 57/64	(429)	3-6 1/64	(1067)	4.93	(0.46)		1-7 1/64	(483)	3-6 1/64	(1067)	5.55	(0.52)
2454	1-4 57/64	(429)	4-0 1/64	(1219)	5.63	(0.52)		1-7 1/64	(483)	4-0 1/64	(1219)	6.34	(0.59)
2456	1-4 57/64	(429)	4-2 1/64	(1270)	5.87	(0.54)		1-7 1/64	(483)	4-2 1/64	(1270)	6.60	(0.61)
2460	1-4 57/64	(429)	4-6 1/64	(1372)	6.34	(0.59)		1-7 1/64	(483)	4-6 1/64	(1372)	7.13	(0.66)
2464	1-4 57/64	(429)	4-10 1/64	(1473)	6.80	(0.63)		1-7 1/64	(483)	4-10 1/64	(1473)	7.66	(0.71)
2472 T	1-4 57/64	(429)	5-6 1/64	(1677)	7.74	(0.72)		1-7 1/64	(483)	5-6 1/64	(1677)	8.72	(0.81)
2478 T	1-4 57/64	(429)	6-0 1/64	(1829)	8.45	(0.78)		1-7 1/64	(483)	6-0 1/64	(1829)	9.51	(0.88)
2484 T	1-4 57/64	(429)	6-6 1/64	(1981)	9.15	(0.85)		1-7 1/64	(483)	6-6 1/64	(1981)	10.30	(0.96)
2492 T	1-4 57/64	(429)	7-2 1/64	(2185)	10.09	(0.94)		1-7 1/64	(483)	7-2 1/64	(2185)	11.36	(1.06)
2496 T	1-4 57/64	(429)	7-6 1/64	(2286)	10.56	(0.98)		1-7 1/64	(483)	7-6 1/64	(2286)	11.89	(1.10)
2614	1-6 57/64	(480)	0-8 1/64	(203)	1.05	(0.10)		1-9 1/64	(534)	0-8 1/64	(203)	1.17	(0.11)
2616	1-6 57/64	(480)	0-10 1/64	(254)	1.31	(0.12)		1-9 1/64	(534)	0-10 1/64	(254)	1.46	(0.14)
2618	1-6 57/64	(480)	1-0 1/64	(305)	1.58	(0.15)		1-9 1/64	(534)	1-0 1/64	(305)	1.75	(0.16)
2620	1-6 57/64	(480)	1-2 1/64	(356)	1.84	(0.17)		1-9 1/64	(534)	1-2 1/64	(356)	2.04	(0.19)

NOTE: Refer to Product Performance Chapter for International Building Code. Net Clear Opening drawings are pictured with the conversion tables.

Egress and Vent Openings: Casement - Full and Narrow Frame

CN	Clear Opening Width		Clear Opening Height		Egress Opening			Opening Vent Width		Opening Vent Height		Vent Opening	
	ft - in	mm	ft - in	mm	ft^2	m^2	E	ft - in	mm	ft - in	mm	ft^2	m^2
2624	1-6 57/64	(480)	1-6 1/64	(457)	2.36	(0.22)		1-9 1/64	(534)	1-6 1/64	(457)	2.63	(0.24)
2628	1-6 57/64	(480)	1-10 1/64	(559)	2.89	(0.27)		1-9 1/64	(534)	1-10 1/64	(559)	3.21	(0.30)
2632	1-6 57/64	(480)	2-2 1/64	(661)	3.41	(0.32)		1-9 1/64	(534)	2-2 1/64	(661)	3.80	(0.35)
2636	1-6 57/64	(480)	2-6 1/64	(762)	3.94	(0.37)		1-9 1/64	(534)	2-6 1/64	(762)	4.38	(0.41)
2640	1-6 57/64	(480)	2-10 1/64	(864)	4.46	(0.41)		1-9 1/64	(534)	2-10 1/64	(864)	4.96	(0.46)
2644	1-6 57/64	(480)	3-2 1/64	(965)	4.99	(0.46)		1-9 1/64	(534)	3-2 1/64	(965)	5.55	(0.52)
2648	1-6 57/64	(480)	3-6 1/64	(1067)	5.51	(0.51)		1-9 1/64	(534)	3-6 1/64	(1067)	6.13	(0.57)
2654	1-6 57/64	(480)	4-0 1/64	(1219)	6.30	(0.59)		1-9 1/64	(534)	4-0 1/64	(1219)	7.01	(0.65)
2656	1-6 57/64	(480)	4-2 1/64	(1270)	6.56	(0.61)		1-9 1/64	(534)	4-2 1/64	(1270)	7.30	(0.68)
2660	1-6 57/64	(480)	4-6 1/64	(1372)	7.09	(0.66)		1-9 1/64	(534)	4-6 1/64	(1372)	7.88	(0.73)
2664	1-6 57/64	(480)	4-10 1/64	(1473)	7.61	(0.71)		1-9 1/64	(534)	4-10 1/64	(1473)	8.47	(0.79)
2672 T	1-6 57/64	(480)	5-6 1/64	(1677)	8.66	(0.80)		1-9 1/64	(534)	5-6 1/64	(1677)	9.63	(0.90)
2678 T	1-6 57/64	(480)	6-0 1/64	(1829)	9.45	(0.88)		1-9 1/64	(534)	6-0 1/64	(1829)	10.51	(0.98)
2684 T	1-6 57/64	(480)	6-6 1/64	(1981)	10.23	(0.95)		1-9 1/64	(534)	6-6 1/64	(1981)	11.39	(1.06)
2692 T	1-6 57/64	(480)	7-2 1/64	(2185)	11.28	(1.05)		1-9 1/64	(534)	7-2 1/64	(2185)	12.55	(1.17)
2696 T	1-6 57/64	(480)	7-6 1/64	(2286)	11.81	(1.10)		1-9 1/64	(534)	7-6 1/64	(2286)	13.14	(1.22)
2814	1-8 57/64	(531)	0-8 1/64	(203)	1.16	(0.11)		1-11 1/64	(585)	0-8 1/64	(203)	1.28	(0.12)
2816	1-8 57/64	(531)	0-10 1/64	(254)	1.45	(0.13)		1-11 1/64	(585)	0-10 1/64	(254)	1.60	(0.15)
2818	1-8 57/64	(531)	1-0 1/64	(305)	1.74	(0.16)		1-11 1/64	(585)	1-0 1/64	(305)	1.92	(0.18)
2820	1-8 57/64	(531)	1-2 1/64	(356)	2.03	(0.19)		1-11 1/64	(585)	1-2 1/64	(356)	2.24	(0.21)
2824	1-8 57/64	(531)	1-6 1/64	(457)	2.61	(0.24)		1-11 1/64	(585)	1-6 1/64	(457)	2.88	(0.27)
2828	1-8 57/64	(531)	1-10 1/64	(559)	3.19	(0.30)		1-11 1/64	(585)	1-10 1/64	(559)	3.52	(0.33)
2832	1-8 57/64	(531)	2-2 1/64	(661)	3.77	(0.35)		1-11 1/64	(585)	2-2 1/64	(661)	4.16	(0.39)
2836	1-8 57/64	(531)	2-6 1/64	(762)	4.35	(0.40)		1-11 1/64	(585)	2-6 1/64	(762)	4.80	(0.45)
2840	1-8 57/64	(531)	2-10 1/64	(864)	4.93	(0.46)		1-11 1/64	(585)	2-10 1/64	(864)	5.44	(0.51)
2844	1-8 57/64	(531)	3-2 1/64	(965)	5.51	(0.51)		1-11 1/64	(585)	3-2 1/64	(965)	6.08	(0.56)
2848	1-8 57/64	(531)	3-6 1/64	(1067)	6.09	(0.57)	E	1-11 1/64	(585)	3-6 1/64	(1067)	6.71	(0.62)
2854	1-8 57/64	(531)	4-0 1/64	(1219)	6.96	(0.65)	E	1-11 1/64	(585)	4-0 1/64	(1219)	7.67	(0.71)
2856	1-8 57/64	(531)	4-2 1/64	(1270)	7.26	(0.67)	E	1-11 1/64	(585)	4-2 1/64	(1270)	7.99	(0.74)
2860	1-8 57/64	(531)	4-6 1/64	(1372)	7.84	(0.73)	E	1-11 1/64	(585)	4-6 1/64	(1372)	8.63	(0.80)
2864	1-8 57/64	(531)	4-10 1/64	(1473)	8.42	(0.78)	E	1-11 1/64	(585)	4-10 1/64	(1473)	9.27	(0.86)
2872 T	1-8 57/64	(531)	5-6 1/64	(1677)	9.58	(0.89)	E	1-11 1/64	(585)	5-6 1/64	(1677)	10.55	(0.98)
2878 T	1-8 57/64	(531)	6-0 1/64	(1829)	10.45	(0.97)	E	1-11 1/64	(585)	6-0 1/64	(1829)	11.51	(1.07)
2884 T	1-8 57/64	(531)	6-6 1/64	(1981)	11.32	(1.05)	E	1-11 1/64	(585)	6-6 1/64	(1981)	12.47	(1.16)
2892 T	1-8 57/64	(531)	7-2 1/64	(2185)	12.48	(1.16)	E	1-11 1/64	(585)	7-2 1/64	(2185)	13.75	(1.28)
2896 T	1-8 57/64	(531)	7-6 1/64	(2286)	13.06	(1.21)	E	1-11 1/64	(585)	7-6 1/64	(2286)	14.39	(1.34)
3014	1-10 57/64	(581)	0-8 1/64	(203)	1.27	(0.12)		2-1 1/64	(635)	0-8 1/64	(203)	1.39	(0.13)
3016	1-10 57/64	(581)	0-10 1/64	(254)	1.59	(0.15)		2-1 1/64	(635)	0-10 1/64	(254)	1.74	(0.16)
3018	1-10 57/64	(581)	1-0 1/64	(305)	1.91	(0.18)		2-1 1/64	(635)	1-0 1/64	(305)	2.09	(0.19)
3020	1-10 57/64	(581)	1-2 1/64	(356)	2.23	(0.21)		2-1 1/64	(635)	1-2 1/64	(356)	2.43	(0.23)
3024	1-10 57/64	(581)	1-6 1/64	(457)	2.86	(0.27)		2-1 1/64	(635)	1-6 1/64	(457)	3.13	(0.29)
3028	1-10 57/64	(581)	1-10 1/64	(559)	3.50	(0.33)		2-1 1/64	(635)	1-10 1/64	(559)	3.82	(0.36)

NOTE: Refer to Product Performance Chapter for International Building Code. Net Clear Opening drawings are pictured with the conversion tables.

Egress and Vent Openings: Casement - Full and Narrow Frame

CN	Clear Opening Width		Clear Opening Height		Egress Opening			Opening Vent Width		Opening Vent Height		Vent Opening	
	ft - in	mm	ft - in	mm	ft^2	m^2	E	ft - in	mm	ft - in	mm	ft^2	m^2
3032	1-10 57/64	(581)	2-2 1/64	(661)	4.13	(0.38)		2-1 1/64	(635)	2-2 1/64	(661)	4.52	(0.42)
3036	1-10 57/64	(581)	2-6 1/64	(762)	4.77	(0.44)		2-1 1/64	(635)	2-6 1/64	(762)	5.21	(0.48)
3040	1-10 57/64	(581)	2-10 1/64	(864)	5.41	(0.50)		2-1 1/64	(635)	2-10 1/64	(864)	5.91	(0.55)
3044	1-10 57/64	(581)	3-2 1/64	(965)	6.04	(0.56)	E	2-1 1/64	(635)	3-2 1/64	(965)	6.60	(0.61)
3048	1-10 57/64	(581)	3-6 1/64	(1067)	6.68	(0.62)	E	2-1 1/64	(635)	3-6 1/64	(1067)	7.30	(0.68)
3054	1-10 57/64	(581)	4-0 1/64	(1219)	7.63	(0.71)	E	2-1 1/64	(635)	4-0 1/64	(1219)	8.34	(0.77)
3056	1-10 57/64	(581)	4-2 1/64	(1270)	7.95	(0.74)	E	2-1 1/64	(635)	4-2 1/64	(1270)	8.69	(0.81)
3060	1-10 57/64	(581)	4-6 1/64	(1372)	8.59	(0.80)	E	2-1 1/64	(635)	4-6 1/64	(1372)	9.38	(0.87)
3064	1-10 57/64	(581)	4-10 1/64	(1473)	9.22	(0.86)	E	2-1 1/64	(635)	4-10 1/64	(1473)	10.08	(0.94)
3072 T	1-10 57/64	(581)	5-6 1/64	(1677)	10.49	(0.97)	E	2-1 1/64	(635)	5-6 1/64	(1677)	11.47	(1.07)
3078 T	1-10 57/64	(581)	6-0 1/64	(1829)	11.45	(1.06)	E	2-1 1/64	(635)	6-0 1/64	(1829)	12.51	(1.16)
3084 T	1-10 57/64	(581)	6-6 1/64	(1981)	12.40	(1.15)	E	2-1 1/64	(635)	6-6 1/64	(1981)	13.55	(1.26)
3092 T	1-10 57/64	(581)	7-2 1/64	(2185)	13.67	(1.27)	E	2-1 1/64	(635)	7-2 1/64	(2185)	14.94	(1.39)
3096 T	1-10 57/64	(581)	7-6 1/64	(2286)	14.31	(1.33)	E	2-1 1/64	(635)	7-6 1/64	(2286)	15.64	(1.45)
3214	2-0 57/64	(632)	0-8 1/64	(203)	1.38	(0.13)		2-3 1/64	(686)	0-8 1/64	(203)	1.50	(0.14)
3216	2-0 57/64	(632)	0-10 1/64	(254)	1.73	(0.16)		2-3 1/64	(686)	0-10 1/64	(254)	1.88	(0.17)
3218	2-0 57/64	(632)	1-0 1/64	(305)	2.08	(0.19)		2-3 1/64	(686)	1-0 1/64	(305)	2.25	(0.21)
3220	2-0 57/64	(632)	1-2 1/64	(356)	2.42	(0.22)		2-3 1/64	(686)	1-2 1/64	(356)	2.63	(0.24)
3224	2-0 57/64	(632)	1-6 1/64	(457)	3.11	(0.29)		2-3 1/64	(686)	1-6 1/64	(457)	3.38	(0.31)
3228	2-0 57/64	(632)	1-10 1/64	(559)	3.80	(0.35)		2-3 1/64	(686)	1-10 1/64	(559)	4.13	(0.38)
3232	2-0 57/64	(632)	2-2 1/64	(661)	4.50	(0.42)		2-3 1/64	(686)	2-2 1/64	(661)	4.88	(0.45)
3236	2-0 57/64	(632)	2-6 1/64	(762)	5.19	(0.48)		2-3 1/64	(686)	2-6 1/64	(762)	5.63	(0.52)
3240	2-0 57/64	(632)	2-10 1/64	(864)	5.88	(0.55)	E	2-3 1/64	(686)	2-10 1/64	(864)	6.38	(0.59)
3244	2-0 57/64	(632)	3-2 1/64	(965)	6.57	(0.61)	E	2-3 1/64	(686)	3-2 1/64	(965)	7.13	(0.66)
3248	2-0 57/64	(632)	3-6 1/64	(1067)	7.26	(0.67)	E	2-3 1/64	(686)	3-6 1/64	(1067)	7.88	(0.73)
3254	2-0 57/64	(632)	4-0 1/64	(1219)	8.30	(0.77)	E	2-3 1/64	(686)	4-0 1/64	(1219)	9.01	(0.84)
3256	2-0 57/64	(632)	4-2 1/64	(1270)	8.64	(0.80)	E	2-3 1/64	(686)	4-2 1/64	(1270)	9.38	(0.87)
3260	2-0 57/64	(632)	4-6 1/64	(1372)	9.34	(0.87)	E	2-3 1/64	(686)	4-6 1/64	(1372)	10.13	(0.94)
3264	2-0 57/64	(632)	4-10 1/64	(1473)	10.03	(0.93)	E	2-3 1/64	(686)	4-10 1/64	(1473)	10.88	(1.01)
3272 T	2-0 57/64	(632)	5-6 1/64	(1677)	11.41	(1.06)	E	2-3 1/64	(686)	5-6 1/64	(1677)	12.38	(1.15)
3278 T	2-0 57/64	(632)	6-0 1/64	(1829)	12.45	(1.16)	E	2-3 1/64	(686)	6-0 1/64	(1829)	13.51	(1.26)
3284 T	2-0 57/64	(632)	6-6 1/64	(1981)	13.48	(1.25)	E	2-3 1/64	(686)	6-6 1/64	(1981)	14.64	(1.36)
3292 T	2-0 57/64	(632)	7-2 1/64	(2185)	14.87	(1.38)	E	2-3 1/64	(686)	7-2 1/64	(2185)	16.14	(1.50)
3296 T	2-0 57/64	(632)	7-6 1/64	(2286)	15.56	(1.45)	E	2-3 1/64	(686)	7-6 1/64	(2286)	16.89	(1.57)
3614	2-4 57/64	(734)	0-8 1/64	(203)	1.61	(0.15)		2-7 1/64	(788)	0-8 1/64	(203)	1.73	(0.16)
3616	2-4 57/64	(734)	0-10 1/64	(254)	2.01	(0.19)		2-7 1/64	(788)	0-10 1/64	(254)	2.16	(0.20)
3618	2-4 57/64	(734)	1-0 1/64	(305)	2.41	(0.22)		2-7 1/64	(788)	1-0 1/64	(305)	2.59	(0.24)
3620	2-4 57/64	(734)	1-2 1/64	(356)	2.81	(0.26)		2-7 1/64	(788)	1-2 1/64	(356)	3.02	(0.28)
3624	2-4 57/64	(734)	1-6 1/64	(457)	3.61	(0.34)		2-7 1/64	(788)	1-6 1/64	(457)	3.88	(0.36)
3628	2-4 57/64	(734)	1-10 1/64	(559)	4.42	(0.41)		2-7 1/64	(788)	1-10 1/64	(559)	4.74	(0.44)
3632	2-4 57/64	(734)	2-2 1/64	(661)	5.22	(0.48)		2-7 1/64	(788)	2-2 1/64	(661)	5.60	(0.52)
3636	2-4 57/64	(734)	2-6 1/64	(762)	6.02	(0.56)	E	2-7 1/64	(788)	2-6 1/64	(762)	6.46	(0.60)

NOTE: Refer to Product Performance Chapter for International Building Code. Net Clear Opening drawings are pictured with the conversion tables.

Egress and Vent Openings: Casement - Full and Narrow Frame

CN	Clear Opening Width		Clear Opening Height		Egress Opening			Opening Vent Width		Opening Vent Height		Vent Opening	
	ft - in	mm	ft - in	mm	ft^2	m^2	E	ft - in	mm	ft - in	mm	ft^2	m^2
3640	2-4 57/64	(734)	2-10 1/64	(864)	6.82	(0.63)	E	2-7 1/64	(788)	2-10 1/64	(864)	7.33	(0.68)
3644	2-4 57/64	(734)	3-2 1/64	(965)	7.63	(0.71)	E	2-7 1/64	(788)	3-2 1/64	(965)	8.19	(0.76)
3648	2-4 57/64	(734)	3-6 1/64	(1067)	8.43	(0.78)	E	2-7 1/64	(788)	3-6 1/64	(1067)	9.05	(0.84)
3654	2-4 57/64	(734)	4-0 1/64	(1219)	9.63	(0.89)	E	2-7 1/64	(788)	4-0 1/64	(1219)	10.34	(0.96)
3656	2-4 57/64	(734)	4-2 1/64	(1270)	10.03	(0.93)	E	2-7 1/64	(788)	4-2 1/64	(1270)	10.77	(1.00)
3660	2-4 57/64	(734)	4-6 1/64	(1372)	10.84	(1.01)	E	2-7 1/64	(788)	4-6 1/64	(1372)	11.63	(1.08)
3664	2-4 57/64	(734)	4-10 1/64	(1473)	11.64	(1.08)	E	2-7 1/64	(788)	4-10 1/64	(1473)	12.49	(1.16)
3672 T	2-4 57/64	(734)	5-6 1/64	(1677)	13.24	(1.23)	E	2-7 1/64	(788)	5-6 1/64	(1677)	14.22	(1.32)
3678 T	2-4 57/64	(734)	6-0 1/64	(1829)	14.45	(1.34)	E	2-7 1/64	(788)	6-0 1/64	(1829)	15.51	(1.44)
3684 T	2-4 57/64	(734)	6-6 1/64	(1981)	15.65	(1.45)	E	2-7 1/64	(788)	6-6 1/64	(1981)	16.80	(1.56)
3692 T	2-4 57/64	(734)	7-2 1/64	(2185)	17.26	(1.60)	E	2-7 1/64	(788)	7-2 1/64	(2185)	18.53	(1.72)
3696 T	2-4 57/64	(734)	7-6 1/64	(2286)	18.06	(1.68)	E	2-7 1/64	(788)	7-6 1/64	(2286)	19.39	(1.80)
4014	2-8 57/64	(835)	0-8 1/64	(203)	1.83	(0.17)		2-11 1/64	(889)	0-8 1/64	(203)	1.95	(0.18)
4016	2-8 57/64	(835)	0-10 1/64	(254)	2.29	(0.21)		2-11 1/64	(889)	0-10 1/64	(254)	2.43	(0.23)
4018	2-8 57/64	(835)	1-0 1/64	(305)	2.74	(0.25)		2-11 1/64	(889)	1-0 1/64	(305)	2.92	(0.27)
4020	2-8 57/64	(835)	1-2 1/64	(356)	3.20	(0.30)		2-11 1/64	(889)	1-2 1/64	(356)	3.41	(0.32)
4024	2-8 57/64	(835)	1-6 1/64	(457)	4.11	(0.38)		2-11 1/64	(889)	1-6 1/64	(457)	4.38	(0.41)
4028	2-8 57/64	(835)	1-10 1/64	(559)	5.03	(0.47)		2-11 1/64	(889)	1-10 1/64	(559)	5.35	(0.50)
4032	2-8 57/64	(835)	2-2 1/64	(661)	5.94	(0.55)	E	2-11 1/64	(889)	2-2 1/64	(661)	6.33	(0.59)
4036	2-8 57/64	(835)	2-6 1/64	(762)	6.85	(0.64)	E	2-11 1/64	(889)	2-6 1/64	(762)	7.30	(0.68)
4040	2-8 57/64	(835)	2-10 1/64	(864)	7.77	(0.72)	E	2-11 1/64	(889)	2-10 1/64	(864)	8.27	(0.77)
4044	2-8 57/64	(835)	3-2 1/64	(965)	8.68	(0.81)	E	2-11 1/64	(889)	3-2 1/64	(965)	9.24	(0.86)
4048	2-8 57/64	(835)	3-6 1/64	(1067)	9.60	(0.89)	E	2-11 1/64	(889)	3-6 1/64	(1067)	10.22	(0.95)
4054	2-8 57/64	(835)	4-0 1/64	(1219)	10.97	(1.02)	E	2-11 1/64	(889)	4-0 1/64	(1219)	11.67	(1.08)
4056	2-8 57/64	(835)	4-2 1/64	(1270)	11.42	(1.06)	E	2-11 1/64	(889)	4-2 1/64	(1270)	12.16	(1.13)
4060	2-8 57/64	(835)	4-6 1/64	(1372)	12.34	(1.15)	E	2-11 1/64	(889)	4-6 1/64	(1372)	13.13	(1.22)
4064	2-8 57/64	(835)	4-10 1/64	(1473)	13.25	(1.23)	E	2-11 1/64	(889)	4-10 1/64	(1473)	14.11	(1.31)
4072 T	2-8 57/64	(835)	5-6 1/64	(1677)	15.08	(1.40)	E	2-11 1/64	(889)	5-6 1/64	(1677)	16.05	(1.49)
4078 T	2-8 57/64	(835)	6-0 1/64	(1829)	16.45	(1.53)	E	2-11 1/64	(889)	6-0 1/64	(1829)	17.51	(1.63)
4084 T	2-8 57/64	(835)	6-6 1/64	(1981)	17.82	(1.66)	E	2-11 1/64	(889)	6-6 1/64	(1981)	18.97	(1.76)
4092 T	2-8 57/64	(835)	7-2 1/64	(2185)	19.65	(1.83)	E	2-11 1/64	(889)	7-2 1/64	(2185)	20.92	(1.94)

NOTE: Refer to Product Performance Chapter for International Building Code. Net Clear Opening drawings are pictured with the conversion tables.

Daylight Measurements: Casement - Full and Narrow Frame

Ultimate Casement Daylight Measurements		Width									
		CN	16		18		20		24		26	
		DLO	0-10 13/64	(259)	1-0 13/64	(310)	1-2 13/64	(361)	1-6 13/64	(462)	1-8 13/64	(513)
CN	DLO Height		Square Feet (Square Meters)									
			Standard Bottom Rail									
14	0-7 21/64	(186)	0.52	(0.05)	0.62	(0.06)	0.72	(0.07)	0.93	(0.09)	1.03	(0.10)
16	0-9 21/64	(237)	0.66	(0.06)	0.79	(0.07)	0.92	(0.09)	1.18	(0.11)	1.31	(0.12)
18	0-11 21/64	(288)	0.80	(0.07)	0.96	(0.09)	1.12	(0.10)	1.43	(0.13)	1.59	(0.15)
20	1-1 21/64	(339)	0.95	(0.09)	1.13	(0.11)	1.32	(0.12)	1.69	(0.16)	1.87	(0.17)
24	1-5 21/64	(440)	1.23	(0.11)	1.47	(0.14)	1.71	(0.16)	2.19	(0.20)	2.43	(0.23)
28	1-9 21/64	(542)	1.51	(0.14)	1.81	(0.17)	2.10	(0.20)	2.70	(0.25)	2.99	(0.28)
32	2-1 21/64	(643)	1.80	(0.17)	2.15	(0.20)	2.50	(0.23)	3.20	(0.30)	3.56	(0.33)
36	2-5 21/64	(745)	2.08	(0.19)	2.49	(0.23)	2.89	(0.27)	3.71	(0.34)	4.12	(0.38)
40	2-9 21/64	(847)	2.36	(0.22)	2.83	(0.26)	3.29	(0.31)	4.21	(0.39)	4.68	(0.43)
44	3-1 21/64	(948)	2.65	(0.25)	3.17	(0.29)	3.68	(0.34)	4.72	(0.44)	5.24	(0.49)
48	3-5 21/64	(1050)	2.93	(0.27)	3.50	(0.33)	4.08	(0.38)	5.23	(0.49)	5.80	(0.54)
54	3-11 21/64	(1202)	3.36	(0.31)	4.01	(0.37)	4.67	(0.43)	5.98	(0.56)	6.64	(0.62)
56	4-1 21/64	(1253)	3.50	(0.32)	4.18	(0.39)	4.87	(0.45)	6.24	(0.58)	6.92	(0.64)
60	4-5 21/64	(1355)	3.78	(0.35)	4.52	(0.42)	5.26	(0.49)	6.74	(0.63)	7.48	(0.70)
64	4-9 21/64	(1456)	4.06	(0.38)	4.86	(0.45)	5.66	(0.53)	7.25	(0.67)	8.05	(0.75)
72	5-5 21/64	(1659)	4.63	(0.43)	5.54	(0.51)	6.45	(0.60)	8.26	(0.77)	9.17	(0.85)
78	5-11 21/64	(1812)	5.06	(0.47)	6.05	(0.56)	7.04	(0.65)	9.02	(0.84)	10.01	(0.93)
84	6-5 21/64	(1964)	5.48	(0.51)	6.56	(0.61)	7.63	(0.71)	9.78	(0.91)	10.85	(1.01)
92	7-1 21/64	(2167)	6.05	(0.56)	7.23	(0.67)	8.42	(0.78)	10.79	(1.00)	11.98	(1.11)
96	7-5 21/64	(2269)	6.33	(0.59)	7.57	(0.70)	8.81	(0.82)	11.30	(1.05)	12.54	(1.16)
			Tall Bottom Rail									
14	0-5 53/64	(148)	0.41	(0.04)	0.49	(0.05)	0.58	(0.05)	0.74	(0.07)	0.82	(0.08)
16	0-7 53/64	(199)	0.56	(0.05)	0.66	(0.06)	0.77	(0.07)	0.99	(0.09)	1.10	(0.10)
18	0-9 53/64	(250)	0.70	(0.06)	0.83	(0.08)	0.97	(0.09)	1.24	(0.12)	1.38	(0.13)
20	0-11 53/64	(301)	0.84	(0.08)	1.00	(0.09)	1.17	(0.11)	1.50	(0.14)	1.66	(0.15)
24	1-3 53/64	(402)	1.12	(0.10)	1.34	(0.12)	1.56	(0.15)	2.00	(0.19)	2.22	(0.21)
28	1-7 53/64	(504)	1.41	(0.13)	1.68	(0.16)	1.96	(0.18)	2.51	(0.23)	2.78	(0.26)
32	1-11 53/64	(605)	1.69	(0.16)	2.02	(0.19)	2.35	(0.22)	3.01	(0.28)	3.34	(0.31)
36	2-3 53/64	(707)	1.97	(0.18)	2.36	(0.22)	2.75	(0.26)	3.52	(0.33)	3.91	(0.36)
40	2-7 53/64	(809)	2.26	(0.21)	2.70	(0.25)	3.14	(0.29)	4.03	(0.37)	4.47	(0.42)
44	2-11 53/64	(910)	2.54	(0.24)	3.04	(0.28)	3.54	(0.33)	4.53	(0.42)	5.03	(0.47)
48	3-3 53/64	(1012)	2.82	(0.26)	3.38	(0.31)	3.93	(0.37)	5.04	(0.47)	5.59	(0.52)
54	3-9 53/64	(1164)	3.25	(0.30)	3.89	(0.36)	4.52	(0.42)	5.80	(0.54)	6.43	(0.60)
56	3-11 53/64	(1215)	3.39	(0.32)	4.06	(0.38)	4.72	(0.44)	6.05	(0.56)	6.71	(0.62)
60	4-3 53/64	(1317)	3.67	(0.34)	4.39	(0.41)	5.11	(0.48)	6.55	(0.61)	7.27	(0.68)
64	4-7 53/64	(1418)	3.96	(0.37)	4.73	(0.44)	5.51	(0.51)	7.06	(0.66)	7.84	(0.73)
72	5-3 53/64	(1621)	4.53	(0.42)	5.41	(0.50)	6.30	(0.59)	8.07	(0.75)	8.96	(0.83)
78	5-9 53/64	(1774)	4.95	(0.46)	5.92	(0.55)	6.89	(0.64)	8.83	(0.82)	9.80	(0.91)
84	6-3 53/64	(1926)	5.38	(0.50)	6.43	(0.60)	7.48	(0.70)	9.59	(0.89)	10.64	(0.99)
92	6-11 53/64	(2129)	5.94	(0.55)	7.11	(0.66)	8.27	(0.77)	10.60	(0.98)	11.76	(1.09)
96	7-3 53/64	(2231)	6.23	(0.58)	7.45	(0.69)	8.67	(0.81)	11.11	(1.03)	12.33	(1.15)

Daylight Measurements: Casement - Full and Narrow Frame

Ultimate Casement Daylight Measurements		Width									
CN		28		30		32		36		40	
DLO		1-10 13/64	(564)	2-0 13/64	(615)	2-2 13/64	(666)	2-6 13/64	(767)	2-10 13/64	(869)
CN	DLO Height	Square Feet (Square Meters)									
		Standard Bottom Rail									
14	0-7 21/64 (186)	1.13	(0.11)	1.23	(0.11)	1.33	(0.12)	1.54	(0.14)	1.74	(0.16)
16	0-9 21/64 (237)	1.44	(0.13)	1.57	(0.15)	1.70	(0.16)	1.96	(0.18)	2.22	(0.21)
18	0-11 21/64 (288)	1.75	(0.16)	1.91	(0.18)	2.06	(0.19)	2.38	(0.22)	2.69	(0.25)
20	1-1 21/64 (339)	2.06	(0.19)	2.24	(0.21)	2.43	(0.23)	2.80	(0.26)	3.17	(0.29)
24	1-5 21/64 (440)	2.67	(0.25)	2.91	(0.27)	3.15	(0.29)	3.64	(0.34)	4.12	(0.38)
28	1-9 21/64 (542)	3.29	(0.31)	3.59	(0.33)	3.88	(0.36)	4.48	(0.42)	5.07	(0.47)
32	2-1 21/64 (643)	3.91	(0.36)	4.26	(0.40)	4.61	(0.43)	5.31	(0.49)	6.02	(0.56)
36	2-5 21/64 (745)	4.52	(0.42)	4.93	(0.46)	5.34	(0.50)	6.15	(0.57)	6.97	(0.65)
40	2-9 21/64 (847)	5.14	(0.48)	5.60	(0.52)	6.07	(0.56)	6.99	(0.65)	7.92	(0.74)
44	3-1 21/64 (948)	5.76	(0.53)	6.28	(0.58)	6.79	(0.63)	7.83	(0.73)	8.87	(0.82)
48	3-5 21/64 (1050)	6.37	(0.59)	6.95	(0.65)	7.52	(0.70)	8.67	(0.81)	9.82	(0.91)
54	3-11 21/64 (1202)	7.30	(0.68)	7.96	(0.74)	8.61	(0.80)	9.93	(0.92)	11.24	(1.04)
56	4-1 21/64 (1253)	7.61	(0.71)	8.29	(0.77)	8.98	(0.83)	10.35	(0.96)	11.72	(1.09)
60	4-5 21/64 (1355)	8.23	(0.76)	8.97	(0.83)	9.71	(0.90)	11.19	(1.04)	12.67	(1.18)
64	4-9 21/64 (1456)	8.84	(0.82)	9.64	(0.90)	10.43	(0.97)	12.03	(1.12)	13.62	(1.27)
72	5-5 21/64 (1659)	10.08	(0.94)	10.98	(1.02)	11.89	(1.10)	13.71	(1.27)	15.52	(1.44)
78	5-11 21/64 (1812)	11.00	(1.02)	11.99	(1.11)	12.98	(1.21)	14.96	(1.39)	16.95	(1.57)
84	6-5 21/64 (1964)	11.93	(1.11)	13.00	(1.21)	14.07	(1.31)	16.22	(1.51)	18.37	(1.71)
92	7-1 21/64 (2167)	13.16	(1.22)	14.35	(1.33)	15.53	(1.44)	17.90	(1.66)	20.27	(1.88)
96	7-5 21/64 (2269)	13.78	(1.28)	15.02	(1.40)	16.26	(1.51)	18.74	(1.74)	N/A	
		Tall Bottom Rail									
14	0-5 53/64 (148)	0.90	(0.08)	0.98	(0.09)	1.06	(0.10)	1.22	(0.11)	1.39	(0.13)
16	0-7 53/64 (199)	1.21	(0.11)	1.32	(0.12)	1.43	(0.13)	1.64	(0.15)	1.86	(0.17)
18	0-9 53/64 (250)	1.52	(0.14)	1.65	(0.15)	1.79	(0.17)	2.06	(0.19)	2.34	(0.22)
20	0-11 53/64 (301)	1.82	(0.17)	1.99	(0.18)	2.15	(0.20)	2.48	(0.23)	2.81	(0.26)
24	1-3 53/64 (402)	2.44	(0.23)	2.66	(0.25)	2.88	(0.27)	3.32	(0.31)	3.76	(0.35)
28	1-7 53/64 (504)	3.06	(0.28)	3.33	(0.31)	3.61	(0.34)	4.16	(0.39)	4.71	(0.44)
32	1-11 53/64 (605)	3.68	(0.34)	4.01	(0.37)	4.34	(0.40)	5.00	(0.46)	5.66	(0.53)
36	2-3 53/64 (707)	4.29	(0.40)	4.68	(0.43)	5.07	(0.47)	5.84	(0.54)	6.61	(0.61)
40	2-7 53/64 (809)	4.91	(0.46)	5.35	(0.50)	5.79	(0.54)	6.68	(0.62)	7.56	(0.70)
44	2-11 53/64 (910)	5.53	(0.51)	6.02	(0.56)	6.52	(0.61)	7.52	(0.70)	8.51	(0.79)
48	3-3 53/64 (1012)	6.14	(0.57)	6.70	(0.62)	7.25	(0.67)	8.36	(0.78)	9.46	(0.88)
54	3-9 53/64 (1164)	7.07	(0.66)	7.71	(0.72)	8.34	(0.77)	9.61	(0.89)	10.89	(1.01)
56	3-11 53/64 (1215)	7.38	(0.69)	8.04	(0.75)	8.71	(0.81)	10.03	(0.93)	11.36	(1.06)
60	4-3 53/64 (1317)	7.99	(0.74)	8.71	(0.81)	9.43	(0.88)	10.87	(1.01)	12.31	(1.14)
64	4-7 53/64 (1418)	8.61	(0.80)	9.39	(0.87)	10.16	(0.94)	11.71	(1.09)	13.26	(1.23)
72	5-3 53/64 (1621)	9.84	(0.91)	10.73	(1.00)	11.62	(1.08)	13.39	(1.24)	15.16	(1.41)
78	5-9 53/64 (1774)	10.77	(1.00)	11.74	(1.09)	12.71	(1.18)	14.65	(1.36)	16.59	(1.54)
84	6-3 53/64 (1926)	11.70	(1.09)	12.75	(1.18)	13.80	(1.28)	15.91	(1.48)	18.01	(1.67)
92	6-11 53/64 (2129)	12.93	(1.20)	14.09	(1.31)	15.26	(1.42)	17.59	(1.63)	19.91	(1.85)
96	7-3 53/64 (2231)	13.55	(1.26)	14.77	(1.37)	15.99	(1.49)	18.43	(1.71)	N/A	

Vent Openings: Awning - Full and Narrow Frame

CN	Opening Vent Width		Opening Vent Height		Vent Opening	
	ft - in	mm	ft - in	mm	ft^2	m^2
1614	0-11 1/64	(280)	0-8 1/64	(203)	0.61	(0.06)
1616	0-11 1/64	(280)	0-10 1/64	(254)	0.77	(0.07)
1618	0-11 1/64	(280)	1-0 1/64	(305)	0.92	(0.09)
1620	0-11 1/64	(280)	1-2 1/64	(356)	1.07	(0.10)
1624	0-11 1/64	(280)	1-6 1/64	(457)	1.38	(0.13)
1628	0-11 1/64	(280)	1-10 1/64	(559)	1.68	(0.16)
1632	0-11 1/64	(280)	2-2 1/64	(661)	1.99	(0.18)
1636	0-11 1/64	(280)	2-6 1/64	(762)	2.30	(0.21)
1640	0-11 1/64	(280)	2-10 1/64	(864)	2.60	(0.24)
1644	0-11 1/64	(280)	3-2 1/64	(965)	2.91	(0.27)
1648	0-11 1/64	(280)	3-6 1/64	(1067)	3.21	(0.30)
1654	0-11 1/64	(280)	4-0 1/64	(1219)	3.67	(0.34)
1656	0-11 1/64	(280)	4-2 1/64	(1270)	3.83	(0.36)
1660	0-11 1/64	(280)	4-6 1/64	(1372)	4.13	(0.38)
1664	0-11 1/64	(280)	4-10 1/64	(1473)	4.44	(0.41)
1672 T	0-11 1/64	(280)	5-6 1/64	(1677)	5.05	(0.47)
1814	1-1 1/64	(331)	0-8 1/64	(203)	0.72	(0.07)
1816	1-1 1/64	(331)	0-10 1/64	(254)	0.90	(0.08)
1818	1-1 1/64	(331)	1-0 1/64	(305)	1.09	(0.10)
1820	1-1 1/64	(331)	1-2 1/64	(356)	1.27	(0.12)
1824	1-1 1/64	(331)	1-6 1/64	(457)	1.63	(0.15)
1828	1-1 1/64	(331)	1-10 1/64	(559)	1.99	(0.18)
1832	1-1 1/64	(331)	2-2 1/64	(661)	2.35	(0.22)
1836	1-1 1/64	(331)	2-6 1/64	(762)	2.71	(0.25)
1840	1-1 1/64	(331)	2-10 1/64	(864)	3.07	(0.29)
1844	1-1 1/64	(331)	3-2 1/64	(965)	3.44	(0.32)
1848	1-1 1/64	(331)	3-6 1/64	(1067)	3.80	(0.35)
1854	1-1 1/64	(331)	4-0 1/64	(1219)	4.34	(0.40)
1856	1-1 1/64	(331)	4-2 1/64	(1270)	4.52	(0.42)
1860	1-1 1/64	(331)	4-6 1/64	(1372)	4.88	(0.45)
1864	1-1 1/64	(331)	4-10 1/64	(1473)	5.24	(0.49)
1872 T	1-1 1/64	(331)	5-6 1/64	(1677)	5.97	(0.55)
2014	1-3 1/64	(381)	0-8 1/64	(203)	0.84	(0.08)
2016	1-3 1/64	(381)	0-10 1/64	(254)	1.04	(0.10)
2018	1-3 1/64	(381)	1-0 1/64	(305)	1.25	(0.12)
2020	1-3 1/64	(381)	1-2 1/64	(356)	1.46	(0.14)
2024	1-3 1/64	(381)	1-6 1/64	(457)	1.88	(0.17)
2028	1-3 1/64	(381)	1-10 1/64	(559)	2.30	(0.21)
2032	1-3 1/64	(381)	2-2 1/64	(661)	2.71	(0.25)
2036	1-3 1/64	(381)	2-6 1/64	(762)	3.13	(0.29)
2040	1-3 1/64	(381)	2-10 1/64	(864)	3.55	(0.33)
2044	1-3 1/64	(381)	3-2 1/64	(965)	3.96	(0.37)
2048	1-3 1/64	(381)	3-6 1/64	(1067)	4.38	(0.41)
2054	1-3 1/64	(381)	4-0 1/64	(1219)	5.01	(0.47)
2056	1-3 1/64	(381)	4-2 1/64	(1270)	5.22	(0.48)
2060	1-3 1/64	(381)	4-6 1/64	(1372)	5.63	(0.52)
2064	1-3 1/64	(381)	4-10 1/64	(1473)	6.05	(0.56)
2072 T	1-3 1/64	(381)	5-6 1/64	(1677)	6.88	(0.64)

CN	Opening Vent Width		Opening Vent Height		Vent Opening	
	ft - in	mm	ft - in	mm	ft^2	m^2
2414	1-7 1/64	(483)	0-8 1/64	(203)	1.06	(0.10)
2416	1-7 1/64	(483)	0-10 1/64	(254)	1.32	(0.12)
2418	1-7 1/64	(483)	1-0 1/64	(305)	1.59	(0.15)
2420	1-7 1/64	(483)	1-2 1/64	(356)	1.85	(0.17)
2424	1-7 1/64	(483)	1-6 1/64	(457)	2.38	(0.22)
2428	1-7 1/64	(483)	1-10 1/64	(559)	2.91	(0.27)
2432	1-7 1/64	(483)	2-2 1/64	(661)	3.43	(0.32)
2436	1-7 1/64	(483)	2-6 1/64	(762)	3.96	(0.37)
2440	1-7 1/64	(483)	2-10 1/64	(864)	4.49	(0.42)
2444	1-7 1/64	(483)	3-2 1/64	(965)	5.02	(0.47)
2448	1-7 1/64	(483)	3-6 1/64	(1067)	5.55	(0.52)
2454	1-7 1/64	(483)	4-0 1/64	(1219)	6.34	(0.59)
2456	1-7 1/64	(483)	4-2 1/64	(1270)	6.60	(0.61)
2460	1-7 1/64	(483)	4-6 1/64	(1372)	7.13	(0.66)
2464	1-7 1/64	(483)	4-10 1/64	(1473)	7.66	(0.71)
2472 T	1-7 1/64	(483)	5-6 1/64	(1677)	8.72	(0.81)
2614	1-9 1/64	(534)	0-8 1/64	(203)	1.17	(0.11)
2616	1-9 1/64	(534)	0-10 1/64	(254)	1.46	(0.14)
2618	1-9 1/64	(534)	1-0 1/64	(305)	1.75	(0.16)
2620	1-9 1/64	(534)	1-2 1/64	(356)	2.04	(0.19)
2624	1-9 1/64	(534)	1-6 1/64	(457)	2.63	(0.24)
2628	1-9 1/64	(534)	1-10 1/64	(559)	3.21	(0.30)
2632	1-9 1/64	(534)	2-2 1/64	(661)	3.80	(0.35)
2636	1-9 1/64	(534)	2-6 1/64	(762)	4.38	(0.41)
2640	1-9 1/64	(534)	2-10 1/64	(864)	4.96	(0.46)
2644	1-9 1/64	(534)	3-2 1/64	(965)	5.55	(0.52)
2648	1-9 1/64	(534)	3-6 1/64	(1067)	6.13	(0.57)
2654	1-9 1/64	(534)	4-0 1/64	(1219)	7.01	(0.65)
2656	1-9 1/64	(534)	4-2 1/64	(1270)	7.30	(0.68)
2660	1-9 1/64	(534)	4-6 1/64	(1372)	7.88	(0.73)
2664	1-9 1/64	(534)	4-10 1/64	(1473)	8.47	(0.79)
2672 T	1-9 1/64	(534)	5-6 1/64	(1677)	9.63	(0.90)
2814	1-11 1/64	(585)	0-8 1/64	(203)	1.28	(0.12)
2816	1-11 1/64	(585)	0-10 1/64	(254)	1.60	(0.15)
2818	1-11 1/64	(585)	1-0 1/64	(305)	1.92	(0.18)
2820	1-11 1/64	(585)	1-2 1/64	(356)	2.24	(0.21)
2824	1-11 1/64	(585)	1-6 1/64	(457)	2.88	(0.27)
2828	1-11 1/64	(585)	1-10 1/64	(559)	3.52	(0.33)
2832	1-11 1/64	(585)	2-2 1/64	(661)	4.16	(0.39)
2836	1-11 1/64	(585)	2-6 1/64	(762)	4.80	(0.45)
2840	1-11 1/64	(585)	2-10 1/64	(864)	5.44	(0.51)
2844	1-11 1/64	(585)	3-2 1/64	(965)	6.08	(0.56)
2848	1-11 1/64	(585)	3-6 1/64	(1067)	6.71	(0.62)
2854	1-11 1/64	(585)	4-0 1/64	(1219)	7.67	(0.71)
2856	1-11 1/64	(585)	4-2 1/64	(1270)	7.99	(0.74)
2860	1-11 1/64	(585)	4-6 1/64	(1372)	8.63	(0.80)
2864	1-11 1/64	(585)	4-10 1/64	(1473)	9.27	(0.86)
2872 T	1-11 1/64	(585)	5-6 1/64	(1677)	10.55	(0.98)

Vent Openings: Awning - Full and Narrow Frame

CN	Opening Vent Width		Opening Vent Height		Vent Opening	
	ft - in	mm	ft - in	mm	ft^2	m^2
3014	2-1 1/64	(635)	0-8 1/64	(203)	1.39	(0.13)
3016	2-1 1/64	(635)	0-10 1/64	(254)	1.74	(0.16)
3018	2-1 1/64	(635)	1-0 1/64	(305)	2.09	(0.19)
3020	2-1 1/64	(635)	1-2 1/64	(356)	2.43	(0.23)
3024	2-1 1/64	(635)	1-6 1/64	(457)	3.13	(0.29)
3028	2-1 1/64	(635)	1-10 1/64	(559)	3.82	(0.36)
3032	2-1 1/64	(635)	2-2 1/64	(661)	4.52	(0.42)
3036	2-1 1/64	(635)	2-6 1/64	(762)	5.21	(0.48)
3040	2-1 1/64	(635)	2-10 1/64	(864)	5.91	(0.55)
3044	2-1 1/64	(635)	3-2 1/64	(965)	6.60	(0.61)
3048	2-1 1/64	(635)	3-6 1/64	(1067)	7.30	(0.68)
3054	2-1 1/64	(635)	4-0 1/64	(1219)	8.34	(0.77)
3056	2-1 1/64	(635)	4-2 1/64	(1270)	8.69	(0.81)
3060	2-1 1/64	(635)	4-6 1/64	(1372)	9.38	(0.87)
3064	2-1 1/64	(635)	4-10 1/64	(1473)	10.08	(0.94)
3072 T	2-1 1/64	(635)	5-6 1/64	(1677)	11.47	(1.07)
3214	2-3 1/64	(686)	0-8 1/64	(203)	1.50	(0.14)
3216	2-3 1/64	(686)	0-10 1/64	(254)	1.88	(0.17)
3218	2-3 1/64	(686)	1-0 1/64	(305)	2.25	(0.21)
3220	2-3 1/64	(686)	1-2 1/64	(356)	2.63	(0.24)
3224	2-3 1/64	(686)	1-6 1/64	(457)	3.38	(0.31)
3228	2-3 1/64	(686)	1-10 1/64	(559)	4.13	(0.38)
3232	2-3 1/64	(686)	2-2 1/64	(661)	4.88	(0.45)
3236	2-3 1/64	(686)	2-6 1/64	(762)	5.63	(0.52)
3240	2-3 1/64	(686)	2-10 1/64	(864)	6.38	(0.59)
3244	2-3 1/64	(686)	3-2 1/64	(965)	7.13	(0.66)
3248	2-3 1/64	(686)	3-6 1/64	(1067)	7.88	(0.73)
3254	2-3 1/64	(686)	4-0 1/64	(1219)	9.01	(0.84)
3256	2-3 1/64	(686)	4-2 1/64	(1270)	9.38	(0.87)
3260	2-3 1/64	(686)	4-6 1/64	(1372)	10.13	(0.94)
3264	2-3 1/64	(686)	4-10 1/64	(1473)	10.88	(1.01)
3272 T	2-3 1/64	(686)	5-6 1/64	(1677)	12.38	(1.15)
3614	2-7 1/64	(788)	0-8 1/64	(203)	1.73	(0.16)
3616	2-7 1/64	(788)	0-10 1/64	(254)	2.16	(0.20)
3618	2-7 1/64	(788)	1-0 1/64	(305)	2.59	(0.24)
3620	2-7 1/64	(788)	1-2 1/64	(356)	3.02	(0.28)
3624	2-7 1/64	(788)	1-6 1/64	(457)	3.88	(0.36)
3628	2-7 1/64	(788)	1-10 1/64	(559)	4.74	(0.44)
3632	2-7 1/64	(788)	2-2 1/64	(661)	5.60	(0.52)
3636	2-7 1/64	(788)	2-6 1/64	(762)	6.46	(0.60)
3640	2-7 1/64	(788)	2-10 1/64	(864)	7.33	(0.68)
3644	2-7 1/64	(788)	3-2 1/64	(965)	8.19	(0.76)
3648	2-7 1/64	(788)	3-6 1/64	(1067)	9.05	(0.84)
3654	2-7 1/64	(788)	4-0 1/64	(1219)	10.34	(0.96)
3656	2-7 1/64	(788)	4-2 1/64	(1270)	10.77	(1.00)
3660	2-7 1/64	(788)	4-6 1/64	(1372)	11.63	(1.08)
3664	2-7 1/64	(788)	4-10 1/64	(1473)	12.49	(1.16)
3672 T	2-7 1/64	(788)	5-6 1/64	(1677)	14.22	(1.32)

CN	Opening Vent Width		Opening Vent Height		Vent Opening	
	ft - in	mm	ft - in	mm	ft^2	m^2
4014	2-11 1/64	(889)	0-8 1/64	(203)	1.95	(0.18)
4016	2-11 1/64	(889)	0-10 1/64	(254)	2.43	(0.23)
4018	2-11 1/64	(889)	1-0 1/64	(305)	2.92	(0.27)
4020	2-11 1/64	(889)	1-2 1/64	(356)	3.41	(0.32)
4024	2-11 1/64	(889)	1-6 1/64	(457)	4.38	(0.41)
4028	2-11 1/64	(889)	1-10 1/64	(559)	5.35	(0.50)
4032	2-11 1/64	(889)	2-2 1/64	(661)	6.33	(0.59)
4036	2-11 1/64	(889)	2-6 1/64	(762)	7.30	(0.68)
4040	2-11 1/64	(889)	2-10 1/64	(864)	8.27	(0.77)
4044	2-11 1/64	(889)	3-2 1/64	(965)	9.24	(0.86)
4048	2-11 1/64	(889)	3-6 1/64	(1067)	10.22	(0.95)
4054	2-11 1/64	(889)	4-0 1/64	(1219)	11.67	(1.08)
4056	2-11 1/64	(889)	4-2 1/64	(1270)	12.16	(1.13)
4060	2-11 1/64	(889)	4-6 1/64	(1372)	13.13	(1.22)
4064	2-11 1/64	(889)	4-10 1/64	(1473)	14.11	(1.31)
4072 T	2-11 1/64	(889)	5-6 1/64	(1677)	16.05	(1.49)
4814	3-7 1/64	(1093)	0-8 1/64	(203)	2.39	(0.22)
4816	3-7 1/64	(1093)	0-10 1/64	(254)	2.99	(0.28)
4818	3-7 1/64	(1093)	1-0 1/64	(305)	3.59	(0.33)
4820	3-7 1/64	(1093)	1-2 1/64	(356)	4.19	(0.39)
4824	3-7 1/64	(1093)	1-6 1/64	(457)	5.38	(0.50)
4828	3-7 1/64	(1093)	1-10 1/64	(559)	6.58	(0.61)
4832	3-7 1/64	(1093)	2-2 1/64	(661)	7.77	(0.72)
4836	3-7 1/64	(1093)	2-6 1/64	(762)	8.96	(0.83)
4840	3-7 1/64	(1093)	2-10 1/64	(864)	10.16	(0.94)
4844	3-7 1/64	(1093)	3-2 1/64	(965)	11.35	(1.05)
4848	3-7 1/64	(1093)	3-6 1/64	(1067)	12.55	(1.17)
4854	3-7 1/64	(1093)	4-0 1/64	(1219)	14.34	(1.33)
4856	3-7 1/64	(1093)	4-2 1/64	(1270)	14.94	(1.39)
4860	3-7 1/64	(1093)	4-6 1/64	(1372)	16.13	(1.50)
4864	3-7 1/64	(1093)	4-10 1/64	(1473)	17.33	(1.61)
4872 T	3-7 1/64	(1093)	5-6 1/64	(1677)	19.72	(1.83)
5614	4-3 1/64	(1296)	0-8 1/64	(203)	2.84	(0.26)
5616	4-3 1/64	(1296)	0-10 1/64	(254)	3.55	(0.33)
5618	4-3 1/64	(1296)	1-0 1/64	(305)	4.26	(0.40)
5620	4-3 1/64	(1296)	1-2 1/64	(356)	4.96	(0.46)
5624	4-3 1/64	(1296)	1-6 1/64	(457)	6.38	(0.59)
5628	4-3 1/64	(1296)	1-10 1/64	(559)	7.80	(0.72)
5632	4-3 1/64	(1296)	2-2 1/64	(661)	9.22	(0.86)
5636	4-3 1/64	(1296)	2-6 1/64	(762)	10.63	(0.99)
5640	4-3 1/64	(1296)	2-10 1/64	(864)	12.05	(1.12)
5644	4-3 1/64	(1296)	3-2 1/64	(965)	13.47	(1.25)
5648	4-3 1/64	(1296)	3-6 1/64	(1067)	14.88	(1.38)
5654	4-3 1/64	(1296)	4-0 1/64	(1219)	17.01	(1.58)
5656	4-3 1/64	(1296)	4-2 1/64	(1270)	17.72	(1.65)
5660	4-3 1/64	(1296)	4-6 1/64	(1372)	19.13	(1.78)
5664	4-3 1/64	(1296)	4-10 1/64	(1473)	20.55	(1.91)
5672 T	4-3 1/64	(1296)	5-6 1/64	(1677)	23.39	(2.17)

Vent Openings: Awning - Full and Narrow Frame

CN	Opening Vent Width		Opening Vent Height		Vent Opening	
	ft - in	mm	ft - in	mm	ft^2	m^2
6014	4-7 1/64	(1397)	0-8 1/64	(203)	3.06	(0.28)
6016	4-7 1/64	(1397)	0-10 1/64	(254)	3.82	(0.36)
6018	4-7 1/64	(1397)	1-0 1/64	(305)	4.59	(0.43)
6020	4-7 1/64	(1397)	1-2 1/64	(356)	5.35	(0.50)
6024	4-7 1/64	(1397)	1-6 1/64	(457)	6.88	(0.64)
6028	4-7 1/64	(1397)	1-10 1/64	(559)	8.41	(0.78)
6032	4-7 1/64	(1397)	2-2 1/64	(661)	9.94	(0.92)
6036	4-7 1/64	(1397)	2-6 1/64	(762)	11.47	(1.07)
6040	4-7 1/64	(1397)	2-10 1/64	(864)	12.99	(1.21)
6044	4-7 1/64	(1397)	3-2 1/64	(965)	14.52	(1.35)
6048	4-7 1/64	(1397)	3-6 1/64	(1067)	16.05	(1.49)
6054	4-7 1/64	(1397)	4-0 1/64	(1219)	18.34	(1.70)
6056	4-7 1/64	(1397)	4-2 1/64	(1270)	19.11	(1.78)
6060	4-7 1/64	(1397)	4-6 1/64	(1372)	20.64	(1.92)
6064 T	4-7 1/64	(1397)	4-10 1/64	(1473)	22.16	(2.06)
6072 T	4-7 1/64	(1397)	5-6 1/64	(1677)	25.22	(2.34)
6414	4-11 1/64	(1499)	0-8 1/64	(203)	3.28	(0.31)
6416	4-11 1/64	(1499)	0-10 1/64	(254)	4.10	(0.38)
6418	4-11 1/64	(1499)	1-0 1/64	(305)	4.92	(0.46)
6420	4-11 1/64	(1499)	1-2 1/64	(356)	5.74	(0.53)
6424	4-11 1/64	(1499)	1-6 1/64	(457)	7.38	(0.69)
6428	4-11 1/64	(1499)	1-10 1/64	(559)	9.02	(0.84)
6432	4-11 1/64	(1499)	2-2 1/64	(661)	10.66	(0.99)
6436	4-11 1/64	(1499)	2-6 1/64	(762)	12.30	(1.14)
6440	4-11 1/64	(1499)	2-10 1/64	(864)	13.94	(1.29)
6444	4-11 1/64	(1499)	3-2 1/64	(965)	15.58	(1.45)
6448	4-11 1/64	(1499)	3-6 1/64	(1067)	17.22	(1.60)
6454	4-11 1/64	(1499)	4-0 1/64	(1219)	19.68	(1.83)
6456	4-11 1/64	(1499)	4-2 1/64	(1270)	20.50	(1.90)
6460 T	4-11 1/64	(1499)	4-6 1/64	(1372)	22.14	(2.06)
6464 T	4-11 1/64	(1499)	4-10 1/64	(1473)	23.77	(2.21)
6472 T	4-11 1/64	(1499)	5-6 1/64	(1677)	27.05	(2.51)
7214	5-7 1/64	(1702)	0-8 1/64	(203)	3.73	(0.35)
7216	5-7 1/64	(1702)	0-10 1/64	(254)	4.66	(0.43)
7218	5-7 1/64	(1702)	1-0 1/64	(305)	5.59	(0.52)
7220	5-7 1/64	(1702)	1-2 1/64	(356)	6.52	(0.61)
7224	5-7 1/64	(1702)	1-6 1/64	(457)	8.38	(0.78)
7228	5-7 1/64	(1702)	1-10 1/64	(559)	10.24	(0.95)
7232	5-7 1/64	(1702)	2-2 1/64	(661)	12.11	(1.12)
7236	5-7 1/64	(1702)	2-6 1/64	(762)	13.97	(1.30)
7240	5-7 1/64	(1702)	2-10 1/64	(864)	15.83	(1.47)
7244	5-7 1/64	(1702)	3-2 1/64	(965)	17.69	(1.64)
7248	5-7 1/64	(1702)	3-6 1/64	(1067)	19.55	(1.82)
7254 T	5-7 1/64	(1702)	4-0 1/64	(1219)	22.34	(2.08)
7256 T	5-7 1/64	(1702)	4-2 1/64	(1270)	23.27	(2.16)
7260 T	5-7 1/64	(1702)	4-6 1/64	(1372)	25.14	(2.34)
7264 T	5-7 1/64	(1702)	4-10 1/64	(1473)	27.00	(2.51)
7272 T	5-7 1/64	(1702)	5-6 1/64	(1677)	30.72	(2.85)

Daylight Measurement: Awning - Full and Narrow Frame

Ultimate Awning Daylight Measurements		Width									
	CN	16		18		20		24		26	
	DLO	0-10 13/64	(259)	1-0 13/64	(310)	1-2 13/64	(361)	1-6 13/64	(462)	1-8 13/64	(513)
CN	DLO Height	Square Feet (Square Meters)									
		Standard Bottom Rail									
14	0-7 21/64 (186)	0.52	(0.05)	0.62	(0.06)	0.72	(0.07)	0.93	(0.09)	1.03	(0.10)
16	0-9 21/64 (237)	0.66	(0.06)	0.79	(0.07)	0.92	(0.09)	1.18	(0.11)	1.31	(0.12)
18	0-11 21/64 (288)	0.80	(0.07)	0.96	(0.09)	1.12	(0.10)	1.43	(0.13)	1.59	(0.15)
20	1-1 21/64 (339)	0.95	(0.09)	1.13	(0.11)	1.32	(0.12)	1.69	(0.16)	1.87	(0.17)
24	1-5 21/64 (440)	1.23	(0.11)	1.47	(0.14)	1.71	(0.16)	2.19	(0.20)	2.43	(0.23)
28	1-9 21/64 (542)	1.51	(0.14)	1.81	(0.17)	2.10	(0.20)	2.70	(0.25)	2.99	(0.28)
32	2-1 21/64 (643)	1.80	(0.17)	2.15	(0.20)	2.50	(0.23)	3.20	(0.30)	3.56	(0.33)
36	2-5 21/64 (745)	2.08	(0.19)	2.49	(0.23)	2.89	(0.27)	3.71	(0.34)	4.12	(0.38)
40	2-9 21/64 (847)	2.36	(0.22)	2.83	(0.26)	3.29	(0.31)	4.21	(0.39)	4.68	(0.43)
44	3-1 21/64 (948)	2.65	(0.25)	3.17	(0.29)	3.68	(0.34)	4.72	(0.44)	5.24	(0.49)
48	3-5 21/64 (1050)	2.93	(0.27)	3.50	(0.33)	4.08	(0.38)	5.23	(0.49)	5.80	(0.54)
54	3-11 21/64 (1202)	3.36	(0.31)	4.01	(0.37)	4.67	(0.43)	5.98	(0.56)	6.64	(0.62)
56	4-1 21/64 (1253)	3.50	(0.32)	4.18	(0.39)	4.87	(0.45)	6.24	(0.58)	6.92	(0.64)
60	4-5 21/64 (1355)	3.78	(0.35)	4.52	(0.42)	5.26	(0.49)	6.74	(0.63)	7.48	(0.70)
64	4-9 21/64 (1456)	4.06	(0.38)	4.86	(0.45)	5.66	(0.53)	7.25	(0.67)	8.05	(0.75)
72	5-5 21/64 (1659)	4.63	(0.43)	5.54	(0.51)	6.45	(0.60)	8.26	(0.77)	9.17	(0.85)
		Tall Bottom Rail									
14	0-5 53/64 (148)	0.41	(0.04)	0.49	(0.05)	0.58	(0.05)	0.74	(0.07)	0.82	(0.08)
16	0-7 53/64 (199)	0.56	(0.05)	0.66	(0.06)	0.77	(0.07)	0.99	(0.09)	1.10	(0.10)
18	0-9 53/64 (250)	0.70	(0.06)	0.83	(0.08)	0.97	(0.09)	1.24	(0.12)	1.38	(0.13)
20	0-11 53/64 (301)	0.84	(0.08)	1.00	(0.09)	1.17	(0.11)	1.50	(0.14)	1.66	(0.15)
24	1-3 53/64 (402)	1.12	(0.10)	1.34	(0.12)	1.56	(0.15)	2.00	(0.19)	2.22	(0.21)
28	1-7 53/64 (504)	1.41	(0.13)	1.68	(0.16)	1.96	(0.18)	2.51	(0.23)	2.78	(0.26)
32	1-11 53/64 (605)	1.69	(0.16)	2.02	(0.19)	2.35	(0.22)	3.01	(0.28)	3.34	(0.31)
36	2-3 53/64 (707)	1.97	(0.18)	2.36	(0.22)	2.75	(0.26)	3.52	(0.33)	3.91	(0.36)
40	2-7 53/64 (809)	2.26	(0.21)	2.70	(0.25)	3.14	(0.29)	4.03	(0.37)	4.47	(0.42)
44	2-11 53/64 (910)	2.54	(0.24)	3.04	(0.28)	3.54	(0.33)	4.53	(0.42)	5.03	(0.47)
48	3-3 53/64 (1012)	2.82	(0.26)	3.38	(0.31)	3.93	(0.37)	5.04	(0.47)	5.59	(0.52)
54	3-9 53/64 (1164)	3.25	(0.30)	3.89	(0.36)	4.52	(0.42)	5.80	(0.54)	6.43	(0.60)
56	3-11 53/64 (1215)	3.39	(0.32)	4.06	(0.38)	4.72	(0.44)	6.05	(0.56)	6.71	(0.62)
60	4-3 53/64 (1317)	3.67	(0.34)	4.39	(0.41)	5.11	(0.48)	6.55	(0.61)	7.27	(0.68)
64	4-7 53/64 (1418)	3.96	(0.37)	4.73	(0.44)	5.51	(0.51)	7.06	(0.66)	7.84	(0.73)
72	5-3 53/64 (1621)	4.53	(0.42)	5.41	(0.50)	6.30	(0.59)	8.07	(0.75)	8.96	(0.83)

Daylight Measurement: Awning - Full and Narrow Frame

Ultimate Awning Daylight Measurements		Width									
CN		28		30		32		36		40	
DLO		1-10 13/64	(564)	2-0 13/64	(615)	2-2 13/64	(666)	2-6 13/64	(767)	2-10 13/64	(869)
CN	DLO Height	Square Feet (Square Meters)									
		Standard Bottom Rail									
14	0-7 21/64 (186)	1.13	(0.11)	1.23	(0.11)	1.33	(0.12)	1.54	(0.14)	1.74	(0.16)
16	0-9 21/64 (237)	1.44	(0.13)	1.57	(0.15)	1.70	(0.16)	1.96	(0.18)	2.22	(0.21)
18	0-11 21/64 (288)	1.75	(0.16)	1.91	(0.18)	2.06	(0.19)	2.38	(0.22)	2.69	(0.25)
20	1-1 21/64 (339)	2.06	(0.19)	2.24	(0.21)	2.43	(0.23)	2.80	(0.26)	3.17	(0.29)
24	1-5 21/64 (440)	2.67	(0.25)	2.91	(0.27)	3.15	(0.29)	3.64	(0.34)	4.12	(0.38)
28	1-9 21/64 (542)	3.29	(0.31)	3.59	(0.33)	3.88	(0.36)	4.48	(0.42)	5.07	(0.47)
32	2-1 21/64 (643)	3.91	(0.36)	4.26	(0.40)	4.61	(0.43)	5.31	(0.49)	6.02	(0.56)
36	2-5 21/64 (745)	4.52	(0.42)	4.93	(0.46)	5.34	(0.50)	6.15	(0.57)	6.97	(0.65)
40	2-9 21/64 (847)	5.14	(0.48)	5.60	(0.52)	6.07	(0.56)	6.99	(0.65)	7.92	(0.74)
44	3-1 21/64 (948)	5.76	(0.53)	6.28	(0.58)	6.79	(0.63)	7.83	(0.73)	8.87	(0.82)
48	3-5 21/64 (1050)	6.37	(0.59)	6.95	(0.65)	7.52	(0.70)	8.67	(0.81)	9.82	(0.91)
54	3-11 21/64 (1202)	7.30	(0.68)	7.96	(0.74)	8.61	(0.80)	9.93	(0.92)	11.24	(1.04)
56	4-1 21/64 (1253)	7.61	(0.71)	8.29	(0.77)	8.98	(0.83)	10.35	(0.96)	11.72	(1.09)
60	4-5 21/64 (1355)	8.23	(0.76)	8.97	(0.83)	9.71	(0.90)	11.19	(1.04)	12.67	(1.18)
64	4-9 21/64 (1456)	8.84	(0.82)	9.64	(0.90)	10.43	(0.97)	12.03	(1.12)	13.62	(1.27)
72	5-5 21/64 (1659)	10.08	(0.94)	10.98	(1.02)	11.89	(1.10)	13.71	(1.27)	15.52	(1.44)
		Tall Bottom Rail									
14	0-5 53/64 (148)	0.90	(0.08)	0.98	(0.09)	1.06	(0.10)	1.22	(0.11)	1.39	(0.13)
16	0-7 53/64 (199)	1.21	(0.11)	1.32	(0.12)	1.43	(0.13)	1.64	(0.15)	1.86	(0.17)
18	0-9 53/64 (250)	1.52	(0.14)	1.65	(0.15)	1.79	(0.17)	2.06	(0.19)	2.34	(0.22)
20	0-11 53/64 (301)	1.82	(0.17)	1.99	(0.18)	2.15	(0.20)	2.48	(0.23)	2.81	(0.26)
24	1-3 53/64 (402)	2.44	(0.23)	2.66	(0.25)	2.88	(0.27)	3.32	(0.31)	3.76	(0.35)
28	1-7 53/64 (504)	3.06	(0.28)	3.33	(0.31)	3.61	(0.34)	4.16	(0.39)	4.71	(0.44)
32	1-11 53/64 (605)	3.68	(0.34)	4.01	(0.37)	4.34	(0.40)	5.00	(0.46)	5.66	(0.53)
36	2-3 53/64 (707)	4.29	(0.40)	4.68	(0.43)	5.07	(0.47)	5.84	(0.54)	6.61	(0.61)
40	2-7 53/64 (809)	4.91	(0.46)	5.35	(0.50)	5.79	(0.54)	6.68	(0.62)	7.56	(0.70)
44	2-11 53/64 (910)	5.53	(0.51)	6.02	(0.56)	6.52	(0.61)	7.52	(0.70)	8.51	(0.79)
48	3-3 53/64 (1012)	6.14	(0.57)	6.70	(0.62)	7.25	(0.67)	8.36	(0.78)	9.46	(0.88)
54	3-9 53/64 (1164)	7.07	(0.66)	7.71	(0.72)	8.34	(0.77)	9.61	(0.89)	10.89	(1.01)
56	3-11 53/64 (1215)	7.38	(0.69)	8.04	(0.75)	8.71	(0.81)	10.03	(0.93)	11.36	(1.06)
60	4-3 53/64 (1317)	7.99	(0.74)	8.71	(0.81)	9.43	(0.88)	10.87	(1.01)	12.31	(1.14)
64	4-7 53/64 (1418)	8.61	(0.80)	9.39	(0.87)	10.16	(0.94)	11.71	(1.09)	13.26	(1.23)
72	5-3 53/64 (1621)	9.84	(0.91)	10.73	(1.00)	11.62	(1.08)	13.39	(1.24)	15.16	(1.41)

Daylight Measurement: Awning - Full and Narrow Frame

Ultimate Awning Daylight Measurements		Width									
CN		48		56		60		64		72	
DLO		3-6 13/64	(1072)	4-2 13/64	(1275)	4-6 13/64	(1377)	4-10 13/64	(1478)	5-6 13/64	(1682)
CN	DLO Height	Square Feet (Square Meters)									
		Standard Bottom Rail									
14	0-7 21/64 (186)	2.15	(0.20)	2.56	(0.24)	2.76	(0.26)	2.96	(0.28)	3.37	(0.31)
16	0-9 21/64 (237)	2.74	(0.25)	3.25	(0.30)	3.51	(0.33)	3.77	(0.35)	4.29	(0.40)
18	0-11 21/64 (288)	3.32	(0.31)	3.95	(0.37)	4.27	(0.40)	4.58	(0.43)	5.21	(0.48)
20	1-1 21/64 (339)	3.91	(0.36)	4.65	(0.43)	5.02	(0.47)	5.39	(0.50)	6.13	(0.57)
24	1-5 21/64 (440)	5.08	(0.47)	6.04	(0.56)	6.52	(0.61)	7.01	(0.65)	7.97	(0.74)
28	1-9 21/64 (542)	6.25	(0.58)	7.44	(0.69)	8.03	(0.75)	8.62	(0.80)	9.81	(0.91)
32	2-1 21/64 (643)	7.43	(0.69)	8.83	(0.82)	9.54	(0.89)	10.24	(0.95)	11.65	(1.08)
36	2-5 21/64 (745)	8.60	(0.80)	10.23	(0.95)	11.04	(1.03)	11.86	(1.10)	13.49	(1.25)
40	2-9 21/64 (847)	9.77	(0.91)	11.62	(1.08)	12.55	(1.17)	13.47	(1.25)	15.33	(1.42)
44	3-1 21/64 (948)	10.94	(1.02)	13.02	(1.21)	14.05	(1.31)	15.09	(1.40)	17.16	(1.59)
48	3-5 21/64 (1050)	12.12	(1.13)	14.41	(1.34)	15.56	(1.45)	16.71	(1.55)	19. 0	(1.77)
54	3-11 21/64 (1202)	13.87	(1.29)	16.50	(1.53)	17.82	(1.66)	19.13	(1.78)	21.76	(2.02)
56	4-1 21/64 (1253)	14.46	(1.34)	17.20	(1.60)	18.57	(1.73)	19.94	(1.85)	22.68	(2.11)
60	4-5 21/64 (1355)	15.63	(1.45)	18.60	(1.73)	20.08	(1.87)	21.56	(2.00)	24.52	(2.28)
64	4-9 21/64 (1456)	16.80	(1.56)	19.99	(1.86)	21.58	(2.01)	23.18	(2.15)	26.36	(2.45)
72	5-5 21/64 (1659)	19.15	(1.78)	22.78	(2.12)	24.59	(2.28)	26.41	(2.45)	30.04	(2.79)
		Tall Bottom Rail									
14	0-5 53/64 (148)	1.71	(0.16)	2.03	(0.19)	2.20	(0.20)	2.36	(0.22)	2.68	(0.25)
16	0-7 53/64 (199)	2.30	(0.21)	2.73	(0.25)	2.95	(0.27)	3.17	(0.29)	3.60	(0.33)
18	0-9 53/64 (250)	2.88	(0.27)	3.43	(0.32)	3.70	(0.34)	3.97	(0.37)	4.52	(0.42)
20	0-11 53/64 (301)	3.47	(0.32)	4.13	(0.38)	4.45	(0.41)	4.78	(0.44)	5.44	(0.51)
24	1-3 53/64 (402)	4.64	(0.43)	5.52	(0.51)	5.96	(0.55)	6.40	(0.59)	7.28	(0.68)
28	1-7 53/64 (504)	5.81	(0.54)	6.92	(0.64)	7.47	(0.69)	8.02	(0.74)	9.12	(0.85)
32	1-11 53/64 (605)	6.99	(0.65)	8.31	(0.77)	8.97	(0.83)	9.63	(0.90)	10.96	(1.02)
36	2-3 53/64 (707)	8.16	(0.76)	9.70	(0.90)	10.48	(0.97)	11.25	(1.05)	12.80	(1.19)
40	2-7 53/64 (809)	9.33	(0.87)	11.10	(1.03)	11.98	(1.11)	12.87	(1.20)	14.64	(1.36)
44	2-11 53/64 (910)	10.50	(0.98)	12.49	(1.16)	13.49	(1.25)	14.48	(1.35)	16.48	(1.53)
48	3-3 53/64 (1012)	11.68	(1.08)	13.89	(1.29)	14.99	(1.39)	16.10	(1.50)	18.31	(1.70)
54	3-9 53/64 (1164)	13.43	(1.25)	15.98	(1.48)	17.25	(1.60)	18.53	(1.72)	21.07	(1.96)
56	3-11 53/64 (1215)	14.02	(1.30)	16.68	(1.55)	18.01	(1.67)	19.34	(1.80)	21.99	(2.04)
60	4-3 53/64 (1317)	15.19	(1.41)	18.07	(1.68)	19.51	(1.81)	20.95	(1.95)	23.83	(2.21)
64	4-7 53/64 (1418)	16.37	(1.52)	19.47	(1.81)	21.02	(1.95)	22.57	(2.10)	25.67	(2.38)
72	5-3 53/64 (1621)	18.71	(1.74)	22.26	(2.07)	24.03	(2.23)	25.80	(2.40)	29.35	(2.73)

Daylight Measurement: Picture - Full and Narrow Frame

Ultimate Casement Picture Daylight Measurements		Width									
		CN	40		48		56		60		64	
		DLO	2-10 13/64	(869)	3-6 13/64	(1072)	4-2 13/64	(1275)	4-6 13/64	(1377)	4-10 13/64	(1478)
CN	DLO Height		Square Feet (Square Meters)									
			Standard Bottom Rail									
12	0-5 21/64	(135)	1.27	(0.12)	1.56	(0.15)	1.86	(0.17)	2.01	(0.19)	2.16	(0.20)
14	0-7 21/64	(186)	1.74	(0.16)	2.15	(0.20)	2.56	(0.24)	2.76	(0.26)	2.96	(0.28)
16	0-9 21/64	(237)	2.22	(0.21)	2.74	(0.25)	3.25	(0.30)	3.51	(0.33)	3.77	(0.35)
18	0-11 21/64	(288)	2.69	(0.25)	3.32	(0.31)	3.95	(0.37)	4.27	(0.40)	4.58	(0.43)
20	1-1 21/64	(339)	3.17	(0.29)	3.91	(0.36)	4.65	(0.43)	5.02	(0.47)	5.39	(0.50)
24	1-5 21/64	(440)	4.12	(0.38)	5.08	(0.47)	6.04	(0.56)	6.52	(0.61)	7.01	(0.65)
28	1-9 21/64	(542)	5.07	(0.47)	6.25	(0.58)	7.44	(0.69)	8.03	(0.75)	8.62	(0.80)
32	2-1 21/64	(643)	6.02	(0.56)	7.43	(0.69)	8.83	(0.82)	9.54	(0.89)	10.24	(0.95)
36	2-5 21/64	(745)	6.97	(0.65)	8.60	(0.80)	10.23	(0.95)	11.04	(1.03)	11.86	(1.10)
40	2-9 21/64	(847)	7.92	(0.74)	9.77	(0.91)	11.62	(1.08)	12.55	(1.17)	13.47	(1.25)
44	3-1 21/64	(948)	8.87	(0.82)	10.94	(1.02)	13.02	(1.21)	14.05	(1.31)	15.09	(1.40)
48	3-5 21/64	(1050)	9.82	(0.91)	12.12	(1.13)	14.41	(1.34)	15.56	(1.45)	16.71	(1.55)
54	3-11 21/64	(1202)	11.24	(1.04)	13.87	(1.29)	16.50	(1.53)	17.82	(1.66)	19.13	(1.78)
56	4-1 21/64	(1253)	11.72	(1.09)	14.46	(1.34)	17.20	(1.60)	18.57	(1.73)	19.94	(1.85)
60	4-5 21/64	(1355)	12.67	(1.18)	15.63	(1.45)	18.60	(1.73)	20.08	(1.87)	21.56	(2.00)
64	4-9 21/64	(1456)	13.62	(1.27)	16.80	(1.56)	19.99	(1.86)	21.58	(2.01)	23.18	(2.15)
72	5-5 21/64	(1659)	15.52	(1.44)	19.15	(1.78)	22.78	(2.12)	24.59	(2.28)	26.41	(2.45)
78	5-11 21/64	(1812)	16.95	(1.57)	20.91	(1.94)	24.87	(2.31)	26.85	(2.49)	28.83	(2.68)
84	6-5 21/64	(1964)	18.37	(1.71)	22.67	(2.11)	26.96	(2.50)	29.11	(2.70)	31.26	(2.90)
92	7-1 21/64	(2167)	20.27	(1.88)	25.01	(2.32)	29.75	(2.76)	32.12	(2.98)	34.49	(3.20)
96	7-5 21/64	(2269)	21.22	(1.97)	26.18	(2.43)	31.15	(2.89)	33.63	(3.12)	36.11	(3.35)
			Tall Bottom Rail									
12	0-3 53/64	(97)	0.91	(0.08)	1.12	(0.10)	1.34	(0.12)	1.44	(0.13)	1.55	(0.14)
14	0-5 53/64	(148)	1.39	(0.13)	1.71	(0.16)	2.03	(0.19)	2.20	(0.20)	2.36	(0.22)
16	0-7 53/64	(199)	1.86	(0.17)	2.30	(0.21)	2.73	(0.25)	2.95	(0.27)	3.17	(0.29)
18	0-9 53/64	(250)	2.34	(0.22)	2.88	(0.27)	3.43	(0.32)	3.70	(0.34)	3.97	(0.37)
20	0-11 53/64	(301)	2.81	(0.26)	3.47	(0.32)	4.13	(0.38)	4.45	(0.41)	4.78	(0.44)
24	1-3 53/64	(402)	3.76	(0.35)	4.64	(0.43)	5.52	(0.51)	5.96	(0.55)	6.40	(0.59)
28	1-7 53/64	(504)	4.71	(0.44)	5.81	(0.54)	6.92	(0.64)	7.47	(0.69)	8.02	(0.74)
32	1-11 53/64	(605)	5.66	(0.53)	6.99	(0.65)	8.31	(0.77)	8.97	(0.83)	9.63	(0.90)
36	2-3 53/64	(707)	6.61	(0.61)	8.16	(0.76)	9.70	(0.90)	10.48	(0.97)	11.25	(1.05)
40	2-7 53/64	(809)	7.56	(0.70)	9.33	(0.87)	11.10	(1.03)	11.98	(1.11)	12.87	(1.20)
44	2-11 53/64	(910)	8.51	(0.79)	10.50	(0.98)	12.49	(1.16)	13.49	(1.25)	14.48	(1.35)
48	3-3 53/64	(1012)	9.46	(0.88)	11.68	(1.08)	13.89	(1.29)	14.99	(1.39)	16.10	(1.50)
54	3-9 53/64	(1164)	10.89	(1.01)	13.43	(1.25)	15.98	(1.48)	17.25	(1.60)	18.53	(1.72)
56	3-11 53/64	(1215)	11.36	(1.06)	14.02	(1.30)	16.68	(1.55)	18.01	(1.67)	19.34	(1.80)
60	4-3 53/64	(1317)	12.31	(1.14)	15.19	(1.41)	18.07	(1.68)	19.51	(1.81)	20.95	(1.95)
64	4-7 53/64	(1418)	13.26	(1.23)	16.37	(1.52)	19.47	(1.81)	21.02	(1.95)	22.57	(2.10)
72	5-3 53/64	(1621)	15.16	(1.41)	18.71	(1.74)	22.26	(2.07)	24.03	(2.23)	25.80	(2.40)
78	5-9 53/64	(1774)	16.59	(1.54)	20.47	(1.90)	24.35	(2.26)	26.29	(2.44)	28.23	(2.62)
84	6-3 53/64	(1926)	18.01	(1.67)	22.23	(2.07)	26.44	(2.46)	28.55	(2.65)	30.65	(2.85)
92	6-11 53/64	(2129)	19.91	(1.85)	24.57	(2.28)	29.23	(2.72)	31.56	(2.93)	33.89	(3.15)
96	7-3 53/64	(2231)	20.87	(1.94)	25.74	(2.39)	30.62	(2.85)	33.06	(3.07)	35.50	(3.30)

Daylight Measurement: Picture - Full and Narrow Frame

Ultimate Casement Picture Daylight Measurements			Width							
		CN	72		80		88		96	
		DLO	5-6 13/64	(1682)	6-2 13/64	(1885)	6-10 13/64	(2088)	7-6 13/64	(2291)
CN	DLO Height		Square Feet (Square Meters)							
			Standard Bottom Rail							
12	0-5 21/64	(135)	2.45	(0.23)	2.75	(0.26)	3.04	(0.28)	3.34	(0.31)
14	0-7 21/64	(186)	3.37	(0.31)	3.78	(0.35)	4.19	(0.39)	4.59	(0.43)
16	0-9 21/64	(237)	4.29	(0.40)	4.81	(0.45)	5.33	(0.49)	5.85	(0.54)
18	0-11 21/64	(288)	5.21	(0.48)	5.84	(0.54)	6.47	(0.60)	7.10	(0.66)
20	1-1 21/64	(339)	6.13	(0.57)	6.87	(0.64)	7.61	(0.71)	8.35	(0.78)
24	1-5 21/64	(440)	7.97	(0.74)	8.93	(0.83)	9.90	(0.92)	10.86	(1.01)
28	1-9 21/64	(542)	9.81	(0.91)	10.99	(1.02)	12.18	(1.13)	13.36	(1.24)
32	2-1 21/64	(643)	11.65	(1.08)	13.05	(1.21)	14.46	(1.34)	15.87	(1.47)
36	2-5 21/64	(745)	13.49	(1.25)	15.12	(1.40)	16.75	(1.56)	18.38	(1.71)
40	2-9 21/64	(847)	15.33	(1.42)	17.18	(1.60)	19.03	(1.77)	20.88	(1.94)
44	3-1 21/64	(948)	17.16	(1.59)	19.24	(1.79)	21.31	(1.98)	23.39	(2.17)
48	3-5 21/64	(1050)	19.00	(1.77)	21.30	(1.98)	23.60	(2.19)	25.89	(2.41)
54	3-11 21/64	(1202)	21.76	(2.02)	24.39	(2.27)	27.02	(2.51)	29.65	(2.75)
56	4-1 21/64	(1253)	22.68	(2.11)	25.42	(2.36)	28.16	(2.62)	30.90	(2.87)
60	4-5 21/64	(1355)	24.52	(2.28)	27.48	(2.55)	30.45	(2.83)	33.41	(3.10)
64	4-9 21/64	(1456)	26.36	(2.45)	29.55	(2.74)	32.73	(3.04)	35.92	(3.34)
72	5-5 21/64	(1659)	30.04	(2.79)	33.67	(3.13)	37.30	(3.47)	40.93	(3.80)
78	5-11 21/64	(1812)	32.80	(3.05)	36.76	(3.42)	40.72	(3.78)	44.69	(4.15)
84	6-5 21/64	(1964)	35.56	(3.30)	39.85	(3.70)	44.15	(4.10)	48.44	(4.50)
92	7-1 21/64	(2167)	39.23	(3.64)	43.97	(4.09)	48.72	(4.53)	N/A	
96	7-5 21/64	(2269)	41.07	(3.82)	46.04	(4.28)	51.00	(4.74)	N/A	
			Tall Bottom Rail							
12	0-3 53/64	(97)	1.76	(0.16)	1.98	(0.18)	2.19	(0.20)	2.40	(0.22)
14	0-5 53/64	(148)	2.68	(0.25)	3.01	(0.28)	3.33	(0.31)	3.65	(0.34)
16	0-7 53/64	(199)	3.60	(0.33)	4.04	(0.38)	4.47	(0.42)	4.91	(0.46)
18	0-9 53/64	(250)	4.52	(0.42)	5.07	(0.47)	5.61	(0.52)	6.16	(0.57)
20	0-11 53/64	(301)	5.44	(0.51)	6.10	(0.57)	6.76	(0.63)	7.41	(0.69)
24	1-3 53/64	(402)	7.28	(0.68)	8.16	(0.76)	9.04	(0.84)	9.92	(0.92)
28	1-7 53/64	(504)	9.12	(0.85)	10.22	(0.95)	11.32	(1.05)	12.42	(1.15)
32	1-11 53/64	(605)	10.96	(1.02)	12.28	(1.14)	13.61	(1.26)	14.93	(1.39)
36	2-3 53/64	(707)	12.80	(1.19)	14.34	(1.33)	15.89	(1.48)	17.44	(1.62)
40	2-7 53/64	(809)	14.64	(1.36)	16.40	(1.52)	18.17	(1.69)	19.94	(1.85)
44	2-11 53/64	(910)	16.48	(1.53)	18.47	(1.72)	20.46	(1.90)	22.45	(2.09)
48	3-3 53/64	(1012)	18.31	(1.70)	20.53	(1.91)	22.74	(2.11)	24.95	(2.32)
54	3-9 53/64	(1164)	21.07	(1.96)	23.62	(2.19)	26.17	(2.43)	28.71	(2.67)
56	3-11 53/64	(1215)	21.99	(2.04)	24.65	(2.29)	27.31	(2.54)	29.96	(2.78)
60	4-3 53/64	(1317)	23.83	(2.21)	26.71	(2.48)	29.59	(2.75)	32.47	(3.02)
64	4-7 53/64	(1418)	25.67	(2.38)	28.77	(2.67)	31.87	(2.96)	34.98	(3.25)
72	5-3 53/64	(1621)	29.35	(2.73)	32.90	(3.06)	36.44	(3.39)	39.99	(3.71)
78	5-9 53/64	(1774)	32.11	(2.98)	35.99	(3.34)	39.87	(3.70)	43.75	(4.06)
84	6-3 53/64	(1926)	34.87	(3.24)	39.08	(3.63)	43.29	(4.02)	47.51	(4.41)
92	6-11 53/64	(2129)	38.54	(3.58)	43.20	(4.01)	47.86	(4.45)	N/A	
96	7-3 53/64	(2231)	40.38	(3.75)	45.26	(4.21)	50.14	(4.66)	N/A	

Minimum and Maximum Guidelines: Full Frame

Full Frame Minimum and Maximum Frame Sizes									
Unit Type		Min Width		Min Height		Max Width		Max Height	
		in	mm	in	mm	in	mm	in	mm
UCA	Insulating Glass 3/4" (19) or 1" (25)	14	(356)	11 1/2	(292)	36	(914)	102	(2591)
						40	(1016)	96 1/8	(2442)
						44	(1118)	91 1/8	(2315)
CUCA	Lock Status Sensor	14	(356)	17 1/8	(435)	36	(914)	102	(2591)
						40	(1016)	96 1/8	(2442)
UAWN	Insulating Glass 3/4" (19) or 1" (25)	16	(406)	11 1/2	(292)	72	(1829)	72	(1829)
						48	(1219)	96	(2438)
						64	(1626)	81 1/8	(2061)
						81 1/8	(2061)	64	(1626)
						96	(2438)	48 1/8	(1222)
UCAP	Insulating Glass 3/4" (19)	12	(305)	12 7/16	(316)	64	(1626)	104	(2642)
						104	(2642)	64	(1626)
UCAP	Insulating Glass 1" (25) - Tempered	12	(305)	12 7/16	(316)	96 1/8	(2442)	88	(2235)
						88	(2235)	96 1/8	(2442)
						120	(3048)	80	(2032)
						80	(2032)	120	(3048)

Minimum and Maximum Guidelines: Narrow Frame

Narrow Frame Minimum and Maximum Frame Sizes									
Unit Type		Min Width		Min Height		Max Width		Max Height	
		in	mm	in	mm	in	mm	in	mm
UCANF	Insulating Glass 3/4" (19)	14	(356)	11 1/2	(292)	36	(914)	102	(2591)
						40	(1016)	96 1/8	(2442)
						44	(1118)	91 1/8	(2315)
CURCA	Lock Status Sensor	14	(356)	17 1/8	(435)	36	(914)	102	(2591)
						40	(1016)	96 1/8	(2442)
UAWNNF	Insulating Glass 3/4" (19)	16	(406)	11 1/2	(292)	48	(1219)	96	(2438)
						64	(1626)	81 1/8	(2061)
						81 1/8	(2061)	64	(1626)
						96	(2438)	48 1/8	(1222)
UAWNNF	Lock Status Sensor	16	(406)	17 1/8	(435)	72	(1829)	81 1/8	(2061)
UCANFP*	Insulating Glass 3/4" (19)	12	(305)	11 1/8	(283)	64	(1626)	104	(2642)
						104	(2642)	64	(1626)

Minimum and Maximum Guidelines: IZ3 and IZ4

IZ3 Minimum and Maximum Frame Size									
Unit Type		Min Width		Min Height		Max Width		Max Height	
		in	mm	in	mm	in	mm	in	mm
UCA	3/4" (19) Insulating Glass	16	(406)	13 1/8	(333)	36	(914)	83 1/8	(2111)
	1" (25) Insulating Glass							96 1/8	(2442)
UAWN	Insulating Glass 3/4" (19)	16	(406)	13 1/8	(333)	48	(1219)	53 1/8	(1349)
UCAP	3/4" (19) Insulating Glass	16	(406)	11 1/8	(283)	48	(1219)	53 1/8	(1349)
						53 1/8	(1349)	48	(1219)
UCAP	3/4" (19) Insulating Glass	16	(406)	11 1/8	(283)	36	(914)	83 1/8	(2111)
						83 1/8	(2111)	36	(914)
UCAP	1" (25) Insulating Glass	16	(406)	11 1/8	(283)	72	(1829)	76 1/2	(1943)
						76 1/2	(1943)	72	(1829)
UCAP	1" (25) Insulating Glass	16	(406)	11 1/8	(283)	60	(1524)	104 11/16	(2659)
						104 11/16	(2659)	60	(1524)

IZ4 Minimum and Maximum Frame Size									
Unit Type		Min Width		Min Height		Max Width		Max Height	
		in	mm	in	mm	in	mm	in	mm
UCA	Insulating Glass 3/4" (19)	16	(406)	13 1/8	(333)	36	(914)	85 45/64	(2177)
UAWN	Insulating Glass 3/4" (19)	16	(406)	13 1/8	(333)	48	(1219)	47 1/8	(1197)
UCAP	3/4" (19) Insulating Glass	16	(406)	11 1/8	(283)	48	(1219)	47 1/8	(1197)
						47 1/8	(1197)	48	(1219)
UCAP	3/4" (19) Insulating Glass	16	(406)	11 1/8	(283)	36	(914)	85 45/64	(2177)
						85 45/64	(2177)	36	(914)
UCAP	1" (25) Insulating Glass	16	(406)	11 1/8	(283)	72	(1829)	71 1/8	(1807)
						71 1/8	(1807)	72	(1829)
UCAP	1" (25) Insulating Glass	16	(406)	11 1/8	(283)	60	(1524)	108	(2743)
						108	(2743)	60	(1524)

Certified Sizes and Ratings: Full and Narrow Frame

Product	Air Tested to psf	Water Tested to psf	Structural Tested to psf	Certification Rating	Max Overall Width		Max Overall Height	
					in	mm	in	mm
Ultimate Awning 3/4" (Full and Narrow Frame)	1.57	7.5	60	LC-PG40	48	(1219)	96	(2438)
Ultimate Awning 3/4" (Full and Narrow Frame)	1.57	7.5	75	LC-PG50	56	(1422)	47 1/8	(1197)
Ultimate Awning 3/4" (Full and Narrow Frame)	1.57	7.5	45	LC-PG30	64	(1625)	81 1/8	(2060)
Ultimate Awning 3/4" (Full and Narrow Frame)	1.57	7.5	75	LC-PG50	72	(1829)	63 1/8	(1604)
Ultimate Awning 3/4" (Full and Narrow Frame)	1.57	7.5	45	LC-PG30	81 1/8	(2060)	64	(1625)
Ultimate Awning 3/4" (Full and Narrow Frame)	1.57	7.5	45	LC-PG30	96	(2438)	48 1/8	(1222)
Ultimate Awning 3/4" (Full Frame)	1.57	12	75	CW-PG50	48	(1219)	72	(1829)
Ultimate Awning 3/4" (Full Frame)	1.57	7.5	+75/-60	LC-PG40	72	(1829)	72	(1829)
Ultimate Awning 3/4" (Full Frame)	1.57	7.5	60	LC-PG40	72	(1829)	72	(1829)
Ultimate Casement 3/4" (Full and Narrow Frame)	1.57	7.5	75	CW-PG50	36	(914)	96 1/8	(2442)
Ultimate Casement 3/4" (Full and Narrow Frame)	1.57	7.5	60	CW-PG40	36	(914)	102	(2591)
Ultimate Casement 3/4" (Full and Narrow Frame)	1.57	7.5	75	LC-PG50	40	(1016)	92	(2337)
Ultimate Casement 3/4" (Full and Narrow Frame)	1.57	7.5	60	CW-PG40	40	(1016)	96 1/8	(2442)
Ultimate Casement 3/4" (Full and Narrow Frame)	1.57	7.5	75	LC-PG50	44	(1117)	71 1/8	(1807)
Ultimate Casement 3/4" (Full and Narrow Frame)	1.57	7.5	60	LC-PG40	44	(1117)	91 1/8	(2314)
Ultimate Casement Picture 3/4" (Full and Narrow Frame)	1.57	10.5	75	AW-PG50	60	(1524)	99	(2515)
Ultimate Casement Picture 3/4" (Full and Narrow Frame)	1.57	7.5	75	CW-PG50	64	(1626)	104	(2642)
Ultimate Casement Picture 3/4" (Full and Narrow Frame)	1.57	10.5	75	AW-PG50	99	(2515)	60	(1534)
Ultimate Casement Picture 3/4" (Full and Narrow Frame)	1.57	7.5	75	CW-PG50	104	(2642)	64	(1626)
Ultimate Casement Picture 3/4" (Full Frame)	1.57	7.5	75	CW-PG50	72	(1829)	71 1/8	(1807)
Ultimate Casement Picture 1" (Full Frame)	1.57	7.5	75	CW-PG50	88	(2235)	96 1/8	(2442)
Ultimate Casement Picture 1" (Full Frame)	1.57	7.5	75	CW-PG50	96 1/8	(2442)	88	(2235)
Ultimate Casement Picture 1" (Full Frame)	1.57	7.5	60	CW-PG40	120	(3048)	80	(2032)

Certified Sizes and Ratings: IZ3 and IZ4

Product	Air Tested to psf	Water Tested to psf	Structural Tested to psf	Certification Rating	Max Overall Width		Max Overall Height	
					in	mm	in	mm
Clad Ultimate Awning 3/4" StormPlus IZ3 (Full Frame)	1.57	9.75	97.5	CW-PG65	48	(1219)	53 1/8	(1349)
Clad Ultimate Casement 3/4" StormPlus IZ3 (Full Frame)	1.57	9.75	97.5	CW-PG65	36	(914)	83 1/8	(2111)
Clad Ultimate Casement 1" StormPlus IZ3 (Full Frame)	1.57	9.75	97.5	CW-PG65	36	(914)	96 1/8	(2441)
Clad Ultimate Casement Picture 3/4" StormPlus IZ3 (Full Frame)	1.57	9.75	97.5	CW-PG65	48	(1219)	53 1/8	(1349)
Clad Ultimate Casement Picture 3/4" StormPlus IZ3 (Full Frame)	1.57	9.75	97.5	CW-PG65	53 1/8	(1349)	48	(1219)
Clad Ultimate Casement Picture 1" StormPlus IZ3 (Full Frame)	1.57	9.75	97.5	CW-PG65	60	(1524)	104 45/64	(2660)
Clad Ultimate Casement Picture 1" StormPlus IZ3 (Full Frame)	1.57	9.75	97.5	CW-PG65	104 45/64	(1845)	60	(1959)
Clad Ultimate Casement Picture 1" StormPlus IZ3 (Full Frame)	1.57	9.75	97.5	CW-PG65	72 5/8	(1959)	77 1/8	(1845)
Clad Ultimate Casement Picture 1" StormPlus IZ3 (Full Frame)	1.57	9.75	97.5	CW-PG65	77 1/8	(2660)	72 5/8	(1524)
Product	**Air Tested to psf**	**Water Tested to psf**	**Structural Tested to psf**	**Certification Rating**	**Max Overall Width**		**Max Overall Height**	
					in	**mm**	**in**	**mm**
Clad Ultimate Awning 3/4" StormPlus IZ4 (Full Frame)	1.57	10.65	+105/-127.5	+70/-85	48	(1219)	47 1/8	(1197)
Clad Ultimate Casement 3/4" StormPlus IZ4 (Full Frame)	1.57	10.65	+105/-127.5	+70/-85	36	(914)	85 45/64	(2177)
Clad Ultimate Casement Picture 3/4" StormPlus IZ4 (Full Frame)	1.57	10.65	+105/-127.5	+70/-85	36	(914)	85 45/64	(2177)
Clad Ultimate Casement Picture 3/4" StormPlus IZ4 (Full Frame)	1.57	10.65	+105/-127.5	+70/-85	85 45/64	(2177)	36	(914)
Clad Ultimate Casement Picture 1" StormPlus IZ4 (Full Frame)	1.57	10.65	+105/-112.5	+70/-75	60	(1524)	104 45/64	(2660)
Clad Ultimate Casement Picture 1" StormPlus IZ4 (Full Frame)	1.57	10.65	+105/-112.5	+70/-75	72	(1829)	71 1/8	(1807)
Clad Ultimate Casement Picture 1" StormPlus IZ4 (Full Frame)	1.57	10.65	+105/-112.5	+70/-75	104 45/64	(2660)	60	(1524)

IZ3 and IZ4 modifications made to Ultimate Casements

IZ3 and IZ4 are Product designed to structurally withstand an 8' 2X4 at 50 ft. per second (34mph)

- Sash are glazed with insulating glass, consisting of inboard lite of laminated glass. The exterior glass is standard annealed glass with optional tempered glass available. Although size of the unit may require exterior piece of glass to be tempered. Sash can not be re-glazed.
- Additional snubbers, keepers and locks applied.
- Structural Installation Brackets or jamb screws are required to install units
- IZ4 operator unit have tie bar hold down applied at each locking point.

Measurement Conversions: Casement and Awning - Full and Narrow Frame

Unit Measurements		Width		Height	
From	**To**				
Inside Opening for Replacement Units		**in**	**mm**	**in**	**mm**
OM of Frame (Existing sill <8°)	Inside Opening	+ 3/8	(10)	+ 1/4	(06)
OM of Frame (Existing sill ≥8° - <14°)	Inside Opening	+ 3/8	(10)	+ 1/16	(02)
OM of Frame (Existing sill ≥14°)	Inside Opening	+ 3/8	(10)	+ 7/16	(11)
Rough Opening		**in**	**mm**	**in**	**mm**
OM of Frame	Rough Opening	+ 1	(25)	+ 1/2	(13)
Masonry Opening w/BMC	Rough Opening	-2 1/8	(54)	-1 11/16	(43)
Masonry Opening w/Flat Casing	Rough Opening	-5 1/2	(140)	-3 3/8	(86)
Masonry Opening w/BMC (all sides)	Rough Opening	-2 1/8	(54)	-2 3/8	(60)
Masonry Opening w/Flat Casing (all sides)	Rough Opening	-5 1/2	(140)	-5 3/4	(146)
Sash		**in**	**mm**	**in**	**mm**
OM of Frame	OM of Sash	-1 11/16	(43)	-1 11/16	(43)
Daylight Opening (Std Btm Rail)	OM of Sash	+ 4 7/64	(104)	+ 4 7/64	(104)
Daylight Opening (Tall Btm Rail)	OM of Sash	+ 4 7/64	(104)	+ 5 39/64	(142)
Glass		**in**	**mm**	**in**	**mm**
Daylight Opening	Glass	+ 1 3/32	(28)	+ 1 3/32	(28)
Daylight Opening (Std Btm Rail)	Frame Size	+ 5 13/16	(148)	+ 5 13/16	(148)
Daylight Opening (Tall Btm Rail)	Frame Size	+ 5 13/16	(148)	+ 7 5/16	(186)
Screen		**in**	**mm**	**in**	**mm**
OM of Frame	OM of Screen	-4 21/32	(118)	-4 29/32	(125)
Daylight Opening (Std Btm Rail)	OM of Screen	+ 1 9/64	(29)	+ 7/8	(22)
Daylight Opening (Tall Btm Rail)	OM of Screen	+ 1 9/64	(29)	+ 2 3/8	(60)

Measurement Conversions: Casement and Awning - Full and Narrow Frame

Egress Formulas with Standard Screen

Clear Opening Width:

Frame OSM 20" (508) and greater

Clear Opening Width = Frame OSM Width - 7 1/8" (181)

Frame OSM Width less than 20" (508)

Clear Opening Width = Frame OSM Width - 9 9/16" (243)

Clear Opening Height = Frame OSM Height - 5 1/8" (130)

Clear Opening Area (ft. ^2) = (Clear Opening Width x Clear Opening Height) / 144

Vent Opening with Standard Screen

Vent Opening Width = Frame OSM Width - 4 31/32" (126)

Vent Opening Height = Frame OSM Height - 5 1/8" (130)

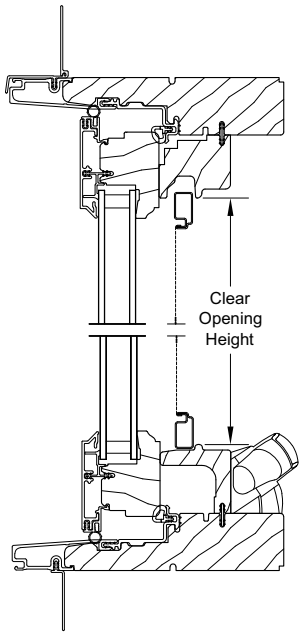
Awning Sash Travel:

If call number is 24 or smaller, sash travel is approximately 4 3/4" (121)

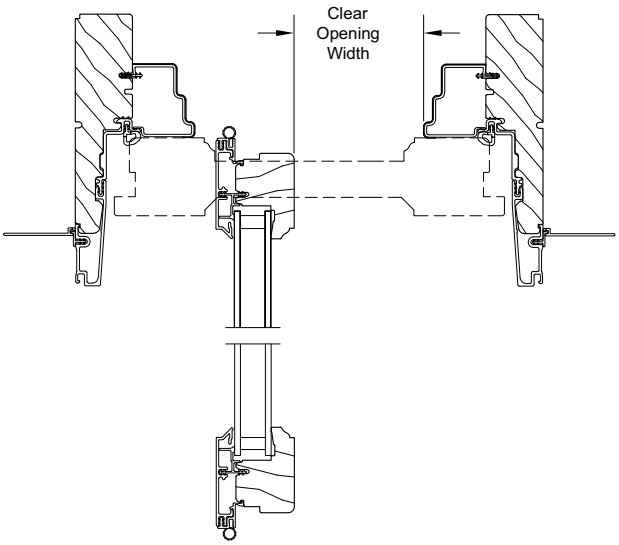
If call number is 24.001 - 32.000, sash travel is approximately 8" (203)

If call number is greater than 32, sash travel is approximately 11 1/2" (292)

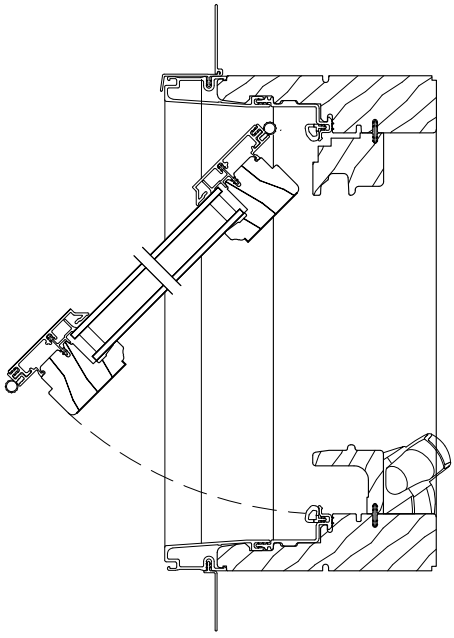
Egress and Vent Opening Measurements for Full Frame Casement and Awning



Head Jamb and Sill

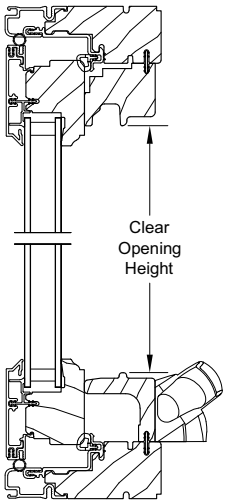


Jambs

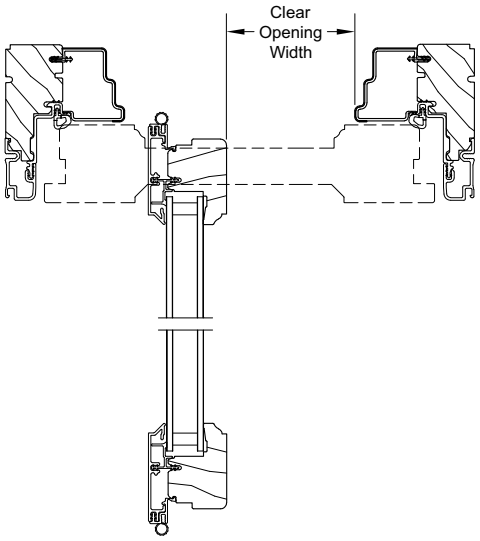


Vent Opening

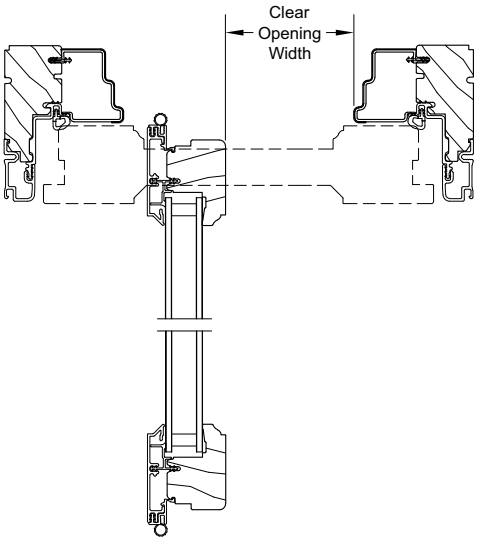
Egress and Vent Opening Measurements for Narrow Frame Casement and Awning



Head Jamb and Sill



Jambs

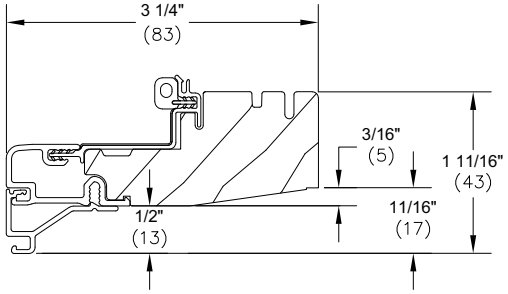


Jambs

Field Measurement for Narrow Frame Units

Operator. Awning, Stationary, Picture Conversion from Field Measurement to Frame OSM		
Width		
Condition	**Formula**	
If blind stop width is 1/2" (13) or less	Frame OM Width - inside opening width - 0.375 (10)	
Height		
Condition	**Type of Sill Bevel**	**Formula**
If old sill angle is less than 8°	Flat-bottom sill	Frame OM Height = inside opening height - 0.250 (6)
If old sill angle is greater than 8° and less than 14°	8-degree bottom sill	Frame OM Height = inside opening height - 0.0563 (1) (frame IM height has a .250 clearance)
If old is angle is 14° or greater	14-degree bottom sill	Frame OM Height = inside height + .431 (11) (frame IM Height has a .250 clearance)

Interior Frame Size to Frame Size (exterior)	
Frame Bevel	Conversions
0°	0
8°	+3/16" (5)
14°	+11/16" (17)



Standard Unit Measurements: Casement

Standard Ultimate Casement Unit Measurements												
Width												
CN	Masonry Opening		Rough Opening		Frame Size		Sash Size		Screen Size		Daylight Opening	
	ft - in	mm	ft - in	mm	ft - in	mm	ft-in	mm	ft-in	mm	ft - in	mm
16	1-4 1/2	(419)	1-5	(432)	1-4	(406)	1-2 5/16	(363)	0-11 11/32	(288)	0-10 13/64	(259)
18	1-6 1/2	(470)	1-7	(483)	1-6	(457)	1-4 5/16	(414)	1-1 11/32	(339)	1-0 13/64	(310)
20	1-8 1/2	(521)	1-9	(533)	1-8	(508)	1-6 5/16	(465)	1-3 11/32	(390)	1-2 13/64	(361)
24	2-0 1/2	(622)	2-1	(635)	2-0	(610)	1-10 5/16	(567)	1-7 11/32	(491)	1-6 13/64	(462)
26	2-2 1/2	(673)	2-3	(686)	2-2	(660)	2-0 5/16	(617)	1-9 11/32	(542)	1-8 13/64	(513)
28	2-4 1/2	(724)	2-5	(737)	2-4	(711)	2-2 5/16	(668)	1-11 11/32	(593)	1-10 13/64	(564)
30	2-6 1/2	(775)	2-7	(787)	2-6	(762)	2-4 5/16	(719)	2-1 11/32	(644)	2-0 13/64	(615)
32	2-8 1/2	(826)	2-9	(838)	2-8	(813)	2-6 5/16	(770)	2-3 11/32	(695)	2-2 13/64	(666)
36	3-0 1/2	(927)	3-1	(940)	3-0	(914)	2-10 5/16	(871)	2-7 11/32	(796)	2-6 13/64	(767)
40	3-4 1/2	(1029)	3-5	(1041)	3-4	(1016)	3-2 5/16	(973)	2-11 11/32	(898)	2-10 13/64	(869)

Standard Ultimate Casement Unit Measurements														
Height														
CN	Masonry Opening		Rough Opening		Frame Size		Sash Size		Screen Size		Daylight Opening (Std Bottom Rail)		Daylight Opening (Tall Bottom Rail)	
	ft - in	mm	ft - in	mm	ft - in	mm	ft-in	mm	ft-in	mm	ft - in	mm	ft - in	mm
14	1-1 3/8	(340)	1-1 5/8	(346)	1-1 1/8	(333)	0-11 7/16	(290)	0-8 7/32	(209)	0-7 21/64	(186)	0-5 53/64	(148)
16	1-3 3/8	(391)	1-3 5/8	(397)	1-3 1/8	(384)	1-1 7/16	(341)	0-10 7/32	(259)	0-9 21/64	(237)	0-7 53/64	(199)
18	1-5 3/8	(441)	1-5 5/8	(448)	1-5 1/8	(435)	1-3 7/16	(392)	1-0 7/32	(310)	0-11 21/64	(288)	0-9 53/64	(250)
20	1-7 3/8	(492)	1-7 5/8	(498)	1-7 1/8	(486)	1-5 7/16	(443)	1-2 7/32	(361)	1-1 21/64	(339)	0-11 53/64	(301)
24	1-11 3/8	(594)	1-11 5/8	(600)	1-11 1/8	(587)	1-9 7/16	(544)	1-6 7/32	(463)	1-5 21/64	(440)	1-3 53/64	(402)
28	2-3 3/8	(695)	2-3 5/8	(702)	2-3 1/8	(689)	2-1 7/16	(646)	1-10 7/32	(564)	1-9 21/64	(542)	1-7 53/64	(504)
32	2-7 3/8	(797)	2-7 5/8	(803)	2-7 1/8	(791)	2-5 7/16	(748)	2-2 7/32	(666)	2-1 21/64	(643)	1-11 53/64	(605)
36	2-11 3/8	(899)	2-11 5/8	(905)	2-11 1/8	(892)	2-9 7/16	(849)	2-6 7/32	(767)	2-5 21/64	(745)	2-3 53/64	(707)
40	3-3 3/8	(1000)	3-3 5/8	(1006)	3-3 1/8	(994)	3-1 7/16	(951)	2-10 7/32	(869)	2-9 21/64	(847)	2-7 53/64	(809)
44	3-7 3/8	(1102)	3-7 5/8	(1108)	3-7 1/8	(1095)	3-5 7/16	(1052)	3-2 7/32	(971)	3-1 21/64	(948)	2-11 53/64	(910)
48	3-11 3/8	(1203)	3-11 5/8	(1210)	3-11 1/8	(1197)	3-9 7/16	(1154)	3-6 7/32	(1072)	3-5 21/64	(1050)	3-3 53/64	(1012)
54	4-5 3/8	(1356)	4-5 5/8	(1362)	4-5 1/8	(1349)	4-3 7/16	(1306)	4-0 7/32	(1225)	3-11 21/64	(1202)	3-9 53/64	(1164)
56	4-7 3/8	(1407)	4-7 5/8	(1413)	4-7 1/8	(1400)	4-5 7/16	(1357)	4-2 7/32	(1275)	4-1 21/64	(1253)	3-11 53/64	(1215)
60	4-11 3/8	(1508)	4-11 5/8	(1514)	4-11 1/8	(1502)	4-9 7/16	(1459)	4-6 7/32	(1377)	4-5 21/64	(1355)	4-3 53/64	(1317)
64	5-3 3/8	(1610)	5-3 5/8	(1616)	5-3 1/8	(1603)	5-1 7/16	(1560)	4-10 7/32	(1479)	4-9 21/64	(1456)	4-7 53/64	(1418)
72	5-11 3/8	(1813)	5-11 5/8	(1819)	5-11 1/8	(1807)	5-9 7/16	(1764)	5-6 7/32	(1682)	5-5 21/64	(1659)	5-3 53/64	(1621)
78	6-5 3/8	(1965)	6-5 5/8	(1972)	6-5 1/8	(1959)	6-3 7/16	(1916)	6-0 7/32	(1834)	5-11 21/64	(1812)	5-9 53/64	(1774)
84	6-11 3/8	(2118)	6-11 5/8	(2124)	6-11 1/8	(2111)	6-9 7/16	(2068)	6-6 7/32	(1987)	6-5 21/64	(1964)	6-3 53/64	(1926)
92	7-7 3/8	(2321)	7-7 5/8	(2327)	7-7 1/8	(2315)	7-5 7/16	(2272)	7-2 7/32	(2190)	7-1 21/64	(2167)	6-11 53/64	(2129)
96	7-11 3/8	(2423)	7-11 5/8	(2429)	7-11 1/8	(2416)	7-9 7/16	(2373)	7-6 7/32	(2291)	7-5 21/64	(2269)	7-3 53/64	(2231)

NOTE: A CN4096 is not a standard size.

Standard Unit Measurements: Awning

Standard Awning Unit Measurements												
Width												
CN	Masonry Opening		Rough Opening		Frame Size		Sash Size		Screen Size		Daylight Opening	
	ft - in	mm	ft - in	mm	ft - in	mm	ft-in	mm	ft-in	mm	ft - in	mm
16	1-4 1/2	(419)	1-5	(432)	1-4	(406)	1-2 5/16	(363)	0-11 11/32	(288)	0-10 13/64	(259)
18	1-6 1/2	(470)	1-7	(483)	1-6	(457)	1-4 5/16	(414)	1-1 11/32	(339)	1-0 13/64	(310)
20	1-8 1/2	(521)	1-9	(533)	1-8	(508)	1-6 5/16	(465)	1-3 11/32	(390)	1-2 13/64	(361)
24	2-0 1/2	(622)	2-1	(635)	2-0	(610)	1-10 5/16	(567)	1-7 11/32	(491)	1-6 13/64	(462)
26	2-2 1/2	(673)	2-3	(686)	2-2	(660)	2-0 5/16	(617)	1-9 11/32	(542)	1-8 13/64	(513)
28	2-4 1/2	(724)	2-5	(737)	2-4	(711)	2-2 5/16	(668)	1-11 11/32	(593)	1-10 13/64	(564)
30	2-6 1/2	(775)	2-7	(787)	2-6	(762)	2-4 5/16	(719)	2-1 11/32	(644)	2-0 13/64	(615)
32	2-8 1/2	(826)	2-9	(838)	2-8	(813)	2-6 5/16	(770)	2-3 11/32	(695)	2-2 13/64	(666)
36	3-0 1/2	(927)	3-1	(940)	3-0	(914)	2-10 5/16	(871)	2-7 11/32	(796)	2-6 13/64	(767)
40	3-4 1/2	(1029)	3-5	(1041)	3-4	(1016)	3-2 5/16	(973)	2-11 11/32	(898)	2-10 13/64	(869)
48	4-0 1/2	(1232)	4-1	(1245)	4-0	(1219)	3-10 5/16	(1176)	3-7 11/32	(1101)	3-6 13/64	(1072)
56	4-8 1/2	(1435)	4-9	(1448)	4-8	(1422)	4-6 5/16	(1379)	4-3 11/32	(1304)	4-2 13/64	(1275)
60	5-0 1/2	(1537)	5-1	(1549)	5-0	(1524)	4-10 5/16	(1481)	4-7 11/32	(1406)	4-6 13/64	(1377)
64	5-4 1/2	(1638)	5-5	(1651)	5-4	(1626)	5-2 5/16	(1583)	4-11 11/32	(1507)	4-10 13/64	(1478)
72	6-0 1/2	(1842)	6-1	(1854)	6-0	(1829)	5-10 5/16	(1786)	5-7 11/32	(1711)	5-6 13/64	(1682)

Standard Awning Unit Measurements														
Height														
CN	Masonry Opening		Rough Opening		Frame Size		Sash Size		Screen Size		Daylight Opening (Std Btm Rail)		Daylight Opening (Tall Btm Rail)	
	ft - in	mm	ft - in	mm	ft - in	mm	ft - in	mm	ft - in	mm	ft - in	mm	ft - in	mm
14	1-1 3/8	(340)	1-1 5/8	(346)	1-1 1/8	(333)	0-11 7/16	(290)	0-8 7/32	(209)	0-7 21/64	(186)	0-5 53/64	(148)
16	1-3 3/8	(391)	1-3 5/8	(397)	1-3 1/8	(384)	1-1 7/16	(341)	0-10 7/32	(259)	0-9 21/64	(237)	0-7 53/64	(199)
18	1-5 3/8	(441)	1-5 5/8	(448)	1-5 1/8	(435)	1-3 7/16	(392)	1-0 7/32	(310)	0-11 21/64	(288)	0-9 53/64	(250)
20	1-7 3/8	(492)	1-7 5/8	(498)	1-7 1/8	(486)	1-5 7/16	(443)	1-2 7/32	(361)	1-1 21/64	(339)	0-11 53/64	(301)
24	1-11 3/8	(594)	1-11 5/8	(600)	1-11 1/8	(587)	1-9 7/16	(544)	1-6 7/32	(463)	1-5 21/64	(440)	1-3 53/64	(402)
28	2-3 3/8	(695)	2-3 5/8	(702)	2-3 1/8	(689)	2-1 7/16	(646)	1-10 7/32	(564)	1-9 21/64	(542)	1-7 53/64	(504)
32	2-7 3/8	(797)	2-7 5/8	(803)	2-7 1/8	(791)	2-5 7/16	(748)	2-2 7/32	(666)	2-1 21/64	(643)	1-11 53/64	(605)
36	2-11 3/8	(899)	2-11 5/8	(905)	2-11 1/8	(892)	2-9 7/16	(849)	2-6 7/32	(767)	2-5 21/64	(745)	2-3 53/64	(707)
40	3-3 3/8	(1000)	3-3 5/8	(1006)	3-3 1/8	(994)	3-1 7/16	(951)	2-10 7/32	(869)	2-9 21/64	(847)	2-7 53/64	(809)
44	3-7 3/8	(1102)	3-7 5/8	(1108)	3-7 1/8	(1095)	3-5 7/16	(1052)	3-2 7/32	(971)	3-1 21/64	(948)	2-11 53/64	(910)
48	3-11 3/8	(1203)	3-11 5/8	(1210)	3-11 1/8	(1197)	3-9 7/16	(1154)	3-6 7/32	(1072)	3-5 21/64	(1050)	3-3 53/64	(1012)
54	4-5 3/8	(1356)	4-5 5/8	(1362)	4-5 1/8	(1349)	4-3 7/16	(1306)	4-0 7/32	(1225)	3-11 21/64	(1202)	3-9 53/64	(1164)
56	4-7 3/8	(1407)	4-7 5/8	(1413)	4-7 1/8	(1400)	4-5 7/16	(1357)	4-2 7/32	(1275)	4-1 21/64	(1253)	3-11 53/64	(1215)
60	4-11 3/8	(1508)	4-11 5/8	(1514)	4-11 1/8	(1502)	4-9 7/16	(1459)	4-6 7/32	(1377)	4-5 21/64	(1355)	4-3 53/64	(1317)
64	5-3 3/8	(1610)	5-3 5/8	(1616)	5-3 1/8	(1603)	5-1 7/16	(1560)	4-10 7/32	(1479)	4-9 21/64	(1456)	4-7 53/64	(1418)
72	5-11 3/8	(1813)	5-11 5/8	(1819)	5-11 1/8	(1807)	5-9 7/16	(1764)	5-6 7/32	(1682)	5-5 21/64	(1659)	5-3 53/64	(1621)

Standard Unit Measurements: 3/4" Casement Picture

Standard 3/4" Casement Picture Unit Measurements										
Width										
CN	Masonry Opening		Rough Opening		Frame Size		Sash Size		Daylight Opening	
	ft - in	mm	ft - in	mm	ft - in	mm	ft-in	mm	ft - in	mm
40	3-4 1/2	(1029)	3-5	(1041)	3-4	(1016)	3-2 5/16	(973)	2-10 13/64	(869)
48	4-0 1/2	(1232)	4-1	(1245)	4-0	(1219)	3-10 5/16	(1176)	3-6 13/64	(1072)
56	4-8 1/2	(1435)	4-9	(1448)	4-8	(1422)	4-6 5/16	(1379)	4-2 13/64	(1275)
60	5-0 1/2	(1537)	5-1	(1549)	5-0	(1524)	4-10 5/16	(1481)	4-6 13/64	(1377)
64	5-4 1/2	(1638)	5-5	(1651)	5-4	(1626)	5-2 5/16	(1583)	4-10 13/64	(1478)
72	6-0 1/2	(1842)	6-1	(1854)	6-0	(1829)	5-10 5/16	(1786)	5-6 13/64	(1682)
80	6-8 1/2	(2045)	6-9	(2057)	6-8	(2032)	6-6 5/16	(1989)	6-2 13/64	(1885)
88	7-4 1/2	(2248)	7-5	(2261)	7-4	(2235)	7-2 5/16	(2192)	6-10 13/64	(2088)
96	8-0 1/2	(2451)	8-1	(2464)	8-0	(2438)	7-10 5/16	(2395)	7-6 13/64	(2291)

Standard 3/4" Casement Picture Unit Measurements												
Height												
CN	Masonry Opening		Rough Opening		Frame Size		Sash Size		Daylight Opening (Std Btm Rail)		Daylight Opening (Tall Btm Rail)	
	ft - in	mm	ft - in	mm	ft - in	mm	ft-in	mm	ft - in	mm	ft - in	mm
12	0-11 3/8	(289)	0-11 5/8	(295)	0-11 1/8	(283)	0-9 7/16	(240)	0-5 21/64	(135)	0-3 53/64	(97)
14	1-1 3/8	(340)	1-1 5/8	(346)	1-1 1/8	(333)	0-11 7/16	(290)	0-7 21/64	(186)	0-5 53/64	(148)
16	1-3 3/8	(391)	1-3 5/8	(397)	1-3 1/8	(384)	1-1 7/16	(341)	0-9 21/64	(237)	0-7 53/64	(199)
18	1-5 3/8	(441)	1-5 5/8	(448)	1-5 1/8	(435)	1-3 7/16	(392)	0-11 21/64	(288)	0-9 53/64	(250)
20	1-7 3/8	(492)	1-7 5/8	(498)	1-7 1/8	(486)	1-5 7/16	(443)	1-1 21/64	(339)	0-11 53/64	(301)
24	1-11 3/8	(594)	1-11 5/8	(600)	1-11 1/8	(587)	1-9 7/16	(544)	1-5 21/64	(440)	1-3 53/64	(402)
28	2-3 3/8	(695)	2-3 5/8	(702)	2-3 1/8	(689)	2-1 7/16	(646)	1-9 21/64	(542)	1-7 53/64	(504)
32	2-7 3/8	(797)	2-7 5/8	(803)	2-7 1/8	(791)	2-5 7/16	(748)	2-1 21/64	(643)	1-11 53/64	(605)
36	2-11 3/8	(899)	2-11 5/8	(905)	2-11 1/8	(892)	2-9 7/16	(849)	2-5 21/64	(745)	2-3 53/64	(707)
40	3-3 3/8	(1000)	3-3 5/8	(1006)	3-3 1/8	(994)	3-1 7/16	(951)	2-9 21/64	(847)	2-7 53/64	(809)
44	3-7 3/8	(1102)	3-7 5/8	(1108)	3-7 1/8	(1095)	3-5 7/16	(1052)	3-1 21/64	(948)	2-11 53/64	(910)
48	3-11 3/8	(1203)	3-11 5/8	(1210)	3-11 1/8	(1197)	3-9 7/16	(1154)	3-5 21/64	(1050)	3-3 53/64	(1012)
54	4-5 3/8	(1356)	4-5 5/8	(1362)	4-5 1/8	(1349)	4-3 7/16	(1306)	3-11 21/64	(1202)	3-9 53/64	(1164)
56	4-7 3/8	(1407)	4-7 5/8	(1413)	4-7 1/8	(1400)	4-5 7/16	(1357)	4-1 21/64	(1253)	3-11 53/64	(1215)
60	4-11 3/8	(1508)	4-11 5/8	(1514)	4-11 1/8	(1502)	4-9 7/16	(1459)	4-5 21/64	(1355)	4-3 53/64	(1317)
64	5-3 3/8	(1610)	5-3 5/8	(1616)	5-3 1/8	(1603)	5-1 7/16	(1560)	4-9 21/64	(1456)	4-7 53/64	(1418)
72	5-11 3/8	(1813)	5-11 5/8	(1819)	5-11 1/8	(1807)	5-9 7/16	(1764)	5-5 21/64	(1659)	5-3 53/64	(1621)
78	6-5 3/8	(1965)	6-5 5/8	(1972)	6-5 1/8	(1959)	6-3 7/16	(1916)	5-11 21/64	(1812)	5-9 53/64	(1774)
84	6-11 3/8	(2118)	6-11 5/8	(2124)	6-11 1/8	(2111)	6-9 7/16	(2068)	6-5 21/64	(1964)	6-3 53/64	(1926)
92	7-7 3/8	(2321)	7-7 5/8	(2327)	7-7 1/8	(2315)	7-5 7/16	(2272)	7-1 21/64	(2167)	6-11 53/64	(2129)
96	7-11 3/8	(2423)	7-11 5/8	(2429)	7-11 1/8	(2416)	7-9 7/16	(2373)	7-5 21/64	(2269)	7-3 53/64	(2231)

NOTE: Maximum glass size per sash is 41 sq. ft. (3.8 sq. meters). *The following picture sizes are greater that 41 sq. ft.*(3.8 sq. meters) *: 7272, 7278, 7284, 7292, 8092, 8096, 8872, 8878, 8884, 8892, 8896, 9672, 9678, 9684, 9692, 9696.*

For safety and/or code requirements, Marvin recommends tempered glass in all units with a frame size height of 71 1/8" (1807) *or larger.*

Units with Frame Size 25.2 sq. ft. (2.3 sq. meters) *and larger may require tempered glass.*

Standard Unit Measurements: 1" Casement Picture

Standard 1" Casement Picture Unit Measurements										
Width										
CN	Masonry Opening		Rough Opening		Frame Size		Sash Size		Daylight Opening	
	ft - in	mm	ft - in	mm	ft - in	mm	ft-in	mm	ft - in	mm
40	3-4 1/2	(1029)	3-5	(1041)	3-4	(1016)	3-2 5/16	(973)	2-10 13/64	(869)
48	4-0 1/2	(1232)	4-1	(1245)	4-0	(1219)	3-10 5/16	(1176)	3-6 13/64	(1072)
56	4-8 1/2	(1435)	4-9	(1448)	4-8	(1422)	4-6 5/16	(1379)	4-2 13/64	(1275)
60	5-0 1/2	(1537)	5-1	(1549)	5-0	(1524)	4-10 5/16	(1481)	4-6 13/64	(1377)
64	5-4 1/2	(1638)	5-5	(1651)	5-4	(1626)	5-2 5/16	(1583)	4-10 13/64	(1478)
72	6-0 1/2	(1842)	6-1	(1854)	6-0	(1829)	5-10 5/16	(1786)	5-6 13/64	(1682)
80	6-8 1/2	(2045)	6-9	(2057)	6-8	(2032)	6-6 5/16	(1989)	6-2 13/64	(1885)
88	7-4 1/2	(2248)	7-5	(2261)	7-4	(2235)	7-2 5/16	(2192)	6-10 13/64	(2088)
96	8-0 1/2	(2451)	8-1	(2464)	8-0	(2438)	7-10 5/16	(2395)	7-6 13/64	(2291)

Standard 1" Casement Picture Unit Measurements												
Height												
CN	Masonry Opening		Rough Opening		Frame Size		Sash Size		Daylight Opening (Std Btm Rail)		Daylight Opening (Tall Btm Rail)	
	ft - in	mm	ft - in	mm	ft - in	mm	ft-in	mm	ft - in	mm	ft - in	mm
12	0-11 3/8	(289)	0-11 5/8	(295)	0-11 1/8	(283)	0-9 7/16	(240)	0-5 21/64	(135)	0-3 53/64	(97)
14	1-1 3/8	(340)	1-1 5/8	(346)	1-1 1/8	(333)	0-11 7/16	(290)	0-7 21/64	(186)	0-5 53/64	(148)
16	1-3 3/8	(391)	1-3 5/8	(397)	1-3 1/8	(384)	1-1 7/16	(341)	0-9 21/64	(237)	0-7 53/64	(199)
18	1-5 3/8	(441)	1-5 5/8	(448)	1-5 1/8	(435)	1-3 7/16	(392)	0-11 21/64	(288)	0-9 53/64	(250)
20	1-7 3/8	(492)	1-7 5/8	(498)	1-7 1/8	(486)	1-5 7/16	(443)	1-1 21/64	(339)	0-11 53/64	(301)
24	1-11 3/8	(594)	1-11 5/8	(600)	1-11 1/8	(587)	1-9 7/16	(544)	1-5 21/64	(440)	1-3 53/64	(402)
28	2-3 3/8	(695)	2-3 5/8	(702)	2-3 1/8	(689)	2-1 7/16	(646)	1-9 21/64	(542)	1-7 53/64	(504)
32	2-7 3/8	(797)	2-7 5/8	(803)	2-7 1/8	(791)	2-5 7/16	(748)	2-1 21/64	(643)	1-11 53/64	(605)
36	2-11 3/8	(899)	2-11 5/8	(905)	2-11 1/8	(892)	2-9 7/16	(849)	2-5 21/64	(745)	2-3 53/64	(707)
40	3-3 3/8	(1000)	3-3 5/8	(1006)	3-3 1/8	(994)	3-1 7/16	(951)	2-9 21/64	(847)	2-7 53/64	(809)
44	3-7 3/8	(1102)	3-7 5/8	(1108)	3-7 1/8	(1095)	3-5 7/16	(1052)	3-1 21/64	(948)	2-11 53/64	(910)
48	3-11 3/8	(1203)	3-11 5/8	(1210)	3-11 1/8	(1197)	3-9 7/16	(1154)	3-5 21/64	(1050)	3-3 53/64	(1012)
54	4-5 3/8	(1356)	4-5 5/8	(1362)	4-5 1/8	(1349)	4-3 7/16	(1306)	3-11 21/64	(1202)	3-9 53/64	(1164)
56	4-7 3/8	(1407)	4-7 5/8	(1413)	4-7 1/8	(1400)	4-5 7/16	(1357)	4-1 21/64	(1253)	3-11 53/64	(1215)
60	4-11 3/8	(1508)	4-11 5/8	(1514)	4-11 1/8	(1502)	4-9 7/16	(1459)	4-5 21/64	(1355)	4-3 53/64	(1317)
64	5-3 3/8	(1610)	5-3 5/8	(1616)	5-3 1/8	(1603)	5-1 7/16	(1560)	4-9 21/64	(1456)	4-7 53/64	(1418)
72	5-11 3/8	(1813)	5-11 5/8	(1819)	5-11 1/8	(1807)	5-9 7/16	(1764)	5-5 21/64	(1659)	5-3 53/64	(1621)
78	6-5 3/8	(1965)	6-5 5/8	(1972)	6-5 1/8	(1959)	6-3 7/16	(1916)	5-11 21/64	(1812)	5-9 53/64	(1774)
84	6-11 3/8	(2118)	6-11 5/8	(2124)	6-11 1/8	(2111)	6-9 7/16	(2068)	6-5 21/64	(1964)	6-3 53/64	(1926)
92	7-7 3/8	(2321)	7-7 5/8	(2327)	7-7 1/8	(2315)	7-5 7/16	(2272)	7-1 21/64	(2167)	6-11 53/64	(2129)
96	7-11 3/8	(2423)	7-11 5/8	(2429)	7-11 1/8	(2416)	7-9 7/16	(2373)	7-5 21/64	(2269)	7-3 53/64	(2231)

NOTE: Maximum glass size per sash is 61 sq. ft. (5.7 sq. meters) *9692 and 9696 are greater than 61 sq. feet* (5.7 sq. meters) *of glass.*

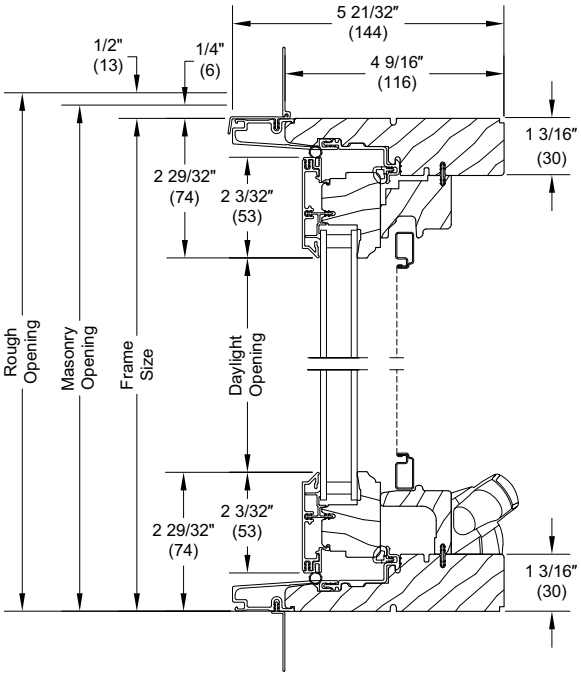
For safety and/or code requirements. Marvin recommends tempered glass in all units with a frame height of 71 1/8" (1807) *or larger.*

Units with frame size 25.2 sq. ft. (2.37 sq. meters) *and larger may require tempered glass.*

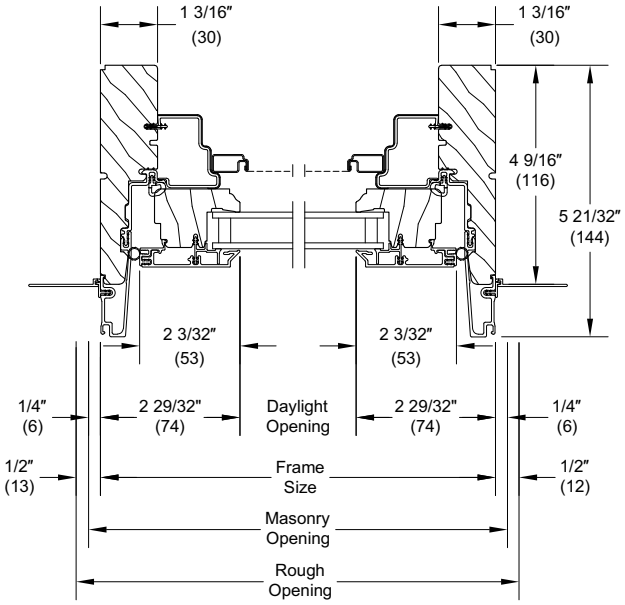
Section Details: Operating/Stationary/Picture - 3/4" (19) IG

Scale: 3" = 1' 0"

Operating

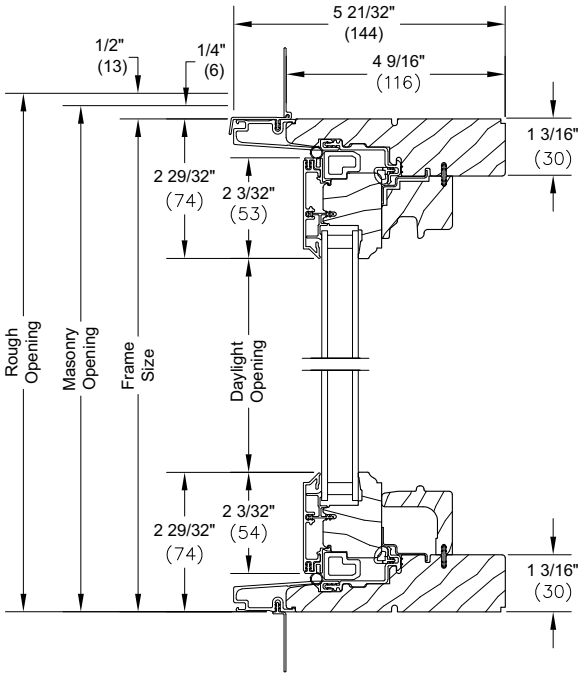


Head Jamb and Sill

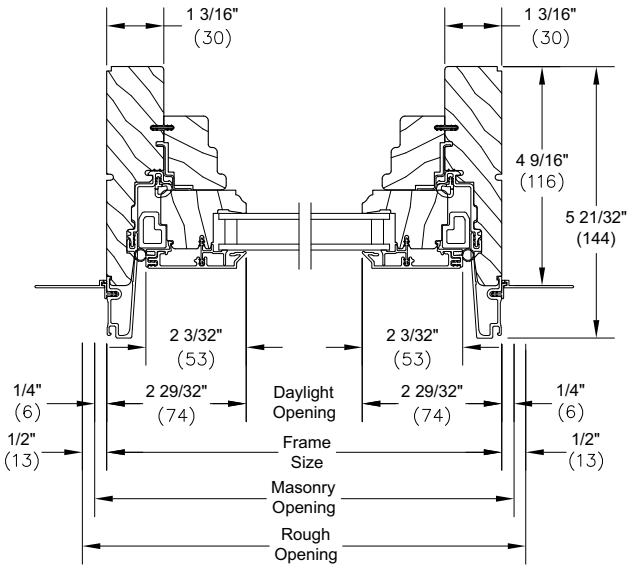


Jambs

Stationary/Picture



Head Jamb and Sill



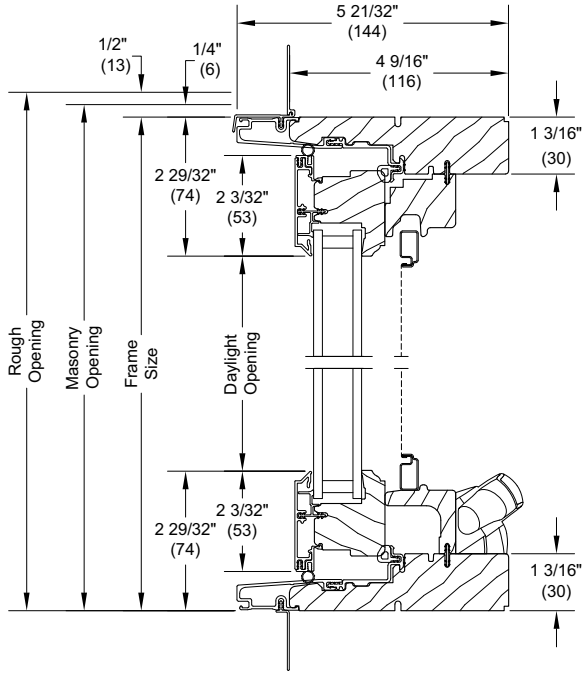
Jambs

UCA UCANF-33

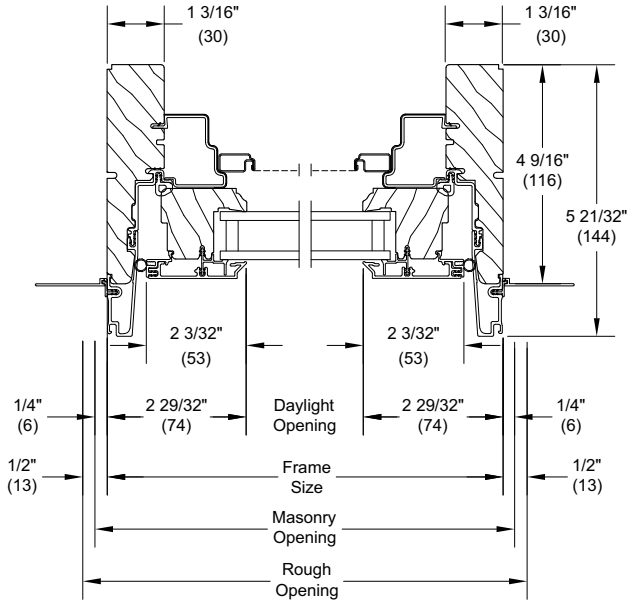
Section Details: Operating/Stationary/Picture - 1" (25) IG

Scale: 3" = 1' 0"

Operating

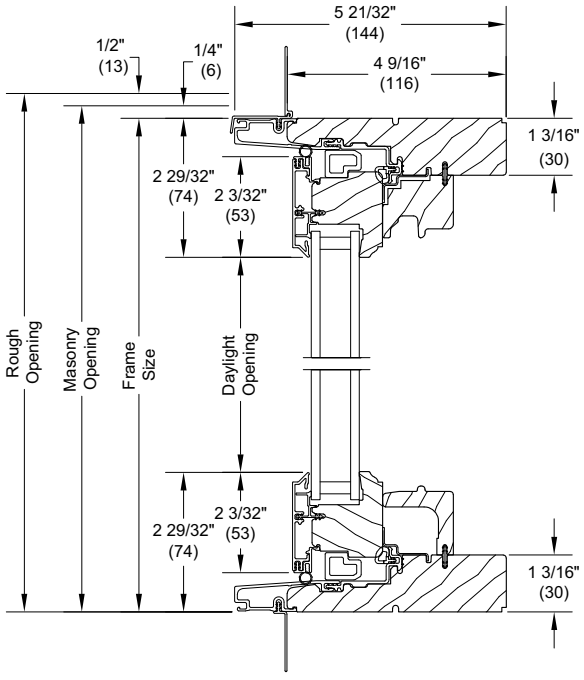


Head Jamb and Sill

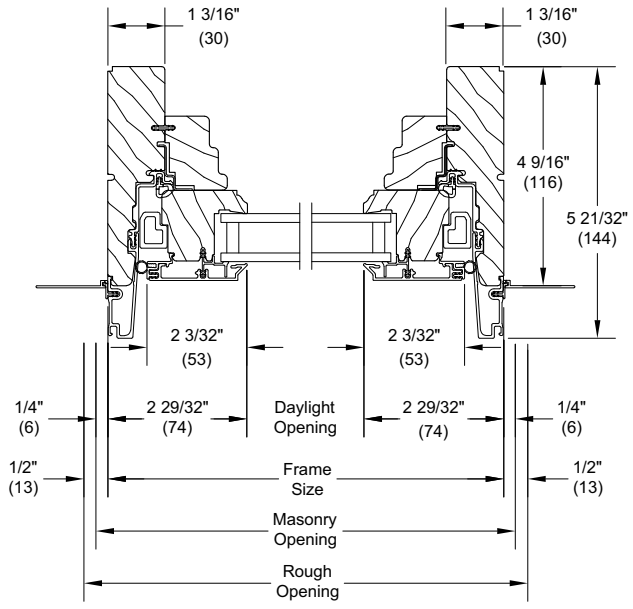


Jambs

Stationary/Picture



Head Jamb and Sill

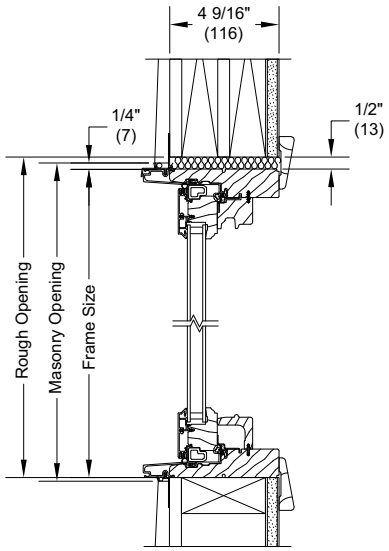


Jambs

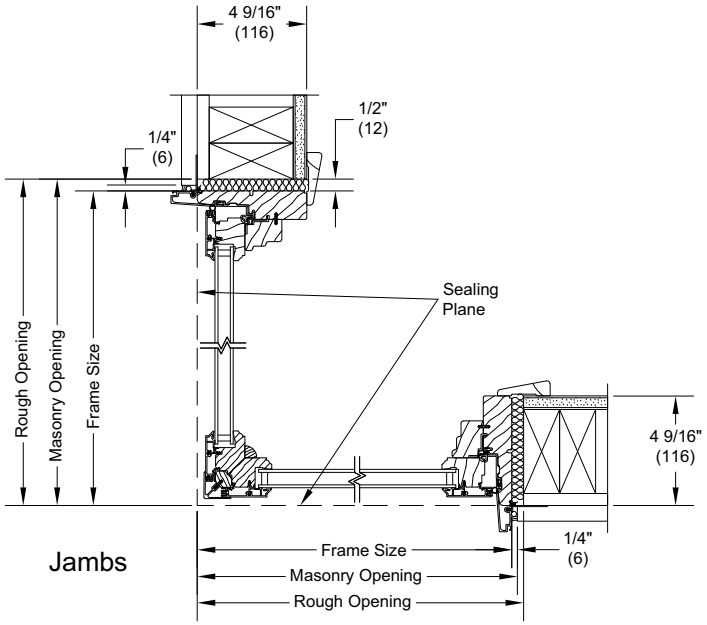
Section Details: Ultimate Casement Corner Units

Scale: 3" = 1' 0"

Head Jamb
And Sill



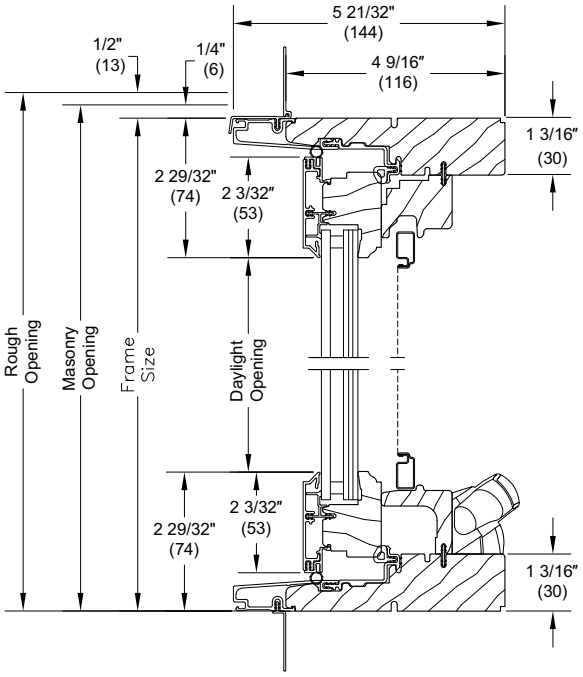
Jambs



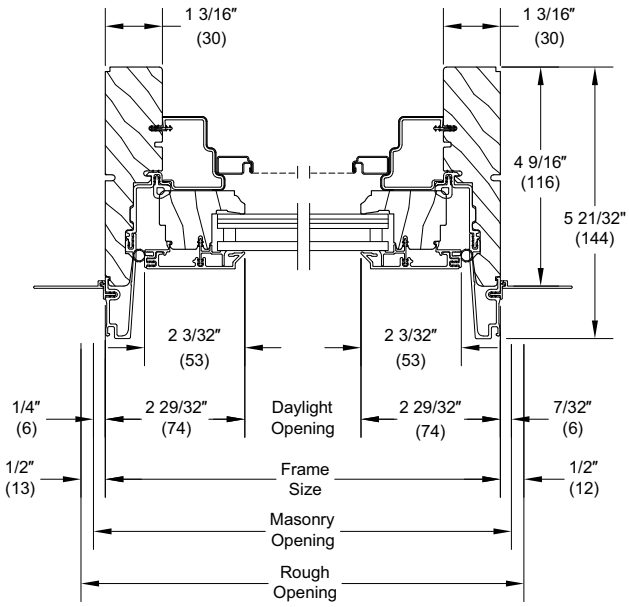
Section Details: IZ3/IZ4 Operating/Stationary/Picture - 3/4" (19) IG

Scale: 3" = 1' 0"

Operating

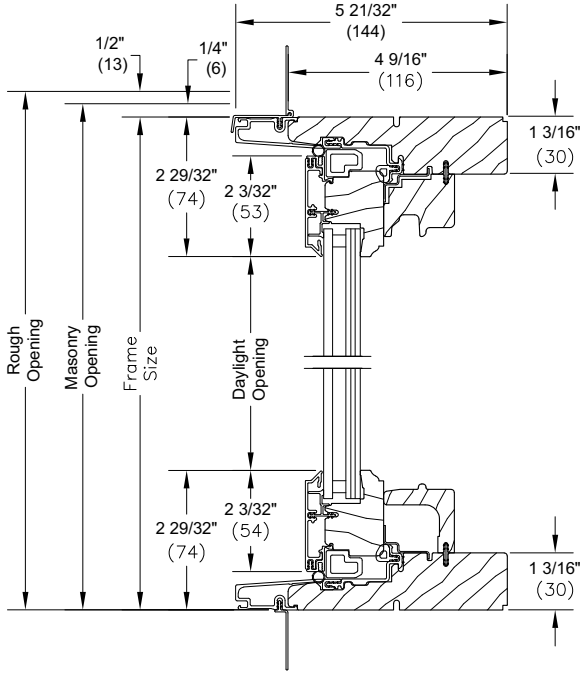


Head Jamb and Sill

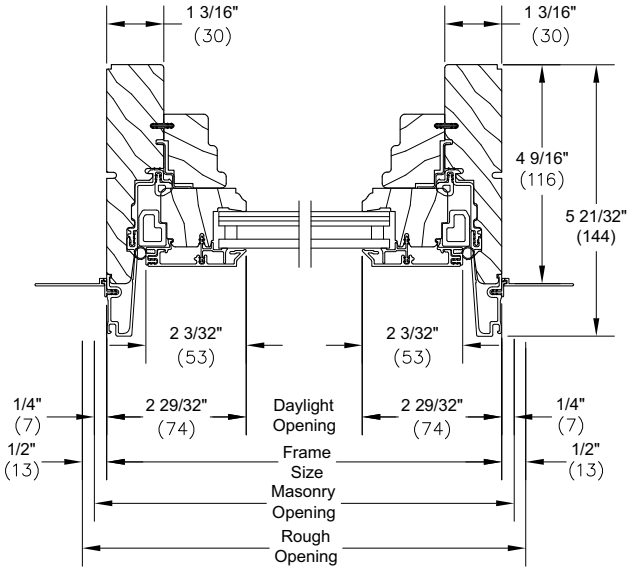


Jambs

Stationary/Picture



Head Jamb and Sill

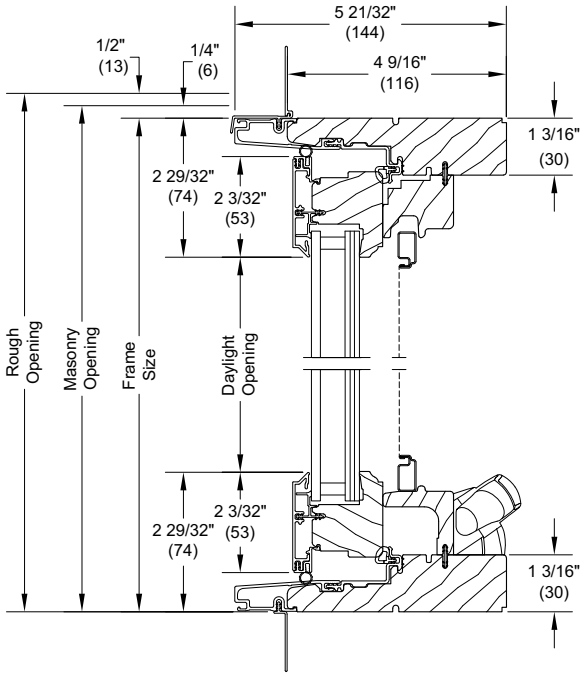


Jambs

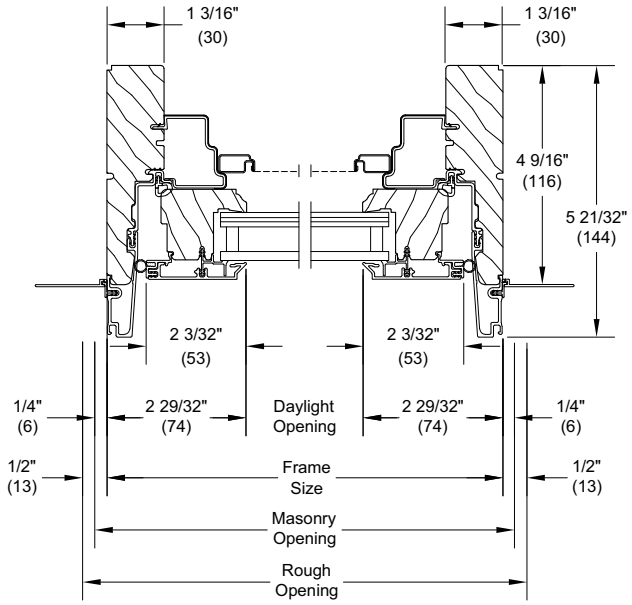
Section Details: IZ3/IZ4 Operating and Stationary/Picture - 1" (25) IG

Scale: 3" = 1' 0"

Operating

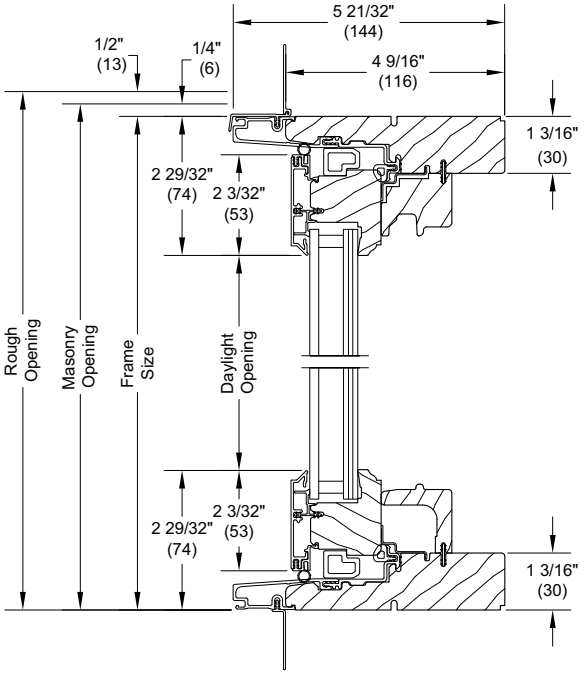


Head Jamb and Sill

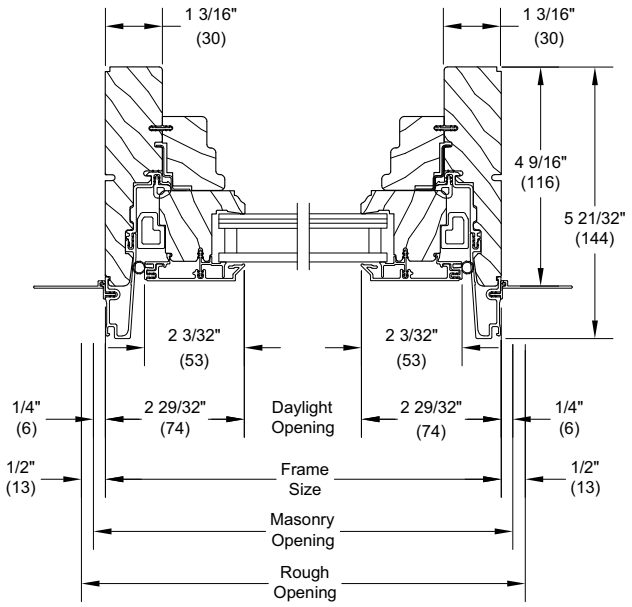


Jambs

Stationary/Picture



Head Jamb and Sill

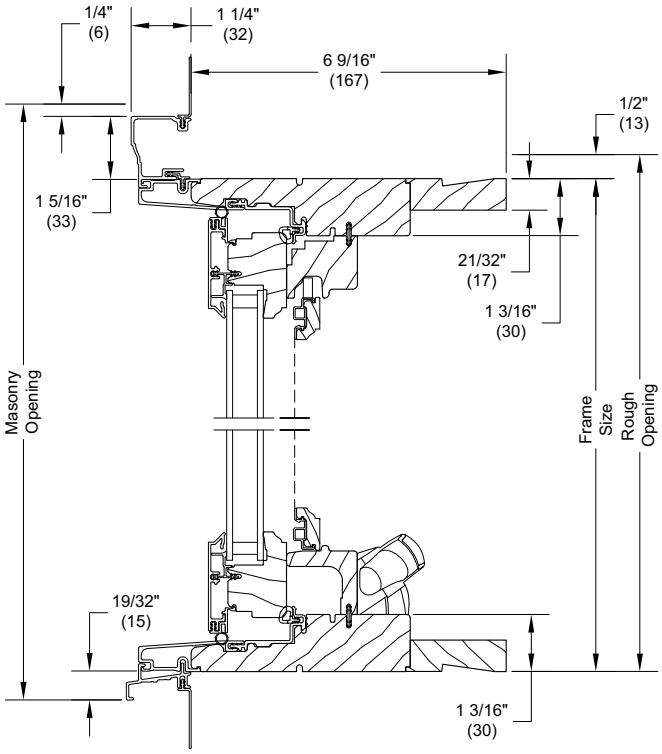


Jambs

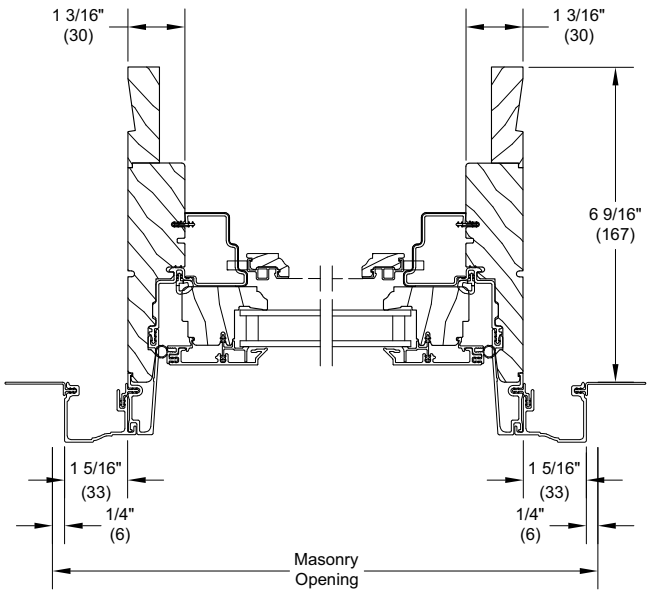
Section Details: Casing, 6 9/16" (167) Jambs, Wood Screen

Scale: 3" = 1' 0"

Clad BMC

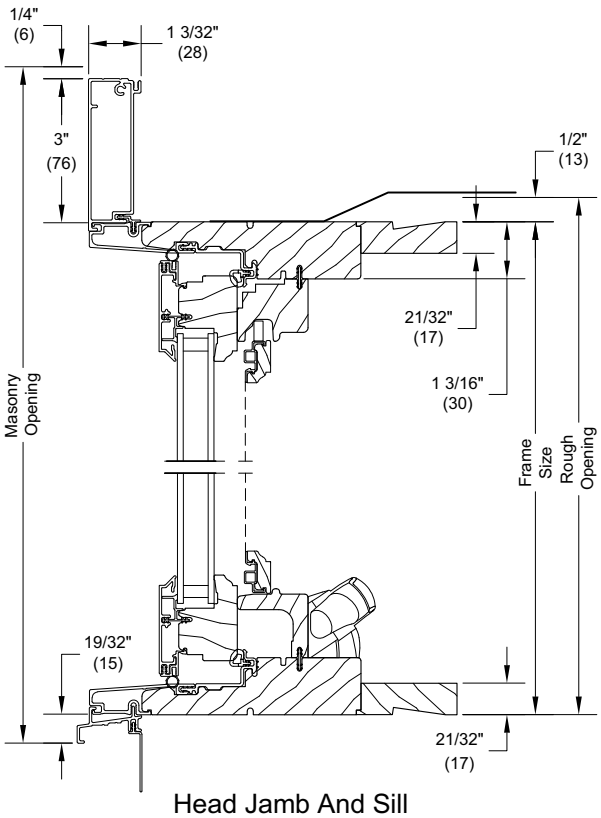


Head Jamb and Sill

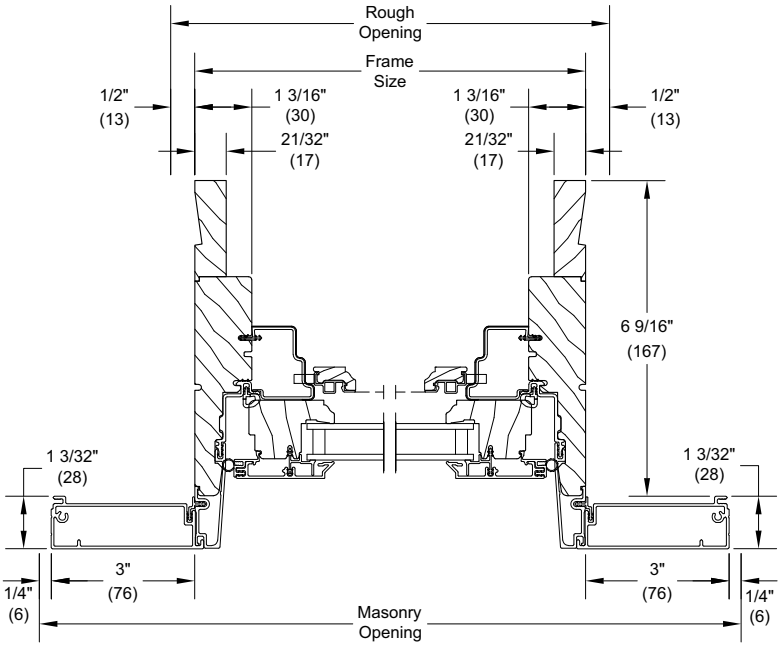


Jambs

Clad Flat Casing



Head Jamb And Sill
Clad Flat Casing with Wood Screen

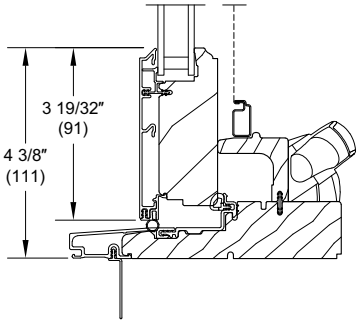


Jambs
Clad Flat Casing with Wood Screen

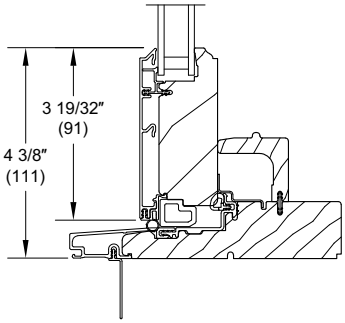
UCA UCANF-38

Section Details: Tall Bottom Rail Option

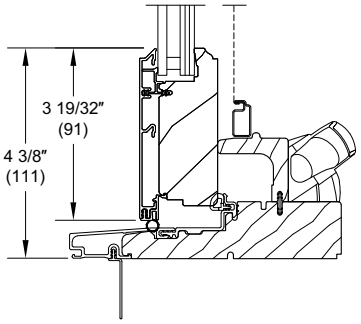
Scale: 3" = 1’ 0"



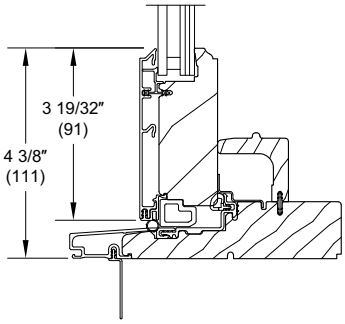
Standard Operator



Standard Stationary



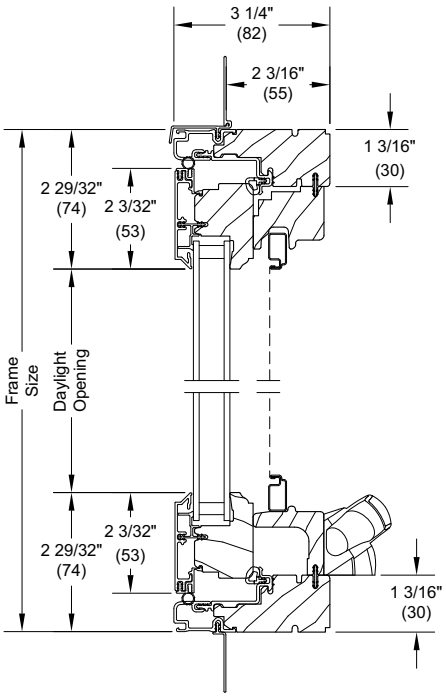
IZ3 Operator



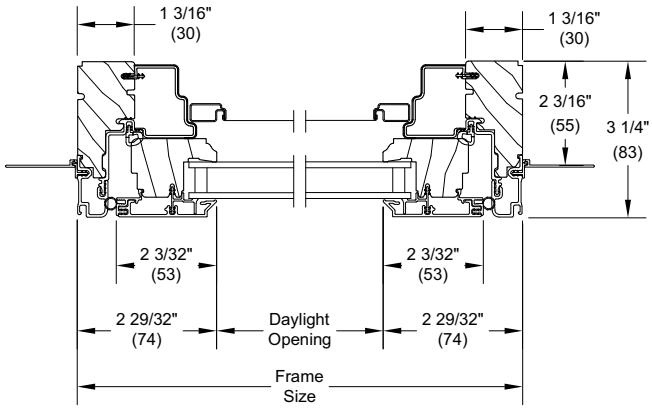
IZ3 Stationary

Section Details: Casement / Awning Operating - Narrow Frame

Scale: 3" = 1' 0"



Head Jamb and Sill

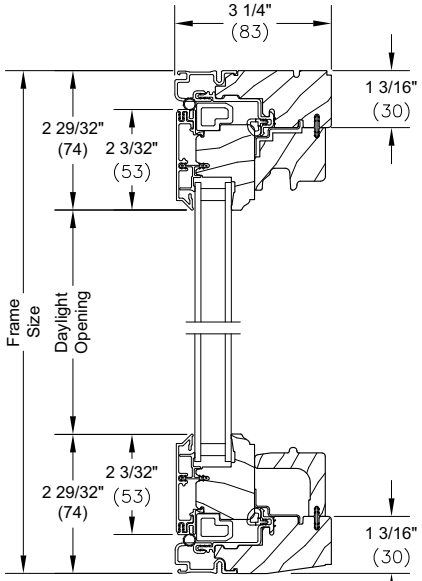


Jambs

NOTE: Square sticking is the default for the narrow frame product.

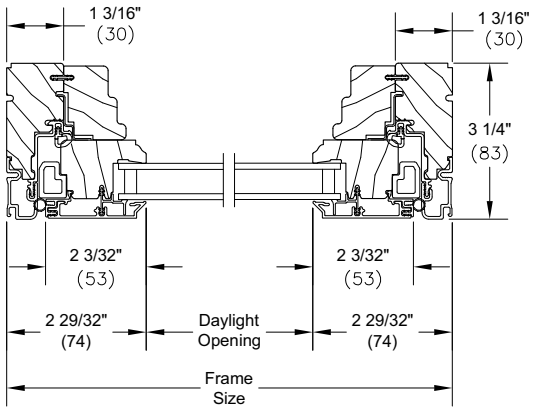
Section Details: Narrow Frame UCA/UAWN Operating/Picture - DH Frame w/ Sloped Sill

Scale: 3" = 1' 0"

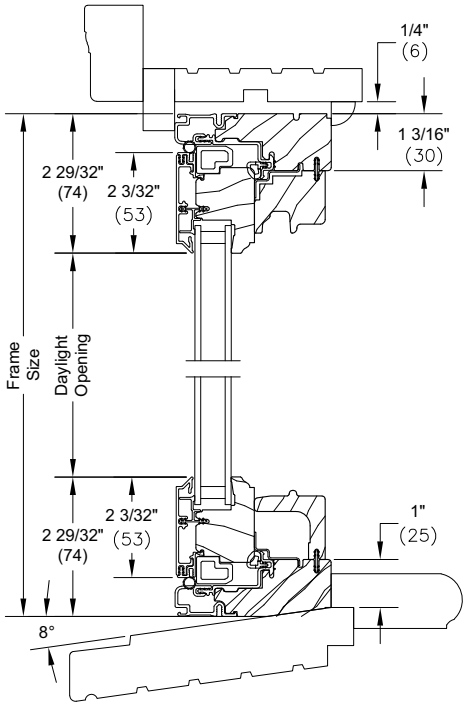


Head Jamb and Sill

UCANF Picture - Casement Frame w/sloped Sill

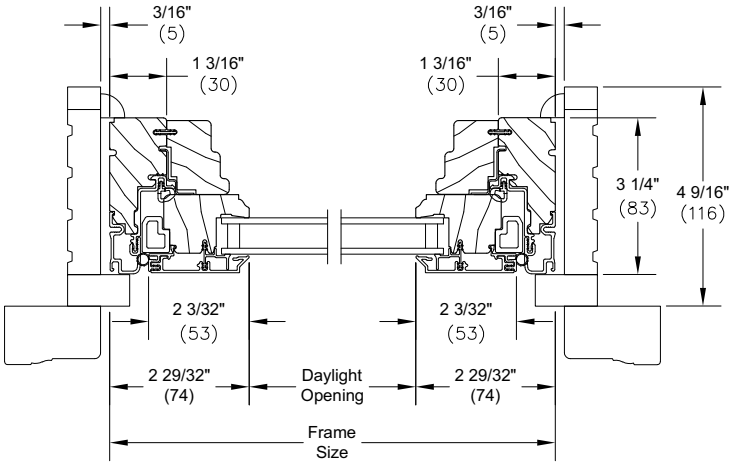


Jambs



Head Jamb and Sill

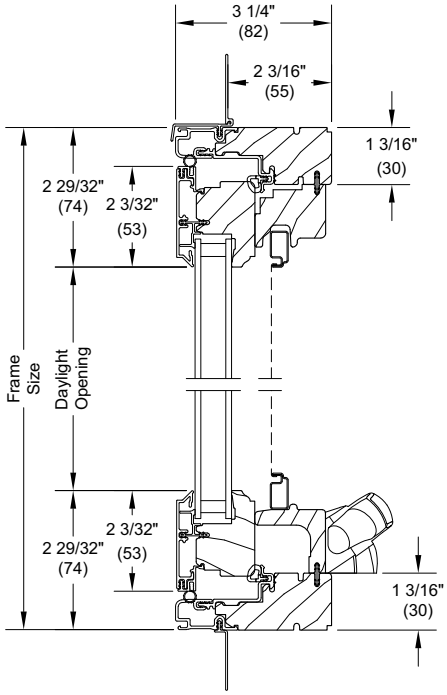
UCANF Picture - Double Hung Frame w/sloped Sill



Jambs

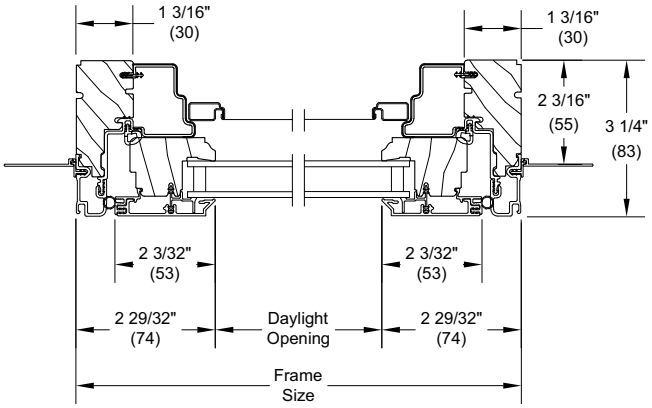
Section Details: Narrow Frame Casement / Awning Operating / Picture - Casement Frame

Scale: 3" = 1' 0"

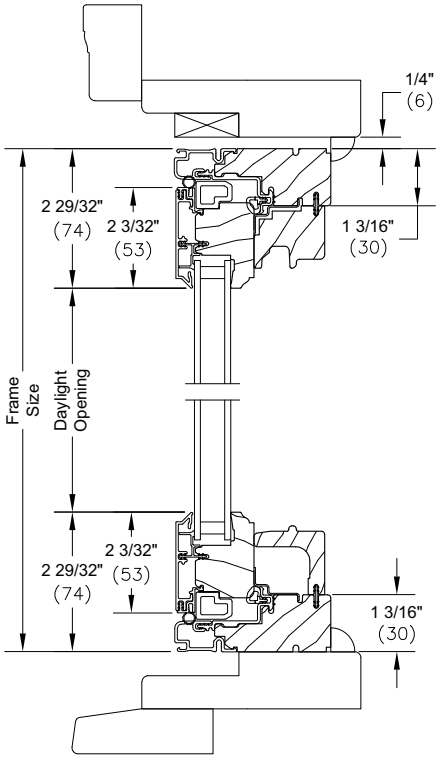


Head Jamb and Sill

UCANF Operator - Casement Frame

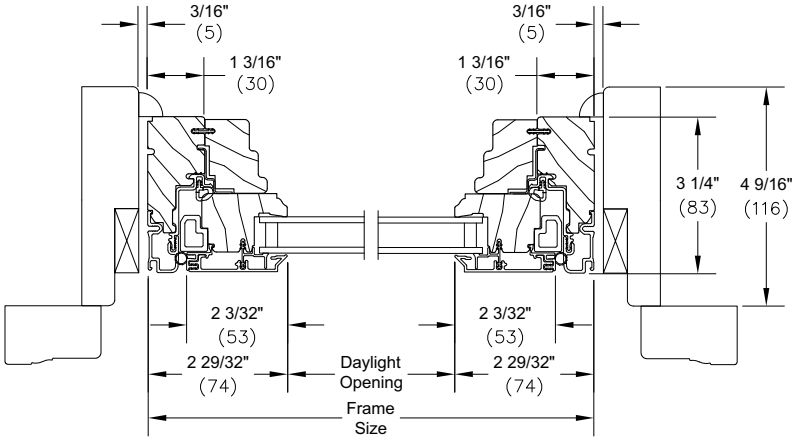


Jambs



Head Jamb and Sill

UCANF Picture - Casement Frame

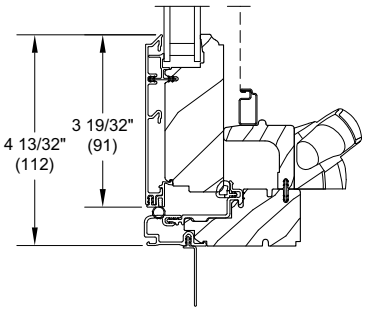


Jambs

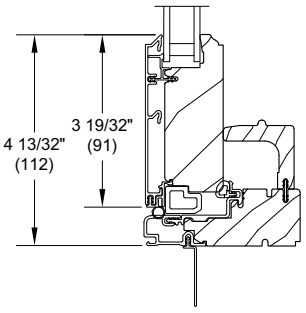
NOTE: Square sticking is the default for the narrow product.

Section Details: Tall Bottom Rail Option - Narrow Frame

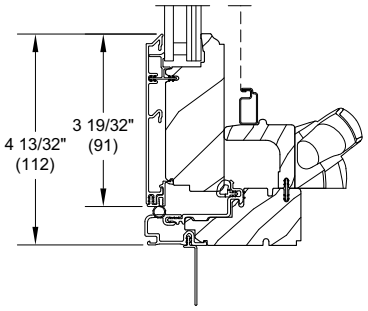
Scale: 3" = 1' 0"



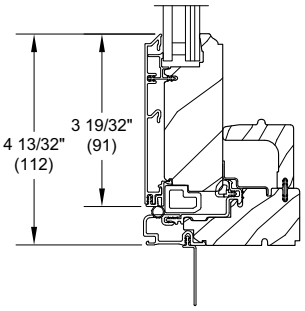
Operator (3/4" IG)



Stationary (3/4" IG)

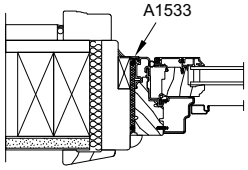


Operator (IZ3)

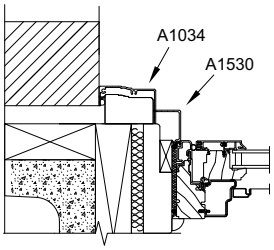


Stationary (IZ3)

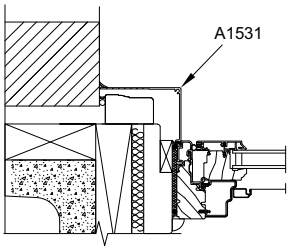
Section Details: Clad Applications - Narrow Frame



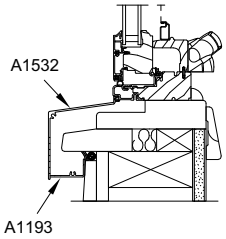
Frame Expander



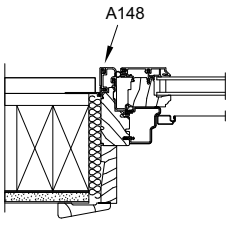
Panning (BMC shown)



Panning (Masonry shown)



Sill Panning



Panning with Kerf Cover