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

APPLICANT: Sandra J. and Mark C. Parsons

LOCATION: Old and Historic Alexandria District
322 Commerce Street

ZONE: RM/Residential Townhouse Zone

STAFF RECOMMENDATION

Staff recommends approval of the Permit to Demolish/Capsulate (partial) and Certificate of Appropriateness for alterations, with the condition that the window glazing comply with the *Alexandria New and Replacement Window Performance Specifications in the Historic Districts.*

GENERAL NOTES TO THE APPLICANT

1. APPEAL OF DECISION: In accordance with the Zoning Ordinance, if the Board of Architectural Review denies or approves an application in whole or in part, the applicant or opponent may appeal the Board's decision to City Council on or before 14 days after the decision of the Board.

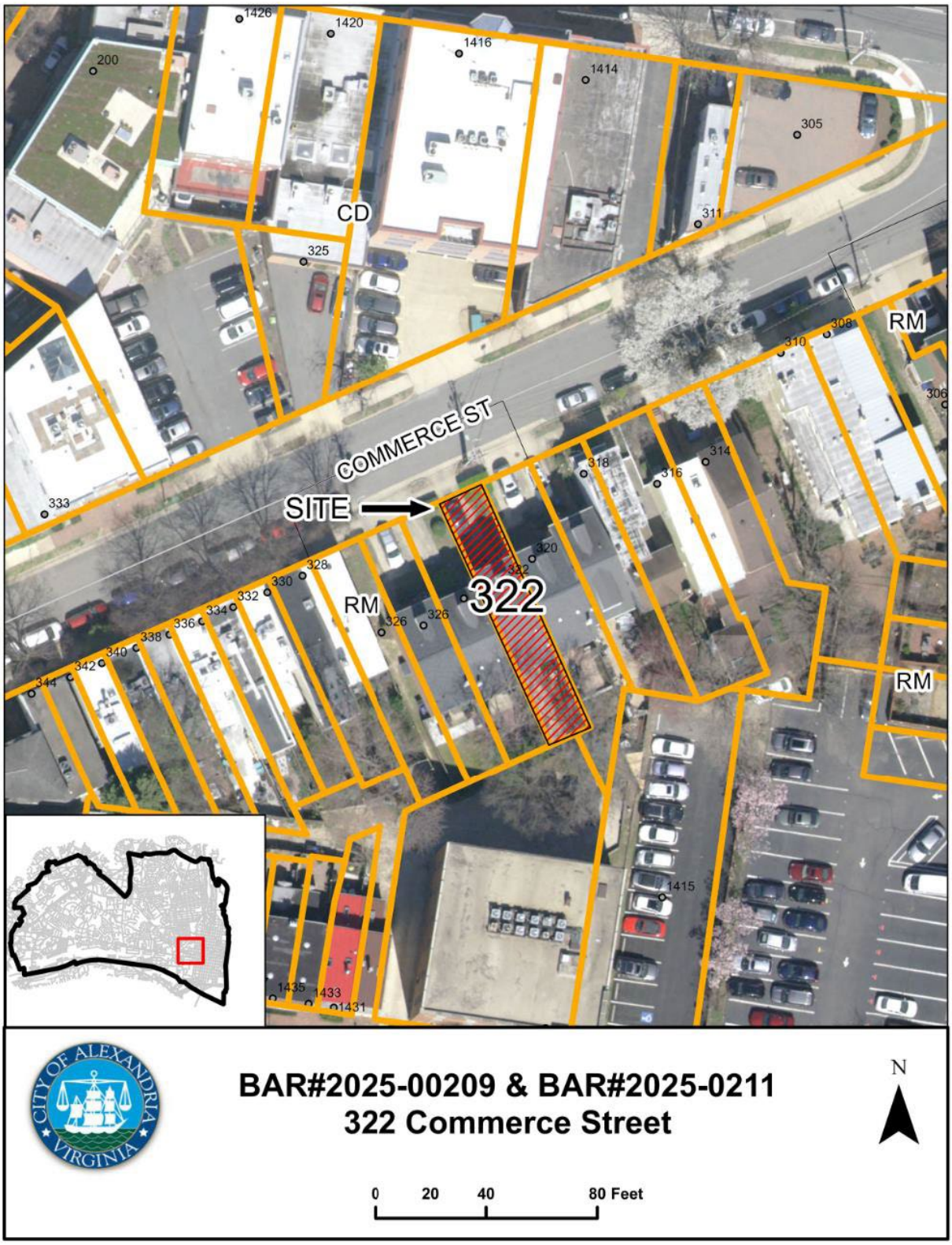
2. COMPLIANCE WITH BAR POLICIES: All materials must comply with the BAR's adopted policies unless otherwise specifically approved.

3. BUILDING PERMITS: Most projects approved by the Board of Architectural Review require the issuance of one or more construction permits by Department of Code Administration (including signs). The applicant is responsible for obtaining all necessary construction permits after receiving Board of Architectural Review approval. Contact Code Administration, Permit Center, 4850 Mark Center Drive, Suite 2015, 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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BAR#2025-00209 & BAR#2025-0211
322 Commerce Street
N
0 20 40 80 Feet

Note: Staff coupled the applications for a Permit to Demolish (BAR #2025-00209) and Certificate of Appropriateness (BAR #2025-00211) 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 add a rooftop dormer window to the rear/southeast elevation of the townhouse at 322 Commerce Street.

Permit to Demolish/Capsulate
The applicant proposes to remove a portion of the roof measuring 8' by 3'11" in order to construct a dormer window.

Certificate of Appropriateness
The proposed dormer will measure 8'4" by 5'9".

Site context
The building is on the southeast side of Commerce Street. The rear of the property is visible from the parking lots at 1401 and 1415 Duke Street. The proposed dormer will therefore be visible from a public right of way. See Figure 1.

Figure 1: Rear elevation from Duke Street; dormer location outlined in red

II. HISTORY

Building permit #10133 was issued to owner and contractor Commerce Street Association on November 23, 1977 for the construction of 320 – 326A Commerce. City tax records indicate that this block was constructed in **1978**. Each building in this row is a two-story, two-bay, brick townhouse with a dormer centered on each rooftop on the primary/northwest elevation. Based on building permits, the front portion of the roof was replaced in 2015.

Previous BAR Approvals
BAR2015-00325 Administrative approval to replace the existing three-tab roof in kind. The associated building permit, BLD2015-01953 approves: "Removal of "shingle and plywood on front and replace with new plywood and shingles." The plan description in the permit notes that "BAR staff in 1998 approved the exact replacement of this 3-tab roof." Staff was unable to locate this 1998 approval. However, the associated building permit, BLD98-02479, expired before the work was initiated.

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 areas 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. This is a non-historic building and the areas of proposed demolition are not of unusual or uncommon design and can easily be replicated. Staff therefore recommends approval of the Permit to Demolish/Capsulate.

Certificate of Appropriateness

The *Design Guidelines* state that "The style of the dormer should be appropriate to the architectural style of the existing structure." Staff finds the proposed dormer wholly appropriate for this 1978 building. Its 25-year shingles will match the existing shingles on the overall roof, the Hardie Plank siding is appropriate for a 1970s building, and the window materials comply with BAR requirements. The submitted window specifications do not indicate which window glazing will be used, so staff recommends that the glazing comply with *Alexandria New and Replacement Window Performance Specifications in the Historic Districts*. As seen in Figure 1, the gabled roof and six-over-six windows will match those of the adjoining properties, giving a harmonious look to the block. The Board approved the rear dormer at 320 Commerce Street on December 2, 1998 (BAR98-00197) and the one at 324 Commerce on September 1, 2021 (BAR2021-00418/419).

Staff therefore recommends approval of the project, with the condition that the window glazing comply with the *Alexandria New and Replacement Window Performance Specifications in the Historic Districts*.

STAFF

Susan Hellman, Historic Preservation Planner, Planning & Zoning
Tony LaColla, AICP, Land Use Services Division Chief, Planning & Zoning

IV. CITY DEPARTMENT COMMENTS

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

Zoning

C-1 Proposed demo and rear dormer addition will comply with Zoning.

Code Administration

C-1 A building permit is required.

Transportation and Environmental Services

F-1 No comments.

Alexandria Archaeology

F-1 No Archaeology comments

V. ATTACHMENTS

- Application Materials
- Completed application
- Plans
- Material specifications
- Scaled survey plat if applicable
- Photographs
- Public comment
- Any other supporting documentation

BAR CASE# BAR2025-00209 & BAR2025-00211
(OFFICE USE ONLY)

ADDRESS OF PROJECT: 322 Commerce Street Alexandria VA 22314

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

TAX MAP AND PARCEL: 073.02-07-14 **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: Sandra J. Parsons

Address: [redacted]

City: [redacted] State: [redacted] Zip: [redacted]

Phone: [redacted] E-mail: [redacted]

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

Name: Eduardo Grassioto Phone: [redacted]

E-mail: [redacted]

Legal Property Owner:

Name: Sandra J. Parsons and Mark C. Parsons

Address: [redacted]

City: [redacted] State: [redacted] Zip: [redacted]

Phone: [redacted] E-mail: [redacted]

BAR CASE# BAR2025-00209 & BAR2025-00211

(OFFICE USE ONLY)

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

- ☐ NEW CONSTRUCTION
- ☒ EXTERIOR ALTERATION: *Please check all that apply.*
  - ☐ awning
  - ☐ doors
  - ☐ lighting
  - ☒ other Dormer
  - ☐ 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).*

*Demo A Portion Of The Existing Rear/West Roof Slope.

*Construct A New Dormer At The Property's Rear/West Elevation Roof Slope.

SUBMITTAL REQUIREMENTS:

☐ Check this box if there is a homeowner's association for this property. If so, you must attach a copy of the letter approving the project.

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.

BAR2025-00209 & BAR2025-00211

BAR CASE# _____
(OFFICE USE ONLY)

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.

BAR2025-00209 & BAR2025-00211

BAR CASE# _____
(OFFICE USE ONLY)

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

- [x] I understand that after reviewing the proposed alterations, BAR staff will invoice the appropriate filing fee in APEX. The application will not be processed until the fee is paid online.
- [x] 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.
- [x] I, the applicant, or an authorized representative will be present at the public hearing.
- [x] 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: Sandra Parsons

Printed Name: Sandra J. Parsons

Date: 5-19-25

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. Sandra J. Parsons	[redacted]	50%
2. Mark C. Parsons	[redacted]	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 322 Commerce Street 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. Sandra J. Parsons	[redacted]	50%
2. Mark C. Parsons	[redacted]	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.

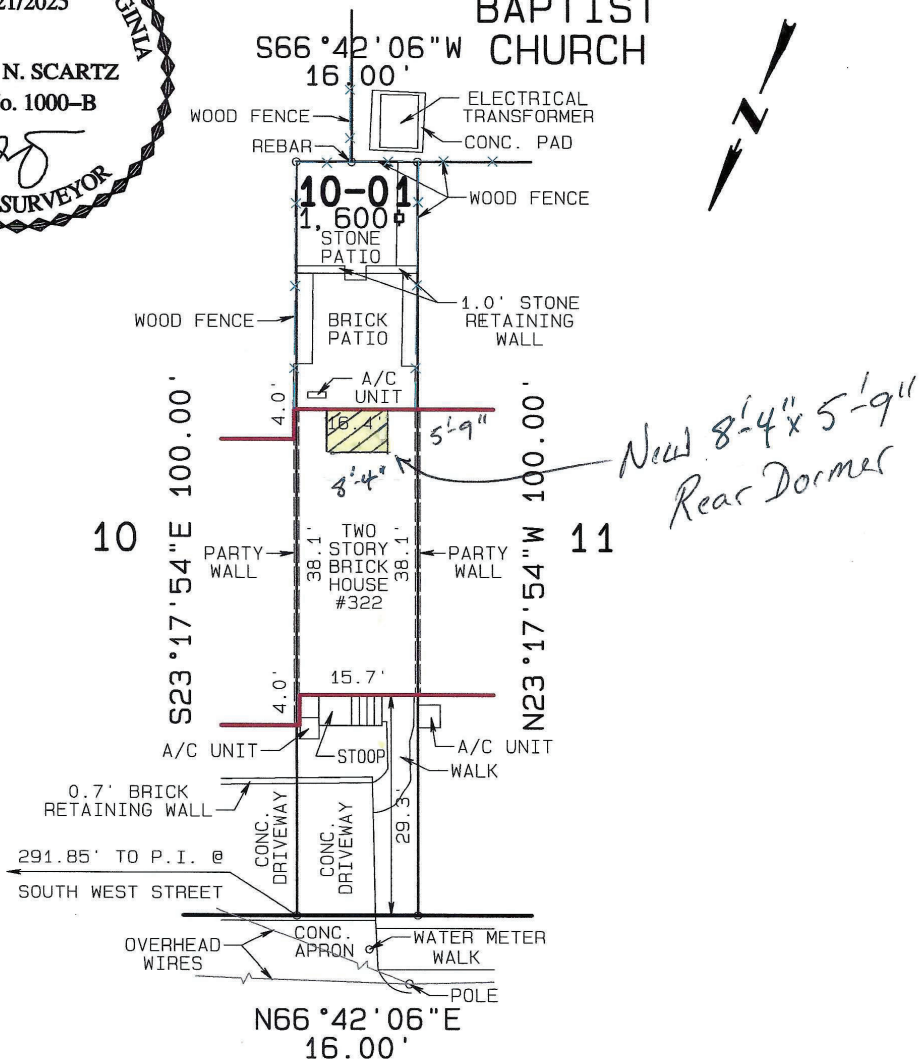
Name of person or entity	Relationship as defined by Section 11-350 of the Zoning Ordinance	Member of the Approving Body (i.e. City Council, Planning Commission, etc.)
1. N/A	N/A	N/A
2. N/A	N/A	N/A
3. N/A	N/A	N/A

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.

5-19-25 Sandra Parsons [signature]
Date Printed Name Signature

COMMONWEALTH OF VIRGINIA
03/21/2025
LARRY N. SCARTZ
Lic. No. 1000-B
LAND SURVEYOR



PHYSICAL IMPROVEMENTS SURVEY

LOT 10-01

COMMERCE STREET TOWNHOUSES

CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=20' DATE: MARCH 21, 2025

NO TITLE REPORT FURNISHED.

PLAT SUBJECT TO RESTRICTIONS & EASEMENTS OF RECORD OR OTHERWISE.

FENCE LOCATIONS, IF SHOWN, ARE APPROXIMATE ONLY AND DO NOT CERTIFY AS TO OWNERSHIP.

CASE NAME: MARK C. OR SANDRA J. PARSONS

SCARTZ SURVEYS
LARRY N. SCARTZ
CERTIFIED LAND SURVEYOR
WOODBRIDGE, VIRGINIA
LOCAL (703) 494-4181
FAX (703) 494-3330
LARRY.SCARTZ@SCARTZ.COM

TAX MAP# 073.02-07-14 JOB# 20250124 MN

Department of Planning and Zoning
Floor Area Ratio and Open Space Calculations for
Single and Two-Family Residential Outside Historic Districts

A

A. Property Information

A1. 322 Commerce Street (Street Address) — RM (Zone)

A2. 1,600.00 (Total Lot Area) x 1.50 (Floor Area Ratio Allowed by Zone) = 2,400.00 (Maximum Allowable Floor Area)

B. Existing Gross Floor Area

Existing Gross Area		Allowable Exclusions**	
Basement		Basement**	
First Floor	624.84	Stairways**	97.00
Second Floor	624.84	Mechanical**	
Third Floor	354.67	Attic less than 7'**	270.17
Attic	270.17	Porches**	
Porches		Balcony/Deck**	
Balcony/Deck		Garage**	
Garage		Other***	
Other***		Other***	
B1. Total Gross	1,874.52	**B2. Total Exclusions**	367.17

B1. 1,874.52 Sq. Ft. — Existing Gross Floor Area*

B2. 367.17 Sq. Ft. — Allowable Floor Exclusions**

B3. 1,507.35 Sq. Ft. — Existing Floor Area Minus Exclusions *(subtract B2 from B1)*

Comments for Existing Gross Floor Area

C. Proposed Gross Floor Area

Proposed Gross Area		Allowable Exclusions**	
Basement		Basement**	
First Floor		Stairways**	
Second Floor		Mechanical**	
Third Floor	48.14	Attic less than 7'**	
Attic		Porches**	
Porches		Balcony/Deck**	
Balcony/Deck		Garage**	
Garage		Other***	
Other***		Other***	
C1. Total Gross	48.14	**C2. Total Exclusions**	0.00

C1. 48.14 Sq. Ft. — Proposed Gross Floor Area*

C2. 0.00 Sq. Ft. — Allowable Floor Exclusions**

C3. 48.14 Sq. Ft. — Proposed Floor Area Minus Exclusions *(subtract C2 from C1)*

D. Total Floor Area

D1. 1,555.49 Sq. Ft. — Total Floor Area *(add B3 and C3)*

D2. 2,400 Sq. Ft. — Total Floor Area Allowed by Zone *(A2)*

E. Open Space (RA & RB Zones)

E1. Sq. Ft. — Existing Open Space

E2. Sq. Ft. — Required Open Space

E3. Sq. Ft. — Proposed Open Space

Notes

**Gross floor area for residential single and two-family dwellings in the R-20, R-12, R-8, R-5, R-2-5, RB and RA zones (not including properties located within a Historic District) is the sum of all areas under roof of a lot, measured from exterior walls.*

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

**** Refer to the Zoning Ordinance (Section 2-145(A)) and consult with Zoning Staff for additional allowable exclusions. Additional exclusions may include space under balconies, retractable awnings, etc.*

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

Signature: _____ Date: 5-15-25

1. DESIGN LOADS

USE	LL(p.s.f.)	DL(p.s.f.)
FLOOR	40	10
SLEEPING ROOMS	30	10
DECKS	40	10

USE	LL(p.s.f.)	DL(p.s.f.)
EXTERIOR BALCONY	60	10
GROUND SNOW LOAD	30	17
ROOFS	20	17

2. LATERAL LOADS

- WIND 115 Miles Per Hour

3. SOIL VALUE

- ASSUMED TO BE 1500 PSF BEARING CAPACITY.
- WATER TABLE, MIN. 2'-0" BELOW BOTTOM OF ALL CONCRETE SLABS AND FOOTINGS.
- SOIL TYPES, FOOTINGS, FOUNDATIONS, WALLS, AND SLABS SHALL NOT BE PLACED ON OR IN MARINE CLAY, PEAT OR OTHER ORGANIC MATERIALS.

4. FOOTINGS

- BOTTOMS OF ALL FOOTINGS SHALL EXTEND 1'-0" MINIMUM INTO UNDISTURBED SOIL AND WHERE SUBJECT TO FROST ACTION, AT LEAST 2' BELOW FINISHED GRADE.
- FOOTINGS FOR SOLID MASONRY PIERS SHALL PROJECT 9" EACH SIDE OF THE PIER ABOVE AND SHALL BE 1'-6" DEEP UNLESS OTHERWISE NOTED.

5. CONCRETE

- ALL CONCRETE SHALL BE 3500 PSI @ 28 DAYS. (EXCEPT STOOP & GARAGE WHICH SHALL BE 3500 PSI @ 28 DAYS.) MAXIMUM SLUMP OF 5".
- CONCRETE TEST CYLINDERS SHALL BE TAKEN IN ACCORDANCE WITH ACI CODE AND CONTRACT SPECIFICATIONS.
- REINFORCING STEEL SHALL BE HIGH STRENGTH NEW BILLET DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.
- WELDED WIRE MESH SHALL CONFORM TO ASTM 185.
- ALL EXPOSED EXTERIOR CONCRETE SHALL BE 6 +/- 1% AIR ENTRAINED.
- DETAILS OF REINFORCING SHALL CONFORM TO ACI 318 AND CRSI STANDARDS.
- CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE AS FOLLOWS:

	EXPOSED			
	NOT EXPOSED	#5 OR SMALLER	#6 OR LARGER	EARTH FORMED
SLABS	3/4"	1-1/2"	2"	3"
BEAMS	1-1/2"	1-1/2"	2"	3"
COLUMNS	1-1/2"	1-1/2"	2"	-
WALLS	3/4"	1-1/2"	2"	-
FOOTINGS	-	3"	3"	3"

6. CONCRETE FOUNDATION WALLS

- SEE DETAILS FOR 45# AND 60# LATERAL PRESSURE.
- FOOTINGS FOR 8" MASONRY OR CONCRETE WALLS SHALL BE 20" x 10"
- FOOTINGS FOR 10" MASONRY OR CONCRETE WALLS SHALL BE 20" x 10".
- FOOTINGS FOR 12" MASONRY OR CONCRETE WALLS SHALL BE 20" x 10".
- STEP FOOTINGS 2 HORIZONTAL UNITS TO 1 VERTICAL UNIT.
- FOOTINGS FOR MASONRY PIERS AND CHIMNEY SHALL HAVE 6" PROJECTIONS x 12" DEPTH.
- ALL FOOTINGS TO BE SIZED AS ABOVE UNLESS OTHERWISE NOTED.

7. CONCRETE SLABS ON GRADE

- UNLESS OTHERWISE NOTED, SLABS ON GRADE SHALL BE 4" THICK POURED CONCRETE AND REINFORCED WITH 6 x 6 W1.4 x W1.4 (#10/10) WELDED WIRE FABRIC IN THE MIDDLE PORTION OF THE SLAB THICKNESS. CONCRETE TO BE POURED ON 6 MIL POLYETHYLENE VAPOR BARRIER OVER 4" THICK GRAVEL.
- PLACING, LAP, ETC., SHALL CONFORM TO WRI STANDARDS.
- FILLING UNDER SLABS ON GRADE SHALL BE MADE WITH MATERIAL APPROVED BY THE GEOTECHNICAL ENGINEER AND SHALL BE COMPACTED IN A MANNER THAT WILL NOT DAMAGE FOUNDATION WALLS.

8. CONCRETE RETAINING WALLS

- FOOTING DOWELS SHALL PROJECT A MINIMUM OF 30 BAR DIAMETERS OR 24" WHICHEVER IS GREATER INTO WALL.
- PROVIDE WEAKENED PLANE CONTRACTION VERTICAL JOINTS AT APPROXIMATELY 25' O.C. STOP ALL HORIZONTAL BARS IN INSIDE FACE AT JOINTS.
- PROVIDE CONTINUOUS DRAINAGE SYSTEM BEHIND WALLS IN ACCORDANCE WITH SECTION R4O5.

9. MASONRY

- PIERS, PILASTERS, CHIMNEYS AND BEARING UNDER BEAMS SHALL BE SOLID MASONRY WITH TYPE S MORTAR ASTM C-270.
- BOND ALL MASONRY WITH METAL JOINT REINFORCEMENT EVERY 16" VERTICALLY.
- WALLS LESS THAN 5'-0" BELOW FINISHED GRADE SHALL BE 8" THICK MASONRY, 5'-0" TO 8'-0" SHALL BE 12" THICK MASONRY REINFORCED WITH #4'S @ 24" O.C. INTO THE FOOTING TO TOP OF THE WALL WITH CELLS OR VOIDS FILLED WITH PEA GRAVEL CONCRETE.
- TIE ALL BRICK VENEER TO WOOD STUD BACK-UP WITH CORRUGATED METAL TIES AT 24" O.C. (MAX).
- ALL MORTAR BELOW GRADE TO BE TYPE H.
- PROVIDE 3 COURSES OF SOLID BRICK OR 1 COURSE OF 100% SOLID (NOT FILLED) BLOCK CONTINUOUS BY 8" WIDTH UNDER ALL WOOD TRUSSES AND CONCRETE SLABS BEARING ON MASONRY WALLS.
- UNLESS OTHERWISE NOTED, PROVIDE 6 COURSES OF SOLID BRICK OR 2 COURSES OF 100% SOLID BLOCK, 8" WIDTH BY 2'-8" MINIMUM LENGTH AT ALL STRUCTURAL STEEL BEARING.
- PIERS INDICATED AS SOLID MASONRY SHALL BE 100% SOLID FROM TOP OF FOOTING TO BEAM BEARING.
- PIERS SHALL BE BONDED WITH HEADER COURSES.
- PROVIDE THOROUGH MASONRY CONTINUITY (CEMENT GROUT) WHERE PIERS EXTEND ABOVE STEEL BEAMS.

SPECIFICATION:

- EARTHQUAKE SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS 0.16 @ 1 SECOND PERIOD 0.053
- RESIDENTIAL SEISMIC DESIGN CATEGORY-B
- WEATHERING PROBABILITY FOR CONCRETE - SEVERE
- TERMITE INFESTATION PROBABILITY - MODERATE TO SEVERE
- DECAY PROBABILITY - SLIGHT TO MODERATE
- ICE SHIELD UNDERLAYMENT REQUIRED - YES
- FLOOR HAZARDS (3-15-1990) NATIONAL FLOOD PROGRAM DATE
- WINTER DESIGN TEMPERATURE 17 DEGREES F
- AIR FREEZING INDEX < OR 1500 DEGREES F
- MEAN ANNUAL TEMPERATURE 50 DEGREES F

- CONSTRUCTION CLASSIFICATION TYPE - 5B
USE GROUP CLASSIFICATION - R5
- ALL 3", 3 1/2", AND 4" DIAMETER ADJUSTABLE STEEL COLUMNS ARE TAPCO MONOPOST 40-300 SERIES U.N.O. AND CONFORM TO ASTM A513 STEEL.
- ALL SMOKE / CARBON MONOXIDE DETECTORS SHALL BE HARD-WIRED & INTERCONNECTED PER THE 2021 USBC, 315.1 & 315.2 & LISTED IN ACCORDANCE w/ UL2034 & UL217.
- THESE PLANS HAVE BEEN DESIGNED TO COMPLY WITH THE 2021 USBC AND THE 2021 INTERNATIONAL BUILDING CODES.

10. MASONRY RETAINING WALLS

- FOOTING DOWELS SHALL PROJECT A MINIMUM OF 30 BAR DIAMETERS OR 24" WHICHEVER IS GREATER INTO WALL.
- CONCRETE BLOCKS SHALL BE 2 CELL UNITS CONFORMING TO ASTM C-90.
- KEEP CELLS TO RECEIVE BARS CLEAN OF MORTAR DROPPINGS. TIE VERTICAL BARS TO DOWELS AT BOTTOMS AND SECURE WITH WIRE TIES AND SPACERS AT TOP TO ASSURE THAT BARS REMAIN IN POSITION DURING GROUTING.
- FILL ALL CELLS CONTAINING DOWELS AND VERTICAL BARS WITH PEA GRAVEL CONCRETE, 2500 PSI @ 28 DAYS, OR MASONRY GROUT PER ASTM C-476. - CLOSE CLEANOUTS ONLY AFTER GROUT FLOWS FULLY TO BOTTOM OF WALL. VIBRATE CONCRETE DURING PLACEMENT TO ELIMINATE ALL AIR POCKETS.
- MORTAR SHALL CONFORM TO ASTM C-270 TYPE H.
- PROVIDE DUROWAL (OR EQUAL) 8" O.C. VERTICALLY.

11. BACKFILL COMPACTION

- PER GEOTECHNICAL REQUIREMENTS.

12. WOOD FRAMING

- ALL SPANS UP TO 15'-0" FRAMING TIMBERS SHALL BE NO. 2 HEM FIR, OR BETTER (Fb = 850,E = 1,300,000 PSI). Fv = 135 PSI.
- ALL SPANS OVER 15'-0" FRAMING TIMBERS SHALL BE NO. 1 YELLOW PINE, OR BETTER (Fb = 1,300,E = 1,700,000 PSI). Fv = 175 PSI. 2x12 FB=1250 psi
- PROVIDE ANCHORAGE INTO FOUNDATION WALLS WITH 1/2" DIA. A307 ANCHOR BOLTS @ 4'-0" O.C., 9" INTO CONCRETE, AND A MAXIMUM OF 12" FROM ANY CORNER.
- PROVIDE TECO FRAMING ANCHORS, OR EQUIVALENT, AT EACH ROOF JOIST BEARING POINT.
- STUDS SHALL BE MIN. S-P-F S-DRY, CONSTRUCTION GRADE.
- ALL EXTERIOR LUMBER TO BE P.T. SOUTHERN PINE #2 OR BETTER
- LUMBER IN CONTACT w/ GROUND SHALL BE RATED AS "GROUND CONTACT"

13. WOOD TRUSSES (PREFAB/PREEND.)

- FLOOR TRUSSES SHALL BE DESIGNED AND SPECIFIED BY MANUFACTURER TO CARRY THE ABOVE LISTED DESIGN LOADS WITH A MAX. DEFLECTION OF L/360 SPAN. REFER TO FLOOR TRUSS MANUFACTURER'S RECOMMENDATIONS FOR ERECTION BRACING, INSTALLATION METHODS, HANDLING OF TRUSSES, STORAGE, ALLOWABLE HOLE SIZES, STIFFENERS AND BEARING DETAILS.
- TRUSSES ARE DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH NFPA STANDARDS.
- TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES (TPI-78), PUBLISHED BY THE TRUSS PLATE INSTITUTE, AND FABRICATED IN ACCORDANCE WITH TPI QUALITY CONTROL MANUAL (QCM-77).
- ERECTION LAYOUT, CALCULATIONS, JOINT STRENGTH INFORMATION (ALLOWABLE LOAD PER SQUARE INCH OR PER NAIL, ALLOWABLE EDGE DISTANCES AND END DISTANCES), LOAD TEST DATA, AND DETAILS FOR TRUSS-TO-TRUSS CONNECTIONS AND ANY OTHER INFORMATION DEEMED NECESSARY BY THE ENGINEER SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION.
- TRUSS DESIGN SHALL BE CERTIFIED BY A REGISTERED ENGINEER AND SHALL BE SHOP INSPECTED BY AN APPROVED INDEPENDENT TESTING LABORATORY.
- ROOF TRUSSES SHALL BE SECURED AT BEARING WITH ONE TECO OR EQUIVALENT FRAMING ANCHOR EACH END.
- ALL TRUSSES SHALL BE SECURELY BRACED BOTH DURING ERECTION AND AFTER PERMANENT INSTALLATION IN THE STRUCTURE IN ACCORDANCE WITH BRACING WOOD TRUSSES (BTW-76), AS PUBLISHED BY TPI.

14. MICRO-LAM BEAMS

- SHALL HAVE AN EXTREME FIBER BENDING STRESS OF FB-3100 PSI, E-2,000,000 PSI, Fv-285 PSI AND SHALL BE INSTALLED AS RECOMMENDED BY MANUFACTURER.

15. PLYWOOD WEB JOISTS

- JOISTS SHALL BE MANUFACTURED AND ERECTED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. THEY SHALL BE CAPABLE OF SUPPORTING THE DESIGN LIVE LOADS SHOWN ON THE DRAWINGS IN ADDITION TO THE DEAD LOADS SHOWN BUT NOT LESS THAN 10 PSF.

16. STRUCTURAL STEEL

- STRUCTURAL STEEL BELOW GRADE SHALL HAVE A MINIMUM OF 3" CONCRETE OR 4" SOLID MASONRY COVER.
- ALL WELDING SHALL CONFORM TO THE AWS STRUCTURAL WELDING CODE. WELDS SHALL BE INSTALLED BY WELDERS QUALIFIED IN ACCORDANCE WITH AWS PROCEDURES FOR WELDERS QUALIFICATION.
- ONE SHOP COAT OF PAINT, SOUTHERN COATING 1-0476 OF 0730, OR AN APPROVED EQUIVALENT, TWO MILS DRY FILM THICKNESS SHALL BE APPLIED TO ALL STRUCTURAL MEMBERS.
- PROVIDE MASONRY FRAMING ANCHORS AT EACH BEAM END BEARING UPON MASONRY.
- STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS FOR BUILDINGS, AND UNLESS OTHERWISE NOTED, IT SHALL CONFORM TO ASTM A-572 GR-50
- STRUCTURAL TUBING SHALL CONFORM TO ASTM A-501 WITH A MINIMUM YIELD OF 36 KSI (ROUND ONLY), SQUARE AND RECTANGULAR SHALL CONFORM TO ASTM A-500 GR-B FY=46 KSI
- SHOP CONNECTIONS SHALL BE WELDED.
- FIELD CONNECTIONS SHALL BE MADE WITH HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.
- HIGH STRENGTH BOLTS SHALL BE TIGHTENED BY THE TURN-OF-NUT METHOD.

17. MISCELLANEOUS

- HANDRAILS ARE TO BE BUILT & INSTALLED PER 2021 USBC.
- STAIRWAYS ARE TO BE ILLUMINATED WITH A MINIMUM OF 10 FOOT CANDLES PER TREAD
- OUTSIDE LIGHTING IS TO BE PROVIDED SO THAT DECK STAIRS ARE ILLUMINATED PER CODE.
- ALL STUCCO FINISH HOUSES ARE TO BE INSTALLED WITH STRICT COMPLIANCE TO MANUFACTURER'S RECOMMENDATIONS.
- ALL FOAM PLASTIC MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH 2021 IRC SECTION R316.

EQUIVALENT U-FACTORS

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	GLAZED FENESTRATION SHGC	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE	FLOOR R-VALUE	BASEMENT WALL R-VALUE	SLAB R-VALUE & DEPTH	CRAWL SPACE WALL U-FACTOR
4A	0.32	0.55	0.40	60	15	8/13	19	10/13	10.2 FEET	10/13

INDEX

WORK DESCRIPTION:

- NEW REAR DORMER
- RENOVATE EXISTING LOFT BEDROOM

NOTES TO ALL PARTIES INVOLVED:

1. THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE w/ THE VIRGINIA RESIDENTIAL CODE (VRC) 2021
2. THIS PLAN IS A BASIC PLAN FOR THE USE OF OBTAINING A BUILDING PERMIT AND PROVIDING A LAYOUT OF THE PROPOSED WORK FOR ALL SPECIFICATIONS, NOTES, REGULATIONS, SAFETY REQUIREMENTS, BUILDING CODES, ELECTRICAL CODES, PLUMBING CODES. OTHER APPLICABLE CODES AND ETC NOT SHOWN ON THIS PLAN, PLEASE REFER TO THE VRC 2021 VRC CODE FOR CLARIFICATION. THIS PLAN IS NOT FOR THE USE OF OBTAINING MECHANICAL, ELECTRICAL, AND PLUMBING PERMITS.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER OF THIS PROPERTY-ACTING AS CONTRACTOR, TO CONSTRUCT THIS PROPOSED RESIDENTIAL STRUCTURE PER THESE APPROVED PLANS AND IN ACCORDANCE WITH THE VRC 2021 CODE.
4. IF THE CONTRACTOR AND/OR PROPERTY OWNER SHOULD HAVE ANY QUESTIONS AND/OR CONCERNS AT ANY TIME BEFORE OR THROUGHOUT THE CONSTRUCTION OF THIS PROJECT, THEN HE OR SHE SHOULD STOP WORK IMMEDIATLY AND CONTACT THE PERSON WHO PREPARED THESE PLANS, IN ORDER TO CLARIFY AND/OR CORRECT ANY CONFUSION AND/OR CONCERNS. THIS WILL HELP TO PREVENT UNNECESSARY MISTAKES, INJURIES, COST & ETC.
5. This proposed structure should be built per the plans, only after they have been approved by the appropriate county/city jurisdiction. And for any parts of this plan that may appear to be incorrect or contradictive to the VRC 2021 Code (even if they are already approved and construction is under way). Then it is the responsibility of the contractor and/or property owner to contact the person who prepared these plans, in order to clarify such concerns. If it is necessary, revision will need to be made through the appropriate county/city jurisdiction prior to construction. This structure must be constructed per the VCR 2021 code.
6. It is the responsibility of the contractor and/or property owner to ensure that all required permits are obtained, that they do not expire and that all required inspections are scheduled and approved. It is also the responsibility of the contractor and/or property owner to ensure that all of the required permits remain active until all of the required permits are finalized / approved with the appropriate county/city inspection office.
7. The contractor and/or property owner is responsible and liable for the lives and safety of any and/or all occupants of the property, their visitors and the people performing the labor/trade construction services-before, during, and after construction of this project – on this property. The contractor and/or property owner is also responsible and liable for any and/or all damage(s) to this property- before, during, and after the construction of this project. The contractor and/or property owner will be responsible for using the correct materials specified and not specified in this plan and that those materials will be of good quality. The contractor and/or property owner is also responsible for ensuring that all individuals(s) performing any work are knowledgeable and competent enough to perform construction labor/trade services and that they are using safe construction practices at all times. The contractor and/or property owner is responsible for ensuring that any individual(s) performing any type of construction services at any time of this project, that he or she can comprehend these plans and is familiar with and understandingof the VRC 2021 code.
8. It is the responsibility of the contactor and/or property owner to ensure that all existing site conditions are verified in the field. He or she must also verify that all existing site conditions in the field correspond with what is shown on these plans that are approved by the appropriate county/city jurisdiction. It is the responsibility of the contractor and /or property owner to ensure that all existing field conditions meet the VRC 2021 code. If it is discovered that the existing site/structure(s) does not meet current applicable state, county and city codes and ordinances, then the contractor and/or property owner is responsible for modifying/upgrading the existing site/structure(s), in order to meet any and all such current codes. The contractor and/or property owner is responsible for verifying that any and all existing structure(s) is in good condition and can sustain any alterations and/or additional loads being added as shown in this plan, prior to construction.
9. Once the contractor and/or property owner has taken possession of these approved plans for whatever intent or purpose, he or she is certifying that they agree with all of the notes, statements, and conditions listed above and that he or she comprehends exactly what each statement is saying. Also the contractor and/or property owner is responsible for ensuring that every requirement of these statements are performed.
10. It is the responsibility of the contractor and/or homeowner to verify that all of the existing structures dimensions, measurements, conditions, etc. match what has been proposed is this plan. These specifications need to be verified and addressed prior to the ordering of materials and prior to any demo or construction being performed, for any part of this proposed work. The contractor and/or homeowner is liable and financially responsible for all costs, fees, and etc. that may occur throughout construction, even if these plans are incorrect or different that the conditions on the site or different from previous conversations and requests. The contractor and/or homeowner are responsible for any additional costs for additional materials, corrections, engineering, labor and etc. that may occur throughout this project.

REVISIONS

EZ PLAN & CONSULTING, LLC
4393 KEVIN WALKER DR. #156
DUMFRIES, VA 22025

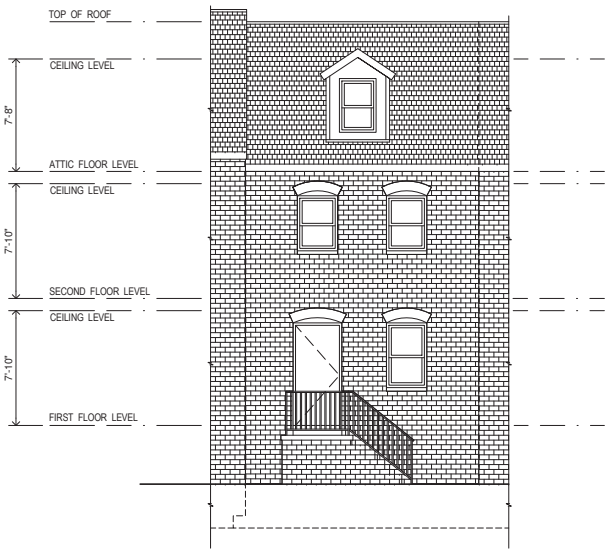
PREPARED BY:
BURNS DRAFTING & DESIGN, LLC

COVER SHEET

322 COMMERCE STREET
ALEXANDRIA, VA 22314

C

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



EXISTING
FRONT ELEVATION (NO CHANGE)
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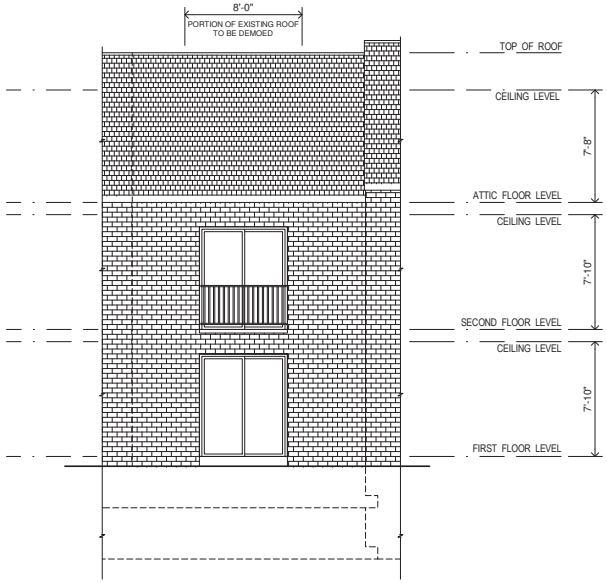

EXISTING
REAR ELEVATION
SCALE 1/4" = 1'-0"

REVISIONS

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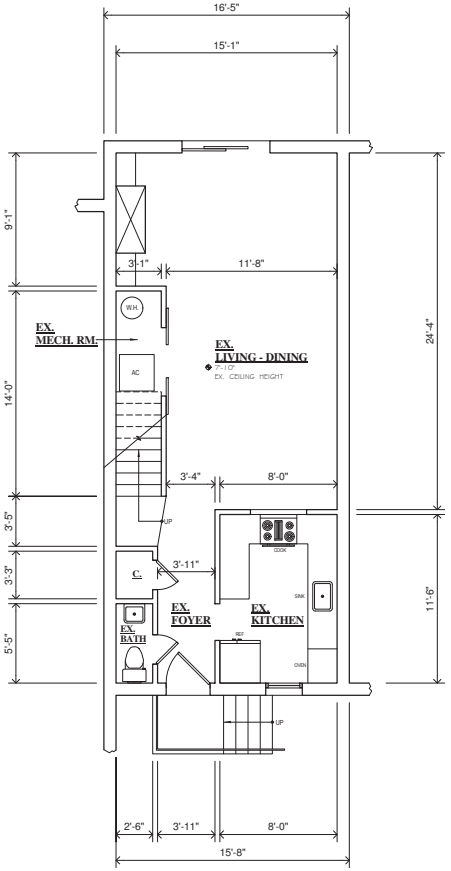
EXISTING BUILDING ELEVATIONS

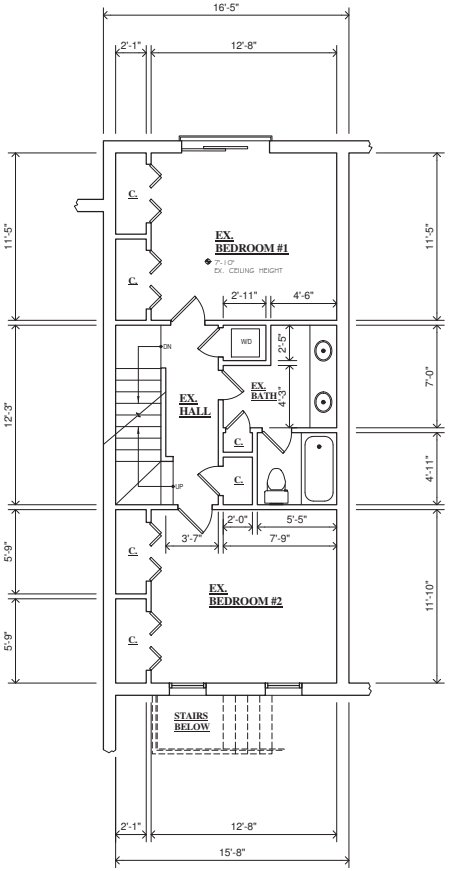
322 COMMERCE STREET
ALEXANDRIA, VA 22314

A1

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



EXISTING
FIRST FLOOR PLAN (NO CHANGE)
SCALE 1/4" = 1'-0"



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SECOND FLOOR PLAN (NO CHANGE)
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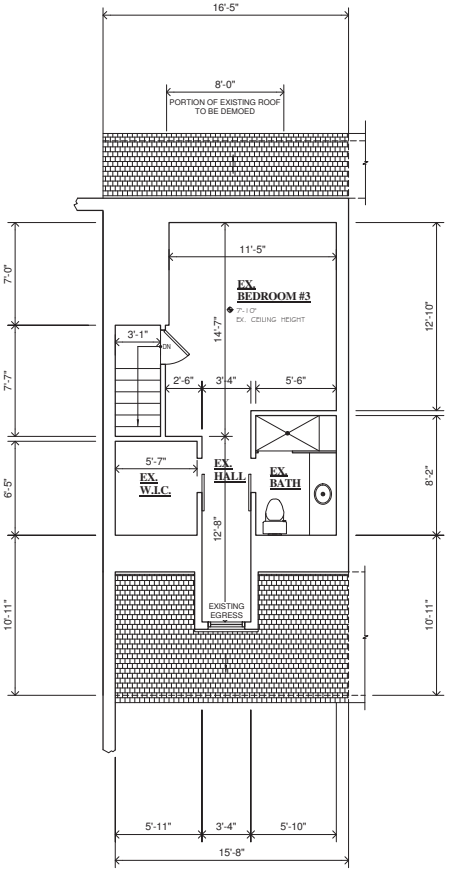

EXISTING
LOFT FLOOR PLAN
SCALE 1/4" = 1'-0"

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EXISTING FLOOR PLANS

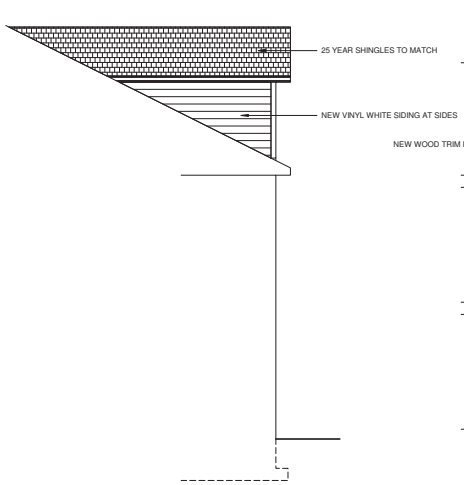
322 COMMERCE STREET
ALEXANDRIA, VA 22314

A2

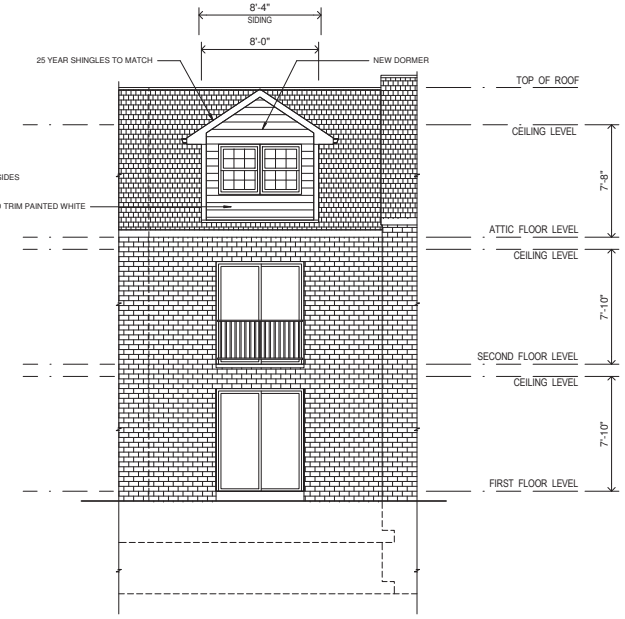
SCALE: 1/4" = 1'-0"

NOTE:
WHERE NEW ROOFS MAKE CONTACT w/ EX. HOUSE / ROOF - FLASHING TO BE INSTALLED

NEW REAR DORMER



PROPOSED
SIDE ELEVATION
SCALE 1/4" = 1'-0"



PROPOSED
REAR ELEVATION
SCALE 1/4" = 1'-0"

REVISIONS

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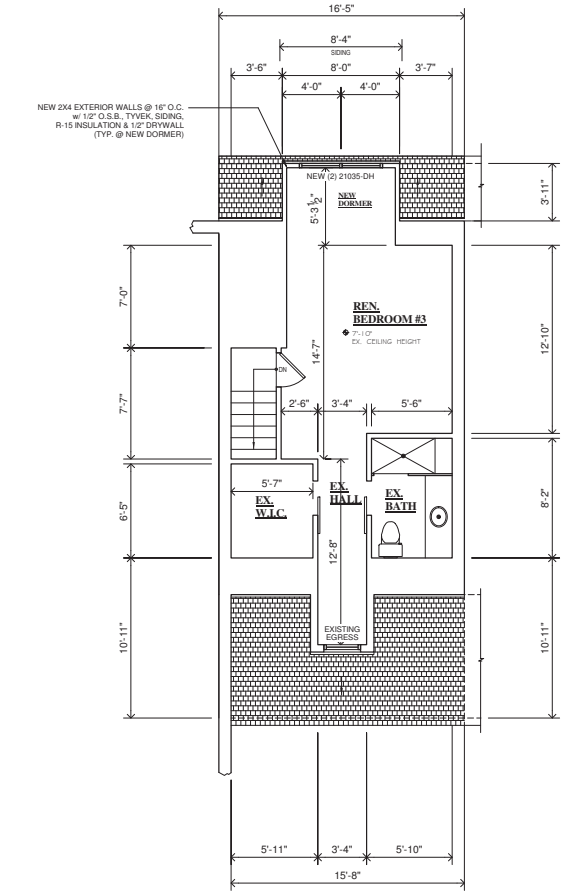
PROPOSED BUILDING ELEVATIONS

322 COMMERCE STREET
ALEXANDRIA, VA 22314

A3

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



NEW REAR DORMER
RENOVATE EXISTING BEDROOM

PROPOSED
LOFT FLOOR PLAN
SCALE 1/4" = 1'-0"

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PROPOSED FLOOR PLAN

322 COMMERCE STREET
ALEXANDRIA, VA 22314

A4

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

Pella® Lifestyle Series WOOD

#1 performing wood window and patio door for the combination of energy, sound and value.[1]

Dual- and Triple-Pane Products, $$–$$$

Unbeatable performance options.[1]

79% more energy efficient for a more comfortable home[2]

52% reduction in outside noises like traffic and lawnmowers[3]

Values are averages based on the Ultimate Performance package compared with single-pane windows.

Style and durability.

Durability and style flexibility with the most desired features and options, backed by the **best limited lifetime warranty** in the industry.[4]

Packed with innovation.

37 TIME-TESTED INNOVATIONS

Offering products with 37 time-tested innovations like our best integrated blinds and shades and integrated security sensors.

Pella Lifestyle Series triple-pane casement window

WINDOW STYLES

Special sizes and configurations are also available.

AWNING | BAY OR BOW | CASEMENT | DOUBLE-HUNG[5]

PATIO DOOR STYLES

SLIDING | HINGED

[1,2,3,4,5] See inside front cover for disclosures.

Colors & Finishes PELLA® LIFESTYLE SERIES

WOOD TYPE

The wood species that best complements your home's interior.

PINE

PREFINISHED PINE INTERIOR COLORS

We can prefinish pine in your choice of three paint colors and seven stains. Unfinished or primed and ready-to-paint are also available.

WHITE | BRIGHT WHITE | LINEN WHITE | NATURAL STAIN | GOLDEN OAK STAIN | EARLY AMERICAN STAIN

PROVINCIAL STAIN | DARK MAHOGANY STAIN | RED MAHOGANY STAIN | BLACK STAIN

ALUMINUM-CLAD EXTERIOR COLORS

Our low-maintenance EnduraClad® exterior finish resists fading and helps protect your windows and patio doors for years.

WHITE | TAN | PUTTY | BROWN | POPLAR WHITE | PORTOBELLO

HARTFORD GREEN | MORNING SKY GRAY | BRICK RED | BLACK | ALMOND[6] | FOSSIL[6]

IRON ORE[6]

[1] Available performance solutions offer an unbeatable combination of energy efficiency, sound control and value. Performance solutions require upgrades to triple-pane, AdvancedComfort Low-E and mixed glass thickness. Based on comparing product quotes and published STC/OITC and U-Factor ratings of leading national wood window and patio door brands.

[2] Window energy efficiency calculated in a computer simulation using RESFEN 6.0 default parameters for a 2000 sq. foot new construction single-story home when comparing Pella Lifestyle Series windows with Advanced Comfort Low-E triple-pane glass with argon and mixed glass thickness to a single pane wood or vinyl window. Double-hung windows are not available with triple-pane glass. The energy efficiency and actual savings will vary by location. The average window energy efficiency is based on a national average of 94 modeled cities across the country and weighting based on population. For more details see pella.com/methodology.

[3] Reduction in sound based on OITC ratings of Pella Lifestyle Series windows with triple-pane glass with mixed glass thickness to a single-pane wood or vinyl window with an OITC of 19. Calculated by using the sound transmission loss values in the 80 to 4000 Hz range as measured in accordance with ASTM E-90(09). Actual results may vary.

[4] Based on comparing written limited warranties of leading national wood window and wood patio door brands. See Pella written Limited Warranty for details, including exceptions and limitations, at pella.com/warranty, or contact Pella Customer Service at 877-473-5527.

[5] Available in dual-pane only.

[6] Available on triple-pane products only.

Integrated Blinds & Shades PELLA® LIFESTYLE SERIES

INTEGRATED BLINDS[1]

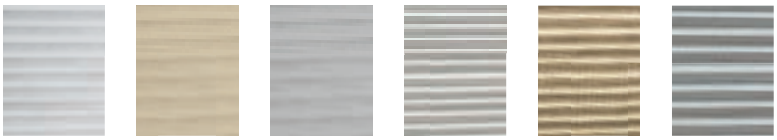
Raise blinds up for an unobstructed view or tilt to let in just the right amount of light. Our best integrated and accessible blinds are available manual or motorized with Pella Insynctive® technology.

WHITE | POPLAR WHITE | BISQUE | GOLDEN | MOCHA | STORM | BLACK

INTEGRATED SHADES[1]

Our best integrated fabric shades feature a white exterior fabric for a uniform look from the street. Integrated and accessible shades are available manual or motorized with Pella Insynctive technology.

LIGHT-FILTERING: **ROOM-DARKENING:**



WHITE | MAIZE | SILVER | COTTON | BAMBOO | ASH

Added Security

INSYNCTIVE TECHNOLOGY

Integrated security sensors with time-tested wireless technology are built-in and tucked away, out of sight, to preserve the beauty of your Pella windows and doors. Monitor windows and doors while at home or away with the Pella Insynctive App or with most existing security systems.[2] Learn more at pella.com/insynctive.

Insynctive®

[1] Available on triple-pane products only.

[2] Requires the Pella Insynctive App on a smart device, an Insynctive Bridge and a wireless home internet router with internet connection.

Performance Packages PELLA® LIFESTYLE SERIES

PACKAGES

To make things easier, we've created performance packages that highlight what's most important to you.

Performance solutions offer an unbeatable combination of energy efficiency, sound control and value.[1] Upgrade from a dual- to a triple-pane glass design with the packages below to meet the unique needs of each room in your home.

All values below are averages compared with single-pane windows.

Pella Lifestyle Series offers products awarded ENERGY STAR® Most Efficient for 2019.[2]

Performance

Improved energy efficiency and sound performance.

71% MORE ENERGY EFFICIENT[3] + **34%** NOISE REDUCTION[4]

Sound Control

Exceptional noise control for a quieter home.

52% NOISE REDUCTION[4]

Energy Efficiency

Superior energy efficiency for a more comfortable home.

83% MORE ENERGY EFFICIENT[3]

Ultimate Performance

The best combination of energy efficiency and noise control.

79% MORE ENERGY EFFICIENT[3] + **52%** NOISE REDUCTION[4]

Glass[5]

INSULSHIELD® LOW-E GLASS

Advanced Low-E insulating dual- and triple-pane glass with argon[6]

AdvancedComfort Low-E insulating dual- and triple-pane glass with argon[6]

NaturalSun Low-E insulating dual- and triple-pane glass with argon[6]

SunDefense™ Low-E insulating dual- and triple-pane glass with argon[6]

ADDITIONAL GLASS OPTIONS

Tempered glass available on dual- and triple-pane products

Obscure and frosted obscure glass available on dual- and triple-pane products

[1] Performance solutions require upgrades to triple-pane, AdvancedComfort Low-E and mixed glass thickness. Based on comparing product quotes and published STC/OITC and U-Factor ratings of leading national wood window and patio door brands.

[2] Pella products may not meet ENERGY STAR® guidelines in Canada. For more information, contact your local Pella sales representative or go to energystar.gc.ca.

[3] Window energy efficiency calculated in a computer simulation using RESFEN 6.0 default parameters for a 2000 sq. foot new construction single-story home when Pella Lifestyle Series windows with the respective performance package are compared to a single-pane wood or vinyl window. The energy efficiency and actual savings will vary by location. The average window energy efficiency is based on a national average of 94 modeled cities across the country and weighting based on population. For more details see pella.com/methodology.

[4] Reduction in sound based on OITC ratings of Pella Lifestyle Series windows with respective performance package compared to a single-pane wood or vinyl window with an OITC of 19. Calculated by using the sound transmission loss values in the 80 to 4000 Hz range as measured in accordance with ASTM E-90(09). Actual results may vary.

[5] Double-hung window available with dual-pane glass only.

[6] Optional high-altitude Low-E insulating glass does not contain argon in most products. Please see your local Pella sales representative for more information.

Grilles PELLA® LIFESTYLE SERIES

GRILLES

Choose the look of true-divided-light, removable roomside grilles or make cleaning easier by selecting grilles-between-the-glass.

DUAL-PANE:

SIMULATED-DIVIDED-LIGHT WITH SPACER 7/8"

SIMULATED-DIVIDED-LIGHT WITHOUT SPACER 7/8"

ROOMSIDE REMOVABLE GRILLES 3/4"

ALUMINUM GRILLES-BETWEEN-THE-GLASS 3/4"

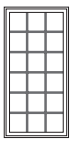
TRIPLE-PANE:

SIMULATED-DIVIDED-LIGHT WITH ALUMINUM CONTOURED GRILLES-BETWEEN-THE-GLASS 3/4"

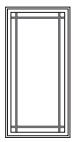
ALUMINUM GRILLES-BETWEEN-THE-GLASS 3/4"

GRILLE PATTERNS

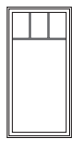
In addition to the patterns shown here, custom grille patterns are available.



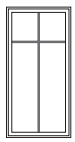
TRADITIONAL



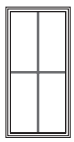
9-LITE PRAIRIE



TOP ROW



CROSS



CUSTOM

Screens*

ROLSCREEN®

Rolscreen soft-closing retractable screens roll out of sight when not in use. Available on casement windows and sliding patio doors.

FLAT

InView™ screens are clearer than conventional screens and come standard. VividView® screens offer the sharpest view and are optional.

* WARNING: Screen will not stop child or pet from falling out of window or door. Keep child or pet away from open window or door.

Window Hardware PELLA® LIFESTYLE SERIES

ESSENTIAL COLLECTION

Our most popular design with finishes to suit every style.

FOLD-AWAY CRANK

CAM-ACTION LOCK

CHAMPAGNE | WHITE | BROWN

MATTE BLACK | OIL-RUBBED BRONZE | SATIN NICKEL

Patio Door Hardware[1]

ESSENTIAL COLLECTION

Elevate your style and transform your home with elegant selections.

HINGED PATIO DOOR HANDLE

SLIDING PATIO DOOR HANDLE

CHAMPAGNE | WHITE | BROWN

MATTE BLACK | OIL-RUBBED BRONZE | SATIN NICKEL

[1] On hinged patio doors, Endura Hardware Collection offers a 10-year warranty. See written warranty for complete details at pella.com/warranty.

Want to learn more? Call us at 833-44-PELLA or visit **pella.com**

Pella LIMITED LIFETIME WARRANTY

The confidence of added protection.

Pella® Lifestyle Series products are backed by the best limited lifetime warranty for wood windows and patio doors.[2] See written limited warranty for details, including exceptions and limitations, at pella.com/warranty.

[2] Based on comparing written limited warranties of leading national wood window and wood patio door brands. See written limited warranty for details, including exceptions and limitations, at pella.com/warranty.

ENERGY STAR PARTNER

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CSI Specs (readable using Microsoft Word or other text editing application):
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Sketchup (requires appropriate software to read and use):
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Combination Recommendations:
https://media.pella.com/professional/adm/Clad-Wood/D_Combinations.pdf?utm_source=pdfdoc

Installation Details:
https://media.pella.com/professional/adm/Clad-Wood/F_InstallationDetails.pdf?utm_source=pdfdoc

Size and Performance Data

	Dual-Pane Glazing	Triple-Pane Glazing
Sizes		
Standard vent / fixed sizes	●	●
Special sizes available	●	●
Performance[1]		
Meets or Exceeds AAMA / WDMA Ratings	LC30 - LC50 Hallmark Certified	R20 - CW50 Hallmark Certified
Air Infiltration (cfm / ft² of frame @ 1.57 psf wind pressure)[2]	0.05	0.05
Water Resistance	4.59 - 7.52 psf	7.5 psf
Design Pressure	30 - 50 psf	20 – 50 psf
Other Performance Criteria		
Forced Entry Resistance Level (Minimum Security Grade)[3]	40	40
Operating Force (lb) Initiate Motion / Maintain Motion (of Hallmark tested size and glazing)[4]	15/6	15/6

Sound Transmission Class / Outdoor-Indoor Transmission Class

Frame Size Tested[4]	Glazing System				STC Rating	OITC Rating
	Overall Glazing Thickness	Exterior Glass Thickness	Interior Glass Thickness	Third Pane Thickness (ML)		
VENT – Dual-Pane Glass						
23" x 59"	11/16"	2.5mm	2.5mm	–	25	22
23" x 59"	11/16"	5mm	3mm	–	31	26
FIXED – Dual-Pane Glass						
47"x 59"	11/16"	3mm	3mm	—	28	24
47"x 59"	11/16"	5mm	3mm	—	30	28
VENT – Triple-Pane Glass						
23" x 59"	11/16"	2.5mm	2.5mm	2.5mm	31	25
23" x 59"	11/16"	5mm	3mm	4mm	36	31
23" x 59" with shade	11/16"	5mm	3mm	4mm	37	34
23" x 59" with blind	11/16"	5mm	3mm	4mm	36	32
FIXED – Triple-Pane Glass						
47"x 59"	11/16"	3mm	3mm	3mm	33	27
47"x 59"	11/16"	5mm	3mm	4mm	35	30
47"x 59" with shade	11/16"	5mm	3mm	4mm	37	31
47"x 59" with blind	11/16"	5mm	3mm	4mm	35	30
47"x 59"	11/16"	4mm	6mm	4mm	35	29
47"x 59" with shade	11/16"	4mm	6mm	4mm	37	31
47"x 59" with blind	11/16"	4mm	6mm	4mm	36	30

(1) Maximum performance for single unit when glazed with the appropriate glass thickness. See Design Data pages in this section for specific product performance class and grade values. Values shown are for standard and special sizes. Contact your local sales representative for complete information.

(2) Published performance data for air infiltration is determined by testing a minimum of four (4) products of NFRC model size. Testing is conducted in accordance with ASTM E283. Air infiltration ratings for products will differ by size. The performance data does not apply to combination assemblies unless noted. Actual product performance may vary for a number of reasons including installation and product care.

(3) The higher the level, the greater the product's ability to resist forced entry.

(4) ASTM E 1425 defines standard sizes for acoustical testing. Ratings achieved at that size are representative of all sizes of the same configuration.

Features and Options

Standard	Options / Upgrades
Glazing	
Glazing Type	
Dual-Pane Glazing	Triple-Pane Glazing with Clear HInged Glass Panel
Insulated Glass Options/Low-E Types	
Advanced Low-E	SunDefense™ Low-E
	SunDefense+ Low-E
	AdvancedComfort Low-E
	NaturalSun Low-E
	NaturalSun+ Low-E
Glass Performance Package Options	
Base Package (Dual-Pane)	Performance Package - Triple-Pane
	Sound Control Package - Triple-Pane with STC glass
	Energy Efficiency Package - Triple-Pane with AdvancedComfort Low-E
	Ultimate Performance Package - Triple-Pane with AdvancedComfort Low-E and STC glass
Additional Glass Options	
Annealed Glass	STC Glazing Options
	Tempered Glass
	Obscure Glass[1]
Gas Fill/High Altitude	
Argon	High altitude (Air-filled only)
Exterior	
EnduraClad® Cladding Colors[1]	
4 Standard colors	8 Feature colors
Interior[1]	
Unfinished wood	Factory primed, Factory prefinished paint, Factory prefinished stain
Wood Types	
Pine	—
Hardware	
Champagne, White, Brown or Matte Black	Satin Nickel, Satin Brass
Sash Locks	
Innovative Locking System, Unison Lock System[2]	—
Hinging	
Large Awning—Wash Hinge	Side-Pivot
Grilles	
Simulated-Divided-Light with Optional Spacer (Dual-Pane glazing)	
—	Traditional, Prairie, Top Row, Cross, Custom - Equally Divided
Simulated-Divided-Light with Grilles-Between-the-Glass (Triple-Pane glazing)	
—	Traditional, Prairie, Top Row, Cross, Custom - Equally Divided
Grilles-Between-the-Glass	
—	Traditional, Prairie, Top Row, Cross, Custom - Equally Divided
Integrated Between-the-Glass Options (Triple-Pane Only)[1]	
Cellular Fabric Shades	
—	Raise-and-lower bottom-up
Slimshade® Blinds	
—	Raise-and-lower bottom-up
Screens	
—	InView™ screens, Rolscreen® Retractable Screen

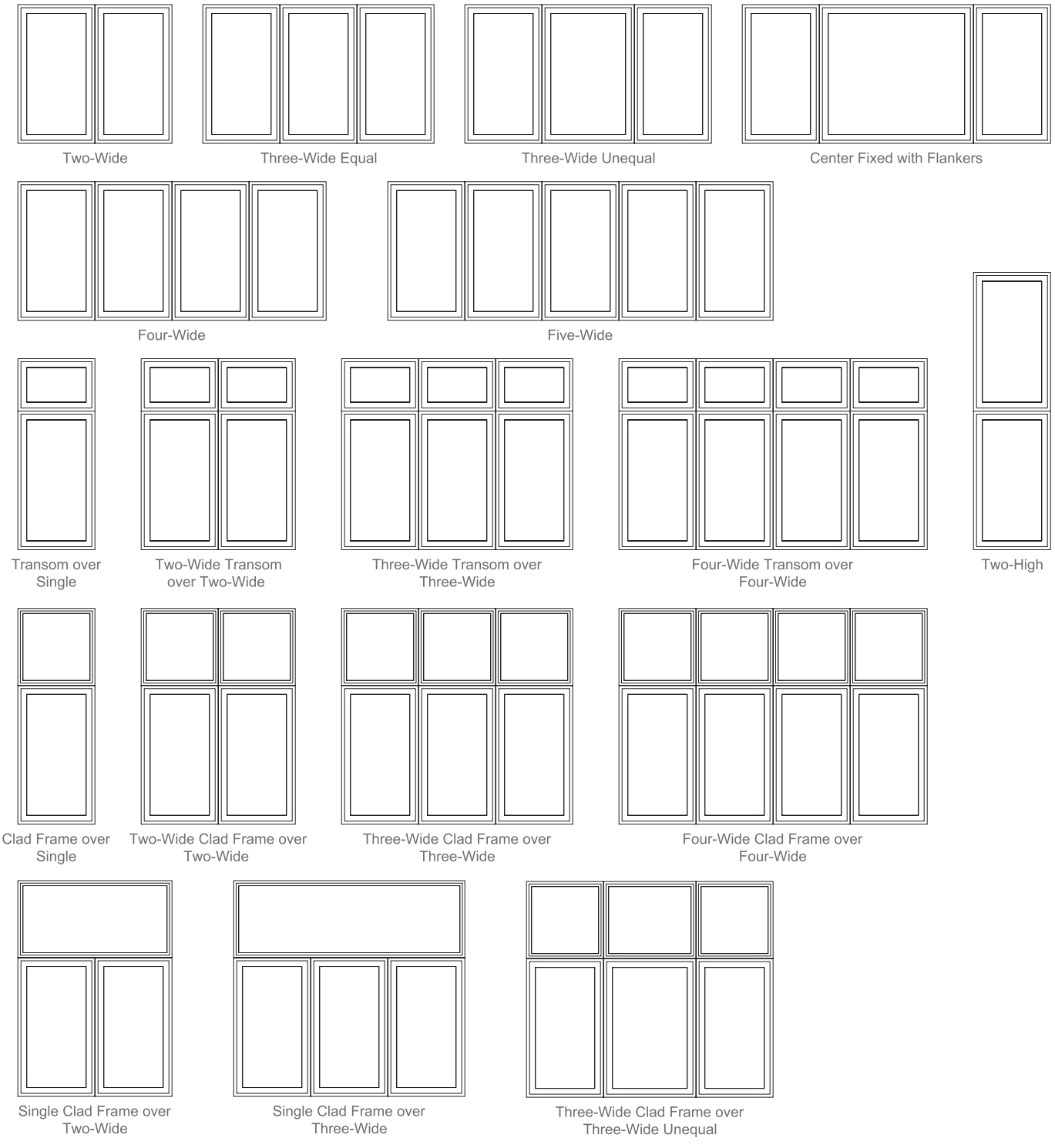
(—) = Not Available
(1) Contact your local Pella sales representative for current designs and color options.
(2) Unit height determines availability.

Combination Assemblies

Combinations are a great way to create visual interest in any project. A combination is an assembly formed by two or more separate windows or doors whose frames are mulled together by a combination or reinforcing mullion.

Pella window combinations are available in an endless variety of arrangements. Below are available factory-assembled combinations. Some units can be fixed or vent depending on availability. Refer to Combinations section for requirements and limitations.

Contact your local Pella sales representative for more information.



Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S.				Canada[2]	
										Zone				ER	Zone
Dual-Pane Vent										N	NC	SC	S		CA
11/16"	Advanced LowE IG	PEL-N-14-00677-00001	2.5	2.5	Argon	0.29	0.27	0.51	58						
	with grilles-between-the-glass	PEL-N-14-00678-00001				0.29	0.25	0.47	58						
	with Simulated Divided Light	PEL-N-14-00679-00001				0.29	0.25	0.47	58						
11/16"	Advanced LowE IG	PEL-N-14-00685-00001	3	3	Argon	0.28	0.27	0.51	58						
	with grilles-between-the-glass	PEL-N-14-00686-00001				0.28	0.25	0.46	58						
	with Simulated Divided Light	PEL-N-14-00687-00001				0.29	0.25	0.46	58						
11/16"	SunDefense™ Low-E IG	PEL-N-14-00777-00001	2.5	2.5	Argon	0.28	0.20	0.48	59			SC	S		
	with grilles-between-the-glass	PEL-N-14-00778-00001				0.28	0.19	0.43	59			SC	S		
	with Simulated Divided Light	PEL-N-14-00779-00001				0.29	0.19	0.43	59				S		
11/16"	SunDefense™ Low-E IG	PEL-N-14-00785-00001	3	3	Argon	0.28	0.20	0.47	58			SC	S		
	with grilles-between-the-glass	PEL-N-14-00786-00001				0.28	0.19	0.43	58			SC	S		
	with Simulated Divided Light	PEL-N-14-00787-00001				0.29	0.19	0.43	58				S		
11/16"	SunDefense+ Low-E IG	PEL-N-14-01089-00001	2.5	2.5	argon	0.25	0.20	0.47	47		NC	SC	S		
	with grilles-between-the-glass	PEL-N-14-01090-00001				0.25	0.18	0.42	47		NC	SC	S		
	with Simulated Divided Light	PEL-N-14-01091-00001				0.25	0.18	0.42	47		NC	SC	S		
11/16"	SunDefense+ Low-E IG	PEL-N-14-01097-00001	3	3	argon	0.25	0.20	0.46	46		NC	SC	S		
	with grilles-between-the-glass	PEL-N-14-01098-00001				0.25	0.18	0.42	46		NC	SC	S		
	with Simulated Divided Light	PEL-N-14-01099-00001				0.25	0.18	0.42	46		NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-14-00737-00001	2.5	2.5	Argon	0.25	0.27	0.50	46		NC				
	with grilles-between-the-glass	PEL-N-14-00738-00001				0.25	0.25	0.46	46		NC				
	with Simulated Divided Light	PEL-N-14-00739-00001				0.25	0.25	0.46	46		NC				
11/16"	AdvancedComfort Low-E IG	PEL-N-14-00745-00001	3	3	Argon	0.25	0.27	0.50	45		NC				
	with grilles-between-the-glass	PEL-N-14-00746-00001				0.25	0.25	0.45	45		NC				
	with Simulated Divided Light	PEL-N-14-00747-00001				0.26	0.25	0.45	45						
11/16"	NaturalSun LowE IG	PEL-N-14-00637-00001	2.5	2.5	Argon	0.29	0.51	0.58	58						
	with grilles-between-the-glass	PEL-N-14-00638-00001				0.29	0.47	0.53	58						
	with Simulated Divided Light	PEL-N-14-00639-00001				0.30	0.47	0.53	58						
11/16"	NaturalSun LowE IG	PEL-N-14-00645-00001	3	3	Argon	0.29	0.50	0.58	57						
	with grilles-between-the-glass	PEL-N-14-00646-00001				0.29	0.46	0.52	57						
	with Simulated Divided Light	PEL-N-14-00647-00001				0.30	0.46	0.52	57						
11/16"	NaturalSun+ LowE IG	PEL-N-14-01065-00001	2.5	2.5	argon	0.25	0.47	0.57	44	N				36	CA
	with grilles-between-the-glass	PEL-N-14-01066-00001				0.25	0.43	0.52	45	N				34	CA
	with Simulated Divided Light	PEL-N-14-01067-00001				0.26	0.43	0.52	45	N					
11/16"	NaturalSun+ LowE IG	PEL-N-14-01073-00001	3	3	argon	0.26	0.46	0.56	45	N				34	CA
	with grilles-between-the-glass	PEL-N-14-01074-00001				0.26	0.42	0.51	45	N					
	with Simulated Divided Light	PEL-N-14-01075-00001				0.26	0.42	0.51	45	N					

R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500. ENERGY STAR® values are updated to 2023 (version 7) criteria.

(2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative.

Visit www.energystar.gov for Energy Star guidelines.

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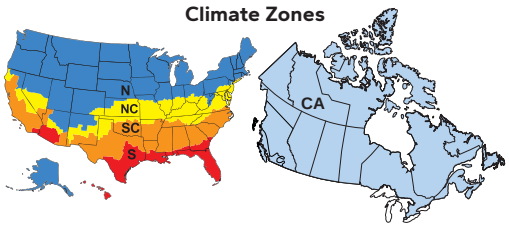

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S.				Canada[2]	
										Zone				ER	Zone
Dual-Pane Vent – High Altitude Glazing										N	NC	SC	S		CA
11/16"	Advanced LowE IG	PEL-N-14-00673-00001	2.5	2.5	Air	0.32	0.28	0.51	55						
	with grilles-between-the-glass	PEL-N-14-00674-00001				0.32	0.25	0.47	55						
	with Simulated Divided Light	PEL-N-14-00675-00001				0.32	0.25	0.47	55						
11/16"	Advanced LowE IG	PEL-N-14-00681-00001	3	3	Air	0.32	0.28	0.51	54						
	with grilles-between-the-glass	PEL-N-14-00682-00001				0.32	0.25	0.46	54						
	with Simulated Divided Light	PEL-N-14-00683-00001				0.33	0.25	0.46	54						
11/16"	SunDefense™ Low-E IG	PEL-N-14-00773-00001	2.5	2.5	Air	0.31	0.21	0.48	55				S		
	with grilles-between-the-glass	PEL-N-14-00774-00001				0.31	0.19	0.43	55				S		
	with Simulated Divided Light	PEL-N-14-00775-00001				0.32	0.19	0.43	55				S		
11/16"	SunDefense Low-E IG	PEL-N-14-00781-00001	3	3	Air	0.32	0.21	0.47	54				S		
	with grilles-between-the-glass	PEL-N-14-00782-00001				0.32	0.19	0.43	54				S		
	with Simulated Divided Light	PEL-N-14-00783-00001				0.32	0.19	0.43	54				S		
11/16"	SunDefense+ Low-E IG	PEL-N-14-01085-00001	2.5	2.5	Air	0.27	0.20	0.47	43			SC	S		
	with grilles-between-the-glass	PEL-N-14-01086-00001				0.27	0.19	0.42	43			SC	S		
	with Simulated Divided Light	PEL-N-14-01087-00001				0.27	0.19	0.42	43			SC	S		
11/16"	SunDefense+ Low-E IG	PEL-N-14-01093-00001	3	3	Air	0.27	0.20	0.46	41			SC	S		
	with grilles-between-the-glass	PEL-N-14-01094-00001				0.27	0.19	0.42	42			SC	S		
	with Simulated Divided Light	PEL-N-14-01095-00001				0.28	0.19	0.42	42			SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-14-00733-00001	2.5	2.5	Air	0.27	0.27	0.50	43						
	with grilles-between-the-glass	PEL-N-14-00734-00001				0.27	0.25	0.46	43						
	with Simulated Divided Light	PEL-N-14-00735-00001				0.28	0.25	0.46	43						
11/16"	AdvancedComfort Low-E IG	PEL-N-14-00741-00001	3	3	Air	0.27	0.27	0.50	42						
	with grilles-between-the-glass	PEL-N-14-00742-00001				0.27	0.25	0.45	42						
	with Simulated Divided Light	PEL-N-14-00743-00001				0.28	0.25	0.45	42						
11/16"	NaturalSun LowE IG	PEL-N-14-00633-00001	2.5	2.5	Air	0.33	0.51	0.58	54						
	with grilles-between-the-glass	PEL-N-14-00634-00001				0.33	0.47	0.53	54						
	with Simulated Divided Light	PEL-N-14-00635-00001				0.33	0.47	0.53	54						
11/16"	NaturalSun LowE IG	PEL-N-14-00641-00001	3	3	Air	0.33	0.50	0.58	54						
	with grilles-between-the-glass	PEL-N-14-00642-00001				0.33	0.46	0.52	54						
	with Simulated Divided Light	PEL-N-14-00643-00001				0.34	0.46	0.52	54						
11/16"	NaturalSun+ LowE IG	PEL-N-14-01061-00001	2.5	2.5	Air	0.28	0.47	0.57	41						
	with grilles-between-the-glass	PEL-N-14-01062-00001				0.28	0.43	0.52	41						
	with Simulated Divided Light	PEL-N-14-01063-00001				0.29	0.43	0.52	41						
11/16"	NaturalSun+ LowE IG	PEL-N-14-01069-00001	3	3	Air	0.28	0.46	0.56	40						
	with grilles-between-the-glass	PEL-N-14-01070-00001				0.28	0.42	0.51	41						
	with Simulated Divided Light	PEL-N-14-01071-00001				0.29	0.42	0.51	41						

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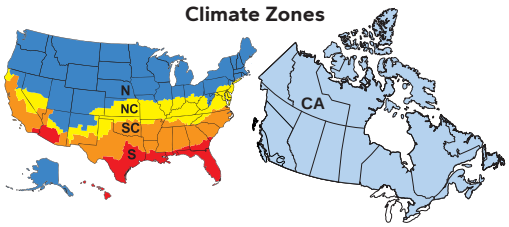

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			ENCt.	Int.		U-Factor	SHGC	VLT	CR	U. S. Zone				Canada[2] ER	Canada[2] Zone
										N	NC	SC	S		CA
Dual-Pane Fixed															
11/16"	Advanced LowE IG	PEL-N-229-00861-00001	2.5	2.5	argon	0.27	0.31	0.58	58						
	with grilles-between-the-glass	PEL-N-229-00862-00001				0.27	0.28	0.52	58						
	with Simulated Divided Light	PEL-N-229-00863-00001				0.28	0.28	0.52	58						
11/16"	Advanced LowE IG	PEL-N-229-00949-00001	3	3	argon	0.27	0.31	0.58	57						
	with grilles-between-the-glass	PEL-N-229-00950-00001				0.27	0.28	0.51	57						
	with Simulated Divided Light	PEL-N-229-00951-00001				0.28	0.28	0.51	57						
11/16"	Advanced LowE IG	PEL-N-229-00965-00001	4	4	argon	0.28	0.30	0.57	55						
	with grilles-between-the-glass	PEL-N-229-00966-00001				0.29	0.28	0.51	55						
	with Simulated Divided Light	PEL-N-229-00967-00001				0.29	0.28	0.51	55						
11/16"	SunDefense™ Low-E IG	PEL-N-229-01045-00001	2.5	2.5	argon	0.27	0.23	0.54	58			SC	S		
	with grilles-between-the-glass	PEL-N-229-01046-00001				0.27	0.21	0.48	58			SC	S		
	with Simulated Divided Light	PEL-N-229-01047-00001				0.28	0.21	0.48	58			SC	S		
11/16"	SunDefense Low-E IG	PEL-N-229-01053-00001	3	3	argon	0.27	0.23	0.53	57			SC	S		
	with grilles-between-the-glass	PEL-N-229-01054-00001				0.27	0.21	0.48	57			SC	S		
	with Simulated Divided Light	PEL-N-229-01055-00001				0.28	0.21	0.48	57			SC	S		
11/16"	SunDefense Low-E IG	PEL-N-229-01061-00001	4	4	argon	0.28	0.23	0.53	55			SC	S		
	with grilles-between-the-glass	PEL-N-229-01062-00001				0.29	0.21	0.47	55				S		
	with Simulated Divided Light	PEL-N-229-01063-00001				0.29	0.21	0.47	55				S		
11/16"	SunDefense+ Low-E IG	PEL-N-229-01493-00001	2.5	2.5	argon	0.23	0.22	0.53	46		NC	SC	S		
	with grilles-between-the-glass	PEL-N-229-01494-00001				0.23	0.20	0.47	46		NC	SC	S		
	with Simulated Divided Light	PEL-N-229-01495-00001				0.24	0.20	0.47	46		NC	SC	S		
11/16"	SunDefense+ Low-E IG	PEL-N-229-01501-00001	3	3	argon	0.23	0.22	0.52	45		NC	SC	S		
	with grilles-between-the-glass	PEL-N-229-01502-00001				0.23	0.20	0.47	45		NC	SC	S		
	with Simulated Divided Light	PEL-N-229-01503-00001				0.24	0.20	0.47	45		NC	SC	S		
11/16"	SunDefense+ Low-E IG	PEL-N-229-01509-00001	4	4	argon	0.24	0.22	0.52	43		NC	SC	S		
	with grilles-between-the-glass	PEL-N-229-01510-00001				0.25	0.20	0.46	43		NC	SC	S		
	with Simulated Divided Light	PEL-N-229-01511-00001				0.25	0.20	0.46	43		NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-229-00997-00001	2.5	2.5	argon	0.23	0.30	0.57	46		NC				
	with grilles-between-the-glass	PEL-N-229-00998-00001				0.23	0.27	0.51	46		NC				
	with Simulated Divided Light	PEL-N-229-00999-00001				0.24	0.27	0.51	46		NC				
11/16"	AdvancedComfort Low-E IG	PEL-N-229-01005-00001	3	3	argon	0.23	0.30	0.56	45		NC				
	with grilles-between-the-glass	PEL-N-229-01006-00001				0.23	0.27	0.50	45		NC				
	with Simulated Divided Light	PEL-N-229-01007-00001				0.24	0.27	0.50	45		NC				
11/16"	AdvancedComfort Low-E IG	PEL-N-229-01013-00001	4	4	argon	0.24	0.30	0.55	43		NC				
	with grilles-between-the-glass	PEL-N-229-01014-00001				0.25	0.27	0.50	43		NC				
	with Simulated Divided Light	PEL-N-229-01015-00001				0.25	0.27	0.50	43		NC				
11/16"	NaturalSun LowE IG	PEL-N-229-00901-00001	2.5	2.5	argon	0.28	0.58	0.66	57					38	CA
	with grilles-between-the-glass	PEL-N-229-00902-00001				0.28	0.52	0.59	57					35	CA
	with Simulated Divided Light	PEL-N-229-00903-00001				0.29	0.52	0.59	57					34	CA
11/16"	NaturalSun LowE IG	PEL-N-229-00909-00001	3	3	argon	0.28	0.57	0.65	56					38	CA
	with grilles-between-the-glass	PEL-N-229-00910-00001				0.28	0.51	0.58	56					34	CA
	with Simulated Divided Light	PEL-N-229-00911-00001				0.29	0.51	0.58	56						
11/16"	NaturalSun LowE IG	PEL-N-229-00917-00001	4	4	argon	0.29	0.55	0.65	55					35	CA
	with grilles-between-the-glass	PEL-N-229-00918-00001				0.30	0.50	0.58	55						
	with Simulated Divided Light	PEL-N-229-00919-00001				0.30	0.50	0.58	55						
11/16"	NaturalSun+ LowE IG	PEL-N-229-01445-00001	2.5	2.5	argon	0.24	0.53	0.64	45	N				41	CA
	with grilles-between-the-glass	PEL-N-229-01446-00001				0.24	0.47	0.58	45	N				37	CA
	with Simulated Divided Light	PEL-N-229-01447-00001				0.25	0.47	0.58	45	N				36	CA
11/16"	NaturalSun+ LowE IG	PEL-N-229-01453-00001	3	3	argon	0.24	0.52	0.64	44	N				40	CA
	with grilles-between-the-glass	PEL-N-229-01454-00001				0.24	0.46	0.57	44	N				37	CA
	with Simulated Divided Light	PEL-N-229-01455-00001				0.25	0.46	0.57	44	N				35	CA
11/16"	NaturalSun+ LowE IG	PEL-N-229-01461-00001	4	4	argon	0.25	0.50	0.63	42	N				38	CA
	with grilles-between-the-glass	PEL-N-229-01462-00001				0.26	0.45	0.56	42	N					
	with Simulated Divided Light	PEL-N-229-01463-00001				0.26	0.45	0.56	42	N					

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Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
										U. S.				Canada[2]	
			Ext.	Int.		U-Factor	SHGC	VLT	CR	Zone				ER	Zone
Dual-Pane Fixed – High Altitude Glazing										N	NC	SC	S		CA
11/16"	Advanced LowE IG	PEL-N-229-00857-00001	2.5	2.5	air	0.31	0.31	0.58	54						
	with grilles-between-the-glass	PEL-N-229-00858-00001				0.31	0.28	0.52	54						
	with Simulated Divided Light	PEL-N-229-00859-00001				0.32	0.28	0.52	54						
11/16"	Advanced LowE IG	PEL-N-229-00945-00001	3	3	air	0.31	0.31	0.58	53						
	with grilles-between-the-glass	PEL-N-229-00946-00001				0.31	0.28	0.51	53						
	with Simulated Divided Light	PEL-N-229-00947-00001				0.32	0.28	0.51	53						
11/16"	Advanced LowE IG	PEL-N-229-00961-00001	4	4	air	0.33	0.31	0.57	51						
	with grilles-between-the-glass	PEL-N-229-00962-00001				0.34	0.28	0.51	51						
	with Simulated Divided Light	PEL-N-229-00963-00001				0.34	0.28	0.51	51						
11/16"	SunDefenseTM Low-E IG	PEL-N-229-01041-00001	2.5	2.5	air	0.31	0.23	0.54	55				S		
	with grilles-between-the-glass	PEL-N-229-01042-00001				0.31	0.21	0.48	55				S		
	with Simulated Divided Light	PEL-N-229-01043-00001				0.28	0.21	0.48	53			SC	S		
11/16"	SunDefense Low-E IG	PEL-N-229-01049-00001	3	3	air	0.31	0.23	0.53	54				S		
	with grilles-between-the-glass	PEL-N-229-01050-00001				0.31	0.21	0.48	54				S		
	with Simulated Divided Light	PEL-N-229-01051-00001				0.32	0.21	0.48	54				S		
11/16"	SunDefense Low-E IG	PEL-N-229-01057-00001	4	4	air	0.32	0.23	0.53	52				S		
	with grilles-between-the-glass	PEL-N-229-01058-00001				0.34	0.21	0.47	52						
	with Simulated Divided Light	PEL-N-229-01059-00001				0.34	0.21	0.47	52						
11/16"	SunDefense+ Low-E IG	PEL-N-229-01489-00001	2.5	2.5	air	0.25	0.23	0.53	42		NC	SC	S		
	with grilles-between-the-glass	PEL-N-229-01490-00001				0.25	0.21	0.47	42		NC	SC	S		
	with Simulated Divided Light	PEL-N-229-01491-00001				0.26	0.21	0.47	42			SC	S		
11/16"	SunDefense+ Low-E IG	PEL-N-229-01497-00001	3	3	air	0.26	0.23	0.52	41			SC	S		
	with grilles-between-the-glass	PEL-N-229-01498-00001				0.26	0.21	0.47	41			SC	S		
	with Simulated Divided Light	PEL-N-229-01499-00001				0.27	0.21	0.47	41			SC	S		
11/16"	SunDefense+ Low-E IG	PEL-N-229-01505-00001	4	4	air	0.27	0.23	0.52	39			SC	S		
	with grilles-between-the-glass	PEL-N-229-01506-00001				0.28	0.21	0.46	39			SC	S		
	with Simulated Divided Light	PEL-N-229-01507-00001				0.28	0.21	0.46	39			SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-229-00993-00001	2.5	2.5	air	0.26	0.30	0.57	42						
	with grilles-between-the-glass	PEL-N-229-00994-00001				0.26	0.27	0.51	42						
	with Simulated Divided Light	PEL-N-229-00995-00001				0.26	0.27	0.51	42						
11/16"	AdvancedComfort Low-E IG	PEL-N-229-01001-00001	3	3	air	0.26	0.30	0.56	41						
	with grilles-between-the-glass	PEL-N-229-01002-00001				0.26	0.27	0.50	41						
	with Simulated Divided Light	PEL-N-229-01003-00001				0.27	0.27	0.50	41						
11/16"	AdvancedComfort Low-E IG	PEL-N-229-01009-00001	4	4	air	0.27	0.30	0.55	39						
	with grilles-between-the-glass	PEL-N-229-01010-00001				0.28	0.27	0.50	39						
	with Simulated Divided Light	PEL-N-229-01011-00001				0.28	0.27	0.50	39						
11/16"	NaturalSun LowE IG	PEL-N-229-00897-00001	2.5	2.5	air	0.32	0.57	0.66	54						
	with grilles-between-the-glass	PEL-N-229-00898-00001				0.32	0.52	0.59	54						
	with Simulated Divided Light	PEL-N-229-00899-00001				0.33	0.52	0.59	54						
11/16"	NaturalSun LowE IG	PEL-N-229-00905-00001	3	3	air	0.32	0.56	0.65	53						
	with grilles-between-the-glass	PEL-N-229-00906-00001				0.32	0.51	0.58	53						
	with Simulated Divided Light	PEL-N-229-00907-00001				0.33	0.51	0.58	53						
11/16"	NaturalSun LowE IG	PEL-N-229-00913-00001	4	4	air	0.34	0.55	0.65	51						
	with grilles-between-the-glass	PEL-N-229-00914-00001				0.35	0.49	0.58	51						
	with Simulated Divided Light	PEL-N-229-00915-00001				0.35	0.49	0.58	51						
11/16"	NaturalSun+ LowE IG	PEL-N-229-01441-00001	2.5	2.5	air	0.26	0.52	0.64	41	N				37	CA
	with grilles-between-the-glass	PEL-N-229-01442-00001				0.26	0.47	0.58	41	N				35	CA
	with Simulated Divided Light	PEL-N-229-01443-00001				0.27	0.47	0.58	41						
11/16"	NaturalSun+ LowE IG	PEL-N-229-01449-00001	3	3	air	0.27	0.51	0.64	40					36	CA
	with grilles-between-the-glass	PEL-N-229-01450-00001				0.27	0.46	0.57	40						
	with Simulated Divided Light	PEL-N-229-01451-00001				0.28	0.46	0.57	40						
11/16"	NaturalSun+ LowE IG	PEL-N-229-01457-00001	4	4	air	0.28	0.50	0.63	38					34	CA
	with grilles-between-the-glass	PEL-N-229-01458-00001				0.29	0.45	0.56	38						
	with Simulated Divided Light	PEL-N-229-01459-00001				0.29	0.45	0.56	38						

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Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	PENDING NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
											U. S.				Canada[2]	
			Ext.	Mid	Int.		U-Factor[1]	SHGC	VLT	CR	Zone				ER	Zone
Triple-Pane Vent with Clear HGP											N	NC	SC	S		CA
11/16"	Advanced Low-E IG	PEL-N-245-00361-00001	2.5	2.5	2.5	argon	0.24	0.27	0.50	69		NC				
11/16"	Advanced Low-E IG w/ GBG	PEL-N-245-00362-00001	2.5	2.5	2.5	argon	0.24	0.24	0.44	69		NC				
11/16"	Advanced Low-E IG w/ SDL	PEL-N-245-00362-00002	2.5	2.5	2.5	argon	0.24	0.24	0.44	69		NC				
11/16"	Advanced Low-E IG	PEL-N-245-00363-00001	3	3	3	argon	0.24	0.27	0.49	69		NC				
11/16"	Advanced Low-E IG w/ GBG	PEL-N-245-00364-00001	3	3	3	argon	0.24	0.24	0.44	69		NC				
11/16"	Advanced Low-E IG w/ SDL	PEL-N-245-00364-00002	3	3	3	argon	0.24	0.24	0.44	69		NC				
11/16"	Advanced Low-E IG	PEL-N-245-00441-00001	5	3	4	argon	0.25	0.26	0.48	67		NC				
11/16"	Advanced Low-E IG w/ GBG	PEL-N-245-00442-00001	5	3	4	argon	0.25	0.24	0.43	67		NC				
11/16"	Advanced Low-E IG w/ SDL	PEL-N-245-00442-00002	5	3	4	argon	0.25	0.24	0.43	67		NC				
11/16"	AdvancedComfort Low-E IG	PEL-N-245-00269-00001	2.5	2.5	2.5	argon	0.20	0.26	0.49	74	N	NC			30	CA
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-245-00270-00001	2.5	2.5	2.5	argon	0.20	0.24	0.43	74	N	NC			29	CA
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-245-00270-00002	2.5	2.5	2.5	argon	0.20	0.24	0.43	74	N	NC			29	CA
11/16"	AdvancedComfort Low-E IG	PEL-N-245-00271-00001	3	3	3	argon	0.20	0.26	0.48	74	N	NC			30	CA
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-245-00272-00001	3	3	3	argon	0.20	0.23	0.43	74	N	NC	SC	S	28	CA
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-245-00272-00002	3	3	3	argon	0.20	0.23	0.43	74	N	NC	SC	S	28	CA
11/16"	AdvancedComfort Low-E IG	PEL-N-245-00333-00001	5	3	4	argon	0.20	0.25	0.47	74	N	NC			29	CA
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-245-00334-00001	5	3	4	argon	0.21	0.23	0.42	74	N	NC	SC	S	27	CA
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-245-00334-00002	5	3	4	argon	0.21	0.23	0.42	74	N	NC	SC	S	27	CA
11/16"	SunDefense™ Low-E IG	PEL-N-245-00385-00001	2.5	2.5	2.5	argon	0.23	0.20	0.46	69		NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-245-00386-00001	2.5	2.5	2.5	argon	0.23	0.18	0.41	69		NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-245-00386-00002	2.5	2.5	2.5	argon	0.23	0.18	0.41	69		NC	SC	S		
11/16"	SunDefense™ Low-E IG	PEL-N-245-00387-00001	3	3	3	argon	0.24	0.20	0.45	69		NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-245-00388-00001	3	3	3	argon	0.24	0.18	0.41	69		NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-245-00388-00002	3	3	3	argon	0.24	0.18	0.41	69		NC	SC	S		
11/16"	SunDefense™ Low-E IG	PEL-N-245-00457-00001	5	3	4	argon	0.24	0.20	0.45	67		NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-245-00458-00001	5	3	4	argon	0.25	0.18	0.40	67		NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-245-00458-00002	5	3	4	argon	0.25	0.18	0.40	67		NC	SC	S		
11/16"	SunDefense+ Low-E IG	PEL-N-245-00281-00001	2.5	2.5	2.5	argon	0.19	0.19	0.45	74	N	NC	SC	S	27	CA
11/16"	SunDefense+ Low-E IG w/ GBG	PEL-N-245-00282-00001	2.5	2.5	2.5	argon	0.19	0.18	0.40	74	N	NC	SC	S	26	CA
11/16"	SunDefense+ Low-E IG w/ SDL	PEL-N-245-00282-00002	2.5	2.5	2.5	argon	0.19	0.18	0.40	74	N	NC	SC	S	26	CA
11/16"	SunDefense+ Low-E IG	PEL-N-245-00283-00001	3	3	3	argon	0.20	0.19	0.44	74	N	NC	SC	S	26	CA
11/16"	SunDefense+ Low-E IG w/ GBG	PEL-N-245-00284-00001	3	3	3	argon	0.20	0.18	0.40	74	N	NC	SC	S	25	CA
11/16"	SunDefense+ Low-E IG w/ SDL	PEL-N-245-00284-00002	3	3	3	argon	0.20	0.18	0.40	74	N	NC	SC	S	25	CA
11/16"	SunDefense+ Low-E IG	PEL-N-245-00341-00001	5	3	4	argon	0.20	0.19	0.44	74	N	NC	SC	S	26	CA
11/16"	SunDefense+ Low-E IG w/ GBG	PEL-N-245-00342-00001	5	3	4	argon	0.21	0.18	0.39	74	N	NC	SC	S	24	CA
11/16"	SunDefense+ Low-E IG w/ SDL	PEL-N-245-00342-00002	5	3	4	argon	0.21	0.18	0.39	74	N	NC	SC	S	24	CA
11/16"	NaturalSun Low-E IG	PEL-N-245-00349-00001	2.5	2.5	2.5	argon	0.24	0.50	0.56	68	N				39	CA
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-245-00350-00001	2.5	2.5	2.5	argon	0.24	0.45	0.50	68	N				36	CA
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-245-00350-00002	2.5	2.5	2.5	argon	0.24	0.45	0.50	68	N				36	CA
11/16"	NaturalSun Low-E IG	PEL-N-245-00351-00001	3	3	3	argon	0.24	0.49	0.56	68	N				38	CA
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-245-00352-00001	3	3	3	argon	0.24	0.44	0.50	68	N				35	CA
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-245-00352-00002	3	3	3	argon	0.24	0.44	0.50	68	N				35	CA
11/16"	NaturalSun Low-E IG	PEL-N-245-00433-00001	5	3	4	argon	0.25	0.47	0.55	66	N				36	CA
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-245-00434-00001	5	3	4	argon	0.26	0.42	0.49	66	N					
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-245-00434-00002	5	3	4	argon	0.26	0.42	0.49	66	N					
11/16"	NaturalSun+ Low-E IG	PEL-N-245-00257-00001	2.5	2.5	2.5	argon	0.20	0.45	0.55	74	N				41	CA
11/16"	NaturalSun+ Low-E IG w/ GBG	PEL-N-245-00258-00001	2.5	2.5	2.5	argon	0.20	0.41	0.49	74	N				38	CA
11/16"	NaturalSun+ Low-E IG w/ SDL	PEL-N-245-00258-00002	2.5	2.5	2.5	argon	0.20	0.41	0.49	74	N				38	CA
11/16"	NaturalSun+ Low-E IG	PEL-N-245-00259-00001	3	3	3	argon	0.20	0.44	0.54	74	N				40	CA
11/16"	NaturalSun+ Low-E IG w/ GBG	PEL-N-245-00260-00001	3	3	3	argon	0.20	0.40	0.48	74	N	NC			38	CA
11/16"	NaturalSun+ Low-E IG w/ SDL	PEL-N-245-00260-00002	3	3	3	argon	0.20	0.40	0.48	74	N	NC			38	CA
11/16"	NaturalSun+ Low-E IG	PEL-N-245-00325-00001	5	3	4	argon	0.21	0.42	0.54	74	N				38	CA
11/16"	NaturalSun+ Low-E IG w/ GBG	PEL-N-245-00326-00001	5	3	4	argon	0.21	0.38	0.48	74	N	NC			35	CA
11/16"	NaturalSun+ Low-E IG w/ SDL	PEL-N-245-00326-00002	5	3	4	argon	0.21	0.38	0.48	74	N	NC			35	CA

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VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Mid	Int.		U-Factor	SHGC	VLT	CR	U. S. Zone				Canada[2] ER	Canada[2] Zone
Triple-Pane Vent with High Altitude Glazing and Clear HGP											N	NC	SC	S		CA
11/16"	Advanced Low-E HA IG	PEL-N-245-00367-00001	2.5	2.5	2.5	air	0.25	0.27	0.50	67		NC				
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-245-00368-00001	2.5	2.5	2.5	air	0.25	0.24	0.44	67		NC				
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-245-00368-00002	2.5	2.5	2.5	air	0.25	0.24	0.44	67		NC				
11/16"	Advanced Low-E HA IG	PEL-N-245-00369-00001	3	3	3	air	0.26	0.27	0.49	66						
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-245-00370-00001	3	3	3	air	0.26	0.24	0.44	66						
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-245-00370-00002	3	3	3	air	0.26	0.24	0.44	66						
11/16"	Advanced Low-E HA IG	PEL-N-245-00445-00001	5	3	4	air	0.27	0.26	0.48	65						
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-245-00446-00001	5	3	4	air	0.27	0.24	0.43	65						
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-245-00446-00002	5	3	4	air	0.27	0.24	0.43	65						
11/16"	AdvancedComfort Low-E HA IG	PEL-N-245-00275-00001	2.5	2.5	2.5	air	0.21	0.26	0.49	74	N	NC			29	CA
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-245-00276-00001	2.5	2.5	2.5	air	0.21	0.24	0.43	74	N	NC			27	CA
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-245-00276-00002	2.5	2.5	2.5	air	0.21	0.24	0.43	74	N	NC			27	CA
11/16"	AdvancedComfort Low-E HA IG	PEL-N-245-00277-00001	3	3	3	air	0.21	0.26	0.48	74	N	NC			29	CA
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-245-00278-00001	3	3	3	air	0.21	0.23	0.43	74	N	NC	SC	S	27	CA
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-245-00278-00002	3	3	3	air	0.21	0.23	0.43	74	N	NC	SC	S	27	CA
11/16"	AdvancedComfort Low-E HA IG	PEL-N-245-00337-00001	5	3	4	air	0.22	0.25	0.47	72	N	NC				
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-245-00338-00001	5	3	4	air	0.22	0.23	0.42	72	N	NC	SC	S		
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-245-00338-00002	5	3	4	air	0.22	0.23	0.42	72	N	NC	SC	S		
11/16"	SunDefense™ Low-E HA IG	PEL-N-245-00391-00001	2.5	2.5	2.5	air	0.25	0.20	0.46	67		NC	SC	S		
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-245-00392-00001	2.5	2.5	2.5	air	0.25	0.18	0.41	67		NC	SC	S		
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-245-00392-00002	2.5	2.5	2.5	air	0.25	0.18	0.41	67		NC	SC	S		
11/16"	SunDefense™ Low-E HA IG	PEL-N-245-00393-00001	3	3	3	air	0.26	0.20	0.45	66			SC	S		
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-245-00394-00001	3	3	3	air	0.26	0.18	0.41	66			SC	S		
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-245-00394-00002	3	3	3	air	0.26	0.18	0.41	66			SC	S		
11/16"	SunDefense™ Low-E HA IG	PEL-N-245-00461-00001	5	3	4	air	0.27	0.20	0.45	65			SC	S		
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-245-00462-00001	5	3	4	air	0.27	0.18	0.40	65			SC	S		
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-245-00462-00002	5	3	4	air	0.27	0.18	0.40	65			SC	S		
11/16"	SunDefense+ Low-E HA IG	PEL-N-245-00287-00001	2.5	2.5	2.5	air	0.21	0.19	0.45	74	N	NC	SC	S	25	CA
11/16"	SunDefense+ Low-E HA IG w/ GBG	PEL-N-245-00288-00001	2.5	2.5	2.5	air	0.21	0.18	0.40	74	N	NC	SC	S	24	CA
11/16"	SunDefense+ Low-E HA IG w/ SDL	PEL-N-245-00288-00002	2.5	2.5	2.5	air	0.21	0.18	0.40	74	N	NC	SC	S	24	CA
11/16"	SunDefense+ Low-E HA IG	PEL-N-245-00289-00001	3	3	3	air	0.21	0.19	0.44	74	N	NC	SC	S	25	CA
11/16"	SunDefense+ Low-E HA IG w/ GBG	PEL-N-245-00290-00001	3	3	3	air	0.21	0.18	0.40	74	N	NC	SC	S	24	CA
11/16"	SunDefense+ Low-E HA IG w/ SDL	PEL-N-245-00290-00002	3	3	3	air	0.21	0.18	0.40	74	N	NC	SC	S	24	CA
11/16"	SunDefense+ Low-E HA IG	PEL-N-245-00345-00001	5	3	4	air	0.22	0.19	0.44	73	N	NC	SC	S		
11/16"	SunDefense+ Low-E HA IG w/ GBG	PEL-N-245-00346-00001	5	3	4	air	0.22	0.18	0.39	73	N	NC	SC	S		
11/16"	SunDefense+ Low-E HA IG w/ SDL	PEL-N-245-00346-00002	5	3	4	air	0.22	0.18	0.39	73	N	NC	SC	S		
11/16"	NaturalSun Low-E HA IG	PEL-N-245-00355-00001	2.5	2.5	2.5	air	0.26	0.49	0.56	66	N				35	CA
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-245-00356-00001	2.5	2.5	2.5	air	0.26	0.44	0.50	66	N					
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-245-00356-00002	2.5	2.5	2.5	air	0.26	0.44	0.50	66	N					
11/16"	NaturalSun Low-E HA IG	PEL-N-245-00357-00001	3	3	3	air	0.26	0.48	0.56	66	N				35	CA
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-245-00358-00001	3	3	3	air	0.26	0.43	0.50	66	N					
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-245-00358-00002	3	3	3	air	0.26	0.43	0.50	66	N					
11/16"	NaturalSun Low-E HA IG	PEL-N-245-00437-00001	5	3	4	air	0.27	0.47	0.55	64						
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-245-00438-00001	5	3	4	air	0.28	0.42	0.49	64						
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-245-00438-00002	5	3	4	air	0.28	0.42	0.49	64						
11/16"	NaturalSun+ Low-E HA IG	PEL-N-245-00263-00001	2.5	2.5	2.5	air	0.21	0.45	0.55	74	N				40	CA
11/16"	NaturalSun+ Low-E HA IG w/ GBG	PEL-N-245-00264-00001	2.5	2.5	2.5	air	0.21	0.40	0.49	74	N	NC			37	CA
11/16"	NaturalSun+ Low-E HA IG w/ SDL	PEL-N-245-00264-00002	2.5	2.5	2.5	air	0.21	0.40	0.49	74	N	NC			37	CA
11/16"	NaturalSun+ Low-E HA IG	PEL-N-245-00265-00001	3	3	3	air	0.22	0.44	0.54	73	N				38	CA
11/16"	NaturalSun+ Low-E HA IG w/ GBG	PEL-N-245-00266-00001	3	3	3	air	0.22	0.39	0.48	73	N	NC			35	CA
11/16"	NaturalSun+ Low-E HA IG w/ SDL	PEL-N-245-00266-00002	3	3	3	air	0.22	0.39	0.48	73	N	NC			35	CA
11/16"	NaturalSun+ Low-E HA IG	PEL-N-245-00329-00001	5	3	4	air	0.22	0.42	0.54	72	N				36	CA
11/16"	NaturalSun+ Low-E HA IG w/ GBG	PEL-N-245-00330-00001	5	3	4	air	0.23	0.38	0.48	72	N	NC				
11/16"	NaturalSun+ Low-E HA IG w/ SDL	PEL-N-245-00330-00002	5	3	4	air	0.23	0.38	0.48	72	N	NC				

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500. ENERGY STAR® values are updated to 2023 (version 7) criteria.

(2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative.

Visit www.energystar.gov for Energy Star guidelines.

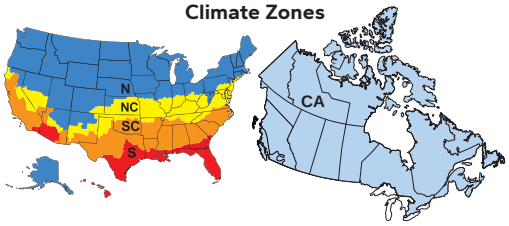
R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
											U. S.				Canada[2]	
			Ext.	Mid	Int.		U-Factor[1]	SHGC	VLT	CR	Zone				ER	Zone
Triple-Pane Fixed with Clear HGP											N	NC	SC	S		CA
11/16"	Advanced Low-E IG	PEL-N-244-00361-00001	2.5	2.5	2.5	argon	0.22	0.27	0.50	69	N	NC				
11/16"	Advanced Low-E IG w/ GBG	PEL-N-244-00362-00001	2.5	2.5	2.5	argon	0.22	0.24	0.44	69	N	NC				
11/16"	Advanced Low-E IG w/ SDL	PEL-N-244-00362-00002	2.5	2.5	2.5	argon	0.22	0.24	0.44	69	N	NC				
11/16"	Advanced Low-E IG	PEL-N-244-00363-00001	3	3	3	argon	0.22	0.27	0.49	69	N	NC				
11/16"	Advanced Low-E IG w/ GBG	PEL-N-244-00364-00001	3	3	3	argon	0.22	0.24	0.44	69	N	NC				
11/16"	Advanced Low-E IG w/ SDL	PEL-N-244-00364-00002	3	3	3	argon	0.22	0.24	0.44	69	N	NC				
11/16"	Advanced Low-E IG	PEL-N-244-00365-00001	4	4	4	argon	0.23	0.26	0.48	67		NC				
11/16"	Advanced Low-E IG w/ GBG	PEL-N-244-00366-00001	4	4	4	argon	0.24	0.24	0.43	67		NC				
11/16"	Advanced Low-E IG w/ SDL	PEL-N-244-00366-00002	4	4	4	argon	0.24	0.24	0.43	67		NC				
11/16"	Advanced Low-E IG	PEL-N-244-00441-00001	5	3	4	argon	0.23	0.26	0.48	68		NC				
11/16"	Advanced Low-E IG w/ GBG	PEL-N-244-00442-00001	5	3	4	argon	0.24	0.24	0.43	68		NC				
11/16"	Advanced Low-E IG w/ SDL	PEL-N-244-00442-00002	5	3	4	argon	0.24	0.24	0.43	68		NC				
11/16"	AdvancedComfort Low-E IG	PEL-N-244-00269-00001	2.5	2.5	2.5	argon	0.18	0.26	0.49	74	N	NC			32	CA
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-244-00270-00001	2.5	2.5	2.5	argon	0.18	0.24	0.43	74	N	NC			31	CA
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-244-00270-00002	2.5	2.5	2.5	argon	0.18	0.24	0.43	74	N	NC			31	CA
11/16"	AdvancedComfort Low-E IG	PEL-N-244-00271-00001	3	3	3	argon	0.18	0.26	0.48	74	N	NC			32	CA
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-244-00272-00001	3	3	3	argon	0.18	0.23	0.43	74	N	NC	SC	S	31	CA
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-244-00272-00002	3	3	3	argon	0.18	0.23	0.43	74	N	NC	SC	S	31	CA
11/16"	AdvancedComfort Low-E IG	PEL-N-244-00273-00001	4	4	4	argon	0.19	0.25	0.47	74	N	NC			31	CA
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-244-00274-00001	4	4	4	argon	0.19	0.23	0.42	74	N	NC	SC	S	29	CA
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-244-00274-00002	4	4	4	argon	0.19	0.23	0.42	74	N	NC	SC	S	29	CA
11/16"	AdvancedComfort Low-E IG	PEL-N-244-00333-00001	5	3	4	argon	0.19	0.25	0.47	74	N	NC			31	CA
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-244-00334-00001	5	3	4	argon	0.19	0.23	0.42	75	N	NC	SC	S	29	CA
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-244-00334-00002	5	3	4	argon	0.19	0.23	0.42	75	N	NC	SC	S	29	CA
11/16"	SunDefense™ Low-E IG	PEL-N-244-00385-00001	2.5	2.5	2.5	argon	0.22	0.20	0.46	70	N	NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-244-00386-00001	2.5	2.5	2.5	argon	0.22	0.18	0.41	70	N	NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-244-00386-00002	2.5	2.5	2.5	argon	0.22	0.18	0.41	70	N	NC	SC	S		
11/16"	SunDefense™ Low-E IG	PEL-N-244-00387-00001	3	3	3	argon	0.22	0.20	0.45	69	N	NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-244-00388-00001	3	3	3	argon	0.22	0.18	0.41	69	N	NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-244-00388-00002	3	3	3	argon	0.22	0.18	0.41	69	N	NC	SC	S		
11/16"	SunDefense™ Low-E IG	PEL-N-244-00389-00001	4	4	4	argon	0.23	0.20	0.45	68		NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-244-00390-00001	4	4	4	argon	0.23	0.18	0.40	68		NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-244-00390-00002	4	4	4	argon	0.23	0.18	0.40	68		NC	SC	S		
11/16"	SunDefense™ Low-E IG	PEL-N-244-00457-00001	5	3	4	argon	0.22	0.20	0.45	68	N	NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-244-00458-00001	5	3	4	argon	0.23	0.18	0.40	68		NC	SC	S		
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-244-00458-00002	5	3	4	argon	0.23	0.18	0.40	68		NC	SC	S		
11/16"	SunDefense+ Low-E IG	PEL-N-244-00281-00001	2.5	2.5	2.5	argon	0.18	0.19	0.45	74	N	NC	SC	S	28	CA
11/16"	SunDefense+ Low-E IG w/ GBG	PEL-N-244-00282-00001	2.5	2.5	2.5	argon	0.18	0.18	0.40	74	N	NC	SC	S	28	CA
11/16"	SunDefense+ Low-E IG w/ SDL	PEL-N-244-00282-00002	2.5	2.5	2.5	argon	0.18	0.18	0.40	74	N	NC	SC	S	28	CA
11/16"	SunDefense+ Low-E IG	PEL-N-244-00283-00001	3	3	3	argon	0.18	0.19	0.44	74	N	NC	SC	S	28	CA
11/16"	SunDefense+ Low-E IG w/ GBG	PEL-N-244-00284-00001	3	3	3	argon	0.18	0.18	0.40	74	N	NC	SC	S	28	CA
11/16"	SunDefense+ Low-E IG w/ SDL	PEL-N-244-00284-00002	3	3	3	argon	0.18	0.18	0.40	74	N	NC	SC	S	28	CA
11/16"	SunDefense+ Low-E IG	PEL-N-244-00285-00001	4	4	4	argon	0.19	0.19	0.44	74	N	NC	SC	S	27	CA
11/16"	SunDefense+ Low-E IG w/ GBG	PEL-N-244-00286-00001	4	4	4	argon	0.19	0.18	0.39	74	N	NC	SC	S	27	CA
11/16"	SunDefense+ Low-E IG w/ SDL	PEL-N-244-00286-00002	4	4	4	argon	0.19	0.18	0.39	74	N	NC	SC	S	27	CA
11/16"	SunDefense+ Low-E IG	PEL-N-244-00341-00001	5	3	4	argon	0.19	0.19	0.44	74	N	NC	SC	S	27	CA
11/16"	SunDefense+ Low-E IG w/ GBG	PEL-N-244-00342-00001	5	3	4	argon	0.19	0.18	0.39	74	N	NC	SC	S	27	CA
11/16"	SunDefense+ Low-E IG w/ SDL	PEL-N-244-00342-00002	5	3	4	argon	0.19	0.18	0.39	74	N	NC	SC	S	27	CA

R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating

Climate Zones



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Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
											U. S.				Canada[2]	
			Ext.	Mid	Int.		U-Factor[1]	SHGC	VLT	CR	Zone				ER	Zone
Triple-Pane Fixed with Clear HGP											N	NC	SC	S		CA
11/16"	NaturalSun Low-E IG	PEL-N-244-00349-00001	2.5	2.5	2.5	argon	0.23	0.50	0.56	69	N				40	CA
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-244-00350-00001	2.5	2.5	2.5	argon	0.23	0.45	0.50	69	N				37	CA
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-244-00350-00002	2.5	2.5	2.5	argon	0.23	0.45	0.50	69	N				37	CA
11/16"	NaturalSun Low-E IG	PEL-N-244-00351-00001	3	3	3	argon	0.23	0.49	0.56	68	N				39	CA
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-244-00352-00001	3	3	3	argon	0.23	0.44	0.50	68	N				37	CA
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-244-00352-00002	3	3	3	argon	0.23	0.44	0.50	68	N				37	CA
11/16"	NaturalSun Low-E IG	PEL-N-244-00353-00001	4	4	4	argon	0.23	0.47	0.55	67	N				38	CA
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-244-00354-00001	4	4	4	argon	0.24	0.43	0.49	67	N				35	CA
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-244-00354-00002	4	4	4	argon	0.24	0.43	0.49	67	N				35	CA
11/16"	NaturalSun Low-E IG	PEL-N-244-00433-00001	5	3	4	argon	0.23	0.47	0.55	67	N				38	CA
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-244-00434-00001	5	3	4	argon	0.24	0.42	0.49	67	N				34	CA
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-244-00434-00002	5	3	4	argon	0.24	0.42	0.49	67	N				34	CA
11/16"	NaturalSun+ Low-E IG	PEL-N-244-00257-00001	2.5	2.5	2.5	argon	0.19	0.45	0.55	74	N				42	CA
11/16"	NaturalSun+ Low-E IG w/ GBG	PEL-N-244-00258-00001	2.5	2.5	2.5	argon	0.19	0.41	0.49	74	N				40	CA
11/16"	NaturalSun+ Low-E IG w/ SDL	PEL-N-244-00258-00002	2.5	2.5	2.5	argon	0.19	0.41	0.49	74	N				40	CA
11/16"	NaturalSun+ Low-E IG	PEL-N-244-00259-00001	3	3	3	argon	0.19	0.44	0.54	74	N				42	CA
11/16"	NaturalSun+ Low-E IG w/ GBG	PEL-N-244-00260-00001	3	3	3	argon	0.19	0.40	0.48	74	N	NC			39	CA
11/16"	NaturalSun+ Low-E IG w/ SDL	PEL-N-244-00260-00002	3	3	3	argon	0.19	0.40	0.48	74	N	NC			39	CA
11/16"	NaturalSun+ Low-E IG	PEL-N-244-00261-00001	4	4	4	argon	0.19	0.43	0.54	74	N				41	CA
11/16"	NaturalSun+ Low-E IG w/ GBG	PEL-N-244-00262-00001	4	4	4	argon	0.20	0.38	0.48	74	N	NC			37	CA
11/16"	NaturalSun+ Low-E IG w/ SDL	PEL-N-244-00262-00002	4	4	4	argon	0.20	0.38	0.48	74	N	NC			37	CA
11/16"	NaturalSun+ Low-E IG	PEL-N-244-00325-00001	5	3	4	argon	0.19	0.42	0.54	74	N				40	CA
11/16"	NaturalSun+ Low-E IG w/ GBG	PEL-N-244-00326-00001	5	3	4	argon	0.20	0.38	0.48	74	N	NC			37	CA
11/16"	NaturalSun+ Low-E IG w/ SDL	PEL-N-244-00326-00002	5	3	4	argon	0.20	0.38	0.48	74	N	NC			37	CA

R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500. ENERGY STAR® values are updated to 2023 (version 7) criteria.

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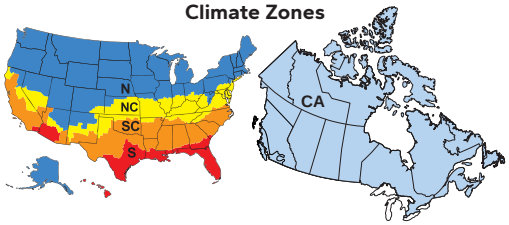
Climate Zones



Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Mid	Int.		U-Factor	SHGC	VLT	CR	U. S. Zone				Canada[2] ER	Canada[2] Zone
Triple-Pane Vent with High Altitude Glazing and Clear HGP											N	NC	SC	S		CA
11/16"	Advanced Low-E HA IG	PEL-N-244-00367-00001	2.5	2.5	2.5	air	0.24	0.27	0.50	67		NC			26	CA
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-244-00368-00001	2.5	2.5	2.5	air	0.24	0.24	0.44	67		NC			24	CA
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-244-00368-00002	2.5	2.5	2.5	air	0.24	0.24	0.44	67		NC			24	CA
11/16"	Advanced Low-E HA IG	PEL-N-244-00369-00001	3	3	3	air	0.24	0.27	0.49	66		NC			26	CA
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-244-00370-00001	3	3	3	air	0.24	0.24	0.44	66		NC			24	CA
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-244-00370-00002	3	3	3	air	0.24	0.24	0.44	66		NC			24	CA
11/16"	Advanced Low-E HA IG	PEL-N-244-00371-00001	4	4	4	air	0.25	0.26	0.48	65		NC			24	CA
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-244-00372-00001	4	4	4	air	0.26	0.24	0.43	65					21	CA
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-244-00372-00002	4	4	4	air	0.26	0.24	0.43	65					21	CA
11/16"	Advanced Low-E HA IG	PEL-N-244-00445-00001	5	3	4	air	0.25	0.26	0.48	65		NC			24	CA
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-244-00446-00001	5	3	4	air	0.26	0.24	0.43	65					21	CA
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-244-00446-00002	5	3	4	air	0.26	0.24	0.43	65					21	CA
11/16"	AdvancedComfort Low-E HA IG	PEL-N-244-00275-00001	2.5	2.5	2.5	air	0.20	0.26	0.49	74	N	NC			30	CA
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-244-00276-00001	2.5	2.5	2.5	air	0.20	0.24	0.43	74	N	NC			29	CA
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-244-00276-00002	2.5	2.5	2.5	air	0.20	0.24	0.43	74	N	NC			29	CA
11/16"	AdvancedComfort Low-E HA IG	PEL-N-244-00277-00001	3	3	3	air	0.20	0.26	0.48	73	N	NC			30	CA
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-244-00278-00001	3	3	3	air	0.20	0.23	0.43	73	N	NC	SC	S	28	CA
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-244-00278-00002	3	3	3	air	0.20	0.23	0.43	73	N	NC	SC	S	28	CA
11/16"	AdvancedComfort Low-E HA IG	PEL-N-244-00279-00001	4	4	4	air	0.21	0.25	0.47	72	N	NC			28	CA
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-244-00280-00001	4	4	4	air	0.21	0.23	0.42	72	N	NC	SC	S	27	CA
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-244-00280-00002	4	4	4	air	0.21	0.23	0.42	72	N	NC	SC	S	27	CA
11/16"	AdvancedComfort Low-E HA IG	PEL-N-244-00337-00001	5	3	4	air	0.21	0.25	0.47	72	N	NC			28	CA
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-244-00338-00001	5	3	4	air	0.21	0.23	0.42	72	N	NC	SC	S	27	CA
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-244-00338-00002	5	3	4	air	0.21	0.23	0.42	72	N	NC	SC	S	27	CA
11/16"	SunDefense™ Low-E HA IG	PEL-N-244-00391-00001	2.5	2.5	2.5	air	0.24	0.20	0.46	67		NC	SC	S	22	CA
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-244-00392-00001	2.5	2.5	2.5	air	0.24	0.18	0.41	67		NC	SC	S	20	CA
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-244-00392-00002	2.5	2.5	2.5	air	0.24	0.18	0.41	67		NC	SC	S	20	CA
11/16"	SunDefense™ Low-E HA IG	PEL-N-244-00393-00001	3	3	3	air	0.24	0.20	0.45	67		NC	SC	S	22	CA
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-244-00394-00001	3	3	3	air	0.24	0.18	0.41	67		NC	SC	S	20	CA
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-244-00394-00002	3	3	3	air	0.24	0.18	0.41	67		NC	SC	S	20	CA
11/16"	SunDefense™ Low-E HA IG	PEL-N-244-00395-00001	4	4	4	air	0.25	0.20	0.45	65		NC	SC	S	20	CA
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-244-00396-00001	4	4	4	air	0.26	0.18	0.40	65			SC	S	18	CA
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-244-00396-00002	4	4	4	air	0.26	0.18	0.40	65			SC	S	18	CA
11/16"	SunDefense™ Low-E HA IG	PEL-N-244-00461-00001	5	3	4	air	0.25	0.20	0.45	65		NC	SC	S	20	CA
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-244-00462-00001	5	3	4	air	0.26	0.18	0.40	65			SC	S	18	CA
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-244-00462-00002	5	3	4	air	0.26	0.18	0.40	65			SC	S	18	CA
11/16"	SunDefense+ Low-E HA IG	PEL-N-244-00287-00001	2.5	2.5	2.5	air	0.19	0.19	0.45	74	N	NC	SC	S	27	CA
11/16"	SunDefense+ Low-E HA IG w/ GBG	PEL-N-244-00288-00001	2.5	2.5	2.5	air	0.19	0.18	0.40	74	N	NC	SC	S	27	CA
11/16"	SunDefense+ Low-E HA IG w/ SDL	PEL-N-244-00288-00002	2.5	2.5	2.5	air	0.19	0.18	0.40	74	N	NC	SC	S	27	CA
11/16"	SunDefense+ Low-E HA IG	PEL-N-244-00289-00001	3	3	3	air	0.20	0.19	0.44	74	N	NC	SC	S	26	CA
11/16"	SunDefense+ Low-E HA IG w/ GBG	PEL-N-244-00290-00001	3	3	3	air	0.20	0.18	0.40	74	N	NC	SC	S	25	CA
11/16"	SunDefense+ Low-E HA IG w/ SDL	PEL-N-244-00290-00002	3	3	3	air	0.20	0.18	0.40	74	N	NC	SC	S	25	CA
11/16"	SunDefense+ Low-E HA IG	PEL-N-244-00291-00001	4	4	4	air	0.21	0.19	0.44	72	N	NC	SC	S	25	CA
11/16"	SunDefense+ Low-E HA IG w/ GBG	PEL-N-244-00292-00001	4	4	4	air	0.21	0.18	0.39	72	N	NC	SC	S	24	CA
11/16"	SunDefense+ Low-E HA IG w/ SDL	PEL-N-244-00292-00002	4	4	4	air	0.21	0.18	0.39	72	N	NC	SC	S	24	CA
11/16"	SunDefense+ Low-E HA IG	PEL-N-244-00345-00001	5	3	4	air	0.21	0.19	0.44	72	N	NC	SC	S	25	CA
11/16"	SunDefense+ Low-E HA IG w/ GBG	PEL-N-244-00346-00001	5	3	4	air	0.21	0.18	0.39	72	N	NC	SC	S	24	CA
11/16"	SunDefense+ Low-E HA IG w/ SDL	PEL-N-244-00346-00002	5	3	4	air	0.21	0.18	0.39	72	N	NC	SC	S	24	CA

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VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating

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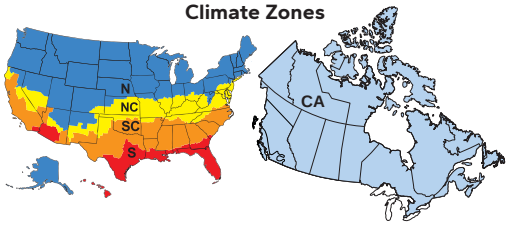
Climate Zones



Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Mid	Int.		U-Factor	SHGC	VLT	CR	U. S. Zone				Canada[2] ER	Canada[2] Zone
Triple-Pane Vent with High Altitude Glazing and Clear HGP											N	NC	SC	S		CA
11/16"	NaturalSun Low-E HA IG	PEL-N-244-00355-00001	2.5	2.5	2.5	air	0.25	0.49	0.56	67	N				37	CA
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-244-00356-00001	2.5	2.5	2.5	air	0.25	0.44	0.50	67	N				34	CA
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-244-00356-00002	2.5	2.5	2.5	air	0.25	0.44	0.50	67	N				34	CA
11/16"	NaturalSun Low-E HA IG	PEL-N-244-00357-00001	3	3	3	air	0.25	0.48	0.56	66	N				36	CA
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-244-00358-00001	3	3	3	air	0.25	0.43	0.50	66	N				34	CA
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-244-00358-00002	3	3	3	air	0.25	0.43	0.50	66	N				34	CA
11/16"	NaturalSun Low-E HA IG	PEL-N-244-00359-00001	4	4	4	air	0.26	0.47	0.55	65	N				35	CA
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-244-00360-00001	4	4	4	air	0.26	0.42	0.49	65	N				32	CA
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-244-00360-00002	4	4	4	air	0.26	0.42	0.49	65	N				32	CA
11/16"	NaturalSun Low-E HA IG	PEL-N-244-00437-00001	5	3	4	air	0.26	0.47	0.55	65	N				35	CA
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-244-00438-00001	5	3	4	air	0.26	0.42	0.49	65	N				32	CA
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-244-00438-00002	5	3	4	air	0.26	0.42	0.49	65	N				32	CA
11/16"	NaturalSun+ Low-E HA IG	PEL-N-244-00263-00001	2.5	2.5	2.5	air	0.20	0.45	0.55	73	N				41	CA
11/16"	NaturalSun+ Low-E HA IG w/ GBG	PEL-N-244-00264-00001	2.5	2.5	2.5	air	0.20	0.40	0.49	73	N	NC			38	CA
11/16"	NaturalSun+ Low-E HA IG w/ SDL	PEL-N-244-00264-00002	2.5	2.5	2.5	air	0.20	0.40	0.49	73	N	NC			38	CA
11/16"	NaturalSun+ Low-E HA IG	PEL-N-244-00265-00001	3	3	3	air	0.20	0.44	0.54	73	N				40	CA
11/16"	NaturalSun+ Low-E HA IG w/ GBG	PEL-N-244-00266-00001	3	3	3	air	0.20	0.39	0.48	73	N	NC			37	CA
11/16"	NaturalSun+ Low-E HA IG w/ SDL	PEL-N-244-00266-00002	3	3	3	air	0.20	0.39	0.48	73	N	NC			37	CA
11/16"	NaturalSun+ Low-E HA IG	PEL-N-244-00267-00001	4	4	4	air	0.21	0.42	0.54	72	N				38	CA
11/16"	NaturalSun+ Low-E HA IG w/ GBG	PEL-N-244-00268-00001	4	4	4	air	0.21	0.38	0.48	72	N	NC			36	CA
11/16"	NaturalSun+ Low-E HA IG w/ SDL	PEL-N-244-00268-00002	4	4	4	air	0.21	0.38	0.48	72	N	NC			36	CA
11/16"	NaturalSun+ Low-E HA IG	PEL-N-244-00329-00001	5	3	4	air	0.21	0.42	0.54	72	N				38	CA
11/16"	NaturalSun+ Low-E HA IG w/ GBG	PEL-N-244-00330-00001	5	3	4	air	0.21	0.38	0.48	72	N	NC			36	CA
11/16"	NaturalSun+ Low-E HA IG w/ SDL	PEL-N-244-00330-00002	5	3	4	air	0.21	0.38	0.48	72	N	NC			36	CA

R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating

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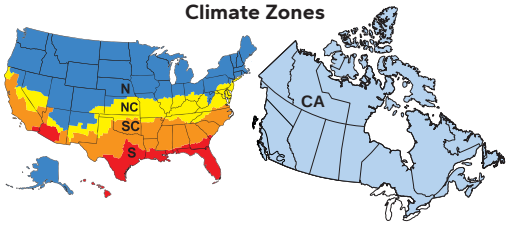
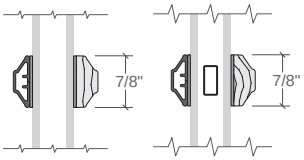
Climate Zones



Grilles

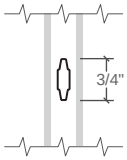
Grille Profiles – Dual-Pane

7/8" Simulated Divided Lights



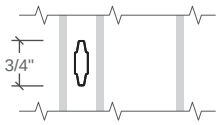
with Optional Spacer

3/4" Grilles-Between-the-Glass

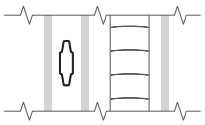


Grille Profiles – Triple-Pane

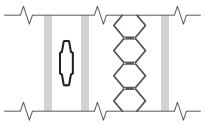
Contoured Aluminum
3/4" Grilles-Between-the-Glass



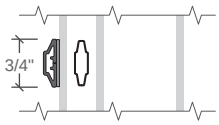
Slimshade Blinds

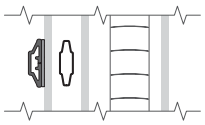


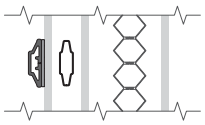
Cellular Fabric Shade



3/4" Simulated Divide Lights

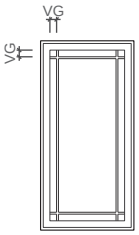




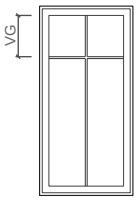


Contact your local Pella sales representative for current availability.

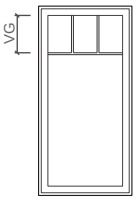
Grille Patterns



9-Lite



Cross



Top Row

9-Lite Prairie

- Standard corner lite dimension for Prairie patterns = 2-1/2" VG.
- Available in transoms ≥ 1'3" height and width.

Cross

- Minimum DH frame height 35".
- Horizontal bar will be at 1/2" of the VG height of the top sash.

Top Row

- Minimum DH frame height 35".
- Horizontal bar will be at 1/2" of the VG height of the top sash.

For traditional patterns, see size tables.

VG = Visible Glass
Lite dimensions noted can vary.
Custom configurations are also available, for details contact your local Pella sales representative.

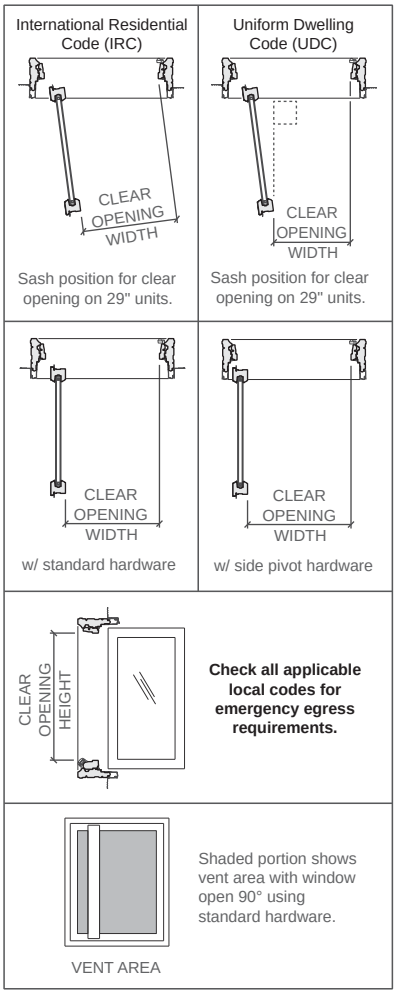
Standard Size Tables – Dual-Pane

Transoms

Opening (Frame)	(451) (432)	(552) (533)	(603) (584)	(654) (635)	(756) (737)	(832) (813)	(908) (889)
	1' 5 3/4" (1' 5")	1' 9 3/4" (1' 9")	1' 11 3/4" (1' 11")	2' 1 3/4" (2' 1")	2' 5 3/4" (2' 5")	2' 8 3/4" (2' 8")	2' 11 3/4" (2' 11")
1' 5 3/4" (1' 5") (451) (432)	1717 Ⓥ	2117	2317	2517	2917	3217	3517
1' 9 3/4" (1' 9") (552) (533)	1721	2121 Ⓥ	2321	2521	2921	3221	3521
1' 11 3/4" (1' 11") (603) (584)	1723	2123	2323 Ⓥ	2523	2923	3223	3523
2' 1 3/4" (2' 1") (654) (635)	1725	2125	2325	2525 Ⓥ	2925	3225	3525
2' 5 3/4" (2' 5") (756) (737)	1729	2129	2329	2529	2929 Ⓥ	3229	3529

Vent Units

Opening (Frame)	(832) (813)	(908) (889)	(1 060) (1 041)	(1 213) (1 194)	(1 365) (1 346)	(1 518) (1 499)	(1 670) (1 651)	(1 822) (1 803)	(1 873) (1 854)
	2' 8 3/4" (2' 8")	2' 11 3/4" (2' 11")	3' 5 3/4" (3' 5")	3' 11 3/4" (3' 11")	4' 5 3/4" (4' 5")	4' 11 3/4" (4' 11")	5' 5 3/4" (5' 5")	5' 11 3/4" (5' 11")	6' 1 3/4" (6' 1")
1' 5 3/4" (1' 5") (451) (432)	1732 2132 2332 2532 2932 3232 E3 3532 Ⓕ								
1' 9 3/4" (1' 9") (552) (533)		1735 2135 2335 2535 2935 E3 3235 E2 3535 E1 E2							
1' 11 3/4" (1' 11") (603) (584)			1741 2141 2341 2541 E3 2941 E1 E2 3241 E1 E2 3541 E						
2' 1 3/4" (2' 1") (654) (635)				1747 2147 2347 2547 E2 2947 E 3247 E 3547 E					
2' 5 3/4" (2' 5") (756) (737)					1753 2153 2353 2553 E2 2953 E 3253 E 3553 E				
						1759 2159 2359 2559 E2 2959 E 3259 E 3559 E			
							1765 T 2165 2365 2565 E2 2965 E 3265 E 3565 E		
								1771 T 2171 2371 2571 E2 2971 E 3271 E 3571 E	
									1773 T 2173 2373 2573 E2 2973 E 3273 E 3573 E



Egress Notes:

Check all applicable local codes for emergency egress requirements.

- E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².
- E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².
- E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².
- E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

See Design Data pages in this section for clear opening dimensions.

Clear opening (egress) information does not take into consideration the addition of a Rolscreen (or any other accessory) to the product.

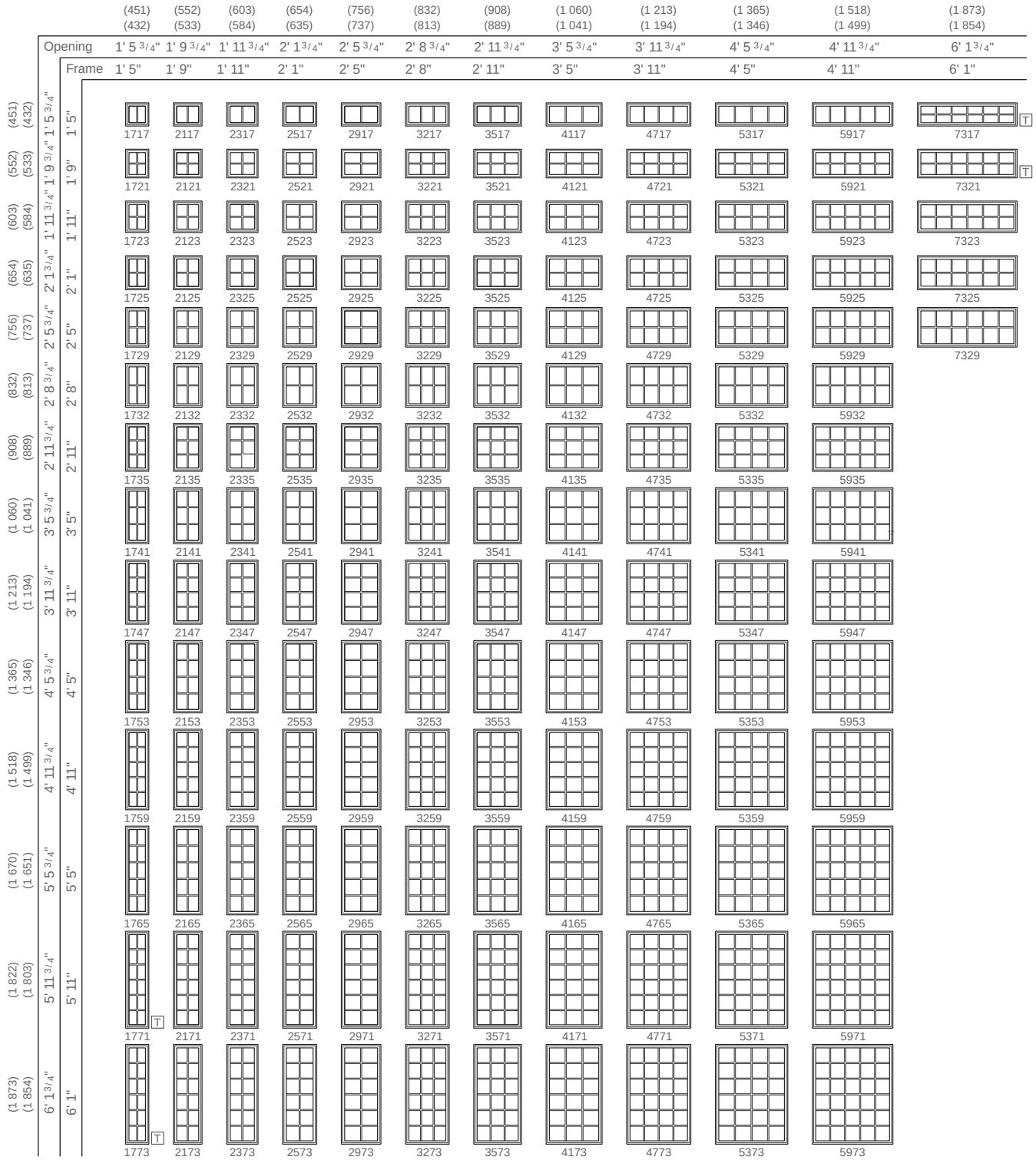
Consult your local building code to ensure products with Rolscreens meet egress requirements.

Egress information shown is for International Residential Code (IRC) standards only, see Design Data page for Uniform Dwelling Code (UDC) information.

Not to scale.
(F) = Fixed Units only
(T) = Tempered glass required due to aspect ratio.
Traditional grille patterns shown. Refer to Grilles page for additional patterns and profiles.
Transom standard sizes availble up to 73" wide, see fixed size table for details.

Standard Size Tables – Dual-Pane

Fixed Units



Not to scale.
(T) = Tempered required due to aspect ratio.
Traditional grille patterns shown. Refer to Grilles page for additional patterns and profiles.

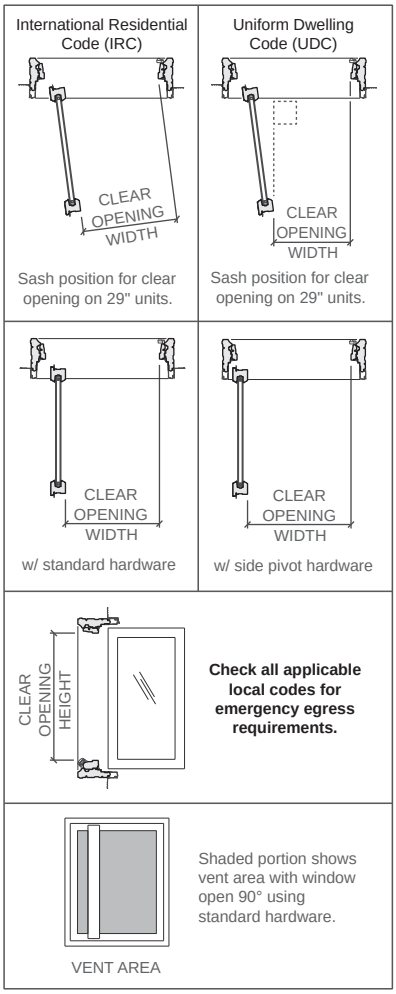
Standard Size Tables – Triple-Pane

Transoms

Opening (451) (432)	Opening (552) (533)	Opening (603) (584)	Opening (654) (635)	Opening (756) (737)	Opening (832) (813)	Opening (908) (889)
Frame 1' 5"	Frame 1' 9"	Frame 1' 11"	Frame 2' 1"	Frame 2' 5"	Frame 2' 8"	Frame 2' 11"
1717 (V)	2117	2317	2517	2917	3217	3517
1721	2121 (V)	2321	2521	2921	3221	3521
1723	2123	2323 (V)	2523	2923	3223	3523
1725	2125	2325	2525 (V)	2925	3225	3525
1729	2129	2329	2529	2929 (V)	3229	3529

Vent Units

Frame 1' 5"	Frame 1' 9"	Frame 1' 11"	Frame 2' 1"	Frame 2' 5"	Frame 2' 8"	Frame 2' 11"
1732	2132	2332	2532	2932	3232 E_3	3532 (F)
1735	2135	2335	2535	2935 E_3	3235 E_2	3535 E_1 E_2
1741	2141	2341	2541 E_3	2941 E_1 E_2	3241 E_1 E_2	3541 E
1747	2147	2347	2547 E_2	2947 E	3247 E	3547 E
1753	2153	2353	2553 E_2	2953 E	3253 E	3553 E
1759	2159	2359	2559 E_2	2959 E	3259 E	3559 E
1765 (T)	2165	2365	2565 E_2	2965 E	3265 E	3565 E
1771 (T)	2171	2371	2571 E_2	2971 E	3271 E	3571 E
1773 (T)	2173	2373	2573 E_2	2973 E	3273 E	3573 E



Egress Notes:

Check all applicable local codes for emergency egress requirements.

- E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².
- E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².
- E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².
- E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

See Design Data pages in this section for clear opening dimensions.

Clear opening (egress) information does not take into consideration the addition of a Rolscreen (or any other accessory) to the product.

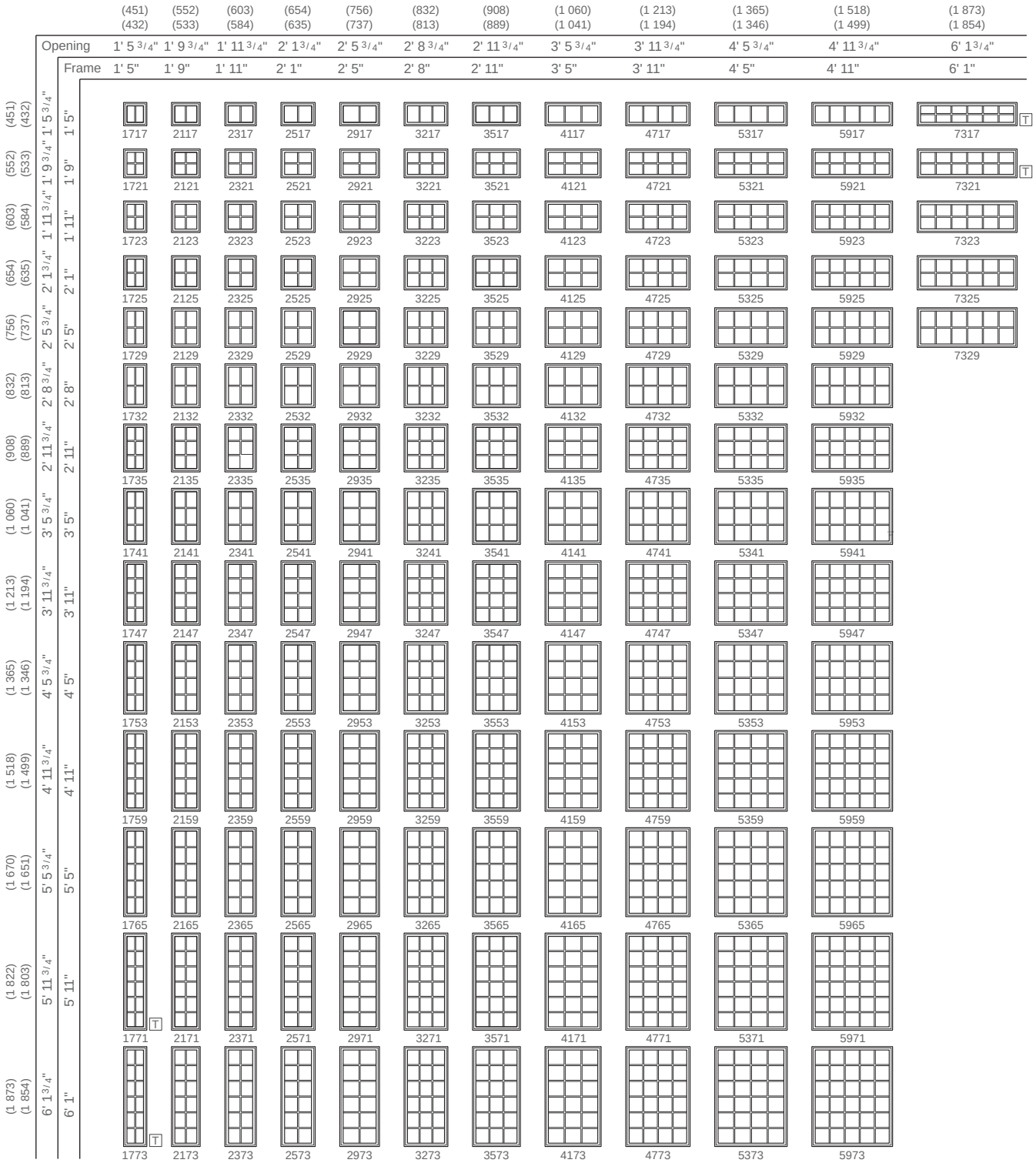
Consult your local building code to ensure products with Rolscreens meet egress requirements.

Egress information shown is for International Residential Code (IRC) standards only, see Design Data page for Uniform Dwelling Code (UDC) information.

Not to scale.
(F) = Fixed Units only
(T) = Tempered glass required due to aspect ratio.
Traditional grille patterns shown. Refer to Grilles page for additional patterns and profiles.
Transom standard sizes available up to 73" wide, see fixed size table for details.

Standard Size Tables – Triple-Pane

Fixed Units



Not to scale.
(T) = Tempered required due to aspect ratio.
Traditional grille patterns shown. Refer to Grilles page for additional patterns and profiles.

Casement Special Size Frame Dimensions*

	Minimum	Maximum
Vent Dual-Pane	1' 5" W x 1' 5" H (17" x 17") (432 x 432)	2' 11" W x 6' 1" H (35" x 73") (889 x 1 854)
Fixed Dual-Pane	1' 5" W x 1' 2" H (17" x 14") (432 x 356)	4' 11" W x 6' 1" H (59" x 73") (1 499 x 1 854)
Vent Triple-Pane	1' 5" W x 1' 5" H (17" x 17") (432 x 432)	2' 11" W x 6' 1" H (35" x 73") (889 x 1 854)
Fixed Triple-Pane	1' 5" W x 1' 5" H (17" x 17") (432 x 432)	4' 11" W x 6' 1" H (59" x 73") (1 499 x 1 854)

Egress Formulas

Clear Opening Height		
Frame Height - 4-1/8"		
Clear Opening Width		
Hinge	**Frame Width**	**Formula**
Standard	FW < 29"	FW - 9-3/4"
Standard (IRC)	FW ≥ 29" and ≤ 30-1/2"	FW - 9"
Standard (UDC)	FW ≥ 29" and ≤ 30-1/2"	FW - 9-3/4"
Standard	FW > 30-1/2"	FW - 9-3/4"
Side Pivot	FW ≥ 25" and < 35"	FW - 4-3/8"

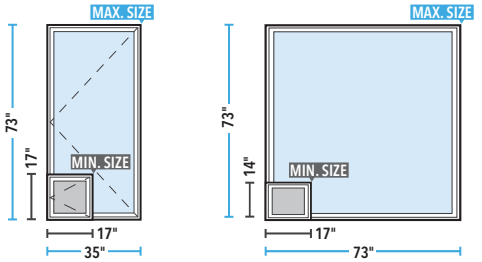
Glass Formulas

	Formulas
Visible Glass Dual-Pane	Width = Frame – 4.92" Height = Frame – 4.92"
Visible Glass Triple-Pane	Width = Frame – 5.938" Height = Frame – 5.938"
Actual Glass$_1$ Dual-Pane	Width = Frame – 4" Height = Frame – 4"
Actual Glass$_1$ Triple-Pane	Width = Frame – 5" Height = Frame – 5"

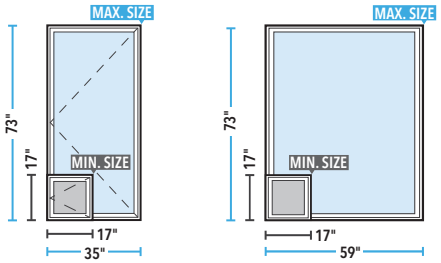
Triple-Pane Integrated Window Fashions – Operator Handing Guide

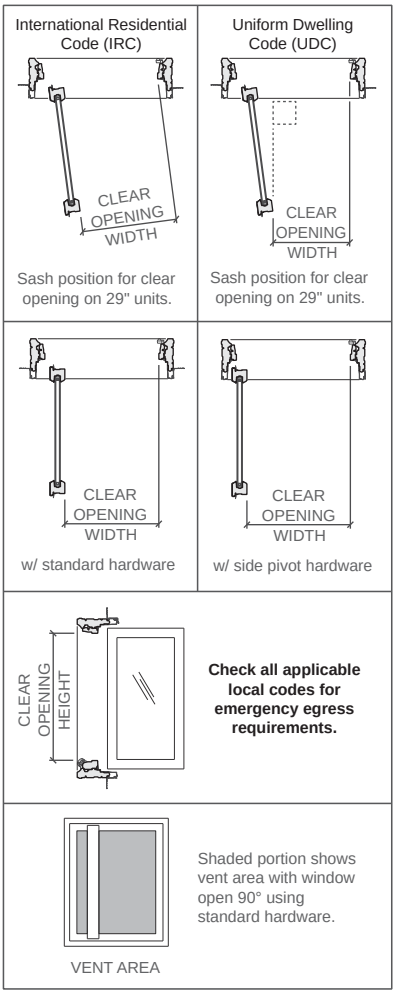
Unit Type	Shade Operator Location from Exterior	Interior Hinged Glass Panel Style
Right-Hand Vent	Right	Bottom Hinge
Left-Hand Vent	Left	Bottom Hinge
Fixed	Left	Bottom Hinge
Large Fixed	Left	Bottom Hinge

Dual-Pane



Triple-Pane





* Available within size range shown.

Keep frame dimensions to the nearest 1/4" increment. Frame height cannot exceed frame width on special size dual-pane vent units.

(1) Actual glass of exterior light. Interior Moveable Light is 9/16" smaller.

Clear opening (egress) information does not take into consideration the addition of a Rolscreen (or any other accessory) to the product. You should consult your local building code to ensure products with Rolscreens meet egress requirements.

To convert areas to square meters (m2), multiply square feet by 0.0929.

Dual-Pane Vent

Unit	Egress (IRC)	Egress (UDC)	Clear Opening Width (Inches)	Clear Opening Height (Inches)	Clear Opening Ft²	Vent Area Ft²	Visible Glass Ft²	Standard Glass Thickness (mm) Annealed	Standard Glass Thickness (mm) Tempered	Performance Class & Grade (1)
1717			7-1/4	12-7/8	0.6	0.8	1.0	2.5	3	LC50
1732			7-1/4	27-7/8	1.4	1.9	2.3	2.5	3	LC50
1735			7-1/4	30-7/8	1.6	2.1	2.5	2.5	3	LC50
1741			7-1/4	36-7/8	1.9	2.5	3.0	2.5	3	LC50
1747			7-1/4	42-7/8	2.2	3.0	3.5	2.5	3	LC50
1753			7-1/4	48-7/8	2.5	3.4	4.0	2.5	3	LC50
1759			7-1/4	54-7/8	2.8	3.8	4.5	2.5	3	LC50
1765			7-1/4	60-7/8	3.1	4.2	5.0	2.5	3	LC50
1771 (T)			7-1/4	66-7/8	3.4	4.7	5.5	---	3	LC50
1773 (T)			7-1/4	68-7/8	3.5	4.8	5.7	---	3	LC50
2121			11-1/4	16-7/8	1.3	1.5	1.8	2.5	3	LC50
2132			11-1/4	27-7/8	2.2	2.6	3.0	2.5	3	LC50
2135			11-1/4	30-7/8	2.4	2.9	3.4	2.5	3	LC50
2141			11-1/4	36-7/8	2.9	3.5	4.0	2.5	3	LC50
2147			11-1/4	42-7/8	3.3	4.1	4.7	2.5	3	LC50
2153			11-1/4	48-7/8	3.8	4.7	5.4	2.5	3	LC50
2159			11-1/4	54-7/8	4.3	5.3	6.0	2.5	3	LC45/LC50
2165			11-1/4	60-7/8	4.8	5.9	6.7	2.5	3	LC45/LC50
2171			11-1/4	66-7/8	5.2	6.5	7.4	2.5	3	LC40/LC50
2173			11-1/4	68-7/8	5.4	6.7	7.6	2.5	3	LC40/LC50
2323			13-1/4	18-7/8	1.7	2.0	2.3	2.5	3	LC50
2332			13-1/4	27-7/8	2.6	3.0	3.4	2.5	3	LC50
2335			13-1/4	30-7/8	2.8	3.3	3.8	2.5	3	LC50
2341			13-1/4	36-7/8	3.4	4.0	4.5	2.5	3	LC50
2347			13-1/4	42-7/8	3.9	4.7	5.3	2.5	3	LC50
2353			13-1/4	48-7/8	4.5	5.4	6.0	2.5	3	LC50
2359			13-1/4	54-7/8	5.0	6.0	6.8	2.5	3	LC45/LC50
2365			13-1/4	60-7/8	5.6	6.7	7.5	2.5	3	LC40/LC50
2371			13-1/4	66-7/8	6.2	7.4	8.3	2.5	3	LC35/LC50
2373			13-1/4	68-7/8	6.3	7.6	8.5	2.5	3	LC35/LC50
2525			15-1/4	20-7/8	2.2	2.5	2.8	2.5	3	LC50
2532			15-1/4	27-7/8	3.0	3.4	3.8	2.5	3	LC50
2535			15-1/4	30-7/8	3.3	3.8	4.2	2.5	3	LC50
2541	E3	E3	20-5/8	36-7/8	5.3	4.5	5.0	2.5	3	LC50
2547	E2	E2	20-5/8	42-7/8	6.1	5.3	5.9	2.5	3	LC50
2553	E2	E2	20-5/8	48-7/8	7.0	6.0	6.7	2.5	3	LC50
2559	E2	E2	20-5/8	54-7/8	7.9	6.8	7.5	2.5	3	LC45/LC50
2565	E2	E2	20-5/8	60-7/8	8.7	7.5	8.4	2.5	3	LC40/LC50
2571	E2	E2	20-5/8	66-7/8	9.6	8.3	9.2	2.5	3	LC35/LC50
2573	E2	E2	20-5/8	68-7/8	9.9	8.6	9.5	2.5	3	LC30/LC50

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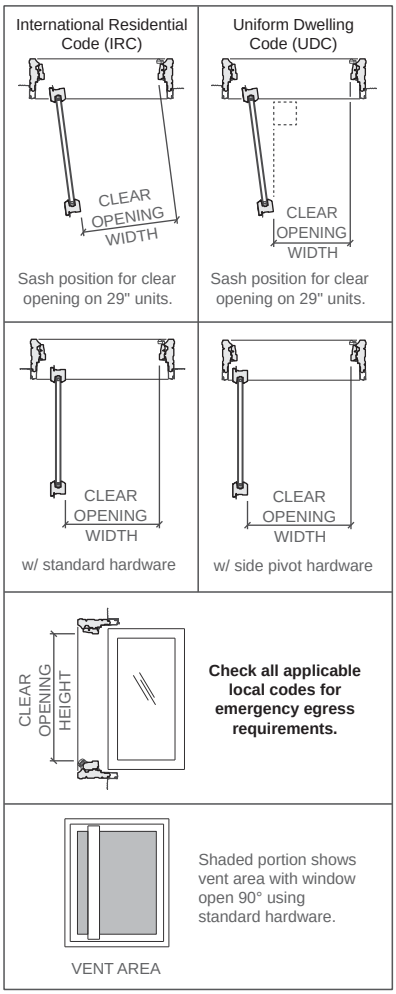


Egress Notes:

Check all applicable local codes for emergency egress requirements.

E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

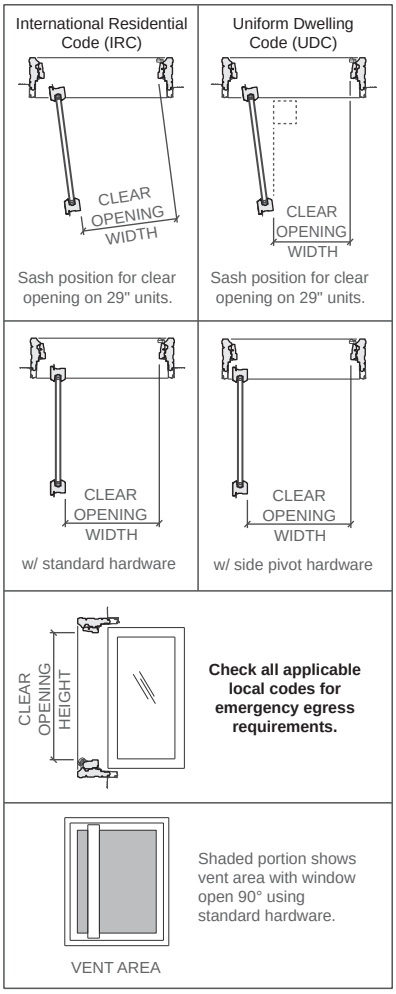
(—) = Not Applicable

(T) = Tempered required due to aspect ratio.

(1) Maximum performance when glazed with the appropriate glass thickness.

Dual-Pane Vent

Unit	Egress (IRC)	Egress (UDC)	Clear Opening			Vent Area Ft²	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade[1]
			Width (Inches)	Height (Inches)	Ft²			Annealed	Tempered	
2929			20	24-7/8	3.5	3.7	4.0	2.5	3	LC50
2932			20	27-7/8	3.9	4.1	4.5	2.5	3	LC50
2935	E_3	E_3	24-5/8	30-7/8	5.3	4.6	5.0	2.5	3	LC50
2941	E_1, E_2	E_2	24-5/8	36-7/8	6.3	5.5	6.0	2.5	3	LC50
2947	E	E_2	20	42-7/8	6.0	6.4	7.0	2.5	3	LC50
2953	E	E_2	20	48-7/8	6.8	7.4	8.0	2.5	3	LC50
2959	E	E_2	20	54-7/8	7.6	8.3	9.0	2.5	3	LC45/LC50
2965	E	E_2	20	60-7/8	8.5	9.2	10.0	2.5	3	LC30/LC50(2)
2971	E	E_2	20	66-7/8	9.3	10.1	11.1	3	3	LC30/LC50(2)
2973	E	E_2	20	68-7/8	9.6	10.4	11.4	3	3	LC30/LC50(2)
3232	E_3	E_3	22-1/4	27-7/8	4.3	4.7	5.1	2.5	3	LC50
3235	E_2	E_2	27-5/8	30-7/8	5.9	5.2	5.7	2.5	3	LC50
3241	E_1, E_2	E_1, E_2	27-5/8	36-7/8	7.1	6.2	6.8	2.5	3	LC50
3247	E	E	22-1/4	42-7/8	6.6	7.3	7.9	2.5	3	LC50
3253	E	E	22-1/4	48-7/8	7.5	8.3	9.0	2.5	3	LC50
3259	E	E	22-1/4	54-7/8	8.4	9.4	10.2	2.5	3	LC45/LC50
3265	E	E	22-1/4	60-7/8	9.4	10.4	11.3	3	3	LC30/LC50(2)
3271	E	E	22-1/4	66-7/8	10.3	11.5	12.4	3	3	LC30/LC50(2)
3273	E	E	22-1/4	68-7/8	10.6	11.8	12.8	3	3	LC30/LC50(2)
3535	E_1, E_2	E_1, E_2	30-5/8	30-7/8	6.6	5.8	6.3	2.5	3	LC50
3541	E	E	25-1/4	36-7/8	6.5	7.0	7.5	2.5	3	LC50
3547	E	E	25-1/4	42-7/8	7.5	8.2	8.8	2.5	3	LC50
3553	E	E	25-1/4	48-7/8	8.6	9.3	10.0	2.5	3	LC45/LC50
3559	E	E	25-1/4	54-7/8	9.6	10.5	11.3	3	3	LC50
3565	E	E	25-1/4	60-7/8	10.7	11.7	12.6	3	3	LC30/LC50(2)
3571	E	E	25-1/4	66-7/8	11.7	12.9	13.8	3	3	LC30/LC50(2)
3573	E	E	25-1/4	68-7/8	12.1	13.3	14.2	3	3	LC30/LC50(2)



Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

Clear opening (egress) information does not take into consideration the addition of a Rolscreen (or any other accessory) to the product.

Consult your local building code to ensure products with Rolscreens meet egress requirements.

(1) Maximum performance when glazed with the appropriate glass thickness. Second value, where shown, requires tempered glass.

(2) Second number shown requires tempered glass and DP kit. Florida certification documents DP50 with kit installed (Vent: FL 20675). Unit label will indicate DP30 since kit is not factory installed. Review Pella Instructions and FPAS documentation for installation requirements.

To convert areas to square meters (m²), multiply square feet by 0.0929.

Dual-Pane Fixed

Unit	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade[1]	
		Annealed	Tempered	Annealed	Tempered
1717	1.0	2.5	3	LC50	LC50
1721	1.3	2.5	3	LC50	LC50
1723	1.5	2.5	3	LC50	LC50
1725	1.7	2.5	3	LC50	LC50
1729	2.0	2.5	3	LC50	LC50
1732	2.3	2.5	3	LC50	LC50
1735	2.5	2.5	3	LC50	LC50
1741	3.0	2.5	3	LC50	LC50
1747	3.5	2.5	3	LC50	LC50
1753	4.0	2.5	3	LC50	LC50
1759	4.5	2.5	3	LC50	LC50
1765	5.0	2.5	3	LC50	LC50
1771$_T$	5.5	---	3	---	LC50
1773$_T$	5.7	---	3	---	LC50
2117	1.3	2.5	3	LC50	LC50
2121	1.8	2.5	3	LC50	LC50
2123	2.0	2.5	3	LC50	LC50
2125	2.2	2.5	3	LC50	LC50
2129	2.7	2.5	3	LC50	LC50
2132	3.0	2.5	3	LC50	LC50
2135	3.4	2.5	3	LC50	LC50
2141	4.0	2.5	3	LC50	LC50
2147	4.7	2.5	3	LC50	LC50
2153	5.4	2.5	3	LC50	LC50
2159	6.0	2.5	3	LC45	LC50
2165	6.7	2.5	3	LC45	LC50
2171	7.4	2.5	3	LC40	LC50
2173	7.6	2.5	3	LC40	LC50
2317	1.5	2.5	3	LC50	LC50
2321	2.0	2.5	3	LC50	LC50
2323	2.3	2.5	3	LC50	LC50
2325	2.5	2.5	3	LC50	LC50
2329	3.0	2.5	3	LC50	LC50
2332	3.4	2.5	3	LC50	LC50
2335	3.8	2.5	3	LC50	LC50
2341	4.5	2.5	3	LC50	LC50
2347	5.3	2.5	3	LC50	LC50
2353	6.0	2.5	3	LC50	LC50
2359	6.8	2.5	3	LC45	LC50
2365	7.5	2.5	3	LC40	LC50
2371	8.3	2.5	3	LC35	LC50
2373	8.5	2.5	3	LC35	LC50

Dual-Pane Fixed

Unit	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade[1]	
		Annealed	Tempered	Annealed	Tempered
2517	1.7	2.5	3	LC50	LC50
2521	2.2	2.5	3	LC50	LC50
2523	2.5	2.5	3	LC50	LC50
2525	2.8	2.5	3	LC50	LC50
2529	3.4	2.5	3	LC50	LC50
2532	3.8	2.5	3	LC50	LC50
2535	4.2	2.5	3	LC50	LC50
2541	5.0	2.5	3	LC50	LC50
2547	5.9	2.5	3	LC50	LC50
2553	6.7	2.5	3	LC50	LC50
2559	7.5	2.5	3	LC45	LC50
2565	8.4	2.5	3	LC40	LC50
2571	9.2	2.5	3	LC35	LC50
2573	9.5	2.5	3	LC30	LC50
2917	2.0	2.5	3	LC50	LC50
2921	2.7	2.5	3	LC50	LC50
2923	3.0	2.5	3	LC50	LC50
2925	3.4	2.5	3	LC50	LC50
2929	4.0	2.5	3	LC50	LC50
2932	4.5	2.5	3	LC50	LC50
2935	5.0	2.5	3	LC50	LC50
2941	6.0	2.5	3	LC50	LC50
2947	7.0	2.5	3	LC50	LC50
2953	8.0	2.5	3	LC50	LC50
2959	9.0	2.5	3	LC45	LC50
2965	10.0	2.5	3	LC30	LC30/LC50$_{(2)}$
2971	11.1	3	3	LC30	LC30/LC50$_{(2)}$
2973	11.4	3	3	LC30	LC30/LC50$_{(2)}$
3217	2.3	2.5	3	LC50	LC50
3221	3.0	2.5	3	LC50	LC50
3223	3.4	2.5	3	LC50	LC50
3225	3.8	2.5	3	LC50	LC50
3229	4.5	2.5	3	LC50	LC50
3232	5.1	2.5	3	LC50	LC50
3235	5.7	2.5	3	LC50	LC50
3241	6.8	2.5	3	LC50	LC50
3247	7.9	2.5	3	LC50	LC50
3253	9.0	2.5	3	LC50	LC50
3259	10.2	2.5	3	LC45	LC50
3265	11.3	3	3	LC30	LC30/LC50$_{(2)}$
3271	12.4	3	3	LC30	LC30/LC50$_{(2)}$
3273	12.8	3	3	LC30	LC30/LC50$_{(2)}$

Continued on next page

(—) = Not Applicable
(T) = Tempered required due to aspect ratio.
(1) Maximum performance when glazed with the appropriate glass thickness.
(2) Second number shown requires tempered glass and DP kit. Florida certification documents DP50 with kit installed (Fixed: FL 20653). Unit label will indicate DP30 since kit is not factory installed. Review Pella Instructions and FPAS documentation for installation requirements.
To convert areas to square meters (m²), multiply square feet by 0.0929.

Dual-Pane Fixed

Unit	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade[1]	
		Annealed	Tempered	Annealed	Tempered
3517	2.5	2.5	3	LC50	LC50
3521	3.4	2.5	3	LC50	LC50
3523	3.8	2.5	3	LC50	LC50
3525	4.2	2.5	3	LC50	LC50
3529	5.0	2.5	3	LC50	LC50
3532	5.7	2.5	3	LC50	LC50
3535	6.3	2.5	3	LC50	LC50
3541	7.5	2.5	3	LC50	LC50
3547	8.8	2.5	3	LC50	LC50
3553	10.0	2.5	3	LC45	LC50
3559	11.3	3	3	LC50	LC50
3565	12.6	3	3	LC30	LC30/LC50(2)
3571	13.8	3	3	LC30	LC30/LC50(2)
3573	14.2	3	3	LC30	LC30/LC50(2)
4117	3.0	2.5	3	LC50	LC50
4121	4.0	2.5	3	LC50	LC50
4123	4.5	2.5	3	LC50	LC50
4125	5.0	2.5	3	LC50	LC50
4129	6.0	2.5	3	LC50	LC50
4132	6.8	2.5	3	LC50	LC50
4135	7.5	2.5	3	LC50	LC50
4141	9.0	2.5	3	LC30	LC30
4147	10.5	3	3	LC30	LC30
4153	12.0	3	3	LC30	LC30
4159	13.6	3	3	LC30	LC30
4165	15.1	3	3	LC30	LC30
4171	16.6	3	3	LC30	LC30
4173	17.1	3	3	LC30	LC30
4717	3.5	2.5	3	LC50	LC50
4721	4.7	2.5	3	LC50	LC50
4723	5.3	2.5	3	LC50	LC50
4725	5.9	2.5	3	LC50	LC50
4729	7.0	2.5	3	LC50	LC50
4732	7.9	2.5	3	LC50	LC50
4735	8.8	2.5	3	LC50	LC50
4741	10.5	3	3	LC30	LC30
4747	12.3	3	3	LC30	LC30
4753	14.1	3	3	LC30	LC30
4759	15.8	3	3	LC30	LC30
4765	17.6	3	3	LC30	LC30
4771	19.3	4	4	LC30	LC30
4773	19.9	4	4	LC30	LC30

Dual-Pane Fixed

Unit	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade[1]	
		Annealed	Tempered	Annealed	Tempered
5317	4.0	2.5	3	LC50	LC50
5321	5.4	2.5	3	LC50	LC50
5323	6.0	2.5	3	LC50	LC50
5325	6.7	2.5	3	LC50	LC50
5329	8.0	2.5	3	LC50	LC50
5332	9.0	2.5	3	LC50	LC50
5335	10.0	2.5	3	LC45	LC50
5341	12.0	3	3	LC30	LC30
5347	14.1	3	3	LC30	LC30
5353	16.1	3	4	LC30	LC30
5359	18.1	4	4	LC30	LC30
5365	20.1	4	4	LC30	LC30
5371	22.1	4	4	LC30	LC30
5373	22.7	4	4	LC30	LC30
5917	4.5	2.5	3	LC50	LC50
5921	6.0	2.5	3	LC45	LC50
5923	6.8	2.5	3	LC45	LC50
5925	7.5	2.5	3	LC45	LC50
5929	9.0	2.5	3	LC45	LC50
5932	10.2	2.5	3	LC45	LC50
5935	11.3	3	3	LC50	LC50
5941	13.6	3	3	LC30	LC30
5947	15.8	3	3	LC30	LC30
5953	18.1	4	4	LC30	LC30
5959	20.3	4	4	LC30	LC30
5965	22.6	4	4	LC30	LC30
5971	24.8	4	4	LC30	LC30
5973	25.6	5	5	LC30	LC30
7317T	5.7	---	3	---	LC50
7321	7.6	2.5	3	LC40	LC50
7323	8.5	2.5	3	LC35	LC50
7325	9.5	2.5	3	LC30	LC50
7329	11.4	3.0	3	LC30	LC30/LC50(2)

(1) Maximum performance when glazed with the appropriate glass thickness.

(2) Second number shown requires tempered glass and DP kit. Florida certification documents DP50 with kit installed (Fixed: FL 20653). Unit label will indicate DP30 since kit is not factory installed.

Review Pella Instructions and FPAS documentation for installation requirements.

To convert areas to square meters (m^2), multiply square feet by 0.0929.

Triple-Pane Vent

Unit	Egress (IRC)	Egress (UDC)	Clear Opening			Vent Area Ft²	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade [1]
			Width (Inches)	Height (Inches)	Ft²			Annealed	Tempered	
1717			7-1/4	12-7/8	0.6	0.8	0.8	2.5	3	LC50
1732			7-1/4	27-7/8	1.4	1.8	2.0	2.5	3	LC50
1735			7-1/4	30-7/8	1.6	2.0	2.2	2.5	3	LC50
1741			7-1/4	36-7/8	1.9	2.4	2.7	2.5	3	LC50
1747			7-1/4	42-7/8	2.2	2.8	3.2	2.5	3	LC50
1753			7-1/4	48-7/8	2.5	3.2	3.6	2.5	3	LC50
1759			7-1/4	54-7/8	2.8	3.6	4.1	2.5	3	LC50
1765 T			7-1/4	60-7/8	3.1	4.0	4.5	2.5	3	LC50
1771 T			7-1/4	66-7/8	3.4	4.4	5.0	---	3	LC50
1773 T			7-1/4	68-7/8	3.5	4.6	5.2	---	3	LC50
2121			11-1/4	16-7/8	1.3	1.5	1.6	2.5	3	LC50
2132			11-1/4	27-7/8	2.2	2.5	2.7	2.5	3	LC50
2135			11-1/4	30-7/8	2.4	2.8	3.0	2.5	3	LC50
2141			11-1/4	36-7/8	2.9	3.4	3.7	2.5	3	LC45/LC50
2147			11-1/4	42-7/8	3.3	4.0	4.3	2.5	3	LC35/LC50
2153			11-1/4	48-7/8	3.8	4.5	4.9	2.5	3	LC35/LC50
2159			11-1/4	54-7/8	4.3	5.1	5.6	2.5	3	LC30/LC50
2165			11-1/4	60-7/8	4.8	5.7	6.2	2.5	3	LC25/LC50
2171			11-1/4	66-7/8	5.2	6.2	6.8	2.5	3	LC25/LC50
2173			11-1/4	68-7/8	5.4	6.4	7.0	2.5	3	LC25/LC50
2323			13-1/4	18-7/8	1.7	1.9	2.0	2.5	3	LC50
2332			13-1/4	27-7/8	2.6	2.9	3.1	2.5	3	LC50
2335			13-1/4	30-7/8	2.8	3.2	3.4	2.5	3	LC50
2341			13-1/4	36-7/8	3.4	3.9	4.2	2.5	3	LC45/LC50
2347			13-1/4	42-7/8	3.9	4.5	4.9	2.5	3	LC35/LC50
2353			13-1/4	48-7/8	4.5	5.2	5.6	2.5	3	LC30/LC50
2359			13-1/4	54-7/8	5.0	5.8	6.3	2.5	3	LC25/LC50
2365			13-1/4	60-7/8	5.6	6.5	7.0	2.5	3	LC25/LC50
2371			13-1/4	66-7/8	6.2	7.2	7.7	2.5	3	R20/LC50
2373			13-1/4	68-7/8	6.3	7.4	7.9	2.5	3	R20/LC50
2525			15-1/4	20-7/8	2.2	2.4	2.5	2.5	3	LC50
2532			15-1/4	27-7/8	3.0	3.3	3.4	2.5	3	LC50
2535			15-1/4	30-7/8	3.3	3.6	3.8	2.5	3	LC50
2541	E3	E3	20-5/8	36-7/8	5.3	4.4	4.6	2.5	3	LC45/LC50
2547	E2	E2	20-5/8	42-7/8	6.1	5.1	5.4	2.5	3	LC35/LC50
2553	E2	E2	20-5/8	48-7/8	7.0	5.9	6.2	2.5	3	LC30/LC50
2559	E2	E2	20-5/8	54-7/8	7.9	6.6	7.0	2.5	3	LC25/LC50
2565	E2	E2	20-5/8	60-7/8	8.7	7.3	7.8	2.5	3	R20/LC50
2571	E2	E2	20-5/8	66-7/8	9.6	8.1	8.6	2.5	3	R20/LC50
2573	E2	E2	20-5/8	68-7/8	9.9	8.3	8.9	2.5	3	R20/LC50

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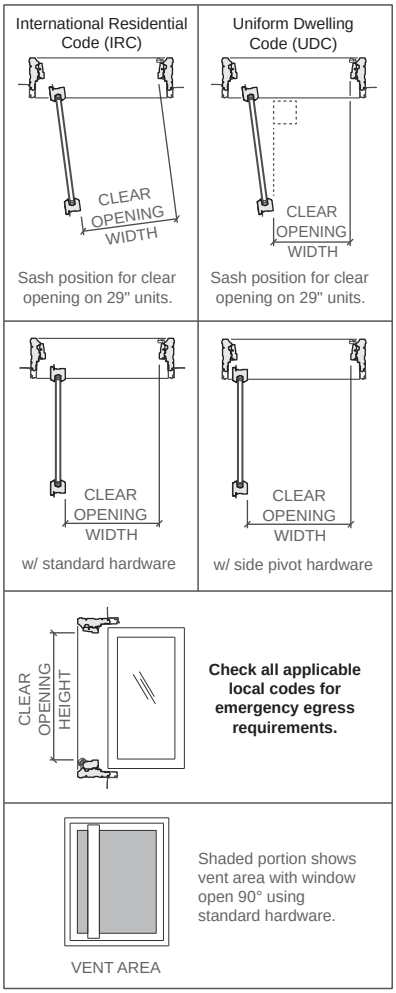


Egress Notes:

Check all applicable local codes for emergency egress requirements.

E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

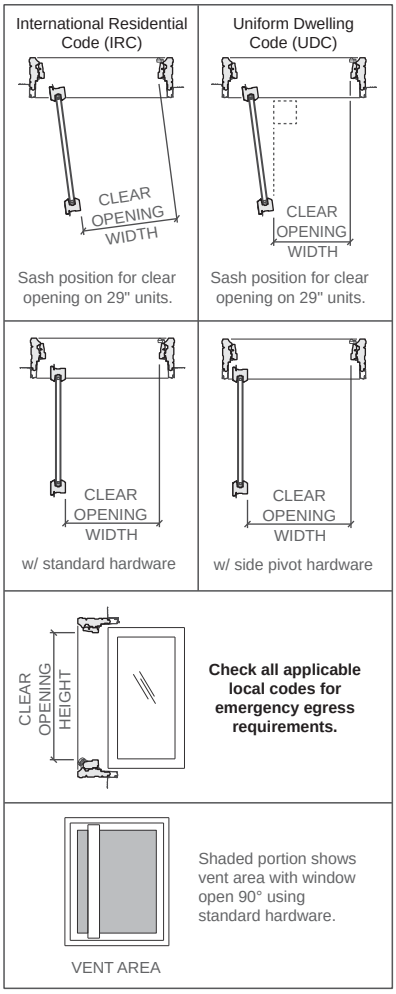
(—) = Not Applicable

(T) = Tempered required due to aspect ratio.

(1) Maximum performance when glazed with the appropriate glass thickness.
Second value, where shown, requires tempered glass.

Triple-Pane Vent

Unit	Egress (IRC)	Egress (UDC)	Clear Opening Width (Inches)	Clear Opening Height (Inches)	Clear Opening Ft²	Vent Area Ft²	Visible Glass Ft²	Standard Glass Thickness (mm) Annealed	Standard Glass Thickness (mm) Tempered	Performance Class & Grade[1]
2929			20	24-7/8	3.5	3.6	3.7	2.5	3	LC50
2932			20	27-7/8	3.9	4.0	4.2	2.5	3	LC50
2935	E_3	E_3	24-5/8	30-7/8	5.3	4.5	4.7	2.5	3	LC50
2941	E_1, E_2	E_2	24-5/8	36-7/8	6.3	5.4	5.6	2.5	3	LC45/LC50
2947	E	E_2	20	42-7/8	6.0	6.3	6.6	2.5	3	LC35/LC50
2953	E	E_2	20	48-7/8	6.8	7.2	7.5	2.5	3	LC30/LC50
2959	E	E_2	20	54-7/8	7.6	8.1	8.5	2.5	3	LC25/LC50
2965	E	E_2	20	60-7/8	8.5	9.0	9.5	2.5	3	R20/LC50
2971	E	E_2	20	66-7/8	9.3	9.9	10.4	3	3	LC25/LC50
2973	E	E_2	20	68-7/8	9.6	10.2	10.7	3	3	LC25/LC50
3232	E_3	E_3	22-1/4	27-7/8	4.3	4.6	4.7	2.5	3	LC50
3235	E_2	E_2	27-5/8	30-7/8	5.9	5.1	5.3	2.5	3	LC45/LC50
3241	E_1, E_2	E_1, E_2	27-5/8	36-7/8	7.1	6.1	6.3	2.5	3	LC40/LC50
3247	E	E	22-1/4	42-7/8	6.6	7.1	7.4	2.5	3	LC35/LC50
3253	E	E	22-1/4	48-7/8	7.6	8.2	8.5	2.5	3	LC30/LC50
3259	E	E	22-1/4	54-7/8	8.5	9.2	9.6	2.5	3	LC25/LC50
3265	E	E	22-1/4	60-7/8	9.4	10.2	10.7	3	3	LC30/LC50
3271	E	E	22-1/4	66-7/8	10.3	11.3	11.8	3	3	LC25/LC50
3273	E	E	22-1/4	68-7/8	10.6	11.6	12.1	3	3	LC25/LC50
3535	E_1, E_2	E_1, E_2	30-5/8	30-7/8	6.6	5.7	5.9	2.5	3	LC40/LC50
3541	E	E	25-1/4	36-7/8	6.5	6.9	7.1	2.5	3	LC35/LC50
3547	E	E	25-1/4	42-7/8	7.5	8.0	8.3	2.5	3	LC30/LC50
3553	E	E	25-1/4	48-7/8	8.6	9.2	9.5	2.5	3	LC25/LC50
3559	E	E	25-1/4	54-7/8	9.6	10.3	10.7	3	3	LC35/LC50
3565	E	E	25-1/4	60-7/8	10.7	11.5	11.9	3	3	LC30/LC50
3571	E	E	25-1/4	66-7/8	11.7	12.6	13.1	3	3	LC25/LC50
3573	E	E	25-1/4	68-7/8	12.1	13.0	13.5	3	3	LC25/LC50



Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

Clear opening (egress) information does not take into consideration the addition of a Rolscreen (or any other accessory) to the product.

Consult your local building code to ensure products with Rolscreens meet egress requirements.

(1) Maximum performance when glazed with the appropriate glass thickness.
Second value, where shown, requires tempered glass.

Triple-Pane Fixed

Unit	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade[1]	
		Annealed	Tempered	Annealed	Tempered
1717	0.8	2.5	3	CW50	CW50
1721	1.2	2.5	3	CW50	CW50
1723	1.3	2.5	3	CW50	CW50
1725	1.5	2.5	3	CW50	CW50
1729	1.8	2.5	3	CW50	CW50
1732	2.0	2.5	3	CW50	CW50
1735	2.2	2.5	3	CW50	CW50
1741	2.7	2.5	3	CW50	CW50
1747	3.2	2.5	3	CW50	CW50
1753	3.6	2.5	3	CW50	CW50
1759	4.1	2.5	3	CW50	CW50
1765$_T$	4.5	---	3	---	CW50
1771$_T$	5.0	---	3	---	CW50
1773$_T$	5.2	---	3	---	CW50
2117	1.2	2.5	3	CW50	CW50
2121	1.6	2.5	3	CW50	CW50
2123	1.8	2.5	3	CW50	CW50
2125	2.0	2.5	3	CW50	CW50
2129	2.4	2.5	3	CW50	CW50
2132	2.7	2.5	3	CW50	CW50
2135	3.0	2.5	3	CW50	CW50
2141	3.7	2.5	3	CW45	CW50
2147	4.3	2.5	3	CW35	CW50
2153	4.9	2.5	3	CW35	CW50
2159	5.6	2.5	3	CW30	CW50
2165	6.2	2.5	3	LC25	CW50
2171	6.8	2.5	3	LC25	CW50
2173	7.0	2.5	3	LC25	CW50
2317	1.3	2.5	3	CW50	CW50
2321	1.8	2.5	3	CW50	CW50
2323	2.0	2.5	3	CW50	CW50
2325	2.3	2.5	3	CW50	CW50
2329	2.7	2.5	3	CW50	CW50
2332	3.1	2.5	3	CW50	CW50
2335	3.4	2.5	3	CW50	CW50
2341	4.2	2.5	3	CW45	CW50
2347	4.9	2.5	3	CW35	CW50
2353	5.6	2.5	3	CW30	CW50
2359	6.3	2.5	3	LC25	CW50
2365	7.0	2.5	3	LC25	CW50
2371	7.7	2.5	3	R20	CW50
2373	7.9	2.5	3	R20	CW50

Triple-Pane Fixed

Unit	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade[1]	
		Annealed	Tempered	Annealed	Tempered
2517	1.5	2.5	3	CW50	CW50
2521	2.0	2.5	3	CW50	CW50
2523	2.3	2.5	3	CW50	CW50
2525	2.5	2.5	3	CW50	CW50
2529	3.1	2.5	3	CW50	CW50
2532	3.4	2.5	3	CW50	CW50
2535	3.8	2.5	3	CW50	CW50
2541	4.6	2.5	3	CW45	CW50
2547	5.4	2.5	3	CW35	CW50
2553	6.2	2.5	3	CW30	CW50
2559	7.0	2.5	3	LC25	CW50
2565	7.8	2.5	3	R20	CW50
2571	8.6	2.5	3	R20	CW50
2573	8.9	2.5	3	R20	CW50
2917	1.8	2.5	3	CW50	CW50
2921	2.4	2.5	3	CW50	CW50
2923	2.7	2.5	3	CW50	CW50
2925	3.1	2.5	3	CW50	CW50
2929	3.7	2.5	3	CW50	CW50
2932	4.2	2.5	3	CW50	CW50
2935	4.7	2.5	3	CW50	CW50
2941	5.6	2.5	3	CW45	CW50
2947	6.6	2.5	3	CW35	CW50
2953	7.5	2.5	3	CW30	CW50
2959	8.5	2.5	3	LC25	CW50
2965	9.5	2.5	3	R20	CW50
2971	10.4	3	3	LC25	CW50
2973	10.7	3	3	LC25	CW50
3217	2.0	2.5	3	CW50	CW50
3221	2.7	2.5	3	CW50	CW50
3223	3.1	2.5	3	CW50	CW50
3225	3.4	2.5	3	CW50	CW50
3229	4.2	2.5	3	CW50	CW50
3232	4.7	2.5	3	CW50	CW50
3235	5.3	2.5	3	CW45	CW50
3241	6.3	2.5	3	CW40	CW50
3247	7.4	2.5	3	CW35	CW50
3253	8.5	2.5	3	CW30	CW50
3259	9.6	2.5	3	LC25	CW50
3265	10.7	3.0	3	CW30	CW50
3271	11.8	3	3	LC25	CW50
3273	12.1	3	3	LC25	CW50

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(—) = Not Applicable
(T) = Tempered required due to aspect ratio.
(1) Maximum performance when glazed with the appropriate glass thickness.
To convert areas to square meters (m²), multiply square feet by 0.0929.

Triple-Pane Fixed					
Unit	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade[1]	
		Annealed	Tempered	Annealed	Tempered
3517	2.2	2.5	3	CW50	CW50
3521	3.0	2.5	3	CW50	CW50
3523	3.4	2.5	3	CW50	CW50
3525	3.8	2.5	3	CW50	CW50
3529	4.7	2.5	3	CW50	CW50
3532	5.3	2.5	3	CW45	CW50
3535	5.9	2.5	3	CW40	CW50
3541	7.1	2.5	3	CW35	CW50
3547	8.3	2.5	3	CW30	CW50
3553	9.5	2.5	3	LC25	CW50
3559	10.7	3	3	CW35	CW50
3565	11.9	3	3	CW30	CW50
3571	13.1	3	3	LC25	CW50
3573	13.5	3	3	LC25	CW50
4117	2.7	2.5	3	CW50	CW50
4121	3.7	2.5	3	CW45	CW50
4123	4.2	2.5	3	CW45	CW50
4125	4.6	2.5	3	CW45	CW50
4129	5.6	2.5	3	CW45	CW50
4132	6.3	2.5	3	CW40	CW50
4135	7.1	2.5	3	CW35	CW50
4141	8.5	2.5	3	CW30	CW50
4147	10.0	2.5	3	LC25	CW50
4153	11.5	3	3	CW35	CW50
4159	12.9	3	3	CW30	CW50
4165	14.4	3	3	CW30	CW50
4171	15.8	3	3	LC25	CW50
4173	16.3	3	3	LC25	CW50
4717	3.2	2.5	3	CW50	CW50
4721	4.3	2.5	3	CW35	CW50
4723	4.9	2.5	3	CW35	CW50
4725	5.4	2.5	3	CW35	CW50
4729	6.6	2.5	3	CW35	CW50
4732	7.4	2.5	3	CW35	CW50
4735	8.3	2.5	3	CW30	CW50
4741	10.0	2.5	3	LC25	CW50
4747	11.7	3	3	CW35	CW50
4753	13.4	3	3	CW30	CW50
4759	15.1	3	3	LC25	CW50
4765	16.8	3	3	LC25	CW50
4771	18.6	4	4	CW30	CW50
4773	19.1	4	4	CW30	CW50

Triple-Pane Fixed					
Unit	Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade[1]	
		Annealed	Tempered	Annealed	Tempered
5317	3.6	2.5	3	CW50	CW50
5321	4.9	2.5	3	CW35	CW50
5323	5.6	2.5	3	CW30	CW50
5325	6.2	2.5	3	CW30	CW50
5329	7.5	2.5	3	CW30	CW50
5332	8.5	2.5	3	CW30	CW50
5335	9.5	2.5	3	LC25	CW50
5341	11.5	3	3	CW35	CW50
5347	13.4	3	3	CW30	CW50
5353	15.4	3	3	LC25	CW50
5359	17.3	3	3	LC25	CW50
5365	19.3	4	4	CW30	CW50
5371	21.3	4	4	CW30	CW50
5373	21.9	4	4	CW30	CW50
5917	4.1	2.5	3	CW50	CW50
5921	5.6	2.5	3	CW30	CW50
5923	6.3	2.5	3	LC25	CW50
5925	7.0	2.5	3	LC25	CW50
5929	8.5	2.5	3	LC25	CW50
5932	9.6	2.5	3	LC25	CW50
5935	10.7	3	3	CW35	CW50
5941	12.9	3	3	CW30	CW50
5947	15.1	3	3	LC25	CW50
5953	17.3	3	3	LC25	CW50
5959	19.6	4	4	CW30	CW50
5965	21.8	4	4	CW30	CW50
5971	24.0	4	4	LC25	CW50
5973	24.7	4	4	LC25	CW50
7317$_T$	5.2	---	3	---	CW50
7321	7.0	2.5	3	LC25	CW50
7323	7.9	2.5	3	R20	CW50
7325	8.9	2.5	3	R20	CW50
7329	10.7	3	3	LC25	CW50

(T) = Tempered required due to aspect ratio.
(1) Maximum performance when glazed with the appropriate glass thickness.
To convert areas to square meters (m²), multiply square feet by 0.0929.

Frame

- Select softwood, immersion treated with Pella's EnduraGuard® wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are clear pine.
- Exterior surfaces are clad with aluminum.
- Components are assembled with screws, staples and concealed corner locks.
- Overall frame depth is 5" (127mm) for a wall depth of 3-11/16" (94mm).
- Optional factory-applied jamb extensions available between 3-13/16" (97mm) and 9-3/16" (233mm).
- Optional factory-installed fold-out installation fins with flexible fin corners.
- Optional factory-applied EnduraClad® exterior trim.
- Optional factory-installed Pella Steady Set Installation System.

Sash

- Select softwood, immersion treated with Pella's EnduraGuard® wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are clear pine.
- Exterior surfaces are clad with aluminum, lap-jointed and sealed.
- Corners mortised and tenoned, glued and secured with metal fasteners.
- Sash thickness is [1-3/4" (45mm) dual-pane] [2-3/16" (55mm) triple-pane, (2-1/4" (57mm) including hinged glass panel)].

Weatherstripping

- Dual weatherstripping.
  - Flexible santoprene material compressed between frame and sash for positive seal on all four sides.
  - Secondary thermoplastic vulcanizate (TPV) weatherstrip between edge of sash and frame [Dual-Pane: leaf-type on the vertical sides and bottom side, and Santoprene® bulb-type weatherstrip on the top side] [Triple-Pane: leaf-type on all four sides].

Glazing System

- Quality float glass complying with ASTM C 1036.
- High altitude glazing available.
- Silicone-glazed 11/16" [obscure] dual-seal insulating glass [[annealed] [tempered]] [[Advanced] [SunDefense™] [SunDefense+] [AdvancedComfort] [NaturalSun] [NaturalSun+] Low-E [with argon]].

-or-

- Triple-Pane Glazing System:
  - Exterior silicone-glazed 11/16" [obscure] dual-seal insulating glass, [[annealed] [tempered]] [[Advanced] [SunDefense™] [SunDefense+] [AdvancedComfort] [NaturalSun] [NaturalSun+] Low-E [with argon].
  - Interior hinged glass panel set in a [veneered fiberglass composite] [aluminum (advanced comfort)] frame finished to match interior (aluminum frames are veneered for stain finishes), fitted to sash with continuous gasket seal, clear [annealed] [tempered] glass.
  - Airspace between insulating glass and hinge glass panel is 1-1/32".

Exterior

- Exterior aluminum surfaces are finished with EnduraClad® protective finish, in a multi-step, baked-on finish.
- Finish color [Standard [Black] [White] [Brown] [Fossil]] [Feature [Iron Ore] Wolf gray] [Classic White] [Almond] [Portobello] [Putty] [Brick Red] [Hartford Green]].
- Interior
- [Unfinished, ready for site finishing] [factory primed with one coat acrylic latex] [factory prefinished [White] [Linen White] [Bright White] [stain$_1$]].

Hardware

- Roto operator assembly
  - Steel worm gear sash operator with hardened gears.
  - Operator base to be zinc die cast with painted finish.
  - Operator linkage, hinge slide, and hinge arms are stainless steel.
  - Exposed fasteners are stainless steel.
  - Hardware will exceed 1,000 hours salt spray exposure per ASTM B 117.
- SureLock System — A single handle locking system which operates positive-acting arms that reach out and pull the sash into a locked position: one operating lock installed on units with lock-side frame dimension [Dual-pane ≤ 29"] [Triple-pane ≤ 41"], Unison lock system: two operating locks are installed on units with lock-side frame dimension [Dual pane > 29"] [Triple-pane > 41"].
- Standard Integrated fold-away crank and lock handle finish is [baked enamel [Champagne] [White] [Brown] [Matte Black]] [Satin Brass] [Satin Nickel].

Optional Products

Grilles

- Simulated-Divided-Light [with optional spacer] (Dual-pane glazing)
  - 7/8" Grilles permanently bonded to the interior and exterior of glass.
  - Patterns are [Traditional] [Prairie] [Cross] [Top Row] [Custom – Equally Divided].
  - Interior surfaces are [unfinished, ready for site finishing] [factory primed] [pine: factory prefinished [White] [Linen White] [Bright White] [stain$_1$]].
  - Exterior color to match the exterior cladding color.
- Simulated-Divided-Light with Grilles-Between-the-Glass (Triple-pane glazing)
  - 3/4" Grilles permanently bonded to the exterior of glass.
  - Patterns are [Traditional] [Prairie] [Cross] [Top Row] [Custom – Equally Divided].
  - Exterior color to match the exterior cladding color.
  - Insulating glass contains 3/4" contoured aluminum grilles permanently installed between two panes of glass.
  - Interior color is [White] [Ivory] [Tan$_3$] [Brickstone$_3$] [Black] [Putty$_3$] [Brown] [Harvest] [Cordovan].

– or –

- Grilles-Between-the-Glass$_2$
  - Insulating glass contains 3/4" contoured aluminum grilles permanently installed between two panes of glass.
  - Patterns are [Traditional] [9-Lite Prairie] [Top Row] [Cross] [Custom – Equally Divided].
  - Interior color is [White] [Ivory] [Tan$_3$] [Brickstone$_3$] [Black] [Putty$_3$] [Brown] [Fossil] [Harvest] [Cordovan].
  - Exterior color [matched to the exterior cladding color] [White]$_4$.

Flat Insect Screen

- InView™ Screens
  - Vinyl-coated 18/18 mesh fiberglass screen cloth complying with the performance requirements of SMA 1201, set in aluminum frame fitted to inside of window, supplied complete with all necessary hardware.
  - Screen frame finish is baked enamel, [Champagne] [White] [Brown] [Black].

– or –

- Rolscreen® Soft-close Retractable Screen
  - InView™ Screen cloth, self-storing, rolling, black vinyl-coated 18/18 mesh fiberglass screen cloth complying with ASTM D 3656 and the performance requirements of SMA 1201 mounted behind overhead cover.
  - Cover finish is [factory prefinished paint$_1$] [pine veneer wrapped over extruded aluminum with factory prefinished stain$_1$].
  - Guides are aluminum extrusion with [pine veneer wrapped over extruded aluminum with factory prefinished stain$_1$] [factory prefinished paint$_1$].

Integrated Between-the-Glass Window Fashions (Triple-Pane glazing only)$_1$

- Slimshade® Blinds
  - 15 mm aluminum slat, bottom-up blinds with polyester cord ladder
  - Installed in sash between double glazing and interior hinged glass panel.
  - Operated with cordless operator or motorized with Insynctive® technology.

– or –

- Cellular Fabric Shades
  - 11/16" width, bottom-up shades with hidden polyester cord, spun bond Polyethylene Terephthalate (PET) cellular fabric.
  - Installed in sash between double glazing and interior hinged glass panel.
  - Operated with cordless operator or motorized with Insynctive® technology.

Hardware

- Optional factory applied limited opening hardware available for vent units in stainless steel; nominal 3" opening.
- Optional window opening control device available for field installation. Device allows window to open less than 4" with normal operation, with a release mechanism that allows the sash to open completely. Complies with ASTM F2090-17.

Sensors

- Optional factory installed integrated security sensors available in vent units.

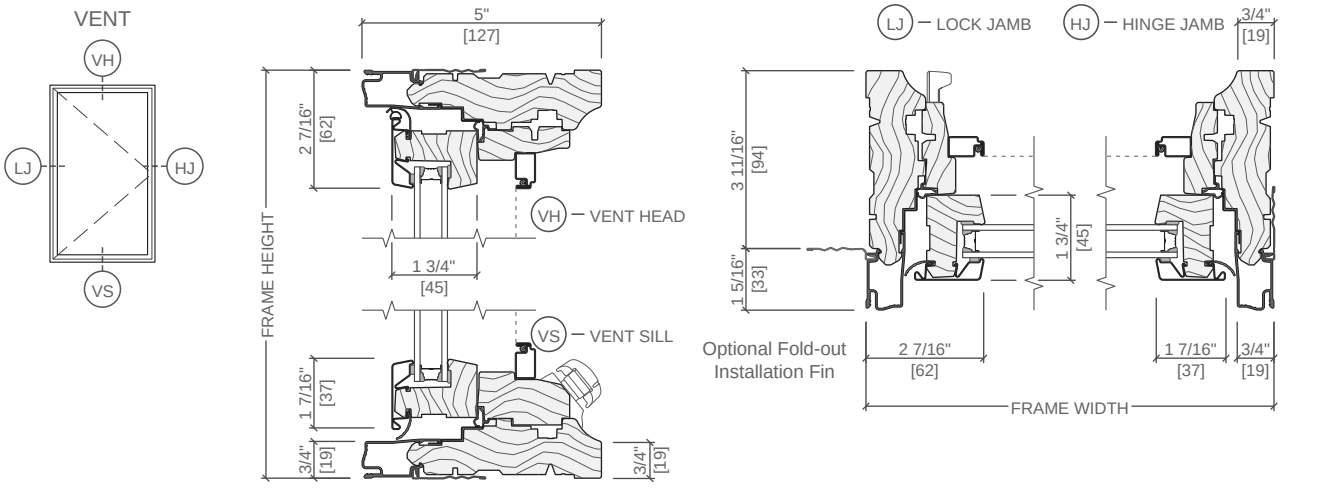
(1) Contact your local Pella sales representative for current designs and color options.

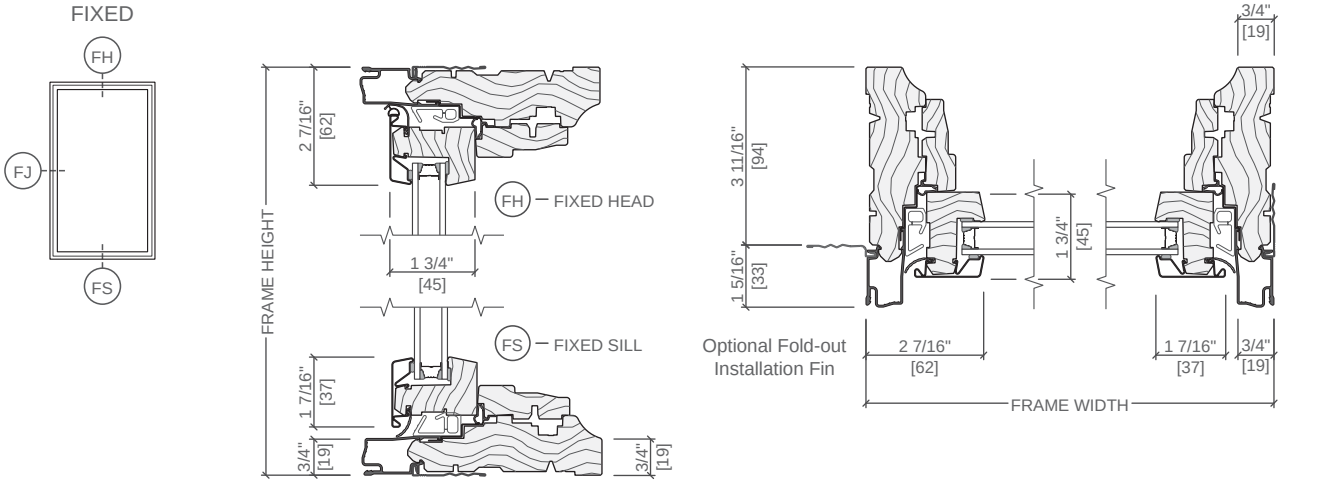
(2) Available on units glazed with Low-E insulated glass with argon, and obscure insulated glass.

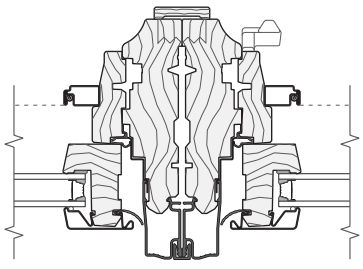
(3) Tan, brickstone and putty Interior GBG colors are available only with matching interior and exterior colors.

(4) Appearance of exterior grille color will vary depending on Low-E coating on glass

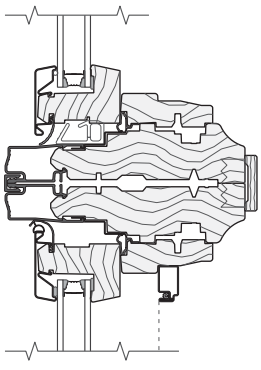
Unit Sections - Dual-Pane



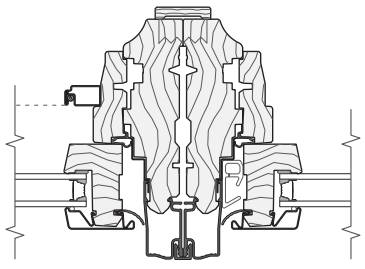




VERTICAL JOINING MULLION
VENT / VENT



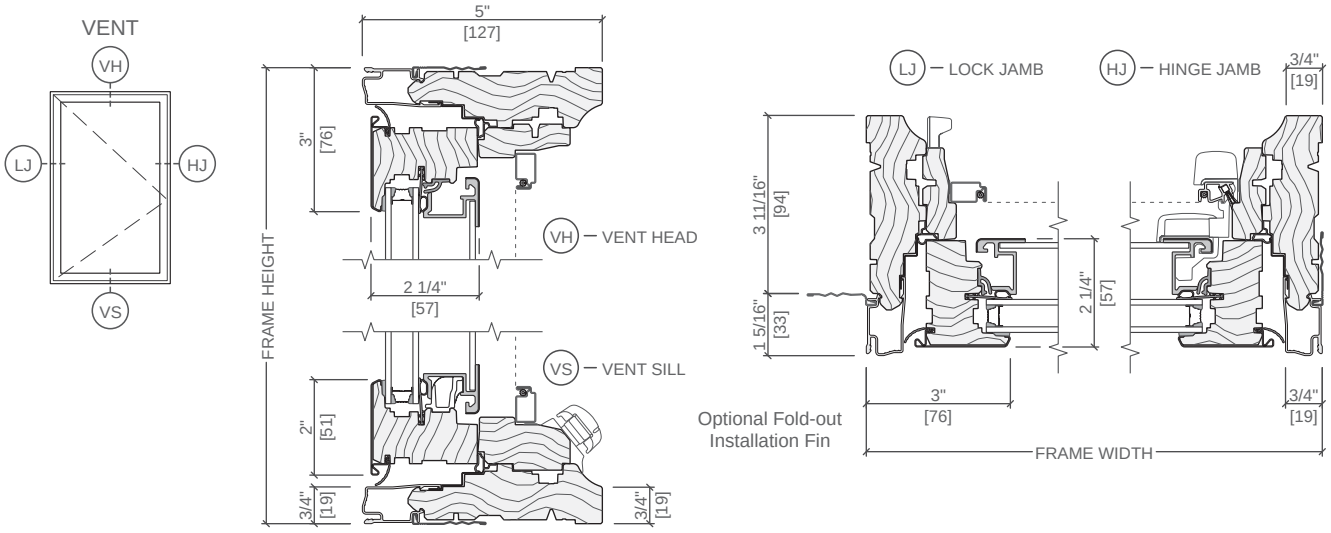
HORIZONTAL JOINING MULLION
FIXED / VENT

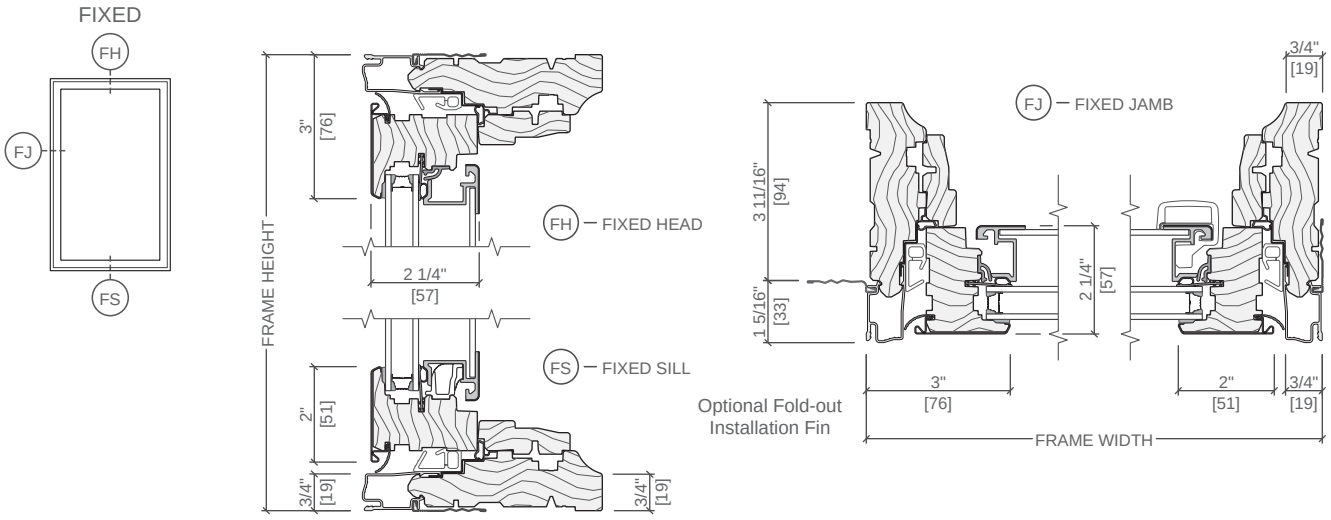


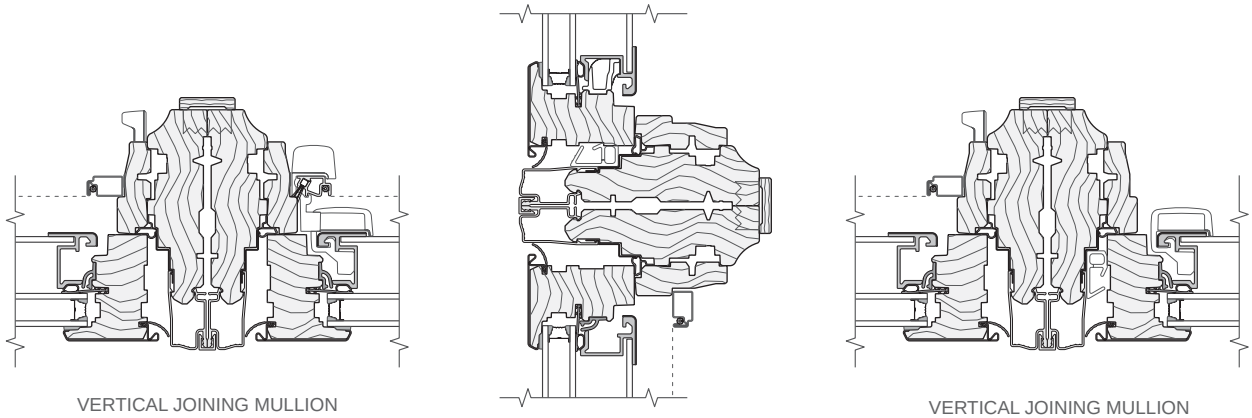
VERTICAL JOINING MULLION
VENT / FIXED

Scale 3" = 1' 0"
All dimensions are approximate.
See supporting document Combination Recommendations for mullion limitations and reinforcing requirements.

Unit Sections - Triple-Pane







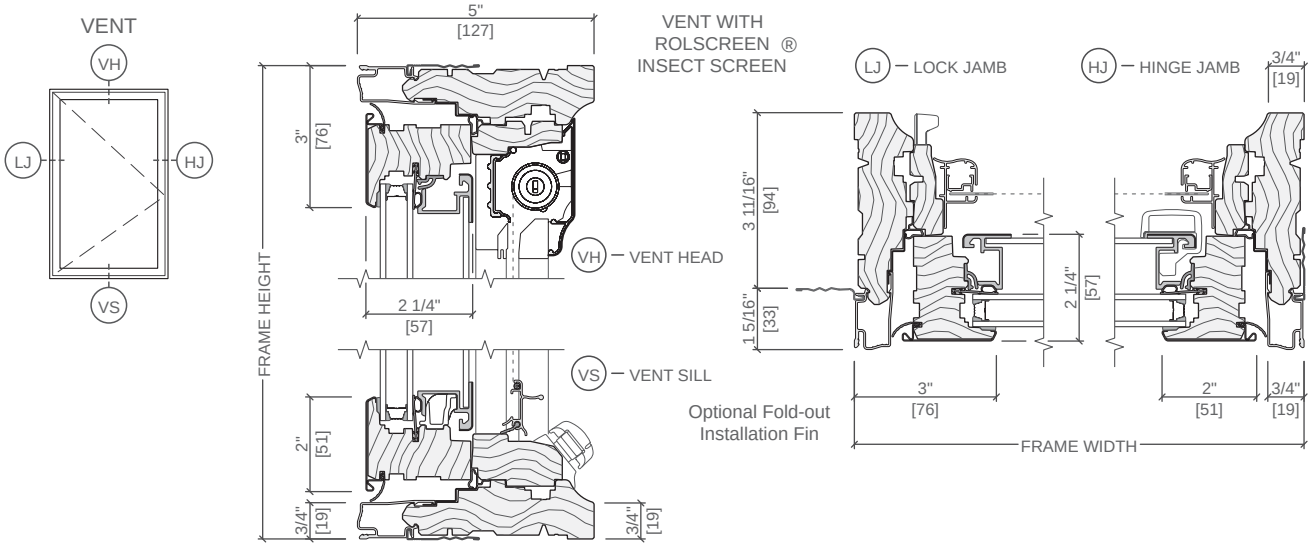
VERTICAL JOINING MULLION
VENT / VENT

HORIZONTAL JOINING MULLION
TRANSOM / VENT

VERTICAL JOINING MULLION
VENT / FIXED

Scale 3" = 1' 0"
All dimensions are approximate.
See supporting document Combination Recommendations for mullion limitations and reinforcing requirements.

Unit Sections - Triple-Pane



Scale 3" = 1' 0"
All dimensions are approximate.
See supporting document Combination Recommendations for mullion limitations and reinforcing requirements.

James Hardie

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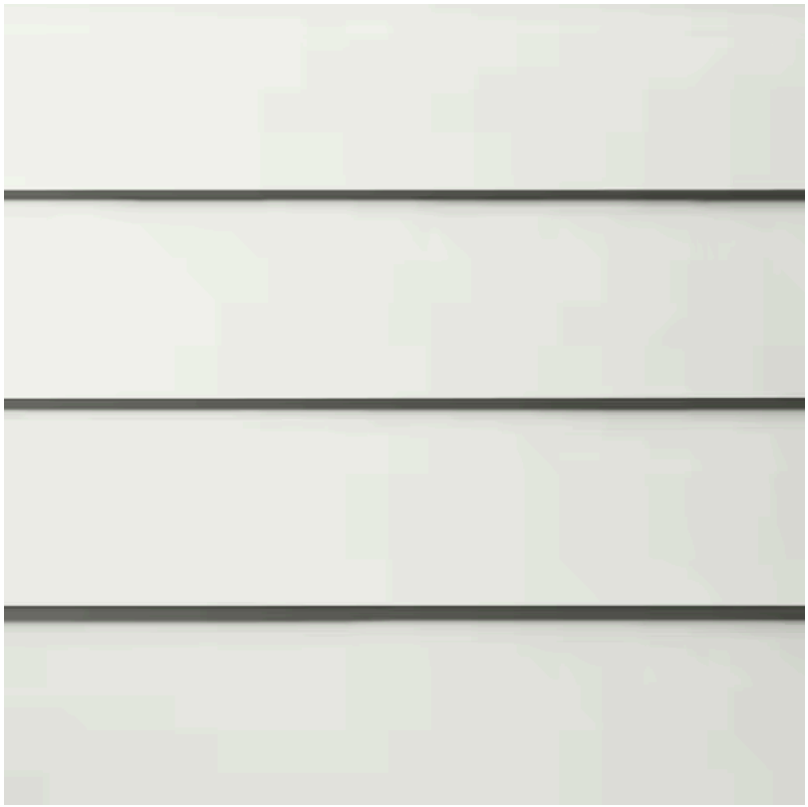
Questions & Answers (5)



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