

HISTORIC AND DESIGN REVIEW COMMISSION

December 01, 2021

HDRC CASE NO: 2021-603
ADDRESS: 1716 N PALMETTO
LEGAL DESCRIPTION: NCB 1265 BLK 1 LOT S 60 FT OF 1
ZONING: R-6
CITY COUNCIL DIST.: 2
DISTRICT: Government Hill Historic District
APPLICANT: Nathan Manfred/French & Michigan
OWNER: ROBERT RUBACALVA/RUBALCAVA ROBERT N
TYPE OF WORK: Window replacement
APPLICATION RECEIVED: November 09, 2021
60-DAY REVIEW:
CASE MANAGER: Hannah Leighner

REQUEST:

The applicant is requesting a Certificate of Appropriateness for approval to replace ten (10) existing wood windows with new wood windows. Two previously-existing wood windows on the north and south elevations are no longer in place and have been boarded up.

APPLICABLE CITATIONS:

Historic Design Guidelines, Chapter 2, Exterior Maintenance and Alterations

6. Architectural Features: Doors, Windows, and Screens

A. MAINTENANCE (PRESERVATION)

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

B. ALTERATIONS (REHABILITATION, RESTORATION, AND RECONSTRUCTION)

- i. *Doors*—Replace doors, hardware, fanlight, sidelights, pilasters, and entablatures in-kind when possible and when deteriorated beyond repair. When in-kind replacement is not feasible, ensure features match the size, material, and profile of the historic element.
- ii. *New entrances*—Ensure that new entrances, when necessary to comply with other regulations, are compatible in size, scale, shape, proportion, material, and massing with historic entrances.
- iii. *Glazed area*—Avoid installing interior floors or suspended ceilings that block the glazed area of historic windows.
- iv. *Window design*—Install new windows to match the historic or existing windows in terms of size, type, configuration, material, form, appearance, and detail when original windows are deteriorated beyond repair.
- v. *Muntins*—Use the exterior muntin pattern, profile, and size appropriate for the historic building when replacement windows are necessary. Do not use internal muntins sandwiched between layers of glass.

vi. *Replacement glass*—Use clear glass when replacement glass is necessary. Do not use tinted glass, reflective glass, opaque glass, and other non-traditional glass types unless it was used historically. When established by the architectural style of the building, patterned, leaded, or colored glass can be used.

vii. *Non-historic windows*—Replace non-historic incompatible windows with windows that are typical of the architectural style of the building.

viii. *Security bars*—Install security bars only on the interior of windows and doors.

ix. *Screens*—Utilize wood screen window frames matching in profile, size, and design of those historically found when the existing screens are deteriorated beyond repair. Ensure that the tint of replacement screens closely matches the original screens or those used historically.

x. *Shutters*—Incorporate shutters only where they existed historically and where appropriate to the architectural style of the house. Shutters should match the height and width of the opening and be mounted to be operational or appear to be operational. Do not mount shutters directly onto any historic wall material.

OHP Window Policy Document

Individual sashes should be replaced where possible. Should a full window unit require replacement, inserts should:

- Match the original materials;
- Maintain the original dimension and profile;
- Feature clear glass. Low-e or reflective coatings are not recommended for replacements;
- Maintain the original appearance of window trim or sill detail.

FINDINGS:

- a. The property located at 1716 N Palmetto is a single-story, single-family, craftsman-style structure. The property first appears on the 1951 Sanborn Map and contributes to the Government Hill Historic District.
- b. WINDOW REPLACEMENT: WOOD WINDOWS – The applicant has proposed to replace ten (10) existing wood windows with replacement wood windows. The windows requested for replacement are located on the north, south, east, and west elevations. According to the Historic Design Guidelines, wood windows should be repaired in place and restored whenever possible, unless there is substantial evidence that the windows are deteriorated beyond repair. Guideline 6.B.iv for Exterior Maintenance and Alterations states that new windows should be installed to match the historic or existing windows in terms of size, type, configuration, material, form, appearance, and detail when original windows are deteriorated beyond repair.
- c. WINDOW REPLACEMENT: EXISTING CONDITION – Staff performed a site visit on November 22, 2021, to assess the condition of the windows requested for replacement. From the photos submitted to date and the site visit, the wood windows proposed for replacement appear to be of historic-age, fully wood one-over-one windows. The windows do not show signs of significant wood rot, wood damage, or severe deterioration. Staff finds that the wood windows are in repairable condition based on the documentation provided, with most requiring minimal repair and intervention such as the reworking of the sashes and re-glazing, along with refitting into the trim and frames.
- d. WINDOW REPLACEMENT: WASTE AND LIFESPAN – Over 112 million windows end up in landfills each year, and about half are under 20 years old. Historic wood windows were constructed to last 100+ years with old growth wood, which is substantially more durable than modern wood and clad products, and original windows that are restored and maintained over time can last for decades. Replacement window products have a much shorter lifespan, around 10-20 years, and cannot be repaired once they fail. On average, over the lifetime of an original

wood window, replacement windows will need to be again replaced at least 4 times. The total lifecycle cost of replacement windows is also much more energy intensive than the restoration of existing windows, including material sourcing and the depletion of natural resources and forests, petroleum-heavy manufacturing methods, transportation, and installation. Finally, window repair and restoration utilize the local labor and expertise of craftspeople versus off-the-shelf, non-custom composite products. Staff generally encourages the repair and restoration of original windows whenever possible.

- e. **WINDOW REPLACEMENT: ENERGY EFFICIENCY AND MAINTENANCE** – In terms of efficiency, in most cases, windows only account for a fraction of heat gain/loss in a building. Improving the energy efficiency of historic windows should be considered only after other options have been explored such as improving attic and wall insulation. The original windows feature single-pane glass which is subject to radiant heat transfer. Products are available to reduce heat transfer such as window films, interior storm windows, and thermal shades. Additionally, air infiltration can be mitigated through weather-stripping or readjusting the window assembly within the frame, as assemblies can settle or shift over time. The wood windows were designed specifically for this structure and can accommodate the natural settling and movement of the structure as a whole throughout seasons. Modern replacement products are extremely rigid, often resulting in the creation of gaps, cracks, and major points of air infiltration at the window frames and other areas of the exterior wall plane over time due to material incompatibility when considering the structure as whole integrated system.

RECOMMENDATIONS:

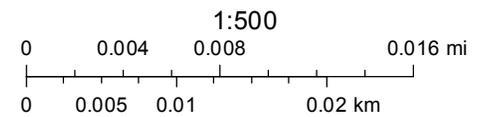
Staff does not recommend approval for replacement of the existing wood windows based on findings b-e. Two original wood windows that were previously located on the north and south facades of the house are no longer installed. Staff stipulates that these windows should be repaired and reinstalled if the original windows are still on site. If they have been discarded, salvaged wood windows with a matching profile or custom fabricated wood windows should be installed; if proposed, salvaged windows should be submitted to staff for review prior to installation.

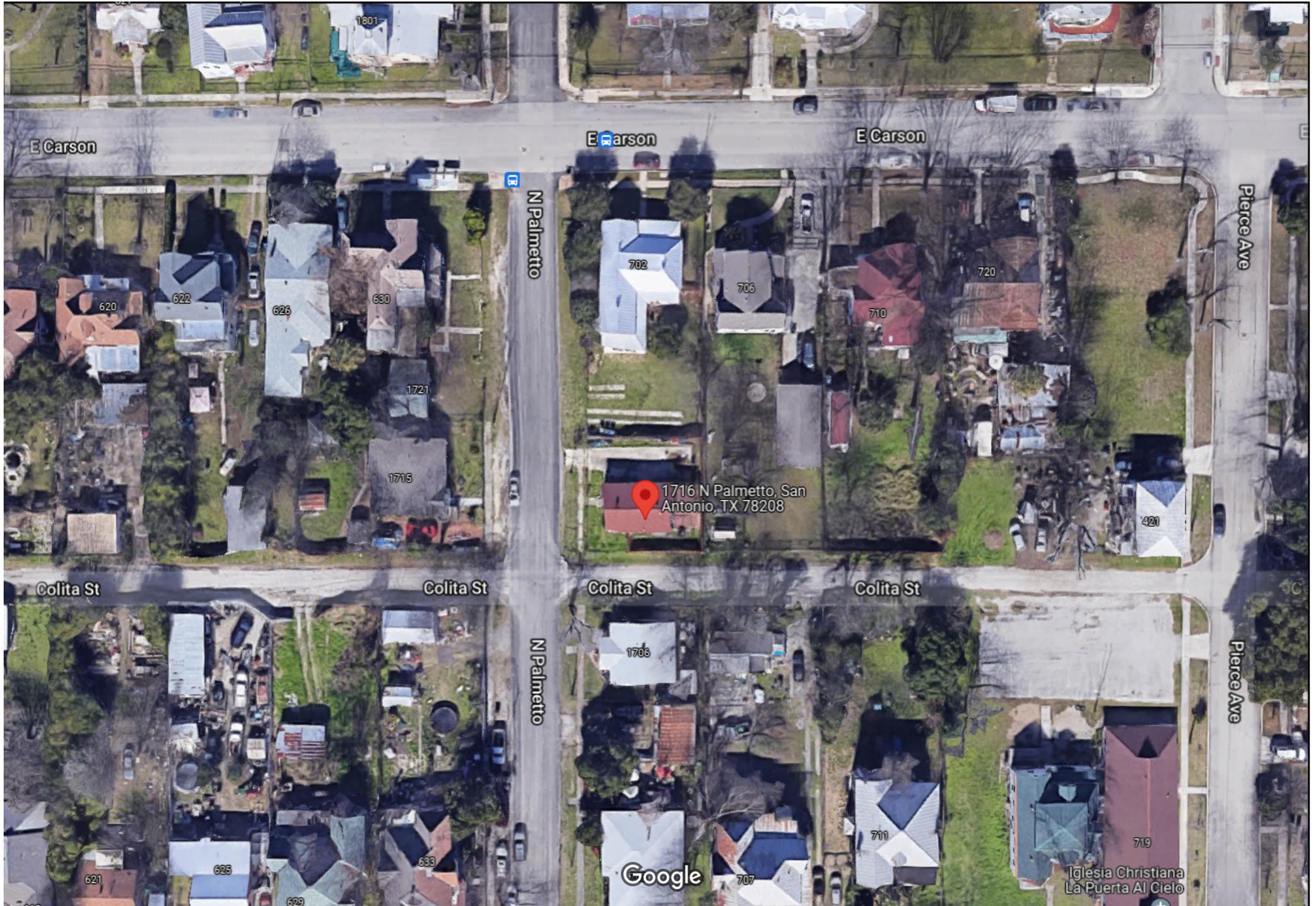
City of San Antonio One Stop



November 22, 2021

 User drawn lines













State:

City:

Date:

Volume:

Texas

San Antonio

1911-Mar. 1951 *

vol. 2, 1912-Jan. 1951



< Previous



Google Maps 1716 N Palmetto





1716

1211



132



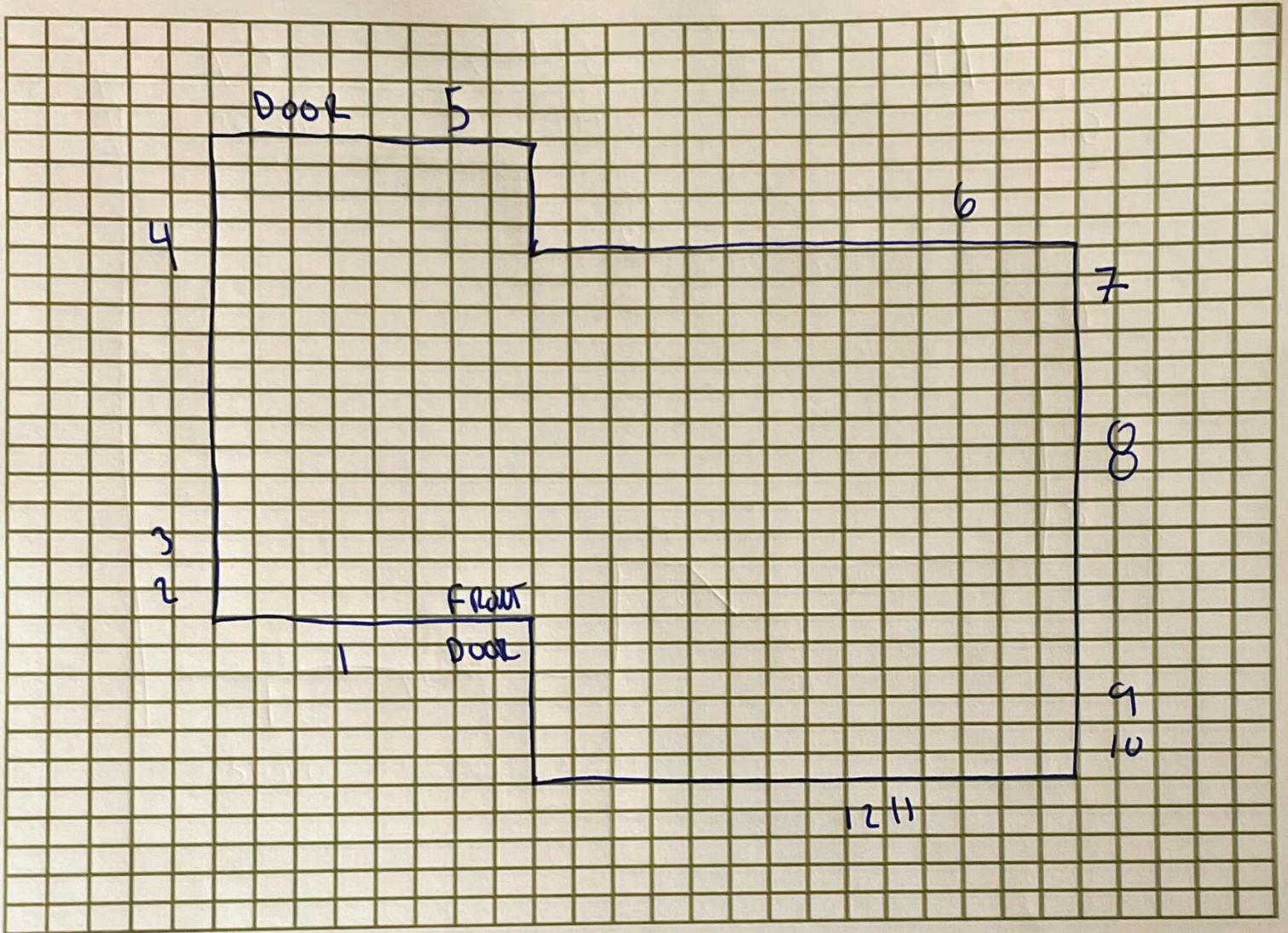


N Palmetto

STOP

106

B



NOTES

1) 32'14 x 62 DH

2) 32'14 x 62 DH

3) 32'14 x 62 DH

4) 28'14 x 32'14 DH

5) 24 x 24 DH

6) 32'14 x 62 DH

7) 32'14 x 62 DH

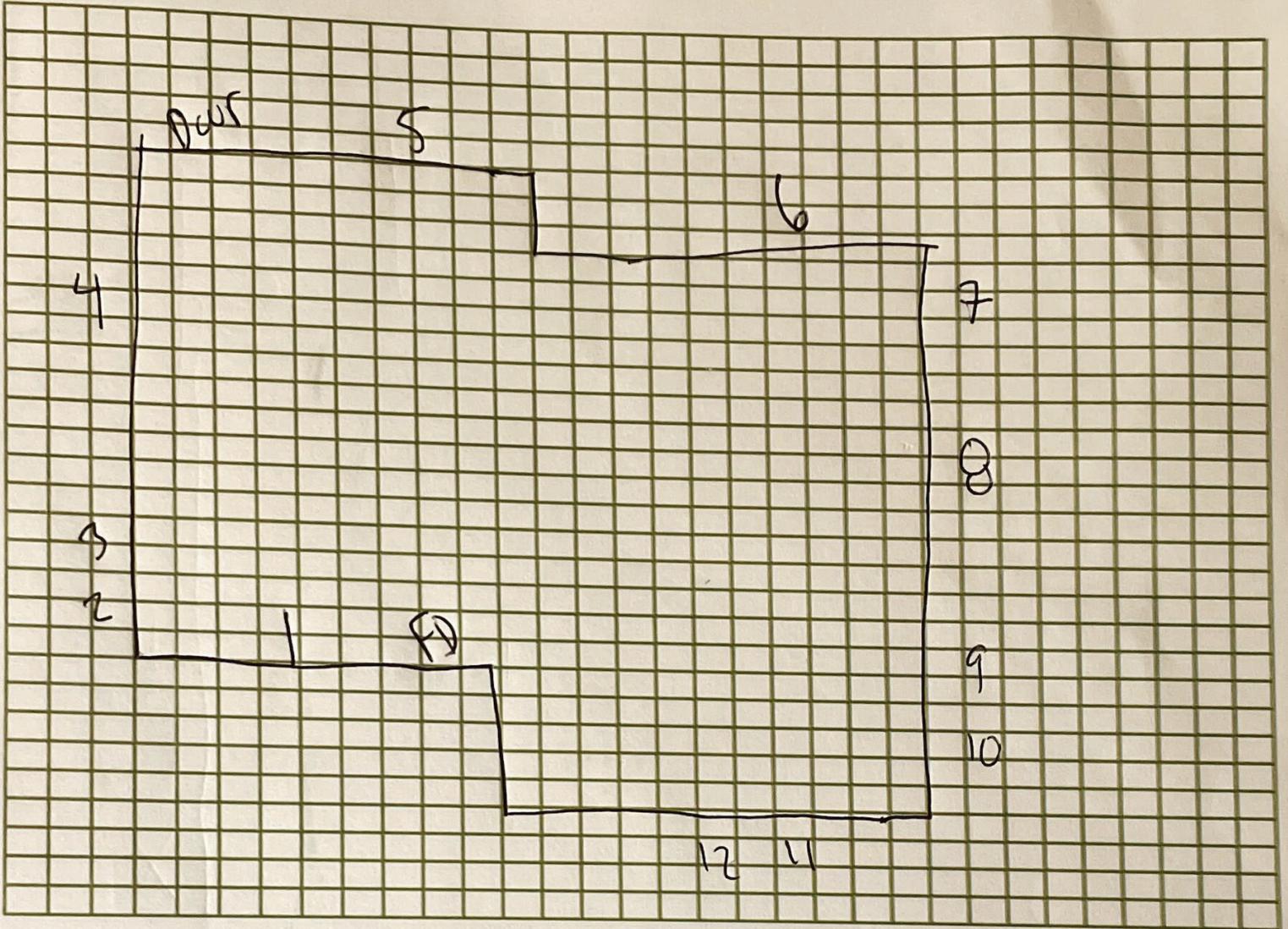
8) 32'14 x 38³/₈ DH

9) 32 x 62 DH

10) 32 x 62 DH

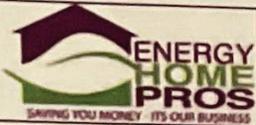
11) 32'14 x 62 DH

12) 32'14 x 62 DH



NOTES

- | | |
|-----------------------------------|-----------------------------|
| 1) 32'1/4 x 62 62 - DH | 8) 32'1/4 x 38 3/8 - DH |
| 2) 32'1/4 x 62 62 - DH | 9) 32 x 62 - DH |
| 3) 32'1/4 x 62 62 - DH | 10) 32 x 62 - DH |
| 4) 28'1/4 x 32'1/4 - DH | 11) 32'1/4 x 62 - DH |
| 5) 24 x 24 - DH | 12) 32'1/4 x 62 - DH |
| 6) 32'1/4 x 62 62 - DH | |
| 7) 32'1/4 x 62 - DH | |



Basic Window & Door Product Order Form

Please make photocopies of this form for future orders.

ORDER QUOTE
 PICKUP DELIVERY

DATE 10/14/21 STORE/BRANCH ADD EHP HOA? NO SECURITY SYSTEM? NO
 JOB NAME Bob Ruba Cairn CONTRACTOR NAME / CONTACT _____ FORM COMPLETED BY Auryn

REQUESTED DELIVERY DATE _____

ALL UNITS OUTSIDE LOOKING IN (OSLI)

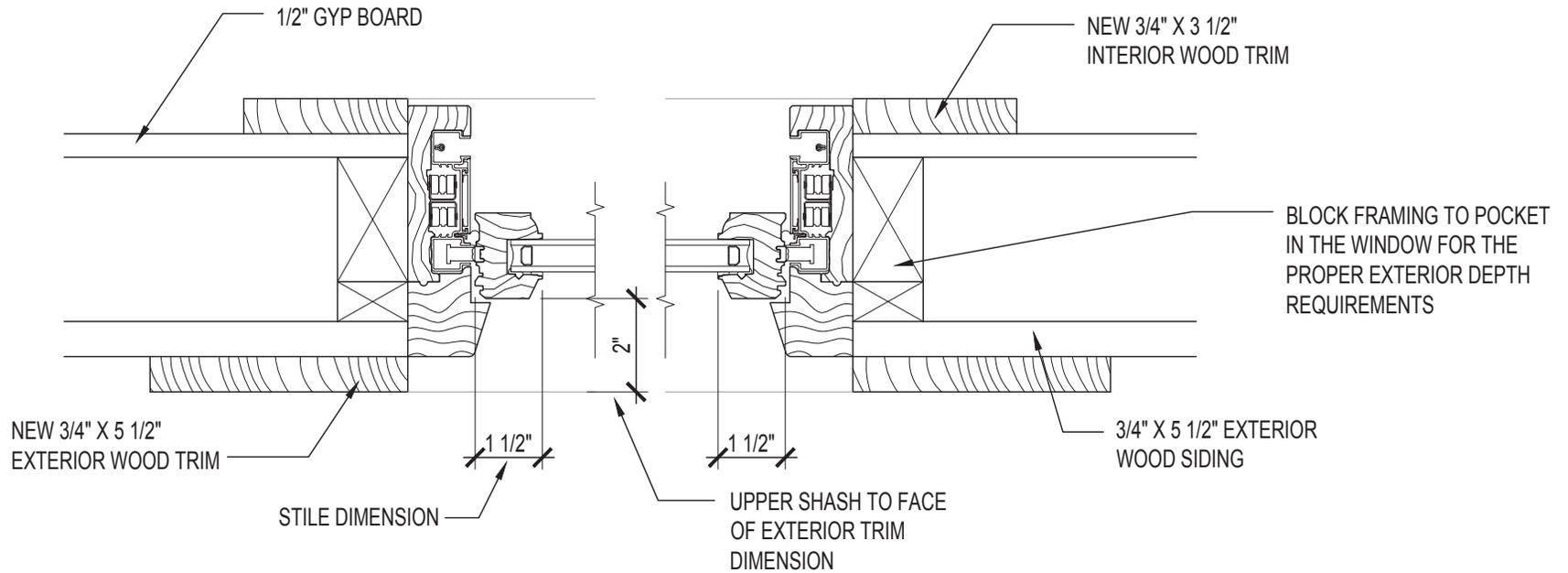
SERIES	COLOR <u>BLACK</u>	BASIC WINDOW STYLES	RATIO DOORS	PLATED LOCKSETS	GRID PATTERN	GRID COLOR	
5000 Replacement <u>Impervia Storm Breaker</u>	WH White TN Tan CY Clay WG Light Oak DO Dark Oak ² WO White Oak ² CH Cherry ² MP Maple ² MR Mesa Red ⁸ HG Hunter Green ⁸ ET Earth Tone ⁸ BRW Brown ⁸ BRZ Bronze ⁸	DH Double Hung SH Single Hung ⁷ DS 2L Double Slider EV End Vent 3L Slider RH Right-Hinged Casement ⁶ LH Left-Hinged Casement ⁶ NH No-Hinge Casement ⁶ AW Awning ⁶ BW Basement Window ⁶ PC Picture Window GW Garden Window ⁶ BAY Bay Window BOW Bow Window	HR Half Round HL Half Round w/Leg EB Eyebrow EL Eyebrow w/Leg QR Quarter Round QL Quarter Round w/Leg FC Full Circle GT Gothic HX Hexagon OC Octagon OV Oval PG Pentagon TR Triangle TZ Trapezoid	KD Unassembled, Standard AS** Assembled SD Sidelites TR Transoms For "AS" Patio Doors 5068 & 6068 ONLY Please Specify PDL (Left X) or PDR (Right X) X = Operating O = Stationary	AB Antique Brass BB Bright Brass BZ Bronze SN Satin Nickel (PDL) X/O (PDR) O/X	COL Colonial PRA Prairie DPRA Double Prairie PER Perimeter DPER Double Perimeter GRID LOCATION A All B Bottom E End T Top C Center L Left R Right	WH White TN Tan CY Clay BR Brass WG Match Finish OPTIONS Foam Wrap Head Expander Nail Fin 3.5" Casing 1" Brickmould

QTY.	UNIT			GLASS								GRIDS				OPENING					
	SERIES	STYLE	WIDTH	HEIGHT	COLOR	DEDUCTS	DOUBLE-STRENGTH	TEMP. ³	LOW E	OBS.	TRIPLE ^{4,3}	LAML. ^{3,6}	PATTERN	LOC.	COLOR	V'	H'	SCREEN F/H	FACTORY MULLED	TOTAL	
1	IMP	DH	32 1/4	62	Black														F		1
2	IMP	DH	32 1/4	62	Black														F		1
3	IMP	DH	32 1/4	62	Black														F		1
4	IMP	DH	28 1/4	32 1/4	Black														F		1
5	IMP	DH	24	24	Black														F		1
6	IMP	DH	32 1/4	62	Black														F		1
7	IMP	DH	32 1/4	62	Black														F		1
8	IMP	DH	32 1/4	38 3/8	Black														F		1
9	IMP	DH	32	62	Black														F		1
10	IMP	DH	32	62	Black														F		1
11	IMP	DH	32 1/4	62	Black														F		1
12	IMP	DH	32 1/4	62	Black														F		1
13																					
14																					

COMMENTS:

Window Total: For Mulled Units, count each individual window in the unit.

TOTAL NUMBER OF WINDOWS	12
TOTAL NUMBER OF PATIO DOORS	2

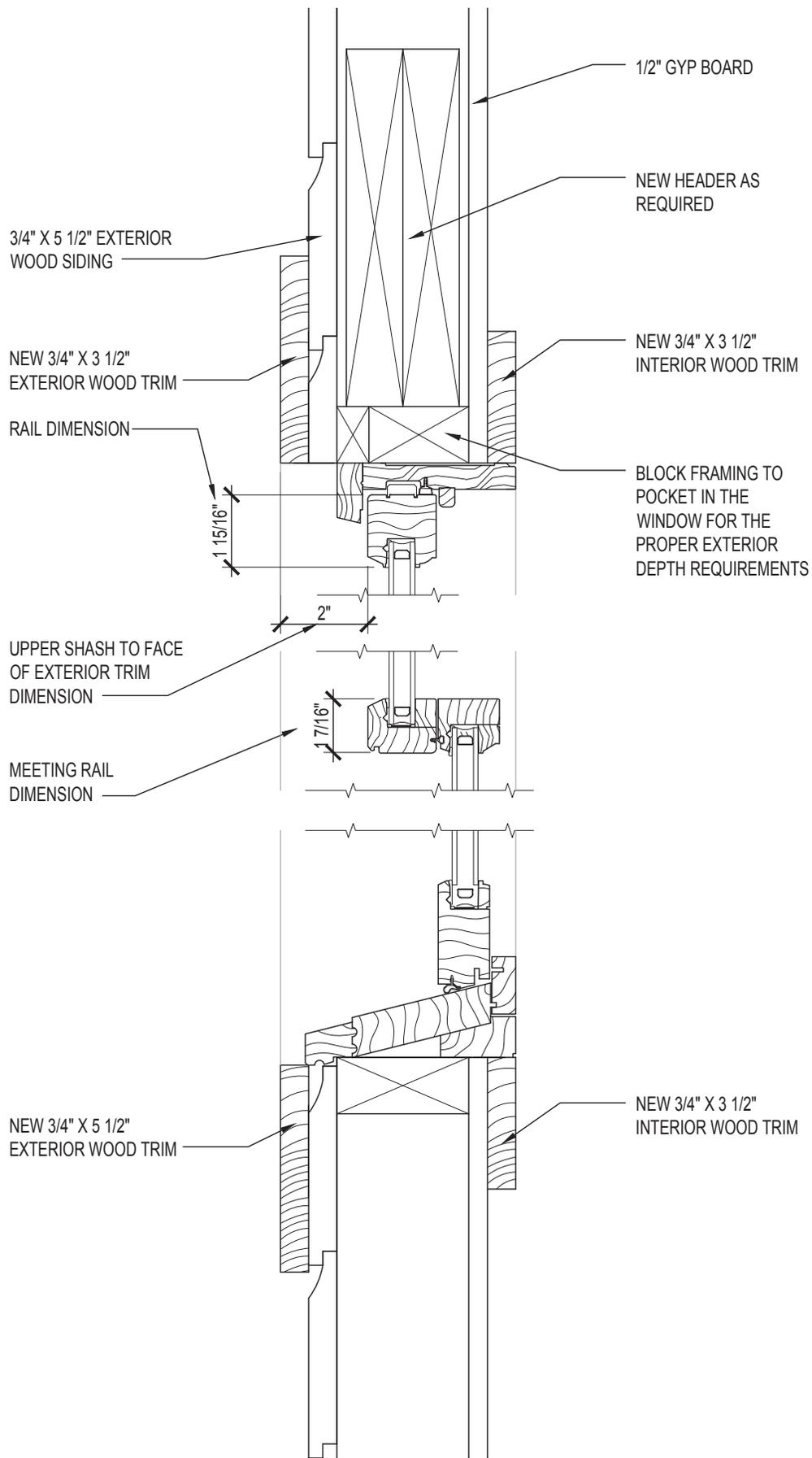


REPLACEMENT WOOD WINDOW HORIZONTAL SECTION - PELLA RESERVE

2

WINDOW INSTALLATION SECTION - UPPER SASH

SCALE: NOT TO SCALE



REPLACEMENT WOOD WINDOW VERTICAL SECTION - PELLA RESERVE



Pella®
Reserve™
Traditional



Photograph(s):
© Scott Barrow Photography

Authentically Detailed.

Meticulously designed to replicate the historical millwork process, Pella® Reserve™ Traditional offers unparalleled authenticity. Each piece is original, featuring excellent craftsmanship to reflect your project's unique personality and customized to fit your vision.

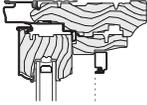
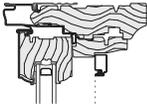
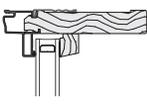
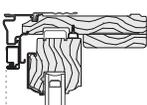
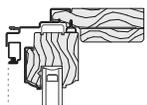
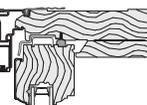
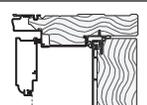
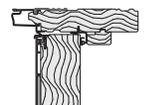
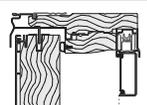
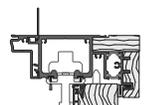
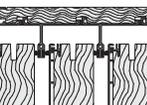
- A wide range of glazing options as well as impact-resistant.
- Divided light options available in Integral Light Technology® grilles, grilles-between-the-glass or wood removable grilles in standard and custom patterns.
- Wide range of historically authentic features and attributes including butt joinery and through stiles.
- Two exterior sash and grille profiles are available: Ogee and Putty Glaze.
- Virtually unlimited exterior color options with EnduraClad® protective finish available in a wide variety of colors plus nearly unlimited custom colors.



Available with factory-installed integrated security sensors.

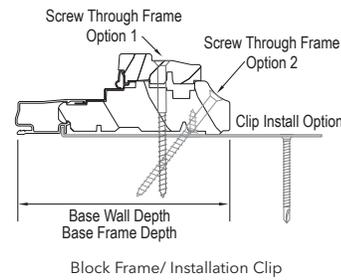
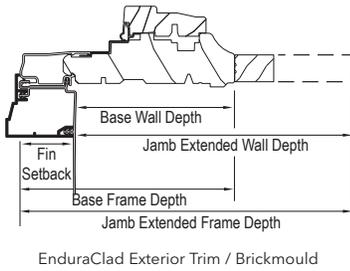
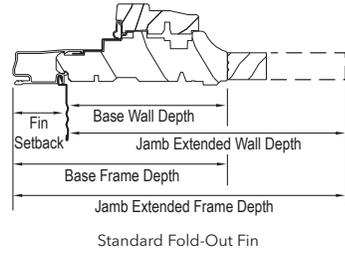


Wood Windows
and Patio Doors

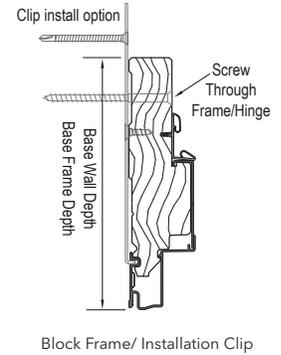
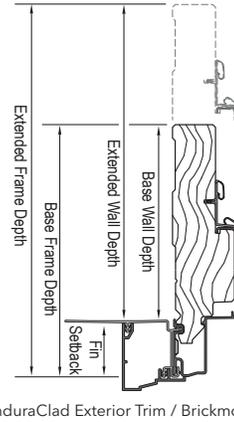
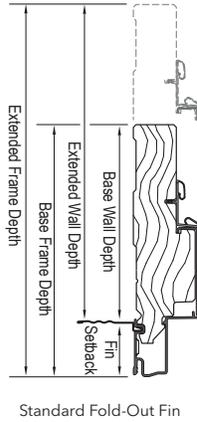
	Cross Section	Frame / Install	Wall Depth Range	Performance Range
Awning Vent and Fixed		Fold-out Fin Block Frame EnduraClad Exterior Trim / Brickmould	Base Frame Depth: 5" Std. Fin Setback: 1-5/16" Base Wall Depth: 3-11/16" Jamb extended wall depth: 3-11/16" - 9-3/16"	LC30 - CW50 U: 0.25 - 0.34 SHGC: 0.16 - 0.47 STC: up to 35
Casement Vent and Fixed		Fold-out Fin Block Frame EnduraClad Exterior Trim / Brickmould	Base Frame Depth: 5" Std. Fin Setback: 1-5/16" Base Wall Depth: 3-11/16" Jamb extended wall depth: 3-11/16" - 9-3/16"	CW30 - CW50 U: 0.25 - 0.34 SHGC: 0.16 - 0.49 STC: up to 35
Fixed Frame Direct Set		Standard Fold-out Fin Block Frame EnduraClad Exterior Trim / Brickmould	Base Frame Depth: 5" Std. Fin Setback: 1-3/16" Base Wall Depth: 3-11/16" Jamb Extended Wall Depth: 3-11/16" - 9-3/16"	F-CW30 - F-CW90 U: 0.17 - 0.46 SHGC: 0.18 - 0.60 STC: up to 38
Single and Double-Hung		Fold-out Fin Block Frame EnduraClad Exterior Trim / Brickmould	Base Frame Depth: 5" Std. Fin Setback: 1-5/16" Base Wall Depth: 3-11/16" Jamb extended wall depth: 3-11/16" - 9-3/16"	CW30 - CW50 U: 0.25 - 0.30 SHGC: 0.19 - 0.53 STC: up to 35
Precision Fit Double-Hung		Pocket Replacement	Overall frame depth: 4" Pocket frame depth: 3-1/4"	CW40 - CW50 U: 0.25 - 0.31 SHGC: 0.19 - 0.53 STC: up to 30
Monumental-Hung		Fold-out Fin Block Frame EnduraClad Exterior Trim / Brickmould	Base Frame Depth: 5-7/8" Std. Fin Setback: 1-5/16" Base Wall Depth: 4-9/16" Jamb extended wall depth: 4-9/16" - 7-3/16"	LC25 - CW50 U: 0.25 - 0.30 SHGC: 0.17 - 0.47 STC: up to 34
In-Swing Patio Door		Fold-out Fin Block Frame EnduraClad Exterior Trim / Brickmould	Base Frame Depth: 5-7/8" Std. Fin Setback: 1-5/16" Base Wall Depth: 4-9/16" Extended wall depth: 4-9/16" - 7-5/16"	LC40 - LC55 U: 0.25 - 0.32 SHGC: 0.13 - 0.40 STC: up to 35
Out-Swing Patio Door		Fold-out Fin Block Frame EnduraClad Exterior Trim / Brickmould	Base Frame Depth: 5-7/8" Std. Fin Setback: 1-5/16" Base Wall Depth: 4-9/16" Jamb Extended wall depth: 4-9/16" - 9-3/16"	LC40 - LC70 U: 0.25 - 0.33 SHGC: 0.12 - 0.39 STC: up to 35
Sliding Patio Door		Fold-out Fin Block Frame EnduraClad Exterior Trim / Brickmould	Base Frame Depth: 5-7/8" Std. Fin Setback: 1-5/16" Base Wall Depth: 4-9/16" Jamb Extended wall depth: 4-9/16" - 9-3/16"	LC25 - LC70 U: 0.29 - 0.32 SHGC: 0.15 - 0.42 STC: up to 35
Bifold Patio Door		Contact your local Pella sales representative or Pella Architectural Solutions for assistance and additional details.		Out-Swing, Standard Sill: R15 - LC25 U: 0.26 - 0.44 SHGC: 0.13 - 0.45
Multi-slide Patio Door		Contact your local Pella sales representative or Pella Architectural Solutions for assistance and additional details.		1-1/2" Weep sill: R15 - LC35 Varies by sill type: U: 0.30 - 0.36 SHGC: 0.15 - 0.46

Performance ranges shown are for single-units and do not account for combinations (multiple units mulled together). Drawings are not to scale.

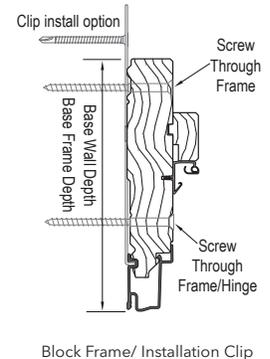
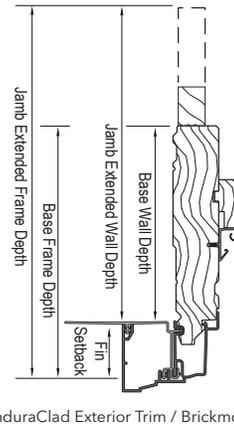
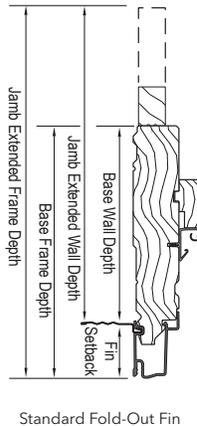
Window Frame Dimensions



In-Swing Door Frame Dimensions



Out-Swing Door Frame Dimensions



Window and door frames shown are typical products only and may not apply to specialty windows, custom products or multi-panel patio doors.

For trim and installation accessories, see the first section of the Architectural Design Manual.

For installation instructions visit InstallPella.com.



Use this Quick-Read (QR) code with your mobile device for quick access.

You may need to first install a QR code reading App, an Internet connection is required.



Rolscreen® Retractable Screens

Optional Rolscreen Retractable Screen rolls out of sight when you're not using it, so the screen stays protected.

Soft-closing retractable screens are available for casement windows and sliding patio doors.

Integrated Rolscreen® Retractable Screen

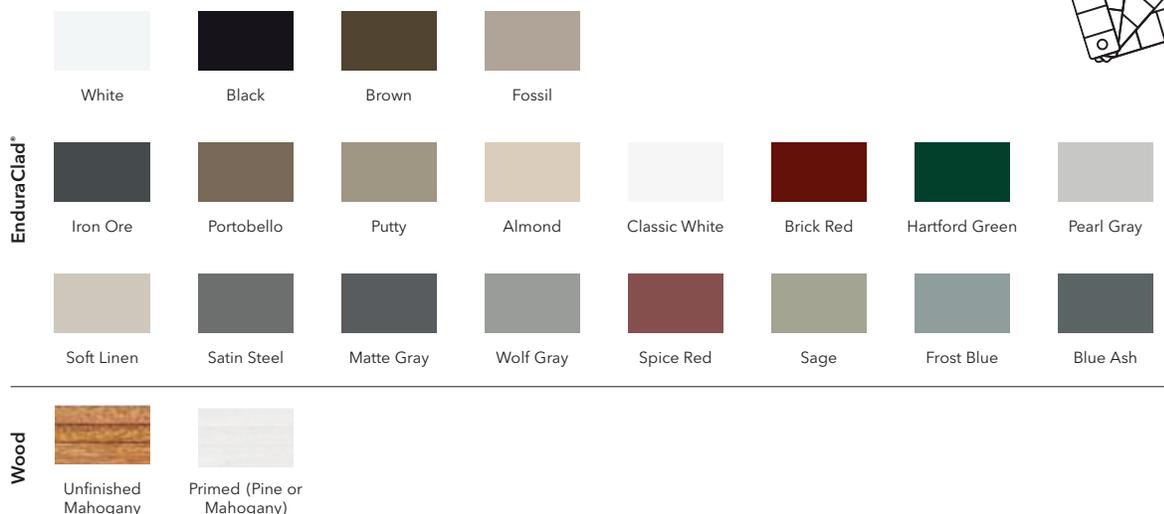
Our patented retractable screen that moves seamlessly with the sash of a single- or double-hung window - appearing when you open the window and rolling out of sight when you close it. Providing a cleaner more polished look that allows more natural light into the space than a full screen.

This feature is exclusively offered on Pella® Reserve™ windows.

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.

Finishes

EnduraClad® Protective Finish Options + Virtually Unlimited Custom Colors and Wood Options



Interior Prefinished Colors



Screens



Vivid View® Screen

Provides the sharpest view and is available as an upgrade on Pella wood windows and patio doors. Allows in 29% more light and is 21% more open to airflow compared to conventional screen. PVDF 21/17 mesh, 78% light transmissive.

InView™ Screen

Standard screen on Pella wood windows and patio doors, as well as Rolscreen® retractable screen on wood casement windows and sliding patio doors, and Integrated Rolscreen® on Pella® Reserve™ single- and double-hung windows.

More transparent than conventional fiberglass, allows 14% more light, and is 8% more open to airflow than conventional screen.

Vinyl coated 18/18 mesh fiberglass. Complies with performance requirements of SMA 1201.

Conventional Screen

Black vinyl coated 18/14 mesh fiberglass; complies with ASTM D 3656 and SMA 1201.

Improved airflow is based on calculated screen cloth openness. Screen cloth transmittance was measured using an integrated sphere spectrophotometer.

Because of printing and display limitations, actual colors may vary from those shown.

Brand Overview

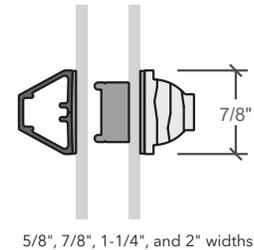
Grilles

For a full list of grille size and pattern availability contact your local Pella sales representative.

Integral Light Technology® Grilles

- Extruded aluminum or wood grilles are adhered to the exterior face
- Wood grilles are adhered to the interior face
- Between-the-glass foam spacers, which are aligned with the interior and exterior grilles, replicate the appearance of true divided lights
- Typical grilles are 7/8" wide Putty Glazed or Ogee profile, other standard and custom widths are available
- Custom grille patterns are available

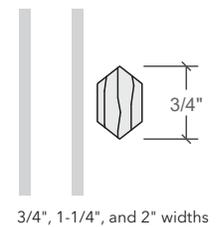
Grille Profile



Roomside Removable Grilles

- Roomside wood grilles are securely attached to the interior, but can be removed for glass cleaning
- Typical grilles are 3/4" wide, other standard and custom widths and profiles are available

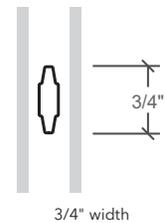
Grille Profile



Grilles-Between-the-Glass¹

- Permanent aluminum grilles are factory-installed inside the airspace of insulating glass
- Black, White, Brown, Fossil, Ivory, Harvest, or Cordovan interior
- Grilles are 3/4" wide
- Interior colors complement today's most popular interior finishes; choose a color to coordinate with the window or door frame, or select a contrasting grille color for a one-of-a-kind look

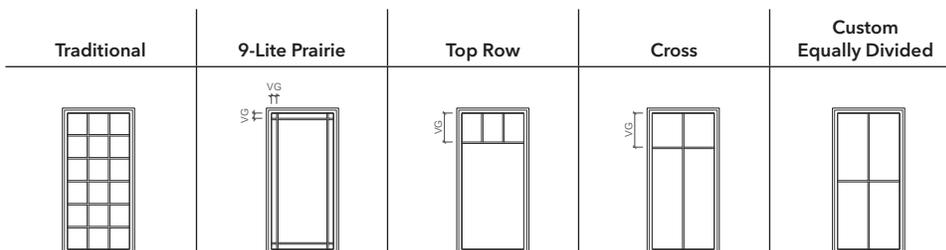
Grille Profile



Interior GBG Colors



Available Patterns



Pattern availability may vary depending on size of unit.

Custom configurations are also available; for details contact your local Pella sales representative.

¹) Appearance of exterior grille color may vary depending on the Low-E insulating glass selection.

Hardware

Consult your local Pella sales representative for a full list of available hardware options.

Rustic Collection



Finishes



Classic Collection



Finishes



Essential Collection

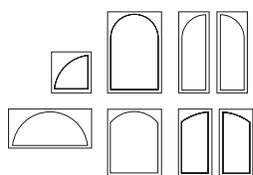


Finishes

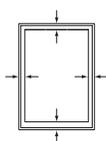


Custom Capabilities

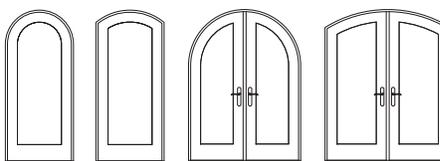
Consult your local Pella sales representative for available options.



Custom Glass Shapes Available



Custom Stile and Rail Widths Available

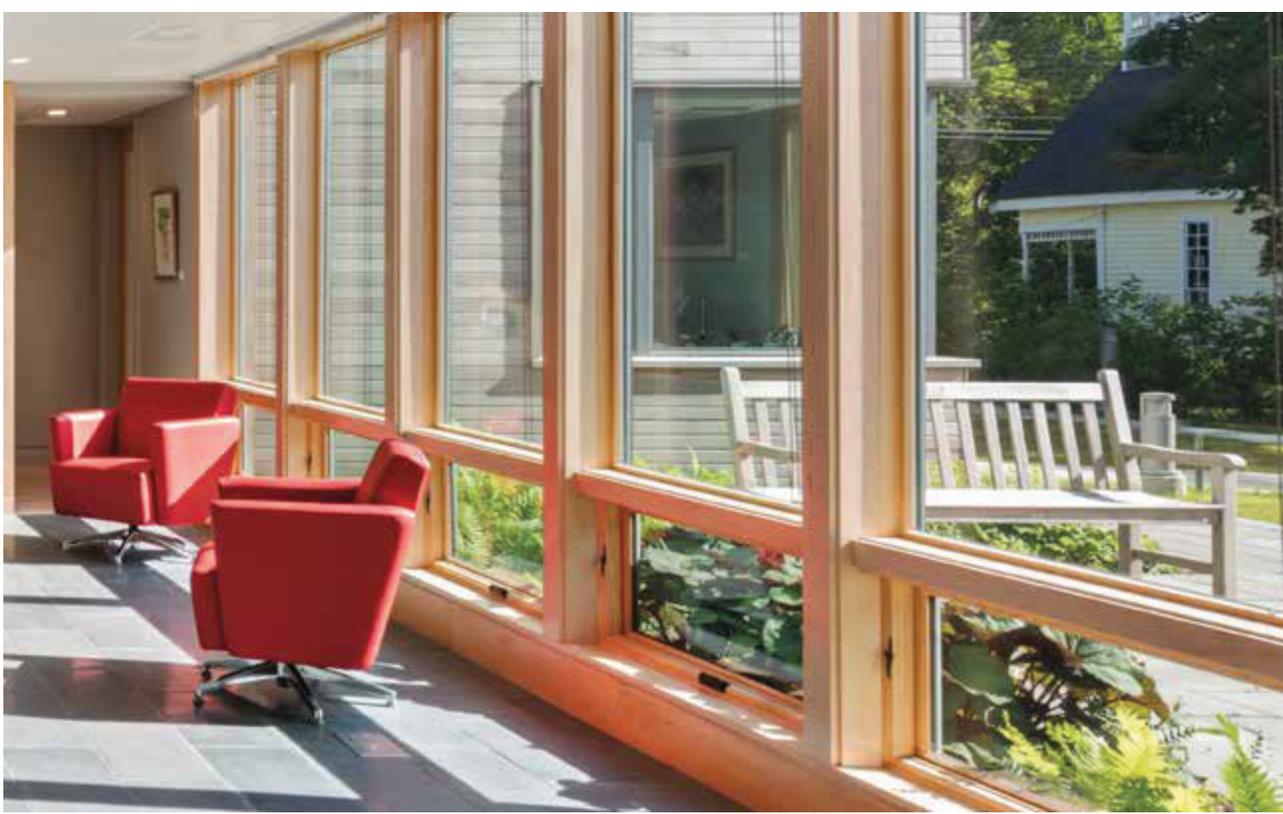


Custom Door Shapes Available

(1) Only available on Bifold configurations with a passage door. (2) Will not allow lead panel to stack completely. Because of printing and display limitations, actual colors may vary from those shown.



Pella®
Reserve™
Traditional
Awning



Air, Water,
& Structural
Performance

Performance Class & Grade Rating	Water Penetration Resistance	Air Infiltration	Design Pressure	Forced Entry
LC30 - CW50	14.62 psf	0.05	30 - 50 psf	10

Thermal
Performance

Vent Units

1 1/16" glass thickness;
Triple-Pane Insulating
glass is also available.

Type of Glazing (Argon fill)	U-Factor	SHGC	VLT %	CR	Energy Star® Capable
Advanced Low-E IG	0.28 - 0.33	0.21 - 0.26	0.38 - 0.48	54 - 61	NC, SC, S
SunDefense™ Low-E IG	0.28 - 0.33	0.16 - 0.20	0.35 - 0.44	55 - 61	NC, SC, S
AdvancedComfort Low-E IG	0.25 - 0.31	0.21 - 0.25	0.37 - 0.47	42 - 47	N, NC, SC, S
NaturalSun Low-E IG	0.29 - 0.34	0.37 - 0.47	0.43 - 0.54	54 - 61	N, NC

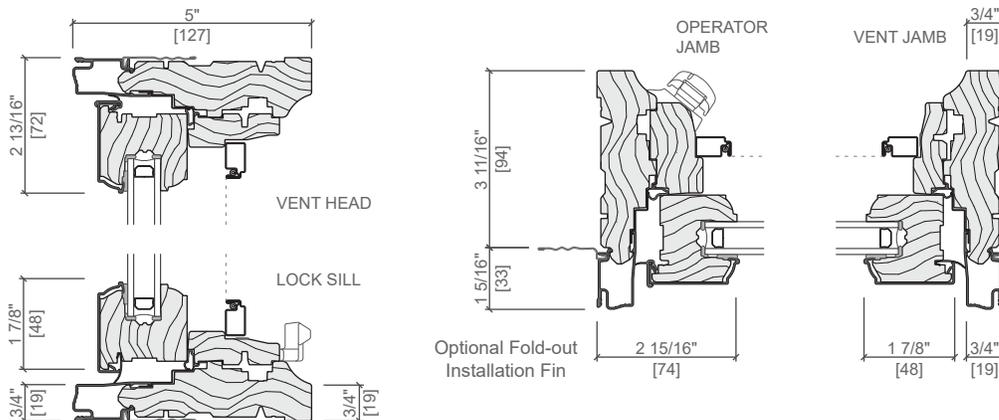
Sound
Performance

Frame Size Tested	Type of Glazing	Integral Grilles		Removable or No Grilles		
		STC	OITC	STC	OITC	
Vent; 59" x 23"	11/16" Overall thickness	2.5mm / 2.5mm glass	28	24	27	23
		5mm / 3mm glass	34	29	32	27
		3mm / 6mm glass PVB	34	30	33	28
	1" Overall thickness	3mm / 3mm / 3mm glass	-	-	30	26
Fixed; 47" x 59"	11/16" Overall thickness	3mm / 3mm glass	30	27	28	24
		5mm / 3mm glass	-	-	31	27
		3mm / 6mm glass PVB	-	-	32	28

Sound testing results shown for vent awning are taken from similarly configured vent casement.

Code Approvals: Hallmark Certified; **FPAS#:** Standard=FL 11284; Large Awning= FL 14345 **TDI#:** Standard=WIN-1581; Large Awning= WIN-1581

See the Performance section to learn more about performance standards and ratings. Performance varies based on actual product attributes.



Other frame types are available. Not to scale. All dimensions are approximate. Large Awning operator is located on sill instead of jamb.



Standard Sizes

Vent Units

	(451) (432)	(552) (533)	(603) (584)	(654) (635)	(756) (737)
Opening	1' 5 3/4"	1' 9 3/4"	1' 11 3/4"	2' 1 3/4"	2' 5 3/4"
Frame	1' 5"	1' 9"	1' 11"	2' 1"	2' 5"
Unit	1717	2121	2323	2525	2929

Vent and Fixed Units

	(832) (813)	(908) (889)	(1 060) (1 041)	(1 213) (1 194)	(1 365) (1 346)	(1 518) (1 499)
Opening	2' 8 3/4"	2' 11 3/4"	3' 5 3/4"	3' 11 3/4"	4' 5 3/4"	4' 11 3/4"
Frame	2' 8"	2' 11"	3' 5"	3' 11"	4' 5"	4' 11"
Unit	3217, 3221, 3223, 3225, 3229	3517, 3521, 3523, 3525, 3529	4117, 4121, 4123, 4125, 4129	4717, 4721, 4723, 4725, 4729	5317, 5321, 5323, 5325, 5329	5917, 5921, 5923, 5925, 5929

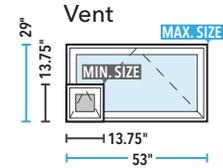
Large Awning Standard Sizes

Vent Units

	(908) (889)	(1 060) (1 041)	(1 213) (1 194)	(1 365) (1 346)	(1 518) (1 499)
Opening	2' 11 3/4"	3' 5 3/4"	3' 11 3/4"	4' 5 3/4"	4' 11 3/4"
Frame	2' 11"	3' 5"	3' 11"	4' 5"	4' 11"
Unit	3535, 3541, 3547, 3553, 3559	4135, 4141, 4147, 4153, 4159	4735, 4741, 4747, 4753, 4759	5335, 5341, 5347, 5353, 5359	5935, 5941, 5947, 5953, 5959

Special Sizes

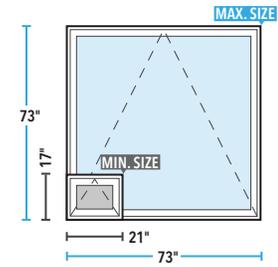
Special sizes are available in 1/8" increments.



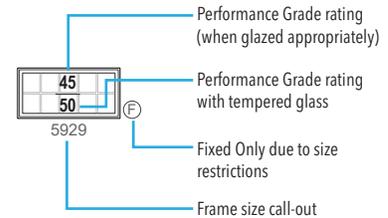
Maximum frame area is 19.5 sq. ft.

Frame height cannot exceed frame width on standard awning vent special sizes.

Large Awning



Frame width and frame height cannot both exceed 59".



Impact-Resistant glazing with higher design pressure ratings available.





Pella®
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Traditional
Casement



Air, Water,
& Structural
Performance

Performance Class & Grade Rating	Water Penetration Resistance	Air Infiltration	Design Pressure	Forced Entry
CW30 - CW50 Push-Out Casement: R30	14.62 psf	.05	30 - 50 psf	10

Thermal
Performance

Vent Units
11/16" glass thickness;
Triple-Pane Insulating
glass is also available.

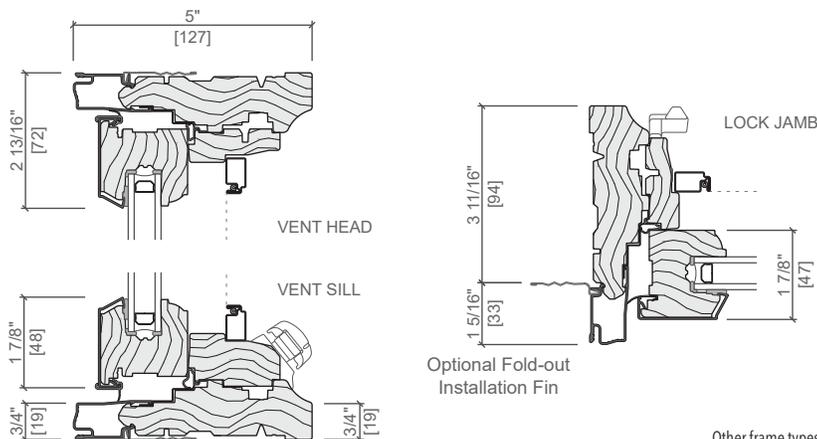
Type of Glazing (Argon fill)	U-Factor	SHGC	VLT %	CR	Energy Star® Capable
Advanced Low-E IG	0.28 - 0.34	0.21 - 0.43	0.38 - 0.49	55 - 62	NC, SC, S
SunDefense™ Low-E IG	0.28 - 0.33	0.16 - 0.24	0.35 - 0.44	55 - 62	NC, SC, S
AdvancedComfort Low-E IG	0.25 - 0.31	0.21 - 0.49	0.37 - 0.51	42 - 48	N, NC, SC, S
NaturalSun Low-E IG	0.29 - 0.34	0.18 - 0.47	0.40 - 0.54	54 - 61	N, NC, SC, S

Sound
Performance

Frame Size Tested	Type of Glazing	Integral Grilles		Removable or No Grilles	
		STC	OITC	STC	OITC
Vent; 23" x 59"	11/16" Overall thickness 2.5mm / 2.5mm glass 5mm / 3mm glass 3mm / 6mm glass PVB	28	24	27	23
		34	29	32	27
		34	30	33	28
Fixed; 47" x 59"	1" Overall thickness 3mm / 3mm / 3mm glass 3mm / 3mm glass 5mm / 3mm glass 3mm / 6mm glass PVB	-	-	30	26
		30	27	28	24
		-	-	31	27
		-	-	32	28

Code Approvals: Hallmark Certified; Vent: **FPAS#:** FL 11282; **TDI#:** WIN-1576; Fixed: **FPAS#:** FL 11277; **TDI#:** WIN-1582

See the Performance section to learn more about performance standards and ratings. Performance varies based on actual product attributes.



Other frame types are available. Not to scale. All dimensions are approximate.





Pella®
Reserve™
Traditional

Casement
Shapes



Shapes and Sizes

Fixed Curved	Side	Min.	Max.	Fixed Curved	Side	Min.	Max.	Fixed Angled	Side	Min.	Max.	Fixed Angled	Side	Min.	Max.
Half Circle	W H R1	18" 9" 9"	116" 58" 58"	Partial Arch Head *	W H R1 S	9" 9-1/8" 9" 8"	144" 144" 500" -	Trapezoid*	W H S1	9" 9" 13-3/4"	144" 144" -	Double Clipped Corner	W1 W2 H S	15-3/16" 9" 12-1/8" 9"	144" - 144" -
Quarter Circle	W H R1	9" 9" 9"	87-7/8" 87-7/8" 87-7/8"	Gothic Springline	W H R1 S	9" 9-13/16" 9" 2"	111-15/16" 144" 500" -	Pentagon*	W H S1/2	9" 16-13/16" 9"	144" 144" -	Parallelogram	W1 W2 H	9" 1" 9"	143" - 144"
Springline*	W H R1 S	18" 11" 9" 2"	122-5/8" 144" 72" -	Full Circle	W H R1	18" 18" 9"	72" 72" 36"	Isosceles Triangle	W H S	11-1/4" 11-1/4" 9"	135-5/16" 135-5/16" 144"	Truncated Triangle	W1 W2 H S	9" 9" 9" 9"	144" - 143-15/16" 144"
Partial Springline *	W H R1 S	9" 11" 9" 2"	86-7/8" 144" 500" -	Segmented Oval	W H R1 R2	22-1/2" 30" 13-1/8" 9"	54" 72" 500" 500"	Triangle	W H S	11-1/4" 9" 9"	144" 141-3/4" 144"	Inverted Trapezoid	W H S	9" 9" 9"	144" 144" -
Full Chord	W H R1	23" 10-1/2" 12"	144" (W / 2) - 1 150"	Partial Toroid	W H R1 R2	- - > 12" > 21"	88" - < R2 - 9" < 88"	Octagon	W H S	21-3/4" 21-3/4" 9"	87-7/8" 87-7/8" 39-3/4"	Inverted Right Triangle	W H S	11-1/4" 11-1/4" 9"	135-5/16" 135-5/16" 144"
Partial Chord	W H R1	9" 10-1/2" 9"	128-1/2" - -	Pie Toroid	W H R1 R2	10" 10" > 9"	88" 88" < 88"	Hexagon	W H S	18" 15-19/32" 9"	89" 77" 44-1/2"	Rotated 90° Parallelogram	W H1 H2	9" 9" 1"	144" 11' 11" -
Elliptical	W H R1 R2	40-3/4" 11-1/4" 9" 9"	144" 60" 500" 500"	Elliptical Springline	W H R1 R2 S	18" 11" 9" 9" 2"	144" 144" 500" 500" -	Clipped Corner	W1 W2 H S	12-1/4" 9" 12-1/4" 9"	144" - 144" -				
Partial Elliptical	W H R1 R2	20-3/8" 11-1/4" 9" 9"	144" 54" 500" 500"	Gothic	W H R1	9" 9" 9"	113-3/4" 144" 500"								
Arch Head *	W H R1 S	9" 9" 9" 8"	144" 144" 500" -												

* Vent also available.

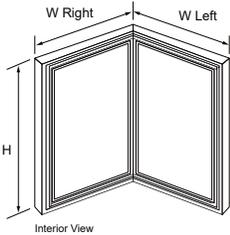
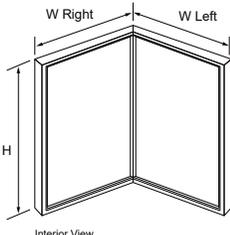
Casement Shapes

Air, Water, & Structural Performance	Performance Class & Grade Rating	Water Penetration Resistance	Air Infiltration	Design Pressure	Forced Entry	
	LC40 - CW50	7.5 psf	.05	40 - 50 psf	10	
Thermal Performance	Type of Glazing (Argon fill)	U-Factor	SHGC	VLT %	CR	Energy Star® Capable
	Advanced Low-E IG	0.29 - 0.35	0.21 - 0.26	0.38 - 0.48	52 - 60	NC, SC, S
Vent Units <small>(11/16" glass thickness; Triple-Pane Insulating glass is also available.)</small>	SunDefense™ Low-E IG	0.29 - 0.34	0.16 - 0.20	0.35 - 0.45	52 - 60	NC, SC, S
	AdvancedComfort Low-E IG	0.25 - 0.31	0.21 - 0.25	0.37 - 0.47	39 - 46	N, NC, SC, S
	NaturalSun Low-E IG	0.30 - 0.35	0.37 - 0.48	0.43 - 0.55	51 - 59	N, NC

Code Approvals: Hallmark Certified; **FPAS#:** FL 11282; **TDI#:** WIN-1576

Maximum performance when glazed with the appropriate glass. See the Performance section earlier in this manual to learn more about performance standards and ratings.

Performance varies based on actual product attributes.

	Mitered Corner	Fixed	Minimum	Maximum	Restrictions
Fixed Sash in Frame (Casement)		W Left	12"	4' 8"	Maximum frame area of each side cannot be > 54.5 sq. ft. Maximum Glass Area of each side cannot be > 48 sq. ft.
		W Right	12"	4' 8"	
		Height	12"	6' 1"	
Fixed Frame Direct Set		W Left	12"	4' 8"	Maximum frame area of each side cannot be > 54.5 sq. ft. Maximum glass area of each side cannot be > 48 sq. ft.
		W Right	12"	4' 8"	
		Height	12"	6' 1"	See Fixed Frame Direct Set product section for features and options.





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Fixed
Frame
Direct Set

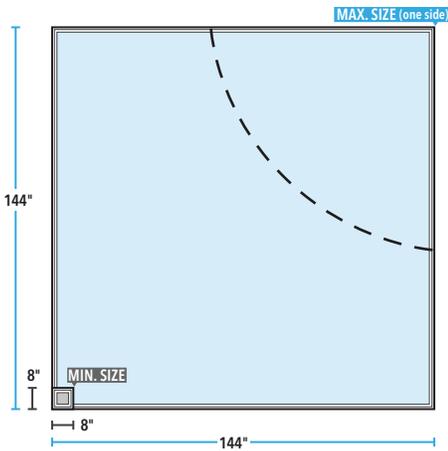


Photograph(s):
© 2018 Ed Massery

Special Sizes

Sizes are available in 1/8" increments.

Fixed Interior Glazed



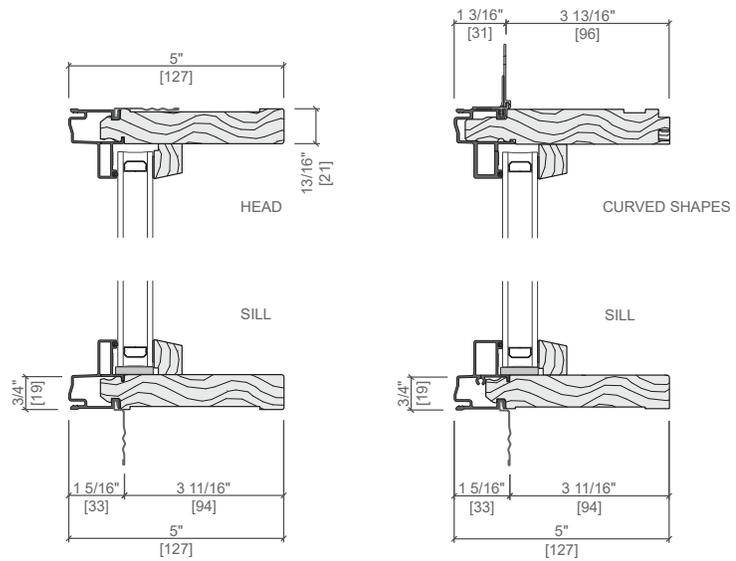
Interior Glazed Fixed Frames are available up to a maximum glass area of 76 sq. ft. (7.06 m²). Not all sizes are certified.

Impact Resistant Glazing is limited to a maximum frame area of 50 sq. ft.

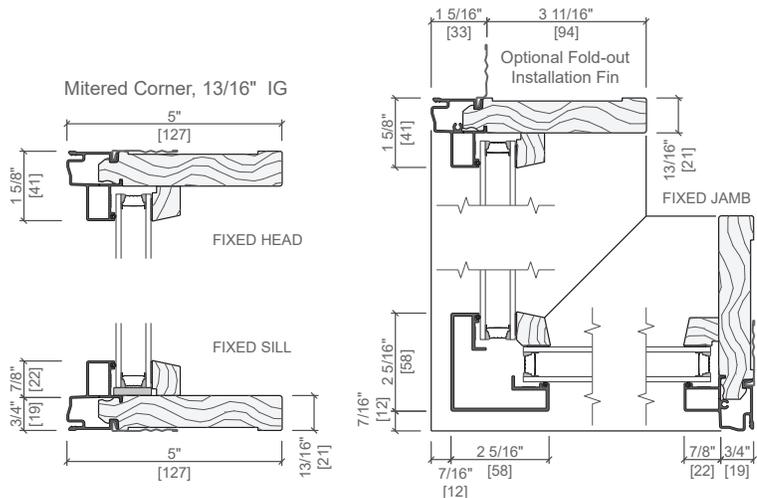
See online ADM or contact your local Pella sales representative for size and performance limitations of Mitered Corner windows.

Other frame types are available.

Not to scale. All dimensions are approximate.



Rectangular units over 50 sq. ft. use this profile



Sizes & Performance - Interior Glazed

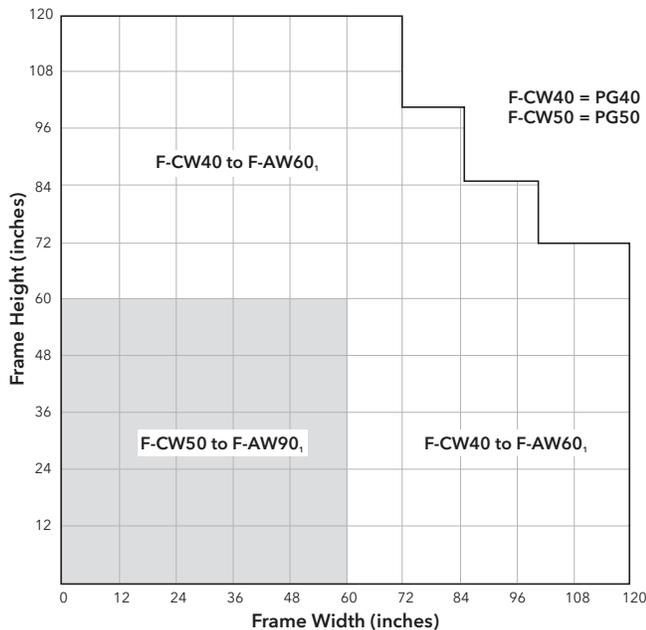
Air, Water, & Structural Performance	Performance Class & Grade Rating	Water Penetration Resistance	Air Infiltration	Design Pressure	Forced Entry
	F-CW30 - F-CW90	14.62 psf	0.05	30 - 90 psf	-

Thermal Performance Fixed Units Dual Pane: (13/16" or 1" glass thickness)	Type of Glazing (Argon fill)	U-Factor	SHGC	VLT %	CR	Energy Star® Capable
	Advanced LowE IG	0.27 - 0.46	0.22 - 0.33	12 - 62	53 - 59	N, NC, SC, S
Triple Pane: (1-1/8" - 1-3/8" glass thickness)	SunDefense™ Low-E IG	0.27 - 0.33	0.22 - 0.24	50 - 57	53 - 59	N, NC, SC, S
	AdvancedComfort Low-E IG	0.23 - 0.29	0.28 - 0.32	53 - 60	44 - 52	N, NC
	NaturalSun Low-E IG	0.28 - 0.34	0.51 - 0.60	54 - 70	55 - 59	N
Triple Pane: (1-1/8" - 1-3/8" glass thickness)	Advanced Low-E IG	0.18 - 0.19	0.23 - 0.29	42 - 54	71 - 72	N, NC, SC, S
	SunDefense Low-E IG	0.17 - 0.18	0.18 - 0.22	39 - 50	71 - 72	N, NC, SC, S
	NaturalSun Low-E IG	0.18 - 0.19	0.38 - 0.49	48 - 61	70 - 71	N

Sound Performance	Frame Size Tested	Type of Glazing	Integral Grilles		Removable or No Grilles	
			STC	OITC	STC	OITC
47" x 59"	13/16" Overall Thickness	3mm / 3mm	30	25	28	23
		4mm / 4mm	-	-	28	24
		5mm / 3mm	32	28	31	26
	1" Overall Thickness	4mm / 7mm PVB glass	-	-	34	29
		4mm / 6mm	-	-	34	28
		6mm / 6mm	-	-	31	26
	1-1/4" Overall Thickness Sound Reduction Glass	6mm / 12mm PVB	-	-	38	34
	1" Overall Thickness Impact Laminated Glass	11.7mm PVB / 5mm glass	-	-	36	32
		11.7mm SGP / 5mm glass	-	-	35	31
	1-1/4" Overall Thickness Impact Laminated Glass	13.6mm SPG / 6mm glass	-	-	37	31
1-3/8" Overall Thickness Triple-Pane Glazing	5mm / 5mm / 5mm	-	-	31	26	

Code Approvals: Interior Glazed - Hallmark Certified; **FPAS#:** Standard = FL 10354; Impact Resistant = FL 20349 **TDI#:** Standard = WIN-1574; Impact Resistant = WIN-478

See the Performance section earlier in this manual to learn more about performance standards and ratings.



Fin Installation Method	Clip or Screw-through-Frame
F-CW40 to F-AW40	F-CW60 to F-AW60
F-CW50 to F-AW50	F-CW90 to F-AW90

Performance shown is for single units only and does not include Mitered Corners.

See online ADM or contact your local Pella sales representative for size and performance limitations of Mitered Corner windows.

Maximum performance when glazed with the appropriate glass thickness.

Keep special size frame dimensions to the nearest 1/8" increment.

(1) AAMA / WDMA F-AW rating can be obtained with the EnduraClad Plus protective finish with 70% fluoropolymer resin in a multi-step finish.





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Traditional

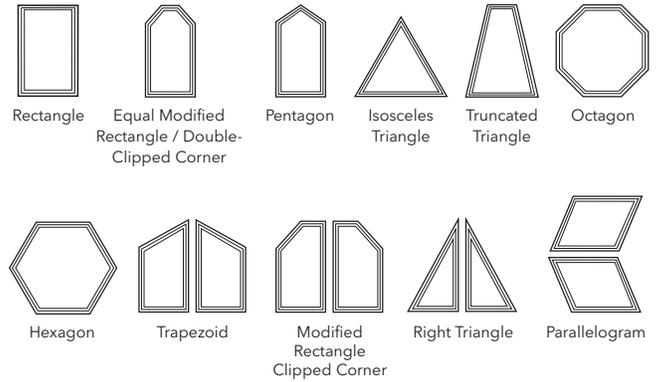
Fixed
Frame
Direct Set
Shapes



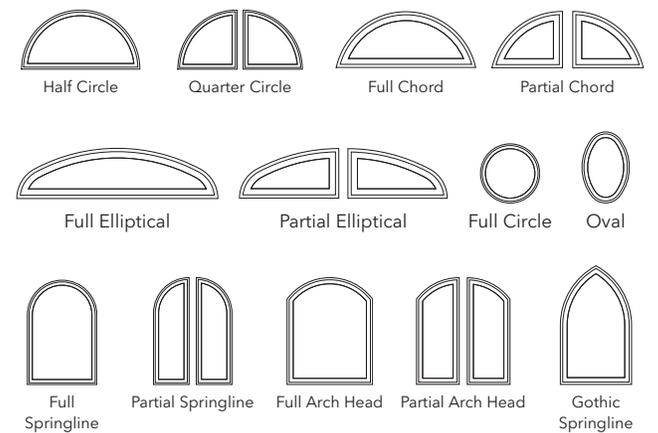
Shapes and Sizes - Interior Glazed

Description	Width		Height		Max. Glass Ft²
	Min.	Max.	Min.	Max.	
Rectangle	8"	144"	8"	144"	76
Half Circle	24"	120"	–	–	48
Quarter Circle	12"	84.75"	–	–	48
Full Springline	24"	108"	R + 4.25"	120"	48
Half Springline	12"	83"	R + 4.25"	120"	48
Full Chord	24"	120"	10.5"	(W ÷ 2) - 1"	48
Partial Chord	9"	120"	10.5"	85.125"	48
Full Elliptical	32.5"	120"	R2 + 1	48"	48
Partial Elliptical	14"	120"	R2 + 1	60"	48
Full Arch Head	9"	120"	H > S	120"	48
Partial Arch Head	9"	120"	H > S	120"	48
Gothic Springline	9"	96"	H > S	120"	48
Full Circle	24"	72"	–	–	–
Oval	Standard sizes only. 24" W x 36" H, 30" W x 48" H or 36" W x 60" H				

Rectangular and Angled Shapes



Curved Shapes



H=Height; S=Short Side; R=Radius, Angled and Curved frames are measured as a rectangle.

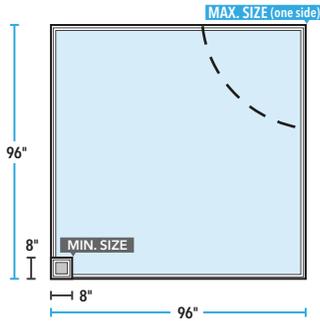
Pella angled and rectangular fixed frame direct set windows are available in custom shapes above, not all options are shown. These windows may be installed in any orientation. For specifications, size limitations, and details on these units, contact your local Pella sales representative.

Exterior Glazed Information

Special Sizes

Sizes are available in 1/8" increments.

Fixed Exterior Glazed



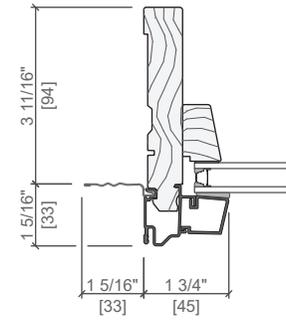
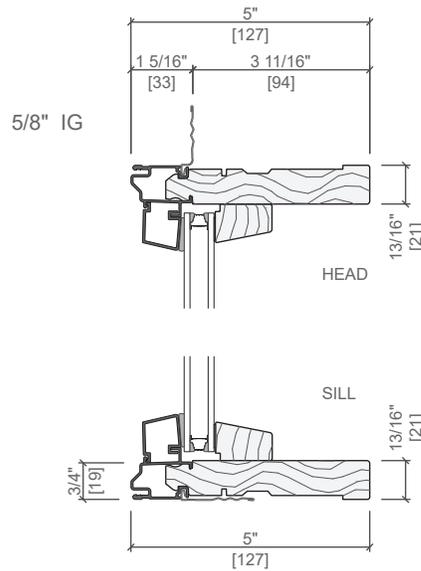
Exterior Glazed Fixed Frames are available up to a maximum frame area of 50.3 sq. ft. (4.67 m²).

Clad Panel maximum size is 50.375 x 98.375 inches (1 280 x 2 499)

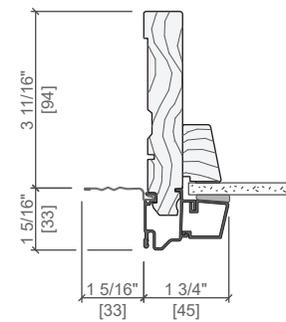
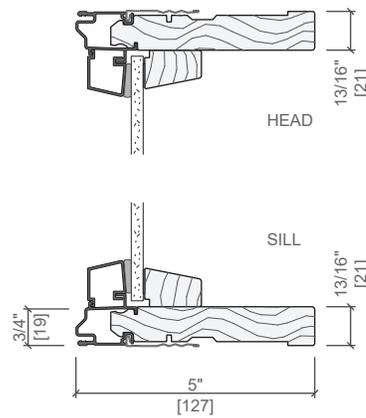
Custom Spandrel glass minimum size is 12 x 12 inches.

Colors available: Ford Blue, Black, Symmetry Gray, Lava Bronze, Symmetry Bronze, Symmetry Green

Exterior Glazed product is designed for applications where exterior reglazing is necessary due to inaccessibility from the interior. Is not intended for initial field glazing.



CLAD PANEL



Thermal Performance

Fixed Units

Dual Pane:
(5/8" glass thickness)

Type of Glazing (Argon fill)	U-Factor	SHGC	VLT %	CR	Energy Star [®] Capable
Advanced LowE IG	0.27 - 0.41	0.28 - 0.32	53 - 61	51 - 60	N, NC
SunDefense™ Low-E IG	0.27 - 0.41	0.22 - 0.25	49 - 56	51 - 61	N, NC, SC, S
AdvancedComfort Low-E IG	0.23 - 0.33	0.28 - 0.32	52 - 60	36 - 48	N, NC
NaturalSun Low-E IG	0.28 - 0.42	0.48 - 0.56	60 - 69	50 - 59	N



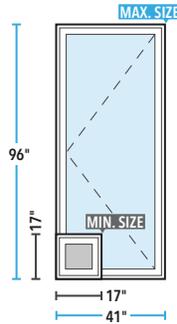
Pella® Reserve™ Traditional Specialty Windows

Push-Out Casement

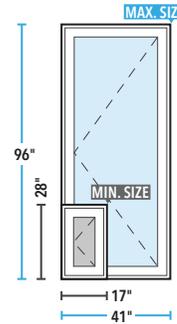


Wide Shown

Push-Out Vent (Narrow)



Push-Out Vent (Wide)

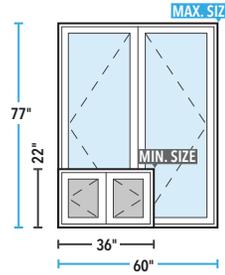


Available within size range shown. Frame width cannot exceed frame height. Vent frame area cannot exceed 20 sq. ft.

Push-Out French Casement



Push-Out French Vent

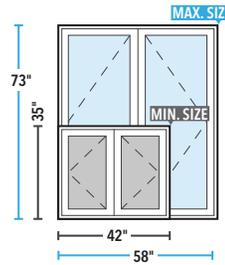


Frame width cannot exceed Frame Height x 2.

Out-Swing French Casement



Out-Swing French Vent



For specifications, standard sizes, and details on these units, contact your local Pella sales representative.

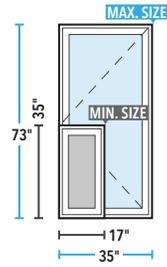
In-Swing Casement



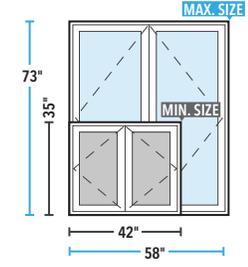
In-Swing French Casement



In-Swing Vent



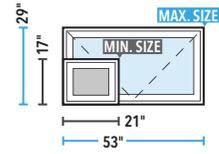
In-Swing French Vent



Hopper



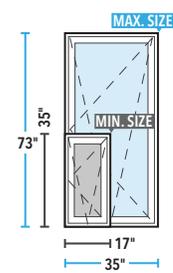
Hopper Vent



Tilt-Turn



Tilt-Turn Vent



For specifications, standard sizes, and details on these units, contact your local Pella sales representative.



Pella®
Reserve™
Traditional

Double-
Hung



Photograph(s):
© David Sundberg / Esto

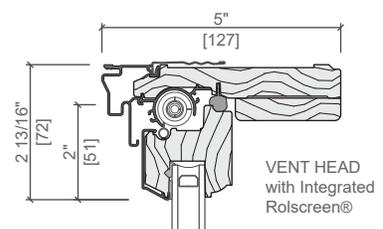
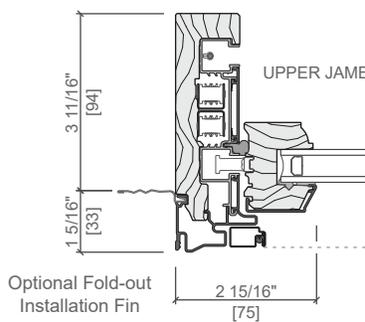
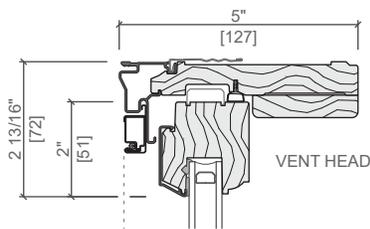
Air, Water, & Structural Performance	Performance Class & Grade Rating	Water Penetration Resistance	Air Infiltration	Design Pressure	Forced Entry
	H-CW30 - CW50	4.6 - 7.5 psf	.11	30 - 50 psf	10

Thermal Performance	Type of Glazing (Argon fill)	U-Factor	SHGC	VLT %	CR	Energy Star® Capable
Vent Units 11/16" glass thickness	Advanced Low-E IG	0.28 - 0.30	0.25 - 0.28	0.47 - 0.54	59 - 60	NC, SC, S
	SunDefense™ Low-E IG	0.28 - 0.29	0.19 - 0.21	0.44 - 0.50	60	NC, SC, S
	AdvancedComfort Low-E IG	0.25 - 0.26	0.25 - 0.28	0.46 - 0.52	49	N, NC, SC, S
	NaturalSun Low-E IG	0.29 - 0.30	0.47 - 0.53	0.54 - 0.61	59	N

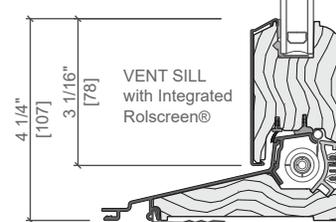
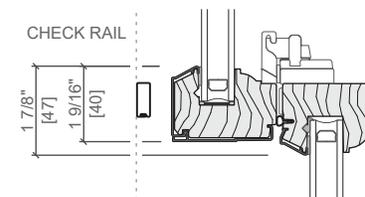
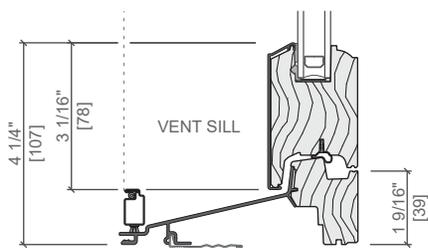
Sound Performance	Frame Size Tested	Type of Glazing	Integral Grilles		Removable or No Grilles	
			STC	OITC	STC	OITC
Vent; 45" x 65"	11/16" Overall glazing thickness	2.5mm / 2.5mm glass	29	26	28	24
		5mm / 3mm glass	32	29	31	27
		3mm / 6.1mm Laminated glass	35	30	-	-

Code Approvals: Hallmark Certified; FPAS#: 20675; TDI#: Win-2174

See the Performance section to learn more about performance standards and ratings. Performance varies based on actual product attributes.



Patent-pending retractable screen that moves seamlessly with the sash of a double- or single-hung window.



Other frame types are available. Not to scale. All dimensions are approximate.



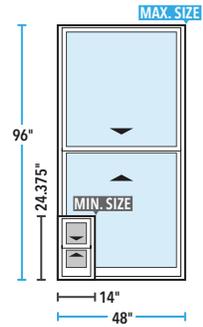
Standard Sizes

	(552) (533)	(654) (635)	(756) (737)	(857) (838)	(959) (940)	(1 060) (1 041)	(1 162) (1 143)	(1 238) (1 219)
Opening	1' 9 ³ / ₄ "	2' 1 ³ / ₄ "	2' 5 ³ / ₄ "	2' 9 ³ / ₄ "	3' 1 ³ / ₄ "	3' 5 ³ / ₄ "	3' 9 ³ / ₄ "	4' 0 ³ / ₄ "
Frame	1' 9"	2' 1"	2' 5"	2' 9"	3' 1"	3' 5"	3' 9"	4' 0"
(908) (889)								
(1 060) (1 041)								
(1 213) (1 194)								
(1 365) (1 346)								
(1 467) (1 448)								
(1 518) (1 499)								
(1 670) (1 651)								
(1 822) (1 803)								
(1 975) (1 956)								
(2 153) (2 134)								

Special Sizes

Special sizes are available in 1/8" increments.
Replacement windows are available in 1/2" sizes.

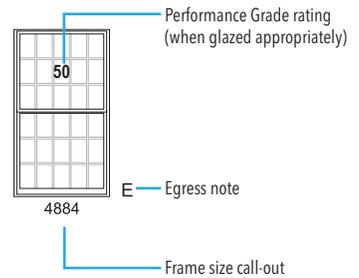
Vent-Equal



Cottage and custom sash split also available. Specify checkrail height when ordering.

Transoms and Companion fixed windows available for combinations. See Casement window offering for matching glass sightlines, or see the Fixed Frame Direct Set offering.

Integrated Rolscreen® only available on sizes ≥ 21" wide and ≥ 34" tall, and ≥ 48" wide ≤ 84" tall.



Impact-Resistant glazing with higher design pressure ratings available.

Performance for wood exterior units may vary from what is shown.

Egress Notes:

- E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 sq. ft.
- E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 sq. ft.

Check all applicable local codes for emergency egress requirements.

Not to scale.

Traditional grille patterns shown.





Pella®
Reserve™
Traditional

Precision-Fit
Double-Hung



Air, Water,
& Structural
Performance

Performance Class & Grade Rating	Water Penetration Resistance	Air Infiltration	Design Pressure	Forced Entry
H-CW40 - CW50	6.0 - 6.9 psf	.11	40 - 50 psf	10

Thermal
Performance

Vent Units
11/16" glass thickness

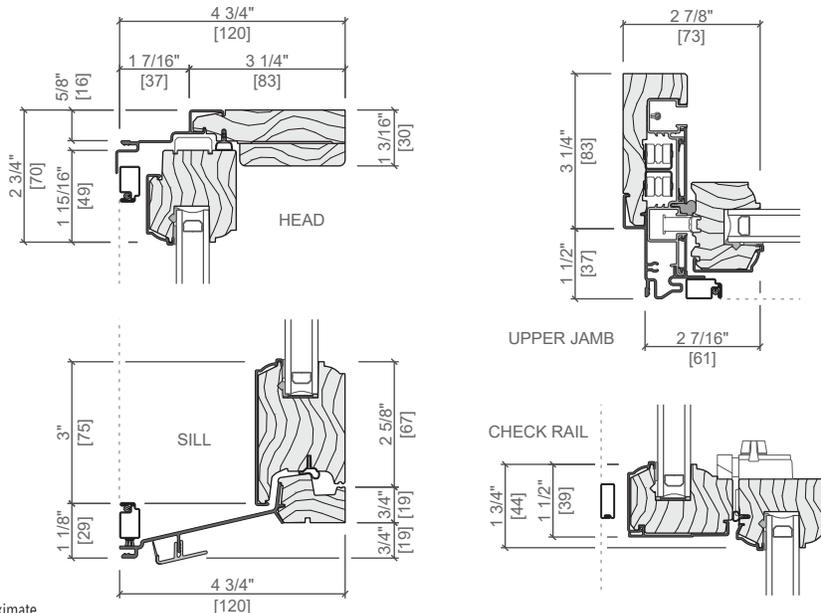
Type of Glazing (Argon fill)	U-Factor	SHGC	VLT %	CR	Energy Star® Capable
Advanced Low-E IG	0.29 - 0.30	0.25 - 0.28	0.47 - 0.53	59	NC, SC, S
SunDefense™ Low-E IG	0.29	0.19 - 0.21	0.44 - 0.49	60	NC, SC, S
AdvancedComfort Low-E IG	0.25 - 0.26	0.25 - 0.28	0.46 - 0.52	48	N, NC, SC, S
NaturalSun Low-E IG	0.30 - 0.31	0.47 - 0.53	0.54 - 0.60	59	N

Sound
Performance

Frame Size Tested	Type of Glazing		Integral Grilles		Removable or No Grilles	
			STC	OITC	STC	OITC
Vent; 45" x 65"	11/16" Overall glazing thickness	2.5mm / 2.5mm glass 3mm / 3mm glass	27	25	26	22
			30	26	28	24

Code Approvals: Hallmark Certified; **FPAS#:** Vent=FL 14343; Fixed= FL 14129 **TDI#:** Vent=WIN-1089; Fixed= WIN-1392

See the Performance section to learn more about performance standards and ratings. Performance varies based on actual product attributes.



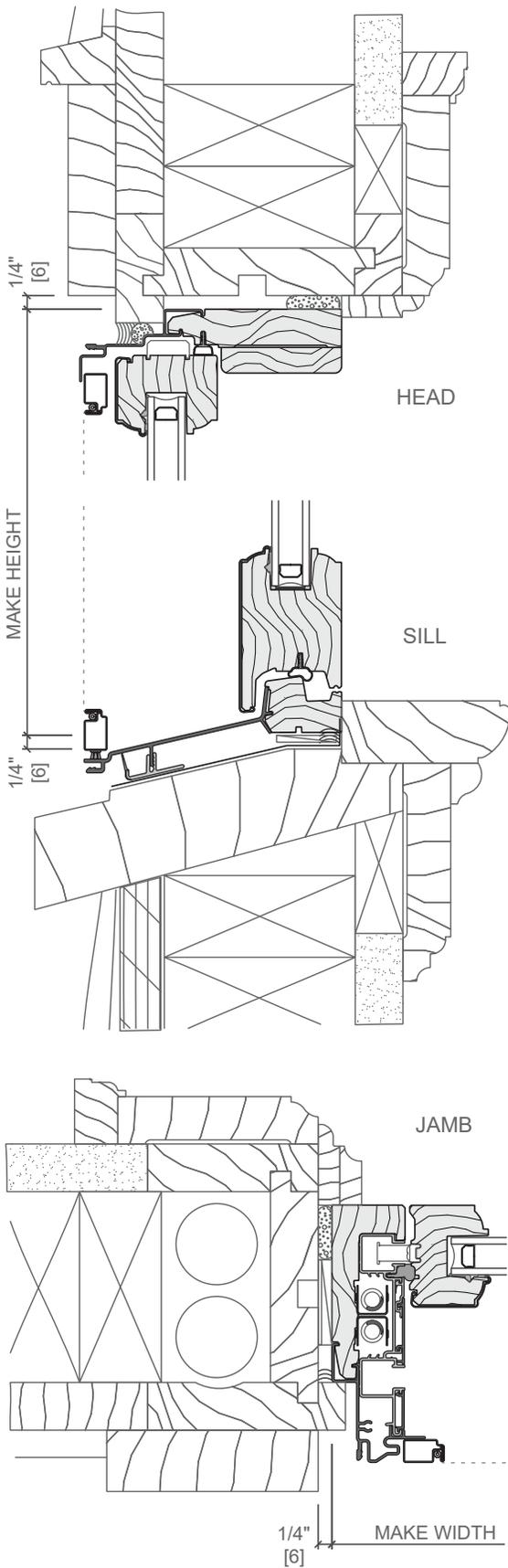
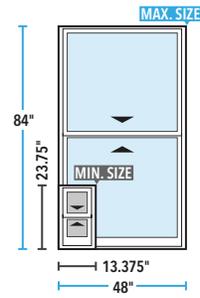
Other frame types are available.
Not to scale. All dimensions are approximate.

Make Sizes

Sizes are available in 1/4" increments.

Also available in Awning and Casement windows.

Vent-Equal



Cottage and custom sash splits also available.

Companion fixed windows available. See Precision Fit Casement window offering for matching glass sightlines, or see the Fixed Frame Direct Set offering.

Consult with your local Pella sales representative or see the online ADM for egress information.

Check all applicable local codes for emergency egress requirements.

Make Width = Opening width - 1/2" (rounded to the nearest 1/4")

Make Height = Opening height - 1/2" (rounded to the nearest 1/4")

NOTE:

Wall construction and old Double-Hung frame shown are existing; old Double-Hung sash has been removed.

Refer to the appropriate Pella installation instruction for complete step-by-step instructions.

Shim and plumb units as required.

Seal unit to exterior / blind stop.

Seal the unit to existing stool and window sill.

Level units as required.

Insulate all voids at window perimeter (by others).

Seal unit to exterior / blind stop.





Pella®
Reserve™
Traditional

Monumental
Hung



Photograph(s):
© Elite Contracting Solutions

**Air, Water,
& Structural
Performance**

Performance Class & Grade Rating	Water Penetration Resistance	Air Infiltration	Design Pressure	Forced Entry
H-LC25 - CW50	3.76 - 7.52 psf	0.11	25 - 50 psf	10

**Thermal
Performance**

Vent Units

13/16" glass thickness;
Triple-Pane Insulating
glass is also available.

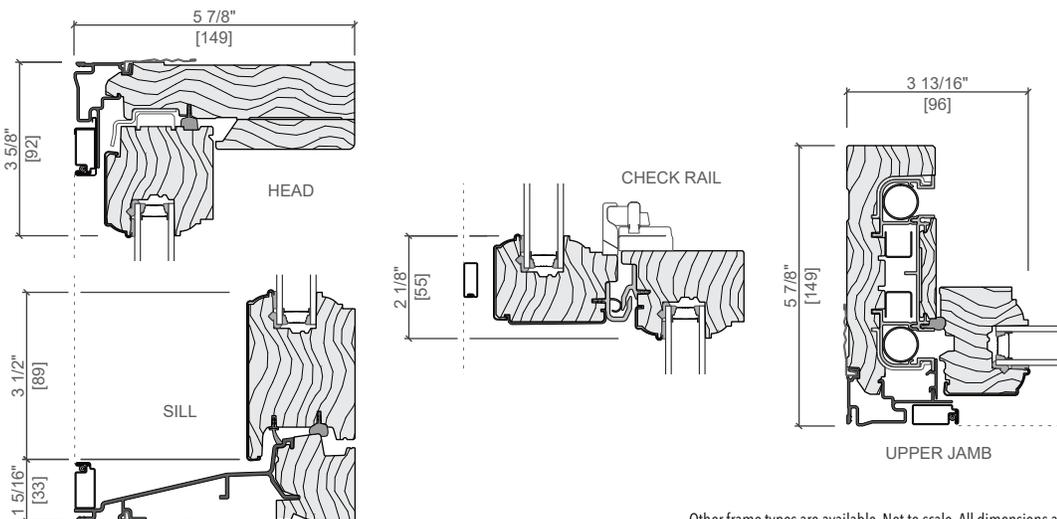
Type of Glazing (Argon fill)	U-Factor	SHGC	VLT %	CR	Energy Star® Capable
Advanced Low-E IG	0.29 - 0.30	0.23 - 0.26	0.42 - 0.48	59	NC, SC, S
SunDefense™ Low-E IG	0.29	0.17 - 0.19	0.39 - 0.44	60	NC, SC, S
AdvancedComfort Low-E IG	0.25 - 0.26	0.23 - 0.25	0.41 - 0.47	48	N, NC, SC, S
NaturalSun Low-E IG	0.30	0.42 - 0.47	0.48 - 0.54	59	N

**Sound
Performance**

Frame Size Tested	Type of Glazing	Integral Grilles		Removable or No Grilles	
		STC	OITC	STC	OITC
Vent; 48" x 60"	3mm / 3mm glass	33	28	29	24
	5mm / 3mm glass	34	30	32	27
	3mm / 7.6mm PVB glass	34	31	33	29
	3mm / 6.1mm Laminated glass	34	31	33	28
	1-1/16" Overall	2.5mm / 3mm / 2.5mm glass	30	25	29

Code Approvals: Hallmark Certified; **FPAS#:** ≤ 54" x 96" = FL 17769 **TDI#:** N/A

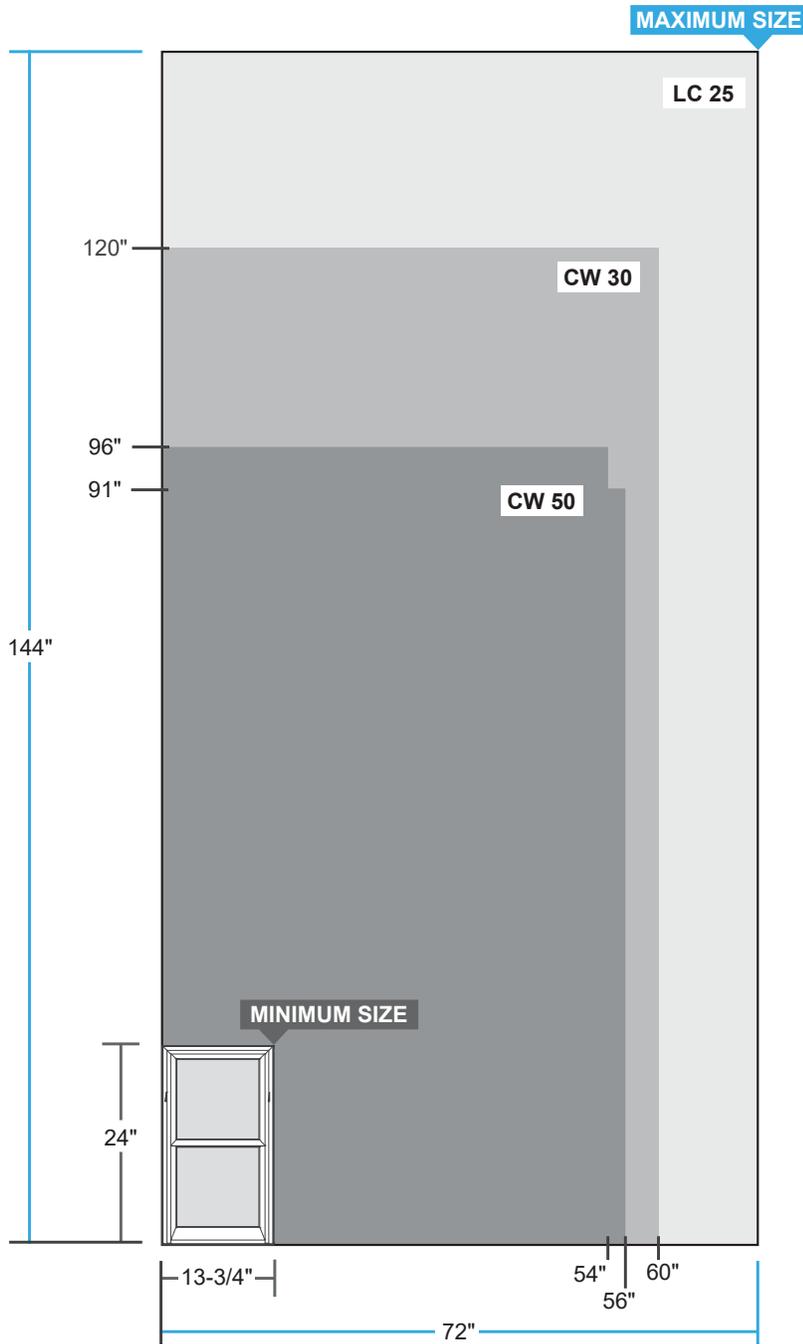
See the Performance section to learn more about performance standards and ratings. Performance varies based on actual product attributes.



Other frame types are available. Not to scale. All dimensions are approximate.

Available Sizes

Sizes are available in 1/8" increments.



Cottage, contemporary and custom sash split also available. Specify checkrail height when ordering.

Transoms and Companion fixed windows available for combinations. See Casement window offering for matching glass sightlines, or see the Fixed Frame Direct Set offering.

Impact-Resistant glazing with higher design pressure ratings available.

Performance for wood exterior units may vary from what is shown.

Maximum performance when glazed with the appropriate glass.

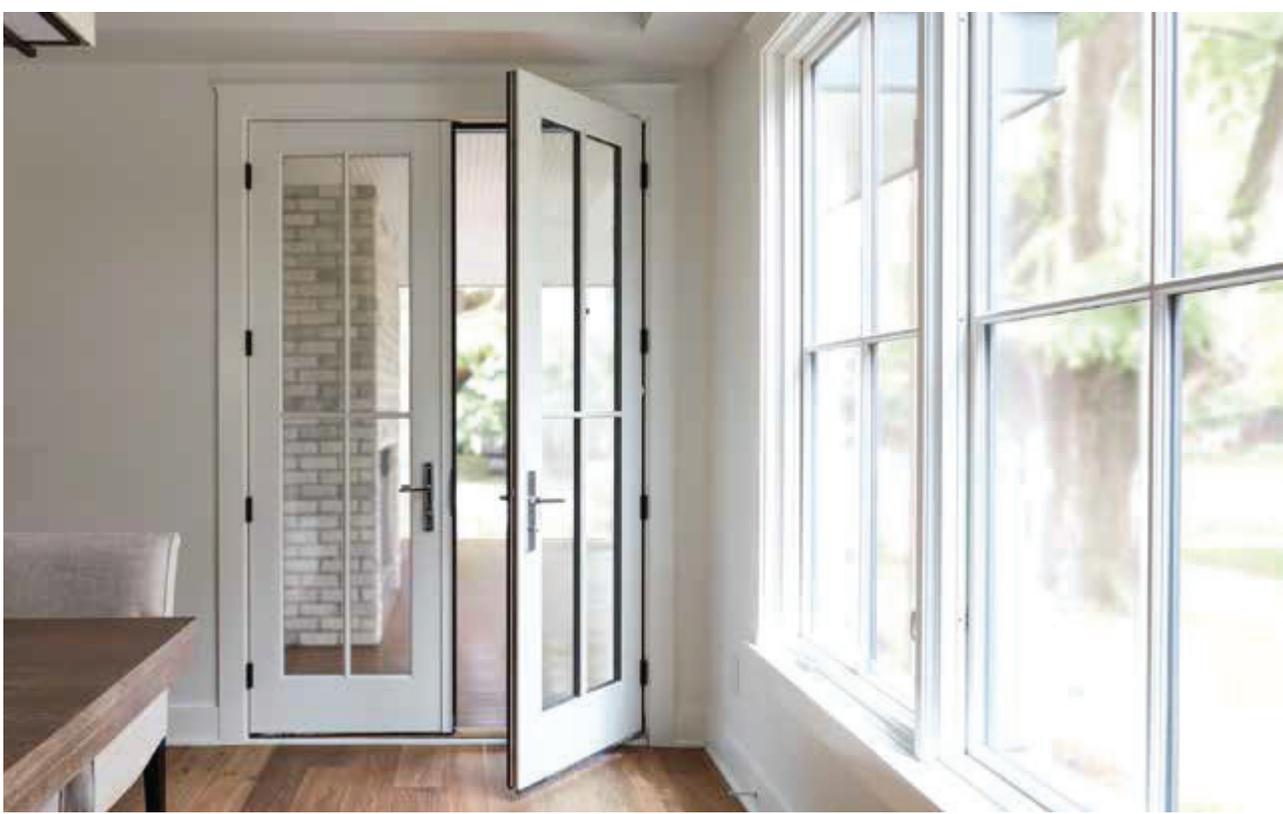
See online ADM documentation or consult with your local Pella sales representative for all glazing and size restrictions that may affect clear opening (egress).





Pella®
Reserve™
Traditional

In-Swing
Door



Air, Water,
& Structural
Performance

Door Height	Performance Class & Grade Rating	Water Penetration Resistance	Air Infiltration	Design Pressure	Forced Entry
≤ 8'	LC55	8.36 psf	0.10	55 psf	Complies with AAMA 1304
> 8'	LC40	6.0 psf	0.10	40 psf	

Thermal
Performance

13/16" glass thickness; Triple-Pane Insulating glass is also available.

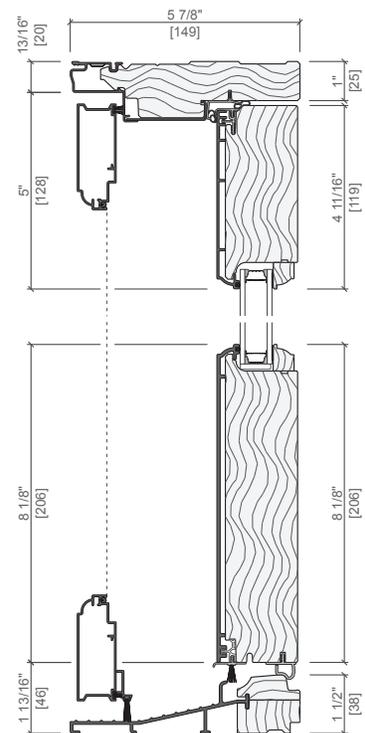
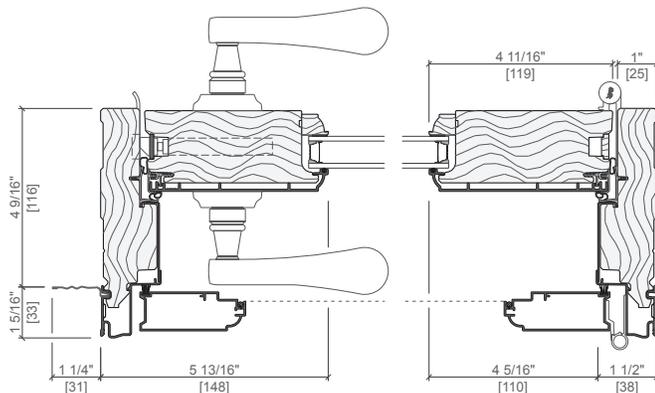
Type of Glazing (Argon fill)	U-Factor	SHGC	VLT %	CR	Energy Star® Capable
Advanced Low-E IG	0.28 - 0.30	0.16 - 0.22	0.27 - 0.39	59 - 62	N, NC, SC, S
SunDefense™ Low-E IG	0.27 - 0.30	0.13 - 0.16	0.25 - 0.36	60 - 62	N, NC, SC, S
AdvancedComfort Low-E IG	0.25 - 0.27	0.16 - 0.21	0.27 - 0.38	47 - 49	N, NC, SC, S
NaturalSun Low-E IG	0.28 - 0.32	0.28 - 0.40	0.31 - 0.44	59 - 61	N, NC

Sound
Performance

Frame Size Tested	Type of Glazing	Integral Grilles		Removable or No Grilles	
		STC	OITC	STC	OITC
71-1/4" x 81-1/2"	13/16" Overall thickness / 3mm / 3mm glass	32	27	31	25

Code Approvals: Hallmark Certified; FPAS#: FL 14293; TDI#: DR-635

See the Performance section to learn more about performance standards and ratings. Performance varies based on actual product attributes.



Other frame types are available. Low Profile sill option available. Water resistance is 0 psf for low profile sill. Not to scale. All dimensions are approximate.

Standard Sizes

	(476) (457)	(664) (645)	(781) (762)	(870) (851)	(933) (914)	(981) (962)
Opening	1' 6 3/4"	2' 2 1/8"	2' 6 3/4"	2' 10 1/4"	3' 0 3/4"	3' 2 5/8"
Frame	1' 6"	2' 1 3/8"	2' 6"	2' 9 1/2"	3' 0"	3' 1 7/8"
(2 032) (2 019)						
6' 8"						
(2 083) (2 070)						
6' 10"						
(2 197) (2 184)						
7' 2 1/2"						
(2 438) (2 426)						
8' 0"						
(3 048) (3 035)						
9' 11 1/2"						

Not to scale.

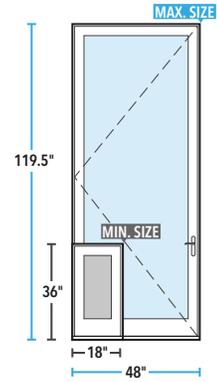
Traditional grille patterns shown.

Left-hand doors shown, right-hand and fixed also available.

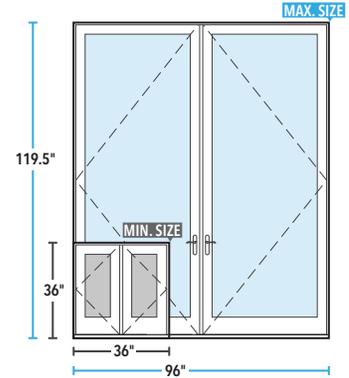
Special Sizes

Special sizes are available in 1/8" increments.

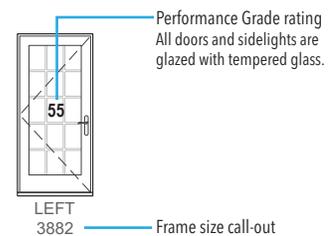
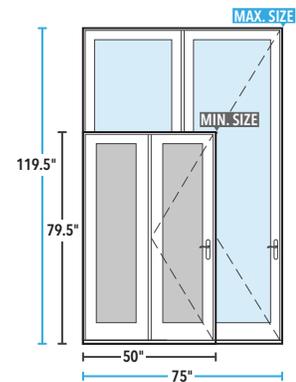
Single Door (L/R)



Double-Door (AP/PA)



Double-Door (AF/FA)



Impact-Resistant glazing with higher design pressure ratings available.

Performance for wood exterior units may vary from what is shown.

Fixed Casement Transoms with wide stiles for matching glass sightlines and companion fixed frame direct set windows available for transom combinations. See the online ADM or consult your local Pella sales representative for details.





Pella®
Reserve™
Traditional

Out-Swing
Door



Air, Water, & Structural Performance

Door Height	Performance Class & Grade Rating	Water Penetration Resistance	Air Infiltration	Design Pressure	Forced Entry
≤ 8'	LC55 - LC70	10.66 psf	0.15	55 - 70 psf	Complies with AAMA 1304
> 8'	LC40 - LC55	8.36 psf	0.15	40 - 55 psf	

Thermal Performance

13/16" glass thickness; Triple-Pane Insulating glass is also available.

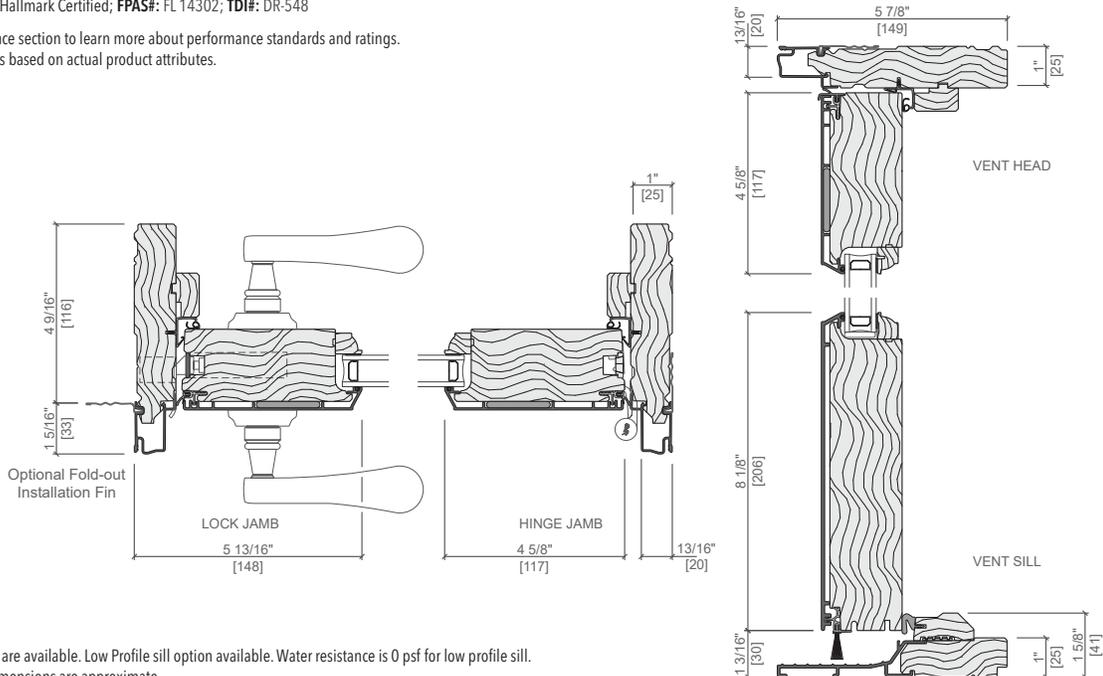
Type of Glazing (Argon fill)	U-Factor	SHGC	VLT %	CR	Energy Star® Capable
Advanced Low-E IG	0.28 - 0.31	0.16 - 0.22	0.27 - 0.39	59 - 62	N, NC, SC, S
SunDefense™ Low-E IG	0.28 - 0.31	0.12 - 0.16	0.25 - 0.36	60 - 62	N, NC, SC, S
AdvancedComfort Low-E IG	0.25 - 0.28	0.16 - 0.21	0.27 - 0.38	47 - 49	N, NC, SC, S
NaturalSun Low-E IG	0.29 - 0.33	0.28 - 0.39	0.31 - 0.44	59 - 61	N, NC

Sound Performance

Frame Size Tested	Type of Glazing	Integral Grilles		Removable or No Grilles	
		STC	OITC	STC	OITC
71-1/4" x 81-1/2"	13/16" Overall thickness 3mm / 3mm glass	32	27	30	25

Code Approvals: Hallmark Certified; **FPAS#:** FL 14302; **TDI#:** DR-548

See the Performance section to learn more about performance standards and ratings. Performance varies based on actual product attributes.



Other frame types are available. Low Profile sill option available. Water resistance is 0 psf for low profile sill. Not to scale. All dimensions are approximate.

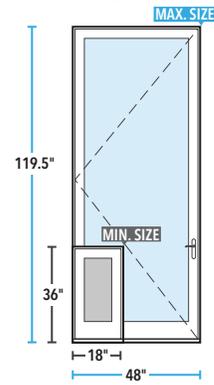
Standard Sizes

	(476) (457)	(664) (645)	(781) (762)	(870) (851)	(933) (914)	(981) (962)
Opening	1' 6 3/4"	2' 2 1/8"	2' 6 3/4"	2' 10 1/4"	3' 0 3/4"	3' 2 5/8"
Frame	1' 6"	2' 1 3/8"	2' 6"	2' 9 1/2"	3' 0"	3' 1 7/8"
(2 032) (2 019)	6' 8"					
	6' 7 1/2"					
(2 083) (2 070)	6' 10"					
	6' 9 1/2"					
(2 197) (2 184)	7' 2 1/2"					
	7' 2"					
(2 438) (2 426)	8' 0"					
	7' 11 1/2"					
(3 048) (3 035)	10' 0"					
	9' 11 1/2"					
	SIDELIGHT 1880	LEFT 2680	LEFT 3080	LEFT 3480	LEFT 3680	LEFT 3880
	SIDELIGHT 1882	LEFT 2682	LEFT 3082	LEFT 3482	LEFT 3682	LEFT 3882
	SIDELIGHT 1886	LEFT 2686	LEFT 3086	LEFT 3486	LEFT 3686	LEFT 3886
	SIDELIGHT 1896	LEFT 2696	LEFT 3096	LEFT 3496	LEFT 3696	LEFT 3896
		LEFT 26120	LEFT 30120	LEFT 34120	LEFT 36120	LEFT 38120

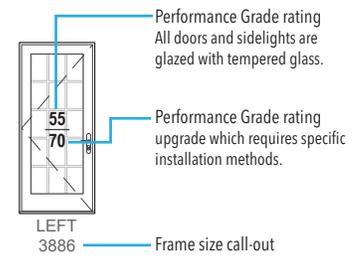
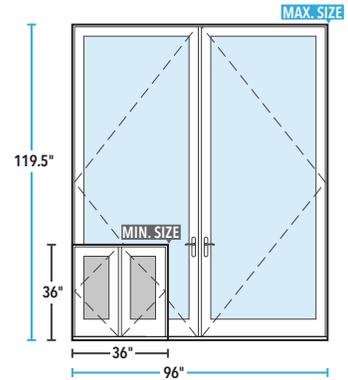
Special Sizes

Special sizes are available in 1/8" increments.

Single Door (L/R)



Double-Door (AP/PA)



Impact-Resistant glazing with higher design pressure ratings available.

Performance for wood exterior units may vary from what is shown.

Fixed Casement Transoms with wide stiles for matching glass sightlines and companion fixed frame direct set windows available for transom combinations. See the online ADM or consult your local Pella sales representative for details.

Not to scale.

Traditional grille patterns shown.

Left-hand doors shown, right-hand and fixed also available.





Pella®
Reserve™
Traditional

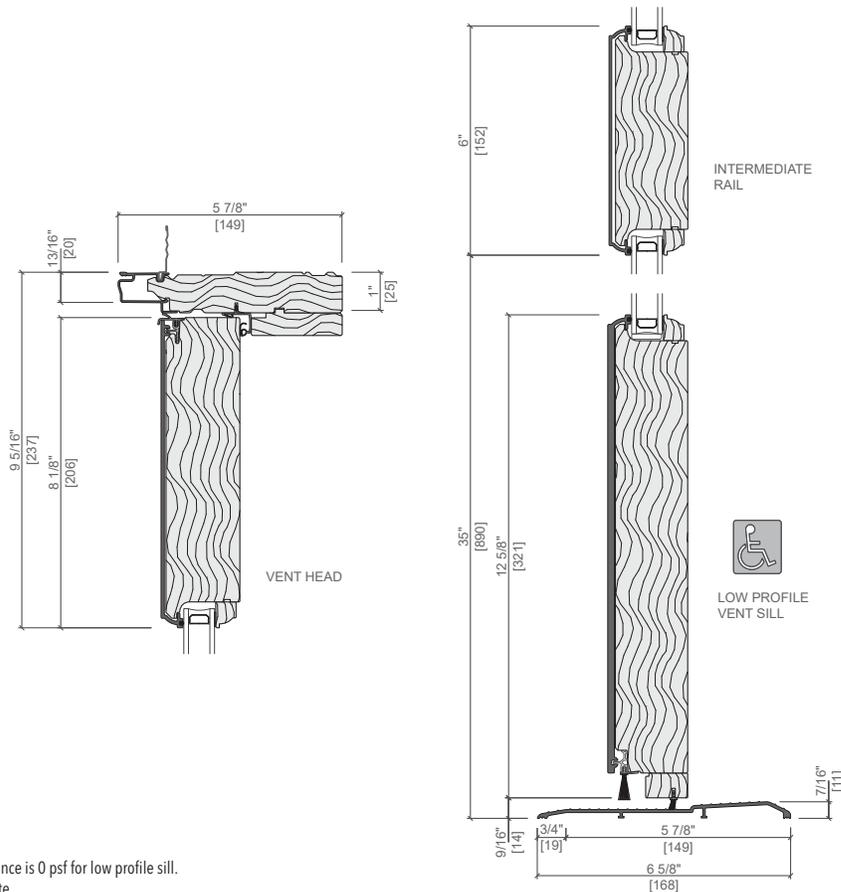
Commercial
Out-Swing
Door



Photograph(s):
© Coseta Photography, Inc.

Thermal Performance	Type of Glazing (Argon fill)	U-Factor	SHGC	VLT %	CR	Energy Star® Capable
13/16" glass thickness; Triple-Pane Insulating glass is also available.	Advanced Low-E IG	0.30 - 0.31	0.15 - 0.18	0.26 - 0.31	61	N, NC, SC, S
	SunDefense™ Low-E IG	0.30 - 0.31	0.12 - 0.13	0.24 - 0.29	61	N, NC, SC, S
	AdvancedComfort Low-E IG	0.28	0.15 - 0.17	0.26 - 0.31	49	N, NC, SC, S
	NaturalSun Low-E IG	0.31 - 0.32	0.27 - 0.32	0.30 - 0.36	61	-

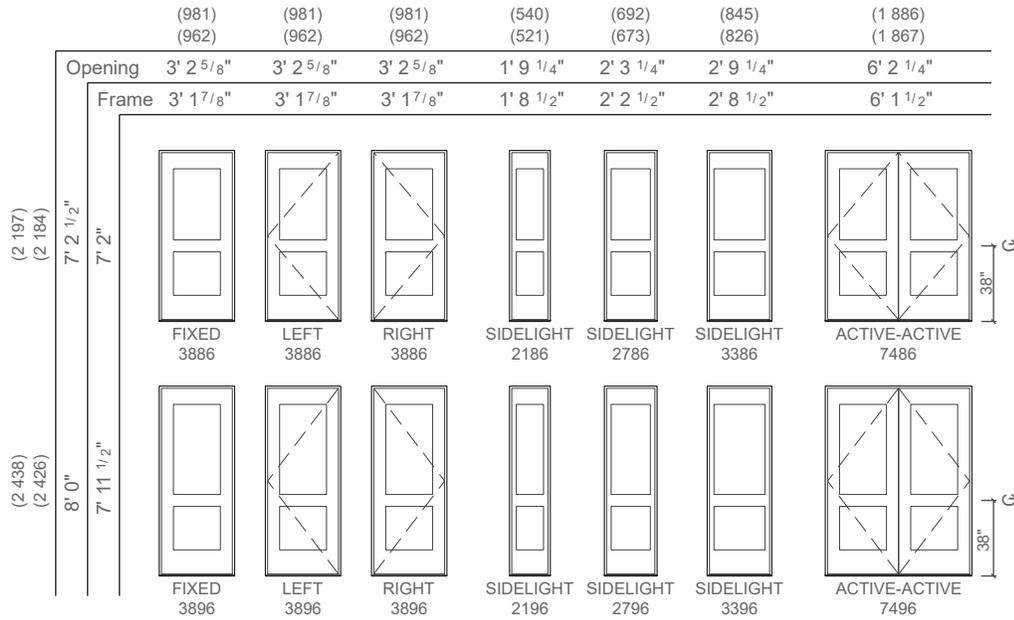
See the Performance section earlier in this manual to learn more about performance standards and ratings. Performance varies based on actual product attributes, validation is required, contact your local Pella sales representative or Pella Architectural Solutions for details.



Other frame types are available.
(*) Low Profile sill is standard. Water resistance is 0 psf for low profile sill.
Not to scale. All dimensions are approximate.

Standard Sizes

7' 2" and 8' 0" Vent and Fixed Units - Clad
(Shown with Optional Intermediate Rail)



Not to scale.

CL = Distance from bottom of door to center line of intermediate rail is 38".

Masonry dimensions are with Pella's 1-7/8" brickmould.

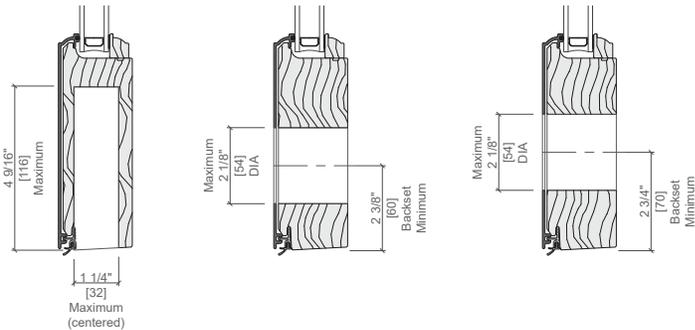
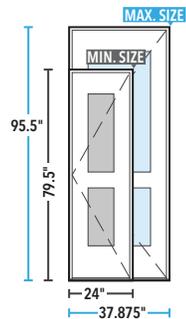
To determine masonry openings when using Pella's 3-1/2" brickmould, add an additional 3-1/4" to width and 1-5/8" to height.

All doors are glazed with 3mm tempered glass standard.

Special Sizes

Special sizes are available in 1/8" increments.

Sizes larger or smaller than shown here require validation.



Pella Reserve Commercial Out-Swing Doors are not supplied with locking hardware, closers, panic hardware, push plates or kick plates. Use the following guidelines when selecting these hardware items from your hardware supplier.

Mortise Locks: Maximum mortise rout dimensions are shown above for commercial doors with standard stile dimensions. Maximum height of the mortise rout is 10 inches. Routs should be sealed before the locks are installed for added moisture protection.

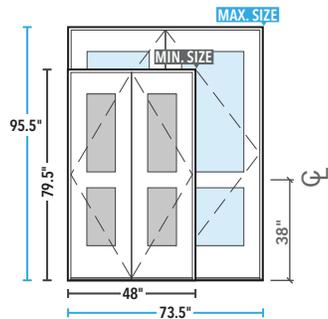
Cylinder Locks: Maximum diameter of cylinder lock bore is 2-1/8". Minimum backset is 2-3/8"; maximum backset is 2-3/4".

Door Closers: Pella recommends surface mounted door closers anchored into a structural header or minimum 1.5" Pella wood spread mullion. Concealed closers that are routed into the top of the door panel are not recommended.

Exit Devices: Concealed vertical rod hardware is not recommended. Use surface mounted vertical rod hardware.

Kick Plates and Push Plates: In commercial applications, Pella recommends the use of kick plates and push plates to protect the wood veneer.

Hinges: Durable ball bearing hinges standard, optional adjustable hinges for ease of installation.





Pella®
Reserve™
Traditional

Sliding
Door



Air, Water,
& Structural
Performance

Performance Class & Grade Rating	Water Penetration Resistance	Air Infiltration	Design Pressure	Forced Entry
SD-LC25 - LC70	4.59 - 10.65 psf	0.10	25 - 70 psf	40

Thermal
Performance

13/16" glass thickness;
Triple-Pane Insulating
glass is also available.

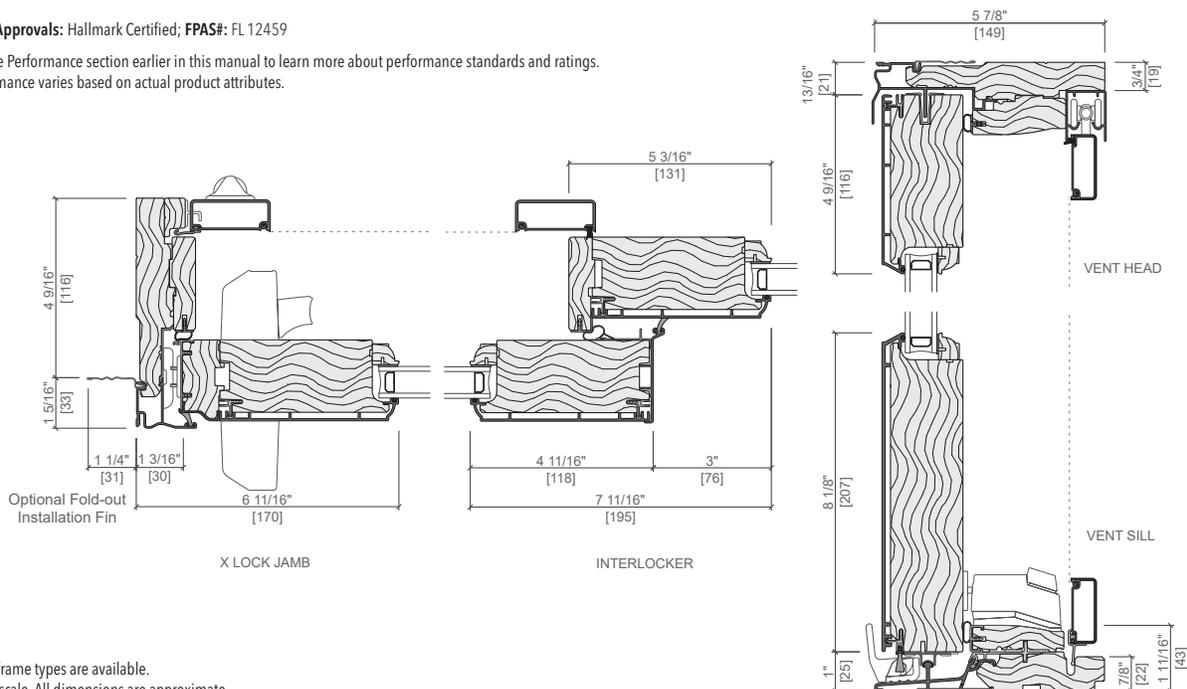
Type of Glazing (Argon fill)	U-Factor	SHGC	VLT %	CR	Energy Star® Capable
Advanced Low-E IG	0.29 - 0.30	0.20 - 0.23	0.36 - 0.42	57	N, NC, SC, S
SunDefense™ Low-E IG	0.29 - 0.32	0.15 - 0.17	0.34 - 0.39	58	N, NC, SC, S
AdvancedComfort Low-E IG	0.26 - 0.28	0.20 - 0.23	0.36 - 0.41	53	N, NC, SC, S
NaturalSun Low-E IG	0.30 - 0.31	0.37 - 0.42	0.41 - 0.48	59	N, NC

Sound
Performance

Frame Size Tested	Type of Glazing	STC	OITC	
Fixed-Vent; 71-1/4" x 81-1/2" No grilles	3mm / 3mm glass	31	25	
	5mm / 8mm PVB	35	30	
	4mm / 6mm glass	34	30	
	7/8" overall thickness	8.6mm PVB / 5mm glass	34	30

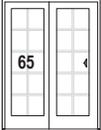
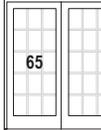
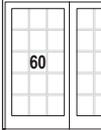
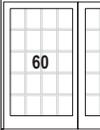
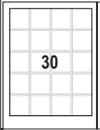
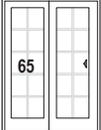
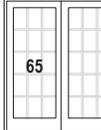
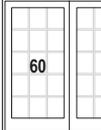
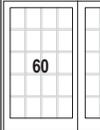
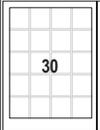
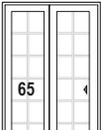
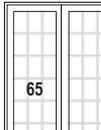
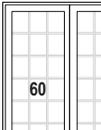
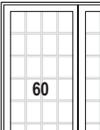
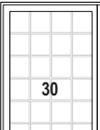
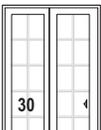
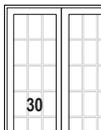
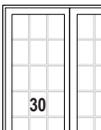
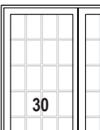
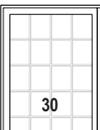
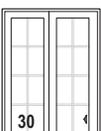
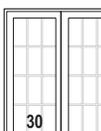
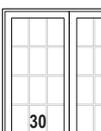
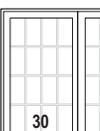
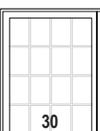
Code Approvals: Hallmark Certified; FPAS#: FL 12459

See the Performance section earlier in this manual to learn more about performance standards and ratings.
Performance varies based on actual product attributes.



Other frame types are available.
Not to scale. All dimensions are approximate.

Standard Sizes

Opening	5' 0" (1 524)	6' 0" (1 829)	7' 0" (2 134)	8' 0" (2 438)	10' 0" (3 048)
Frame	4' 11 1/4" (1 505)	5' 11 1/4" (1 810)	6' 11 1/4" (2 115)	7' 11 1/4" (2 419)	9' 11 1/4" (3 029)
6' 8" (2 032) 6' 7 1/2" (2 019)	 6080	 7280	 8480	 9680	 12080
6' 10" (2 083) 6' 9 1/2" (2 070)	 6082	 7282	 8482	 9682	 12082
8' 0" (2 438) 7' 11 1/2" (2 426)	 6096	 7296	 8496	 9696	 12096
9' 0" (2 743) 8' 11 1/2" (2 731)	 60108	 72108	 84108	 96108	 120108
10' 0" (3 048) 9' 11 1/2" (3 035)	 60120	 72120	 84120	 96120	 120120

Two panel doors—Fixed-Vent (OX), right panel opens, left panel is fixed. Units open in the direction of the arrow as viewed from the exterior.

Vent-Fixed (XO) doors are also available.

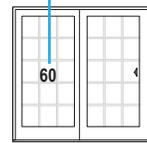
Fixed (O), Three-Panel (OXO), and-Four Panel (OXXO) are also available in standard sizes, matching the standard heights shown in this size table.

Three-Panel, Fixed-Vent-Fixed (OXO) combination doors also available as OOX and XO combinations.

Rolscreen available in OX, XO, OXO doors only. Self-Closing screen panels are available only on factory assembled frames, not on knock down frames.

Contact your local Pella sales representative for details and restrictions of knock down frames.

Performance Grade rating (when glazed appropriately)
All doors are glazed with tempered glass.



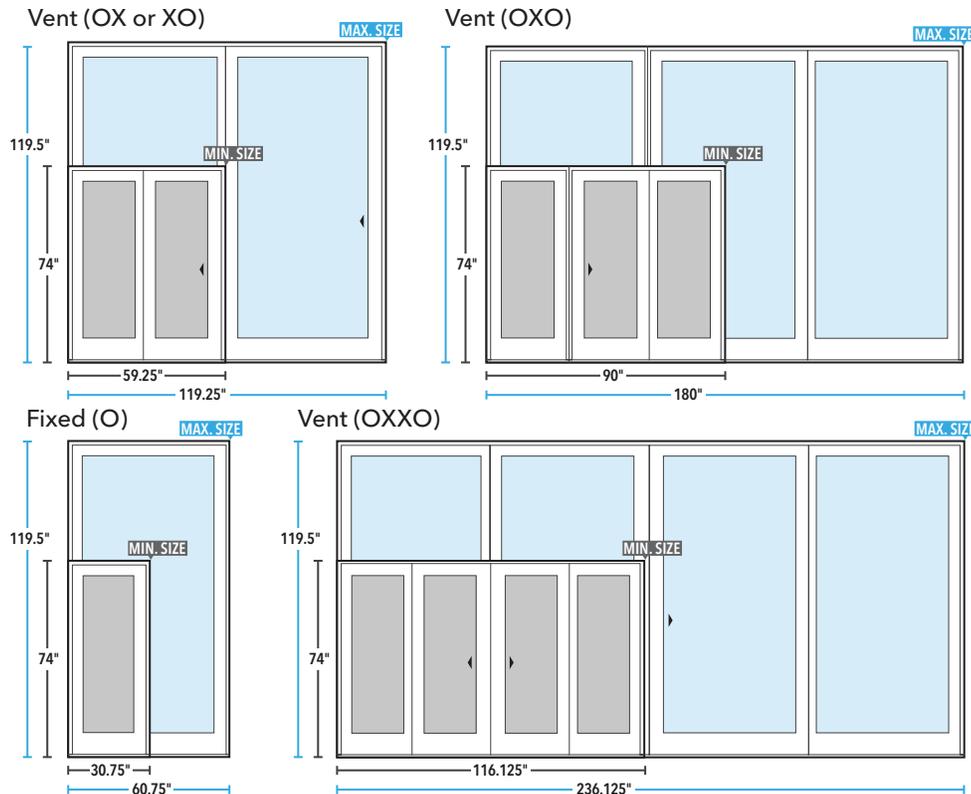
8482
Frame size call-out

Impact-Resistant glazing with higher design pressure ratings available for select sizes and configurations.

Performance for wood exterior units may vary from what is shown.

Special sizes are available in 1/8" increments.

Special Sizes



Fixed Casement Transoms with wide stiles for matching glass sightlines and companion fixed frame direct set windows available for transom combinations. See the online ADM or consult your local Pella sales representative for details.



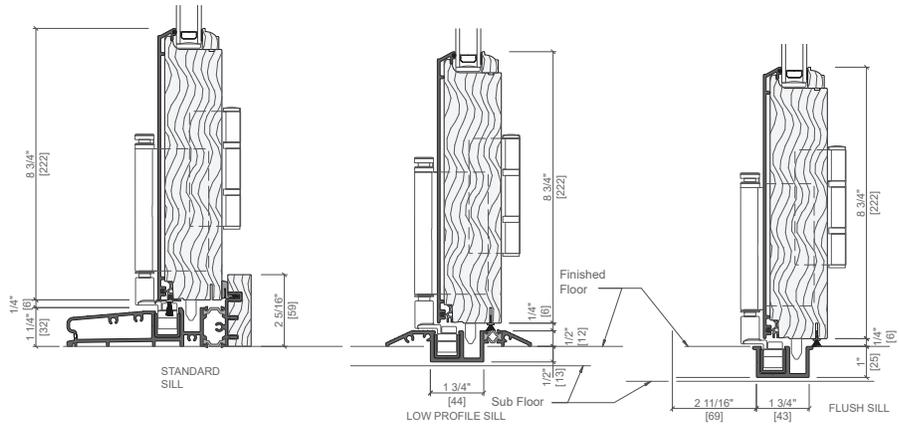


Pella®
Reserve™
Traditional

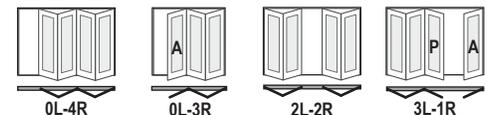
Multi-Panel
Doors



Bifold Doors



Out-Swing Standard Sill Air, Water, & Structural Performance	Performance Class & Grade Rating	Water Penetration Resistance	Air Infiltration	Design Pressure	Forced Entry
	R15 - LC25	2.92 - 3.76 psf	0.15	15 - 25 psf	Complies with AAMA 1304



See online ADM for specific sizes by configuration and all available options.

Size Dimensions (Out-Swing Bifold Doors)

Number of Panels	Frame Width (Inches)							
	One-Way (No-Passage-Door)		One-Way (Passage-Door)		Split (No-Passage-Door)		Split (Passage-Door)	
	Min	Max	Min	Max	Min	Max	Min	Max
2	31-3/4	87-1/8	—	—	—	—	—	—
3	—	—	46-1/8	129-3/8	—	—	47	130-1/8
4	60-5/8	171-1/2	—	—	60-7/8	171-3/4	61-3/8	172-3/8
5	—	—	75	213-3/4	—	—	75-7/8	214-1/2
6	89-1/2	255-7/8	—	—	89-3/4	256-1/8	90-1/4	256-3/4
7	—	—	103-7/8	298-1/8	—	—	104-3/4	298-7/8
8	118-3/8	312	—	—	118-5/8	312	119-1/8	312
9	—	—	132-3/4	312	—	—	133-5/8	312
10	147-1/4	312	—	—	141-1/2	312	148	312

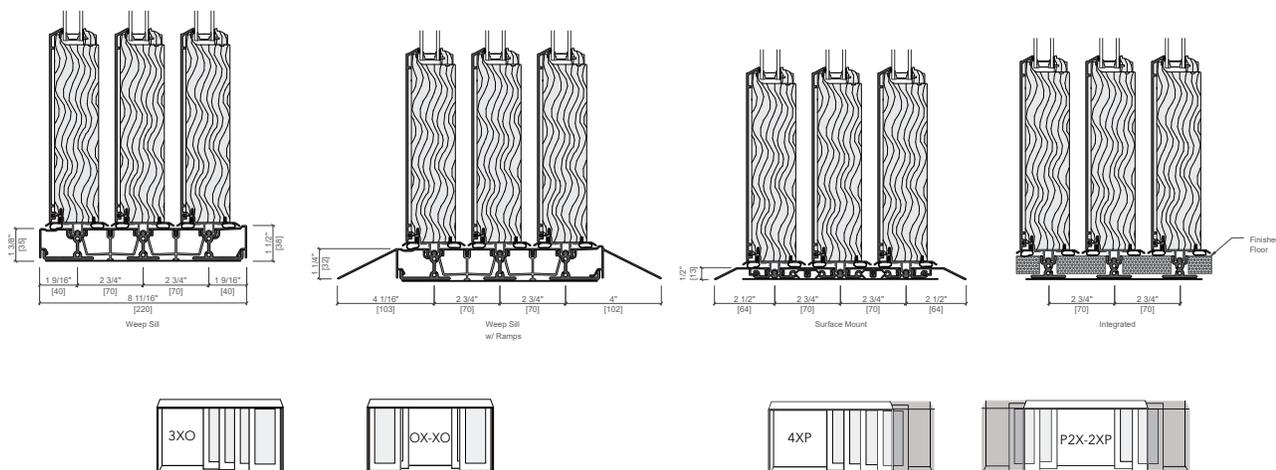
View online documents for unit height details.

Minimum to maximum door width dimensions refers to frame to frame dimension. Values represent minimum and maximum values without consideration of panel configuration, consult design data for specific values for your venting configuration.

Contact your local Pella sales representative for the most current options and configurations available.



Multi-slide Doors



Stacking Panel Configurations

Number of Panels	Frame Width (Inches)			
	One-Way		Bi-Part	
	Min	Max	Min	Max
1	–	–	–	–
2	40.375	120.25	–	–
3	56.5	176.25	–	–
4	72.375	232.25	78.25	238.125
5	88.5	288.375	–	–
6	104.5	344.375	110.375	350.25
7	120.5	400.375	–	–
8	136.5	456.375	142.375	462.25
9	–	–	–	–
10	–	–	174.5	574.375

View online documents for unit height details.

Pocketing Panel Configurations

Number of Panels	Frame Width (Inches)			
	1 Pocket / One-Way		2 Pocket / Bi-Part	
	Min	Max	Min	Max
1	48.875	128.75	–	–
2	64	183.875	95.25	255.125
3	80	239.875	–	–
4	96	295.875	125.5	365.375
5	112.125	352	–	–
6	128.125	408	157.625	477.5
7	144.125	464	–	–
8	160.25	520	189.75	589.5
9	–	–	–	–
10	–	–	221.75	701.625

View online documents for unit height details.

X = Venting, O = Fixed. Custom sized panels in 1/8" increments. Doors are viewed from the exterior. Minimum to maximum door width dimensions refers to frame to frame dimension. Values represent minimum and maximum values without consideration of panel configuration, consult design data for specific values for your venting configuration.

Contact your local Pella sales representative for the most current options and configurations available.