

# HISTORIC DISTRICT COMMISSION APPLICATION FOR WORK APPROVAL

City of Detroit - Planning & Development Department 2 Woodward Avenue, Suite 808 Detroit, Michigan 48226

APPLICATION ID
HDC2024-00039

| PR        | OPERTY INFORMATION   |                          |  |                    |  |  |
|-----------|--|--------------------------|--|--------------------|--|--|
| ADD       | ADDRESS(ES): 702 W Canfield  |                          |  |                    |  |  |
| HIST      | TORIC DISTRICT: West Canfield  |                          |  |                    |  |  |
| sco       | PE OF WORK: (Check ALL that apply)   |                          |  |                    |  |  |
| X         | Windows/ Doors Walls/ Siding Painting  | Roof/Gutters/<br>Chimney | Porch/Deck/Balcony                                       | Other              |  |  |
|           | Demolition Signage New Building  | Addition                 | Site Improvements (landscape, trees, fence patios, etc.) | es,                |  |  |
| Repl      | BRIEF PROJECT DESCRIPTION:  Replacing 13 windows with Pella Reserve Traditional double hung windows. All new windows will be the same size as the existing windows. Openings will stay the same size.  |                          |  |                    |  |  |
| API       | PLICANT IDENTIFICATION   |                          |  |                    |  |  |
|           | E OF APPLICANT: Contractor   |                          |  |                    |  |  |
| NAN       | <b>IE:</b> Hannah Bailey   | COMPANY NAM              | E: Kendall Design Build                                  |                    |  |  |
| ADD       | PRESS: 618 E. 11 Mile Rd   | CITY: Royal Oak          | STATE: MI  | <b>ZIP</b> : 48067 |  |  |
| РНО       | NE: +1 (248) 228-5449  | EMAIL: jodi@ken          | dalldesignbuild.com                                      |                    |  |  |
| IAC       | GREE TO AND AFFIRM THE FOLLO   | OWING:                   |  |                    |  |  |
| $\square$ | I understand that the failure to upload all required documentation may result in extended review times for my project and/or a denied application.   |                          |  |                    |  |  |
| x         | I understand that the review of this application by the Historic District Commission does not waive my responsibility to comply with any other applicable ordinances including obtaining appropriate permits (building, sign, etc.) or other department approvals prior to beginning the work. |                          |  |                    |  |  |
| x         | I hereby certify that the information on this application is true and correct. I certify that the proposed work is authorized by the owner of record and I have been authorized to make this application as the property owner(s) authorized agent.  |                          |  |                    |  |  |
|           | — Docusigned by:  Hannal Bailey  | 02/07/2                  | 2024   |                    |  |  |

NOTE: Based on the scope of work, additional documentation may be required. See www/detroitmi.gov/hdc

for scope-specific requirements.

# PROJECT DETAILS - TELL US ABOUT YOUR PROJECT

Instructions: Add project details using the text box in each section. If your details exceed the space provided, attach the details via the attachment icon for that section.

# **ePLANS PERMIT NUMBER:**

(only applicable if you've already applied for permits through ePLANS)

N/A

# **GENERAL**

# 1. DESCRIPTION OF EXISTING CONDITION

Please tell us about the current appearance and conditions of the areas you want to change. You may use a few sentences or attach a separate prepared document on the right. (For example, "existing roof on my garage is covered in gray asphalt shingles in poor condition.")

All windows are single pane glass, some of the frames are in bad condition, some are painted shut or have nails in them.

# 2. PHOTOGRAPHS

Help us understand your project. Please attach photographs of all areas where work is proposed.



# 3. DESCRIPTION OF PROJECT

In this box, tell us about what you want to do at the areas described above in box #1. (For example, Install new asphalt shingle roofing at garage.)

Replace existing windows with Bella Architectural Series windows. Opening will remain the same size. No work will be done to the brickwork on the outside of the house. All window types will be replaced with like style ei: double hung, casement, etc.

# 4. DETAILED SCOPE OF WORK

In this box, please describe all steps necessary to complete the work described in box #3. (For example, "remove existing shingles, replace wood deck as necessary, replace wood eaves, install roof vents, replace rotted fascia boards, paint, clean worksite.")

Remove existing windows, insert new windows, caulk, replace existing trim work on the interior.

# 5. BROCHURES/CUT SHEETS

Please provide information on the products or materials you are proposing to install. For example, a brochure on the brand and color of the shingles proposed.



# **ADDITIONAL DETAILS**

| 6. WINDOWS/DOORS  Detailed photographs of window(s) and/or door(s) proposed for replacement showing the condition of the internand exterior of the window(s) and/or door(s) | ior |
|---|-----|
|   |     |
|   |     |
|   |     |











































Phone:



# **Contract - Detailed**

Fax:

Sales Rep Name: Grauer, Justin Sales Rep Phone: 734-210-7922

Sales Rep Fax:

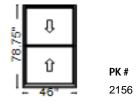
Sales Rep E-Mail: grauerj@pella.com

**Customer PO #:** 

| <b>Customer Information</b>          | Project/Delivery Address                | Order Information               |
|--------------------------------------|---|---------------------------------|
| Kendall Design + Build               | KENDALL - STRABER RESIDENCE - 1.29.2024 | Quote Name: RESERVE TRADITIONAL |
| 618 E 11 Mile                        |   |                                 |
|                                      |   | Order Number: 189               |
| Royal Oak, MI 48067                  | Lot #                                   | Quote Number: 17761034          |
| <b>Primary Phone:</b> (248) 3186569  | , MI                                    | Order Type: Non-Installed Sales |
| Mobile Phone:                        | County:                                 | Wall Depth:                     |
| Fax Number:                          | Owner Name:                             | Payment Terms: Net 30 Days      |
| E-Mail: terri@kendalldesignbuild.com | Kendall Design + Build                  | Tax Code: MISALESTAX            |
| Contact Name:                        | Owner Phone: (248) 3186569              | Cust Delivery Date: None        |
|                                      |   | <b>Quoted Date:</b> 1/29/2024   |
| Great Plains #: 1005753090           |   | Contracted Date:                |
| Customer Number: 1009609353          |   | Booked Date:                    |

| Line # | Location: | Attributes |
|--------|-----------|------------|

10 OFFICE



Customer Account: 1005753090

Viewed From Exterior

# Pella® Reserve, , Traditional Double Hung, 46 X 78.75, Black

 Item Price
 Qty
 Ext'd Price

 \$186888
 1
 \$5688888

1: Non-Standard SizeNon-Standard Size Double Hung, Equal

Frame Size: 46 X 78 3/4

General Information: Standard, Luxury, Clad, Pine, 5", 3 11/16", No Certification

Exterior Color / Finish: Painted, Standard Enduraclad, Black

Interior Color / Finish: Black Stain Interior

Sash / Panel: Putty Glaze, Ogee, Standard, No Sash Lugs

Glass: Insulated Dual Low-E Advanced Low-E Insulating Glass Argon Non High Altitude

Hardware Options: Cam-Action Lock, Matte Black, No Window Opening Control Device, No Limited Opening Hardware, Order Sash Lift, No Integrated

Sensor

Screen: Full Screen, Standard EnduraClad, Black, Premium, InView™

Performance Information: U-Factor 0.29, SHGC 0.28, VLT 0.53, CPD PEL-N-232-01141-00001, Performance Class CW, PG 40, Calculated Positive DP Rating 40, Calculated Negative DP Rating 40, Year Rated 08|11, STC 28, OITC 24, Clear Opening Width 42.625, Clear Opening Height 34.937, Clear

Opening Area 10.34159, Egress Meets Typical 5.7 sqft (E) (United States Only)

Grille: No Grille,

Wrapping Information: No Exterior Trim, 3 11/16", 5", Factory Applied, Pella Recommended Clearance, Perimeter Length = 250".

**Rough Opening:** 46 - 3/4" X 79 - 1/2"

Project Name: KENDALL - STRABER RESIDENCE - 1.29.2024 Order Number: 189 Quote Number: 17761034 Customei: Kendalı Design + Bulla

# Line # Location: 15 **KITCHEN** Frame Radius = 17.12 PK# 2156

Viewed From Exterior

# Pella® Reserve, , Traditional Double Hung, Architect Reserve, Traditional, Direct Set Fixed Frame Half Circle, 34.25 X 95.75, Black

**Item Price** Qty Ext'd Price \$8888888 \$888888 3

1: Non-Standard SizeNon-Standard Size Double Hung, Equal

Frame Size: 34 1/4 X 78 5/8

General Information: Standard, Luxury, Clad, Pine, 5", 3 11/16", No Certification

Exterior Color / Finish: Painted, Standard Enduraclad, Black Interior Color / Finish: Black Stain Interior Sash / Panel: Putty Glaze, Ogee, Standard, No Sash Lugs

Glass: Insulated Dual Low-E Advanced Low-E Insulating Glass Argon Non High Altitude

Hardware Options: Cam-Action Lock, Matte Black, No Window Opening Control Device, No Limited Opening Hardware, Order Sash Lift, No Integrated

Attributes

Sensor

Screen: Full Screen, Standard EnduraClad, Black, Premium, InView™

Performance Information: U-Factor 0.29, SHGC 0.28, VLT 0.53, CPD PEL-N-232-01141-00001, Performance Class CW, PG 40, Calculated Positive DP

Rating 40, Calculated Negative DP Rating 40, Year Rated 08|11, STC 28, OITC 24, Egress Meets Typical 5.7 sqft (E) (United States Only)

Grille: No Grille,

2: 34.2517.125 Fixed Frame Direct Set Half Circle

Frame Size: 34 1/4 X 17 1/8

General Information: Interior Glazed, Standard, Clad, Pine, 5", 3 11/16", No Certification

Exterior Color / Finish: Painted, Standard Enduraclad, Black

Interior Color / Finish: Black Stain Interior

Glass: Insulated Dual Low-E Advanced Low-E Insulating Glass Argon Non High Altitude

Performance Information: U-Factor 0.28, SHGC 0.32, VLT 0.62, CPD PEL-N-18-04208-00001, Performance Class AW, PG 90, Calculated Positive DP

Rating 90, Calculated Negative DP Rating 90, FPAS FL10354, Year Rated 08|11

Grille: No Grille.

Horizontal Mull 1: FactoryMull, Standard Joining Mullion, Frame To Frame Width- 0", Mull Design Pressure- 20

Wrapping Information: No Exterior Trim, 3 11/16", 5", Factory Applied, Pella Recommended Clearance, Perimeter Length = 246".

Rough Opening: 35" X 96.5"

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PK#

Customer: Kengali Design + Build Project Name: KENDALL - STRABER RESIDENCE - 1.29.2024 Order Number: 189 Quote Number: 17761034

# Line # Location: PANTRY Pella® Reserve, , Traditional Double Hung, 25.25 X 51.25, Black 1: Non-Standard SizeNon-Standard Size Double Hung, Equal Frame Size: 25 1/4 X 51 1/4

**25.25** 2156

Viewed From Exterior

General Information: Standard, Luxury, Clad, Pine, 5", 3 11/16", No Certification

Exterior Color / Finish: Painted, Standard Enduraciad, Black Interior Color / Finish: Black Stain Interior Sash / Panel: Putty Glaze, Ogee, Standard, No Sash Lugs

Glass: Insulated Dual Low-E Advanced Low-E Insulating Glass Argon Non High Altitude

Hardware Options: Cam-Action Lock, Matte Black, No Window Opening Control Device, No Limited Opening Hardware, Order Sash Lift, No Integrated

Sensor

Screen: Full Screen, Standard EnduraClad, Black, Premium, InView™

Opening Area 7.456758, Egress Meets Typical 5.7 sqft (E) (United States Only)

Performance Information: U-Factor 0.29, SHGC 0.28, VLT 0.53, CPD PEL-N-232-01141-00001, Performance Class CW, PG 50, Calculated Positive DP Rating 50, Calculated Negative DP Rating 50, Vear Rated 08|11, STC 28, OITC 24, Clear Opening Width 21.875, Clear Opening Height 21.187, Clear

Opening Area 3.218511, Egress Does not meet typical United States egress, but may comply with local code requirements

Grille: No Grille,

Grille: No Grille,

Wrapping Information: No Exterior Trim, 3 11/16", 5", Factory Applied, Pella Recommended Clearance, Perimeter Length = 153".

# Rough Opening: 26" X 52"

#### Attributes Line # Location: 25 **PANTRY Item Price** Qtv **Ext'd Price** Pella® Reserve, , Traditional Double Hung, 35.25 X 76.25, Black 8888888 888888 1: Non-Standard SizeNon-Standard Size Double Hung, Equal Frame Size: 35 1/4 X 76 1/4 General Information: Standard, Luxury, Clad, Pine, 5", 3 11/16", No Certification PK# Exterior Color / Finish: Painted, Standard Enduraclad, Black 2156 Interior Color / Finish: Black Stain Interior Sash / Panel: Putty Glaze, Ogee, Standard, No Sash Lugs Viewed From Exterior Glass: Insulated Dual Low-E Advanced Low-E Insulating Glass Argon Non High Altitude Hardware Options: Cam-Action Lock, Matte Black, No Window Opening Control Device, No Limited Opening Hardware, Order Sash Lift, No Integrated Sensor Screen: Full Screen, Standard EnduraClad, Black, Premium, InView™ Performance Information: U-Factor 0.29, SHGC 0.28, VLT 0.53, CPD PEL-N-232-01141-00001, Performance Class CW, PG 50, Calculated Positive DP Rating 50, Calculated Negative DP Rating 50, Year Rated 08|11, STC 28, OITC 24, Clear Opening Width 31.875, Clear Opening Height 33.687, Clear

wrapping inic

Wrapping Information: No Exterior Trim, 3 11/16", 5", Factory Applied, Pella Recommended Clearance, Perimeter Length = 223".

Rough Opening: 36" X 77"

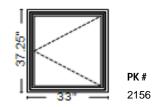
Customer: Kendan Design + Build Project Name: KENDALL - STRABER RESIDENCE - 1.29.2024 Order Number: 189 Quote Number: 17761034

# Line # Location: Attributes

# Pella® Reserve, , Traditional Casement Left, 33 X 37.25, Black

 Item Price
 Qty
 Ext'd Price

 \$828683
 1
 \$828688



DOG WASH ROOM

Viewed From Exterior

30

1: Non-Standard SizeNon-Standard Size Left Casement

Frame Size: 33 X 37 1/4

General Information: Standard, Clad, Pine, 5", 3 11/16", No Certification

Exterior Color / Finish: Painted, Standard Enduraclad, Black

Interior Color / Finish: Black Stain Interior Sash / Panel: Putty Glaze, Ogee, Standard

Glass: Insulated Dual Low-E Advanced Low-E Insulating Glass Argon Non High Altitude

Hardware Options: Wash Hinge Hardware, Fold-Away Crank, Matte Black, No Window Opening Control Device, No Limited Opening Hardware, No

Integrated Sensor

Screen: Full Screen. Black. InView™

Performance Information: U-Factor 0.29, SHGC 0.27, VLT 0.51, CPD PEL-N-11-24313-00001, Performance Class CW, PG 50, Calculated Positive DP Rating 50, Calculated Negative DP Rating 50, Year Rated 11, STC 27, OITC 23, Clear Opening Width 23.25, Clear Opening Height 33.125, Clear Opening

Area 5.348307, Egress Meets Typical for ground floor 5.0 sqft (E1) (United States Only)

Grille: No Grille,

Wrapping Information: No Exterior Trim, 3 11/16", 5", Factory Applied, Pella Recommended Clearance, Perimeter Length = 141".

# Rough Opening: 33 - 3/4" X 38"

#### 

# PK# 2156

Viewed From Exterior

## 1: Non-Standard SizeNon-Standard Size Double Hung, Equal

Frame Size: 35 1/4 X 75 3/4

General Information: Standard, Luxury, Clad, Pine, 5", 3 11/16", No Certification

Exterior Color / Finish: Painted, Standard Enduraclad, Black

Interior Color / Finish: Black Stain Interior

Sash / Panel: Putty Glaze, Ogee, Standard, No Sash Lugs

Glass: Insulated Dual Low-E Advanced Low-E Insulating Glass Argon Non High Altitude

Hardware Options: Cam-Action Lock, Matte Black, No Window Opening Control Device, No Limited Opening Hardware, Order Sash Lift, No Integrated

Sensor

Screen: Full Screen, Standard EnduraClad, Black, Premium, InView™

Performance Information: U-Factor 0.29, SHGC 0.28, VLT 0.53, CPD PEL-N-232-01141-00001, Performance Class CW, PG 50, Calculated Positive DP Rating 50, Calculated Negative DP Rating 50, Calculated Negative DP Rating 50, Year Rated 08/11, STC 28, OITC 24, Clear Opening Width 31.875, Clear Opening Height 33.437, Clear

Opening Area 7.401419, Egress Meets Typical 5.7 sqft (E) (United States Only)

Grille: No Grille,

Wrapping Information: No Exterior Trim, 3 11/16", 5", Factory Applied, Pella Recommended Clearance, Perimeter Length = 222".

Rough Opening: 36" X 76.5"

PK#

2156

Project Name: KENDALL - STRABER RESIDENCE - 1.29.2024 Order Number: 189 Quote Number: 17761034 Customei: Kendalı Design + Bulla

#### Attributes Line # Location: 40 2ND FLR- GUEST BED **Item Price** Qty Ext'd Price Pella® Reserve, , Traditional Double Hung, 34.25 X 87.75, Black \$1888888 888888 2 1: Non-Standard SizeNon-Standard Size Double Hung, Equal Frame Size: 34 1/4 X 87 3/4

Viewed From Exterior

General Information: Standard, Luxury, Clad, Pine, 5", 3 11/16", No Certification

Exterior Color / Finish: Painted, Standard Enduraclad, Black Interior Color / Finish: Black Stain Interior Sash / Panel: Putty Glaze, Ogee, Standard, No Sash Lugs

Glass: Insulated Dual Low-E Advanced Low-E Insulating Glass Argon Non High Altitude

Hardware Options: Cam-Action Lock, Matte Black, No Window Opening Control Device, No Limited Opening Hardware, Order Sash Lift, No Integrated

Sensor

Screen: Full Screen, Standard EnduraClad, Black, Premium, InView™

Performance Information: U-Factor 0.29, SHGC 0.28, VLT 0.53, CPD PEL-N-232-01141-00001, Performance Class CW, PG 30, Calculated Positive DP Rating 30, Calculated Negative DP Rating 30, Year Rated 08|11, STC 28, OITC 24, Clear Opening Width 30.875, Clear Opening Height 39.437, Clear

Opening Area 8.455676, Egress Meets Typical 5.7 sqft (E) (United States Only)

Grille: No Grille.

Wrapping Information: No Exterior Trim, 3 11/16", 5", Factory Applied, Pella Recommended Clearance, Perimeter Length = 244".

Rough Opening: 35" X 88.5"

#### Attributes Line # Location: 45 2ND FLR- GUEST BED **Item Price** Qtv Ext'd Price Pella® Reserve, , Traditional Double Hung, 34 X 70.25, Black \$1,695.99 \$1,695.99 1: Non-Standard SizeNon-Standard Size Double Hung, Equal Frame Size: 34 X 70 1/4 General Information: Standard, Luxury, Clad, Pine, 5", 3 11/16", No Certification PK#

2156

Viewed From Exterior

Exterior Color / Finish: Painted, Standard Enduraclad, Black Interior Color / Finish: Black Stain Interior

Sash / Panel: Putty Glaze, Ogee, Standard, No Sash Lugs Glass: Insulated Dual Low-E Advanced Low-E Insulating Glass Argon Non High Altitude

Hardware Options: Cam-Action Lock, Matte Black, No Window Opening Control Device, No Limited Opening Hardware, Order Sash Lift, No Integrated

Sensor

Screen: Full Screen, Standard EnduraClad, Black, Premium, InView™

Performance Information: U-Factor 0.29, SHGC 0.28, VLT 0.53, CPD PEL-N-232-01141-00001, Performance Class CW, PG 50, Calculated Positive DP Rating 50, Calculated Negative DP Rating 50, Year Rated 08|11, STC 28, OITC 24, Clear Opening Width 30.625, Clear Opening Height 30.687, Clear

Opening Area 6.526315, Egress Meets Typical 5.7 sqft (E) (United States Only)

Grille: No Grille,

Wrapping Information: No Exterior Trim, 3 11/16", 5", Factory Applied, Pella Recommended Clearance, Perimeter Length = 209".

Rough Opening: 34 - 3/4" X 71"

Custornier: Kendalii Design + Buliu Project Name: KENDALL - STRABER RESIDENCE - 1.29.2024 Order Number: 189 Quote Number: 17761034

| Line # | Location: | Attributes   |     |                   |
|--------|-----------|--|-----|-------------------|
| 50     | BATHROOM  | Pella® Reserve, , Traditional Double Hung, 25.25 X 51.25, Black Item Price | Qty | Ext'd Price       |
|        |           | \$8,598.81   | 1   | <b>88,588.8</b> 1 |

рк# 2156

Viewed From Exterior

1: Non-Standard SizeNon-Standard Size Double Hung, Equal

Frame Size: 25 1/4 X 51 1/4

General Information: Standard, Luxury, Clad, Pine, 5", 3 11/16", No Certification

Exterior Color / Finish: Painted, Standard Enduraclad, Black Interior Color / Finish: Black Stain Interior Sash / Panel: Putty Glaze, Ogee, Standard, No Sash Lugs

Glass: Insulated Dual Tempered Low-E Advanced Low-E Insulating Glass Argon Non High Altitude

Hardware Options: Cam-Action Lock, Matte Black, No Window Opening Control Device, No Limited Opening Hardware, Order Sash Lift, No Integrated

Sensor

Screen: Full Screen, Standard EnduraClad, Black, Premium, InView™

Performance Information: U-Factor 0.29, SHGC 0.28, VLT 0.52, CPD PEL-N-232-01145-00001, Performance Class CW, PG 50, Calculated Positive DP Rating 50, Calculated Negative DP Rating 50, Calculated Negative DP Rating 50, Year Rated 08|11, STC 28, OITC 24, Clear Opening Width 21.875, Clear Opening Height 21.187, Clear

Opening Area 3.218511, Egress Does not meet typical United States egress, but may comply with local code requirements

Grille: No Grille,

Wrapping Information: No Exterior Trim, 3 11/16", 5", Factory Applied, Pella Recommended Clearance, Perimeter Length = 153".

Rough Opening: 26" X 52"

DocuSign Envelope ID: 33CE99BC-31A2-40E7-9AC6-7C732464BA32
CUSIOTHEI: KERIDALI - STRABER RESIDENCE - 1.29.2024 Order Number: 189 Quote Number: 17761034

# Thank You For Purchasing Pella® Products

# **PELLA WARRANTY:**

Pella products are covered by Pella's limited warranties in effect at the time of sale. All applicable product warranties are incorporated into and become a part of this contract. Please see the warranties for complete details, taking special note of the two important notice sections regarding installation of Pella products and proper management of moisture within the wall system. Neither Pella Corporation nor the Seller will be bound by any other warranty unless specifically set out in this contract. However, Pella Corporation will not be liable for branch warranties which create obligations in addition to or obligations which are inconsistent with Pella written warranties.

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 your Pella products meet local egress requirements.

Per the manufacturer's limited warranty, unfinished mahogany exterior windows and doors must be finished upon receipt prior to installing and refinished annually, thereafter. Variations in wood grain, color, texture or natural characteristics are not covered under the limited warranty.

INSYNCTIVE PRODUCTS: In addition, Pella Insynctive Products are covered by the Pella Insynctive Products Software License Agreement and Pella Insynctive Products Privacy Policy in effect at the time of sale, which can be found at Insynctive.pella.com. By installing or using Your Insynctive Products you are acknowledging the Insynctive Software Agreement and Privacy Policy are part of the terms of sale.

Notice of Collection of Personal Information: We may collect your personal information when you interact with us. Under the California Consumer Privacy Act (CCPA), California residents have specific rights to request this information, request to delete this information, and opt out of the sharing or sale of this information to third parties. To learn more about our collection practices and your rights under the CCPA please visit our link https://www.pella.com/california-rights-policy/ at pella.com.

# ARBITRATION AND CLASS ACTION WAIVER ("ARBITRATION AGREEMENT")

YOU and Pella and its subsidiaries and the Pella Branded Distributor AGREE TO ARBITRATE DISPUTES ARISING OUT OF OR RELATING TO YOUR PELLA PRODUCTS (INCLUDES PELLA GOODS AND PELLA SERVICES) AND WAIVE THE RIGHT TO HAVE A COURT OR JURY DECIDE DISPUTES. YOU WAIVE ALL RIGHTS TO PROCEED AS A MEMBER OR REPRESENTATIVE OF A CLASS ACTION, INCLUDING CLASS ARBITRATION, REGARDING DISPUTES ARISING OUT OF OR RELATING TO YOUR PELLA PRODUCTS. You may opt out of this Arbitration Agreement by providing notice to Pella no later than ninety (90) calendar days from the date You purchased or otherwise took ownership of Your Pella Goods. To opt out, You must send notice by e-mail to pellawebsupport@pella.com, with the subject line: "Arbitration Opt Out" or by calling (877) 473-5527. Opting out of the Arbitration Agreement will not affect the coverage provided by any applicable limited warranty pertaining to Your Pella Products. For complete information, including the full terms and conditions of this Arbitration Agreement, which are incorporated herein by reference, please visit www.pella.com/arbitration or e-mail to pellawebsupport@pella.com, with the subject line: "Arbitration Details" or call (877) 473-5527. D'ARBITRAGE ET RENONCIATION AU RECOURS COLLECTIF ("convention d'arbitrage") EN FRANÇAIS SEE PELLA.COM/ARBITRATION. DE ARBITRAJE Y RENUNCIA COLECTIVA ("acuerdo de arbitraje") EN ESPAÑOL VER PELLA.COM/ARBITRATION.

Seller shall not be held liable for failure or delay in the performance of its obligations under this Agreement, if such performance is hindered or delayed by the occurrence of an act or event beyond the Seller's reasonable control (force majeure event), including but not limited to earthquakes, unusually severe weather and other Acts of God, fire, strikes and labor unrest, epidemics, riots, war, civil unrest, and government interventions. Seller shall give timely notice of a force majeure event and take such reasonable action to mitigate the impacts of such an event.

# **Product Performance Information:**

U-Factor, Solar Heat Gain Coefficient (SHGC), and Visible Light Transmittance (VLT) are certified by the National Fenestration Rating Council (NFRC).

For more information regarding the finishing, maintenance, service and warranty of all Pella® products, visit the Pella® website at www.pella.com

Manufacturer stipulates that these ratings conform to applicable NFRC procedures for determining whole product performance. NFRC ratings are determined for a fixed set of environmental conditions and a specific product size. NFRC does not recommend any products and does not warrant the suitability of any product for any specific use.

Design Pressure (DP), Performance Class, and Performance Grade (PG) are certified by a third party organization, in many cases the Window and Door Manufacturers Association (WDMA). The certification requires the performance of at least one product of the product line to be tested in accordance with the applicable performance standards and verified by an independent party. The certification indicates that the product(s) of the product line passed the applicable tests. The certification does not apply to mulled and/or product combinations unless noted. Actual product results will vary and change over the products life.

For more performance information along with information on Florida Product Approval System (FPAS) Number and Texas Dept. of Insurance (TDI) number go to www.pella.com/performance.

Including during the construction period, casement windows should never be left open and unlocked for prolong periods or during high wind conditions to avoid sash detachment/damage.

Actual sizes tested for documented STC and OITC ratings may vary from the ASTM E 1425 sizes to better represent Pella product offering.

STC and OITC ratings shown may be conservatively based on products tested with thinner panes of glass.

STC and OITC ratings may be from test results from an equivalent product.

Pella products are covered by Pella's limited warranties in effect at the time of sale. All applicable product warranties are incorporated into and become a part of this contract. Please see the warranties for complete details, taking special note of the two important notice sections regarding installation of Pella products and proper management of moisture within the wall system. Neither Pella Corporation nor PWD, LLC ("Pella Windows and Doors") will be bound by any other warranty unless specifically set out in this contract. However, Pella Corporation will not be liable for branch warranties which create obligations in addition to or obligations which are inconsistent with Pella written warranties.

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 your Pella products meet local egress requirements.

Per the manufacturer's limited warranty, unfinished mahogany exterior windows and doors must be finished upon receipt prior to installing and refinished annually, thereafter. Variations in wood grain, color, texture or natural characteristics are not covered under the limited warranty.

For more information regarding the finishing, maintenance, service and warranty of all Pella® products, visit the Pella® website at www.pella.com

DocuSign Envelope ID: 33CE99BC-31A2-40E7-9AC6-7C732464BA32
CUSIOTHEI: KERIDALI - STRABER RESIDENCE - 1.29.2024 Order Number: 189 Quote Number: 17761034

GENERAL TERMS AND CONDITIONS: ACCEPTANCE: This order is subject to acceptance by an authorized agent of PWD, LLC. PRICING: All quote pricing is valid for a period of 30 days, at which time an adjustment may be made for product offering changes or transportation costs. CHANGES: Product manufactured or in process of manufacturing in accordance with the specifications, as outlined herein, cannot be returned or cancelled. Additional materials or services will be billed at the price prevailing at the time of order. INSPECTION: Buyer should carefully check material upon delivery and report any claim for product shortages or damages within 3 days. TERMS: Payment required with order unless upon approved credit. Net 30 Days on approved credit. Accounts not paid within terms are subject to finance charge of 1 ½% per month which is an annual percentage rate of 18%. LIENS: Claim of Lien is automatically filed on delinquent jobs as required by law. Waivers of Lien (partial, full or conditional) are furnished upon request after payment. PERFORMANCE: Seller shall not be liable for any consequences of delay regardless of cause. INSTALLATION: Products purchased from and installed by seller under the "Retail" program are covered by a two-year limited installation warranty. With the exception of the "Retail" program, seller shall not be liable to buyer for any damages or problems resulting from installation of Pella products. In the event that buyer has been referred to an independent contractor, including a Certified Pella Contractor, buyer assumes full responsibility for all installation matters, including the selection of the contractor. WARRANTY: Pella products are covered by Pella's limited warranties in effect at the time of sale. All applicable product warranties are incorporated into and become a part of this contract. Please see the warranties for complete details. Neither Pella Corporation nor PWD, LLC will be bound by any other warranty.

| Order Checklist   |  |   |
|---|--|---|
| PWD, LLC  |  |   |
| Our #1 Priority is Your Satisfaction!                     |  |   |
| Pella products are made to your specifications, carefully | review the details of this contract as we have a NO        | Return Policy.                            |
| Initial below ALL items that have been verified           |  | •   |
| Brand:  | Brand:   |   |
| Brand:  | Brand:   |   |
| Exterior Color:   | Grilles: (Exterior/Interior)                               |   |
| Interior Stain/Finish:                                    | Glazing/Glass:   |   |
| Blinds/Shades:  | Wall Condition:  |   |
|   |  |   |
|   |  |   |
| Check below ALL items that have been verified/reviewed    | t c  |   |
| Other Product Attributes:                                 |  |   |
| [ ] Reviewed Sizes on Contract                            | [ ] Window Hardware Color                                  |   |
| For more information regarding the finishing r            | maintenance, service and warranty of all Pella® products v | visit the Palla® website at www nella com |

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| · .  | NDALL - STRABER RESIDENCE - 1.29.2024 Order Number: 189                                 | Quote Number: 17761034           |
|--|---|----------------------------------|
|  | [ ] Door Hardware/Key Cylinder  |                                  |
| ] Hinging/Sliding (exterior)                                     | _[]Trim/Casing/Mull Covers<br>[]Tape/Foam/Caulk/Coil/Etc                                |                                  |
|  | _[ ] Line Items Initialed   |                                  |
| Other Items Special to this order:                               |   |                                  |
| [ ] Item#1   | [ ] Item #3   |                                  |
| [ ] Item #2  | [ ] Item #4   |                                  |
| Other Information:   |   |                                  |
| Customer Satisfaction!   | [ ] Product Warranty Reviewed   |                                  |
| [ ] No Return Policy   | [ ] I Have Received Interior Finish Disclaimer  |                                  |
| Delivery Date & Special Instructions                             | [ ] Sales & Service Contact Information Reviewed  |                                  |
| Delivery Confirmation Process & Expectations Reviewed            | [ ] Service Contact Information #866-647-0570   |                                  |
|  | [ ] Accessory Hold Items Reviewed & Date Set  |                                  |
| [ ] Reschedule Fee \$75 if Cancelled within 24 hours of Schedule | ed Delivery [ ] Other<br>osidiaries to use, reproduce, and/or publish photographs and/o |                                  |
|  |   |                                  |
| my project, including materials described below, without comp    | ensation. I understand that this material may be used in variou                         | ıs communications (e.g. Website  |
| newsletters, promotional materials, etc).                        |   |                                  |
|  | aphs, and/or make reference to the project in a manner that th                          | ie Corporation or project sponsc |
| deems appropriate.   |   |                                  |
|  |   |                                  |
|  |   |                                  |
| <del></del>  |   |                                  |
| Comments:  |   |                                  |

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| Customer Name (Please print) | Pella Sales Rep Name (Please print) |
|------------------------------|-------------------------------------|
| Customer Signature           | Pella Sales Rep Signature           |
| Date                         | Date                                |

Credit Card Approval Signature

| Order Totals         |             |
|----------------------|-------------|
| Taxable Subtotal     | \$27,700.76 |
| Sales Tax @ 6%       | \$1,662.05  |
| Non-taxable Subtotal | \$0.00      |
| Total                | \$29,362.81 |
| Deposit Received     | \$0.00      |
| Amount Due           | \$29,362.81 |

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# Pella® Reserve™ Traditional Hung Window

| Product Selection Guide                 |         |
|---|---------|
| Size and Performance Data               | W-HG-2  |
| Features and Options                    | W-HG-3  |
| Combination Assemblies                  | W-HG-4  |
| Glazing Performance                     | W-HG-6  |
| Grille Types                            |         |
| Grille Profiles                         | W-HG-10 |
| Grille Patterns                         | W-HG-11 |
| Size Tables for Double- and Single-Hung | W-HG-12 |
| Cottage Sash Units                      | W-HG-14 |
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| Design Data                             |         |
| Miscellaneous Formulas                  | W-HG-19 |
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| Replacement Units                       | W-HG-25 |
| Detailed Product Descriptions           | W-HG-30 |
| Unit Sections                           |         |
| Wood Collection                         | W-HG-32 |
| Double-, and Single-Hung Clad           | W-HG-33 |
| Single- and Double-Hung Wood            | W-HG-39 |

# **Document Navigation Tips:**

Items listed in the table of contents above are active links that will take you to the corresponding page.

The Pella logo on each page is a link back to this table of contents.

Bookmarks are also included in this PDF document and are available as an additional navigation option.

# Supporting documents for this product:

# Test Reports:

 $https://media.pella.com/professional/adm/CertificationReports/Test\_Reports\_AS-Clad.pdf$ 

## **CSI Specs**

(readable using Microsoft Word or other text editing application):

https://media.pella.com/professional/adm/Wood-CSI\_Specs/08552-R.rtf

# **AIA Masterspec**

(readable using Microsoft Word or other text editing application):

https://media.pella.com/professional/adm/Wood-CSI\_Specs/Masterspec/085200\_fl.doc

# **Detailed Product Description**

(readable using Microsoft Word or other text editing application):

Clad: https://media.pella.com/professional/adm/Clad-Wood/PR-DoubleHung-C.rtf

 $\textbf{Wood:} \ \underline{\textbf{https://media.pella.com/professional/adm/Clad-Wood/PR-DoubleHung-W.rtf}$ 

## Size Tables

(requires appropriate CAD software to read and use):

https://media.pella.com/professional/adm/Clad-Wood/ASCDHEV\_D.dwg

# CAD cross sections

(requires appropriate CAD software to read and use):

 $\pmb{\textbf{Clad:}}\ \underline{\textbf{https://media.pella.com/professional/adm/Clad-Wood/ASRM5DH3\_D.dwg}\\$ 

Wood: https://media.pella.com/professional/adm/Clad-Wood/ASWM4DHRPT3b.dwg

# 3D & BIM

(requires appropriate software to read and use):

 $\label{lem:https://media.pella.com/professional/adm/RevitFiles/PR-Revit/Window-Double\_Hung-Pella-Reserve-Traditional.zip$ 

# Sketchup

(requires appropriate software to read and use):

 $\label{local-bound} $$ $\operatorname{https://media.pella.com/professional/adm/Clad-Wood/PellaSKP_PellaReserve\_Traditional\_Double-Hung.zip $$ $$ $\operatorname{PellaReserve\_Traditional\_PellaRes$ 

# Combination Recommendations:

https://media.pella.com/professional/adm/Clad-Wood/D\_Combinations.pdf

# Installation Details:

 $\underline{https://media.pella.com/professional/adm/Clad-Wood/F\_InstallationDetails.pdf}$ 

# Impact-Resistant Double-Hung, Complete Product Information:

https://media.pella.com/professional/adm/Clad-Wood/Pella-ImpactResistant\_DoubleHung.pdf

# Bay/Bow Details:

 $\underline{\text{https://media.pella.com/professional/adm/Clad-Wood/Pella-Wood\_BayBowWindows.pdf}}$ 

The information published in this document is believed to be accurate at the time of publication. However, because we are constantly working to improve our products, specifications are subject to change without notice. Consult your local Pella representative for up-to-date product information.



#### Size and Performance Data

| Air/Water/Structural Performance <sub>1</sub>                         |                                     |
|---|-------------------------------------|
| Meets or Exceeds AAMA/WDMA Ratings                                    | H-CW30 - CW50<br>Hallmark Certified |
| Air Infiltration (cfm/ft $^2$ of frame @ 1.57 psf wind pressure) $_2$ | 0.11                                |
| Water Resistance  | 4.6 – 7.5 psf                       |
| Design Pressure   | 30 – 50 psf                         |

| Other Performance Criteria   |       |
|--|-------|
| Forced Entry Resistance Level (Minimum Security Grade) 3                                       | 10    |
| Operating Force (lb) Initiate Motion / Maintain Motion (of Hallmark tested size and glazing) 4 | 40/45 |

#### Sound Transmission Class / Outdoor-Indoor Transmission Class

|                  |                        |                                 | Glazing System                 |                                |                         |               |                |  |  |  |
|------------------|------------------------|---------------------------------|--------------------------------|--------------------------------|-------------------------|---------------|----------------|--|--|--|
| Product          | Frame Size<br>Tested 5 | Overall<br>Glazing<br>Thickness | Exterior<br>Glass<br>Thickness | Interior<br>Glass<br>Thickness | Third Pane<br>Thickness | STC<br>Rating | OITC<br>Rating |  |  |  |
| Clad Double-Hung | WITHOUT GRIL           |                                 |                                |                                |                         |               |                |  |  |  |
| Window           | 45" x 65"              | 11/16"                          | 2.5mm                          | 2.5mm 2.5mm                    |                         | 28            | 24             |  |  |  |
|                  | 45" x 65"              | 11/16"                          | 5mm                            | 3mm                            | _                       | 31            | 27             |  |  |  |
| Wood Double-Hung | WITHOUT GRIL           |                                 |                                |                                |                         |               |                |  |  |  |
| Window           | 45" x 65"              | 11/16"                          | 2.5mm                          | 2.5mm                          | -                       | 26            | 22             |  |  |  |
|                  | 45" x 65"              | 11/16"                          | 3mm                            | 3mm                            | _                       | 29            | 24             |  |  |  |

<sup>(-) =</sup> Not Available

<sup>(1)</sup> 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.

<sup>(2)</sup> 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.

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

 $<sup>\</sup>begin{tabular}{ll} (4) & Glazing configurations may result in higher operational forces \\ \end{tabular}$ 

<sup>(5)</sup> 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 Insulating Glass                | _   |
| Insulated Glass Options/Low-E Type        | es  |
|   | SunDefense™ Low-E   |
|   | SunDefense+ Low-E   |
| Advisordly 5                              | AdvancedComfort Low-E   |
| Advanced Low-E                            | NaturalSun Low-E  |
|   | NaturalSun+ Low-E   |
|   | Clear (no Low-E coating)  |
| Additional Glass Options                  |   |
|   | Tempered Glass  |
| Ammadad Class                             | Obscure Glass <sub>1</sub>  |
| Annealed Glass                            | Low-E Tinted Glass (Bronze, Gray and Green)   |
|   | Non-Impact Laminated Dual-Pane Insulating Glass   |
| Gas Fill/High Altitude                    |   |
| Argon                                     | High altitude   |
| Exterior                                  |   |
| Exterior Sash Profile                     |   |
| Ogee                                      | Putty Glaze   |
| Exterior Finish                           |   |
| EnduraClad® aluminum-clad exterior        | EnduraClad Plus protective finish, Factory Primed Pine wood exterior, Unfinished Mahogany wood exterior               |
| Cladding Colors                           |   |
| Standard colors 1                         | Feature Colors, Custom Colors <sub>1</sub>  |
| Interior                                  |   |
|   | Factory primed  |
| Unfinished wood                           | Factory prefinished paint₁  |
|   | Factory prefinished stain <sub>1</sub>  |
| Wood Types                                |   |
| Pine                                      | Mahogany, Douglas Fir   |
| Hardware                                  |   |
| Hardware Types                            |   |
|   | Simulated lock  |
| Sash lifts, Cam-action lock               | Air conditioner lock  |
|   | Historical spoon-style lock (surface mounted)   |
| Hardware Finishes                         |   |
| Champagne, White, Brown or Matte<br>Black | Satin Brass, Satin Nickel, Oil-Rubbed Bronze, Distressed Bronze, Distressed Nickel $_{\rm 4}$                         |
| Tilt-Wash Cleaning                        |   |
| Tilt to interior on both sashes           | ·   |
| Grilles                                   |   |
| Integral Light Technology® Grilles        |   |
| _   | Traditional, Prairie, Top Row, Cross, New England, Victorian, Diamond, Custom   |
| Grilles-Between-the-Glass                 |   |
| _   | Traditional, Prairie, Top Row <sub>1</sub> , Cross, Custom-Equally Divided  |
| Screens                                   |   |
| -   | Integrated Rolscreen® - retractable screen, InView™ screens, in standard roll-form or premium extruded aluminum frame |
|   |   |

#### (-) = Not Available

- (1) Contact your local Pella sales representative for current designs and color options.
- (2) Only available for Pella Reserve products with triple glazing. Not available with high altitude glazing.
- (3) Available with Low-E argon-insulated glass only.
- $(4) \ {\tt Antique\ Brass}, {\tt Distressed\ Nickel}, {\tt Distressed\ Bronze\ finishes\ available\ for\ Historical\ spoon-style\ lock\ only}.$

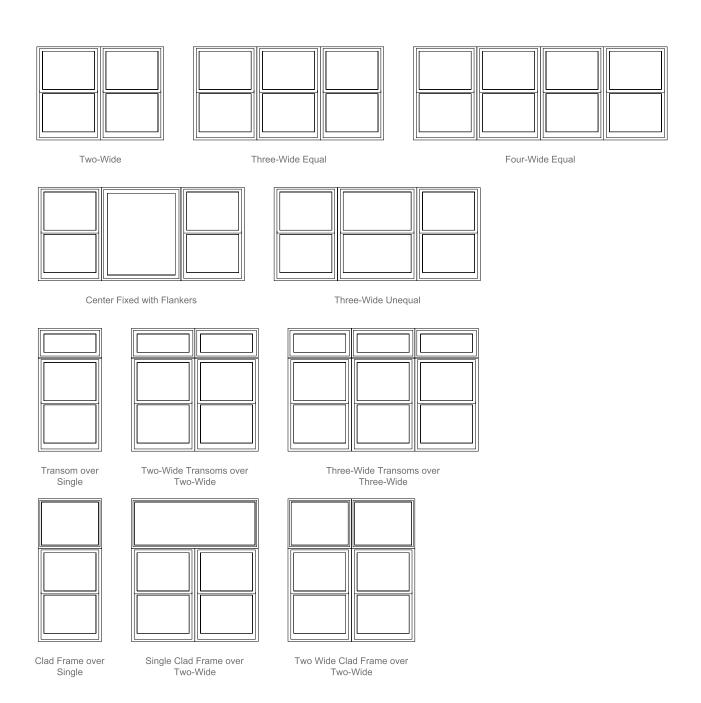


## Combination Assemblies - Rectangular Units

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 some examples of factory-assembled combinations. See the Combinations Recommendations document for typical mullions, requirements and limitations.

Contact your local Pella sales representative for more information.



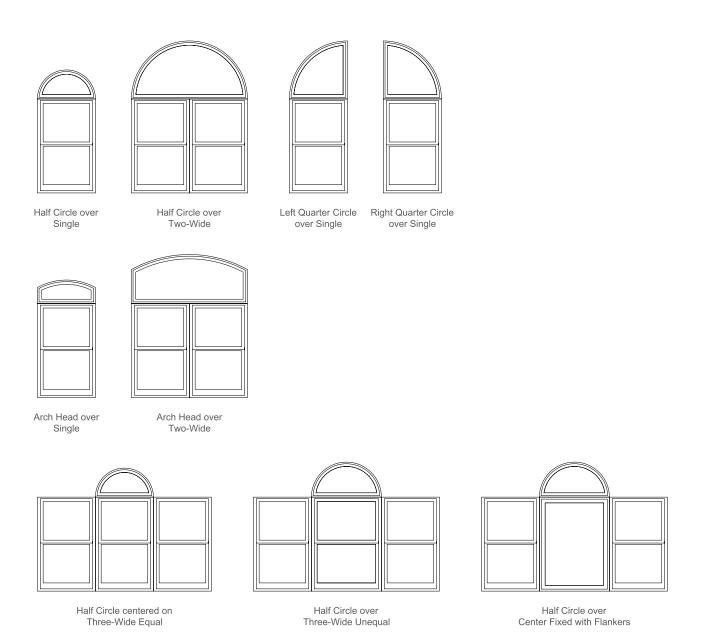


#### Combination Assemblies - Arch Top Units

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 some examples. See the Combinations Recommendations document for typical mullions, requirements and limitations.

Contact your local Pella sales representative for more information.





## Glazing Performance - Total Unit

| gr<br>sse            |                                |                             |      | ass<br>ım) |             | Pe       | rforman | ce Valu | es <sub>1</sub> | Shaded Areas Meet ENERGY STAR®<br>Performance Criteria in Zones Shown |      |    |    |     |       |  |
|----------------------|--------------------------------|-----------------------------|------|------------|-------------|----------|---------|---------|-----------------|---|------|----|----|-----|-------|--|
| Glazing<br>Thickness | Type of Glazing                | NFRC Certified<br>Product # | Ext. | Int.       | Gap<br>Fill | U-Factor | SHGC    | VLT     | R               | U. S.   |      |    |    | Can | ada 2 |  |
|                      |                                |                             |      |            |             | 5        | 꺙       |         |                 |   | Zone |    |    | ER  | Zone  |  |
| Vent                 | Dual-Pane Glazing - Aluminum   | -Clad Exterior              |      |            |             |          |         |         |                 | N   | NC   | SC | S  |     | CA    |  |
| 11/16"               | Clear IG                       | PEL-N-232-01105-00001       | 2.5  | 2.5        | air         | 0.46     | 0.60    | 0.62    | 44              |   |      |    |    |     |       |  |
|                      | with grilles-between-the-glass | PEL-N-232-01106-00001       |      |            |             | 0.46     | 0.53    | 0.55    | 44              |   |      |    |    |     |       |  |
| -                    | with integral grilles          | PEL-N-232-01107-00001       |      |            |             | 0.46     | 0.53    | 0.55    | 44              |   |      |    |    |     |       |  |
| 11/16"               | Clear IG                       | PEL-N-232-01109-00001       | 3    | 3          | air         | 0.46     | 0.58    | 0.61    | 44              |   |      |    |    |     |       |  |
|                      | with grilles-between-the-glass | PEL-N-232-01110-00001       |      |            |             | 0.46     | 0.52    | 0.55    | 44              |   |      |    |    |     |       |  |
|                      | with integral grilles          | PEL-N-232-01111-00001       |      |            |             | 0.46     | 0.52    | 0.55    | 44              |   |      |    |    |     |       |  |
| 11/16"               | Advanced Low-E IG              | PEL-N-232-01141-00001       | 2.5  | 2.5        | argon       | 0.29     | 0.28    | 0.53    | 60              |   |      |    |    |     |       |  |
|                      | with grilles-between-the-glass | PEL-N-232-01142-00001       |      |            |             | 0.29     | 0.25    | 0.47    | 60              |   |      |    |    |     |       |  |
|                      | with integral grilles          | PEL-N-232-01143-00001       |      |            |             | 0.29     | 0.25    | 0.47    | 60              |   |      |    |    |     |       |  |
| 11/16"               | Advanced Low-E IG              | PEL-N-232-01145-00001       | 3    | 3          | argon       | 0.29     | 0.28    | 0.52    | 59              |   |      |    |    |     |       |  |
|                      | with grilles-between-the-glass | PEL-N-232-01146-00001       |      |            |             | 0.29     | 0.25    | 0.46    | 59              |   |      |    |    |     |       |  |
|                      | with integral grilles          | PEL-N-232-01147-00001       |      |            |             | 0.29     | 0.25    | 0.46    | 59              |   |      |    |    |     |       |  |
| 11/16"               | SunDefense™ Low-E IG           | PEL-N-232-01189-00001       | 2.5  | 2.5        | argon       | 0.28     | 0.21    | 0.49    | 60              |   |      | SC | S  |     |       |  |
|                      | with grilles-between-the-glass | PEL-N-232-01190-00001       |      |            |             | 0.28     | 0.19    | 0.43    | 60              |   |      | SC | S  |     |       |  |
|                      | with integral grilles          | PEL-N-232-01191-00001       |      |            |             | 0.29     | 0.19    | 0.43    | 60              |   |      |    | S  |     |       |  |
| 11/16"               | SunDefense™ Low-E IG           | PEL-N-232-01193-00001       | 3    | 3          | argon       | 0.28     | 0.21    | 0.48    | 59              |   | SC S |    |    |     |       |  |
|                      | with grilles-between-the-glass | PEL-N-232-01194-00001       |      |            |             | 0.28     | 0.19    | 0.43    | 59              |   |      | SC | S  |     |       |  |
|                      | with integral grilles          | PEL-N-232-01195-00001       |      |            |             | 0.29     | 0.19    | 0.43    | 59              | S   |      |    |    |     |       |  |
| 11/16"               | SunDefense+ Low-E IG           | PEL-N-232-01813-00001       | 2.5  | 2.5        | argon       | 0.25     | 0.20    | 0.48    | 49              |   | NC   | SC | S  |     |       |  |
| -                    | with grilles-between-the-glass | PEL-N-232-01814-00001       |      |            |             | 0.25     | 0.18    | 0.42    | 49              |   | NC   | SC | S  |     |       |  |
|                      | with integral grilles          | PEL-N-232-01815-00001       |      |            |             | 0.25     | 0.18    | 0.42    | 49              |   | NC   | SC | S  |     |       |  |
| 11/16"               | SunDefense+ Low-E IG           | PEL-N-232-01821-00001       | 3    | 3          | argon       | 0.25     | 0.20    | 0.47    | 48              |   | NC   | SC | S  |     |       |  |
|                      | with grilles-between-the-glass | PEL-N-232-01822-00001       |      |            |             | 0.25     | 0.18    | 0.42    | 48              |   | NC   | SC | S  |     |       |  |
|                      | with integral grilles          | PEL-N-232-01823-00001       |      |            |             | 0.26     | 0.18    | 0.42    | 48              |   |      | SC | S  |     |       |  |
| 11/16"               | AdvancedComfort Low-E IG       | PEL-N-232-01165-00001       | 2.5  | 2.5        | argon       | 0.25     | 0.28    | 0.52    | 48              |   | NC   |    |    |     |       |  |
|                      | with grilles-between-the-glass | PEL-N-232-01166-00001       |      |            |             | 0.25     | 0.25    | 0.46    | 48              |   | NC   |    |    |     |       |  |
|                      | with integral grilles          | PEL-N-232-01167-00001       |      |            |             | 0.26     | 0.25    | 0.46    | 48              |   |      |    |    |     |       |  |
| 11/16"               | AdvancedComfort Low-E IG       | PEL-N-232-01169-00001       | 3    | 3          | argon       | 0.25     | 0.27    | 0.51    | 47              |   | NC   |    |    |     |       |  |
|                      | with grilles-between-the-glass | PEL-N-232-01170-00001       |      |            |             | 0.25     | 0.25    | 0.45    | 47              |   | NC   |    |    |     |       |  |
|                      | with integral grilles          | PEL-N-232-01171-00001       |      |            |             | 0.26     | 0.25    | 0.45    | 47              |   |      |    |    |     |       |  |
| 11/16"               | NaturalSun Low-E IG            | PEL-N-232-01117-00001       | 2.5  | 2.5        | argon       | 0.30     | 0.52    | 0.60    | 59              |   |      |    |    |     |       |  |
|                      | with grilles-between-the-glass | PEL-N-232-01118-00001       |      |            |             | 0.30     | 0.47    | 0.53    | 59              |   |      |    |    |     |       |  |
|                      | with integral grilles          | PEL-N-232-01119-00001       |      |            |             | 0.30     | 0.47    | 0.53    | 59              |   |      |    |    |     |       |  |
| 11/16"               | NaturalSun Low-E IG            | PEL-N-232-01121-00001       | 3    | 3          | argon       | 0.30     | 0.52    | 0.59    | 58              |   |      |    |    |     |       |  |
|                      | with grilles-between-the-glass | PEL-N-232-01122-00001       |      |            |             | 0.30     | 0.46    | 0.53    | 58              |   |      |    |    |     |       |  |
|                      | with integral grilles          | PEL-N-232-01123-00001       |      |            |             | 0.30     | 0.46    | 0.53    | 58              |   |      |    |    |     |       |  |
| 11/16"               | NaturalSun+ Low-E IG           | PEL-N-232-01781-00001       | 2.5  | 2.5        | argon       | 0.26     | 0.48    | 0.58    | 47              | N   |      | 35 | CA |     |       |  |
|                      | with grilles-between-the-glass | PEL-N-232-01782-00001       |      |            |             | 0.26     | 0.43    | 0.52    | 47              | 7 N   |      |    |    |     |       |  |
|                      | with integral grilles          | PEL-N-232-01783-00001       |      |            |             | 0.27     | 0.43    | 0.52    | 47              |   |      |    |    |     |       |  |
| 11/16"               | NaturalSun+ Low-E IG           | PEL-N-232-01789-00001       | 3    | 3          | argon       | 0.26     | 0.47    | 0.58    | 46              | N   |      |    |    | 34  | CA    |  |
|                      | with grilles-between-the-glass | PEL-N-232-01790-00001       |      |            |             | 0.26     | 0.42    | 0.51    | 46              | 6 N   |      |    |    |     |       |  |
|                      | with integral grilles          | PEL-N-232-01791-00001       |      |            |             | 0.26     | 0.42    | 0.51    | 46              | 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 for Pine using NFRC 100, NFRC 200 and NFRC 500. Thermal performance of other wood species may vary. ENERGY STAR® values are updated to 2023 (Version 7) criteria.

(2) The values shown are based on Canada's updated ENERGY STAR  $^{\!\circ}$  2020 initiative.

 $\label{thm:continuous} \mbox{Visit www.energystar.gov for Energy Star guidelines}.$ 





## Glazing Performance - Total Unit

| gr<br>ess            | S S S S S S S S S S S S S S S S S S S | NEDGO VII                   | l .   | ass<br>ım) |             | Pe       | rforman  | nce Valu | es <sub>1</sub> |          | Shaded Areas Meet ENERGY STAR®<br>Performance Criteria in Zones Shown |    |         |             |          |  |
|----------------------|---------------------------------------|-----------------------------|-------|------------|-------------|----------|----------|----------|-----------------|----------|---|----|---------|-------------|----------|--|
| Glazing<br>Thickness | Type of Glazing                       | NFRC Certified<br>Product # | Ext.  | Int.       | Gap<br>Fill | U-Factor | SHGC     | VLT      | CR              |          | U.  | S. |         | Can         | ada 2    |  |
|                      |                                       |                             | LAL   |            |             | J.       | <u> </u> | >        |                 |          | Zo  | ne |         | ER          | Zone     |  |
| Tinte                | d Glazing                             |                             |       |            |             |          |          |          |                 | N        | NC  | SC | S       |             | CA       |  |
| 11/16"               | Bronze Advanced Low-E IG              | PEL-N-232-01225-00002       | 5     | 3          | argon       | 0.29     | 0.25     | 0.34     | 58              |          |   |    |         |             |          |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01226-00002       |       |            |             | 0.31     | 0.23     | 0.30     | 58              |          |   |    | S       |             |          |  |
|                      | with integral grilles                 | PEL-N-232-01227-00002       |       |            |             | 0.30     | 0.23     | 0.30     | 58              |          |   |    | S       |             |          |  |
| 11/16"               | Gray Advanced Low-E IG                | PEL-N-232-01225-00003       | 5     | 3          | argon       | 0.29     | 0.23     | 0.29     | 58              |          |   |    | S       |             |          |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01226-00003       |       |            |             | 0.31     | 0.21     | 0.26     | 58              |          |   |    | S       |             |          |  |
|                      | with integral grilles                 | PEL-N-232-01227-00003       |       |            |             | 0.30     | 0.21     | 0.26     | 58              |          |   |    | S       |             |          |  |
| 11/16"               | Green Advanced Low-E IG               | PEL-N-232-01225-00004       | 5     | 3          | argon       | 0.29     | 0.28     | 0.46     | 58              |          |   |    |         |             |          |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01226-00004       |       |            |             | 0.31     | 0.25     | 0.41     | 58              |          |   |    |         |             |          |  |
|                      | with integral grilles                 | PEL-N-232-01227-00004       |       |            |             | 0.30     | 0.25     | 0.41     | 58              |          |   |    |         | L           |          |  |
| Vent                 | Dual-Pane High Altitude Glazi         | ng - Aluminum-Clad Ext      | erior |            |             |          |          |          |                 |          |   |    |         |             |          |  |
| 11/16"               | Advanced Low-E IG                     | PEL-N-232-01153-00001       | 2.5   | 2.5        | air         | 0.32     | 0.28     | 0.53     | 56              |          |   |    |         |             |          |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01154-00001       |       |            |             | 0.32     | 0.25     | 0.47     | 56              |          |   |    |         |             |          |  |
|                      | with integral grilles                 | PEL-N-232-01155-00001       |       |            |             | 0.33     | 0.25     | 0.47     | 56              |          |   |    |         |             |          |  |
| 11/16"               | Advanced Low-E IG                     | PEL-N-232-01157-00001       | 3     | 3          | air         | 0.32     | 0.28     | 0.52     | 55              |          |   |    |         |             |          |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01158-00001       |       |            |             | 0.32     | 0.25     | 0.46     | 55              |          |   |    |         |             |          |  |
|                      | with integral grilles                 | PEL-N-232-01159-00001       |       |            |             | 0.33     | 0.25     | 0.46     | 55              |          |   |    |         |             |          |  |
| 11/16"               | SunDefense™ Low-E IG                  | PEL-N-232-01201-00001       | 2.5   | 2.5        | air         | 0.32     | 0.21     | 0.49     | 56              |          |   |    | S       |             |          |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01202-00001       |       |            |             | 0.32     | 0.19     | 0.43     | 56              | S        |   |    |         |             |          |  |
|                      | with integral grilles                 | PEL-N-232-01203-00001       |       |            |             | 0.33     | 0.19     | 0.43     | 56              |          |   |    | S       |             | <u> </u> |  |
| 11/16"               | SunDefense™ Low-E IG                  | PEL-N-232-01205-00001       | 3     | 3          | air         | 0.32     | 0.21     | 0.48     | 55              |          |   |    | S       |             | <u> </u> |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01206-00001       |       |            |             | 0.32     | 0.19     | 0.43     | 55              |          |   |    | S       |             | <u> </u> |  |
|                      | with integral grilles                 | PEL-N-232-01207-00001       |       |            |             | 0.33     | 0.19     | 0.43     | 55              |          |   |    |         |             | <u> </u> |  |
| 11/16"               | SunDefense+ Low-E IG                  | PEL-N-232-01809-00001       | 2.5   | 2.5        | air         | 0.27     | 0.21     | 0.48     | 44              |          |   | SC | S       |             | <u> </u> |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01810-00001       |       |            |             | 0.27     | 0.19     | 0.42     | 44              |          |   | SC | S       |             |          |  |
|                      | with integral grilles                 | PEL-N-232-01811-00001       |       |            |             | 0.28     | 0.19     | 0.42     | 44              |          |   | SC | S       |             |          |  |
| 11/16"               | SunDefense+ Low-E IG                  | PEL-N-232-01817-00001       | 3     | 3          | air         | 0.27     | 0.21     | 0.47     | 44              |          |   | SC | S       |             |          |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01818-00001       |       |            |             | 0.27     | 0.19     | 0.42     | 44              |          |   | SC | S       |             | <u> </u> |  |
|                      | with integral grilles                 | PEL-N-232-01819-00001       |       |            |             | 0.28     | 0.19     | 0.42     | 43              |          |   | SC | S       |             | <u> </u> |  |
| 11/16"               | AdvancedComfort Low-E IG              | PEL-N-232-01177-00001       | 2.5   | 2.5        | air         | 0.27     | 0.28     | 0.52     | 44              |          |   |    |         |             | <u> </u> |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01178-00001       |       |            |             | 0.27     | 0.25     | 0.46     | 44              |          |   |    |         | L           | <u> </u> |  |
|                      | with integral grilles                 | PEL-N-232-01179-00001       |       |            |             | 0.28     | 0.25     | 0.46     | 44              |          |   |    |         | Ь—          | <u> </u> |  |
| 11/16"               | AdvancedComfort Low-E IG              | PEL-N-232-01181-00001       | 3     | 3          | air         | 0.28     | 0.27     | 0.51     | 43              |          |   |    |         | Ь—          |          |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01182-00001       |       |            |             | 0.28     | 0.25     | 0.45     | 43              |          |   |    |         | <u> </u>    |          |  |
|                      | with integral grilles                 | PEL-N-232-01183-00001       |       |            |             | 0.28     | 0.25     | 0.45     | 43              |          |   |    |         | <u> </u>    |          |  |
| 11/16"               | NaturalSun Low-E IG                   | PEL-N-232-01129-00001       | 2.5   | 2.5        | air         | 0.33     | 0.52     | 0.60     | 56              |          |   |    |         | ــــــ      |          |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01130-00001       |       |            |             | 0.33     | 0.47     | 0.53     | 56              |          |   |    |         | ــــــ      | <u> </u> |  |
|                      | with integral grilles                 | PEL-N-232-01131-00001       |       |            |             | 0.34     | 0.47     | 0.53     | 55              |          |   |    |         | <b>├</b>    | <u> </u> |  |
| 11/16"               | NaturalSun Low-E IG                   | PEL-N-232-01133-00001       | 3     | 3          | air         | 0.33     | 0.51     | 0.59     | 55              |          |   |    |         | <u> </u>    | <u> </u> |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01134-00001       |       |            |             | 0.33     | 0.46     | 0.52     | 55              |          |   | —  | <b></b> |             |          |  |
|                      | with integral grilles                 | PEL-N-232-01135-00001       |       |            |             | 0.34     | 0.46     | 0.52     | 55              | 4        |   | ├  | <b></b> |             |          |  |
| 11/16"               | NaturalSun+ Low-E IG                  | PEL-N-232-01777-00001       | 2.5   | 2.5        | air         | 0.28     | 0.48     | 0.58     | 43              |          |   | —  | <b></b> |             |          |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01778-00001       |       |            |             | 0.28     | 0.43     | 0.52     | 43              |          |   | —  | <b></b> |             |          |  |
|                      | with integral grilles                 | PEL-N-232-01779-00001       |       |            |             | 0.29     | 0.43     | 0.52     | 43              |          |   | —  | <b></b> |             |          |  |
| 11/16"               | NaturalSun+ Low-E IG                  | PEL-N-232-01785-00001       | 3     | 3          | air         | 0.28     | 0.47     | 0.58     | 43              |          |   | —  | <b></b> |             |          |  |
|                      | with grilles-between-the-glass        | PEL-N-232-01786-00001       |       |            |             | 0.28     | 0.42     | 0.51     | 43              | <u> </u> |   |    |         | <b>├</b> ── | <b></b>  |  |
|                      | with integral grilles                 | PEL-N-232-01787-00001       |       |            |             | 0.29     | 0.42     | 0.51     | 42              | l        |   |    |         | l           | l        |  |

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 for Pine using NFRC 100, NFRC 200 and NFRC 500. Thermal performance of other wood species may vary. ENERGY STAR $^{\circ}$  values are updated to 2023 (Version 7) criteria.

(2) The values shown are based on Canada's updated ENERGY STAR  $^{\!\circ}$  2020 initiative.

 $\label{thm:continuous} \mbox{Visit www.energystar.gov for Energy Star guidelines}.$ 





## Glazing Performance - Total Unit

| ess                  |                                |   |      | ass<br>nm) |             | Pe       | rformar  | ıce Valu | es <sub>1</sub> | Shaded Areas Meet ENERGY STAR®<br>Performance Criteria in Zones Shown |      |    |    |          |          |
|----------------------|--------------------------------|---|------|------------|-------------|----------|----------|----------|-----------------|---|------|----|----|----------|----------|
| Glazing<br>Thickness | Type of Glazing                | NFRC Certified<br>Product #             | Ext. | Int.       | Gap<br>Fill | U-Factor | SHGC     | VLT      | CR              |   | U.   | S. |    | Can      | ada 2    |
|                      |                                |   | -/   |            |             |          | <u>2</u> | >        |                 |   | Zone |    |    | ER       | Zone     |
| Vent                 | Dual-Pane Glazing - Wood Ext   | xterior                                 |      |            |             |          |          |          |                 | N   | NC   | SC | S  |          | CA       |
| 11/16"               | Clear IG                       | PEL-N-234-01105-00001                   | 2.5  | 2.5        | air         | 0.45     | 0.60     | 0.62     | 44              |   |      |    |    |          |          |
|                      | with grilles-between-the-glass | PEL-N-234-01106-00001                   |      |            |             | 0.45     | 0.54     | 0.56     | 44              |   |      |    |    |          |          |
|                      | with integral grilles          | PEL-N-234-01107-00001                   |      |            |             | 0.45     | 0.54     | 0.56     | 44              |   |      |    |    |          |          |
| 11/16"               | Clear IG                       | PEL-N-234-01109-00001                   | 3    | 3          | air         | 0.45     | 0.59     | 0.62     | 43              |   |      |    |    |          |          |
|                      | with grilles-between-the-glass | PEL-N-234-01110-00001                   |      |            |             | 0.45     | 0.53     | 0.55     | 43              |   |      |    |    |          |          |
|                      | with integral grilles          | PEL-N-234-01111-00001                   |      |            |             | 0.46     | 0.53     | 0.55     | 43              |   |      |    |    |          |          |
| 11/16"               | Advanced Low-E IG              | PEL-N-234-01141-00001                   | 2.5  | 2.5        | argon       | 0.28     | 0.28     | 0.53     | 59              |   |      |    |    |          |          |
|                      | with grilles-between-the-glass | PEL-N-234-01142-00001                   |      |            |             | 0.28     | 0.25     | 0.47     | 59              |   |      |    |    |          |          |
|                      | with integral grilles          | PEL-N-234-01143-00001                   |      |            |             | 0.29     | 0.25     | 0.47     | 59              |   |      |    |    |          |          |
| 11/16"               | Advanced Low-E IG              | PEL-N-234-01145-00001                   | 3    | 3          | argon       | 0.28     | 0.28     | 0.52     | 58              |   |      |    |    |          |          |
|                      | with grilles-between-the-glass | PEL-N-234-01146-00001                   |      |            |             | 0.28     | 0.25     | 0.47     | 58              |   |      |    |    |          |          |
|                      | with integral grilles          | PEL-N-234-01147-00001                   |      |            |             | 0.29     | 0.25     | 0.47     | 58              |   |      |    |    |          |          |
| 11/16"               | SunDefense™ Low-E IG           | PEL-N-234-01189-00001                   | 2.5  | 2.5        | argon       | 0.28     | 0.21     | 0.49     | 60              |   |      | SC | S  |          |          |
|                      | with grilles-between-the-glass | PEL-N-234-01190-00001                   |      |            |             | 0.28     | 0.19     | 0.44     | 60              |   |      | SC | S  |          |          |
|                      | with integral grilles          | PEL-N-234-01191-00001                   |      |            |             | 0.28     | 0.19     | 0.44     | 60              |   |      | SC | S  |          |          |
| 11/16"               | SunDefense™ Low-E IG           | PEL-N-234-01193-00001                   | 3    | 3          | argon       | 0.28     | 0.21     | 0.49     | 59              |   | SC S |    |    |          |          |
|                      | with grilles-between-the-glass | PEL-N-234-01194-00001                   |      |            |             | 0.28     | 0.19     | 0.43     | 59              |   |      | SC | S  |          |          |
|                      | with integral grilles          | PEL-N-234-01195-00001                   |      |            |             | 0.28     | 0.19     | 0.43     | 59              |   |      | SC | S  |          |          |
| 11/16"               | SunDefense+ Low-E IG           | PEL-N-234-01813-00001                   | 2.5  | 2.5        | argon       | 0.24     | 0.21     | 0.48     | 49              |   | NC   | SC | S  |          |          |
|                      | with grilles-between-the-glass | PEL-N-234-01814-00001                   |      |            |             | 0.24     | 0.19     | 0.43     | 49              |   | NC   | SC | S  |          |          |
|                      | with integral grilles          | PEL-N-234-01815-00001                   |      |            |             | 0.25     | 0.19     | 0.43     | 49              |   | NC   | SC | S  |          |          |
| 11/16"               | SunDefense+ Low-E IG           | PEL-N-234-01821-00001                   | 3    | 3          | argon       | 0.24     | 0.21     | 0.47     | 47              |   | NC   | SC | S  |          |          |
|                      | with grilles-between-the-glass | PEL-N-234-01822-00001                   |      |            |             | 0.24     | 0.19     | 0.42     | 47              |   | NC   | SC | S  |          |          |
|                      | with integral grilles          | PEL-N-234-01823-00001                   |      |            |             | 0.25     | 0.19     | 0.42     | 47              |   | NC   | SC | S  |          |          |
| 11/16"               | AdvancedComfort Low-E IG       | PEL-N-234-01165-00001                   | 2.5  | 2.5        | argon       | 0.24     | 0.28     | 0.52     | 48              |   | NC   |    |    |          |          |
|                      | with grilles-between-the-glass | PEL-N-234-01166-00001                   |      |            |             | 0.24     | 0.25     | 0.46     | 48              |   | NC   |    |    |          |          |
|                      | with integral grilles          | PEL-N-234-01167-00001                   |      |            |             | 0.25     | 0.25     | 0.46     | 48              |   | NC   |    |    |          |          |
| 11/16"               | AdvancedComfort Low-E IG       | PEL-N-234-01169-00001                   | 3    | 3          | argon       | 0.24     | 0.28     | 0.51     | 47              |   | NC   |    |    |          |          |
|                      | with grilles-between-the-glass | PEL-N-234-01170-00001                   |      |            |             | 0.24     | 0.25     | 0.46     | 47              |   | NC   |    |    |          |          |
|                      | with integral grilles          | PEL-N-234-01171-00001                   |      |            |             | 0.25     | 0.25     | 0.46     | 47              |   | NC   |    |    |          |          |
| 11/16"               | NaturalSun Low-E IG            | PEL-N-234-01117-00001                   | 2.5  | 2.5        | argon       | 0.29     | 0.53     | 0.60     | 59              |   |      |    |    | 34       | CA       |
|                      | with grilles-between-the-glass | PEL-N-234-01118-00001                   |      |            |             | 0.29     | 0.47     | 0.53     | 59              |   |      |    |    |          |          |
|                      | with integral grilles          | PEL-N-234-01119-00001                   |      |            |             | 0.30     | 0.47     | 0.53     | 59              |   |      |    |    |          |          |
| 11/16"               | NaturalSun Low-E IG            | PEL-N-234-01121-00001                   | 3    | 3          | argon       | 0.29     | 0.52     | 0.59     | 58              |   |      |    |    |          | <u> </u> |
|                      | with grilles-between-the-glass | PEL-N-234-01122-00001                   |      |            |             | 0.29     | 0.46     | 0.53     | 58              |   |      |    |    |          |          |
|                      | with integral grilles          | PEL-N-234-01123-00001                   |      |            |             | 0.30     | 0.46     | 0.53     | 58              |   |      |    |    |          |          |
| 11/16"               | NaturalSun+ Low-E IG           | PEL-N-234-01781-00001                   | 2.5  | 2.5        | argon       | 0.25     | 0.48     | 0.59     | 47              | 7 N   |      | 36 | CA |          |          |
|                      | with grilles-between-the-glass | between-the-glass PEL-N-234-01782-00001 |      |            |             | 0.25     | 0.43     | 0.52     | 47              | N   |      |    |    |          |          |
|                      | with integral grilles          | PEL-N-234-01783-00001                   |      |            |             | 0.26     | 0.43     | 0.52     | 47              |   |      |    |    |          |          |
| 11/16"               | NaturalSun+ Low-E IG           | PEL-N-234-01789-00001                   | 3    | 3          | argon       | 0.25     | 0.47     | 0.58     | 46              | N   |      |    |    | 35       | CA       |
|                      | with grilles-between-the-glass | PEL-N-234-01790-00001                   |      |            |             | 0.25     | 0.42     | 0.52     | 46              | N   |      |    |    | <u> </u> | <u> </u> |
|                      | with integral grilles          | PEL-N-234-01791-00001                   |      |            |             | 0.26     | 0.42     | 0.52     | 46              | N   |      |    |    |          | l        |

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

 $\label{thm:continuous} \mbox{Visit www.energystar.gov for Energy Star guidelines}.$ 



<sup>(1)</sup> Glazing performance values are calculated for Pine using NFRC 100, NFRC 200 and NFRC 500. Thermal performance of other wood species may vary. ENERGY STAR® values are updated to 2023 (Version 7) criteria.

<sup>(2)</sup> The values shown are based on Canada's updated ENERGY STAR  $^{\!\circ}$  2020 initiative.



## Glazing Performance - Total Unit

| sse<br>sse           |                                |                             |      | ass<br>ım) | Gap         | Performance Values <sub>1</sub> |          |      |    | Shaded Areas Meet ENERGY STAR®<br>Performance Criteria in Zones Shown |    |    |          |     |               |  |
|----------------------|--------------------------------|-----------------------------|------|------------|-------------|---------------------------------|----------|------|----|---|----|----|----------|-----|---------------|--|
| Glazing<br>Thickness | Type of Glazing                | NFRC Certified<br>Product # | Ext. | Int.       | Gap<br>Fill | U-Factor                        | SHGC     | VLT  | 8  |   | U. | S. |          | Can | nada 2        |  |
|                      |                                |                             |      |            |             |                                 | <u>p</u> | >    |    |   | Zo | ne |          | ER  | Zone          |  |
| Tinte                | d Glazing                      |                             |      |            |             |                                 |          |      |    | N   | NC | SC | S        |     | CA            |  |
| 11/16"               | Bronze Advanced Low-E IG       | PEL-N-234-01225-00002       | 5    | 3          | argon       | 0.29                            | 0.25     | 0.34 | 57 |   |    |    |          |     |               |  |
|                      | with grilles-between-the-glass | PEL-N-234-01226-00002       |      |            |             | 0.30                            | 0.23     | 0.30 | 57 |   |    |    | S        |     |               |  |
|                      | with integral grilles          | PEL-N-234-01227-00002       |      |            |             | 0.30                            | 0.23     | 0.30 | 57 |   |    |    | S        |     |               |  |
| 11/16"               | Gray Advanced Low-E IG         | PEL-N-234-01225-00003       | 5    | 3          | argon       | 0.29                            | 0.23     | 0.29 | 57 |   |    |    | S        |     |               |  |
|                      | with grilles-between-the-glass | PEL-N-234-01226-00003       |      |            |             | 0.30                            | 0.21     | 0.26 | 57 |   |    |    | S        |     |               |  |
|                      | with integral grilles          | PEL-N-234-01227-00003       |      |            |             | 0.30                            | 0.21     | 0.26 | 57 |   |    |    | S        |     |               |  |
| 11/16"               | Green Advanced Low-E IG        | PEL-N-234-01225-00004       | 5    | 3          | argon       | 0.29                            | 0.28     | 0.46 | 57 |   |    |    |          |     |               |  |
|                      | with grilles-between-the-glass | PEL-N-234-01226-00004       |      |            |             | 0.30                            | 0.25     | 0.41 | 57 |   |    |    |          | I   |               |  |
|                      | with integral grilles          | PEL-N-234-01227-00004       |      |            |             | 0.30                            | 0.25     | 0.41 | 57 |   |    |    |          |     |               |  |
| Vent                 | Dual-Pane High Altitude Glazi  | ng - Wood Exterior          |      |            |             |                                 |          |      |    |   |    |    |          |     |               |  |
| 11/16"               | Advanced Low-E IG              | PEL-N-234-01153-00001       | 2.5  | 2.5        | air         | 0.31                            | 0.28     | 0.53 | 56 |   |    |    |          |     |               |  |
|                      | with grilles-between-the-glass | PEL-N-234-01154-00001       |      |            |             | 0.31                            | 0.26     | 0.47 | 56 |   |    |    |          |     |               |  |
|                      | with integral grilles          | PEL-N-234-01155-00001       |      |            |             | 0.32                            | 0.26     | 0.47 | 56 |   |    |    |          | 1   | 1             |  |
| 11/16"               | Advanced Low-E IG              | PEL-N-234-01157-00001       | 3    | 3          | air         | 0.32                            | 0.28     | 0.52 | 55 |   |    |    |          | 1   | 1             |  |
|                      | with grilles-between-the-glass | PEL-N-234-01158-00001       |      |            |             | 0.32                            | 0.26     | 0.47 | 55 | i i   |    |    |          | 1   |               |  |
|                      | with integral grilles          | PEL-N-234-01159-00001       |      |            |             | 0.33                            | 0.26     | 0.47 | 55 |   |    |    |          | 1   |               |  |
| 11/16"               | SunDefense™ Low-E IG           | PEL-N-234-01201-00001       | 2.5  | 2.5        | air         | 0.31                            | 0.21     | 0.49 | 56 | İ   |    |    | S        |     |               |  |
|                      | with grilles-between-the-glass | PEL-N-234-01202-00001       |      |            |             | 0.31                            | 0.19     | 0.44 | 56 |   |    |    | S        |     | T             |  |
|                      | with integral grilles          | PEL-N-234-01203-00001       |      |            |             | 0.32                            | 0.19     | 0.44 | 56 | i   |    |    | S        |     | 1             |  |
| 11/16"               | SunDefense™ Low-E IG           | PEL-N-234-01205-00001       | 3    | 3          | air         | 0.31                            | 0.21     | 0.49 | 55 |   |    |    | S        |     |               |  |
|                      | with grilles-between-the-glass | PEL-N-234-01206-00001       |      |            |             | 0.31                            | 0.19     | 0.43 | 55 |   |    |    | S        |     | 1             |  |
|                      | with integral grilles          | PEL-N-234-01207-00001       |      |            |             | 0.32                            | 0.19     | 0.43 | 55 |   |    |    | S        |     | 1             |  |
| 11/16"               | SunDefense+ Low-E IG           | PEL-N-234-01809-00001       | 2.5  | 2.5        | air         | 0.26                            | 0.21     | 0.48 | 45 |   |    | SC | S        |     |               |  |
|                      | with grilles-between-the-glass | PEL-N-234-01810-00001       |      |            |             | 0.26                            | 0.19     | 0.43 | 45 |   |    | SC | S        |     | $\overline{}$ |  |
|                      | with integral grilles          | PEL-N-234-01811-00001       |      |            |             | 0.27                            | 0.19     | 0.43 | 45 |   |    | SC | S        |     | $\overline{}$ |  |
| 11/16"               | SunDefense+ Low-E IG           | PEL-N-234-01817-00001       | 3    | 3          | air         | 0.27                            | 0.21     | 0.47 | 43 |   |    | SC | S        |     | $\vdash$      |  |
|                      | with grilles-between-the-glass | PEL-N-234-01818-00001       |      |            |             | 0.27                            | 0.19     | 0.42 | 43 |   |    | SC | S        |     | $\vdash$      |  |
|                      | with integral grilles          | PEL-N-234-01819-00001       |      |            |             | 0.28                            | 0.19     | 0.42 | 43 |   |    | SC | S        |     | $\vdash$      |  |
| 11/16"               | AdvancedComfort Low-E IG       | PEL-N-234-01177-00001       | 2.5  | 2.5        | air         | 0.27                            | 0.28     | 0.52 | 44 |   |    |    |          | 1   | 1             |  |
|                      | with grilles-between-the-glass | PEL-N-234-01178-00001       |      |            |             | 0.27                            | 0.25     | 0.46 | 44 |   |    |    |          | 1   | 1             |  |
|                      | with integral grilles          | PEL-N-234-01179-00001       |      |            |             | 0.27                            | 0.25     | 0.46 | 44 |   |    |    |          | 1   |               |  |
| 11/16"               | AdvancedComfort Low-E IG       | PEL-N-234-01181-00001       | 3    | 3          | air         | 0.27                            | 0.28     | 0.51 | 43 |   |    |    |          | 1   |               |  |
|                      | with grilles-between-the-glass | PEL-N-234-01182-00001       |      |            |             | 0.27                            | 0.25     | 0.46 | 43 |   |    |    |          | t   | 1             |  |
|                      | with integral grilles          | PEL-N-234-01183-00001       |      |            |             | 0.28                            | 0.25     | 0.46 | 43 |   |    |    |          | t   | 1             |  |
| 11/16"               | NaturalSun Low-E IG            | PEL-N-234-01129-00001       | 2.5  | 2.5        | air         | 0.32                            | 0.53     | 0.60 | 55 | i   |    |    |          | t   | T             |  |
|                      | with grilles-between-the-glass | PEL-N-234-01130-00001       |      |            |             | 0.32                            | 0.47     | 0.53 | 55 |   |    |    |          | 1   |               |  |
|                      | with integral grilles          | PEL-N-234-01131-00001       |      |            |             | 0.33                            | 0.47     | 0.53 | 55 |   |    |    |          | 1   |               |  |
| 11/16"               | NaturalSun Low-E IG            | PEL-N-234-01133-00001       | 3    | 3          | air         | 0.33                            | 0.52     | 0.59 | 54 | İ   |    |    |          | 1   | t             |  |
|                      | with grilles-between-the-glass | PEL-N-234-01134-00001       |      |            |             | 0.33                            | 0.46     | 0.53 | 54 |   |    |    |          |     | 1             |  |
|                      | with integral grilles          | PEL-N-234-01135-00001       |      |            |             | 0.33                            | 0.46     | 0.53 | 54 | l   |    |    |          | 1   | <b>†</b>      |  |
| 11/16"               | NaturalSun+ Low-E IG           | PEL-N-234-01777-00001       | 2.5  | 2.5        | air         | 0.27                            | 0.48     | 0.59 | 44 | İ   |    |    |          |     | $\vdash$      |  |
|                      | with grilles-between-the-glass | PEL-N-234-01778-00001       |      |            |             | 0.27                            | 0.43     | 0.52 | 44 |   |    |    | $\vdash$ |     |               |  |
|                      | with integral grilles          | PEL-N-234-01779-00001       |      |            |             | 0.28                            | 0.43     | 0.52 | 43 |   |    |    |          |     |               |  |
| 11/16"               | NaturalSun+ Low-E IG           | PEL-N-234-01785-00001       | 3    | 3          | air         | 0.28                            | 0.47     | 0.58 | 42 |   |    |    |          |     |               |  |
|                      | with grilles-between-the-glass | PEL-N-234-01786-00001       |      |            |             | 0.28                            | 0.42     | 0.52 | 42 |   |    |    |          |     |               |  |
|                      | with integral grilles          | PEL-N-234-01787-00001       |      |            |             | 0.28                            | 0.42     | 0.52 | 42 | i   |    |    |          | 1   | 1             |  |

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 for Pine using NFRC 100, NFRC 200 and NFRC 500. Thermal performance of other wood species may vary. ENERGY STAR $^{\circ}$  values are updated to 2023 (Version 7) criteria.

(2) The values shown are based on Canada's updated ENERGY STAR  $^{\!\circ}$  2020 initiative.

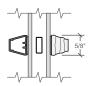
 $\label{thm:continuous} \mbox{Visit www.energystar.gov for Energy Star guidelines}.$ 



#### **Grille Profiles**

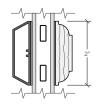
Traditional Style Collection - Integral Light Technology ®

Putty Glaze and Ogee Grilles Clad Exterior - Wood Interior

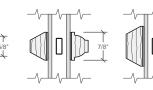






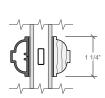


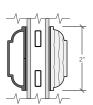
Putty Glaze and Ogee Grilles Wood Exterior - Wood Interior



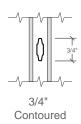
Ogee Grilles Clad Exterior - Wood Interior







Grilles-Between-the-Glass

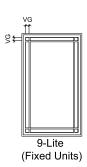


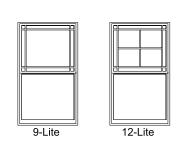
Interior wood ILT grilles available in Pine, Mahogany or Douglas Fir to match complete unit. Exterior wood ILT grilles available in Pine or Mahogany to match complete unit.

#### **Grille Patterns**

#### Integral light technology® Grilles

Prairie Lite Patterns

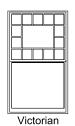




Standard corner lite dimension for Prairie patterns = 2-1/2" VG

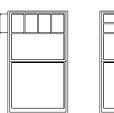
Available in transoms  $\geq$  1'3" height and width. Available in all standard and special sizes.

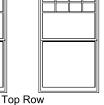
#### Other Available Patterns

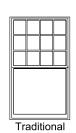










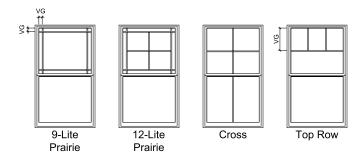


VG = Visible Glass

Lite dimensions noted can vary.

For size and pattern availability contact your local Pella sales representative.

#### Grilles-Between-the-Glass



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.

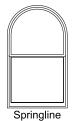
#### Top Row

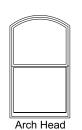
- Minimum DH frame height 35".
- Horizontal bar will be at 1/2" of the VG height of the top sash.

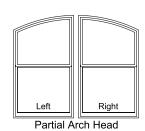
For traditional patterns, see size tables.

#### Custom shapes

Pella Reserve single-hung windows are available in custom shapes shown below, and additional shapes per drawing. For specifications, size limitations, and details on these units, contact your local Pella sales representative.

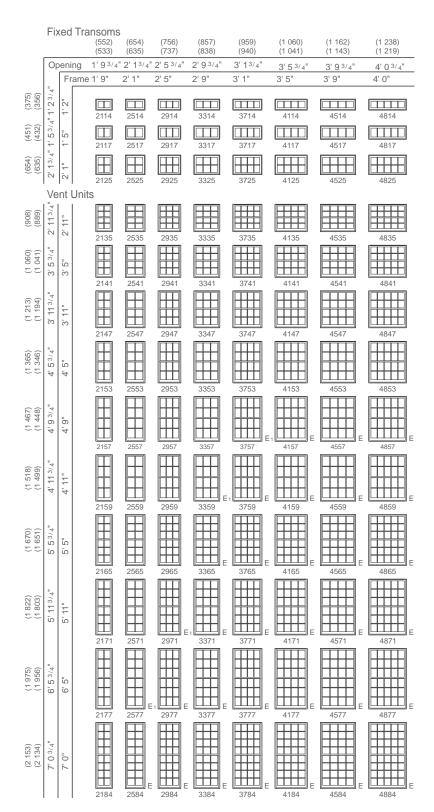






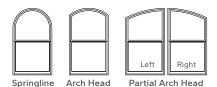


#### Size Tables - Equal Sash





Traditional grille patterns shown. Refer to Grille Types section for additional patterns and profiles



Pella Reserve single-hung windows are available in shapes shown above, and additional custom shapes per drawing. For specifications, size limitations, and details on these units, contact your local Pella sales representative.

#### **Opening Dimensions**

#### Clad Exterior Units:

Dimensions shown in standard size tables are rough opening dimensions.

#### Wood Exterior Units:

Use frame dimension plus dimensions below. This dimension includes the use of standard 1-1/8" wood subsill.

| Frame      | Roi    | ugh     | Mas      | onry     |  |  |
|------------|--------|---------|----------|----------|--|--|
| Brickmould | Width  | Height  | Width    | Height   |  |  |
| STD        | + 3/4" | +1-7/8" | + 3-1/8" | + 3-1/8" |  |  |
| 3-1/2"     | + 3/4" | +1-7/8" | + 6-3/8" | + 4-3/4" |  |  |

For clad and wood units with impact-resistant glass, see the product installation instructions or refer to local building code requirements.

#### 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 ft<sup>2</sup>.
- E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.

See Design Data pages in this section for clear opening

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.

#### Size Tables - Fixed

|                    | Fix       | ed Units |                    |                    |                    |                    |
|--------------------|-----------|----------|--------------------|--------------------|--------------------|--------------------|
|                    |           |          | (1 060)<br>(1 041) | (1 213)<br>(1 194) | (1 365)<br>(1 346) | (1 518)<br>(1 499) |
|                    | Op        | ening    | 3' 53/4"           | 3' 113/4"          | 4' 53/4"           | 4' 113/4"          |
|                    |           | Frame    | 3' 5"              | 3' 11"             | 4' 5"              | 4' 11"             |
| (908)              | 2' 113/4" | 2' 11"   | 4135               | 4735               | 5335               | 5935               |
| (1 060)            | 3' 53/4"  | 3.5"     | 4141               | 4741               | 5341               | 5941               |
| (1 213)<br>(1 194) | 3' 113/4" | 3, 11"   | 4147               | 4747               | 5347               | 5947               |
| (1 365)<br>(1 346) | 4' 53/4"  | 4' 5"    | 4153               | 4753               | 5353               | 5953               |
| (1 467) (1 448)    | 4' 93/4"  | 4' 9"    | 4157               | 4757               | 5357               | 5957               |
| (1 518)<br>(1 499) | 4' 113/4" | - 11"    | 4159               | 4759               | 5359               | 5959               |
| (1670) (1651)      | 5' 53/4"  | Ω.<br>Ω. | 4165               | 4765               | 5365               | 5965               |
| (1 803)            | 5' 113/4" | 11.      | 4171               | 4771               | 5371               | 5971               |

#### **Opening Dimensions**

#### Clad Exterior Units:

Dimensions shown in standard size tables are rough opening dimensions.

#### Wood Exterior Units:

Use frame dimension plus dimensions below. This dimension includes the use of standard 1-1/8" wood subsill.

| Frame      | Roi    | ıgh     | Mas      | onry     |
|------------|--------|---------|----------|----------|
| Brickmould | Width  | Height  | Width    | Height   |
| STD        | + 3/4" | +1-7/8" | + 3-1/8" | + 3-1/8" |
| 3-1/2"     | + 3/4" | +1-7/8" | + 6-3/8" | + 4-3/4" |

For clad and wood units with impact-resistant glass, see the product installation instructions or refer to local building code requirements.

Not to scale.

 $Traditional\ grille\ patterns\ shown.\ Refer\ to\ Grille\ Types\ section\ for\ additional\ patterns\ and\ profiles.$ 

Grille patterns will align with companion hung window with equal sash split.

5-lite high grille patterns may be ordered in 5'5" fixed units to match cottage sash vent units.

Grilles are equally-divided on fixed units with odd-number lites high.

#### Size Tables - Cottage Sash

#### **VENT UNITS**

|                    |                 | (552)<br>(533) | (654)<br>(635) | (756)<br>(737) | (857)<br>(838) | (959)<br>(940) | (1 060)<br>(1 041) | (1 162)<br>(1 143) | (1 238)<br>(1 219) |
|--------------------|-----------------|----------------|----------------|----------------|----------------|----------------|--------------------|--------------------|--------------------|
|                    | Opening         | 1' 93/4"       | 2' 13/4"       | 2' 53/4"       | 2' 93/4"       | 3' 13/4"       | 3' 53/4"           | 3' 93/4"           | 4' 03/4"           |
|                    | Fran            | ne 1'9"        | 2' 1"          | 2' 5"          | 2' 9"          | 3' 1"          | 3' 5"              | 3' 9"              | 4' 0"              |
| (1 060)<br>(1 041) | 3'53/4"         | VG2141         | VG2541         | VG2941         | VG3341         | VG3741         | VG4141             | VG4541             | VG4841             |
| (1 213)<br>(1 194) | 3'113'4"        | VG2147         | VG2547         | VG2947         | VG3347         | VG3747         | VG4147             | VG4547             | VG4847             |
| (1 365)<br>(1 346) | 4' 53/4"        | VG2153         | VG2553         | VG2953         | VG3353         | VG3753         | VG4153             | VG4553             | VG4853             |
| (1 467)<br>(1 448) | 4'93/4"         | VG2157         | VG2557         | VG2957         | VG3357         | VG3757         | VG4157             | VG4557             | VG4857             |
| (1518)<br>(1499)   | 4'113/4"        | VG2159         | VG2559         | VG2959         | VG3359         | VG3759         | VG4159             | VG4559             | VG4859             |
| (1 670)<br>(1 651) | 5' 53/4"        | VG2165         | VG2565         | VG2965         | VG3365         | VG3765         | VG4165             | VG4565             | VG4865             |
| (1 822)<br>(1 803) | 5'113'4"        | VG2171         | VG2571         | VG2971         | VG3371         | VG3771         | VG4171             | VG4571             | VG4871 E           |
| (1 822)<br>(1 803) | 5' 113/4" 6' 5" | VG2177         | VG2577         | VG297          | VG3377         | VG37777        | VG4177             | VG457              | VG4877             |

#### 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 ft<sup>2</sup>.
- E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.

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. You should consult your local building code to ensure products with Rolscreens meet egress requirements.

#### **Opening Dimensions**

#### **Clad Exterior Units:**

Dimensions shown in standard size tables are rough opening dimensions.

#### Wood Exterior Units:

Use frame dimension plus dimensions below. This dimension includes the use of standard 1-1/8" wood subsill.

| Frame      | Roi    | ugh     | Masonry  |          |  |
|------------|--------|---------|----------|----------|--|
| Brickmould | Width  | Height  | Width    | Height   |  |
| STD        | + 3/4" | +1-7/8" | + 3-1/8" | + 3-1/8" |  |
| 3-1/2"     | + 3/4" | +1-7/8" | + 6-3/8" | + 4-3/4" |  |

For clad and wood units with impact-resistant glass, see the product installation instructions or refer to local building code requirements.

Not to scale.

Traditional grille patterns shown. Refer to Grille Types section for additional patterns and profiles.

Cottage units have unequal sash split. Sash glass ratio is 40% upper sash to 60% Lower sash.

Vent variable units have unequal sash split. Sash glass ratio is determined by checkrail heights. See unit sections for dimension requirements.



#### Size Tables - Replacement Equal Sash Sizes

| Transo  | ms              | (616)   | (718)       | (762)       | (819)       | (921)   | (1 022)     | (1 073)  |
|---|-----------------|---|-------------|-------------|-------------|---|-------------|--|
| _   |                 | (597)   | (699)       | (749)       | (800)       | (902)   | (1 003)     | (1 054)  |
| O   | Pening<br>Frame | 2' 0 <sup>1</sup> / <sub>4</sub> "<br>1' 11 <sup>1</sup> / <sub>2</sub> " | 2' 4 1/4"   | 2' 6 1/4"   | 2' 81/4"    | 3' 0 <sup>1</sup> / <sub>4</sub> "<br>2' 11 <sup>1</sup> / <sub>2</sub> " | 3' 4 1/4"   | 3' 6 <sup>1</sup> / <sub>4</sub> "<br>3' 5 <sup>1</sup> / <sub>2</sub> " |
|   | Frame           | 1 1172  | 2 3 1/2     | 2 3 1/2     | 2 1 12      | 2 1172  | 3 3 1/2     | 3 3 1/2  |
| (375)<br>(356)<br>1' 2 <sup>3</sup> / <sub>4</sub> "            | 1.2"            | 23.5 x 14   | 27.5 x 14   | 29.5 x 14   | 31.5 x 14   | 35.5 x 14   | 39.5 x 14   | 41.5 x 14  |
| (451)<br>(432)<br>1' 5 <sup>3</sup> / <sub>4</sub> "            | 1, 2,,          | 23.5 x 17   | 27.5 x 17   | 29.5 x 17   | 31.5 x 17   | 35.5 x 17   | 39.5 x 17   | 41.5 x 17  |
| (654)<br>(635)<br>2' 1 <sup>3</sup> / <sub>4</sub> "            | 2,1"            | 23.5 x 25   | 27.5 x 25   | 29.5 x 25   | 31.5 x 25   | 35.5 x 25   | 39.5 x 25   | 41.5 x 25  |
| Vent U  | nits            |   |             |             |             |   |             |  |
| (921)<br>(902)<br>3' 0 1/4"                                     | 2' 111/2"       | 23.5 x 35.5   | 27.5 x 35.5 | 29.5 x 35.5 | 31.5 x 35.5 | 35.5 x 35.5   | 39.5 x 35.5 | 41.5 x 35.5  |
| (972)<br>(953)<br>3' 2 1/4"                                     | 3' 11/2"        | 23.5 x 37.5   | 27.5 x 37.5 | 29.5 x 37.5 | 31.5 x 37.5 | 35.5 x 37.5   | 39.5 x 37.5 | 41.5 x 37.5  |
| (1 073)<br>(1 054)<br>3' 61/4"                                  | 3' 51/2"        | 23.5 x 41.5   | 27.5 x 41.5 | 29.5 x 41.5 | 31.5 x 41.5 | 35.5 x 41.5   | 39.5 x 41.5 | 41.5 x 41.5  |
| (1 175)<br>(1 156)<br>3' 101/4"                                 | 3'91/2"         | 23.5 x 45.5   | 27.5 x 45.5 | 29.5 x 45.5 | 31.5 x 45.5 | 35.5 x 45.5   | 39.5 x 45.5 | 41.5 x 45.5  |
| (1 226)<br>(1 206)<br>4' 0 1/4"                                 | 3' 111/2"       | 23.5 x 47.5   | 27.5 x 47.5 | 29.5 x 47.5 | 31.5 x 47.5 | 35.5 x 47.5   | 39.5 x 47.5 | 41.5 x 47.5  |
| (1 327)<br>(1 308)<br>4' 4 1/4"                                 | 4'31/2"         | 23.5 x 51.5   | 27.5 x 51.5 | 29.5 x 51.5 | 31.5 x 51.5 | 35.5 x 51.5   | 39.5 x 51.5 | 41.5 x 51.5  |
| (1 378)<br>(1 359)<br><b>4'</b> 6 <sup>1</sup> / <sub>4</sub> " | 4' 51/2"        | 23.5 x 53.5   | 27.5 x 53.5 | 29.5 x 53.5 | 31.5 x 53.5 | 35.5 x 53.5   | 39.5 x 53.5 | 41.5 x 53.5  |
| (1 473)<br>(1 461)<br>4' 101/4"                                 | 4' 91/2"        | 23.5 x 57.5   | 27.5 x 57.5 | 29.5 x 57.5 | 31.5 x 57.5 | 35.5 x 57.5   | 39.5 x 57.5 | 41.5 x 57.5  |

#### 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 ft<sup>2</sup>.
- E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.

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. You should consult your local building code to ensure products with Rolscreens meet egress requirements.

Not to scale.

 $Traditional\ grille\ patterns\ shown.\ Refer\ to\ Grille\ Types\ section\ for\ additional\ patterns\ and\ profiles.$ 



#### Size Tables - Replacement Sizes

|                    | Ve        | nt Units  | S              |                |                            |                |                |                    |                    |
|--------------------|-----------|-----------|----------------|----------------|----------------------------|----------------|----------------|--------------------|--------------------|
|                    |           |           | (616)<br>(597) | (718)<br>(699) | (762)<br>(749)             | (819)<br>(800) | (921)<br>(902) | (1 022)<br>(1 003) | (1 073)<br>(1 054) |
|                    | Op        | pening    | 2' 0 1/4"      | 2' 4 1/4"      | 2' 6"                      | 2' 81/4"       | 3' 0 1/4"      | 3' 4 1/4"          | 3' 61/4"           |
|                    |           | Frame     | 1' 111/2"      | 2' 31/2"       | 2' 51/2"                   | 2' 71/2"       | 2' 111/2"      | 3' 31/2"           | 3' 51/2"           |
| (1530)<br>(1511)   | 5' 0 1/4" | 4' 111/2" | 23.5 x 59.5    | 27.5 x 59.5    | 29.5 x 59.5                | 31.5 x 59.5    | 35.5 x 59.5    | 39.5 x 59.5        | 41.5 x 59.5        |
| (1581)<br>(1562)   | 5' 21/4"  | 5' 11/2"  | 23.5 x 61.5    | 27.5 x 61.5    | 29.5 x 61.5                | 31.5 x 61.5    | 35.5 x 61.5    | 39.5 x 61.5        | 41.5 x 61.5        |
| (1 683)<br>(1 664) | 5' 61/4"  | 5'51/2"   | 23.5 x 65.5    | 27.5 x 65.5    | 29.5 x 65.5                | 31.5 x 65.5    | 35.5 x 65.5    | 39.5 x 65.5        | 41.5 x 65.5        |
| (1835)<br>(1816)   | 6' 0 1/4" | 5' 111/2" | 23.5 x 71.5    | 27.5 x 71.5    | E <sub>1</sub> 29.5 x 71.5 | E 31.5 x 71.5  | 35.5 x 71.5    | 39.5 x 71.5        | 41.5 x 71.5        |

#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

- $E \ = \ Window \ meets \ minimum \ clear \ opening \ of \ 24" \ height, \ 20" \ width, \ and \ 5.7 \ ft^2.$
- E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.

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. You should consult your local building code to ensure products with Rolscreens meet egress requirements.

Not to scale.

Traditional grille patterns shown. Refer to Grille Types section for additional patterns and profiles.



## Size Tables - Replacement Cottage Sash Sizes

#### Cottage Vent Units

|                      |                        | (616)<br>(597)  | (718)<br>(699)      | (762)<br>(749)   | (819)<br>(800) | (921)<br>(902)  | (1 022)<br>(1 003)   | (1 073)<br>(1 054) |
|----------------------|------------------------|---|---------------------|--|----------------|---|--|--------------------|
|                      | Opening<br>Frame       | 2' 0 <sup>1</sup> / <sub>4</sub> "<br>1' 11 <sup>1</sup> / <sub>2</sub> " | 2' 4 1/4" 2' 3 1/2" | 2' 6 <sup>1</sup> / <sub>4</sub> "<br>2' 5 <sup>1</sup> / <sub>2</sub> " | 2' 81/4"       | 3' 0 <sup>1</sup> / <sub>4</sub> "<br>2' 11 <sup>1</sup> / <sub>2</sub> " | 3' 4 <sup>1</sup> / <sub>4</sub> "<br>3' 3 <sup>1</sup> / <sub>2</sub> " | 3' 6 1/4"          |
| (1 073)<br>(1 054)   | 3' 61/4"               | 23.5 x 41.5   | 27.5 x 41.5         | 29.5 x 41.5  | 31.5 x 41.5    | 35.5 x 41.5   | 39.5 x 41.5  | 41.5 x 41.5        |
| (1 175)<br>(1 156)   | 3' 101/4"              | 23.5 x 45.5   | 27.5 x 45.5         | 29.5 x 45.5  | 31.5 x 45.5    | 35.5 x 45.5   | 39.5 x 45.5  | 41.5 x 45.5        |
| (1 226)              | 4' 0 1/4"<br>3' 111/2" | 23.5 x 47.5   | 27.5 x 47.5         | 29.5 x 47.5  | 31.5 x 47.5    | 35.5 x 47.5   | 39.5 x 47.5  | 41.5 x 47.5        |
| (1 327)              | 4' 4' 1/4" 4' 3'/2"    | 23.5 x 51.5   | 27.5 x 51.5         | 29.5 x 51.5  | 31.5 x 51.5    | 35.5 x 51.5   | 39.5 x 51.5  | 41.5 x 51.5        |
| (1 378)<br>(1 359)   | 4'61/4"                | 23.5 x 53.5   | 27.5 x 53.5         | 29.5 x 53.5  | 31.5 x 53.5    | 35.5 × 53.5   | 39.5 x 53.5  | 41.5 x 53.5        |
| (1 473)<br>(1 461)   | 4' 101/4"<br>4' 91/2"  | 23.5 x 57.5   | 27.5 x 57.5         | 29.5 x 57.5  | 31.5 x 57.5    | 35.5 x 57.5   | 39.5 x 57.5  | 41.5 × 57.5        |
| (1 530)<br>(1 511)   | 5' 0 1/4" 4' 1 1 1/2"  | 23.5 x 59.5   | 27.5 x 59.5         | 29.5 x 59.5  | 31.5 x 59.5    | 35.5 x 59.5   | 39.5 x 59.5  | 41.5 x 59.5        |
| (1 581)<br>(1 561.5) | 5' 11/2"               | 23.5 x 61.5   | 27.5 x 61.5         | 29.5 x 61.5  | 31.5 x 61.5    | 35.5 x 61.5   | 39.5 x 61.5  | 41.5 x 61.5        |
| (1 683)<br>(1 664)   | 5' 51/2"               | 23.5 x 65.5   | 27.5 x 65.5         | 29.5 x 65.5  | 31.5 x 65.5    | 35.5 x 65.5   | 39.5 × 65.5  | 41.5 x 65.5        |
| (1835)<br>(1816)     | 6' 0 1/4"<br>5' 111/2" | 23.5 x 71.5   | 27.5 x 71.5         | 29.5 x 71.5  | 31.5 x 71.5    | 35.5 x 71.5   | 39.5 x 71.5  | 41.5 x 71.5        |

#### 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 ft<sup>2</sup>.
- E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.

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. You should consult your local building code to ensure products with Rolscreens meet egress requirements.

Not to scale.

 $Traditional\ grille\ patterns\ shown.\ Refer\ to\ Grille\ Types\ section\ for\ additional\ patterns\ and\ profiles.$ 



## Size Tables - Replacement Fixed Sizes

| Fixed Units  | (1 060)<br>(1 041) | (1 213)<br>(1 194) | (1 365)<br>(1 346)                 | (1 518)<br>(1 499)     |   | (1 060)<br>(1 041) | (1 213)<br>(1 194) | (1 365)<br>(1 346)    | (1 518)<br>(1 499)                  |
|--|--------------------|--------------------|------------------------------------|------------------------|---|--------------------|--------------------|-----------------------|-------------------------------------|
| Opening  | 3' 53/4"           | 3' 113/4"          | 4' 5 <sup>3</sup> / <sub>4</sub> " | 4' 11 <sup>3</sup> /4" |   | 3' 53/4"           | 3' 113/4"          | 4' 5 <sup>3</sup> /4" | 4' 11 <sup>3</sup> / <sub>4</sub> " |
| Frame  | 3' 5"              | 3' 11"             | 4' 5"                              | 4' 11"                 | _   | 3' 5"              | 3' 11"             | 4' 5"                 | 4' 11"                              |
| (921)<br>(902)<br>3' 0 1/4"<br>2' 111/2"   | 41 x 35.5          | 47 x 35.5          | 53 x 35.5                          | 59 x 35.5              | (1530)<br>(1511)<br>5' 01/4"<br>4' 111/2"   |                    |                    |                       |                                     |
| (972)<br>(963)<br>3' 21 <sub>1</sub> 4"<br>3' 11 <sub>12</sub> "                               | 41 x 37.5          | 47 x 37.5          | 53 x 37.5                          | 59 x 37.5              | 581)<br>562)<br>21/4"<br>11/2"  | 41 x 59.5          | 47 x 59.5          | 53 x 59.5             | 59 x 59.5                           |
| (1 073)<br>(1 054)<br>3' 6 <sup>1</sup> / <sub>4</sub> "<br>3' 5 <sup>1</sup> / <sub>2</sub> " | 41 x 41.5          | 47 x 41.5          | 53 x 41.5                          | 59 x 41.5              | (1 581)<br>(1 562)<br>5' 2 1/4"<br>5' 1 1/2"  | 41 x 61.5          | 47 x 61.5          | 53 x 61.5             | 59 x 61.5                           |
| (1 175)<br>(1 156)<br>3' 101/4"<br>3' 91/2"  | 41 X 45.5          | 47 X 45.5          | 53 X 45.5                          | 59 X 45.5              | (1 683)<br>(1 664)<br>5' 61/4"<br>5' 51/2"  | 41 x 65.5          | 47 x 65.5          | 53 x 65.5             | 59 x 65.5                           |
| (1 226)<br>(1 206)<br>4' 0 1/4"<br>3' 111/2"   | 41 X 47.5          | 47 X 47.5          | 53 X 47.5                          | 59 X 47.5              | (1835)<br>(1816)<br>6' 0 <sup>1</sup> / <sub>4</sub> "<br>5' 11 <sup>1</sup> / <sub>2</sub> " |                    | 47 X 60.0          |                       | 33 x 80.0                           |
| (1 327)<br>(1 308)<br>4' 4 1/4"<br>4' 31/2"  | 41 x 51.5          | 47 x 51.5          | 53 x 51.5                          | 59 x 51.5              |   | 41 x 71.5          | 47 x 71.5          | 53 x 71.5             | 59 x 71.5                           |
| (1 378)<br>(1 359)<br>4' 6 <sup>1</sup> / <sub>4</sub> "<br>4' 5 <sup>1</sup> / <sub>2</sub> " | 41 x 53.5          | 47 x 53.5          | 53 x 53.5                          | 59 x 53.5              |   |                    |                    |                       |                                     |
| (1473)<br>(1461)<br>4' 101/4"<br>4' 91/2"  | 41 x 57.5          | 47 x 57.5          | 53 x 57.5                          | 59 x 57.5              |   |                    |                    |                       |                                     |

Not to scale.

 $Traditional\ grille\ patterns\ shown.\ Refer\ to\ Grille\ Types\ section\ for\ additional\ patterns\ and\ profiles.$ 

#### Special Sizes and Dimensions

#### Special Size Frame Dimensions\*

| Sash configuration                   | Vent-Equal    | Cottage        | Fixed          |
|--------------------------------------|---------------|----------------|----------------|
| Sash Glass Ratio<br>Top % : Bottom % | 50 : 50       | 40 : 60        | NA             |
| Shortest Unit                        | 24-3/8"       | 40-1/4"        | 17"            |
| Frame Size                           | (619)         | (1 022)        | (432)          |
| Tallest Unit                         | 96"           | 81"            | 71"            |
| Frame Size                           | (2 438)       | (2 057)        | (1803)         |
| Unit Frame                           | 14" to 48"    | 14" to 48"     | 17" to 59"     |
| Width Range                          | (356 to 1219) | (356 to 1 219) | (432 to 1 499) |

## **Opening Dimensions**

#### Clad Exterior Units:

Dimensions shown in standard size tables are rough opening dimensions.

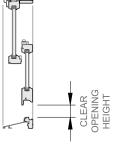
#### Wood Exterior Units:

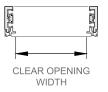
Use frame dimension plus dimensions below. This dimension includes the use of standard 1-1/8" wood subsill.

| Frame      | Roı    | ıgh     | Masonry  |          |  |
|------------|--------|---------|----------|----------|--|
| Brickmould | Width  | Height  | Width    | Height   |  |
| STD        | + 3/4" | +1-7/8" | + 3-1/8" | + 3-1/8" |  |
| 3-1/2"     | + 3/4" | +1-7/8" | + 6-3/8" | + 4-3/4" |  |

For clad and wood units with impact-resistant glass, see the product installation instructions or refer to local building code requirements.

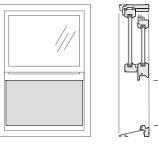
# Shaded portion shows vent area.





# **Equal Sash Rectangular Only**

|                              | Vent Units                         | Fixed and Transom Units |  |  |
|------------------------------|------------------------------------|-------------------------|--|--|
| Visible                      | Width = Frame - 5.647"             | Width = Frame - 5.75"   |  |  |
| Glass                        | Height = (Frame - 8.681") ÷ 2      | Height = Frame - 5.75"  |  |  |
| Actual Glass                 | Width = Frame - 4.375"             | Width = Frame - 4.375"  |  |  |
|                              | Height = (Frame - 5.983") ÷ 2      | Height = Frame - 4.375" |  |  |
| Clear                        | COW = Frame Width - 3.4375"        | -                       |  |  |
| Opening*                     | COH = (Frame Height ÷ 2) - 4.4375" | -                       |  |  |
| Vent<br>Area Ft <sup>2</sup> | (COW x COH) ÷ 144                  | -                       |  |  |



Shaded portion shows vent area.

See your local Pella sales representative for specific size information.

Traditional grille patterns shown. Refer to Grille Types section for additional patterns and profiles.

<sup>\*</sup> Some units with custom glazing may have limited travel. Integrated Rolscreen® is only available on sizes greater than or equal to 34" tall and 21" wide and less than or equal to 84" tall and 48" wide.



#### Design Data

| Vent E | Vent Equal Sash for Single- and Double-Hung |                   |                 |                         |                          |                    |          |      |                 |  |
|--------|---|-------------------|-----------------|-------------------------|--------------------------|--------------------|----------|------|-----------------|--|
|        |   | Clear O           | pening          | Vent                    | Visible                  | Standaı<br>Thickne | rd Glass |      | mance<br>Grade₁ |  |
| Unit   | Egress                                      | Width<br>(Inches) | Height (Inches) | Area<br>Ft <sup>2</sup> | Glass<br>Ft <sup>2</sup> |                    | Tempered | Clad | Wood            |  |
| 2135   |   | 17-5/16           | 13-1/16         | 1.6                     | 2.8                      | 2.5                | 3        | CW50 | CW45            |  |
| 2141   |   | 17-5/16           | 16-1/16         | 1.9                     | 3.4                      | 2.5                | 3        | CW50 | CW45            |  |
| 2147   |   | 17-5/16           | 19-1/16         | 2.3                     | 4.1                      | 2.5                | 3        | CW50 | CW45            |  |
| 2153   |   | 17-5/16           | 22-1/16         | 2.7                     | 4.7                      | 2.5                | 3        | CW50 | CW45            |  |
| 2157   |   | 17-5/16           | 24-1/16         | 2.9                     | 5.2                      | 2.5                | 3        | CW50 | CW45            |  |
| 2159   |   | 17-5/16           | 25-1/16         | 3.0                     | 5.4                      | 2.5                | 3        | CW50 | CW45            |  |
| 2165   |   | 17-5/16           | 28-1/16         | 3.4                     | 6.0                      | 2.5                | 3        | CW50 | CW45            |  |
| 2171   |   | 17-5/16           | 31-1/16         | 3.7                     | 6.6                      | 2.5                | 3        | CW50 | CW45            |  |
| 2177   |   | 17-5/16           | 34-1/16         | 4.1                     | 7.3                      | 2.5                | 3        | CW50 | CW45            |  |
| 2184   |   | 17-5/16           | 37-9/16         | 4.5                     | 8.0                      | 2.5                | 3        | CW40 | CW40            |  |
| 2535   |   | 21-5/16           | 13-1/16         | 1.9                     | 3.5                      | 2.5                | 3        | CW50 | CW45            |  |
| 2541   |   | 21-5/16           | 16-1/16         | 2.4                     | 4.3                      | 2.5                | 3        | CW50 | CW45            |  |
| 2547   |   | 21-5/16           | 19-1/16         | 2.8                     | 5.1                      | 2.5                | 3        | CW50 | CW45            |  |
| 2553   |   | 21-5/16           | 22-1/16         | 3.3                     | 6.0                      | 2.5                | 3        | CW50 | CW45            |  |
| 2557   |   | 21-5/16           | 24-1/16         | 3.6                     | 6.5                      | 2.5                | 3        | CW50 | CW45            |  |
| 2559   |   | 21-5/16           | 25-1/16         | 3.7                     | 6.8                      | 2.5                | 3        | CW50 | CW45            |  |
| 2565   |   | 21-5/16           | 28-1/16         | 4.2                     | 7.6                      | 2.5                | 3        | CW50 | CW45            |  |
| 2571   |   | 21-5/16           | 31-1/16         | 4.6                     | 8.4                      | 2.5                | 3        | CW50 | CW45            |  |
| 2577   | E1  | 21-5/16           | 34-1/16         | 5.0                     | 9.2                      | 2.5                | 3        | CW50 | CW45            |  |
| 2584   | E1  | 21-5/16           | 37-9/16         | 5.6                     | 10.1                     | 2.5                | 3        | CW40 | CW40            |  |
| 2935   |   | 25-5/16           | 13-1/16         | 2.3                     | 4.3                      | 2.5                | 3        | CW50 | CW45            |  |
| 2941   |   | 25-5/16           | 16-1/16         | 2.8                     | 5.2                      | 2.5                | 3        | CW50 | CW45            |  |
| 2947   |   | 25-5/16           | 19-1/16         | 3.4                     | 6.2                      | 2.5                | 3        | CW50 | CW45            |  |
| 2953   |   | 25-5/16           | 22-1/16         | 3.9                     | 7.2                      | 2.5                | 3        | CW50 | CW45            |  |
| 2957   |   | 25-5/16           | 24-1/16         | 4.2                     | 7.8                      | 2.5                | 3        | CW50 | CW45            |  |
| 2959   |   | 25-5/16           | 25-1/16         | 4.4                     | 8.2                      | 2.5                | 3        | CW50 | CW45            |  |
| 2965   |   | 25-5/16           | 28-1/16         | 4.9                     | 9.1                      | 2.5                | 3        | CW50 | CW45            |  |
| 2971   | E1  | 25-5/16           | 31-1/16         | 5.5                     | 10.1                     | 2.5                | 3        | CW50 | CW45            |  |
| 2977   | Е   | 25-5/16           | 34-1/16         | 6.0                     | 11.1                     | 2.5                | 3        | CW50 | CW45            |  |
| 2984   | Е   | 25-5/16           | 37-9/16         | 6.6                     | 12.2                     | 2.5                | 3        | CW40 | CW40            |  |
| 3335   |   | 29-5/16           | 13-1/16         | 2.7                     | 5.0                      | 2.5                | 3        | CW50 | CW45            |  |
| 3341   |   | 29-5/16           | 16-1/16         | 3.3                     | 6.1                      | 2.5                | 3        | CW50 | CW45            |  |
| 3347   |   | 29-5/16           | 19-1/16         | 3.9                     | 7.3                      | 2.5                | 3        | CW50 | CW45            |  |
| 3353   |   | 29-5/16           | 22-1/16         | 4.5                     | 8.4                      | 2.5                | 3        | CW50 | CW45            |  |
| 3357   |   | 29-5/16           | 24-1/16         | 4.9                     | 9.2                      | 2.5                | 3        | CW50 | CW45            |  |
| 3359   | E1  | 29-5/16           | 25-1/16         | 5.1                     | 9.6                      | 2.5                | 3        | CW50 | CW45            |  |
| 3365   | E   | 29-5/16           | 28-1/16         | 5.7                     | 10.7                     | 2.5                | 3        | CW50 | CW45            |  |
| 3371   | E   | 29-5/16           | 31-1/16         | 6.3                     | 11.8                     | 2.5                | 3        | CW50 | CW45            |  |
| 3377   | E   | 29-5/16           | 34-1/16         | 6.9                     | 13.0                     | 2.5                | 3        | CW50 | CW45            |  |
| 3384   | Е   | 29-5/16           | 37-9/16         | 7.7                     | 14.3                     | 2.5                | 3        | CW40 | CW40            |  |

Continued on next page

#### 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 ft  $^2$ .

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.

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

<sup>(1)</sup> Maximum design pressure when glazed with appropriate glass thickness.



## Design Data

| Vent E | Vent Equal Sash for Single- and Double-Hung |                   |                    |                         |                          |          |                     |                   |                             |  |
|--------|---|-------------------|--------------------|-------------------------|--------------------------|----------|---------------------|-------------------|-----------------------------|--|
|        | SS  | Clear O           | pening<br>hes)     | Vent                    | Visible                  |          | rd Glass<br>ss (mm) | Perfor<br>Class & | mance<br>Grade <sub>1</sub> |  |
| Unit   | Egress                                      | Width<br>(Inches) | Height<br>(Inches) | Area<br>Ft <sup>2</sup> | Glass<br>Ft <sup>2</sup> | Annealed | Tempered            | Clad              | Wood                        |  |
| 3735   |   | 33-5/16           | 13-1/16            | 3.0                     | 5.7                      | 2.5      | 3                   | CW50              | CW45                        |  |
| 3741   |   | 33-5/16           | 16-1/16            | 3.7                     | 7.0                      | 2.5      | 3                   | CW50              | CW45                        |  |
| 3747   |   | 33-5/16           | 19-1/16            | 4.4                     | 8.3                      | 2.5      | 3                   | CW50              | CW45                        |  |
| 3753   |   | 33-5/16           | 22-1/16            | 5.1                     | 9.6                      | 2.5      | 3                   | CW50              | CW45                        |  |
| 3757   | E1  | 33-5/16           | 24-1/16            | 5.6                     | 10.5                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 3759   | Е   | 33-5/16           | 25-1/16            | 5.8                     | 11.0                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 3765   | Е   | 33-5/16           | 28-1/16            | 6.5                     | 12.3                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 3771   | Е   | 33-5/16           | 31-1/16            | 7.2                     | 13.6                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 3777   | Е   | 33-5/16           | 34-1/16            | 7.9                     | 14.9                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 3784   | Е   | 33-5/16           | 37-9/16            | 8.7                     | 16.4                     | 2.5      | 3                   | CW40              | CW40                        |  |
| 4135   |   | 37-5/16           | 13-1/16            | 3.4                     | 6.5                      | 2.5      | 3                   | CW50              | CW45                        |  |
| 4141   |   | 37-5/16           | 16-1/16            | 4.2                     | 7.9                      | 2.5      | 3                   | CW50              | CW45                        |  |
| 4147   |   | 37-5/16           | 19-1/16            | 4.9                     | 9.4                      | 2.5      | 3                   | CW50              | CW45                        |  |
| 4153   |   | 37-5/16           | 22-1/16            | 5.7                     | 10.9                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4157   | Е   | 37-5/16           | 24-1/16            | 6.2                     | 11.9                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4159   | Е   | 37-5/16           | 25-1/16            | 6.5                     | 12.4                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4165   | Е   | 37-5/16           | 28-1/16            | 7.3                     | 13.8                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4171   | Е   | 37-5/16           | 31-1/16            | 8.1                     | 15.3                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4177   | Е   | 37-5/16           | 34-1/16            | 8.8                     | 16.8                     | 2.5      | 3                   | CW45              | CW45                        |  |
| 4184   | Е   | 37-5/16           | 37-9/16            | 9.7                     | 18.5                     | 2.5      | 3                   | CW40              | CW40                        |  |
| 4535   |   | 41-5/16           | 13-1/16            | 3.7                     | 7.2                      | 2.5      | 3                   | CW50              | CW45                        |  |
| 4541   |   | 41-5/16           | 16-1/16            | 4.6                     | 8.8                      | 2.5      | 3                   | CW50              | CW45                        |  |
| 4547   |   | 41-5/16           | 19-1/16            | 5.5                     | 10.5                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4553   |   | 41-5/16           | 22-1/16            | 6.3                     | 12.1                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4557   | Е   | 41-5/16           | 24-1/16            | 6.9                     | 13.2                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4559   | Е   | 41-5/16           | 25-1/16            | 7.2                     | 13.7                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4565   | Е   | 41-5/16           | 28-1/16            | 8.1                     | 15.4                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4571   | Е   | 41-5/16           | 31-1/16            | 8.9                     | 17.0                     | 2.5      | 3                   | CW45              | CW45                        |  |
| 4577   | Е   | 41-5/16           | 34-1/16            | 9.8                     | 18.7                     | 2.5      | 3                   | CW45              | CW45                        |  |
| 4584   | Е   | 41-5/16           | 37-9/16            | 10.8                    | 20.6                     | 3        | 3                   | CW40              | CW40                        |  |
| 4835   |   | 44-5/16           | 13-1/16            | 4.0                     | 7.7                      | 2.5      | 3                   | CW50              | CW45                        |  |
| 4841   |   | 44-5/16           | 16-1/16            | 4.9                     | 9.5                      | 2.5      | 3                   | CW50              | CW45                        |  |
| 4847   |   | 44-5/16           | 19-1/16            | 5.9                     | 11.3                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4853   |   | 44-5/16           | 22-1/16            | 6.8                     | 13.0                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4857   | Е   | 44-5/16           | 24-1/16            | 7.4                     | 14.2                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4859   | Е   | 44-5/16           | 25-1/16            | 7.7                     | 14.8                     | 2.5      | 3                   | CW50              | CW45                        |  |
| 4865   | Е   | 44-5/16           | 28-1/16            | 8.6                     | 16.6                     | 2.5      | 3                   | CW45              | CW45                        |  |
| 4871   | Е   | 44-5/16           | 31-1/16            | 9.6                     | 18.3                     | 2.5      | 3                   | CW45              | CW45                        |  |
| 4877   | Е   | 44-5/16           | 34-1/16            | 10.5                    | 20.1                     | 3        | 3                   | CW45              | CW45                        |  |
| 4884   | Е   | 44-5/16           | 37-9/16            | 11.6                    | 22.2                     | 3        | 3                   | CW40              | CW40                        |  |

#### 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 ft  $^2$ .

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.

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

<sup>(1)</sup> Maximum performance when glazed with the appropriate glass thickness.



## Design Data

| Fixed |                  |          |                     |                 |
|-------|------------------|----------|---------------------|-----------------|
| Unit  | Visible<br>Glass |          | rd Glass<br>ss (mm) | Performance     |
| Omit  | Ft <sup>2</sup>  | Annealed | Tempered            | Class & Grade 1 |
| 4135  | 7.2              | 2.5      | 3                   | CW50            |
| 4141  | 8.6              | 2.5      | 3                   | CW50            |
| 4147  | 10.1             | 3        | 3                   | CW50            |
| 4153  | 11.6             | 3        | 3                   | CW50            |
| 4157  | 12.5             | 3        | 3                   | CW50            |
| 4165  | 14.5             | 3        | 3                   | CW50            |
| 4171  | 16.0             | 3        | 3                   | CW45/CW50       |
| 4735  | 8.4              | 2.5      | 3                   | CW50            |
| 4741  | 10.1             | 3        | 3                   | CW50            |
| 4747  | 11.8             | 3        | 3                   | CW50            |
| 4753  | 13.5             | 3        | 3                   | CW50            |
| 4757  | 14.7             | 3        | 3                   | CW50            |
| 4759  | 15.3             | 3        | 3                   | CW50            |
| 4765  | 17.0             | 3        | 3                   | CW45/CW50       |
| 4771  | 18.7             | 4        | 4                   | CW50            |
| 5335  | 9.6              | 2.5      | 3                   | CW45/CW50       |
| 5341  | 11.6             | 3        | 3                   | CW50            |
| 5347  | 13.5             | 3        | 3                   | CW50            |
| 5353  | 15.5             | 3        | 4                   | CW45/CW50       |
| 5357  | 16.8             | 3        | 4                   | CW45/CW50       |
| 5359  | 17.5             | 3        | 4                   | CW40/CW50       |
| 5365  | 19.4             | 4        | 4                   | CW50            |
| 5371  | 21.4             | 4        | 4                   | CW50            |
| 5935  | 10.8             | 3        | 3                   | CW50            |
| 5941  | 13.0             | 3        | 3                   | CW50            |
| 5953  | 17.5             | 3        | 4                   | CW40/CW50       |
| 5957  | 19.0             | 4        | 4                   | CW50            |
| 5959  | 19.7             | 4        | 4                   | CW50            |
| 5965  | 21.9             | 4        | 4                   | CW50            |
| 5971  | 24.1             | 4        | 4                   | CW45/CW50       |

| Transom | S                |          |                     |                |
|---------|------------------|----------|---------------------|----------------|
| Unit    | Visible<br>Glass |          | rd Glass<br>ss (mm) | Performance    |
|         | Ft <sup>2</sup>  | Annealed | Tempered            | Class & Grade₁ |
| 2114    | 0.9              | 2.5      | 3                   | CW50           |
| 2514    | 1.1              | 2.5      | 3                   | CW50           |
| 2914    | 1.3              | 2.5      | 3                   | CW50           |
| 3314    | 1.6              | 2.5      | 3                   | CW50           |
| 3714    | 1.8              | 2.5      | 3                   | CW50           |
| 4114    | 2.0              | 2.5      | 3                   | CW50           |
| 4514    | 2.2              | 2.5      | 3                   | CW50           |
| 4814    | 2.4              | 2.5      | 3                   | CW50           |
| 2117    | 1.2              | 2.5      | 3                   | CW50           |
| 2517    | 1.5              | 2.5      | 3                   | CW50           |
| 2917    | 1.8              | 2.5      | 3                   | CW50           |
| 3317    | 2.1              | 2.5      | 3                   | CW50           |
| 3717    | 2.4              | 2.5      | 3                   | CW50           |
| 4117    | 2.8              | 2.5      | 3                   | CW50           |
| 4517    | 3.1              | 2.5      | 3                   | CW50           |
| 4817    | 3.3              | 2.5      | 3                   | CW50           |
| 2125    | 2.0              | 2.5      | 3                   | CW50           |
| 2525    | 2.6              | 2.5      | 3                   | CW50           |
| 2925    | 3.1              | 2.5      | 3                   | CW50           |
| 3325    | 3.6              | 2.5      | 3                   | CW50           |
| 3725    | 4.2              | 2.5      | 3                   | CW50           |
| 4125    | 4.7              | 2.5      | 3                   | CW50           |
| 4525    | 5.2              | 2.5      | 3                   | CW50           |
| 4825    | 5.6              | 2.5      | 3                   | CW50           |

<sup>(1)</sup> Maximum design pressure when glazed with the appropriate glass thickness. Second number, where shown, requires tempered glass.



## Design Data

| Cottage Sas | h for S | Single- and | Double-Hur     | ng              |                  |          |                     |   |      |
|-------------|---------|-------------|----------------|-----------------|------------------|----------|---------------------|---|------|
| Unit        | Egress  |             | pening<br>hes) | Vent<br>Area    | Visible<br>Glass |          | rd Glass<br>ss (mm) | Performance<br>Class & Grade <sub>1</sub> |      |
| Onic        | Egi     | Width       | Height         | Ft <sup>2</sup> | Ft <sup>2</sup>  | Annealed | Tempered            | Clad                                      | Wood |
| VG2141      |         | 17-5/16     | 12-11/16       | 1.5             | 3.4              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2147      |         | 17-5/16     | 15-1/16        | 1.8             | 4.1              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2153      |         | 17-5/16     | 17-7/16        | 2.1             | 4.7              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2157      |         | 17-5/16     | 19-1/16        | 2.3             | 5.2              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2159      |         | 17-5/16     | 19-7/8         | 2.4             | 5.4              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2165      |         | 17-5/16     | 22-1/4         | 2.7             | 6.0              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2171      |         | 17-5/16     | 24-11/16       | 3.0             | 6.6              | 2.5      | З                   | CW40                                      | CW40 |
| VG2541      |         | 21-5/16     | 12-11/16       | 1.9             | 4.3              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2547      |         | 21-5/16     | 15-1/16        | 2.2             | 5.1              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2553      |         | 21-5/16     | 17-7/16        | 2.6             | 6.0              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2557      |         | 21-5/16     | 19-1/16        | 2.8             | 6.5              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2559      |         | 21-5/16     | 19-7/8         | 2.9             | 6.8              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2565      |         | 21-5/16     | 22-1/4         | 3.3             | 7.6              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2571      |         | 21-5/16     | 24-11/16       | 3.7             | 8.4              | 2.5      | 3                   | CW40                                      | CW40 |
| VG2941      |         | 25-5/16     | 12-11/16       | 2.2             | 5.2              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2947      |         | 25-5/16     | 15-1/16        | 2.7             | 6.2              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2953      |         | 25-5/16     | 17-7/16        | 3.1             | 7.2              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2957      |         | 25-5/16     | 19-1/16        | 3.4             | 7.8              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2959      |         | 25-5/16     | 19-7/8         | 3.5             | 8.2              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2965      |         | 25-5/16     | 22-1/4         | 3.9             | 9.1              | 2.5      | 3                   | CW50                                      | CW45 |
| VG2971      |         | 25-5/16     | 24-11/16       | 4.3             | 10.1             | 2.5      | 3                   | CW40                                      | CW40 |
| VG3341      |         | 29-5/16     | 12-11/16       | 2.6             | 6.1              | 2.5      | 3                   | CW50                                      | CW45 |
| VG3347      |         | 29-5/16     | 15-1/16        | 3.1             | 7.3              | 2.5      | 3                   | CW50                                      | CW45 |
| VG3353      |         | 29-5/16     | 17-7/16        | 3.6             | 8.4              | 2.5      | 3                   | CW50                                      | CW45 |
| VG3357      |         | 29-5/16     | 19-1/16        | 3.9             | 9.2              | 2.5      | 3                   | CW50                                      | CW45 |
| VG3359      |         | 29-5/16     | 19-7/8         | 4.1             | 9.6              | 2.5      | 3                   | CW50                                      | CW45 |
| VG3365      |         | 29-5/16     | 22-1/4         | 4.5             | 10.7             | 2.5      | 3                   | CW50                                      | CW45 |
| VG3371      | E1      | 29-5/16     | 24-11/16       | 5.0             | 11.8             | 2.5      | 3                   | CW40                                      | CW40 |

Continued on next page

#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.

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

<sup>(1)</sup> Maximum performance when glazed with the appropriate glass thickness.



## Design Data

| Cottage Sash for Single- and Double-Hung |        |                           |          |                 |                  |          |                     |   |      |  |
|--|--------|---------------------------|----------|-----------------|------------------|----------|---------------------|---|------|--|
| Unit                                     | Egress | Clear Opening<br>(Inches) |          | Vent<br>Area    | Visible<br>Glass |          | rd Glass<br>ss (mm) | Performance<br>Class & Grade <sub>1</sub> |      |  |
| Onit                                     | Еg     | Width                     | Height   | Ft <sup>2</sup> | Ft <sup>2</sup>  | Annealed | Tempered            | Clad                                      | Wood |  |
| VG3741                                   |        | 33-5/16                   | 12-11/16 | 2.9             | 7.0              | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG3747                                   |        | 33-5/16                   | 15-1/16  | 3.5             | 8.3              | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG3753                                   |        | 33-5/16                   | 17-7/16  | 4.0             | 9.6              | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG3757                                   |        | 33-5/16                   | 19-1/16  | 4.4             | 10.5             | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG3759                                   |        | 33-5/16                   | 19-7/8   | 4.6             | 11.0             | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG3765                                   |        | 33-5/16                   | 22-1/4   | 5.2             | 12.3             | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG3771                                   | Е      | 33-5/16                   | 24-11/16 | 5.7             | 13.6             | 2.5      | 3                   | CW40                                      | CW40 |  |
| VG4141                                   |        | 37-5/16                   | 12-11/16 | 3.3             | 7.9              | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG4147                                   |        | 37-5/16                   | 15-1/16  | 3.9             | 9.4              | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG4153                                   |        | 37-5/16                   | 17-7/16  | 4.5             | 10.9             | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG4157                                   |        | 37-5/16                   | 19-1/16  | 4.9             | 11.9             | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG4159                                   |        | 37-5/16                   | 19-7/8   | 5.2             | 12.4             | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG4165                                   |        | 37-5/16                   | 22-1/4   | 5.8             | 13.8             | 2.5      | 3                   | CW45                                      | CW45 |  |
| VG4171                                   | Е      | 37-5/16                   | 24-11/16 | 6.4             | 15.3             | 2.5      | 3                   | CW40                                      | CW40 |  |
| VG4541                                   |        | 41-5/16                   | 12-11/16 | 3.6             | 8.8              | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG4547                                   |        | 41-5/16                   | 15-1/16  | 4.3             | 10.5             | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG4553                                   |        | 41-5/16                   | 17-7/16  | 5.0             | 12.1             | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG4557                                   |        | 41-5/16                   | 19-1/16  | 5.5             | 13.2             | 2.5      | 3                   | CW45                                      | CW45 |  |
| VG4559                                   |        | 41-5/16                   | 19-7/8   | 5.7             | 13.8             | 2.5      | 3                   | CW45                                      | CW45 |  |
| VG4565                                   |        | 41-5/16                   | 22-1/4   | 6.4             | 15.4             | 2.5      | 3                   | CW45                                      | CW45 |  |
| VG4571                                   | Е      | 41-5/16                   | 24-11/16 | 7.1             | 17.0             | 3        | 3                   | CW40                                      | CW40 |  |
| VG4841                                   |        | 44-5/16                   | 12-11/16 | 3.9             | 9.5              | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG4847                                   |        | 44-5/16                   | 15-1/16  | 4.6             | 11.3             | 2.5      | 3                   | CW50                                      | CW45 |  |
| VG4853                                   |        | 44-5/16                   | 17-7/16  | 5.4             | 13.0             | 2.5      | 3                   | CW45                                      | CW45 |  |
| VG4857                                   |        | 44-5/16                   | 19-1/16  | 5.9             | 14.2             | 2.5      | 3                   | CW45                                      | CW45 |  |
| VG4859                                   |        | 44-5/16                   | 19-7/8   | 6.1             | 14.8             | 2.5      | 3                   | CW45                                      | CW45 |  |
| VG4865                                   |        | 44-5/16                   | 22-1/4   | 6.9             | 16.6             | 3        | 3                   | CW40                                      | CW40 |  |
| VG4871                                   | Е      | 44-5/16                   | 24-11/16 | 7.6             | 18.3             | 3        | 3                   | CW40                                      | CW40 |  |

#### Egress Notes:

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E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft<sup>2</sup>.

<sup>(1)</sup> Maximum performance when glazed with the appropriate glass thickness.

To convert area to square meters (m $^{2}$ ), multiply square feet by 0.0929.



## Design Data - Replacement Sizes

| Replacement | Equ <u>a</u>   | l Sash f <u>o</u> r | Single- an         | d Dou <u>bl</u> | e-Hung                              |          |                     |                                |      |
|-------------|----------------|---------------------|--------------------|-----------------|-------------------------------------|----------|---------------------|--------------------------------|------|
| Unit        | Egress         | Clear C             | pening             | Vent<br>Area    | Visible<br>Glass<br>Ft <sup>2</sup> |          | rd Glass<br>ss (mm) | Performance<br>Class & Grade 1 |      |
| Offic       | Egr            | Width<br>(Inches)   | Height<br>(Inches) | Ft <sup>2</sup> |                                     | Annealed | Tempered            | Clad                           | Wood |
| 23.5 x 35.5 |                | 19-13/16            | 13-5/16            | 1.8             | 3.3                                 | 2.5      | 3                   | CW50                           | CW45 |
| 23.5 x 37.5 |                | 19-13/16            | 14-5/16            | 2.0             | 3.6                                 | 2.5      | 3                   | CW50                           | CW45 |
| 23.5 x 41.5 |                | 19-13/16            | 16-5/16            | 2.2             | 4.1                                 | 2.5      | 3                   | CW50                           | CW45 |
| 23.5 x 45.5 |                | 19-13/16            | 18-5/16            | 2.5             | 4.6                                 | 2.5      | 3                   | CW50                           | CW45 |
| 23.5 x 47.5 |                | 19-13/16            | 19-5/16            | 2.7             | 4.8                                 | 2.5      | 3                   | CW50                           | CW45 |
| 23.5 x 51.5 |                | 19-13/16            | 21-5/16            | 2.9             | 5.3                                 | 2.5      | 3                   | CW50                           | CW45 |
| 23.5 x 53.5 |                | 19-13/16            | 22-5/16            | 3.1             | 5.6                                 | 2.5      | 3                   | CW50                           | CW45 |
| 23.5 x 57.5 |                | 19-13/16            | 24-5/16            | 3.3             | 6.1                                 | 2.5      | 3                   | CW50                           | CW45 |
| 23.5 x 59.5 |                | 19-13/16            | 25-5/16            | 3.5             | 6.3                                 | 2.5      | 3                   | CW50                           | CW45 |
| 23.5 x 61.5 |                | 19-13/16            | 26-5/16            | 3.6             | 6.5                                 | 2.5      | 3                   | CW50                           | CW45 |
| 23.5 x 65.5 |                | 19-13/16            | 28-5/16            | 3.9             | 7.0                                 | 2.5      | 3                   | CW50                           | CW45 |
| 23.5 x 71.5 |                | 19-13/16            | 31-5/16            | 4.3             | 7.8                                 | 2.5      | 3                   | CW50                           | CW45 |
| 27.5 x 35.5 |                | 23-13/16            | 13-5/16            | 2.2             | 4.1                                 | 2.5      | 3                   | CW50                           | CW45 |
| 27.5 x 37.5 |                | 23-13/16            | 14-5/16            | 2.4             | 4.4                                 | 2.5      | 3                   | CW50                           | CW45 |
| 27.5 x 41.5 |                | 23-13/16            | 16-5/16            | 2.7             | 5.0                                 | 2.5      | 3                   | CW50                           | CW45 |
| 27.5 x 45.5 |                | 23-13/16            | 18-5/16            | 3.0             | 5.6                                 | 2.5      | 3                   | CW50                           | CW45 |
| 27.5 x 47.5 |                | 23-13/16            | 19-5/16            | 3.2             | 5.9                                 | 2.5      | 3                   | CW50                           | CW45 |
| 27.5 x 51.5 |                | 23-13/16            | 21-5/16            | 3.5             | 6.5                                 | 2.5      | 3                   | CW50                           | CW45 |
| 27.5 x 53.5 |                | 23-13/16            | 22-5/16            | 3.7             | 6.8                                 | 2.5      | 3                   | CW50                           | CW45 |
| 27.5 x 57.5 |                | 23-13/16            | 24-5/16            | 4.0             | 7.4                                 | 2.5      | 3                   | CW50                           | CW45 |
| 27.5 x 59.5 |                | 23-13/16            | 25-5/16            | 4.2             | 7.7                                 | 2.5      | 3                   | CW50                           | CW45 |
| 27.5 x 61.5 |                | 23-13/16            | 26-5/16            | 4.4             | 8.0                                 | 2.5      | 3                   | CW50                           | CW45 |
| 27.5 x 65.5 |                | 23-13/16            | 28-5/16            | 4.7             | 8.6                                 | 2.5      | 3                   | CW50                           | CW45 |
| 27.5 x 71.5 | E1             | 23-13/16            | 31-5/16            | 5.2             | 9.5                                 | 2.5      | 3                   | CW50                           | CW45 |
| 29.5 x 35.5 |                | 25-13/16            | 13-5/16            | 2.4             | 4.4                                 | 2.5      | 3                   | CW50                           | CW45 |
| 29.5 x 37.5 |                | 25-13/16            | 14-5/16            | 2.6             | 4.8                                 | 2.5      | 3                   | CW50                           | CW45 |
| 29.5 x 41.5 |                | 25-13/16            | 16-5/16            | 2.9             | 5.4                                 | 2.5      | 3                   | CW50                           | CW45 |
| 29.5 x 45.5 |                | 25-13/16            | 18-5/16            | 3.3             | 6.1                                 | 2.5      | 3                   | CW50                           | CW45 |
| 29.5 x 47.5 |                | 25-13/16            | 19-5/16            | 3.5             | 6.4                                 | 2.5      | 3                   | CW50                           | CW45 |
| 29.5 x 51.5 |                | 25-13/16            | 21-5/16            | 3.8             | 7.1                                 | 2.5      | 3                   | CW50                           | CW45 |
| 29.5 x 53.5 |                | 25-13/16            | 22-5/16            | 4.0             | 7.4                                 | 2.5      | 3                   | CW50                           | CW45 |
| 29.5 x 57.5 |                | 25-13/16            | 24-5/16            | 4.4             | 8.1                                 | 2.5      | 3                   | CW50                           | CW45 |
| 29.5 x 59.5 |                | 25-13/16            | 25-5/16            | 4.5             | 8.4                                 | 2.5      | 3                   | CW50                           | CW45 |
| 29.5 x 61.5 |                | 25-13/16            | 26-5/16            | 4.7             | 8.7                                 | 2.5      | 3                   | CW50                           | CW45 |
| 29.5 x 65.5 | E1             | 25-13/16            | 28-5/16            | 5.1             | 9.4                                 | 2.5      | 3                   | CW50                           | CW45 |
| 29.5 x 71.5 | E <sub>1</sub> | 25-13/16            | 31-5/16            | 5.6             | 10.4                                | 2.5      | 3                   | CW50                           | CW45 |

Continued on next page

#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.

<sup>(1)</sup> Maximum performance when glazed with the appropriate glass thickness.

To convert area to square meters (m $^{2}$ ), multiply square feet by 0.0929.

# $\mathsf{Pella}^{@} \; \mathsf{Reserve}^{^{\mathsf{TM}}} \; \mathsf{Traditional} \; \mathsf{Hung} \; \mathsf{Window}$

## Design Data - Replacement Sizes

| Replacemen <sup>-</sup> | t Equa | l Sash for        | Single- an         | d Daubl                 | e-Huna                   |          |                     |                                |      |
|-------------------------|--------|-------------------|--------------------|-------------------------|--------------------------|----------|---------------------|--------------------------------|------|
| _replacemen             |        | Clear O           |                    | Vent Visible            |                          |          | rd Glass<br>ss (mm) | Performance<br>Class & Grade 1 |      |
| Unit                    | Egress | Width<br>(Inches) | Height<br>(Inches) | Area<br>Ft <sup>2</sup> | Glass<br>Ft <sup>2</sup> | Annealed | Tempered            | Class &                        | Wood |
| 31.5 x 35.5             |        | 27-13/16          | 13-5/16            | 2.6                     | 4.8                      | 2.5      | 3                   | CW50                           | CW45 |
| 31.5 x 37.5             |        | 27-13/16          | 14-5/16            | 2.8                     | 5.2                      | 2.5      | 3                   | CW50                           | CW45 |
| 31.5 x 41.5             |        | 27-13/16          | 16-5/16            | 3.2                     | 5.9                      | 2.5      | 3                   | CW50                           | CW45 |
| 31.5 x 45.5             |        | 27-13/16          | 18-5/16            | 3.5                     | 6.6                      | 2.5      | 3                   | CW50                           | CW45 |
| 31.5 x 47.5             |        | 27-13/16          | 19-5/16            | 3.7                     | 7.0                      | 2.5      | 3                   | CW50                           | CW45 |
| 31.5 x 51.5             |        | 27-13/16          | 21-5/16            | 4.1                     | 7.7                      | 2.5      | 3                   | CW50                           | CW45 |
| 31.5 x 53.5             |        | 27-13/16          | 22-5/16            | 4.3                     | 8.0                      | 2.5      | 3                   | CW50                           | CW45 |
| 31.5 x 57.5             |        | 27-13/16          | 24-5/16            | 4.7                     | 8.8                      | 2.5      | 3                   | CW50                           | CW45 |
| 31.5 x 59.5             |        | 27-13/16          | 25-5/16            | 4.9                     | 9.1                      | 2.5      | 3                   | CW50                           | CW45 |
| 31.5 x 61.5             | E1     | 27-13/16          | 26-5/16            | 5.1                     | 9.5                      | 2.5      | 3                   | CW50                           | CW45 |
| 31.5 x 65.5             | E1     | 27-13/16          | 28-5/16            | 5.5                     | 10.2                     | 2.5      | 3                   | CW50                           | CW45 |
| 31.5 x 71.5             | E      | 27-13/16          | 31-5/16            | 6.0                     | 11.3                     | 2.5      | 3                   | CW50                           | CW45 |
| 35.5 x 35.5             |        | 31-13/16          | 13-5/16            | 2.9                     | 5.6                      | 2.5      | 3                   | CW50                           | CW45 |
|                         |        | 31-13/16          | 14-5/16            | 3.2                     | 6.0                      | 2.5      | 3                   | CW50                           | CW45 |
| 35.5 x 37.5             |        | 31-13/16          |                    |                         |                          | 2.5      | 3                   |                                | CW45 |
| 35.5 x 41.5             |        |                   | 16-5/16            | 3.6                     | 6.8                      |          |                     | CW50                           |      |
| 35.5 x 45.5             |        | 31-13/16          | 18-5/16            | 4.0                     | 7.6                      | 2.5      | 3                   | CW50                           | CW45 |
| 35.5 x 47.5             |        | 31-13/16          | 19-5/16            | 4.3                     | 8.0                      | 2.5      | 3                   | CW50                           | CW45 |
| 35.5 x 51.5             |        | 31-13/16          | 21-5/16            | 4.7                     | 8.9                      | 2.5      | 3                   | CW50                           | CW45 |
| 35.5 x 53.5             |        | 31-13/16          | 22-5/16            | 4.9                     | 9.3                      | 2.5      | 3                   | CW50                           | CW45 |
| 35.5 x 57.5             | E1     | 31-13/16          | 24-5/16            | 5.4                     | 10.1                     | 2.5      | 3                   | CW50                           | CW45 |
| 35.5 x 59.5             | E1     | 31-13/16          | 25-5/16            | 5.6                     | 10.5                     | 2.5      | 3                   | CW50                           | CW45 |
| 35.5 x 61.5             | E      | 31-13/16          | 26-5/16            | 5.8                     | 10.9                     | 2.5      | 3                   | CW50                           | CW45 |
| 35.5 x 65.5             | E      | 31-13/16          | 28-5/16            | 6.3                     | 11.8                     | 2.5      | 3                   | CW50                           | CW45 |
| 35.5 x 71.5             | Е      | 31-13/16          | 31-5/16            | 6.9                     | 13.0                     | 2.5      | 3                   | CW50                           | CW45 |
| 39.5 x 35.5             |        | 35-13/16          | 13-5/16            | 3.3                     | 6.3                      | 2.5      | 3                   | CW50                           | CW45 |
| 39.5 x 37.5             |        | 35-13/16          | 14-5/16            | 3.6                     | 6.8                      | 2.5      | 3                   | CW50                           | CW45 |
| 39.5 x 41.5             |        | 35-13/16          | 16-5/16            | 4.1                     | 7.7                      | 2.5      | 3                   | CW50                           | CW45 |
| 39.5 x 45.5             |        | 35-13/16          | 18-5/16            | 4.6                     | 8.7                      | 2.5      | 3                   | CW50                           | CW45 |
| 39.5 x 47.5             |        | 35-13/16          | 19-5/16            | 4.8                     | 9.1                      | 2.5      | 3                   | CW50                           | CW45 |
| 39.5 x 51.5             |        | 35-13/16          | 21-5/16            | 5.3                     | 10.1                     | 2.5      | 3                   | CW50                           | CW45 |
| 39.5 x 53.5             |        | 35-13/16          | 22-5/16            | 5.5                     | 10.5                     | 2.5      | 3                   | CW50                           | CW45 |
| 39.5 x 57.5             | Е      | 35-13/16          | 24-5/16            | 6.0                     | 11.5                     | 2.5      | 3                   | CW50                           | CW45 |
| 39.5 x 59.5             | Е      | 35-13/16          | 25-5/16            | 6.3                     | 11.9                     | 2.5      | 3                   | CW50                           | CW45 |
| 39.5 x 61.5             | Е      | 35-13/16          | 26-5/16            | 6.5                     | 12.4                     | 2.5      | 3                   | CW50                           | CW45 |
| 39.5 x 65.5             | Е      | 35-13/16          | 28-5/16            | 7.0                     | 13.4                     | 2.5      | 3                   | CW50                           | CW45 |
| 39.5 x 71.5             | Е      | 35-13/16          | 31-5/16            | 7.8                     | 14.8                     | 2.5      | 3                   | CW50                           | CW45 |
| 41.5 x 35.5             |        | 37-13/16          | 13-5/16            | 3.5                     | 6.7                      | 2.5      | 3                   | CW50                           | CW45 |
| 41.5 x 37.5             |        | 37-13/16          | 14-5/16            | 3.8                     | 7.2                      | 2.5      | 3                   | CW50                           | CW45 |
| 41.5 x 41.5             |        | 37-13/16          | 16-5/16            | 4.3                     | 8.2                      | 2.5      | 3                   | CW50                           | CW45 |
| 41.5 x 45.5             |        | 37-13/16          | 18-5/16            | 4.8                     | 9.2                      | 2.5      | 3                   | CW50                           | CW45 |
| 41.5 x 47.5             |        | 37-13/16          | 19-5/16            | 5.1                     | 9.7                      | 2.5      | 3                   | CW50                           | CW45 |
| 41.5 x 51.5             |        | 37-13/16          | 21-5/16            | 5.6                     | 10.7                     | 2.5      | 3                   | CW50                           | CW45 |
| 41.5 x 53.5             |        | 37-13/16          | 22-5/16            | 5.9                     | 11.2                     | 2.5      | 3                   | CW50                           | CW45 |
| 41.5 x 57.5             | Е      | 37-13/16          | 24-5/16            | 6.4                     | 12.2                     | 2.5      | 3                   | CW50                           | CW45 |
| 41.5 x 59.5             | Е      | 37-13/16          | 25-5/16            | 6.6                     | 12.7                     | 2.5      | 3                   | CW50                           | CW45 |
| 41.5 x 61.5             | Е      | 37-13/16          | 26-5/16            | 6.9                     | 13.1                     | 2.5      | 3                   | CW50                           | CW45 |
| 41.5 x 65.5             | Е      | 37-13/16          | 28-5/16            | 7.4                     | 14.1                     | 2.5      | 3                   | CW50                           | CW45 |
| 41.5 x 71.5             | Е      | 37-13/16          | 31-5/16            | 8.2                     | 15.6                     | 2.5      | 3                   | CW50                           | CW45 |

#### 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 ft<sup>2</sup>.
- E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.

<sup>(1)</sup> Maximum performance when glazed with the appropriate glass thickness.



## Design Data - Replacement Sizes

| Replaceme  | nt Fixed                 |          |                     |                 |
|------------|--------------------------|----------|---------------------|-----------------|
|            | Visible                  |          | rd Glass<br>ss (mm) | Performance     |
| Unit       | Glass<br>Ft <sup>2</sup> | Annealed | Tempered            | Class & Grade 1 |
| 41 x 35.5  | 7.3                      | 2.5      | 3                   | CW50            |
| 41 x 37.5  | 7.8                      | 2.5      | 3                   | CW50            |
| 41 x 41.5  | 8.8                      | 2.5      | 3                   | CW50            |
| 41 x 45.5  | 9.7                      | 2.5      | 3                   | CW45/CW50       |
| 41 x 47.5  | 10.2                     | 3.0      | 3                   | CW50            |
| 41 x 51.5  | 11.2                     | 3.0      | 3                   | CW50            |
| 41x53.5    | 11.7                     | 3.0      | 3                   | CW50            |
| 41 x 57.5  | 12.7                     | 3.0      | 3                   | CW50            |
| 41 x 59.5  | 13.2                     | 3.0      | 3                   | CW50            |
| 41 x 61.5  | 13.6                     | 3.0      | 3                   | CW50            |
| 41x 65.5   | 14.6                     | 3.0      | 3                   | CW50            |
| 41 x 71.5  | 16.1                     | 3.0      | 3                   | CW45/CW50       |
| 47 x 35.5  | 8.5                      | 2.5      | 3                   | CW50            |
| 47 x 37.5  | 9.1                      | 2.5      | 3                   | CW50            |
| 47 x 41.5  | 10.2                     | 3.0      | 3                   | CW50            |
| 47 x 45.5  | 11.4                     | 3.0      | 3                   | CW50            |
| 47 x 47.5  | 12.0                     | 3.0      | 3                   | CW50            |
| 47 x 51.5  | 13.1                     | 3.0      | 3                   | CW50            |
| 47 x 53.5  | 13.7                     | 3.0      | 3                   | CW50            |
| 47 x 57.5  | 14.8                     | 3.0      | 3                   | CW50            |
| 47×59.5    | 15.4                     | 3.0      | 3                   | CW45/CW50       |
| 47 x 61.5  | 16.0                     | 3.0      | 3                   | CW45/CW50       |
| 47 x 65.5  | 17.1                     | 3.0      | 3                   | CW45/CW50       |
| 47 x 71.5  | 18.8                     | 4.0      | 4                   | CW50            |
| 53 x 35.5  | 9.8                      | 2.5      | 3                   | CW45/CW50       |
| 53 x 37.5  | 10.4                     | 3.0      | 3                   | CW50            |
| 53 x 41.5  | 11.7                     | 3.0      | 3                   | CW50            |
| 53 x 45.5  | 13.0                     | 3.0      | 3                   | CW50            |
| 53 x 47.5  | 13.7                     | 3.0      | 3                   | CW50            |
| 53 x 51.5  | 15.0                     | 3.0      | 4                   | CW50            |
| 53 x 53.5  | 15.7                     | 3.0      | 4                   | CW45/CW50       |
| 53×57.5    | 17.0                     | 3.0      | 4                   | CW45/CW50       |
| 53 x 59.5  | 17.6                     | 4.0      | 4                   | CW50            |
| 53 x 61.5  | 18.3                     | 4.0      | 4                   | CW50            |
| 53 x 65.5  | 19.6                     | 4.0      | 4                   | CW50            |
| 53 x 71.5  | 21.6                     | 4.0      | 4                   | CW50            |
| 59 x 35.5  | 11.0                     | 3.0      | 3                   | CW50            |
| 59 x 37.5  | 11.7                     | 3.0      | 3                   | CW50            |
| 59 x 41.5  | 13.2                     | 3.0      | 3                   | CW50            |
| 59 x 45.5  | 14.7                     | 3.0      | 3                   | CW50            |
| 59 x 47.5  | 15.4                     | 3.0      | 3                   | CW45/CW50       |
| 59 x 51.5  | 16.9                     | 3.0      | 4                   | CW45/CW50       |
| 59 x 53.5  | 17.7                     | 4.0      | 4                   | CW50            |
| 59 x 57.5  | 19.1                     | 4.0      | 4                   | CW50            |
| 59 x 59.5  | 19.9                     | 4.0      | 4                   | CW50            |
| 59 x 61.5  | 20.6                     | 4.0      | 4                   | CW50            |
| 59 x 65.5  | 20.6                     | 4.0      | 4                   | CW50            |
| 59 x 71.5  | 24.3                     | 4.0      | 4                   | CW45/CW50       |
| J3 X / 1.3 | 24.3                     | 4.0      | -4                  | C 443/C 443/    |

| Replacement Transoms |                  |          |                     |                 |  |  |  |  |  |  |
|----------------------|------------------|----------|---------------------|-----------------|--|--|--|--|--|--|
| Unit                 | Visible<br>Glass |          | rd Glass<br>ss (mm) | Performance     |  |  |  |  |  |  |
|                      | Ft <sup>2</sup>  | Annealed | Tempered            | Class & Grade 1 |  |  |  |  |  |  |
| 23.5 x 14            | 1.0              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 23.5 x 17            | 1.4              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 23.5 x 25            | 2.4              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 27.5 x 14            | 1.2              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 27.5 x 17            | 1.7              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 27.5 x 25            | 2.9              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 29.5 x 14            | 1.4              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 29.5 x 17            | 1.9              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 29.5 x 25            | 3.2              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 31.5 x 14            | 1.5              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 31.5 x 17            | 2.0              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 31.5 x 25            | 3.4              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 35.5 x 14            | 1.7              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 35.5 x 17            | 2.3              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 35.5 x 25            | 4.0              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 39.5 x 14            | 1.9              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 39.5 x 17            | 2.6              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 39.5 x 25            | 4.5              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 41.5 x 14            | 2.0              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 41.5 x 17            | 2.8              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |
| 41.5 x 25            | 4.8              | 2.5      | 3                   | CW50            |  |  |  |  |  |  |

<sup>(1)</sup> Maximum performance when glazed with the appropriate glass thickness. Second number, where shown, requires tempered glass.



## Design Data

| Replacement   | Cotta  | ge Sash fo        | or Single- a       | and Dou                 | uble-Hui                 | ng       |                     |      |                  |
|---------------|--------|-------------------|--------------------|-------------------------|--------------------------|----------|---------------------|------|------------------|
| 11.5          | Egress | Clear Opening     |                    | Vent                    | Visible                  |          | rd Glass<br>ss (mm) |      | mance<br>Grade 1 |
| Unit          | Egr    | Width<br>(Inches) | Height<br>(Inches) | Area<br>Ft <sup>2</sup> | Glass<br>Ft <sup>2</sup> | Annealed | Tempered            | Clad | Wood             |
| VG23.5 x 41.5 |        | 19-13/16          | 12-7/8             | 1.8                     | 4.1                      | 2.5      | 3                   | CW50 | CW45             |
| VG23.5 x 45.5 |        | 19-13/16          | 14-1/2             | 2.0                     | 4.6                      | 2.5      | 3                   | CW50 | CW45             |
| VG23.5 x 47.5 |        | 19-13/16          | 15-1/4             | 2.1                     | 4.8                      | 2.5      | 3                   | CW50 | CW45             |
| VG23.5 x 51.5 |        | 19-13/16          | 16-7/8             | 2.3                     | 5.3                      | 2.5      | 3                   | CW50 | CW45             |
| VG23.5 x 53.5 |        | 19-13/16          | 17-11/16           | 2.4                     | 5.6                      | 2.5      | 3                   | CW50 | CW45             |
| VG23.5 x 57.5 |        | 19-13/16          | 19-1/4             | 2.7                     | 6.1                      | 2.5      | 3                   | CW50 | CW45             |
| VG23.5 x 59.5 |        | 19-13/16          | 19-15/16           | 2.8                     | 6.3                      | 2.5      | 3                   | CW50 | CW45             |
| VG23.5 x 61.5 |        | 19-13/16          | 20-7/8             | 2.9                     | 6.5                      | 2.5      | 3                   | CW50 | CW45             |
| VG23.5 x 65.5 |        | 19-13/16          | 22-1/2             | 3.1                     | 7.0                      | 2.5      | 3                   | CW50 | CW45             |
| VG23.5 x 71.5 |        | 19-13/16          | 24-7/8             | 3.4                     | 7.8                      | 2.5      | 3                   | CW40 | CW40             |
| VG27.5 x 41.5 |        | 23-13/16          | 12-7/8             | 2.1                     | 5.0                      | 2.5      | 3                   | CW50 | CW45             |
| VG27.5 x 45.5 |        | 23-13/16          | 14-1/2             | 2.4                     | 5.6                      | 2.5      | 3                   | CW50 | CW45             |
| VG27.5 x 47.5 |        | 23-13/16          | 15-1/4             | 2.5                     | 5.9                      | 2.5      | 3                   | CW50 | CW45             |
| VG27.5 x 51.5 |        | 23-13/16          | 16-7/8             | 2.8                     | 6.5                      | 2.5      | 3                   | CW50 | CW45             |
| VG27.5 x 53.5 |        | 23-13/16          | 17-11/16           | 2.9                     | 6.8                      | 2.5      | 3                   | CW50 | CW45             |
| VG27.5 x 57.5 |        | 23-13/16          | 19-1/4             | 3.2                     | 7.4                      | 2.5      | 3                   | CW50 | CW45             |
| VG27.5 x 59.5 |        | 23-13/16          | 19-15/16           | 3.3                     | 7.7                      | 2.5      | 3                   | CW50 | CW45             |
| VG27.5 x 61.5 |        | 23-13/16          | 20-7/8             | 3.5                     | 8.0                      | 2.5      | 3                   | CW50 | CW45             |
| VG27.5 x 65.5 |        | 23-13/16          | 22-1/2             | 3.7                     | 8.6                      | 2.5      | 3                   | CW50 | CW45             |
| VG27.5 x 71.5 |        | 23-13/16          | 24-7/8             | 4.1                     | 9.5                      | 2.5      | 3                   | CW40 | CW40             |
| VG29.5 x 41.5 |        | 25-13/16          | 12-7/8             | 2.3                     | 5.4                      | 2.5      | 3                   | CW50 | CW45             |
| VG29.5 x 45.5 |        | 25-13/16          | 14-1/2             | 2.6                     | 6.1                      | 2.5      | 3                   | CW50 | CW45             |
| VG29.5 x 47.5 |        | 25-13/16          | 15-1/4             | 2.7                     | 6.4                      | 2.5      | 3                   | CW50 | CW45             |
| VG29.5 x 51.5 |        | 25-13/16          | 16-7/8             | 3.0                     | 7.1                      | 2.5      | 3                   | CW50 | CW45             |
| VG29.5 x 53.5 |        | 25-13/16          | 17-11/16           | 3.2                     | 7.4                      | 2.5      | 3                   | CW50 | CW45             |
| VG29.5 x 57.5 |        | 25-13/16          | 19-1/4             | 3.5                     | 8.1                      | 2.5      | 3                   | CW50 | CW45             |
| VG29.5 x 59.5 |        | 25-13/16          | 19-15/16           | 3.6                     | 8.4                      | 2.5      | 3                   | CW50 | CW45             |
| VG29.5 x 61.5 |        | 25-13/16          | 20-7/8             | 3.7                     | 8.7                      | 2.5      | 3                   | CW50 | CW45             |
| VG29.5 x 65.5 |        | 25-13/16          | 22-1/2             | 4.0                     | 9.4                      | 2.5      | 3                   | CW50 | CW45             |
| VG29.5 x 71.5 |        | 25-13/16          | 24-7/8             | 4.5                     | 10.4                     | 2.5      | 3                   | CW40 | CW40             |
| VG31.5 x 41.5 |        | 27-13/16          | 12-7/8             | 2.5                     | 5.9                      | 2.5      | 3                   | CW50 | CW45             |
| VG31.5 x 45.5 |        | 27-13/16          | 14-1/2             | 2.8                     | 6.6                      | 2.5      | 3                   | CW50 | CW45             |
| VG31.5 x 47.5 |        | 27-13/16          | 15-1/4             | 3.0                     | 7.0                      | 2.5      | 3                   | CW50 | CW45             |
| VG31.5 x 51.5 |        | 27-13/16          | 16-7/8             | 3.3                     | 7.7                      | 2.5      | 3                   | CW50 | CW45             |
| VG31.5 x 53.5 |        | 27-13/16          | 17-11/16           | 3.4                     | 8.0                      | 2.5      | 3                   | CW50 | CW45             |
| VG31.5 x 57.5 |        | 27-13/16          | 19-1/4             | 3.7                     | 8.8                      | 2.5      | 3                   | CW50 | CW45             |
| VG31.5 x 59.5 |        | 27-13/16          | 19-15/16           | 3.9                     | 9.1                      | 2.5      | 3                   | CW50 | CW45             |
| VG31.5 x 61.5 |        | 27-13/16          | 20-7/8             | 4.0                     | 9.5                      | 2.5      | 3                   | CW50 | CW45             |
| VG31.5 x 65.5 |        | 27-13/16          | 22-1/2             | 4.3                     | 10.2                     | 2.5      | 3                   | CW50 | CW45             |
| VG31.5 x 71.5 |        | 27-13/16          | 24-7/8             | 4.8                     | 11.3                     | 2.5      | 3                   | CW40 | CW40             |

Continued on next page

<sup>(1)</sup> Maximum performance when glazed with the appropriate glass thickness.

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



#### Design Data

| Replacement Cottage Sash for Single- and Double-Hung |        |                   |                    |                 |                  |          |          |                                |      |  |
|--|--------|-------------------|--------------------|-----------------|------------------|----------|----------|--------------------------------|------|--|
| Unit   | Egress | Clear Opening     |                    |                 | Visible<br>Glass | THICKIES |          | Performance<br>Class & Grade 1 |      |  |
|  | Egr    | Width<br>(Inches) | Height<br>(Inches) | Ft <sup>2</sup> | Ft <sup>2</sup>  | Annealed | Tempered | Clad                           | Wood |  |
| VG35.5 x 41.5  |        | 31-13/16          | 12-7/8             | 2.8             | 6.8              | 2.5      | 3        | CW50                           | CW45 |  |
| VG35.5 x 45.5  |        | 31-13/16          | 14-1/2             | 3.2             | 7.6              | 2.5      | 3        | CW50                           | CW45 |  |
| VG35.5 x 47.5  |        | 31-13/16          | 15-1/4             | 3.4             | 8.0              | 2.5      | 3        | CW50                           | CW45 |  |
| VG35.5 x 51.5  |        | 31-13/16          | 16-7/8             | 3.7             | 8.9              | 2.5      | 3        | CW50                           | CW45 |  |
| VG35.5 x 53.5  |        | 31-13/16          | 17-11/16           | 3.9             | 9.3              | 2.5      | 3        | CW50                           | CW45 |  |
| VG35.5 x 57.5  |        | 31-13/16          | 19-1/4             | 4.3             | 10.1             | 2.5      | 3        | CW50                           | CW45 |  |
| VG35.5 x 59.5  |        | 31-13/16          | 19-15/16           | 4.4             | 10.5             | 2.5      | 3        | CW50                           | CW45 |  |
| VG35.5 x 61.5  |        | 31-13/16          | 20-7/8             | 4.6             | 11.0             | 2.5      | 3        | CW50                           | CW45 |  |
| VG35.5 x 65.5  |        | 31-13/16          | 22-1/2             | 5.0             | 11.8             | 2.5      | 3        | CW50                           | CW45 |  |
| VG35.5 x 71.5  | E1     | 31-13/16          | 24-7/8             | 5.5             | 13.0             | 2.5      | 3        | CW40                           | CW40 |  |
| VG39.5 x 41.5  |        | 35-13/16          | 12-7/8             | 3.2             | 7.7              | 2.5      | 3        | CW50                           | CW45 |  |
| VG39.5 x 45.5  |        | 35-13/16          | 14-1/2             | 3.6             | 8.7              | 2.5      | 3        | CW50                           | CW45 |  |
| VG39.5 x 47.5  |        | 35-13/16          | 15-1/4             | 3.8             | 9.1              | 2.5      | 3        | CW50                           | CW45 |  |
| VG39.5 x 51.5  |        | 35-13/16          | 16-7/8             | 4.2             | 10.1             | 2.5      | 3        | CW50                           | CW45 |  |
| VG39.5 x 53.5  |        | 35-13/16          | 17-11/16           | 4.4             | 10.5             | 2.5      | 3        | CW50                           | CW45 |  |
| VG39.5 x 57.5  |        | 35-13/16          | 19-1/4             | 4.8             | 11.5             | 2.5      | 3        | CW50                           | CW45 |  |
| VG39.5 x 59.5  |        | 35-13/16          | 19-15/16           | 5.0             | 11.9             | 2.5      | 3        | CW50                           | CW45 |  |
| VG39.5 x 61.5  |        | 35-13/16          | 20-7/8             | 5.2             | 12.4             | 2.5      | 3        | CW45                           | CW45 |  |
| VG39.5 x 65.5  |        | 35-13/16          | 22-1/2             | 5.6             | 13.4             | 2.5      | 3        | CW45                           | CW45 |  |
| VG39.5 x 71.5  | Е      | 35-13/16          | 24-7/8             | 6.2             | 14.8             | 2.5      | 3        | CW40                           | CW40 |  |
| VG41.5 x 41.5  |        | 37-13/16          | 12-7/8             | 3.4             | 8.2              | 2.5      | 3        | CW50                           | CW45 |  |
| VG41.5 x 45.5  |        | 37-13/16          | 14-1/2             | 3.8             | 9.2              | 2.5      | 3        | CW50                           | CW45 |  |
| VG41.5 x 47.5  |        | 37-13/16          | 15-1/4             | 4.0             | 9.7              | 2.5      | 3        | CW50                           | CW45 |  |
| VG41.5 x 51.5  |        | 37-13/16          | 16-7/8             | 4.4             | 10.7             | 2.5      | 3        | CW50                           | CW45 |  |
| VG41.5 x 53.5  |        | 37-13/16          | 17-11/16           | 4.6             | 11.2             | 2.5      | 3        | CW50                           | CW45 |  |
| VG41.5 x 57.5  |        | 37-13/16          | 19-1/4             | 5.1             | 12.2             | 2.5      | 3        | CW50                           | CW45 |  |
| VG41.5 x 59.5  |        | 37-13/16          | 19-15/16           | 5.3             | 12.7             | 2.5      | 3        | CW50                           | CW45 |  |
| VG41.5 x 61.5  |        | 37-13/16          | 20-7/8             | 5.5             | 13.2             | 2.5      | 3        | CW45                           | CW45 |  |
| VG41.5 x 65.5  |        | 37-13/16          | 22-1/2             | 5.9             | 14.1             | 2.5      | 3        | CW45                           | CW45 |  |
| VG41.5 x 71.5  | Е      | 37-13/16          | 24-7/8             | 6.5             | 15.6             | 2.5      | 3        | CW40                           | CW40 |  |

#### 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 ft<sup>2</sup>.

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

<sup>(1)</sup> Maximum performance when glazed with the appropriate glass thickness.



#### Detailed Product Description - Aluminum-Clad Exterior

#### 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] [mahogany] [douglas fir].
- · 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).
- Vinyl jamb liner with wood / clad inserts.
- Optional factory installed fold-out installation fins with flexible fin corners.
- Optional factory-applied EnduraClad® exterior trim.

#### 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] [mahogany] [douglas fir]. Any curved member may have visible finger-jointed surfaces.
- Exterior surfaces are clad with extruded aluminum butt-jointed at all corners of the sash with through-stile construction and sealed.
- Corners mortised and tenoned, glued and secured with metal fasteners.
- Sash thickness is 1-7/8" (47mm).
- · Double-Hung: Upper sash has surface-mounted wash locks for easy tilt-in cleaning] [Single-Hung: Fixed upper sash has surface-mounted wash locks] [Arch Head units have no wash locks].
- · Lower sash has concealed wash locks in lower check rail allowing sash to tilt in for easy cleaning.
- Simulated-Hung units have non-operable upper and lower sashes.
- · Sash exterior profile is [ogee] [putty glaze], interior profile is ogee.

#### Weatherstripping

- Water-stop santoprene-wrapped foam at head and sill.
- · Thermoplastic elastomer bulb with slip-coating set into lower sash for tight
- · Vinyl-wrapped foam inserted into jamb liner to seal against sides of sash.

#### Glazing System

- Quality float glass complying with ASTM C 1036.
- Custom and high altitude glazing available.
- Silicone-glazed dual-pane 11/16" dual-seal insulating glass [[annealed] Sincone-grazed dual-panie 1716 dual-seal insulating grass [[amhealed] [tempered]], [[clear] [[Advanced] [SunDefense\*] [SunDefense\*] [NaturalSun] [NaturalSun+] [AdvancedComfort] Low-E [with argon]] [[bronze] [gray] [green] Advanced Low-E [with Argon]] [obscure] [Reflective Bronze]. – or
- Silicone-glazed dual-pane 13/16" dual-seal [[annealed] [tempered]] non-impact laminated glass [[clear] [[Advanced] [SunDefense] Low-E [with Argon]] [[bronze] [gray] [green] Advanced Low-E [with argon]].

#### Exterior

- Aluminum-clad exteriors shall be finished with EnduraClad® protective finish, in a multi-step, baked-on finish.
  - Color is [standard] [feature] [custom]<sub>1</sub>.

- Aluminum-clad exteriors shall be finished with EnduraClad Plus protective finish with 70% fluoropolymer resin in a multi-step, baked-on finish.
  - Color is [standard] [feature] [custom]<sub>1</sub>.

[Unfinished, ready for site finishing] [factory primed with one coat acrylic latex] [pine: factory prefinished [paint] [stain]1].

#### Hardware

- · Galvanized block-and-tackle balances are connected to self-locking balance shoes which are connected to the sashes using zinc die cast terminals and concealed within the frame
- Sash lock is [standard (cam-action)] [historic spoon-style] [air-conditioner lock] [simulated lock (Single-piece lock ties upper and lower sash together. When removed lower sash becomes operable)]. Two sash locks on units with frame width 37" and greater.
- Optional sash lift furnished for field installation. Two lifts on units with frame width 37" and greater.
- Hardware finish is [baked enamel [Champagne] [White] [Brown] [Matte Black]] [Satin Brass] [Satin Nickel] [Oil-rubbed Bronze] [Distressed Bronze] [Distressed Nickel].

#### **Optional Products**

- Exterior sash lugs
  - Optional factory applied accessory. Exterior finish is [Standard<sub>1</sub>] [Custom<sub>1</sub>].

- Integral Light Technology® grilles
   Interior grilles are [5/8"] [7/8"] [1-1/4"] [2"] ogee profile that are solid [pine] [mahogany] [douglas fir]. Interior surfaces are [unfinished, ready for site
  - finishing] [factory primed] [pine: factory prefinished [paint] [stain] 1].

    Exterior grilles are [5/8" putty glaze profile] [7/8" [putty glaze] [ogee] profile] [1-1/4" [putty glaze] [ogee] profile] [2" ogee profile] that are extruded aluminum.
  - Patterns are [Traditional] [Prairie] [Top Row] [New England] [Victorian].
  - Insulating glass contains non-glare spacer between the panes of glass.
  - Grilles are adhered to both sides of the insulating glass with VHB acrylic adhesive tape and aligned with the non-glare spacer. – 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] [Cross] [Top Row]
     Interior color is [White] [Tan<sub>3</sub>] [Brown<sub>3</sub>] [Putty<sub>3</sub>] [Black] [Ivory] [Harvest] [Cordovan] [Brickstone]
  - Exterior color 4 is [standard]<sub>1</sub>.

#### Screens

- Integrated Rolscreen® (for rectangular units only)6
  - Retractable screen integrated into [lower sash] [both upper and lower sash]. Screen rollers are fixed and concealed within the frame, screen is held to the sash by magnets which release when the bottom sash is tilted for cleaning, and when the upper sash is opened past 18"
  - InView Screen cloth, black vinyl-coated 18/18 mesh fiberglass screen cloth complying with ASTM D 3656 and the performance requirements of SMA
    - or –
- InView<sup>™</sup> screens
  - [Half-Size] [Full-Size 4] black vinyl-coated 18/18 mesh fiberglass screen cloth complying with the performance requirements of SMA 1201, set in a [standard roll-form] [premium extruded] aluminum frame fitted to outside of window, supplied complete with all necessary hardware.
  - Full screen spreader bar placed on units > 37" width or > 65" height.
  - Screen frame finish is [standard screen: baked enamel] [premium extruded: baked enamel], color to match window cladding.

- Optional factory applied limited opening device available for vent units in stainless steel; nominal 3-3/4" opening. Limiting device concealed from view.
- Optional factory applied window opening control device. 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 F2090-10.

#### Sensors

Optional factory installed integrated security sensors available in vent units.

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

<sup>(2)</sup> Available in clear or Low-E insulating glass only.

<sup>(3)</sup> Tan, Brown and Putty Interior GBG colors are available in single-tone (Brown/Brown, Tan/Tan or Putty/Putty). Other interior colors are also available with Tan or Brown exterior.

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

<sup>(5)</sup> Full screens are available on units ≤ 96" height

<sup>(6)</sup> Integrated Rolscreen only available on sizes ≥ 34" tall and 21" wide, and ≤ 84" tall and 48" wide.



#### Detailed Product Description - Wood Exterior

#### 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] [mahogany] (standard rectangular windows only). Any curved member may have visible finger-jointed surfaces.
- Exterior surfaces are [pine] [mahogany].
- Overall frame depth is 4-3/8" (111mm) for a wall depth of 4-3/16" (106mm).
- Vinyl Jamb liner includes wood / clad inserts.
- Optional factory applied jamb extensions available between 4-5/16" (110mm) and 9-3/16" (233mm).

- · 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] [mahogany (standard rectangular windows only)]. Any curved member may have visible finger-jointed surfaces.
- Exterior surfaces are [pine] [mahogany].
- · Sash exterior profile is putty glaze, interior profile is ogee.
- Corners [mortised and tenoned on rectangular units] [mitered on arch head units], glued and secured with metal fasteners.
- Sash thickness is 1-7/8" (47mm).
- [Double-Hung: Upper sash has surface-mounted wash locks] [Single-Hung: Fixed upper sash has surface-mounted wash locks] [Arch Head units have no wash locks].
- Lower sash has concealed wash locks in lower check rail.
- Sashes tilt in for easy cleaning.
- · Simulated-Hung units have non-operable upper and lower sashes.

#### Weatherstripping

- · Water-stop santoprene-wrapped foam at head and sill. Thermoplastic elastomer bulb with slip-coating set into lower sash for tight contact at check rail.
- Vinyl-wrapped foam inserted into jamb liner to seal against sides of sash.

#### Glazing System

- · Quality float glass complying with ASTM C 1036.
- Custom and high altitude glazing available.
- Silicone-glazed 11/16" dual-seal insulating glass [[annealed] [tempered]] [[clear] [[Advanced] [SunDefense™] [SunDefense+] [AdvancedComfort] [NaturalSun] [NaturalSun+] Low-E [with argon]] [[bronze] [gray] [green] Advanced Low-E with argon].

• [Pine: factory primed with one coat acrylic latex] [Mahogany: [factory primed with one coat acrylic latex] [Unfinished, ready for site finishing]].

#### Interior

[Unfinished, ready for site finishing] [factory primed with one coat acrylic latex] [pine: factory prefinished [paint] [stain]1].

#### Hardware

- · Galvanized block-and-tackle balances are connected to self-locking balance shoes which are connected to the sashes using zinc die cast terminals and concealed within the frame.
- Sash lock is [standard (cam-action)] [historic spoon-style] [air-conditioner lock] [simulated lock (Single-piece lock ties upper and lower sash together. When removed lower sash becomes operable)]. Two sash locks on units with frame width 37" and greater.
- Optional sash lift furnished for field installation. Two lifts on units with frame width 37" and greater.
- Hardware finish is [baked enamel [Champagne] [White] [Brown] [Matte Black]] [satin brass] [satin nickel] [oil-rubbed bronze] [distressed bronze] [distressed nickel]

#### **Optional Products**

#### Grilles

- Integral Light Technology® grilles

  Interior grilles are solid [5/8"] [7/8"] [1-1/4"] ogee profile that are solid [pine] [mahogany]. Interior surfaces are [unfinished, ready for site finishing]
  - [factory primed] [pine: factory prefinished [paint] [stain] 1].

    Exterior grilles are solid [5/8"] [7/8"] [1-1/4"] putty glaze profile] that are [pine] [mahogany]. Exterior surfaces are water repellent, preservativetreated in accordance with WDMA I.S.-4, and are [unfinished, ready for site finishing] [factory primed]
  - Patterns are [Traditional] [Prairie] [Top Row] [New England] [Victorian].
  - Insulating glass contains non-glare spacer between the panes of glass.
  - Grilles are adhered to both sides of the insulating glass with VHB acrylic adhesive tape and aligned with the non-glare spacer
- 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] [Cross] [Top Row]
  - Interior color is [White] [Tan 3] [Brown 3] [Putty 3] [Black] [Ivory] [Harvest] [Cordovan] [Brickstone].
  - Exterior color<sub>5</sub> is [standard]<sub>1</sub>.

#### Screens

- InView<sup>™</sup> Screens
  - [Half-Size] [Full-Size 4] black vinyl-coated 18/18 mesh fiberglass screen cloth complying with the performance requirements of SMA 1201, set in a [standard roll-form aluminum frame with 3/4" wide rails and stiles] [premium extruded aluminum frame with 1" wide rails and stiles] fitted to outside of window, supplied complete with all necessary hardware.
  - Full screen spreader bar placed on units > 37" width or > 65" height.
  - Insect screen frame finish is baked enamel.

- Optional factory applied limited opening device available for vent units in stainless steel; nominal 3-3/4" opening. Limiting device concealed from view.
- Optional factory applied window opening control device. 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 F2090-10.

#### Sensors

Optional factory installed integrated security sensors available in vent units.

(2) Available in clear or Low-E insulating glass with argon, and obscure insulated glass.

(4) Full screens are available on units ≤ 96" height.

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

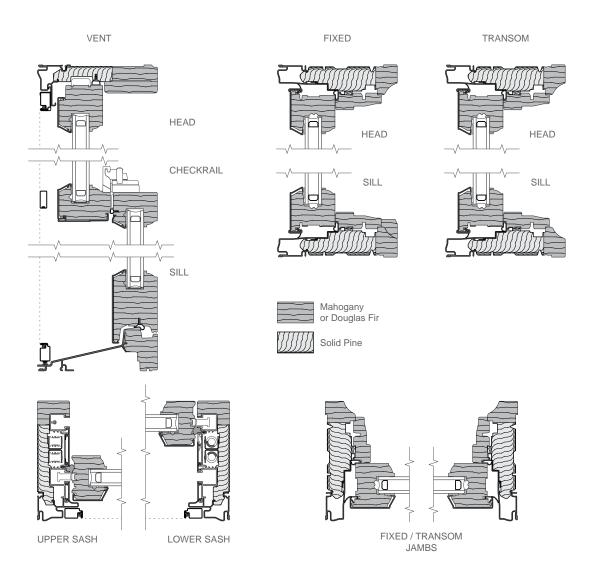
Rev. 10/20/2023

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

<sup>(3)</sup> Tan, Brown and Putty Interior GBG colors are available in single-tone (Brown/Brown, Tan/Tan or Putty/Putty). Other interior colors are also available with Tan or Brown exterior.

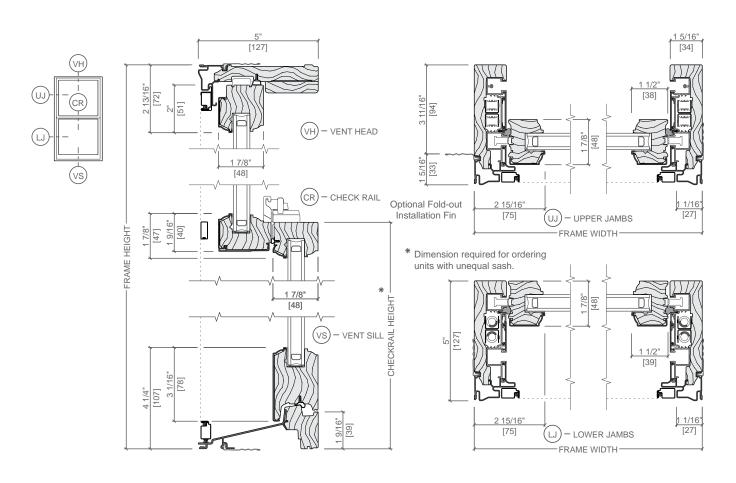


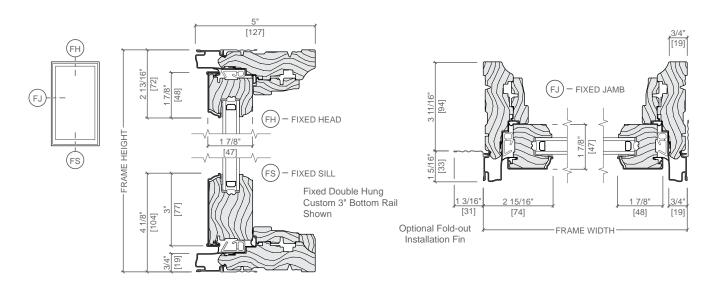
## Unit Sections - Wood Collection





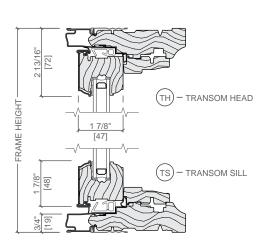
## Unit Sections - Aluminum-Clad Ogee Exterior Glazing Profile

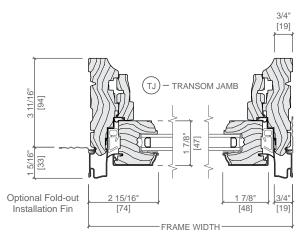




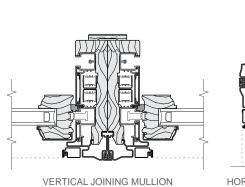
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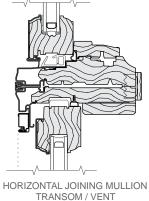


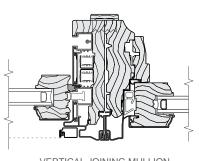




#### Typical Joining Mullions







VERTICAL JOINING MULLION LX VENT / FIXED

Scale 3" = 1' 0"

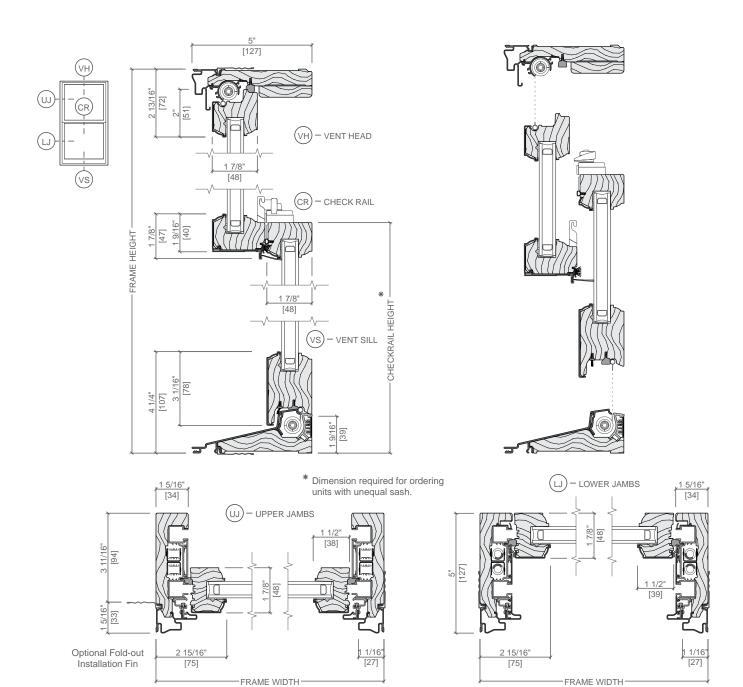
All dimensions are approximate.

See supporting document Combination Recommendations, for mullion limitations and reinforcing requirements.

LX VENT / LX VENT

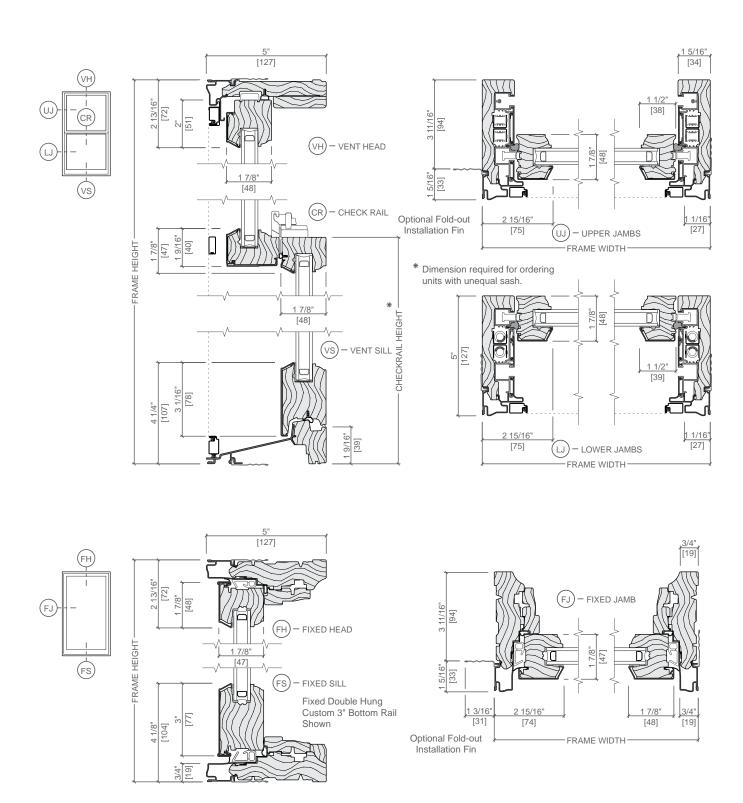


## Unit Sections - Aluminum-Clad Ogee Exterior Glazing Profile with Integrated Rolscreen®



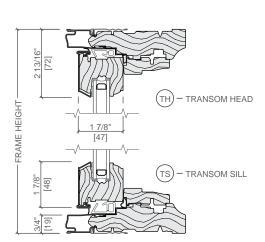


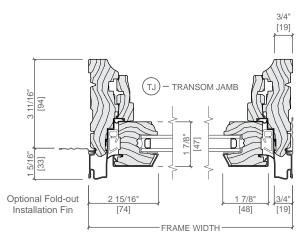
## Unit Sections - Aluminum-Clad Putty Glaze Exterior Profile



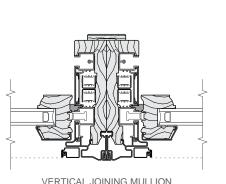
## Unit Sections - Aluminum-Clad Putty Glaze Exterior Profile



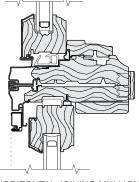




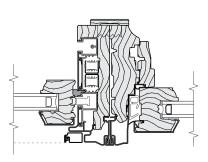
#### Typical Joining Mullions



VERTICAL JOINING MULLION LX VENT / LX VENT



HORIZONTAL JOINING MULLION TRANSOM / VENT



VERTICAL JOINING MULLION LX VENT / FIXED

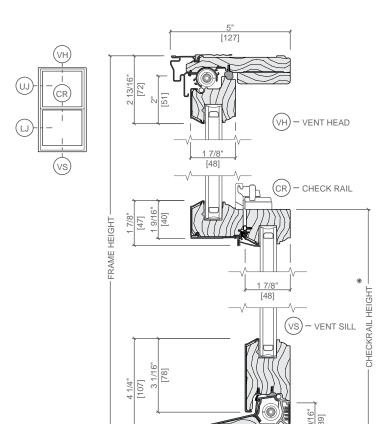
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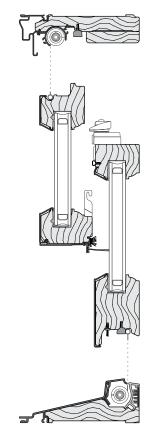
All dimensions are approximate.

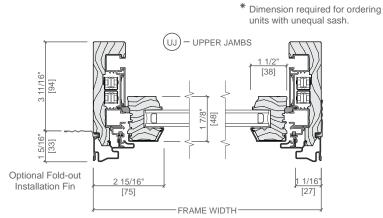
 $See \ supporting \ document \ Combination \ Recommendations, for \ mullion \ limitations \ and \ reinforcing \ requirements.$ 

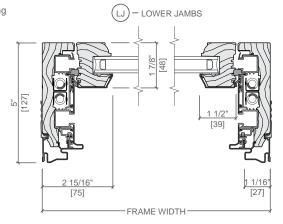


## Unit Sections - Aluminum-Clad Putty Glaze Exterior Profile with Integrated Rolscreen®



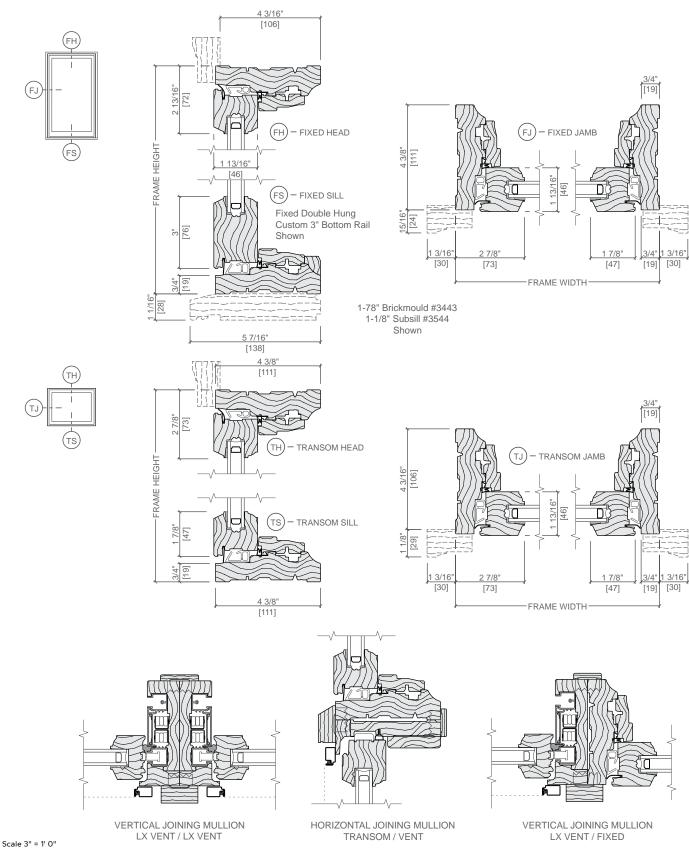








## Unit Sections - Wood Exterior Putty Glaze Exterior Profile



All dimensions are approximate.

 $See \ supporting \ document \ Combination \ Recommendations, for \ mullion \ limitations \ and \ reinforcing \ requirements.$ 



## Unit Sections - Wood Exterior Putty Glaze Exterior Profile

