



SINGLE-HUNG

SECTION DIRECTORY



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SINGLE-HUNG

PRODUCT SUMMARY



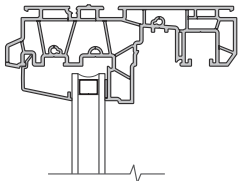
Pella® 350 Series Single-Hung

windows feature an extruded, rigid PVC (polyvinyl chloride) frame and sash with heat-fused mitered corners for a fully welded corner assembly. The SmoothSeam™ welded corners on the interior of the sash are virtually invisible. Single-Hung Windows meet industry standards for water infiltration and wind resistance and meet ENERGY STAR® guidelines with dual-pane or triple-pane insulated glass. Standard performance window sash are available with optional foam insulation for increased thermal performance.

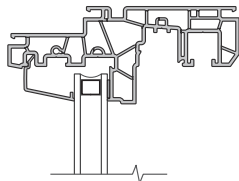
BLOCK FRAME DESIGN

4-1/2" Block or 3-1/4" Block Pocket Install

- 3-1/4" Block Pocket Install Frame allows a perfect fit into a 3-1/4" pocket when installed into an existing Double-Hung or Single-Hung wood frame from the interior.
- 4-1/2" block frame can be used in new construction block or concrete walls. They may also be used in replacement of old aluminum or steel frame windows or pocket replacement into wood frames from the exterior.
- The block frames include interior and exterior accessory grooves.
- Custom sizes are available in 1/8" increments – for a perfect fit.



4-1/2" Block Frame

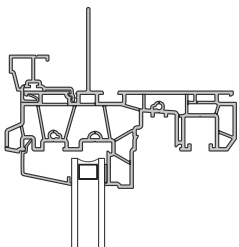


3-1/4" Block Pocket Install

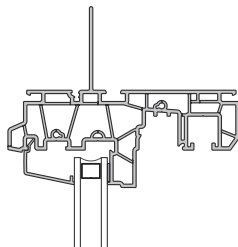
NAIL FIN FRAME DESIGN

With or Without Integrated J-Channel

- Continuous fin with welded corners adds a protective weather barrier and allows for hassle-free installation.
- The standard 4-1/2" frame depth includes interior and exterior accessory grooves.
- Nailing fin has a 1-7/16" setback from exterior face of window frame.
- Custom sizes are available in 1/8" increments – for a perfect fit.
- 4-9/16" and 6-9/16" factory applied primed or clear jamb extensions are available.



With J-Channel



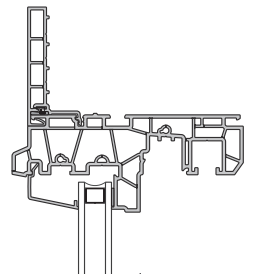
Without J-Channel



DOUBLE-WALL FLUSH FLANGE

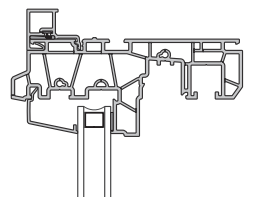
Replacement Frame Design

- The flush flange frame allows for easy replacement of old aluminum or steel frame windows without removing the existing frame head or jambs – typically used with stucco exteriors in southwest arid climates.
- The frame depth is 4-1/2" (overall wall depth of 4-1/16") includes interior accessory groove.
- Custom sizes are available in 1/8" increments – for a perfect fit.



INTEGRAL 5/8" FLANGE FRAME

- The integral 5/8" flange frame can be used in new construction block or concrete walls. Commonly used in Florida and often referred to as "Florida Flange" frame.
- The frame depth is 4-1/2" (overall wall depth 3-7/8") includes interior accessory groove.
- Custom sizes are available in 1/8" increments – for a perfect fit.





SINGLE-HUNG

PRODUCT SELECTION GUIDE

Size and Performance Data
Sound Transmission Class



SIZES

Standard Sizes	S
Special Sizes Available Built on 1/8" Increments	O

FRAMES

Nail Fin Only	O
Nail Fin with J-Channel	O
4-1/2" Block	S
3-1/4" Block Pocket Install / Replacement	S
Double Wall Flush Flange	O
Integral 5/8" Flange	O

PERFORMANCE₁

Standard Performance

Meets or Exceeds AAMA/WDMA Ratings	LC-PG25 – LC-PG40 Hallmark Certified
Air Infiltration ₃ (cfm/ft ² of frame @ 1.57 psf wind pressure.)	0.07
Design Pressure	25 – 40 psf
Water Penetration Resistance	3.76 – 6.06 psf

Performance Upgrade₂

Meets or Exceeds AAMA/WDMA Ratings	LC-PG50 – LC-PG60 Hallmark Certified
Air Infiltration ₃ (cfm/ft ² of frame @ 1.57 psf wind pressure.)	0.07
Design Pressure	50 – 60 psf
Water Penetration Resistance	7.52 – 9.20 psf

Other Performance Criteria

Forced Entry Resistance (Minimum Security Grade) ₂	10
Maximum Operating Force (lb) (Initiate Motion/Maintain Motion)	50/35

Sound Transmission Class and Outdoor-Indoor Transmission Class

Frame Size Tested ₄	Glazing System				STC Rating	OITC Rating
	Overall Glazing Thickness	Exterior Glass Thickness	Interior Glass Thickness	Third Pane Thickness		
SINGLE-HUNG - DUAL PANE INSULATING GLASS						
48" x 60"	11/16"	2.5mm	2.5mm	–	26	22
48" x 60"	11/16"	3mm	5mm	–	30	24
SINGLE-HUNG - NON-IMPACT LAMINATED INSULATING GLASS						
48" x 60"	1"	3mm	7mm PVB	–	35	27
SINGLE-HUNG - HURRICANESHIELD IMPACT-RESISTANT LAMINATED INSULATING GLASS						
48" x 60"	1"	3mm	8.6mm PVB	–	36	28
SINGLE-HUNG - TRIPLE-PANE INSULATING GLASS						
48" x 60"	1-1/4"	3mm	3mm	3mm	29	23

S = Standard; O = Optional; (–) = Not Available

(1) Published performance data is for single unit only. See Design Data pages in this section for specific product performance class and grade values.

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

(3) 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 notes. Actual product performance may vary for a number of reasons including installation and product care.

(4) ASTM E 1425 defines standard sizes for acoustical testing. Ratings achieved at that size are representative of all sizes of the same configuration. The presence of low-E or argon have negligible effect on sound attenuation characteristics.



SINGLE-HUNG

PRODUCT SELECTION GUIDE

Features and Options



GLAZING (INSULATING GLASS)

Glazing Type

Dual-pane insulating glass	S
Triple-pane insulating glass	O

Insulated Glass Options / Low-E Types

Advanced Low-E	S
NaturalSun Low-E	O
SunDefense™ Low-E ₁	O
Gray Low-E ₁	O
Bronze-tinted Advanced Low-E ₁	O

Additional Glazing Options

Annealed glass	S
Tempered glass	O
Obscure glass ₂	O
Noise reduction glass (STC 3mm/5mm combination) ₁	O
Noise Reduction laminated glass (non-impact) ₁	O

Gas Fill / High Altitude

Argon	S
High altitude	O
High altitude with argon ₁	O

SASH

Foam insulation	O
Performance upgrade	O

INTERIOR / EXTERIOR COLOR

White	S
Almond	O
Brown exterior/White interior	O

HARDWARE

Color matched hardware	S
Bright Brass, Satin Nickel or Oil-Rubbed Bronze	O

Sash Locks

Standard Cam Lock	S
Autolock	O

Sash Lifts

Integral Sash Lift	S
Surface Mounted Sash Lift	O

Tilt-Wash Cleaning

Tilt to interior on lower sash	S
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SCREENS

Conventional black fiberglass screens - flat	S
InView™ screens	O

GRILLES

Grilles-Between-the-Glass

Traditional, Prairie, Top Row, Custom - Equally Divided	O
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Simulated-Divided-Light Grilles₁ (without spacer)

Traditional, Prairie, Top Row, Custom - Equally Divided	O
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S = Standard; O = Optional

(1) Not available with triple-pane glazing.

(2) Contact your local Pella sales representative for current offering.



SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

11/16" Insulating Glass with 3mm Glass



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown								
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂				
										Zone				ER	Zone			
VENT										N	NC	SC	S	1			2	3
11/16"	Advanced Low-E IG	PEL-N-191-00006-00001	3	3	air	0.31	0.29	53	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00126-00001				0.32	0.26	47	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00366-00001				0.31	0.26	47	55									
11/16"	Advanced Low-E IG	PEL-N-191-00030-00001	3	3	argon	0.27	0.28	53	58					20				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00150-00001				0.29	0.25	47	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00386-00001				0.27	0.25	47	58					18				
11/16"	NaturalSun Low-E IG	PEL-N-191-00007-00001	3	3	air	0.32	0.52	60	54					27				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00127-00001				0.33	0.47	54	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00367-00001				0.32	0.47	54	54									
11/16"	NaturalSun Low-E IG	PEL-N-191-00031-00001	3	3	argon	0.28	0.52	60	57					32				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00151-00001				0.30	0.47	54	57					27				
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00387-00001				0.28	0.47	54	57					29				
11/16"	SunDefense™ Low-E IG	PEL-N-191-00008-00001	3	3	air	0.30	0.21	49	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00128-00001				0.32	0.19	44	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00368-00001				0.30	0.19	44	55									
11/16"	SunDefense Low-E IG	PEL-N-191-00032-00001	3	3	argon	0.27	0.21	49	58					16				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00152-00001				0.28	0.19	44	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00388-00001				0.27	0.19	44	58									
VENT – WITH FOAM INSERTS																		
11/16"	Advanced Low-E IG	PEL-N-191-00054-00001	3	3	air	0.31	0.29	53	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00174-00001				0.32	0.26	47	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00406-00001				0.31	0.26	47	55									
11/16"	Advanced Low-E IG	PEL-N-191-00078-00001	3	3	argon	0.26	0.28	53	58					21				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00198-00001				0.28	0.25	47	58					17				
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00426-00001				0.26	0.25	47	58					19				
11/16"	NaturalSun Low-E IG	PEL-N-191-00055-00001	3	3	air	0.32	0.52	60	54					27				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00175-00001				0.33	0.47	54	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00407-00001				0.32	0.47	54	54									
11/16"	NaturalSun Low-E IG	PEL-N-191-00079-00001	3	3	argon	0.27	0.52	60	57					33				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00199-00001				0.29	0.47	54	57					28				
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00427-00001				0.27	0.47	54	57					31				
11/16"	SunDefense™ Low-E IG	PEL-N-191-00056-00001	3	3	air	0.30	0.21	49	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00176-00001				0.32	0.19	44	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00408-00001				0.30	0.19	44	55									
11/16"	SunDefense Low-E IG	PEL-N-191-00080-00001	3	3	argon	0.26	0.21	49	58					17				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00200-00001				0.28	0.19	44	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00428-00001				0.26	0.19	44	58					16				

R-Value = 1/U-Factor

SHGC = Solar Heat Gain Coefficient

VLT % = Visible Light Transmission

CR = Condensation Resistance

ER = Canadian Energy Rating

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500.

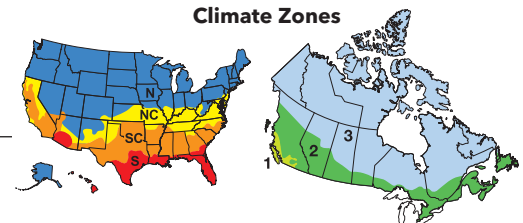
ENERGY STAR® values are updated to 2015 (Version 6) criteria.

(2) The values shown are based on Canada's updated ENERGY STAR® 2015 initiative.

Based on unit size, some products will use 2.5mm glass that may have improved glazing performance from what is shown.

See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.

Climate Zones





SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

11/16" Insulating Glass with 3mm / 5mm Glass



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown							
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂			
										Zone				ER	Zone		
VENT										N	NC	SC	S		1	2	3
11/16"	Advanced Low-E IG	PEL-N-191-00011-00001	3	5	air	0.33	0.28	53	50								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00131-00001				0.36	0.26	47	50								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00371-00001				0.33	0.26	47	50								
11/16"	Advanced Low-E IG	PEL-N-191-00035-00001	3	5	argon	0.28	0.28	53	56								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00155-00001				0.32	0.25	47	56								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00391-00001				0.28	0.25	47	56								
11/16"	NaturalSun Low-E IG	PEL-N-191-00012-00001	3	5	air	0.33	0.50	60	52					25			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00132-00001				0.37	0.45	53	52								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00372-00001				0.33	0.45	53	52								
11/16"	NaturalSun Low-E IG	PEL-N-191-00036-00001	3	5	argon	0.29	0.50	60	56					30			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00156-00001				0.31	0.45	53	56								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00392-00001				0.29	0.45	53	56					27			
11/16"	SunDefense™ Low-E IG	PEL-N-191-00013-00001	3	5	air	0.32	0.22	49	53								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00133-00001				0.36	0.20	43	53								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00373-00001				0.32	0.20	43	53								
11/16"	SunDefense Low-E IG	PEL-N-191-00037-00001	3	5	argon	0.28	0.21	49	57								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00157-00001				0.31	0.19	43	57								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00393-00001				0.28	0.19	43	57								
VENT – WITH FOAM INSERTS																	
11/16"	Advanced Low-E IG	PEL-N-191-00059-00001	3	5	air	0.33	0.28	53	50								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00179-00001				0.36	0.26	47	50								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00411-00001				0.33	0.26	47	50								
11/16"	Advanced Low-E IG	PEL-N-191-00083-00001	3	5	argon	0.27	0.28	53	56					20			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00203-00001				0.31	0.25	47	56								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00431-00001				0.27	0.25	47	56					18			
11/16"	NaturalSun Low-E IG	PEL-N-191-00060-00001	3	5	air	0.33	0.50	60	52					25			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00180-00001				0.37	0.45	53	52								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00412-00001				0.33	0.45	53	52								
11/16"	NaturalSun Low-E IG	PEL-N-191-00084-00001	3	5	argon	0.28	0.50	60	55					31			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00204-00001				0.31	0.45	53	55								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00432-00001				0.28	0.45	53	55					28			
11/16"	SunDefense™ Low-E IG	PEL-N-191-00061-00001	3	5	air	0.32	0.22	49	53								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00181-00001				0.36	0.20	43	53								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00413-00001				0.32	0.20	43	53								
11/16"	SunDefense Low-E IG	PEL-N-191-00085-00001	3	5	argon	0.27	0.21	49	56					16			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00205-00001				0.30	0.19	43	56								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00433-00001				0.27	0.19	43	56								

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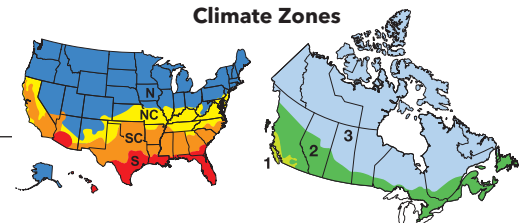
ENERGY STAR® values are updated to 2015 (Version 6) criteria.

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Based on unit size, some products will use 2.5mm glass that may have improved glazing performance from what is shown.

See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.

Climate Zones





SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

1" Insulating Glass with 5mm Glass



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown								
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂				
										Zone				ER	Zone			
VENT										N	NC	SC	S		1	2	3	
1"	Advanced Low-E IG	PEL-N-191-00016-00001	5	5	air	0.31	0.28	52	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00136-00001				0.31	0.25	46	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00376-00001				0.31	0.25	46	55									
1"	Advanced Low-E IG	PEL-N-191-00040-00001	5	5	argon	0.28	0.27	52	58					18				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00160-00001				0.28	0.25	46	58					17				
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00396-00001				0.28	0.25	46	58					17				
1"	NaturalSun Low-E IG	PEL-N-191-00017-00001	5	5	air	0.32	0.50	59	54					26				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00137-00001				0.32	0.45	53	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00377-00001				0.32	0.45	53	54									
1"	NaturalSun Low-E IG	PEL-N-191-00041-00001	5	5	argon	0.29	0.50	59	57					30				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00161-00001				0.29	0.45	53	57					27				
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00397-00001				0.29	0.45	53	57					27				
1"	SunDefense™ Low-E IG	PEL-N-191-00018-00001	5	5	air	0.31	0.21	48	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00138-00001				0.31	0.19	43	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00378-00001				0.31	0.19	43	55									
1"	SunDefense Low-E IG	PEL-N-191-00042-00001	5	5	argon	0.27	0.21	48	58					16				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00162-00001				0.27	0.19	43	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00398-00001				0.27	0.19	43	58									
VENT – WITH FOAM INSERTS																		
1"	Advanced Low-E IG	PEL-N-191-00064-00001	5	5	air	0.31	0.28	52	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00184-00001				0.31	0.25	46	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00416-00001				0.31	0.25	46	55									
1"	Advanced Low-E IG	PEL-N-191-00088-00001	5	5	argon	0.27	0.27	52	58					19				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00208-00001				0.27	0.25	46	58					18				
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00436-00001				0.27	0.25	46	58					18				
1"	NaturalSun Low-E IG	PEL-N-191-00065-00001	5	5	air	0.32	0.50	59	54					26				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00185-00001				0.32	0.45	53	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00417-00001				0.32	0.45	53	54									
1"	NaturalSun Low-E IG	PEL-N-191-00089-00001	5	5	argon	0.28	0.50	59	57					31				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00209-00001				0.28	0.45	53	57					28				
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00437-00001				0.28	0.45	53	57					28				
1"	SunDefense™ Low-E IG	PEL-N-191-00066-00001	5	5	air	0.31	0.21	48	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00186-00001				0.31	0.19	43	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00418-00001				0.31	0.19	43	55									
1"	SunDefense Low-E IG	PEL-N-191-00090-00001	5	5	argon	0.26	0.21	48	58					17				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00210-00001				0.26	0.19	43	58					16				
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00438-00001				0.26	0.19	43	58					16				

R-Value = 1/U-Factor

SHGC = Solar Heat Gain Coefficient

VLT % = Visible Light Transmission

CR = Condensation Resistance

ER = Canadian Energy Rating

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500.

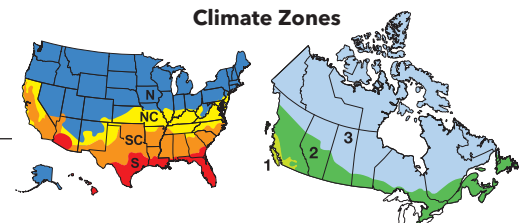
ENERGY STAR® values are updated to 2015 (Version 6) criteria.

(2) The values shown are based on Canada's updated ENERGY STAR® 2015 initiative.

Based on unit size, some products will use 2.5mm glass that may have improved glazing performance from what is shown.

See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.

Climate Zones





SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

Non-Impact Laminated



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown								
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂				
										Zone				ER	Zone			
VENT										N	NC	SC	S		1	2	3	
1"	Advanced Low-E IG	PEL-N-191-00789-00001	3	7	air	0.32	0.28	0.53	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00803-00001				0.32	0.25	0.47	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00831-00001				0.32	0.25	0.47	57									
1"	Advanced Low-E IG	PEL-N-191-00782-00001	3	7	air	0.28	0.28	0.53	57						18			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00796-00001				0.28	0.25	0.47	57						17			
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00824-00001				0.28	0.25	0.47	57						17			
1"	NaturalSun Low-E IG	PEL-N-191-00792-00001	3	7	argon	0.32	0.49	0.60	56						26			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00806-00001				0.32	0.44	0.53	56									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00834-00001				0.32	0.44	0.53	56									
1"	NaturalSun Low-E IG	PEL-N-191-00785-00001	3	7	argon	0.29	0.49	0.60	57						29			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00799-00001				0.29	0.44	0.53	57						26			
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00827-00001				0.29	0.44	0.53	57						26			
1"	SunDefense™ Low-E IG	PEL-N-191-00791-00001	3	7	air	0.31	0.21	0.49	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00805-00001				0.31	0.19	0.44	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00833-00001				0.31	0.19	0.44	57									
1"	SunDefense Low-E IG	PEL-N-191-00784-00001	3	7	argon	0.28	0.21	0.49	58									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00798-00001				0.28	0.19	0.44	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00826-00001				0.28	0.19	0.44	58									
VENT – WITH LAMINATED TINTED GLAZING																		
1"	Bronze Advanced Low-E IG	PEL-N-191-00790-00001	3	7	air	0.32	0.27	0.29	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00804-00001				0.32	0.24	0.26	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00832-00001				0.32	0.24	0.26	57									
1"	Bronze Advanced Low-E IG	PEL-N-191-00783-00001	3	7	air	0.28	0.27	0.29	57						18			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00797-00001				0.28	0.24	0.26	57						16			
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00825-00001				0.28	0.24	0.26	57						16			
1"	Gray Low-E IG	PEL-N-191-00788-00001	3	7	argon	0.32	0.19	0.30	56									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00802-00001				0.32	0.18	0.27	56									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00830-00001				0.32	0.18	0.27	56									
1"	Gray Low-E IG	PEL-N-191-00781-00001	3	7	argon	0.29	0.19	0.30	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00795-00001				0.29	0.17	0.27	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00823-00001				0.29	0.17	0.27	57									

R-Value = 1/U-Factor

SHGC = Solar Heat Gain Coefficient

VLT % = Visible Light Transmission

CR = Condensation Resistance

ER = Canadian Energy Rating

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500.

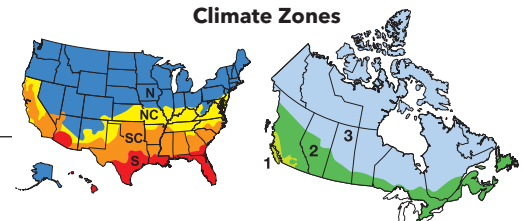
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Based on unit size, some products will use 2.5mm glass that may have improved glazing performance from what is shown.

See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.

Climate Zones





SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

Triple-Pane Insulating Glass



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown							
			Ext.	Mid.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂			
											Zone				ER	Zone		
VENT											N	NC	SC	S		1	2	3
1-1/4"	Advanced Low-E Triple-pane IG	PEL-N-191-00023-00001	3	3	3	air	0.21	0.24	41	67					25			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00143-00001					0.21	0.22	37	67					24			
1-1/4"	Advanced Low-E Triple-pane IG	PEL-N-191-00047-00001	3	3	3	argon	0.18	0.24	41	69					29			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00167-00001					0.20	0.22	37	69					25			
1-1/4"	NaturalSun Low-E Triple-pane IG	PEL-N-191-00024-00001	3	3	3	air	0.25	0.45	55	63					32			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00144-00001					0.26	0.41	49	63					28			
1-1/4"	NaturalSun Low-E Triple-pane IG	PEL-N-191-00048-00001	3	3	3	argon	0.23	0.45	55	65					34			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00168-00001					0.24	0.41	49	65					31			
VENT – WITH FOAM INSERTS																		
1-1/4"	Advanced Low-E Triple-pane IG	PEL-N-191-00071-00001	3	3	3	air	0.21	0.24	41	67					25			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00191-00001					0.21	0.22	37	67					24			
1-1/4"	Advanced Low-E Triple-pane IG	PEL-N-191-00095-00001	3	3	3	argon	0.17	0.24	41	69					30			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00215-00001					0.20	0.22	37	69					25			
1-1/4"	NaturalSun Low-E Triple-pane IG	PEL-N-191-00072-00001	3	3	3	air	0.25	0.45	55	63					32			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00192-00001					0.26	0.41	49	63					28			
1-1/4"	NaturalSun Low-E Triple-pane IG	PEL-N-191-00096-00001	3	3	3	argon	0.22	0.45	55	65					36			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00216-00001					0.23	0.41	49	65					32			

R-Value = 1/U-Factor
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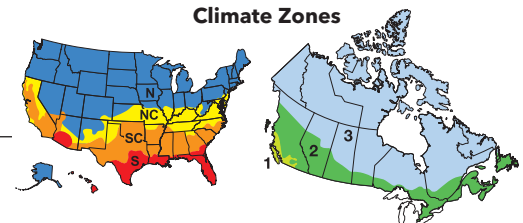
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Climate Zones





SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

11/16" Insulating Glass – Tinted Glass



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown								
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂				
										Zone	ER	Zone	1	2	3			
TINTED GLAZING										N	NC	SC	S					
11/16"	Bronze Advanced Low-E IG	PEL-N-191-00010-00001	3	3	air	0.31	0.28	39	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00130-00001				0.32	0.25	35	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00370-00001				0.31	0.25	35	55									
11/16"	Bronze Advanced Low-E IG	PEL-N-191-00034-00001	3	3	argon	0.27	0.28	39	58					20				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00154-00001				0.29	0.25	35	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00390-00001				0.27	0.25	35	58					18				
11/16"	Gray Low-E IG	PEL-N-191-00009-00001	3	3	air	0.30	0.20	30	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00129-00001				0.33	0.18	27	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00369-00001				0.30	0.18	27	55									
11/16"	Gray Low-E IG	PEL-N-191-00033-00001	3	3	argon	0.28	0.20	30	58									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00153-00001				0.29	0.18	27	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00389-00001				0.28	0.18	27	58									
TINTED GLAZING – WITH FOAM INSERTS																		
11/16"	Bronze Advanced Low-E IG	PEL-N-191-00058-00001	3	3	air	0.31	0.28	39	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00178-00001				0.32	0.25	35	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00410-00001				0.31	0.25	35	55									
11/16"	Bronze Advanced Low-E IG	PEL-N-191-00082-00001	3	3	argon	0.26	0.28	39	58					21				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00202-00001				0.28	0.25	35	58					17				
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00430-00001				0.26	0.25	35	58					19				
11/16"	Gray Low-E IG	PEL-N-191-00057-00001	3	3	air	0.30	0.20	30	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00177-00001				0.33	0.18	27	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00409-00001				0.30	0.18	27	55									
11/16"	Gray Low-E IG	PEL-N-191-00081-00001	3	3	argon	0.27	0.20	30	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00201-00001				0.28	0.18	27	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00429-00001				0.27	0.18	27	57									

R-Value = 1/U-Factor

SHGC = Solar Heat Gain Coefficient

VLT % = Visible Light Transmission

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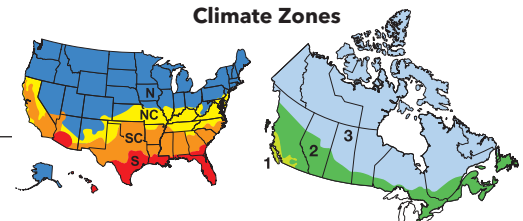
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Climate Zones





SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

1" Insulating Glass – Tinted Glass



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown								
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂				
										Zone				ER	Zone			
TINTED GLAZING										N	NC	SC	S		1	2	3	
1"	Bronze Advanced Low-E IG	PEL-N-191-00020-00001	5	5	air	0.31	0.25	34	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00140-00001				0.31	0.23	30	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00380-00001				0.31	0.23	30	55									
1"	Bronze Advanced Low-E IG	PEL-N-191-00044-00001	5	5	argon	0.28	0.25	34	58						17			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00164-00001				0.28	0.22	30	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00400-00001				0.28	0.22	30	58									
1"	Gray Low-E IG	PEL-N-191-00019-00001	5	5	air	0.32	0.19	30	54									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00139-00001				0.32	0.17	26	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00379-00001				0.32	0.17	26	54									
1"	Gray Low-E IG with argon	PEL-N-191-00043-00001	5	5	argon	0.28	0.19	30	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00163-00001				0.28	0.17	26	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00399-00001				0.28	0.17	26	57									
TINTED GLAZING – WITH FOAM INSERTS																		
1"	Bronze Advanced Low-E IG	PEL-N-191-00068-00001	5	5	air	0.31	0.25	34	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00188-00001				0.31	0.23	30	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00420-00001				0.31	0.23	30	55									
1"	Bronze Advanced Low-E IG	PEL-N-191-00092-00001	5	5	argon	0.27	0.25	34	58						18			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00212-00001				0.27	0.22	30	58						16			
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00440-00001				0.27	0.22	30	58						16			
1"	Gray Low-E IG	PEL-N-191-00067-00001	5	5	air	0.32	0.19	30	54									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00187-00001				0.32	0.17	26	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00419-00001				0.32	0.17	26	54									
1"	Gray Low-E IG with argon	PEL-N-191-00091-00001	5	5	argon	0.27	0.19	30	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00211-00001				0.27	0.17	26	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00439-00001				0.27	0.17	26	57									

R-Value = 1/U-Factor

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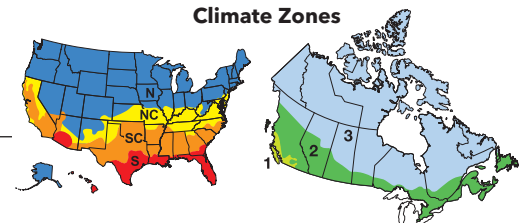
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Climate Zones





SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

11/16" Insulating Glass

Units with Performance Upgrade



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown								
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂				
										Zone				ER	Zone			
VENT										N	NC	SC	S	1			2	3
11/16"	Advanced Low-E IG	PEL-N-191-00466-00001	3	3	air	0.32	0.29	53	54									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00534-00001				0.34	0.26	47	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00662-00001				0.32	0.26	47	54									
11/16"	Advanced Low-E IG	PEL-N-191-00502-00001	3	3	argon	0.28	0.28	53	58									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00566-00001				0.30	0.25	47	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00694-00001				0.28	0.25	47	58									
11/16"	NaturalSun Low-E IG	PEL-N-191-00467-00001	3	3	air	0.33	0.52	60	54					26				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00535-00001				0.34	0.47	54	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00663-00001				0.33	0.47	54	54									
11/16"	NaturalSun Low-E IG	PEL-N-191-00503-00001	3	3	argon	0.29	0.52	60	57					31				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00567-00001				0.31	0.47	54	57					26				
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00695-00001				0.29	0.47	54	57					28				
11/16"	SunDefense™ Low-E IG	PEL-N-191-00468-00001	3	3	air	0.31	0.21	49	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00536-00001				0.33	0.19	44	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00664-00001				0.31	0.19	44	55									
11/16"	SunDefense Low-E IG	PEL-N-191-00504-00001	3	3	argon	0.28	0.21	49	58									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00568-00001				0.29	0.19	44	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00696-00001				0.28	0.19	44	58									
VENT – WITH FOAM INSERTS																		
11/16"	Advanced Low-E IG	PEL-N-191-00471-00001	3	5	air	0.34	0.28	53	50									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00539-00001				0.37	0.26	47	50									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00667-00001				0.34	0.26	47	50									
11/16"	Advanced Low-E IG	PEL-N-191-00507-00001	3	5	argon	0.29	0.28	53	56									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00571-00001				0.33	0.25	47	56									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00699-00001				0.29	0.25	47	56									
11/16"	NaturalSun Low-E IG	PEL-N-191-00472-00001	3	5	air	0.34	0.50	60	51									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00540-00001				0.38	0.45	53	51									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00668-00001				0.34	0.45	53	51									
11/16"	NaturalSun Low-E IG	PEL-N-191-00508-00001	3	5	argon	0.30	0.50	60	55					29				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00572-00001				0.33	0.45	53	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00700-00001				0.30	0.45	53	55					26				
11/16"	SunDefense™ Low-E IG	PEL-N-191-00473-00001	3	5	air	0.33	0.22	49	52									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00541-00001				0.37	0.20	43	52									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00669-00001				0.33	0.20	43	52									
11/16"	SunDefense Low-E IG	PEL-N-191-00509-00001	3	5	argon	0.29	0.21	49	56									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00573-00001				0.32	0.19	43	56									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00701-00001				0.29	0.19	43	56									

R-Value = 1/U-Factor

SHGC = Solar Heat Gain Coefficient

VLT % = Visible Light Transmission

CR = Condensation Resistance

ER = Canadian Energy Rating

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500.

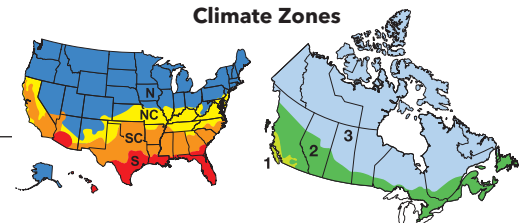
ENERGY STAR® values are updated to 2015 (Version 6) criteria.

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Climate Zones





SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

1" Insulating Glass and Triple-Pane Insulating Glass
Units with Performance Upgrade

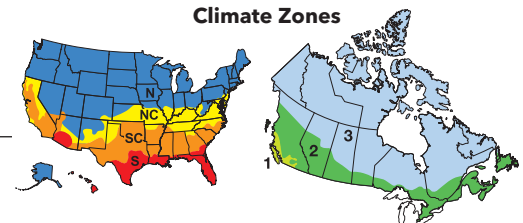


Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown								
			Ext.	Mid.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂				
											Zone				ER	Zone			
VENT – WITH 1" IG											N	NC	SC	S	1			2	3
1"	Advanced Low-E IG	PEL-N-191-00476-00001	5		5	air	0.32	0.28	52	54									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00544-00001					0.32	0.25	46	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00672-00001					0.32	0.25	46	54									
1"	Advanced Low-E IG	PEL-N-191-00512-00001	5		5	argon	0.29	0.27	52	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00576-00001					0.29	0.25	46	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00704-00001					0.29	0.25	46	57									
1"	NaturalSun Low-E IG	PEL-N-191-00477-00001	5		5	air	0.33	0.50	59	54					25				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00545-00001					0.33	0.45	53	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00673-00001					0.33	0.45	53	54									
1"	NaturalSun Low-E IG	PEL-N-191-00513-00001	5		5	argon	0.30	0.50	59	57					29				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00577-00001					0.30	0.45	53	57					26				
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00705-00001					0.30	0.45	53	57					26				
1"	SunDefense™ Low-E IG	PEL-N-191-00478-00001	5		5	air	0.32	0.21	48	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00546-00001					0.32	0.19	43	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00674-00001					0.32	0.19	43	55									
1"	SunDefense Low-E IG	PEL-N-191-00514-00001	5		5	argon	0.28	0.21	48	58									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00578-00001					0.28	0.19	43	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00706-00001					0.28	0.19	43	58									
VENT – WITH TRIPLE-PANE IG																			
1-1/4"	Advanced Low-E Triple-pane IG	PEL-N-191-00483-00001	3	3	3	air	0.22	0.24	41	66					24				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00551-00001					0.22	0.22	37	66					22				
1-1/4"	Advanced Low-E Triple-pane IG	PEL-N-191-00519-00001	3	3	3	argon	0.19	0.24	41	67					27				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00583-00001					0.19	0.22	37	67					26				
1-1/4"	NaturalSun Low-E Triple-pane IG	PEL-N-191-00484-00001	3	3	3	air	0.26	0.45	55	62					31				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00552-00001					0.27	0.41	49	62					27				
1-1/4"	NaturalSun Low-E Triple-pane IG	PEL-N-191-00520-00001	3	3	3	argon	0.24	0.45	55	65					33				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00584-00001					0.25	0.41	49	65					30				

R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
VLT % = Visible Light Transmission
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(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500.
ENERGY STAR® values are updated to 2015 (Version 6) criteria.
(2) The values shown are based on Canada's updated ENERGY STAR® 2015 initiative.
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Climate Zones





SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

Tinted Glass

Units with Performance Upgrade



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown								
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂				
										Zone	ER	Zone						
TINTED GLAZING – WITH 11/16" IG										N	NC	SC	S		1	2	3	
11/16"	Bronze Advanced Low-E IG	PEL-N-191-00470-00001	3	3	air	0.32	0.28	39	54									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00538-00001				0.34	0.25	35	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00666-00001				0.32	0.25	35	54									
11/16"	Bronze Advanced Low-E IG	PEL-N-191-00506-00001	3	3	argon	0.28	0.28	39	58									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00570-00001				0.30	0.25	35	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00698-00001				0.28	0.25	35	58									
11/16"	Gray Low-E IG	PEL-N-191-00469-00001	3	3	air	0.32	0.20	30	54									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00537-00001				0.34	0.18	27	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00665-00001				0.32	0.18	27	54									
11/16"	Gray Low-E IG	PEL-N-191-00505-00001	3	3	argon	0.29	0.20	30	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00569-00001				0.30	0.18	27	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00697-00001				0.29	0.18	27	57									
TINTED GLAZING – WITH 1" IG																		
1"	Bronze Advanced Low-E IG	PEL-N-191-00479-00001	5	5	air	0.32	0.25	34	54									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00547-00001				0.32	0.23	30	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00675-00001				0.32	0.23	30	54									
1"	Bronze Advanced Low-E IG	PEL-N-191-00515-00001	5	5	argon	0.29	0.25	34	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00579-00001				0.29	0.22	30	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00707-00001				0.29	0.22	30	57									
1"	Gray Low-E IG	PEL-N-191-00480-00001	5	5	air	0.33	0.19	30	54									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00548-00001				0.33	0.17	26	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00676-00001				0.33	0.17	26	54									
1"	Gray Low-E IG	PEL-N-191-00516-00001	5	5	argon	0.29	0.19	30	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00580-00001				0.29	0.17	26	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00708-00001				0.29	0.17	26	57									

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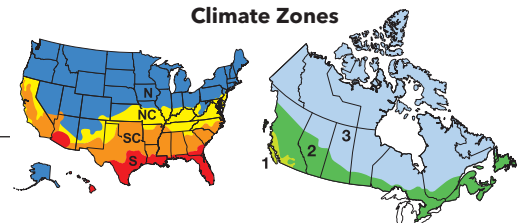
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Climate Zones





SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

3-1/4" Block Pocket Replacement

11/16" Insulating Glass with 3mm Glass



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown														
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂										
										Zone				ER	Zone									
VENT																		N	NC	SC	S	1	2	3
11/16"	Advanced Low-E IG	PEL-N-198-00006-00001	3	3	air	0.31	0.29	53	55															
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00126-00001				0.32	0.26	47	55															
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00366-00001				0.31	0.26	47	55															
11/16"	Advanced Low-E IG	PEL-N-198-00030-00001	3	3	argon	0.27	0.28	53	58						20									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00150-00001				0.29	0.25	47	58						15									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00386-00001				0.27	0.25	47	58						18									
11/16"	NaturalSun Low-E IG	PEL-N-198-00007-00001	3	3	air	0.31	0.52	60	54						29									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00127-00001				0.33	0.47	54	54															
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00367-00001				0.31	0.47	54	54						26									
11/16"	NaturalSun Low-E IG	PEL-N-198-00031-00001	3	3	argon	0.28	0.52	60	57						32									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00151-00001				0.30	0.47	54	57						27									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00387-00001				0.28	0.47	54	57						29									
11/16"	SunDefense™ Low-E IG	PEL-N-198-00008-00001	3	3	air	0.30	0.21	49	55															
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00128-00001				0.32	0.19	44	55															
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00368-00001				0.30	0.19	44	55															
11/16"	SunDefense Low-E IG	PEL-N-198-00032-00001	3	3	argon	0.27	0.21	49	59						16									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00152-00001				0.28	0.19	44	58															
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00388-00001				0.27	0.19	44	59															
VENT – WITH FOAM INSERTS																								
11/16"	Advanced Low-E IG	PEL-N-198-00054-00001	3	3	air	0.30	0.29	53	55															
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00174-00001				0.32	0.26	47	55															
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00406-00001				0.31	0.26	47	55															
11/16"	Advanced Low-E IG	PEL-N-198-00078-00001	3	3	argon	0.26	0.28	53	58						21									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00198-00001				0.28	0.25	47	58						17									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00426-00001				0.26	0.25	47	58						19									
11/16"	NaturalSun Low-E IG	PEL-N-198-00055-00001	3	3	air	0.31	0.52	60	54						29									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00175-00001				0.33	0.47	54	54															
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00407-00001				0.31	0.47	54	54						26									
11/16"	NaturalSun Low-E IG	PEL-N-198-00079-00001	3	3	argon	0.27	0.52	60	57						33									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00199-00001				0.29	0.47	54	57						28									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00427-00001				0.27	0.47	54	57						31									
11/16"	SunDefense™ Low-E IG	PEL-N-198-00056-00001	3	3	air	0.30	0.21	49	55															
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00176-00001				0.32	0.19	44	55															
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00408-00001				0.30	0.19	44	55															
11/16"	SunDefense Low-E IG	PEL-N-198-00080-00001	3	3	argon	0.26	0.21	49	58						17									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00200-00001				0.28	0.19	44	58															
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00428-00001				0.26	0.19	44	58						16									

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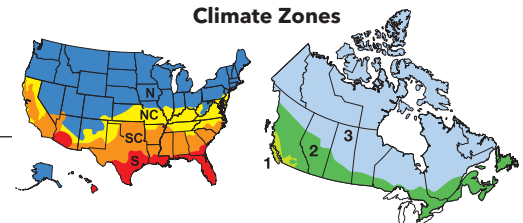
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Climate Zones





SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

3-1/4" Block Pocket Replacement

11/16" Insulating Glass with 3mm / 5mm Glass



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown								
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂				
										Zone	ER	Zone						
VENT										N	NC	SC	S	1			2	3
11/16"	Advanced Low-E IG	PEL-N-198-00011-00001	3	5	air	0.32	0.28	53	52									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00131-00001				0.36	0.26	47	52									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00371-00001				0.32	0.26	47	52									
11/16"	Advanced Low-E IG	PEL-N-198-00035-00001	3	5	argon	0.28	0.28	53	56									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00155-00001				0.31	0.25	47	56									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00391-00001				0.28	0.25	47	56									
11/16"	NaturalSun Low-E IG	PEL-N-198-00012-00001	3	5	air	0.33	0.50	60	52					25				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00132-00001				0.37	0.45	53	52									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00372-00001				0.33	0.45	53	52									
11/16"	NaturalSun Low-E IG	PEL-N-198-00036-00001	3	5	argon	0.29	0.50	60	56					30				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00156-00001				0.31	0.45	53	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00392-00001				0.29	0.45	53	56					27				
11/16"	SunDefense™ Low-E IG	PEL-N-198-00013-00001	3	5	air	0.32	0.22	49	53									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00133-00001				0.36	0.20	43	53									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00373-00001				0.32	0.20	43	53									
11/16"	SunDefense Low-E IG	PEL-N-198-00037-00001	3	5	argon	0.28	0.21	49	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00157-00001				0.31	0.19	43	56									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00393-00001				0.28	0.19	43	57									
VENT – WITH FOAM INSERTS																		
11/16"	Advanced Low-E IG	PEL-N-198-00059-00001	3	5	air	0.32	0.28	53	52									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00179-00001				0.36	0.26	47	52									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00411-00001				0.32	0.26	47	52									
11/16"	Advanced Low-E IG	PEL-N-198-00083-00001	3	5	argon	0.27	0.28	53	56					20				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00203-00001				0.31	0.25	47	56									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00431-00001				0.27	0.25	47	56					18				
11/16"	NaturalSun Low-E IG	PEL-N-198-00060-00001	3	5	air	0.33	0.50	60	52					25				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00180-00001				0.37	0.45	53	52									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00412-00001				0.33	0.45	53	52									
11/16"	NaturalSun Low-E IG	PEL-N-198-00084-00001	3	5	argon	0.28	0.50	60	55					31				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00204-00001				0.31	0.45	53	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00432-00001				0.28	0.45	53	55					28				
11/16"	SunDefense™ Low-E IG	PEL-N-198-00061-00001	3	5	air	0.32	0.22	49	53									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00181-00001				0.36	0.20	43	53									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00413-00001				0.32	0.20	43	53									
11/16"	SunDefense Low-E IG	PEL-N-198-00085-00001	3	5	argon	0.27	0.21	49	56					16				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00205-00001				0.30	0.19	43	56									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00433-00001				0.27	0.19	43	56									

R-Value = 1/U-Factor

SHGC = Solar Heat Gain Coefficient

VLT % = Visible Light Transmission

CR = Condensation Resistance

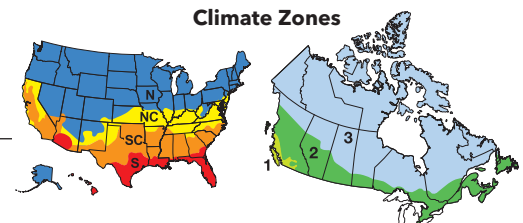
ER = Canadian Energy Rating

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500.

ENERGY STAR® values are updated to 2015 (Version 6) criteria.

(2) The values shown are based on Canada's updated ENERGY STAR® 2015 initiative.

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See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.**Climate Zones**



SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

3-1/4" Block Pocket Replacement

1" Insulating Glass with 5mm Glass



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown								
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂				
										Zone				ER	Zone			
VENT										N	NC	SC	S	1			2	3
1"	Advanced Low-E IG	PEL-N-198-00016-00001	5	5	air	0.31	0.28	52	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00136-00001				0.31	0.25	46	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00376-00001				0.31	0.25	46	55									
1"	Advanced Low-E IG	PEL-N-198-00040-00001	5	5	argon	0.28	0.27	52	58					18				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00160-00001				0.28	0.25	46	58					17				
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00396-00001				0.28	0.25	46	58					17				
1"	NaturalSun Low-E IG	PEL-N-198-00017-00001	5	5	air	0.32	0.50	59	54					26				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00137-00001				0.32	0.45	53	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00377-00001				0.32	0.45	53	54									
1"	NaturalSun Low-E IG	PEL-N-198-00041-00001	5	5	argon	0.28	0.50	59	57					31				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00161-00001				0.28	0.45	53	57					28				
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00397-00001				0.28	0.45	53	57					28				
1"	SunDefense™ Low-E IG	PEL-N-198-00018-00001	5	5	air	0.31	0.21	48	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00138-00001				0.31	0.19	43	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00378-00001				0.31	0.19	43	55									
1"	SunDefense Low-E IG	PEL-N-198-00042-00001	5	5	argon	0.27	0.21	48	58					16				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00162-00001				0.27	0.19	43	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00398-00001				0.27	0.19	43	58									
VENT – WITH FOAM INSERTS																		
1"	Advanced Low-E IG	PEL-N-198-00064-00001	5	5	air	0.31	0.28	52	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00184-00001				0.31	0.25	46	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00416-00001				0.31	0.25	46	55									
1"	Advanced Low-E IG	PEL-N-198-00088-00001	5	5	argon	0.27	0.27	52	58					19				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00208-00001				0.27	0.25	46	58					18				
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00436-00001				0.27	0.25	46	58					18				
1"	NaturalSun Low-E IG	PEL-N-198-00065-00001	5	5	air	0.32	0.50	59	54					26				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00185-00001				0.32	0.45	53	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00417-00001				0.32	0.45	53	54									
1"	NaturalSun Low-E IG	PEL-N-198-00089-00001	5	5	argon	0.28	0.50	59	57					31				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00209-00001				0.28	0.45	53	57					28				
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00437-00001				0.28	0.45	53	57					28				
1"	SunDefense™ Low-E IG	PEL-N-198-00066-00001	5	5	air	0.31	0.21	48	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00186-00001				0.31	0.19	43	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00418-00001				0.31	0.19	43	55									
1"	SunDefense Low-E IG	PEL-N-198-00090-00001	5	5	argon	0.26	0.21	48	58					17				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00210-00001				0.26	0.19	43	58					16				
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00438-00001				0.26	0.19	43	58					16				

R-Value = 1/U-Factor

SHGC = Solar Heat Gain Coefficient

VLT % = Visible Light Transmission

CR = Condensation Resistance

ER = Canadian Energy Rating

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500.

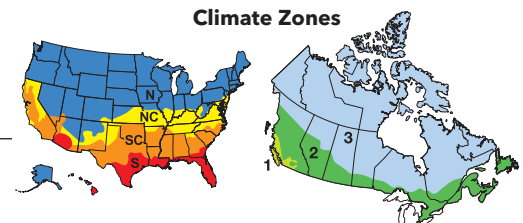
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Climate Zones





SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

3-1/4" Block Pocket Replacement
Triple-Pane Insulating Glass



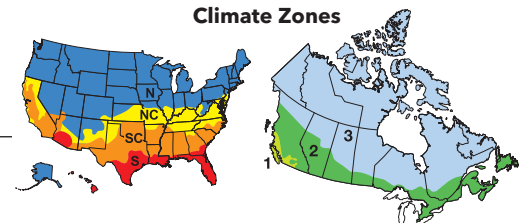
Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown							
			Ext.	Mid.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂			
											Zone				ER	Zone		
VENT											N	NC	SC	S		1	2	3
1-1/4"	Advanced Low-E Triple-pane IG	PEL-N-198-00023-00001	3	3	3	air	0.21	0.22	37	64					24			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00143-00001					0.20	0.24	42	67					26			
1-1/4"	Advanced Low-E Triple-pane IG	PEL-N-198-00047-00001	3	3	3	argon	0.18	0.24	41	69					29			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00167-00001					0.20	0.22	37	69					25			
1-1/4"	NaturalSun Low-E Triple-pane IG	PEL-N-198-00024-00001	3	3	3	air	0.25	0.45	55	63					32			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00144-00001					0.26	0.41	49	63					28			
1-1/4"	NaturalSun Low-E Triple-pane IG	PEL-N-198-00048-00001	3	3	3	argon	0.23	0.45	55	65					34			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00168-00001					0.24	0.41	49	65					31			
VENT – WITH FOAM INSERTS																		
1-1/4"	Advanced Low-E Triple-pane IG	PEL-N-198-00071-00001	3	3	3	air	0.21	0.22	37	64					24			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00191-00001					0.21	0.22	37	64					24			
1-1/4"	Advanced Low-E Triple-pane IG	PEL-N-198-00095-00001	3	3	3	argon	0.17	0.24	41	69					30			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00215-00001					0.20	0.22	37	69					25			
1-1/4"	NaturalSun Low-E Triple-pane IG	PEL-N-198-00095-00001	3	3	3	air	0.25	0.45	55	63					32			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00215-00001					0.26	0.41	49	63					28			
1-1/4"	NaturalSun Low-E Triple-pane IG	PEL-N-198-00096-00001	3	3	3	argon	0.22	0.45	55	65					36			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00216-00001					0.23	0.41	49	65					32			

R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
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Climate Zones



SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

3-1/4" Block Pocket Replacement

11/16" Insulating Glass – Tinted Glass



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown								
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂				
										Zone	ER	Zone	1	2	3			
TINTED GLAZING										N	NC	SC	S					
11/16"	Bronze Advanced Low-E IG	PEL-N-198-00010-00001	3	3	air	0.31	0.28	39	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00130-00001				0.32	0.25	35	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00370-00001				0.31	0.25	35	55									
11/16"	Bronze Advanced Low-E IG	PEL-N-198-00034-00001	3	3	argon	0.27	0.28	39	58					20				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00154-00001				0.29	0.25	35	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00390-00001				0.27	0.25	35	58					18				
11/16"	Gray Low-E IG	PEL-N-198-00009-00001	3	3	air	0.30	0.20	30	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00129-00001				0.33	0.18	27	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00369-00001				0.30	0.18	27	55									
11/16"	Gray Low-E IG	PEL-N-198-00033-00001	3	3	argon	0.28	0.20	30	58									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00153-00001				0.29	0.18	27	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00389-00001				0.28	0.18	27	58									
TINTED GLAZING – WITH FOAM INSERTS																		
11/16"	Bronze Advanced Low-E IG	PEL-N-198-00058-00001	3	3	air	0.31	0.28	39	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00178-00001				0.32	0.25	35	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00410-00001				0.31	0.25	35	55									
11/16"	Bronze Advanced Low-E IG	PEL-N-198-00082-00001	3	3	argon	0.26	0.28	39	58					21				
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00202-00001				0.28	0.25	35	58					17				
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00430-00001				0.26	0.25	35	58					19				
11/16"	Gray Low-E IG	PEL-N-198-00057-00001	3	3	air	0.30	0.20	30	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00177-00001				0.33	0.18	27	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00409-00001				0.30	0.18	27	55									
11/16"	Gray Low-E IG	PEL-N-198-00081-00001	3	3	argon	0.27	0.20	30	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00201-00001				0.28	0.18	27	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00429-00001				0.27	0.18	27	57									

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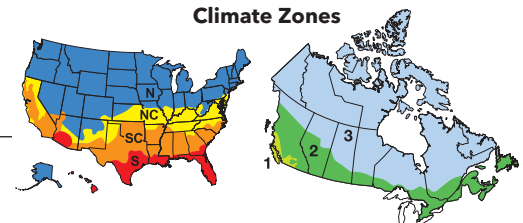
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SINGLE-HUNG

GLAZING PERFORMANCE - TOTAL UNIT

3-1/4" Block Pocket Replacement

1" Insulating Glass – Tinted Glass



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown								
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂				
										Zone				ER	Zone			
TINTED GLAZING										N	NC	SC	S		1	2	3	
1"	Bronze Advanced Low-E IG	PEL-N-198-00019-00001	5	5	air	0.31	0.25	34	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00139-00001				0.31	0.23	30	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00379-00001				0.31	0.23	30	55									
1"	Bronze Advanced Low-E IG	PEL-N-198-00043-00001	5	5	argon	0.28	0.25	34	58						17			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00163-00001				0.28	0.22	30	58									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00399-00001				0.28	0.22	30	58									
1"	Gray Low-E IG	PEL-N-198-00020-00001	5	5	air	0.31	0.19	30	54									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00140-00001				0.31	0.17	26	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00380-00001				0.31	0.17	26	54									
1"	Gray Low-E IG	PEL-N-198-00044-00001	5	5	argon	0.28	0.19	30	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00164-00001				0.28	0.17	26	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00400-00001				0.28	0.17	26	57									
TINTED GLAZING – WITH FOAM INSERTS																		
1"	Bronze Advanced Low-E IG	PEL-N-198-00068-00001	5	5	air	0.31	0.25	34	55									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00188-00001				0.31	0.23	30	55									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00420-00001				0.31	0.23	30	55									
1"	Bronze Advanced Low-E IG	PEL-N-198-00092-00001	5	5	argon	0.27	0.25	34	58						18			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00212-00001				0.27	0.22	30	58						16			
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00440-00001				0.27	0.22	30	58						16			
1"	Gray Low-E IG	PEL-N-198-00067-00001	5	5	air	0.31	0.19	30	54									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00187-00001				0.31	0.17	26	54									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00419-00001				0.31	0.17	26	54									
1"	Gray Low-E IG	PEL-N-198-00091-00001	5	5	argon	0.27	0.19	30	57									
	with 3/4" or 1" grilles-between-the-glass	PEL-N-198-00211-00001				0.27	0.17	26	57									
	with 7/8" Simulated Divided Light grilles	PEL-N-198-00439-00001				0.27	0.17	26	57									

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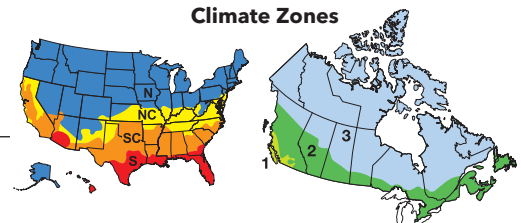
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SINGLE-HUNG

HURRICANESHIELD® IMPACT-RESISTANT GLAZING

GLAZING PERFORMANCE – TOTAL UNIT

1" Laminated Impact Glass



Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown							
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada ₂			
										Zone				ER	Zone		
VENT										N	NC	SC	S		1	2	3
1"	Advanced Low-E IG PVB	PEL-N-191-00740-00001	3	9	air	0.31	0.28	52	62								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00764-00001				0.31	0.25	47	62								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00776-00001				0.31	0.25	47	62								
1"	Advanced Low-E IG PVB	PEL-N-191-00734-00001	3	9	argon	0.28	0.28	52	66					18			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00758-00001				0.28	0.25	47	66					17			
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00770-00001				0.28	0.25	47	66					17			
1"	SunDefenseTM Low-E IG PVB	PEL-N-191-00742-00001	3	9	air	0.31	0.21	48	62								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00766-00001				0.31	0.19	43	62								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00778-00001				0.31	0.19	43	62								
1"	SunDefense Low-E IG PVB	PEL-N-191-00736-00001	3	9	argon	0.28	0.21	48	66								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00760-00001				0.28	0.19	43	66								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00772-00001				0.28	0.19	43	66								
VENT – WITH OBSCURE GLAZING																	
1"	Advanced Low-E IG PVB	PEL-N-191-00719-00001	3	9	air	0.31	0.27	37	62								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00727-00001				0.31	0.24	33	62								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00731-00001				0.31	0.24	33	62								
1"	Advanced Low-E IG PVB	PEL-N-191-00717-00001	3	9	argon	0.28	0.27	37	66					18			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00725-00001				0.28	0.24	33	66					16			
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00729-00001				0.28	0.24	33	66					16			
1"	SunDefenseTM Low-E IG PVB	PEL-N-191-00720-00001	3	9	air	0.31	0.20	34	62								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00728-00001				0.31	0.18	30	62								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00732-00001				0.31	0.18	30	62								
1"	SunDefense Low-E IG PVB	PEL-N-191-00718-00001	3	9	argon	0.28	0.20	34	66								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00726-00001				0.28	0.18	30	66								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00730-00001				0.28	0.18	30	66								
VENT – WITH TINTED GLAZING																	
1"	Bronze Advanced Low-E IG PVB	PEL-N-191-00741-00001	3	9	air	0.31	0.27	29	62								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00765-00001				0.31	0.24	26	62								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00777-00001				0.31	0.24	26	62								
1"	Bronze Advanced Low-E IG PVB	PEL-N-191-00735-00001	3	9	argon	0.28	0.27	29	66					18			
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00759-00001				0.28	0.24	26	66					16			
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00771-00001				0.28	0.24	26	66					16			
1"	Gray Advanced Low-E IG PVB	PEL-N-191-00739-00001	3	9	air	0.32	0.19	30	62								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00763-00001				0.32	0.18	27	62								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00775-00001				0.32	0.18	27	62								
1"	Gray Advanced Low-E IG PVB	PEL-N-191-00733-00001	3	9	argon	0.29	0.19	30	61								
	with 3/4" or 1" grilles-between-the-glass	PEL-N-191-00757-00001				0.29	0.17	27	61								
	with 7/8" Simulated Divided Light grilles	PEL-N-191-00769-00001				0.29	0.17	27	61								

R-Value = 1/U-Factor

SHGC = Solar Heat Gain Coefficient

VLT % = Visible Light Transmission

CR = Condensation Resistance

ER = Canadian Energy Rating

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500.

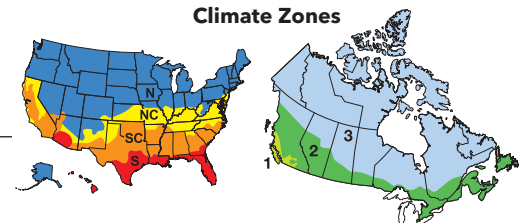
ENERGY STAR® values are updated to 2015 (Version 6) criteria.

(2) The values shown are based on Canada's updated ENERGY STAR® 2015 initiative.

Based on unit size, some products will use 2.5mm glass that may have improved glazing performance from what is shown.

See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.

Climate Zones



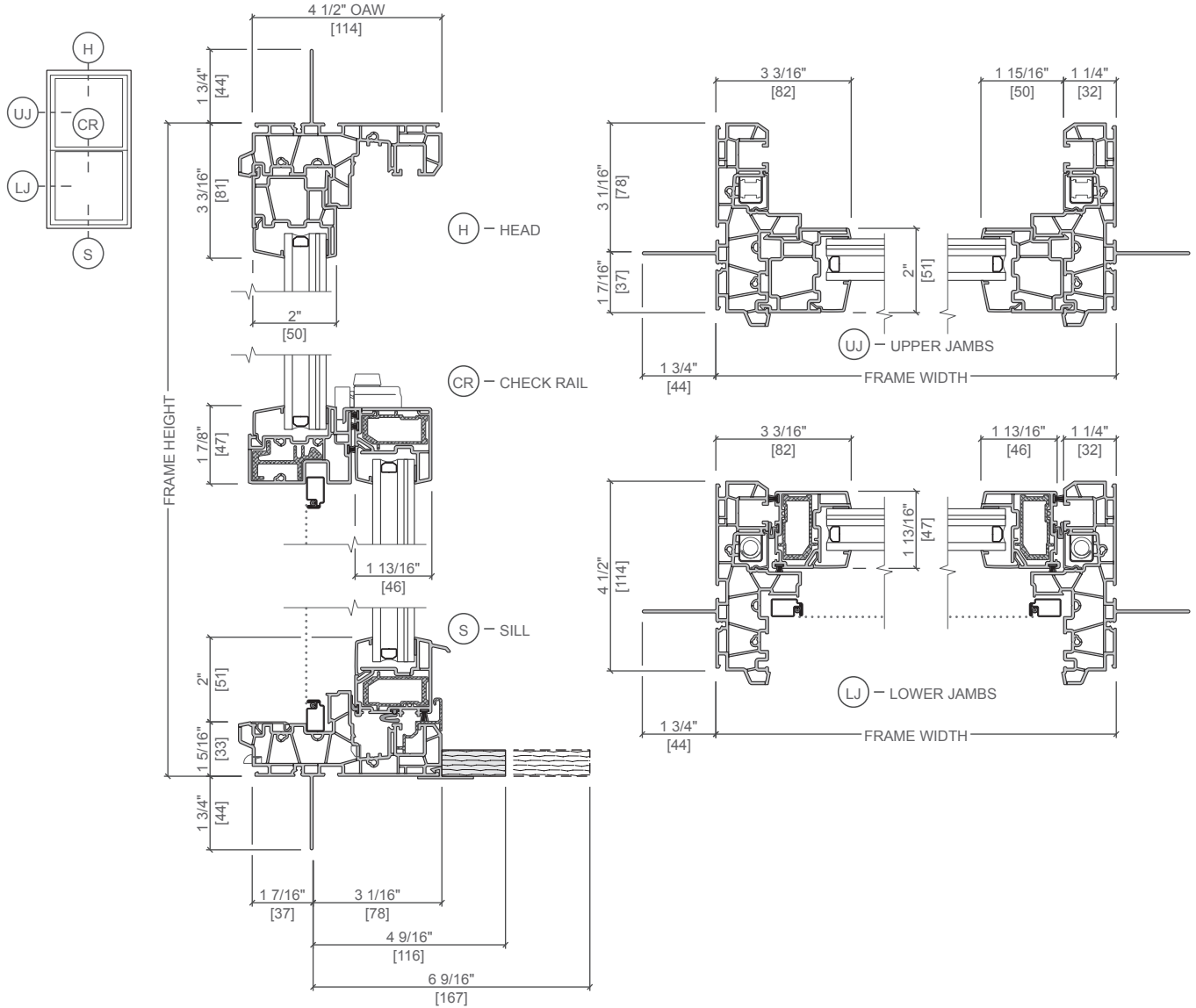


SINGLE-HUNG

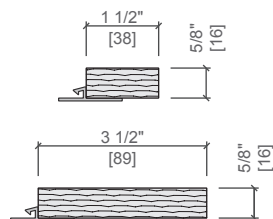
HURRICANESHIELD® IMPACT-RESISTANT GLAZING



Product	Design Pressure Large Missile Rating D		Hallmark Certified	Miami-Dade County Approved (NOA)	Florida Product Approval System (FPAS)	Texas Department of Insurance (TDI)
	Minimum	Maximum				
VENT UNITS						
1" Insulated Glass PVB	+ 60 / -65	+ 80 / -85	411-H-1423	13-0115.02	FL16000	WIN-1756

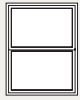


Optional Factory Applied Wood Jamb Extensions



Scale 3" = 1' 0"

All dimensions are approximate.



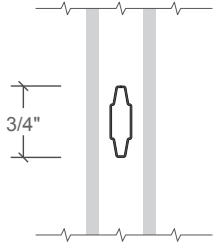
SINGLE-HUNG

GRILLE TYPES

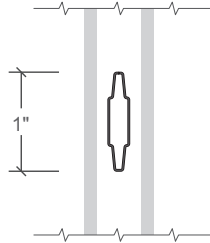


Grille Profiles

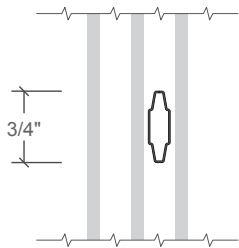
GRILLES-BETWEEN-THE-GLASS



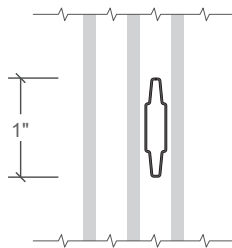
3/4" Contour



1" Contour

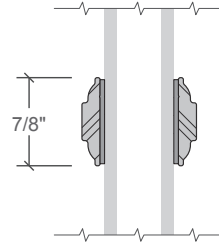


3/4" Contour



1" Contour

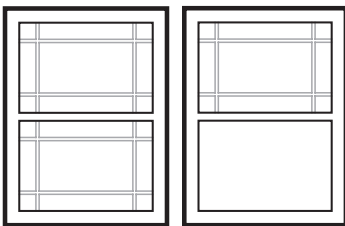
SIMULATED-DIVIDED-LIGHT GRILLES WITHOUT SPACER



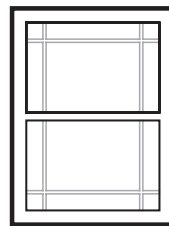
7/8" Contour

Grille Patterns

PRAIRIE LITE PATTERNS



9-Lite Prairie

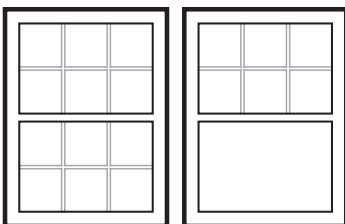


6-Lite Prairie

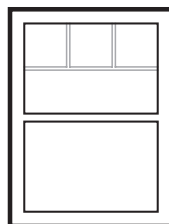
Prairie

- Specify upper or both sash
- Approximately 4" from edge of sash to center of bar
- Minimum actual glass is 13"

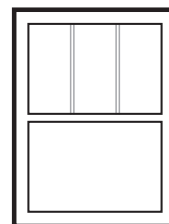
OTHER AVAILABLE PATTERNS



Traditional



Top Row



Custom—Equally Divided

Traditional

- Specify upper or both sash
- Specify number of lites
- Grilles must be equally divided on visible glass
- Minimum 6" x 6" center-to-center

Top Row

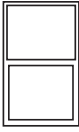
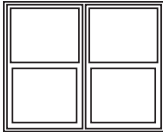
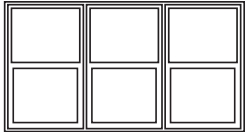
- Standard visible glass to separator bar must be $\leq 1/2$ upper actual glass



SINGLE-HUNG

SPECIAL SIZE FRAME DIMENSIONS

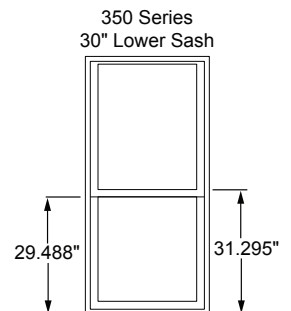
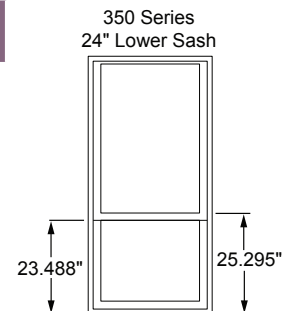


	1-WIDE VENT UNIT		2-WIDE VENT UNIT COMPOSITE		3-WIDE VENT UNIT COMPOSITE	
						
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
EQUAL SASH	14-1/2" W x 23-1/2" H (368 x 597)	48 Ft ² (4.46m ²) 54" W x 78" H (1 372 x 1 981)	29-1/2" W x 23-1/2" H (749 x 597)	72 Ft ² (4.46m ²) 108" W x 78" H (2 743 x 1 981)	44-1/2" W x 23-1/2" H (1 130 x 597)	72 Ft ² (4.46m ²) 112" W x 78" H (2 845 x 1 981)
COTTAGE SASH	14-1/2" W x 28-1/2" H (368 x 724)	54" W x 65-1/2" H (1 372 x 1 664)	29-1/2" W x 28-1/2" H (749 x 724)	108" W x 65-1/2" H (2 743 x 1 664)	44-1/2" W x 28-1/2" H (1 130 x 724)	112" W x 65-1/2" H (2 845 x 1 664)
CONTEMPORARY SASH	14-1/2" W x 28-1/2" H (368 x 724)	Standard Performance 54" W x 96" H (1 372 x 2 438) Performance Upgrade 84" H (2 134)	29-1/2" W x 28-1/2" H (749 x 724)	108" W x 78" H (2 743 x 1 981)	44-1/2" W x 28-1/2" H (1 130 x 724)	112" W x 78" H (2 845 x 1 981)
24" LOWER SASH	14-1/2" W x 47-5/8" H (368 x 1 210)	Standard Performance 54" W x 84" H (1 372 x 2 134) Performance Upgrade 73-1/2" H (1 867)	29-1/2" W x 47-5/8" H (749 x 1 210)	108" W x 62-3/4" H (2 743 x 1 594)	44-1/2" W x 47-5/8" H (1 130 x 1 210)	112" W x 62-3/4" H (2 845 x 1 594)
30" LOWER SASH	14-1/2" W x 59-5/8" H (368 x 1 514)	Standard Performance 54" W x 90" H (1 372 x 2 286) Performance Upgrade 79-1/2" H (2 019)	29-1/2" W x 59-5/8" H (749 x 1 514)	108" W x 68-3/4" H (2 743 x 1 746)	44-1/2" W x 59-5/8" H (1 130 x 1 514)	112" W x 68-3/4" H (2 845 x 1 746)

General Notes:

- Rough Opening–Frame Dimension + 1/2"
- Keep frame dimensions to the nearest 1/8" increment
- 2-Wide and 3-Wide units are composites with multiple windows in one frame with integral mullions

Equal Sash Glass Ratio	Cottage Glass Ratio	Contemporary Glass Ratio	24" Lower Sash	30" Lower Sash
50 : 50	40 : 60	60 : 40	Matches 48" Equal Sash Rough Opening (47.5" Frame Height)	Matches 60" Equal Sash Rough Opening (59.5" Frame Height)





SINGLE-HUNG

MISCELLANEOUS FORMULAS



Miscellaneous Formulas

		Actual Glass Width	Actual Glass Height	Visible Glass Width	Visible Glass Height
SINGLE UNIT	Equal Sash	FW - 5-1/4"	$(FH - 4-7/8) / 2$	AGW - 1-1/8"	AGH - 1-1/8"
	Cottage Sash		Lower Actual Glass Height = $(FH - 4.875) \times .6$ Upper Actual Glass Height = $(FH - 4.875) \times .4$		
	Contemporary $\leq 88-1/8"$ FH		Lower Actual Glass Height = $(FH - 4.875) \times .4$ Upper Actual Glass Height = $(FH - 4.875) \times .6$		
	Contemporary $> 88-1/8"$ FH (36" vent)		Lower Actual Glass Height = 33.313 Upper Actual Glass Height = $(FH - 4.875) - 33.313$		
	24" Lower Sash		Lower Actual Glass Height = 21.313 Upper Actual Glass Height = $(FH - 4.875) - 21.313$		
	30" Lower Sash		Lower AGH = 27.313 Upper Actual Glass Height = $(FH - 4.875) - 27.313$		
2-WIDE	Equal Sash	$(FW / 2) - 5-1/2$	$(FH - 4-7/8) / 2$	AGW - 1-1/8"	AGH - 1-1/8"
	Cottage Sash		Lower Actual Glass Height = $(FH - 4.875) \times .6$ Upper Actual Glass Height = $(FH - 4.875) \times .4$		
	Contemporary $\leq 88-1/8"$ FH		Lower Actual Glass Height = $(FH - 4.875) \times .4$ Upper Actual Glass Height = $(FH - 4.875) \times .6$		
	Contemporary $> 88-1/8"$ FH (36" vent)		Lower Actual Glass Height = 33.313 Upper Actual Glass Height = $(FH - 4.875) - 33.313$		
	24" Lower Sash		Lower Actual Glass Height = 21.313 Upper Actual Glass Height = $(FH - 4.875) - 21.313$		
	30" Lower Sash		Lower Actual Glass Height = 27.313 Upper Actual Glass Height = $(FH - 4.875) - 27.313$		
3-WIDE EQUAL	Equal Sash	$(FW / 3) - 5-19/32"$	$(FH - 4-7/8) / 2$	AGW - 1-1/8"	AGH - 1-1/8"
	Cottage Sash		Lower Actual Glass Height = $(FH - 4.875) \times .6$ Upper Actual Glass Height = $(FH - 4.875) \times .4$		
	Contemporary $\leq 88-1/8"$ FH		Lower Actual Glass Height = $(FH - 4.875) \times .4$ Upper Actual Glass Height = $(FH - 4.875) \times .6$		
	Contemporary $> 88-1/8"$ FH (36" vent)		Lower Actual Glass Height = 33.313 Upper Actual Glass Height = $(FH - 4.875) - 33.313$		
	24" Lower Sash		Lower Actual Glass Height = 21.313 Upper Actual Glass Height = $(FH - 4.875) - 21.313$		
	30" Lower Sash		Lower Actual Glass Height = 27.313 Upper Actual Glass Height = $(FH - 4.875) - 27.313$		

Clear Opening Formulas

	COW	COH Equal Sash	COH Cottage Sash	COH Contemporary Sash	COH 24" Lower Sash	COH 30" Lower Sash
CLEAR OPENING WITH CAM LOCK	Frame Width - 4.06	$(FH / 2) - 4.204$	FH - ALGH - 6.642	FH - AUGH - 4.73	FH - AUGH - 4.73	FH - AUGH - 4.73
CLEAR OPENING WITH AUTO LOCK		$(FH / 2) - 4.829$	FH - AUGH - 7.267	FH - AUGH - 4.73	FH - AUGH - 4.73	FH - AUGH - 4.73
CLEAR OPENING WITH OPTIONAL MAXIMUM OPENING HARDWARE		$(FH / 2) - 3.53$	NA	NA	NA	NA

Max Opening Hardware Requirements:

Unit must be standard performance
 Must not have limited opening hardware
 Unit must have equal sash split
 Frame width must be $\geq 29.5"$
 Frame height must be $\geq 55.5"$
 Frame height must be $\leq 72"$

Clear Opening Area (ft²) = $(COW \times COH) / 144$
 Frame Area (ft²) = $(Frame Width \times Frame Height) / 144$
 To convert areas to square meters (m²), multiply square feet by 0.0929.

KEY:

AGW = Actual Glass Width
 AGH = Actual Glass Height
 ALGH = Actual Lower Glass Height
 AUGH = Actual Upper Glass Height
 FW = Frame Width

FH = Frame Height
 VGW = Visible Glass Width
 VGH = Visible Glass Height
 COW = Clear opening width
 COH = Clear opening height



SINGLE-HUNG

SIZE TABLES

Equal Sash

Single Units



1-Wide Vent

	(457) (445)	(610) (597)	(711) (699)	(762) (749)	(813) (800)	(914) (902)	(1 016) (1 003)	(1 067) (1 054)	(1 219) (1 207)
Opening	1' 6"	2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 4"	3' 6"	4' 0"
Frame	17 1/2"	23 1/2"	27 1/2"	29 1/2"	31 1/2"	35 1/2"	39 1/2"	41 1/2"	47 1/2"
(610) (597)	1-6/2-0	2-0/2-0	2-4/2-0	2-6/2-0	2-8/2-0	3-0/2-0	3-4/2-0	3-6/2-0	4-0/2-0
(762) (749)	1-6/2-6	2-0/2-6	2-4/2-6	2-6/2-6	2-8/2-6	3-0/2-6	3-4/2-6	3-6/2-6	4-0/2-6
(914) (902)	1-6/3-0	2-0/3-0	2-4/3-0	2-6/3-0	2-8/3-0	3-0/3-0	3-4/3-0	3-6/3-0	4-0/3-0
(965) (953)	1-6/3-2	2-0/3-2	2-4/3-2	2-6/3-2	2-8/3-2	3-0/3-2	3-4/3-2	3-6/3-2	4-0/3-2
(1 067) (1 054)	1-6/3-6	2-0/3-6	2-4/3-6	2-6/3-6	2-8/3-6	3-0/3-6	3-4/3-6	3-6/3-6	4-0/3-6
(1 188) (1 156)	1-6/3-10	2-0/3-10	2-4/3-10	2-6/3-10	2-8/3-10	3-0/3-10	3-4/3-10	3-6/3-10	4-0/3-10
(1 219) (1 207)	1-6/4-0	2-0/4-0	2-4/4-0	2-6/4-0	2-8/4-0	3-0/4-0	3-4/4-0	3-6/4-0	4-0/4-0
(1 321) (1 308)	1-6/4-4	2-0/4-4	2-4/4-4	2-6/4-4	2-8/4-4	3-0/4-4	3-4/4-4	3-6/4-4	4-0/4-4
(1 372) (1 359)	1-6/4-6	2-0/4-6	2-4/4-6	2-6/4-6	2-8/4-6	3-0/4-6	3-4/4-6	3-6/4-6	4-0/4-6
(1 524) (1 511)	1-6/5-0	2-0/5-0	2-4/5-0	2-6/5-0	2-8/5-0	3-0/5-0	3-4/5-0	3-6/5-0	4-0/5-0

Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².E2 = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft² using maximum opening hardware option and standard cam locks.

Autolock hardware is not compatible with Maximum opening hardware.

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



SINGLE-HUNG

SIZE TABLES

Equal Sash

Single Units



1-Wide Vent

	(457) (445)	(610) (597)	(711) (699)	(762) (749)	(813) (800)	(914) (902)	(1 016) (1 003)	(1 067) (1 054)	(1 219) (1 207)
Opening	1' 6"	2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 4"	3' 6"	4' 0"
Frame	17 1/2"	23 1/2"	27 1/2"	29 1/2"	31 1/2"	35 1/2"	39 1/2"	41 1/2"	47 1/2"
(1 575) (1 562)									
	1-6/5-2	2-0/5-2	2-4/5-2	2-6/5-2	2-8/5-2	3-0/5-2	3-4/5-2	3-6/5-2	4-0/5-2
(1 676) (1 664)									
	1-6/5-6	2-0/5-6	2-4/5-6	2-6/5-6	2-8/5-6	3-0/5-6	3-4/5-6	3-6/5-6	4-0/5-6
(1 829) (1 816)									
	1-6/6-0	2-0/6-0	2-4/6-0	2-6/6-0	2-8/6-0	3-0/6-0	3-4/6-0	3-6/6-0	4-0/6-0
(1 981) (1 969)									
	1-6/6-6	2-0/6-6	2-4/6-6	2-6/6-6	2-8/6-6	3-0/6-6	3-4/6-6	3-6/6-6	4-0/6-6

Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

E2 = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft² using maximum opening hardware option and standard cam locks.

A = Unit does not meet egress if using optional Autolock hardware; unit may meet second egress value if one is shown.

Autolock hardware is not compatible with Maximum opening hardware.

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



SINGLE-HUNG

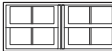
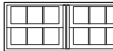
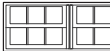
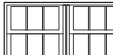
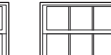
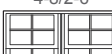
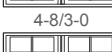
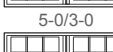
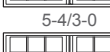
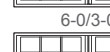
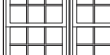
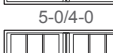
SIZE TABLES

Equal Sash

2-Wide Composites with Integral Mullion



2-Wide Vent

		(914) (902)	(1 219) (1 207)	(1 422) (1 410)	(1 524) (1 511)	(1 626) (1 613)	(1 829) (1 816)	(2 032) (2 019)	
Opening	3' 0"	4' 0"	4' 8"	5' 0"	5' 4"	6' 0"	6' 8"		
Frame	35 1/2"	47 1/2"	55 1/2"	59 1/2"	63 1/2"	71 1/2"	79 1/2"		
(610) (597)	2' 0"	23 1/2"							
(762) (749)	2' 6"	29 1/2"							
(914) (902)	3' 0"	35 1/2"							
(965) (953)	3' 2"	37 1/2"							
(1 067) (1 054)	3' 6"	41 1/2"							
(1 168) (1 156)	3' 10"	45 1/2"							
(1 219) (1 207)	4' 0"	47 1/2"							
(1 321) (1 308)	4' 4"	51 1/2"							
(1 372) (1 359)	4' 6"	53 1/2"							
(1 524) (1 511)	5' 0"	59 1/2"							
									
			3-0/2-0	4-0/2-0	4-8/2-0	5-0/2-0	5-4/2-0	6-0/2-0	6-8/2-0
									
			3-0/2-6	4-0/2-6	4-8/2-6	5-0/2-6	5-4/2-6	6-0/2-6	6-8/2-6
									
			3-0/3-0	4-0/3-0	4-8/3-0	5-0/3-0	5-4/3-0	6-0/3-0	6-8/3-0
									
			3-0/3-2	4-0/3-2	4-8/3-2	5-0/3-2	5-4/3-2	6-0/3-2	6-8/3-2
									
			3-0/3-6	4-0/3-6	4-8/3-6	5-0/3-6	5-4/3-6	6-0/3-6	6-8/3-6
									
			3-0/3-10	4-0/3-10	4-8/3-10	5-0/3-10	5-4/3-10	6-0/3-10	6-8/3-10
									
			3-0/4-0	4-0/4-0	4-8/4-0	5-0/4-0	5-4/4-0	6-0/4-0	6-8/4-0
									
			3-0/4-4	4-0/4-4	4-8/4-4	5-0/4-4	5-4/4-4	6-0/4-4	6-8/4-4
									
			3-0/4-6	4-0/4-6	4-8/4-6	5-0/4-6	5-4/4-6	6-0/4-6	6-8/4-6
									
			3-0/5-0	4-0/5-0	4-8/5-0	5-0/5-0	5-4/5-0	6-0/5-0	6-8/5-0

Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

E2 = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft² using maximum opening hardware option and standard cam locks.

Autolock hardware is not compatible with Maximum opening hardware.

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



SINGLE-HUNG

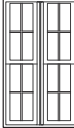
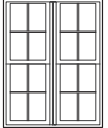
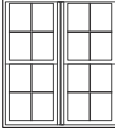
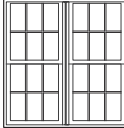
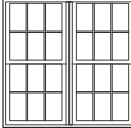
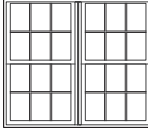
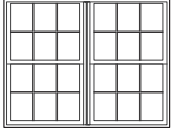
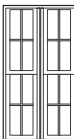
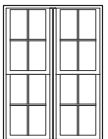
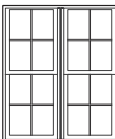
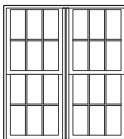
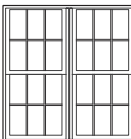
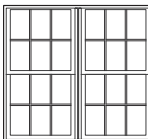
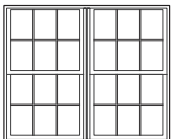
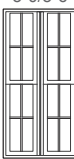
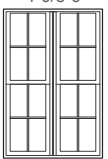
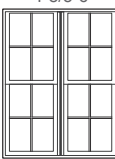
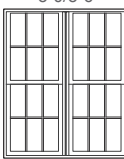
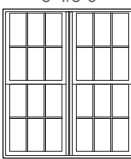
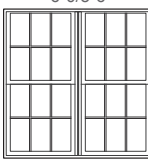
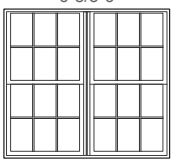
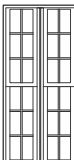
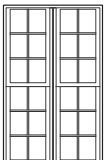
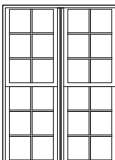
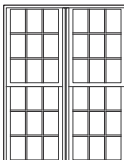
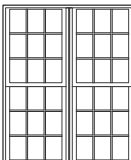
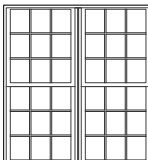
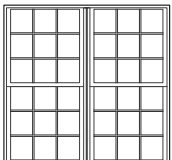
SIZE TABLES

Equal Sash

2-Wide Composites with Integral Mullion



2-Wide Vent

		(914) (902)	(1 219) (1 207)	(1 422) (1 410)	(1 524) (1 511)	(1 626) (1 613)	(1 829) (1 816)	(2 032) (2 019)
Opening		3' 0"	4' 0"	4' 8"	5' 0"	5' 4"	6' 0"	6' 8"
Frame		35 1/2"	47 1/2"	55 1/2"	59 1/2"	63 1/2"	71 1/2"	79 1/2"
(1 575) (1 562) (1 676) (1 664) (1 829) (1 816) (1 981) (1 969)	5' 2"							
		3-0/5-2	4-0/5-2	4-8/5-2	5-0/5-2	5-4/5-2	6-0/5-2	6-8/5-2
	5' 6"							
		3-0/5-6	4-0/5-6	4-8/5-6	5-0/5-6	5-4/5-6	6-0/5-6	6-8/5-6
	6' 0"							
		3-0/6-0	4-0/6-0	4-8/6-0	5-0/6-0	5-4/6-0	6-0/6-0	6-8/6-0
	6' 6"							
		3-0/6-6	4-0/6-6	4-8/6-6	5-0/6-6	5-4/6-6	6-0/6-6	6-8/6-6

Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

A = Unit does not meet egress if using optional Autolock hardware; unit may meet second egress value if one is shown.

Autolock hardware is not compatible with Maximum opening hardware.

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



SINGLE-HUNG

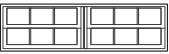
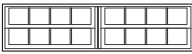
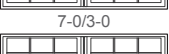
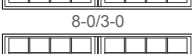
SIZE TABLES

Equal Sash

2-Wide Composites with Integral Mullion



2-Wide Vent

		(2 134) (2 121)	(2 438) (2 426)
Opening		7' 0"	8' 0"
Frame		83 1/2"	95 1/2"
(610) (597)	2' 0"		
(762) (749)	2' 6"		
(914) (902)	3' 0"		
(965) (953)	3' 2"		
(1 067) (1 054)	3' 6"		
(1 168) (1 156)	3' 10"		
(1 219) (1 207)	4' 0"		
(1 321) (1 308)	4' 4"		
(1 372) (1 359)	4' 6"		
(1 524) (1 511)	5' 0"		

		(2 134) (2 121)	(2 438) (2 426)
Opening		7' 0"	8' 0"
Frame		83 1/2"	95 1/2"
(1 575) (1 562)	5' 2"		
(1 676) (1 664)	5' 6"		
(1 829) (1 816)	6' 0"		
(1 981) (1 969)	6' 6"		

Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

A = Unit does not meet egress if using optional Autolock hardware; unit may meet second egress value if one is shown.

Autolock hardware is not compatible with Maximum opening hardware.

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



SINGLE-HUNG

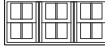
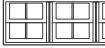
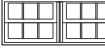
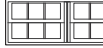
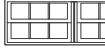
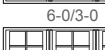
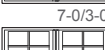
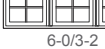
SIZE TABLES

Equal Sash

3-Wide Composites with Integral Mullion



3-Wide Vent

		(1 372) (1 359)	(1 829) (1 816)	(2 134) (2 121)	(2 286) (2 273)	(2 438) (2 426)	(2 743) (2 731)
Opening		4' 6"	6' 0"	7' 0"	7' 6"	8' 0"	9' 0"
Frame		53 1/2"	71 1/2"	83 1/2"	89 1/2"	95 1/2"	107 1/2"
(610) (762) (914) (965) (1 067) (1 168) (1 219) (1 321) (1 372) (1 524)	2' 0"						
	2' 6"						
	3' 0"						
	3' 2"						
	3' 6"						
	3' 10"						
	4' 0"						
	4' 4"						
	4' 6"						
	5' 0"						

E₁
E₂

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 ft².

E2 = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft² using maximum opening hardware option and standard cam locks.

Autolock hardware is not compatible with Maximum opening hardware.

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



SINGLE-HUNG

SIZE TABLES

Equal Sash

3-Wide Composites with Integral Mullion



3-Wide Vent

		(1 372) (1 359)	(1 829) (1 816)	(2 134) (2 121)	(2 286) (2 273)	(2 438) (2 426)	(2 743) (2 731)
Opening		4' 6"	6' 0"	7' 0"	7' 6"	8' 0"	9' 0"
Frame		53 1/2"	71 1/2"	83 1/2"	89 1/2"	95 1/2"	107 1/2"
(1 575) (1 562)	5' 2"	61 1/2"					
(1 676) (1 664)	5' 6"	65 1/2"					
(1 829) (1 816)	6' 0"	71 1/2"					
(1 981) (1 969)	6' 6"	77 1/2"					

4-6/5-2	6-0/5-2	7-0/5-2	7-6/5-2	8-0/5-2	9-0/5-2	E _A
4-6/5-6	6-0/5-6	7-0/5-6	7-6/5-6	8-0/5-6	9-0/5-6	E ₁
4-6/6-0	6-0/6-0	7-0/6-0	7-6/6-0	8-0/6-0	9-0/6-0	E
4-6/6-6	6-0/6-6	7-0/6-6	7-6/6-6	8-0/6-6	9-0/6-6	E

Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².E₁ = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

A = Unit does not meet egress if using optional Autolock hardware; unit may meet second egress value if one is shown.

Autolock hardware is not compatible with Maximum opening hardware.

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



SINGLE-HUNG

SIZE TABLES

Cottage Sash Single Units



1-Wide Cottage Vent

	(457) (445)	(610) (597)	(711) (699)	(762) (749)	(813) (800)	(914) (902)	(1 016) (1 003)	(1 067) (1 054)	(1 219) (1 207)
Opening	1' 6"	2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 4"	3' 6"	4' 0"
Frame	17 1/2"	23 1/2"	27 1/2"	29 1/2"	31 1/2"	35 1/2"	39 1/2"	41 1/2"	47 1/2"
(762) (749)	1-6/2-6	2-0/2-6	2-4/2-6	2-6/2-6	2-8/2-6	3-0/2-6	3-4/2-6	3-6/2-6	4-0/2-6
(914) (902)	1-6/3-0	2-0/3-0	2-4/3-0	2-6/3-0	2-8/3-0	3-0/3-0	3-4/3-0	3-6/3-0	4-0/3-0
(965) (953)	1-6/3-2	2-0/3-2	2-4/3-2	2-6/3-2	2-8/3-2	3-0/3-2	3-4/3-2	3-6/3-2	4-0/3-2
(1 067) (1 054)	1-6/3-6	2-0/3-6	2-4/3-6	2-6/3-6	2-8/3-6	3-0/3-6	3-4/3-6	3-6/3-6	4-0/3-6
(1 168) (1 156)	1-6/3-10	2-0/3-10	2-4/3-10	2-6/3-10	2-8/3-10	3-0/3-10	3-4/3-10	3-6/3-10	4-0/3-10
(1 219) (1 207)	1-6/4-0	2-0/4-0	2-4/4-0	2-6/4-0	2-8/4-0	3-0/4-0	3-4/4-0	3-6/4-0	4-0/4-0
(1 321) (1 308)	1-6/4-4	2-0/4-4	2-4/4-4	2-6/4-4	2-8/4-4	3-0/4-4	3-4/4-4	3-6/4-4	4-0/4-4
(1 372) (1 359)	1-6/4-6	2-0/4-6	2-4/4-6	2-6/4-6	2-8/4-6	3-0/4-6	3-4/4-6	3-6/4-6	4-0/4-6
(1 524) (1 511)	1-6/5-0	2-0/5-0	2-4/5-0	2-6/5-0	2-8/5-0	3-0/5-0	3-4/5-0	3-6/5-0	4-0/5-0
(1 575) (1 562)	1-6/5-2	2-0/5-2	2-4/5-2	2-6/5-2	2-8/5-2	3-0/5-2	3-4/5-2	3-6/5-2	4-0/5-2
(1 676) (1 664)	1-6/5-6	2-0/5-6	2-4/5-6	2-6/5-6	2-8/5-6	3-0/5-6	3-4/5-6	3-6/5-6	4-0/5-6

Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

Autolock hardware is not compatible with Maximum opening hardware.

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



SINGLE-HUNG

SIZE TABLES

Contemporary Sash

Single Units



1-Wide Contemporary Vent

	(457) (445)	(610) (597)	(711) (699)	(762) (749)	(813) (800)	(914) (902)	(1 016) (1 003)	(1 067) (1 054)	(1 219) (1 207)
Opening	1' 6"	2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 4"	3' 6"	4' 0"
Frame	17 1/2"	23 1/2"	27 1/2"	29 1/2"	31 1/2"	35 1/2"	39 1/2"	41 1/2"	47 1/2"
(762) (749)	1-6/2-6	2-0/2-6	2-4/2-6	2-6/2-6	2-8/2-6	3-0/2-6	3-4/2-6	3-6/2-6	4-0/2-6
(914) (902)	1-6/3-0	2-0/3-0	2-4/3-0	2-6/3-0	2-8/3-0	3-0/3-0	3-4/3-0	3-6/3-0	4-0/3-0
(965) (953)	1-6/3-2	2-0/3-2	2-4/3-2	2-6/3-2	2-8/3-2	3-0/3-2	3-4/3-2	3-6/3-2	4-0/3-2
(1 067) (1 054)	1-6/3-6	2-0/3-6	2-4/3-6	2-6/3-6	2-8/3-6	3-0/3-6	3-4/3-6	3-6/3-6	4-0/3-6
(1 188) (1 156)	1-6/3-10	2-0/3-10	2-4/3-10	2-6/3-10	2-8/3-10	3-0/3-10	3-4/3-10	3-6/3-10	4-0/3-10
(1 219) (1 207)	1-6/4-0	2-0/4-0	2-4/4-0	2-6/4-0	2-8/4-0	3-0/4-0	3-4/4-0	3-6/4-0	4-0/4-0
(1 321) (1 308)	1-6/4-4	2-0/4-4	2-4/4-4	2-6/4-4	2-8/4-4	3-0/4-4	3-4/4-4	3-6/4-4	4-0/4-4
(1 372) (1 359)	1-6/4-6	2-0/4-6	2-4/4-6	2-6/4-6	2-8/4-6	3-0/4-6	3-4/4-6	3-6/4-6	4-0/4-6
(1 524) (1 511)	1-6/5-0	2-0/5-0	2-4/5-0	2-6/5-0	2-8/5-0	3-0/5-0	3-4/5-0	3-6/5-0	4-0/5-0
(1 575) (1 562)	1-6/5-2	2-0/5-2	2-4/5-2	2-6/5-2	2-8/5-2	3-0/5-2	3-4/5-2	3-6/5-2	4-0/5-2
(1 676) (1 664)	1-6/5-6	2-0/5-6	2-4/5-6	2-6/5-6	2-8/5-6	3-0/5-6 E ₁	3-4/5-6 E	3-6/5-6 E	4-0/5-6 E

Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

Autolock hardware is not compatible with Maximum opening hardware.

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



SINGLE-HUNG

SIZE TABLES

Contemporary Sash
Single Units

1-Wide Contemporary Vent

	(457) (445)	(610) (597)	(711) (699)	(762) (749)	(813) (800)	(914) (902)	(1 016) (1 003)	(1 067) (1 054)	(1 219) (1 207)
Opening	1' 6"	2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 4"	3' 6"	4' 0"
Frame	17 1/2"	23 1/2"	27 1/2"	29 1/2"	31 1/2"	35 1/2"	39 1/2"	41 1/2"	47 1/2"
(1 829) (1 816)									
(1 981) (1 969)									
(2 134) (2 121)									
(2 286) (2 273)									
(2 438) (2 426)									

Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

Autolock hardware is not compatible with Maximum opening hardware.

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



SINGLE-HUNG

SIZE TABLES

24" Lower Sash

Single Units



1-Wide Vent

		(457) (445)	(610) (597)	(711) (699)	(762) (749)	(813) (800)	(914) (902)	(1 016) (1 003)	(1 067) (1 054)	(1 219) (1 207)
Opening		1' 6"	2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 4"	3' 6"	4' 0"
Frame		17 1/2"	23 1/2"	27 1/2"	29 1/2"	31 1/2"	35 1/2"	39 1/2"	41 1/2"	47 1/2"
(1 372) (1 359)	4' 6"	53 1/2"								
	24"	(Lower Sash)								
		1-6/4-6 24V	2-0/4-6 24V	2-4/4-6 24V	2-6/4-6 24V	2-8/4-6 24V	3-0/4-6 24V	3-4/4-6 24V	3-6/4-6 24V	4-0/4-6 24V
	5' 0"	59 1/2"								
	24"	(Lower Sash)								
		1-6/5-0 24V	2-0/5-0 24V	2-4/5-0 24V	2-6/5-0 24V	2-8/5-0 24V	3-0/5-0 24V	3-4/5-0 24V	3-6/5-0 24V	4-0/5-0 24V
(1 524) (1 511)	5' 2"	61 1/2"								
	24"	(Lower Sash)								
(1 575) (1 562)	5' 6"	65 1/2"								
	24"	(Lower Sash)								
(1 676) (1 664)	6' 0"	71 1/2"								
	24"	(Lower Sash)								
(1 829) (1 816)	6' 6"	77 1/2"								
	24"	(Lower Sash)								
(1 981) (1 969)										

Not to scale.



SINGLE-HUNG

SIZE TABLES

24" Lower Sash

2-Wide Vent



2-Wide Vent

			(914) (902)	(1 219) (1 207)	(1 422) (1 410)	(1 524) (1 511)	(1 626) (1 613)
(1 372) (1 359) (1 524) (1 511) (1 575) (1 562) (1 676) (1 664) (1 829) (1 816) (1 981) (1 969)	Opening		3' 0"	4' 0"	4' 8"	5' 0"	5' 4"
	Frame		35 1/2"	47 1/2"	55 1/2"	59 1/2"	63 1/2"
	4' 6"	53 1/2"					
	24"	(Lower Sash)					
		3-0/4-6 24V	4-0/4-6 24V	4-8/4-6 24V	5-0/4-6 24V	5-4/4-6 24V	
	5' 0"	59 1/2"					
	24"	(Lower Sash)					
		3-0/5-0 24V	4-0/5-0 24V	4-8/5-0 24V	5-0/5-0 24V	5-4/5-0 24V	
5' 2"	61 1/2"						
24"	(Lower Sash)						
	3-0/5-2 24V	4-0/5-2 24V	4-8/5-2 24V	5-0/5-2 24V	5-4/5-2 24V		
5' 6"	65 1/2"						
24"	(Lower Sash)						
	3-0/5-6 24V	4-0/5-6 24V	4-8/5-6 24V	5-0/5-6 24V	5-4/5-6 24V		
6' 0"	71 1/2"						
24"	(Lower Sash)						
	3-0/6-0 24V	4-0/6-0 24V	4-8/6-0 24V	5-0/6-0 24V	5-4/6-0 24V		
6' 6"	77 1/2"						
24"	(Lower Sash)						
	3-0/6-6 24V	4-0/6-6 24V	4-8/6-6 24V	5-0/6-6 24V	5-4/6-6 24V		

Not to scale.



SINGLE-HUNG

SIZE TABLES

24" Lower Sash

3-Wide Vent



3-Wide Vent

		(1 372) (1 359)	(1 829) (1 816)	(2 134) (2 121)	(2 286) (2 273)	(2 438) (2 426)	(2 743) (2 731)
Opening		4' 6"	6' 0"	7' 0"	7' 6"	8' 0"	9' 0"
Frame		53 1/2"	71 1/2"	83 1/2"	89 1/2"	95 1/2"	107 1/2"
(1 372) (1 359)	4' 6"	53 1/2"					
		(Lower Sash)					
		4-6/4-6 24V	6-0/4-6 24V	7-0/4-6 24V	7-6/4-6 24V	8-0/4-6 24V	9-0/4-6 24V
	5' 0"	59 1/2"					
		(Lower Sash)					
		4-6/5-0 24V	6-0/5-0 24V	7-0/5-0 24V	7-6/5-0 24V	8-0/5-0 24V	9-0/5-0 24V
(1 524) (1 511)	5' 2"	61 1/2"					
		(Lower Sash)					
		4-6/5-2 24V	6-0/5-2 24V	7-0/5-2 24V	7-6/5-2 24V	8-0/5-2 24V	9-0/5-2 24V
	5' 6"	65 1/2"					
		(Lower Sash)					
		4-6/5-6 24V	6-0/5-6 24V	7-0/5-6 24V	7-6/5-6 24V	8-0/5-6 24V	9-0/5-6 24V
(1 676) (1 664)	6' 0"	71 1/2"					
		(Lower Sash)					
		4-6/6-0 24V	6-0/6-0 24V	7-0/6-0 24V	7-6/6-0 24V	8-0/6-0 24V	9-0/6-0 24V
	6' 6"	77 1/2"					
		(Lower Sash)					
		4-6/6-6 24V	6-0/6-6 24V	7-0/6-6 24V	7-6/6-6 24V	8-0/6-6 24V	9-0/6-6 24V

Not to scale.

Single Units



(457)	(610)	(711)	(762)	(813)	(914)	(1 016)	(1 067)	(1 219)
(445)	(597)	(699)	(749)	(800)	(902)	(1 003)	(1 054)	(1 207)

		Opening	1' 6"	2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 4"	3' 6"	4' 0"
		Frame	17 1/2"	23 1/2"	27 1/2"	29 1/2"	31 1/2"	35 1/2"	39 1/2"	41 1/2"	47 1/2"
(1 829) (1 816)	5' 6"	65 1/2"	 (Lower Sash) 1-6/5-6 30V	 2-0/5-6 30V	 2-4/5-6 30V	 2-6/5-6 30V	 2-8/5-6 30V	 3-0/5-6 30V	 3-4/5-6 30V	 3-6/5-6 30V	 4-0/5-6 30V
	6' 0"	71 1/2"	 (Lower Sash) 1-6/6-0 30V	 2-0/6-0 30V	 2-4/6-0 30V	 2-6/6-0 30V	 2-8/6-0 30V	 3-0/6-0 30V	 3-4/6-0 30V	 3-6/6-0 30V	 4-0/6-0 30V
	6' 6"	77 1/2"	 (Lower Sash) 1-6/6-6 30V	 2-0/6-6 30V	 2-4/6-6 30V	 2-6/6-6 30V	 2-8/6-6 30V	 3-0/6-6 30V	 3-4/6-6 30V	 3-6/6-6 30V	 4-0/6-6 30V

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



SINGLE-HUNG

SIZE TABLES

30" Lower Sash

2-Wide Vent



2-Wide Vent

		(914) (902)	(1 219) (1 207)	(1 422) (1 410)	(1 524) (1 511)	(1 626) (1 613)
	Opening	3' 0"	4' 0"	4' 8"	5' 0"	5' 4"
	Frame	35 1/2"	47 1/2"	55 1/2"	59 1/2"	63 1/2"
(1 676) (1 664)	5' 6"	30" (Lower Sash) 3-0/5-6 30V 30" (Lower Sash) 4-0/5-6 30V 30" (Lower Sash) 4-8/5-6 30V 30" (Lower Sash) 5-0/5-6 30V 30" (Lower Sash) 5-4/5-6 30V				
(1 829) (1 816)	6' 0"	30" (Lower Sash) 3-0/6-0 30V 30" (Lower Sash) 4-0/6-0 30V 30" (Lower Sash) 4-8/6-0 30V 30" (Lower Sash) 5-0/6-0 30V 30" (Lower Sash) 5-4/6-0 30V				
(1 981) (1 969)	6' 6"	30" (Lower Sash) 3-0/6-6 30V 30" (Lower Sash) 4-0/6-6 30V 30" (Lower Sash) 4-8/6-6 30V 30" (Lower Sash) 5-0/6-6 30V 30" (Lower Sash) 5-4/6-6 30V				

2-Wide Vent

		(1 829) (1 816)	(2 032) (2 019)	(2 134) (2 121)	(2 438) (2 426)
	Opening	6' 0"	6' 8"	7' 0"	8' 0"
	Frame	71 1/2"	79 1/2"	83 1/2"	95 1/2"
(1 676) (1 664)	5' 6"	30" (Lower Sash) 6-0/5-6 30V 30" (Lower Sash) 6-8/5-6 30V 30" (Lower Sash) 7-0/5-6 30V 30" (Lower Sash) 8-0/5-6 30V			
(1 829) (1 816)	6' 0"	30" (Lower Sash) 6-0/6-0 30V 30" (Lower Sash) 6-8/6-0 30V 30" (Lower Sash) 7-0/6-0 30V 30" (Lower Sash) 8-0/6-0 30V			
(1 981) (1 969)	6' 6"	30" (Lower Sash) 6-0/6-6 30V 30" (Lower Sash) 6-8/6-6 30V 30" (Lower Sash) 7-0/6-6 30V 30" (Lower Sash) 8-0/6-6 30V			

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.

Autolock hardware is not compatible with Maximum opening hardware.

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



SINGLE-HUNG

SIZE TABLES

30" Lower Sash

3-Wide Vent



3-Wide Vent

		(1 372) (1 359)	(1 829) (1 816)	(2 134) (2 121)	(2 286) (2 273)	(2 438) (2 426)	(2 743) (2 731)
Opening	4' 6"	6' 0"	7' 0"	7' 6"	8' 0"	9' 0"	
Frame	53 1/2"	71 1/2"	83 1/2"	89 1/2"	95 1/2"	107 1/2"	
(1 676) (1 664) 5' 6" 65 1/2" (1 829) (1 816) 6' 0" 71 1/2" (1 981) (1 969) 6' 6" 77 1/2"	30"	30"	30"	30"	30"	30"	
	(Lower Sash)	(Lower Sash)	(Lower Sash)	(Lower Sash)	(Lower Sash)	(Lower Sash)	E
	4-6/5-6 30V	6-0/5-6 30V	7-0/5-6 30V	7-6/5-6 30V	8-0/5-6 30V	9-0/5-6 30V	
	30"	30"	30"	30"	30"	30"	E
	(Lower Sash)	(Lower Sash)	(Lower Sash)	(Lower Sash)	(Lower Sash)	(Lower Sash)	
	4-6/6-0 30V	6-0/6-0 30V	7-0/6-0 30V	7-6/6-0 30V	8-0/6-0 30V	9-0/6-0 30V	
	30"	30"	30"	30"	30"	30"	E
	(Lower Sash)	(Lower Sash)	(Lower Sash)	(Lower Sash)	(Lower Sash)	(Lower Sash)	
	4-6/6-6 30V	6-0/6-6 30V	7-0/6-6 30V	7-6/6-6 30V	8-0/6-6 30V	9-0/6-6 30V	

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.

Autolock hardware is not compatible with Maximum opening hardware.

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



SINGLE-HUNG

SIZE TABLES

Equal Sash

5/8" Integral Flange



Call Size	1	H3	2	3
Masonry	19 7/8"	27 1/4"	37 3/4"	53 7/8"
Buck	18 3/8"	25 3/4"	36 1/4"	52 3/8"
Frame	18 1/8"	25 1/2"	36"	52 1/8"
Tip to Tip	19 1/8"	26 1/2"	37"	53 1/8"
2	26"	25 1/4"	25"	26"
3	38 3/8"	37 5/8"	37 3/8"	38 3/8"
4	50 5/8"	49 7/8"	49 5/8"	50 5/8"
5	63"	62 1/4"	62"	63"
6	76"	75 1/4"	75"	76"
	FL-12	FL-H32	FL-22	FL-32
	FL-13	FL-H33	FL-23	FL-33
	FL-14	FL-H34	FL-24	FL-34
	FL-15	FL-H35	FL-25	FL-35
	FL-16	FL-H36	FL-26	FL-36

Not to scale.



SINGLE-HUNG

DESIGN DATA

Equal Sash

Single Units



1-WIDE VENT UNITS – EQUAL SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	Standard	Upgrade
1-6/2-0		17-1/2	23-1/2	13-7/16	7-9/16	0.7	1.3	2.5	3	LC40	LC60
1-6/2-6		17-1/2	29-1/2	13-7/16	10-9/16	0.9	1.7	2.5	3	LC40	LC60
1-6/3-0		17-1/2	35-1/2	13-7/16	13-9/16	1.2	2.2	2.5	3	LC40	LC60
1-6/3-2		17-1/2	37-1/2	13-7/16	14-9/16	1.3	2.3	2.5	3	LC40	LC60
1-6/3-6		17-1/2	41-1/2	13-7/16	16-9/16	1.5	2.7	2.5	3	LC40	LC60
1-6/3-10		17-1/2	45-1/2	13-7/16	18-9/16	1.7	3.0	2.5	3	LC40	LC60
1-6/4-0		17-1/2	47-1/2	13-7/16	19-9/16	1.8	3.1	2.5	3	LC40	LC60
1-6/4-4		17-1/2	51-1/2	13-7/16	21-9/16	2.0	3.4	2.5	3	LC40	LC60
1-6/4-6		17-1/2	53-1/2	13-7/16	22-9/16	2.1	3.6	2.5	3	LC40	LC60
1-6/5-0		17-1/2	59-1/2	13-7/16	25-9/16	2.3	4.0	2.5	3	LC40	LC60
1-6/5-2		17-1/2	61-1/2	13-7/16	26-9/16	2.4	4.2	2.5	3	LC40	LC60
1-6/5-6		17-1/2	65-1/2	13-7/16	28-9/16	2.6	4.5	2.5	3	LC40	LC50
1-6/6-0		17-1/2	71-1/2	13-7/16	31-9/16	2.9	5.0	2.5	3	LC40	LC50
1-6/6-6		17-1/2	77-1/2	13-7/16	34-9/16	3.2	5.4	2.5	3	LC40	LC50
2-0/2-0		23-1/2	23-1/2	13-7/16	7-9/16	0.7	1.3	2.5	3	LC40	LC60
2-0/2-6		23-1/2	29-1/2	19-7/16	10-9/16	1.4	2.7	2.5	3	LC40	LC60
2-0/3-0		23-1/2	35-1/2	19-7/16	13-9/16	1.8	3.4	2.5	3	LC40	LC60
2-0/3-2		23-1/2	37-1/2	19-7/16	14-9/16	1.9	3.6	2.5	3	LC40	LC60
2-0/3-6		23-1/2	41-1/2	19-7/16	16-9/16	2.2	4.1	2.5	3	LC40	LC60
2-0/3-10		23-1/2	45-1/2	19-7/16	18-9/16	2.5	4.6	2.5	3	LC40	LC60
2-0/4-0		23-1/2	47-1/2	19-7/16	19-9/16	2.6	4.8	2.5	3	LC40	LC60
2-0/4-4		23-1/2	51-1/2	19-7/16	21-9/16	2.9	5.3	2.5	3	LC40	LC60
2-0/4-6		23-1/2	53-1/2	19-7/16	22-9/16	3.0	5.5	2.5	3	LC40	LC60
2-0/5-0		23-1/2	59-1/2	19-7/16	25-9/16	3.4	6.2	2.5	3	LC40	LC60
2-0/5-2		23-1/2	61-1/2	19-7/16	26-9/16	3.5	6.5	2.5	3	LC40	LC60
2-0/5-6		23-1/2	65-1/2	19-7/16	28-9/16	3.8	6.9	2.5	3	LC40	LC50
2-0/6-0		23-1/2	71-1/2	19-7/16	31-9/16	4.2	7.7	2.5	3	LC40	LC50
2-0/6-6		23-1/2	77-1/2	19-7/16	34-9/16	4.6	8.4	2.5	3	LC40	LC50
2-4/2-0		27-1/2	23-1/2	23-7/16	7-9/16	1.2	2.4	2.5	3	LC40	LC60
2-4/2-6		27-1/2	29-1/2	23-7/16	10-9/16	1.7	3.3	2.5	3	LC40	LC60
2-4/3-0		27-1/2	35-1/2	23-7/16	13-9/16	2.2	4.2	2.5	3	LC40	LC60
2-4/3-2		27-1/2	37-1/2	23-7/16	14-9/16	2.3	4.5	2.5	3	LC40	LC60
2-4/3-6		27-1/2	41-1/2	23-7/16	16-9/16	2.6	5.0	2.5	3	LC40	LC60
2-4/3-10		27-1/2	45-1/2	23-7/16	18-9/16	3.0	5.6	2.5	3	LC40	LC60
2-4/4-0		27-1/2	47-1/2	23-7/16	19-9/16	3.1	5.9	2.5	3	LC40	LC60
2-4/4-4		27-1/2	51-1/2	23-7/16	21-9/16	3.5	6.5	2.5	3	LC40	LC60
2-4/4-6		27-1/2	53-1/2	23-7/16	22-9/16	3.6	6.8	2.5	3	LC40	LC60
2-4/5-0		27-1/2	59-1/2	23-7/16	25-9/16	4.1	7.7	2.5	3	LC40	LC60
2-4/5-2		27-1/2	61-1/2	23-7/16	26-9/16	4.3	8.0	2.5	3	LC40	LC60
2-4/5-6		27-1/2	65-1/2	23-7/16	28-9/16	4.6	8.6	2.5	3	LC40	LC50
2-4/6-0	E1	27-1/2	71-1/2	23-7/16	31-9/16	5.1	9.4	2.5	3	LC40	LC50
2-4/6-6	E1	27-1/2	77-1/2	23-7/16	34-9/16	5.6	10.3	2.5	3	LC40	LC50

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 ft².

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

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



SINGLE-HUNG

DESIGN DATA

Equal Sash

Single Units



1-WIDE VENT UNITS – EQUAL SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	Standard	Upgrade
2-6/2-0		29-1/2	23-1/2	25-7/16	7-9/16	1.3	3.2	2.5	3	LC40	LC60
2-6/2-6		29-1/2	29-1/2	25-7/16	10-9/16	1.9	4.2	2.5	3	LC40	LC60
2-6/3-0		29-1/2	35-1/2	25-7/16	13-9/16	2.4	5.1	2.5	3	LC40	LC60
2-6/3-2		29-1/2	37-1/2	25-7/16	14-9/16	2.6	5.5	2.5	3	LC40	LC60
2-6/3-6		29-1/2	41-1/2	25-7/16	16-9/16	2.9	6.1	2.5	3	LC40	LC60
2-6/3-10		29-1/2	45-1/2	25-7/16	18-9/16	3.3	6.7	2.5	3	LC40	LC60
2-6/4-0		29-1/2	47-1/2	25-7/16	19-9/16	3.5	7.1	2.5	3	LC40	LC60
2-6/4-4		29-1/2	51-1/2	25-7/16	21-9/16	3.8	7.7	2.5	3	LC40	LC60
2-6/4-6		29-1/2	53-1/2	25-7/16	22-9/16	4.0	8.0	2.5	3	LC40	LC60
2-6/5-0		29-1/2	59-1/2	25-7/16	25-9/16	4.5	9.0	2.5	3	LC40	LC60
2-6/5-2		29-1/2	61-1/2	25-7/16	26-9/16	4.7	9.3	2.5	3	LC40	LC60
2-6/5-6	E1A	29-1/2	65-1/2	25-7/16	28-9/16	5.0	9.9	2.5	3	LC40	LC50
2-6/6-0	E1	29-1/2	71-1/2	25-7/16	31-9/16	5.6	10.9	2.5	3	LC40	LC50
2-6/6-6	E	29-1/2	77-1/2	25-7/16	34-9/16	6.1	11.9	2.5	3	LC40	LC50
2-8/2-0		31-1/2	23-1/2	27-7/16	7-9/16	1.4	2.9	2.5	3	LC40	LC60
2-8/2-6		31-1/2	29-1/2	27-7/16	10-9/16	2.0	3.9	2.5	3	LC40	LC60
2-8/3-0		31-1/2	35-1/2	27-7/16	13-9/16	2.5	5.0	2.5	3	LC40	LC60
2-8/3-2		31-1/2	37-1/2	27-7/16	14-9/16	2.7	5.3	2.5	3	LC40	LC60
2-8/3-6		31-1/2	41-1/2	27-7/16	16-9/16	3.1	6.0	2.5	3	LC40	LC60
2-8/3-10		31-1/2	45-1/2	27-7/16	18-9/16	3.5	6.7	2.5	3	LC40	LC60
2-8/4-0		31-1/2	47-1/2	27-7/16	19-9/16	3.7	7.0	2.5	3	LC40	LC60
2-8/4-4		31-1/2	51-1/2	27-7/16	21-9/16	4.1	7.7	2.5	3	LC40	LC60
2-8/4-6		31-1/2	53-1/2	27-7/16	22-9/16	4.2	8.1	2.5	3	LC40	LC60
2-8/5-0		31-1/2	59-1/2	27-7/16	25-9/16	4.8	9.1	2.5	3	LC40	LC60
2-8/5-2	E1	31-1/2	61-1/2	27-7/16	26-9/16	5.0	9.5	2.5	3	LC40	LC60
2-8/5-6	E1	31-1/2	65-1/2	27-7/16	28-9/16	5.4	10.2	2.5	3	LC40	LC50
2-8/6-0	E	31-1/2	71-1/2	27-7/16	31-9/16	6.0	11.2	2.5	3	LC40	LC50
2-8/6-6	E	31-1/2	77-1/2	27-7/16	34-9/16	6.5	12.3	2.5	3	LC40	LC50
3-0/2-0		35-1/2	23-1/2	31-7/16	7-9/16	1.6	3.3	2.5	3	LC40	LC60
3-0/2-6		35-1/2	29-1/2	31-7/16	10-9/16	2.3	4.5	2.5	3	LC40	LC60
3-0/3-0		35-1/2	35-1/2	31-7/16	13-9/16	2.9	5.7	2.5	3	LC40	LC60
3-0/3-2		35-1/2	37-1/2	31-7/16	14-9/16	3.1	6.1	2.5	3	LC40	LC60
3-0/3-6		35-1/2	41-1/2	31-7/16	16-9/16	3.6	7.0	2.5	3	LC40	LC60
3-0/3-10		35-1/2	45-1/2	31-7/16	18-9/16	4.0	7.8	2.5	3	LC40	LC60
3-0/4-0		35-1/2	47-1/2	31-7/16	19-9/16	4.2	8.2	2.5	3	LC40	LC60
3-0/4-4		35-1/2	51-1/2	31-7/16	21-9/16	4.7	9.0	2.5	3	LC40	LC60
3-0/4-6		35-1/2	53-1/2	31-7/16	22-9/16	4.9	9.4	2.5	3	LC40	LC60
3-0/5-0	E1, E2	35-1/2	59-1/2	31-7/16	25-9/16	5.5	10.6	2.5	3	LC40	LC60
3-0/5-2	EA, E1, E2	35-1/2	61-1/2	31-7/16	26-9/16	5.7	11.0	2.5	3	LC40	LC60
3-0/5-6	E	35-1/2	65-1/2	31-7/16	28-9/16	6.2	11.8	2.5	3	LC40	LC50
3-0/6-0	E	35-1/2	71-1/2	31-7/16	31-9/16	6.8	13.0	2.5	3	LC40	LC50
3-0/6-6	E	35-1/2	77-1/2	31-7/16	34-9/16	7.5	14.2	2.5	3	LC40	LC50

Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

E2 = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft² using maximum opening hardware option and standard cam locks.

A = Unit does not meet egress if using optional Autolock hardware; unit may meet second egress value if one is shown.

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Equal Sash

Single Units



1-WIDE VENT UNITS – EQUAL SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	Standard	Upgrade
3-4/2-0		39-1/2	23-1/2	35-7/16	7-9/16	1.8	3.8	2.5	3	LC40	LC60
3-4/2-6		39-1/2	29-1/2	35-7/16	10-9/16	2.5	5.1	2.5	3	LC40	LC60
3-4/3-0		39-1/2	35-1/2	35-7/16	13-9/16	3.3	6.5	2.5	3	LC40	LC60
3-4/3-2		39-1/2	37-1/2	35-7/16	14-9/16	3.5	7.0	2.5	3	LC40	LC60
3-4/3-6		39-1/2	41-1/2	35-7/16	16-9/16	4.0	7.9	2.5	3	LC40	LC60
3-4/3-10		39-1/2	45-1/2	35-7/16	18-9/16	4.5	8.8	2.5	3	LC40	LC60
3-4/4-0		39-1/2	47-1/2	35-7/16	19-9/16	4.8	9.3	2.5	3	LC40	LC60
3-4/4-4		39-1/2	51-1/2	35-7/16	21-9/16	5.3	10.2	2.5	3	LC40	LC60
3-4/4-6		39-1/2	53-1/2	35-7/16	22-9/16	5.5	10.7	2.5	3	LC40	LC60
3-4/5-0	E	39-1/2	59-1/2	35-7/16	25-9/16	6.2	12.0	2.5	3	LC40	LC60
3-4/5-2	E	39-1/2	61-1/2	35-7/16	26-9/16	6.5	12.5	2.5	3	LC40	LC60
3-4/5-6	E	39-1/2	65-1/2	35-7/16	28-9/16	7.0	13.4	2.5	3	LC40	LC50
3-4/6-0	E	39-1/2	71-1/2	35-7/16	31-9/16	7.7	14.8	2.5	3	LC40	LC50
3-4/6-6	E	39-1/2	77-1/2	35-7/16	34-9/16	8.5	16.2	2.5	3	LC40	LC50
3-6/2-0		41-1/2	23-1/2	37-7/16	7-9/16	1.9	4.0	2.5	3	LC25	LC50
3-6/2-6		41-1/2	29-1/2	37-7/16	10-9/16	2.7	5.5	2.5	3	LC25	LC50
3-6/3-0		41-1/2	35-1/2	37-7/16	13-9/16	3.5	6.9	2.5	3	LC25	LC50
3-6/3-2		41-1/2	37-1/2	37-7/16	14-9/16	3.7	7.4	2.5	3	LC25	LC50
3-6/3-6		41-1/2	41-1/2	37-7/16	16-9/16	4.3	8.4	2.5	3	LC25	LC50
3-6/3-10		41-1/2	45-1/2	37-7/16	18-9/16	4.8	9.4	2.5	3	LC25	LC50
3-6/4-0		41-1/2	47-1/2	37-7/16	19-9/16	5.0	9.8	2.5	3	LC25	LC50
3-6/4-4		41-1/2	51-1/2	37-7/16	21-9/16	5.6	10.8	2.5	3	LC25	LC50
3-6/4-6		41-1/2	53-1/2	37-7/16	22-9/16	5.8	11.3	2.5	3	LC25	LC50
3-6/5-0	E	41-1/2	59-1/2	37-7/16	25-9/16	6.6	12.8	2.5	3	LC25	LC50
3-6/5-2	E	41-1/2	61-1/2	37-7/16	26-9/16	6.9	13.3	2.5	3	LC25	LC50
3-6/5-6	E	41-1/2	65-1/2	37-7/16	28-9/16	7.4	14.2	2.5	3	LC25	LC50
3-6/6-0	E	41-1/2	71-1/2	37-7/16	31-9/16	8.2	15.7	2.5	3	LC25	LC50
3-6/6-6	E	41-1/2	77-1/2	37-7/16	34-9/16	8.9	17.2	3	3	LC25	LC50
4-0/2-0		47-1/2	23-1/2	43-7/16	7-9/16	2.2	4.7	2.5	3	LC25	LC50
4-0/2-6		47-1/2	29-1/2	43-7/16	10-9/16	3.1	6.4	2.5	3	LC25	LC50
4-0/3-0		47-1/2	35-1/2	43-7/16	13-9/16	4.0	8.1	2.5	3	LC25	LC50
4-0/3-2		47-1/2	37-1/2	43-7/16	14-9/16	4.3	8.7	2.5	3	LC25	LC50
4-0/3-6		47-1/2	41-1/2	43-7/16	16-9/16	4.9	9.8	2.5	3	LC25	LC50
4-0/3-10		47-1/2	45-1/2	43-7/16	18-9/16	5.5	11.0	2.5	3	LC25	LC50
4-0/4-0		47-1/2	47-1/2	43-7/16	19-9/16	5.8	11.5	3	3	LC25	LC50
4-0/4-4		47-1/2	51-1/2	43-7/16	21-9/16	6.4	12.7	2.5	3	LC25	LC50
4-0/4-6		47-1/2	53-1/2	43-7/16	22-9/16	6.8	13.2	2.5	3	LC25	LC50
4-0/5-0	E	47-1/2	59-1/2	43-7/16	25-9/16	7.7	15.0	2.5	3	LC25	LC50
4-0/5-2	E	47-1/2	61-1/2	43-7/16	26-9/16	8.0	15.5	2.5	3	LC25	LC50
4-0/5-6	E	47-1/2	65-1/2	43-7/16	28-9/16	8.6	16.7	2.5	3	LC25	LC50
4-0/6-0	E	47-1/2	71-1/2	43-7/16	31-9/16	9.5	18.4	3	3	LC25	LC50
4-0/6-6	E	47-1/2	77-1/2	43-7/16	34-9/16	10.4	20.1	3	3	LC25	LC50

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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.

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Equal Sash

2-Wide Vent Units



2-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION – EQUAL SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	
3-0/2-0		35-1/2	23-1/2	13-7/16	7-9/16	0.7	1.4	2.5	3	LC25
3-0/2-6		35-1/2	29-1/2	13-7/16	10-9/16	0.9	1.8	2.5	3	LC25
3-0/3-0		35-1/2	35-1/2	13-7/16	13-9/16	1.2	2.3	2.5	3	LC25
3-0/3-2		35-1/2	37-1/2	13-7/16	14-9/16	1.3	2.4	2.5	3	LC25
3-0/3-6		35-1/2	41-1/2	13-7/16	16-9/16	1.5	2.7	2.5	3	LC25
3-0/3-10		35-1/2	45-1/2	13-7/16	18-9/16	1.7	3.1	2.5	3	LC25
3-0/4-0		35-1/2	47-1/2	13-7/16	19-9/16	1.8	3.2	2.5	3	LC25
3-0/4-4		35-1/2	51-1/2	13-7/16	21-9/16	2.0	3.5	2.5	3	LC25
3-0/4-6		35-1/2	53-1/2	13-7/16	22-9/16	2.1	3.7	2.5	3	LC25
3-0/5-0		35-1/2	59-1/2	13-7/16	25-9/16	2.3	4.1	2.5	3	LC25
3-0/5-2		35-1/2	61-1/2	13-7/16	26-9/16	2.4	4.3	2.5	3	LC25
3-0/5-6		35-1/2	65-1/2	13-7/16	28-9/16	2.6	4.6	2.5	3	LC25
3-0/6-0		35-1/2	71-1/2	13-7/16	31-9/16	2.9	5.1	2.5	3	LC25
3-0/6-6		35-1/2	77-1/2	13-7/16	34-9/16	3.2	5.5	2.5	3	LC25
4-0/2-0		47-1/2	23-1/2	13-7/16	7-9/16	0.7	2.1	2.5	3	LC25
4-0/2-6		47-1/2	29-1/2	19-7/16	10-9/16	1.4	2.8	2.5	3	LC25
4-0/3-0		47-1/2	35-1/2	19-7/16	13-9/16	1.8	3.5	2.5	3	LC25
4-0/3-2		47-1/2	37-1/2	19-7/16	14-9/16	1.9	3.7	2.5	3	LC25
4-0/3-6		47-1/2	41-1/2	19-7/16	16-9/16	2.2	4.2	2.5	3	LC25
4-0/3-10		47-1/2	45-1/2	19-7/16	18-9/16	2.5	4.7	2.5	3	LC25
4-0/4-0		47-1/2	47-1/2	19-7/16	19-9/16	2.6	4.9	2.5	3	LC25
4-0/4-4		47-1/2	51-1/2	19-7/16	21-9/16	2.9	5.4	2.5	3	LC25
4-0/4-6		47-1/2	53-1/2	19-7/16	22-9/16	3.0	5.6	2.5	3	LC25
4-0/5-0		47-1/2	59-1/2	19-7/16	25-9/16	3.4	6.4	2.5	3	LC25
4-0/5-2		47-1/2	61-1/2	19-7/16	26-9/16	3.5	6.6	2.5	3	LC25
4-0/5-6		47-1/2	65-1/2	19-7/16	28-9/16	3.8	7.1	2.5	3	LC25
4-0/6-0		47-1/2	71-1/2	19-7/16	31-9/16	4.2	7.8	2.5	3	LC25
4-0/6-6		47-1/2	77-1/2	19-7/16	34-9/16	4.6	8.5	2.5	3	LC25
4-8/2-0		55-1/2	23-1/2	23-7/16	7-9/16	1.2	2.6	2.5	3	LC25
4-8/2-6		55-1/2	29-1/2	23-7/16	10-9/16	1.7	3.4	2.5	3	LC25
4-8/3-0		55-1/2	35-1/2	23-7/16	13-9/16	2.2	4.3	2.5	3	LC25
4-8/3-2		55-1/2	37-1/2	23-7/16	14-9/16	2.3	4.6	2.5	3	LC25
4-8/3-6		55-1/2	41-1/2	23-7/16	16-9/16	2.6	5.2	2.5	3	LC25
4-8/3-10		55-1/2	45-1/2	23-7/16	18-9/16	3.0	5.8	2.5	3	LC25
4-8/4-0		55-1/2	47-1/2	23-7/16	19-9/16	3.1	6.1	2.5	3	LC25
4-8/4-4		55-1/2	51-1/2	23-7/16	21-9/16	3.5	6.7	2.5	3	LC25
4-8/4-6		55-1/2	53-1/2	23-7/16	22-9/16	3.6	7.0	2.5	3	LC25
4-8/5-0		55-1/2	59-1/2	23-7/16	25-9/16	4.1	7.8	2.5	3	LC25
4-8/5-2		55-1/2	61-1/2	23-7/16	26-9/16	4.3	8.1	2.5	3	LC25
4-8/5-6		55-1/2	65-1/2	23-7/16	28-9/16	4.6	8.7	2.5	3	LC25
4-8/6-0	E1	55-1/2	71-1/2	23-7/16	31-9/16	5.1	9.6	2.5	3	LC25
4-8/6-6	E1	55-1/2	77-1/2	23-7/16	34-9/16	5.6	10.5	2.5	3	LC25

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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 ft².

A = Unit does not meet egress if using optional Autolock hardware; unit may meet second egress value if one is shown.

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Equal Sash

2-Wide Vent Units



2-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION – EQUAL SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	
5-0/2-0		59-1/2	23-1/2	25-7/16	7-9/16	1.3	6.6	2.5	3	LC25
5-0/2-6		59-1/2	29-1/2	25-7/16	10-9/16	1.8	8.5	2.5	3	LC25
5-0/3-0		59-1/2	35-1/2	25-7/16	13-9/16	2.4	10.5	2.5	3	LC25
5-0/3-2		59-1/2	37-1/2	25-7/16	14-9/16	2.5	11.2	2.5	3	LC25
5-0/3-6		59-1/2	41-1/2	25-7/16	16-9/16	2.9	12.5	2.5	3	LC25
5-0/3-10		59-1/2	45-1/2	25-7/16	18-9/16	3.2	13.8	2.5	3	LC25
5-0/4-0		59-1/2	47-1/2	25-7/16	19-9/16	3.4	14.5	2.5	3	LC25
5-0/4-4		59-1/2	51-1/2	25-7/16	21-9/16	3.8	15.8	2.5	3	LC25
5-0/4-6		59-1/2	53-1/2	25-7/16	22-9/16	3.9	16.4	2.5	3	LC25
5-0/5-0		59-1/2	59-1/2	25-7/16	25-9/16	4.5	18.4	2.5	3	LC25
5-0/5-2		59-1/2	61-1/2	25-7/16	26-9/16	4.6	19.1	2.5	3	LC25
5-0/5-6	E1A	59-1/2	65-1/2	25-7/16	28-9/16	5.0	20.4	2.5	3	LC25
5-0/6-0	E1	59-1/2	71-1/2	25-7/16	31-9/16	5.5	22.4	2.5	3	LC25
5-0/6-6	E	59-1/2	77-1/2	25-7/16	34-9/16	6.0	24.3	2.5	3	LC25
5-4/2-0		63-1/2	23-1/2	27-7/16	7-9/16	1.4	3.1	2.5	3	LC25
5-4/2-6		63-1/2	29-1/2	27-7/16	10-9/16	2.0	4.1	2.5	3	LC25
5-4/3-0		63-1/2	35-1/2	27-7/16	13-9/16	2.5	5.1	2.5	3	LC25
5-4/3-2		63-1/2	37-1/2	27-7/16	14-9/16	2.7	5.5	2.5	3	LC25
5-4/3-6		63-1/2	41-1/2	27-7/16	16-9/16	3.1	6.2	2.5	3	LC25
5-4/3-10		63-1/2	45-1/2	27-7/16	18-9/16	3.5	6.9	2.5	3	LC25
5-4/4-0		63-1/2	47-1/2	27-7/16	19-9/16	3.7	7.2	2.5	3	LC25
5-4/4-4		63-1/2	51-1/2	27-7/16	21-9/16	4.1	7.9	2.5	3	LC25
5-4/4-6		63-1/2	53-1/2	27-7/16	22-9/16	4.2	8.3	2.5	3	LC25
5-4/5-0		63-1/2	59-1/2	27-7/16	25-9/16	4.8	9.3	2.5	3	LC25
5-4/5-2	E1A	63-1/2	61-1/2	27-7/16	26-9/16	5.0	9.7	2.5	3	LC25
5-4/5-6	E1	63-1/2	65-1/2	27-7/16	28-9/16	5.4	10.4	2.5	3	LC25
5-4/6-0	E	63-1/2	71-1/2	27-7/16	31-9/16	6.0	11.4	2.5	3	LC25
5-4/6-6	E	63-1/2	77-1/2	27-7/16	34-9/16	6.5	12.5	2.5	3	LC25
6-0/2-0		71-1/2	23-1/2	31-7/16	7-9/16	1.6	3.5	2.5	3	LC25
6-0/2-6		71-1/2	29-1/2	31-7/16	10-9/16	2.3	4.8	2.5	3	LC25
6-0/3-0		71-1/2	35-1/2	31-7/16	13-9/16	2.9	6.0	2.5	3	LC25
6-0/3-2		71-1/2	37-1/2	31-7/16	14-9/16	3.1	6.4	2.5	3	LC25
6-0/3-6		71-1/2	41-1/2	31-7/16	16-9/16	3.6	7.2	2.5	3	LC25
6-0/3-10		71-1/2	45-1/2	31-7/16	18-9/16	4.0	8.0	2.5	3	LC25
6-0/4-0		71-1/2	47-1/2	31-7/16	19-9/16	4.2	8.4	2.5	3	LC25
6-0/4-4		71-1/2	51-1/2	31-7/16	21-9/16	4.7	9.2	2.5	3	LC25
6-0/4-6		71-1/2	53-1/2	31-7/16	22-9/16	4.9	9.6	2.5	3	LC25
6-0/5-0	E1, E2	71-1/2	59-1/2	31-7/16	25-9/16	5.5	10.8	2.5	3	LC25
6-0/5-2	EA, E1	71-1/2	61-1/2	31-7/16	26-9/16	5.7	11.2	2.5	3	LC25
6-0/5-6	E	71-1/2	65-1/2	31-7/16	28-9/16	6.2	12.0	2.5	3	LC25
6-0/6-0	E	71-1/2	71-1/2	31-7/16	31-9/16	6.8	13.2	2.5	3	LC25
6-0/6-6	E	71-1/2	77-1/2	31-7/16	34-9/16	7.5	14.5	2.5	3	LC25

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Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

E2 = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft² using maximum opening hardware option and standard cam locks.

A = Unit does not meet egress if using optional Autolock hardware; unit may meet second egress value if one is shown.

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Equal Sash

2-Wide Vent Units



2-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION – EQUAL SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	
6-8/2-0		79-1/2	23-1/2	35-7/16	7-9/16	1.8	4.0	2.5	3	LC25
6-8/2-6		79-1/2	29-1/2	35-7/16	10-9/16	2.5	5.4	2.5	3	LC25
6-8/3-0		79-1/2	35-1/2	35-7/16	13-9/16	3.3	6.8	2.5	3	LC25
6-8/3-2		79-1/2	37-1/2	35-7/16	14-9/16	3.5	7.2	2.5	3	LC25
6-8/3-6		79-1/2	41-1/2	35-7/16	16-9/16	4.0	8.2	2.5	3	LC25
6-8/3-10		79-1/2	45-1/2	35-7/16	18-9/16	4.5	9.1	2.5	3	LC25
6-8/4-0		79-1/2	47-1/2	35-7/16	19-9/16	4.8	9.5	2.5	3	LC25
6-8/4-4		79-1/2	51-1/2	35-7/16	21-9/16	5.3	10.5	2.5	3	LC25
6-8/4-6		79-1/2	53-1/2	35-7/16	22-9/16	5.5	10.9	2.5	3	LC25
6-8/5-0	E	79-1/2	59-1/2	35-7/16	25-9/16	6.2	12.3	2.5	3	LC25
6-8/5-2	E	79-1/2	61-1/2	35-7/16	26-9/16	6.5	12.8	2.5	3	LC25
6-8/5-6	E	79-1/2	65-1/2	35-7/16	28-9/16	7.0	13.7	2.5	3	LC25
6-8/6-0	E	79-1/2	71-1/2	35-7/16	31-9/16	7.7	15.1	2.5	3	LC25
6-8/6-6	E	79-1/2	77-1/2	35-7/16	34-9/16	8.5	16.4	2.5	3	LC25
7-0/2-0		83-1/2	23-1/2	37-7/16	7-9/16	1.9	4.3	2.5	3	LC25
7-0/2-6		83-1/2	29-1/2	37-7/16	10-9/16	2.7	5.7	2.5	3	LC25
7-0/3-0		83-1/2	35-1/2	37-7/16	13-9/16	3.5	7.2	2.5	3	LC25
7-0/3-2		83-1/2	37-1/2	37-7/16	14-9/16	3.7	7.7	2.5	3	LC25
7-0/3-6		83-1/2	41-1/2	37-7/16	16-9/16	4.3	8.7	2.5	3	LC25
7-0/3-10		83-1/2	45-1/2	37-7/16	18-9/16	4.8	9.6	2.5	3	LC25
7-0/4-0		83-1/2	47-1/2	37-7/16	19-9/16	5.0	10.1	2.5	3	LC25
7-0/4-4		83-1/2	51-1/2	37-7/16	21-9/16	5.6	11.1	2.5	3	LC25
7-0/4-6		83-1/2	53-1/2	37-7/16	22-9/16	5.8	11.6	2.5	3	LC25
7-0/5-0	E	83-1/2	59-1/2	37-7/16	25-9/16	6.6	13.0	2.5	3	LC25
7-0/5-2	E	83-1/2	61-1/2	37-7/16	26-9/16	6.9	13.5	2.5	3	LC25
7-0/5-6	E	83-1/2	65-1/2	37-7/16	28-9/16	7.4	14.5	2.5	3	LC25
7-0/6-0	E	83-1/2	71-1/2	37-7/16	31-9/16	8.2	16.0	2.5	3	LC25
7-0/6-6	E	83-1/2	77-1/2	37-7/16	34-9/16	8.9	17.4	3	3	LC25
8-0/2-0		95-1/2	23-1/2	43-7/16	7-9/16	2.2	5.0	2.5	3	LC25
8-0/2-6		95-1/2	29-1/2	43-7/16	10-9/16	3.1	6.7	2.5	3	LC25
8-0/3-0		95-1/2	35-1/2	43-7/16	13-9/16	4.0	8.4	2.5	3	LC25
8-0/3-2		95-1/2	37-1/2	43-7/16	14-9/16	4.3	9.0	2.5	3	LC25
8-0/3-6		95-1/2	41-1/2	43-7/16	16-9/16	4.9	10.1	2.5	3	LC25
8-0/3-10		95-1/2	45-1/2	43-7/16	18-9/16	5.5	11.3	2.5	3	LC25
8-0/4-0		95-1/2	47-1/2	43-7/16	19-9/16	5.8	11.9	3	3	LC25
8-0/4-4		95-1/2	51-1/2	43-7/16	21-9/16	6.4	13.0	2.5	3	LC25
8-0/4-6		95-1/2	53-1/2	43-7/16	22-9/16	6.8	13.6	2.5	3	LC25
8-0/5-0	E	95-1/2	59-1/2	43-7/16	25-9/16	7.7	15.3	2.5	3	LC25
8-0/5-2	E	95-1/2	61-1/2	43-7/16	26-9/16	8.0	15.9	2.5	3	LC25
8-0/5-6	E	95-1/2	65-1/2	43-7/16	28-9/16	8.6	17.0	2.5	3	LC25
8-0/6-0	E	95-1/2	71-1/2	43-7/16	31-9/16	9.5	18.7	3	3	LC25
8-0/6-6	E	95-1/2	77-1/2	43-7/16	34-9/16	10.4	20.4	3	3	LC25

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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.

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Equal Sash

3-Wide Vent Units



3-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION – EQUAL SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft ²		Annealed	Tempered	
4-6/2-0		53-1/2	23-1/2	13-7/16	7-9/16	0.7	1.4	2.5	3	LC25
4-6/2-6		53-1/2	29-1/2	13-7/16	10-9/16	0.9	1.8	2.5	3	LC25
4-6/3-0		53-1/2	35-1/2	13-7/16	13-9/16	1.2	2.3	2.5	3	LC25
4-6/3-2		53-1/2	37-1/2	13-7/16	14-9/16	1.3	2.4	2.5	3	LC25
4-6/3-6		53-1/2	41-1/2	13-7/16	16-9/16	1.5	2.7	2.5	3	LC25
4-6/3-10		53-1/2	45-1/2	13-7/16	18-9/16	1.7	3.1	2.5	3	LC25
4-6/4-0		53-1/2	47-1/2	13-7/16	19-9/16	1.8	3.2	2.5	3	LC25
4-6/4-4		53-1/2	51-1/2	13-7/16	21-9/16	2.0	3.5	2.5	3	LC25
4-6/4-6		53-1/2	53-1/2	13-7/16	22-9/16	2.1	3.7	2.5	3	LC25
4-6/5-0		53-1/2	59-1/2	13-7/16	25-9/16	2.3	4.1	2.5	3	LC25
4-6/5-2		53-1/2	61-1/2	13-7/16	26-9/16	2.4	4.3	2.5	3	LC25
4-6/5-6		53-1/2	65-1/2	13-7/16	28-9/16	2.6	4.6	2.5	3	LC25
4-6/6-0		53-1/2	71-1/2	13-7/16	31-9/16	2.9	5.1	2.5	3	LC25
4-6/6-6		53-1/2	77-1/2	13-7/16	34-9/16	3.2	5.5	2.5	3	LC25
6-0/2-0		71-1/2	23-1/2	13-7/16	7-9/16	0.7	2.1	2.5	3	LC25
6-0/2-6		71-1/2	29-1/2	19-7/16	10-9/16	1.4	2.8	2.5	3	LC25
6-0/3-0		71-1/2	35-1/2	19-7/16	13-9/16	1.8	3.5	2.5	3	LC25
6-0/3-2		71-1/2	37-1/2	19-7/16	14-9/16	1.9	3.7	2.5	3	LC25
6-0/3-6		71-1/2	41-1/2	19-7/16	16-9/16	2.2	4.2	2.5	3	LC25
6-0/3-10		71-1/2	45-1/2	19-7/16	18-9/16	2.5	4.7	2.5	3	LC25
6-0/4-0		71-1/2	47-1/2	19-7/16	19-9/16	2.6	4.9	2.5	3	LC25
6-0/4-4		71-1/2	51-1/2	19-7/16	21-9/16	2.9	5.4	2.5	3	LC25
6-0/4-6		71-1/2	53-1/2	19-7/16	22-9/16	3.0	5.6	2.5	3	LC25
6-0/5-0		71-1/2	59-1/2	19-7/16	25-9/16	3.4	6.4	2.5	3	LC25
6-0/5-2		71-1/2	61-1/2	19-7/16	26-9/16	3.5	6.6	2.5	3	LC25
6-0/5-6		71-1/2	65-1/2	19-7/16	28-9/16	3.8	7.1	2.5	3	LC25
6-0/6-0		71-1/2	71-1/2	19-7/16	31-9/16	4.2	7.8	2.5	3	LC25
6-0/6-6		71-1/2	77-1/2	19-7/16	34-9/16	4.6	8.5	2.5	3	LC25
7-0/2-0		83-1/2	23-1/2	23-7/16	7-9/16	1.2	2.6	2.5	3	LC25
7-0/2-6		83-1/2	29-1/2	23-7/16	10-9/16	1.7	3.4	2.5	3	LC25
7-0/3-0		83-1/2	35-1/2	23-7/16	13-9/16	2.2	4.3	2.5	3	LC25
7-0/3-2		83-1/2	37-1/2	23-7/16	14-9/16	2.3	4.6	2.5	3	LC25
7-0/3-6		83-1/2	41-1/2	23-7/16	16-9/16	2.6	5.2	2.5	3	LC25
7-0/3-10		83-1/2	45-1/2	23-7/16	18-9/16	3.0	5.8	2.5	3	LC25
7-0/4-0		83-1/2	47-1/2	23-7/16	19-9/16	3.1	6.1	2.5	3	LC25
7-0/4-4		83-1/2	51-1/2	23-7/16	21-9/16	3.5	6.7	2.5	3	LC25
7-0/4-6		83-1/2	53-1/2	23-7/16	22-9/16	3.6	7.0	2.5	3	LC25
7-0/5-0		83-1/2	59-1/2	23-7/16	25-9/16	4.1	7.8	2.5	3	LC25
7-0/5-2		83-1/2	61-1/2	23-7/16	26-9/16	4.3	8.1	2.5	3	LC25
7-0/5-6		83-1/2	65-1/2	23-7/16	28-9/16	4.6	8.7	2.5	3	LC25
7-0/6-0	E1	83-1/2	71-1/2	23-7/16	31-9/16	5.1	9.6	2.5	3	LC25
7-0/6-6	E1	83-1/2	77-1/2	23-7/16	34-9/16	5.6	10.5	2.5	3	LC25

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 ft².

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Equal Sash

3-Wide Vent Units



3-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION – EQUAL SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ₁
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft ²		Annealed	Tempered	
7-6/2-0		89-1/2	23-1/2	25-7/16	7-9/16	1.3	9.9	2.5	3	LC25
7-6/2-6		89-1/2	29-1/2	25-7/16	10-9/16	1.9	12.9	2.5	3	LC25
7-6/3-0		89-1/2	35-1/2	25-7/16	13-9/16	2.4	15.9	2.5	3	LC25
7-6/3-2		89-1/2	37-1/2	25-7/16	14-9/16	2.6	16.9	2.5	3	LC25
7-6/3-6		89-1/2	41-1/2	25-7/16	16-9/16	2.9	18.9	2.5	3	LC25
7-6/3-10		89-1/2	45-1/2	25-7/16	18-9/16	3.3	20.9	2.5	3	LC25
7-6/4-0		89-1/2	47-1/2	25-7/16	19-9/16	3.5	21.9	2.5	3	LC25
7-6/4-4		89-1/2	51-1/2	25-7/16	21-9/16	3.8	23.8	2.5	3	LC25
7-6/4-6		89-1/2	53-1/2	25-7/16	22-9/16	4.0	24.8	2.5	3	LC25
7-6/5-0		89-1/2	59-1/2	25-7/16	25-9/16	4.5	27.8	2.5	3	LC25
7-6/5-2		89-1/2	61-1/2	25-7/16	26-9/16	4.7	28.8	2.5	3	LC25
7-6/5-6	E1A	89-1/2	65-1/2	25-7/16	28-9/16	5.0	30.8	2.5	3	LC25
7-6/6-0	E1	89-1/2	71-1/2	25-7/16	31-9/16	5.6	33.8	2.5	3	LC25
7-6/6-6	E	89-1/2	77-1/2	25-7/16	34-9/16	6.1	36.8	2.5	3	LC25
8-0/2-0		95-1/2	23-1/2	27-7/16	7-9/16	1.4	3.1	2.5	3	LC25
8-0/2-6		95-1/2	29-1/2	27-7/16	10-9/16	2.0	4.1	2.5	3	LC25
8-0/3-0		95-1/2	35-1/2	27-7/16	13-9/16	2.5	5.1	2.5	3	LC25
8-0/3-2		95-1/2	37-1/2	27-7/16	14-9/16	2.7	5.5	2.5	3	LC25
8-0/3-6		95-1/2	41-1/2	27-7/16	16-9/16	3.1	6.2	2.5	3	LC25
8-0/3-10		95-1/2	45-1/2	27-7/16	18-9/16	3.5	6.9	2.5	3	LC25
8-0/4-0		95-1/2	47-1/2	27-7/16	19-9/16	3.7	7.2	2.5	3	LC25
8-0/4-4		95-1/2	51-1/2	27-7/16	21-9/16	4.1	7.9	2.5	3	LC25
8-0/4-6		95-1/2	53-1/2	27-7/16	22-9/16	4.2	8.3	2.5	3	LC25
8-0/5-0		95-1/2	59-1/2	27-7/16	25-9/16	4.8	9.3	2.5	3	LC25
8-0/5-2	E1A	95-1/2	61-1/2	27-7/16	26-9/16	5.0	9.7	2.5	3	LC25
8-0/5-6	E1	95-1/2	65-1/2	27-7/16	28-9/16	5.4	10.4	2.5	3	LC25
8-0/6-0	E	95-1/2	71-1/2	27-7/16	31-9/16	6.0	11.4	2.5	3	LC25
8-0/6-6	E	95-1/2	77-1/2	27-7/16	34-9/16	6.5	12.5	2.5	3	LC25
9-0/2-0		107-1/2	23-1/2	31-7/16	7-9/16	1.6	3.5	2.5	3	LC25
9-0/2-6		107-1/2	29-1/2	31-7/16	10-9/16	2.3	4.8	2.5	3	LC25
9-0/3-0		107-1/2	35-1/2	31-7/16	13-9/16	2.9	6.0	2.5	3	LC25
9-0/3-2		107-1/2	37-1/2	31-7/16	14-9/16	3.1	6.4	2.5	3	LC25
9-0/3-6		107-1/2	41-1/2	31-7/16	16-9/16	3.6	7.2	2.5	3	LC25
9-0/3-10		107-1/2	45-1/2	31-7/16	18-9/16	4.0	8.0	2.5	3	LC25
9-0/4-0		107-1/2	47-1/2	31-7/16	19-9/16	4.2	8.4	2.5	3	LC25
9-0/4-4		107-1/2	51-1/2	31-7/16	21-9/16	4.7	9.2	2.5	3	LC25
9-0/4-6		107-1/2	53-1/2	31-7/16	22-9/16	4.9	9.6	2.5	3	LC25
9-0/5-0	E1, E2	107-1/2	59-1/2	31-7/16	25-9/16	5.5	10.8	2.5	3	LC25
9-0/5-2	EA, E1	107-1/2	61-1/2	31-7/16	26-9/16	5.7	11.2	2.5	3	LC25
9-0/5-6	E	107-1/2	65-1/2	31-7/16	28-9/16	6.2	12.0	2.5	3	LC25
9-0/6-0	E	107-1/2	71-1/2	31-7/16	31-9/16	6.8	13.2	2.5	3	LC25
9-0/6-6	E	107-1/2	77-1/2	31-7/16	34-9/16	7.5	14.5	2.5	3	LC25

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Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².E2 = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft² using maximum opening hardware option and standard cam locks.

A = Unit does not meet egress if using optional Autolock hardware; unit may meet second egress value if one is shown.

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Cottage Sash

Single Vent Units



1-WIDE VENT UNITS – COTTAGE SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	Standard	Upgrade
1-6/2-6		17-1/2	29-1/2	13-7/16	8-1/16	0.7	1.7	2.5	3	LC25	LC25
1-6/3-0		17-1/2	35-1/2	13-7/16	10-7/16	0.9	2.2	2.5	3	LC25	LC25
1-6/3-2		17-1/2	37-1/2	13-7/16	11-1/4	1.0	2.3	2.5	3	LC25	LC25
1-6/3-6		17-1/2	41-1/2	13-7/16	12-7/8	1.2	2.7	2.5	3	LC25	LC25
1-6/3-10		17-1/2	45-1/2	13-7/16	14-7/16	1.3	3.0	2.5	3	LC25	LC25
1-6/4-0		17-1/2	47-1/2	13-7/16	15-1/4	1.4	3.1	2.5	3	LC25	LC25
1-6/4-4		17-1/2	51-1/2	13-7/16	16-7/8	1.5	3.4	2.5	3	LC25	LC25
1-6/4-6		17-1/2	53-1/2	13-7/16	17-11/16	1.6	3.6	2.5	3	LC25	LC25
1-6/5-0		17-1/2	59-1/2	13-7/16	20-1/16	1.8	4.0	2.5	3	LC25	LC25
1-6/5-2		17-1/2	61-1/2	13-7/16	20-7/8	1.9	4.2	2.5	3	LC25	LC25
1-6/5-6		17-1/2	65-1/2	13-7/16	22-7/16	2.0	4.5	2.5	3	LC25	LC25
2-0/2-6		23-1/2	29-1/2	19-7/16	8-1/16	1.0	2.7	2.5	3	LC25	LC25
2-0/3-0		23-1/2	35-1/2	19-7/16	10-7/16	1.4	3.4	2.5	3	LC25	LC25
2-0/3-2		23-1/2	37-1/2	19-7/16	11-1/4	1.5	3.6	2.5	3	LC25	LC25
2-0/3-6		23-1/2	41-1/2	19-7/16	12-7/8	1.7	4.1	2.5	3	LC25	LC25
2-0/3-10		23-1/2	45-1/2	19-7/16	14-7/16	1.9	4.6	2.5	3	LC25	LC25
2-0/4-0		23-1/2	47-1/2	19-7/16	15-1/4	2.0	4.8	2.5	3	LC25	LC25
2-0/4-4		23-1/2	51-1/2	19-7/16	16-7/8	2.2	5.3	2.5	3	LC25	LC25
2-0/4-6		23-1/2	53-1/2	19-7/16	17-11/16	2.3	5.5	2.5	3	LC25	LC25
2-0/5-0		23-1/2	59-1/2	19-7/16	20-1/16	2.7	6.2	2.5	3	LC25	LC25
2-0/5-2		23-1/2	61-1/2	19-7/16	20-7/8	2.8	6.5	2.5	3	LC25	LC25
2-0/5-6		23-1/2	65-1/2	19-7/16	22-7/16	3.0	6.9	2.5	3	LC25	LC25
2-4/2-6		27-1/2	29-1/2	23-7/16	8-1/16	1.3	3.3	2.5	3	LC25	LC25
2-4/3-0		27-1/2	35-1/2	23-7/16	10-7/16	1.7	4.2	2.5	3	LC25	LC25
2-4/3-2		27-1/2	37-1/2	23-7/16	11-1/4	1.8	4.5	2.5	3	LC25	LC25
2-4/3-6		27-1/2	41-1/2	23-7/16	12-7/8	2.0	5.0	2.5	3	LC25	LC25
2-4/3-10		27-1/2	45-1/2	23-7/16	14-7/16	2.3	5.6	2.5	3	LC25	LC25
2-4/4-0		27-1/2	47-1/2	23-7/16	15-1/4	2.4	5.9	2.5	3	LC25	LC25
2-4/4-4		27-1/2	51-1/2	23-7/16	16-7/8	2.7	6.5	2.5	3	LC25	LC25
2-4/4-6		27-1/2	53-1/2	23-7/16	17-11/16	2.8	6.8	2.5	3	LC25	LC25
2-4/5-0		27-1/2	59-1/2	23-7/16	20-1/16	3.2	7.7	2.5	3	LC25	LC25
2-4/5-2		27-1/2	61-1/2	23-7/16	20-7/8	3.3	8.0	2.5	3	LC25	LC25
2-4/5-6		27-1/2	65-1/2	23-7/16	22-7/16	3.6	8.6	2.5	3	LC25	LC25
2-6/2-6		29-1/2	29-1/2	25-7/16	8-1/16	1.4	3.6	2.5	3	LC25	LC25
2-6/3-0		29-1/2	35-1/2	25-7/16	10-7/16	1.8	4.6	2.5	3	LC25	LC25
2-6/3-2		29-1/2	37-1/2	25-7/16	11-1/4	1.9	4.9	2.5	3	LC25	LC25
2-6/3-6		29-1/2	41-1/2	25-7/16	12-7/8	2.2	5.5	2.5	3	LC25	LC25
2-6/3-10		29-1/2	45-1/2	25-7/16	14-7/16	2.5	6.2	2.5	3	LC25	LC25
2-6/4-0		29-1/2	47-1/2	25-7/16	15-1/4	2.7	6.5	2.5	3	LC25	LC25
2-6/4-4		29-1/2	51-1/2	25-7/16	16-7/8	2.9	7.1	2.5	3	LC25	LC25
2-6/4-6		29-1/2	53-1/2	25-7/16	17-11/16	3.1	7.4	2.5	3	LC25	LC25
2-6/5-0		29-1/2	59-1/2	25-7/16	20-1/16	3.5	8.4	2.5	3	LC25	LC25
2-6/5-2		29-1/2	61-1/2	25-7/16	20-7/8	3.6	8.7	2.5	3	LC25	LC25
2-6/5-6		29-1/2	65-1/2	25-7/16	22-7/16	3.9	9.4	2.5	3	LC25	LC25

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



SINGLE-HUNG

DESIGN DATA

Cottage Sash Single Vent Units



1-WIDE VENT UNITS – COTTAGE SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	Standard	Upgrade
2-8/2-6		31-1/2	29-1/2	27-7/16	8-1/16	1.5	3.9	2.5	3	LC25	LC25
2-8/3-0		31-1/2	35-1/2	27-7/16	10-7/16	1.9	5.0	2.5	3	LC25	LC25
2-8/3-2		31-1/2	37-1/2	27-7/16	11-1/4	2.1	5.3	2.5	3	LC25	LC25
2-8/3-6		31-1/2	41-1/2	27-7/16	12-7/8	2.4	6.0	2.5	3	LC25	LC25
2-8/3-10		31-1/2	45-1/2	27-7/16	14-7/16	2.7	6.7	2.5	3	LC25	LC25
2-8/4-0		31-1/2	47-1/2	27-7/16	15-1/4	2.9	7.0	2.5	3	LC25	LC25
2-8/4-4		31-1/2	51-1/2	27-7/16	16-7/8	3.2	7.7	2.5	3	LC25	LC25
2-8/4-6		31-1/2	53-1/2	27-7/16	17-11/16	3.3	8.1	2.5	3	LC25	LC25
2-8/5-0		31-1/2	59-1/2	27-7/16	20-1/16	3.8	9.1	2.5	3	LC25	LC25
2-8/5-2		31-1/2	61-1/2	27-7/16	20-7/8	3.9	9.5	2.5	3	LC25	LC25
2-8/5-6		31-1/2	65-1/2	27-7/16	22-7/16	4.2	10.2	2.5	3	LC25	LC25
3-0/2-6		35-1/2	29-1/2	31-7/16	8-1/16	1.7	4.5	2.5	3	LC25	LC25
3-0/3-0		35-1/2	35-1/2	31-7/16	10-7/16	2.2	5.7	2.5	3	LC25	LC25
3-0/3-2		35-1/2	37-1/2	31-7/16	11-1/4	2.4	6.1	2.5	3	LC25	LC25
3-0/3-6		35-1/2	41-1/2	31-7/16	12-7/8	2.8	7.0	2.5	3	LC25	LC25
3-0/3-10		35-1/2	45-1/2	31-7/16	14-7/16	3.1	7.8	2.5	3	LC25	LC25
3-0/4-0		35-1/2	47-1/2	31-7/16	15-1/4	3.3	8.2	2.5	3	LC25	LC25
3-0/4-4		35-1/2	51-1/2	31-7/16	16-7/8	3.6	9.0	2.5	3	LC25	LC25
3-0/4-6		35-1/2	53-1/2	31-7/16	17-11/16	3.8	9.4	2.5	3	LC25	LC25
3-0/5-0		35-1/2	59-1/2	31-7/16	20-1/16	4.3	10.6	2.5	3	LC25	LC25
3-0/5-2		35-1/2	61-1/2	31-7/16	20-7/8	4.5	11.0	2.5	3	LC25	LC25
3-0/5-6		35-1/2	65-1/2	31-7/16	22-7/16	4.9	11.8	2.5	3	LC25	LC25
3-4/2-6		39-1/2	29-1/2	35-7/16	8-1/16	1.9	5.1	2.5	3	LC25	LC25
3-4/3-0		39-1/2	35-1/2	35-7/16	10-7/16	2.5	6.5	2.5	3	LC25	LC25
3-4/3-2		39-1/2	37-1/2	35-7/16	11-1/4	2.7	7.0	2.5	3	LC25	LC25
3-4/3-6		39-1/2	41-1/2	35-7/16	12-7/8	3.1	7.9	2.5	3	LC25	LC25
3-4/3-10		39-1/2	45-1/2	35-7/16	14-7/16	3.5	8.8	2.5	3	LC25	LC25
3-4/4-0		39-1/2	47-1/2	35-7/16	15-1/4	3.7	9.3	2.5	3	LC25	LC25
3-4/4-4		39-1/2	51-1/2	35-7/16	16-7/8	4.1	10.2	2.5	3	LC25	LC25
3-4/4-6		39-1/2	53-1/2	35-7/16	17-11/16	4.3	10.7	2.5	3	LC25	LC25
3-4/5-0		39-1/2	59-1/2	35-7/16	20-1/16	4.9	12.0	2.5	3	LC25	LC25
3-4/5-2	E1A	39-1/2	61-1/2	35-7/16	20-7/8	5.1	12.5	2.5	3	LC25	LC25
3-4/5-6	E1	39-1/2	65-1/2	35-7/16	22-7/16	5.5	13.4	2.5	3	LC25	LC25

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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 ft².

A = Unit does not meet egress if using optional Autolock hardware; unit may meet second egress value if one is shown.

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Cottage Sash Single Vent Units



1-WIDE VENT UNITS – COTTAGE SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	Standard	Upgrade
3-6/2-6		41-1/2	29-1/2	37-7/16	8-1/16	2.1	5.5	2.5	3	LC25	LC25
3-6/3-0		41-1/2	35-1/2	37-7/16	10-7/16	2.7	6.9	2.5	3	LC25	LC25
3-6/3-2		41-1/2	37-1/2	37-7/16	11-1/4	2.9	7.4	2.5	3	LC25	LC25
3-6/3-6		41-1/2	41-1/2	37-7/16	12-7/8	3.3	8.4	2.5	3	LC25	LC25
3-6/3-10		41-1/2	45-1/2	37-7/16	14-7/16	3.7	9.4	2.5	3	LC25	LC25
3-6/4-0		41-1/2	47-1/2	37-7/16	15-1/4	3.9	9.8	2.5	3	LC25	LC25
3-6/4-4		41-1/2	51-1/2	37-7/16	16-7/8	4.3	10.8	2.5	3	LC25	LC25
3-6/4-6		41-1/2	53-1/2	37-7/16	17-11/16	4.5	11.3	2.5	3	LC25	LC25
3-6/5-0	E ₁	41-1/2	59-1/2	37-7/16	20-1/16	5.2	12.8	2.5	3	LC25	LC25
3-6/5-2	E ₁	41-1/2	61-1/2	37-7/16	20-7/8	5.4	13.3	2.5	3	LC25	LC25
3-6/5-6	E _A , E ₁	41-1/2	65-1/2	37-7/16	22-7/16	5.8	14.2	3	3	LC25	LC25
4-0/2-6		47-1/2	29-1/2	43-7/16	8-1/16	2.4	6.4	2.5	3	LC25	LC25
4-0/3-0		47-1/2	35-1/2	43-7/16	10-7/16	3.1	8.1	2.5	3	LC25	LC25
4-0/3-2		47-1/2	37-1/2	43-7/16	11-1/4	3.4	8.7	2.5	3	LC25	LC25
4-0/3-6		47-1/2	41-1/2	43-7/16	12-7/8	3.8	9.8	2.5	3	LC25	LC25
4-0/3-10		47-1/2	45-1/2	43-7/16	14-7/16	4.3	11.0	2.5	3	LC25	LC25
4-0/4-0		47-1/2	47-1/2	43-7/16	15-1/4	4.6	11.5	2.5	3	LC25	LC25
4-0/4-4	E _{1A}	47-1/2	51-1/2	43-7/16	16-7/8	5.0	12.7	2.5	3	LC25	LC25
4-0/4-6	E ₁	47-1/2	53-1/2	43-7/16	17-11/16	5.3	13.2	2.5	3	LC25	LC25
4-0/5-0	E	47-1/2	59-1/2	43-7/16	20-1/16	6.0	15.0	3	3	LC25	LC25
4-0/5-2	E	47-1/2	61-1/2	43-7/16	20-7/8	6.2	15.5	3	3	LC25	LC25
4-0/5-6	E	47-1/2	65-1/2	43-7/16	22-7/16	6.7	16.7	3	3	LC25	LC25

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Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

A = Unit does not meet egress if using optional Autolock hardware; unit may meet second egress value if one is shown.

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Cottage Sash

2-Wide Vent Units



2-WIDE VENT COMPOSITES WITH INTEGRAL MULLION – COTTAGE SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	
3-0/2-6		35-1/2	29-1/2	13-7/16	8-1/16	0.7	3.5	2.5	3	LC25
3-0/3-0		35-1/2	35-1/2	13-7/16	10-7/16	0.9	4.4	2.5	3	LC25
3-0/3-2		35-1/2	37-1/2	13-7/16	11-1/4	1.0	4.7	2.5	3	LC25
3-0/3-6		35-1/2	41-1/2	13-7/16	12-7/8	1.2	5.3	2.5	3	LC25
3-0/3-10		35-1/2	45-1/2	13-7/16	14-7/16	1.3	5.9	2.5	3	LC25
3-0/4-0		35-1/2	47-1/2	13-7/16	15-1/4	1.4	6.2	2.5	3	LC25
3-0/4-4		35-1/2	51-1/2	13-7/16	16-7/8	1.5	6.9	2.5	3	LC25
3-0/4-6		35-1/2	53-1/2	13-7/16	17-11/16	1.6	7.2	2.5	3	LC25
3-0/5-0		35-1/2	59-1/2	13-7/16	20-1/16	1.8	8.1	2.5	3	LC25
3-0/5-2		35-1/2	61-1/2	13-7/16	20-7/8	1.9	8.4	2.5	3	LC25
3-0/5-6		35-1/2	65-1/2	13-7/16	22-7/16	2.0	9.0	2.5	3	LC25
4-0/2-6		47-1/2	29-1/2	19-7/16	8-1/16	1.0	5.3	2.5	3	LC25
4-0/3-0		47-1/2	35-1/2	19-7/16	10-7/16	1.4	6.7	2.5	3	LC25
4-0/3-2		47-1/2	37-1/2	19-7/16	11-1/4	1.5	7.2	2.5	3	LC25
4-0/3-6		47-1/2	41-1/2	19-7/16	12-7/8	1.7	8.2	2.5	3	LC25
4-0/3-10		47-1/2	45-1/2	19-7/16	14-7/16	1.9	9.1	2.5	3	LC25
4-0/4-0		47-1/2	47-1/2	19-7/16	15-1/4	2.0	9.6	2.5	3	LC25
4-0/4-4		47-1/2	51-1/2	19-7/16	16-7/8	2.2	10.6	2.5	3	LC25
4-0/4-6		47-1/2	53-1/2	19-7/16	17-11/16	2.3	11.0	2.5	3	LC25
4-0/5-0		47-1/2	59-1/2	19-7/16	20-1/16	2.7	12.5	2.5	3	LC25
4-0/5-2		47-1/2	61-1/2	19-7/16	20-7/8	2.8	12.9	2.5	3	LC25
4-0/5-6		47-1/2	65-1/2	19-7/16	22-7/16	3.0	13.9	2.5	3	LC25
4-8/2-6		55-1/2	29-1/2	23-7/16	8-1/16	1.3	6.6	2.5	3	LC25
4-8/3-0		55-1/2	35-1/2	23-7/16	10-7/16	1.7	8.3	2.5	3	LC25
4-8/3-2		55-1/2	37-1/2	23-7/16	11-1/4	1.8	8.9	2.5	3	LC25
4-8/3-6		55-1/2	41-1/2	23-7/16	12-7/8	2.0	10.1	2.5	3	LC25
4-8/3-10		55-1/2	45-1/2	23-7/16	14-7/16	2.3	11.3	2.5	3	LC25
4-8/4-0		55-1/2	47-1/2	23-7/16	15-1/4	2.4	11.8	2.5	3	LC25
4-8/4-4		55-1/2	51-1/2	23-7/16	16-7/8	2.7	13.0	2.5	3	LC25
4-8/4-6		55-1/2	53-1/2	23-7/16	17-11/16	2.8	13.6	2.5	3	LC25
4-8/5-0		55-1/2	59-1/2	23-7/16	20-1/16	3.2	15.4	2.5	3	LC25
4-8/5-2		55-1/2	61-1/2	23-7/16	20-7/8	3.3	16.0	2.5	3	LC25
4-8/5-6		55-1/2	65-1/2	23-7/16	22-7/16	3.6	17.1	2.5	3	LC25

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



SINGLE-HUNG

DESIGN DATA

Cottage Sash

2-Wide Vent Units



2-WIDE VENT COMPOSITES WITH INTEGRAL MULLION – COTTAGE SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	
5-0/2-6		59-1/2	29-1/2	25-7/16	8-1/16	1.4	7.1	2.5	3	LC25
5-0/3-0		59-1/2	35-1/2	25-7/16	10-7/16	1.8	9.0	2.5	3	LC25
5-0/3-2		59-1/2	37-1/2	25-7/16	11-1/4	1.9	9.7	2.5	3	LC25
5-0/3-6		59-1/2	41-1/2	25-7/16	12-7/8	2.2	10.9	2.5	3	LC25
5-0/3-10		59-1/2	45-1/2	25-7/16	14-7/16	2.5	12.2	2.5	3	LC25
5-0/4-0		59-1/2	47-1/2	25-7/16	15-1/4	2.7	12.8	2.5	3	LC25
5-0/4-4		59-1/2	51-1/2	25-7/16	16-7/8	2.9	14.1	2.5	3	LC25
5-0/4-6		59-1/2	53-1/2	25-7/16	17-11/16	3.1	14.7	2.5	3	LC25
5-0/5-0		59-1/2	59-1/2	25-7/16	20-1/16	3.5	16.6	2.5	3	LC25
5-0/5-2		59-1/2	61-1/2	25-7/16	20-7/8	3.6	17.3	2.5	3	LC25
5-0/5-6		59-1/2	65-1/2	25-7/16	22-7/16	3.9	18.5	2.5	3	LC25
5-4/2-6		63-1/2	29-1/2	27-7/16	8-1/16	1.5	7.8	2.5	3	LC25
5-4/3-0		63-1/2	35-1/2	27-7/16	10-7/16	1.9	9.9	2.5	3	LC25
5-4/3-2		63-1/2	37-1/2	27-7/16	11-1/4	2.1	10.6	2.5	3	LC25
5-4/3-6		63-1/2	41-1/2	27-7/16	12-7/8	2.4	12.0	2.5	3	LC25
5-4/3-10		63-1/2	45-1/2	27-7/16	14-7/16	2.7	13.4	2.5	3	LC25
5-4/4-0		63-1/2	47-1/2	27-7/16	15-1/4	2.9	14.1	2.5	3	LC25
5-4/4-4		63-1/2	51-1/2	27-7/16	16-7/8	3.2	15.5	2.5	3	LC25
5-4/4-6		63-1/2	53-1/2	27-7/16	17-11/16	3.3	16.2	2.5	3	LC25
5-4/5-0		63-1/2	59-1/2	27-7/16	20-1/16	3.8	18.3	2.5	3	LC25
5-4/5-2		63-1/2	61-1/2	27-7/16	20-7/8	3.9	19.0	2.5	3	LC25
5-4/5-6		63-1/2	65-1/2	27-7/16	22-7/16	4.2	20.4	2.5	3	LC25
6-0/2-6		71-1/2	29-1/2	31-7/16	8-1/16	1.7	9.1	2.5	3	LC25
6-0/3-0		71-1/2	35-1/2	31-7/16	10-7/16	2.2	11.5	2.5	3	LC25
6-0/3-2		71-1/2	37-1/2	31-7/16	11-1/4	2.4	12.3	2.5	3	LC25
6-0/3-6		71-1/2	41-1/2	31-7/16	12-7/8	2.8	13.9	2.5	3	LC25
6-0/3-10		71-1/2	45-1/2	31-7/16	14-7/16	3.1	15.5	2.5	3	LC25
6-0/4-0		71-1/2	47-1/2	31-7/16	15-1/4	3.3	16.3	2.5	3	LC25
6-0/4-4		71-1/2	51-1/2	31-7/16	16-7/8	3.6	18.0	2.5	3	LC25
6-0/4-6		71-1/2	53-1/2	31-7/16	17-11/16	3.8	18.8	2.5	3	LC25
6-0/5-0		71-1/2	59-1/2	31-7/16	20-1/16	4.3	21.2	2.5	3	LC25
6-0/5-2		71-1/2	61-1/2	31-7/16	20-7/8	4.5	22.0	2.5	3	LC25
6-0/5-6		71-1/2	65-1/2	31-7/16	22-7/16	4.9	23.6	2.5	3	LC25

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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 ft².

A = Unit does not meet egress if using optional Autolock hardware; unit may meet second egress value if one is shown.

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Cottage Sash

2-Wide Vent Units



2-WIDE VENT COMPOSITES WITH INTEGRAL MULLION – COTTAGE SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	
6-8/2-6		79-1/2	29-1/2	35-7/16	8-1/16	1.9	10.3	2.5	3	LC25
6-8/3-0		79-1/2	35-1/2	35-7/16	10-7/16	2.5	13.1	2.5	3	LC25
6-8/3-2		79-1/2	37-1/2	35-7/16	11-1/4	2.7	14.0	2.5	3	LC25
6-8/3-6		79-1/2	41-1/2	35-7/16	12-7/8	3.1	15.8	2.5	3	LC25
6-8/3-10		79-1/2	45-1/2	35-7/16	14-7/16	3.5	17.7	2.5	3	LC25
6-8/4-0		79-1/2	47-1/2	35-7/16	15-1/4	3.7	18.6	2.5	3	LC25
6-8/4-4		79-1/2	51-1/2	35-7/16	16-7/8	4.1	20.4	2.5	3	LC25
6-8/4-6		79-1/2	53-1/2	35-7/16	17-11/16	4.3	21.3	2.5	3	LC25
6-8/5-0		79-1/2	59-1/2	35-7/16	20-1/16	4.9	24.1	2.5	3	LC25
6-8/5-2	E1A	79-1/2	61-1/2	35-7/16	20-7/8	5.1	25.0	2.5	3	LC25
6-8/5-6	E1	79-1/2	65-1/2	35-7/16	22-7/16	5.5	26.9	2.5	3	LC25
7-0/2-6		83-1/2	29-1/2	37-7/16	8-1/16	2.1	10.9	2.5	3	LC25
7-0/3-0		83-1/2	35-1/2	37-7/16	10-7/16	2.7	13.8	2.5	3	LC25
7-0/3-2		83-1/2	37-1/2	37-7/16	11-1/4	2.9	14.8	2.5	3	LC25
7-0/3-6		83-1/2	41-1/2	37-7/16	12-7/8	3.3	16.8	2.5	3	LC25
7-0/3-10		83-1/2	45-1/2	37-7/16	14-7/16	3.7	18.7	2.5	3	LC25
7-0/4-0		83-1/2	47-1/2	37-7/16	15-1/4	3.9	19.7	2.5	3	LC25
7-0/4-4		83-1/2	51-1/2	37-7/16	16-7/8	4.3	21.6	2.5	3	LC25
7-0/4-6		83-1/2	53-1/2	37-7/16	17-11/16	4.5	22.6	2.5	3	LC25
7-0/5-0		83-1/2	59-1/2	37-7/16	20-1/16	5.2	25.6	2.5	3	LC25
7-0/5-2		83-1/2	61-1/2	37-7/16	20-7/8	5.4	26.5	2.5	3	LC25
7-0/5-6		83-1/2	65-1/2	37-7/16	22-7/16	5.8	28.5	2.5	3	LC25
8-0/2-6		95-1/2	29-1/2	43-7/16	8-1/16	2.4	12.8	2.5	3	LC25
8-0/3-0		95-1/2	35-1/2	43-7/16	10-7/16	3.1	16.2	2.5	3	LC25
8-0/3-2		95-1/2	37-1/2	43-7/16	11-1/4	3.4	17.3	2.5	3	LC25
8-0/3-6		95-1/2	41-1/2	43-7/16	12-7/8	3.8	19.6	2.5	3	LC25
8-0/3-10		95-1/2	45-1/2	43-7/16	14-7/16	4.3	21.9	2.5	3	LC25
8-0/4-0		95-1/2	47-1/2	43-7/16	15-1/4	4.6	23.1	2.5	3	LC25
8-0/4-4	E1A	95-1/2	51-1/2	43-7/16	16-7/8	5.0	25.3	2.5	3	LC25
8-0/4-6	E1	95-1/2	53-1/2	43-7/16	17-11/16	5.3	26.5	2.5	3	LC25
8-0/5-0	E	95-1/2	59-1/2	43-7/16	20-1/16	6.0	29.9	3	3	LC25
8-0/5-2	E	95-1/2	61-1/2	43-7/16	20-7/8	6.2	31.1	3	3	LC25
8-0/5-6	E	95-1/2	65-1/2	43-7/16	22-7/16	6.7	33.3	3	3	LC25

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Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

A = Unit does not meet egress if using optional Autolock hardware; unit may meet second egress value if one is shown.

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Cottage Sash

3-Wide Vent Units

**3-WIDE VENT COMPOSITES WITH INTEGRAL MULLION – COTTAGE SASH**

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	
4-6/2-6		53-1/2	29-1/2	13-7/16	8-1/16	0.7	5.2	2.5	3	LC25
4-6/3-0		53-1/2	35-1/2	13-7/16	10-7/16	0.9	6.6	2.5	3	LC25
4-6/3-2		53-1/2	37-1/2	13-7/16	11-1/4	1.0	7.0	2.5	3	LC25
4-6/3-6		53-1/2	41-1/2	13-7/16	12-7/8	1.2	8.0	2.5	3	LC25
4-6/3-10		53-1/2	45-1/2	13-7/16	14-7/16	1.3	8.9	2.5	3	LC25
4-6/4-0		53-1/2	47-1/2	13-7/16	15-1/4	1.4	9.4	2.5	3	LC25
4-6/4-4		53-1/2	51-1/2	13-7/16	16-7/8	1.5	10.3	2.5	3	LC25
4-6/4-6		53-1/2	53-1/2	13-7/16	17-11/16	1.6	10.7	2.5	3	LC25
4-6/5-0		53-1/2	59-1/2	13-7/16	20-1/16	1.8	12.1	2.5	3	LC25
4-6/5-2		53-1/2	61-1/2	13-7/16	20-7/8	1.9	12.6	2.5	3	LC25
4-6/5-6		53-1/2	65-1/2	13-7/16	22-7/16	2.0	13.5	2.5	3	LC25
6-0/2-6		71-1/2	29-1/2	19-7/16	8-1/16	1.0	8.0	2.5	3	LC25
6-0/3-0		71-1/2	35-1/2	19-7/16	10-7/16	1.4	10.1	2.5	3	LC25
6-0/3-2		71-1/2	37-1/2	19-7/16	11-1/4	1.5	10.8	2.5	3	LC25
6-0/3-6		71-1/2	41-1/2	19-7/16	12-7/8	1.7	12.3	2.5	3	LC25
6-0/3-10		71-1/2	45-1/2	19-7/16	14-7/16	1.9	13.7	2.5	3	LC25
6-0/4-0		71-1/2	47-1/2	19-7/16	15-1/4	2.0	14.4	2.5	3	LC25
6-0/4-4		71-1/2	51-1/2	19-7/16	16-7/8	2.2	15.8	2.5	3	LC25
6-0/4-6		71-1/2	53-1/2	19-7/16	17-11/16	2.3	16.5	2.5	3	LC25
6-0/5-0		71-1/2	59-1/2	19-7/16	20-1/16	2.7	18.7	2.5	3	LC25
6-0/5-2		71-1/2	61-1/2	19-7/16	20-7/8	2.8	19.4	2.5	3	LC25
6-0/5-6		71-1/2	65-1/2	19-7/16	22-7/16	3.0	20.8	2.5	3	LC25
7-0/2-6		83-1/2	29-1/2	23-7/16	8-1/16	1.3	9.8	2.5	3	LC25
7-0/3-0		83-1/2	35-1/2	23-7/16	10-7/16	1.7	12.5	2.5	3	LC25
7-0/3-2		83-1/2	37-1/2	23-7/16	11-1/4	1.8	13.4	2.5	3	LC25
7-0/3-6		83-1/2	41-1/2	23-7/16	12-7/8	2.0	15.1	2.5	3	LC25
7-0/3-10		83-1/2	45-1/2	23-7/16	14-7/16	2.3	16.9	2.5	3	LC25
7-0/4-0		83-1/2	47-1/2	23-7/16	15-1/4	2.4	17.8	2.5	3	LC25
7-0/4-4		83-1/2	51-1/2	23-7/16	16-7/8	2.7	19.5	2.5	3	LC25
7-0/4-6		83-1/2	53-1/2	23-7/16	17-11/16	2.8	20.4	2.5	3	LC25
7-0/5-0		83-1/2	59-1/2	23-7/16	20-1/16	3.2	23.1	2.5	3	LC25
7-0/5-2		83-1/2	61-1/2	23-7/16	20-7/8	3.3	23.9	2.5	3	LC25
7-0/5-6		83-1/2	65-1/2	23-7/16	22-7/16	3.6	25.7	2.5	3	LC25

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



SINGLE-HUNG

DESIGN DATA

Cottage Sash

3-Wide Vent Units

**3-WIDE VENT COMPOSITES WITH INTEGRAL MULLION – COTTAGE SASH**

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	
7-6/2-6		89-1/2	29-1/2	25-7/16	8-1/16	1.4	10.6	2.5	3	LC25
7-6/3-0		89-1/2	35-1/2	25-7/16	10-7/16	1.8	13.5	2.5	3	LC25
7-6/3-2		89-1/2	37-1/2	25-7/16	11-1/4	1.9	14.4	2.5	3	LC25
7-6/3-6		89-1/2	41-1/2	25-7/16	12-7/8	2.2	16.3	2.5	3	LC25
7-6/3-10		89-1/2	45-1/2	25-7/16	14-7/16	2.5	18.2	2.5	3	LC25
7-6/4-0		89-1/2	47-1/2	25-7/16	15-1/4	2.7	19.2	2.5	3	LC25
7-6/4-4		89-1/2	51-1/2	25-7/16	16-7/8	2.9	21.1	2.5	3	LC25
7-6/4-6		89-1/2	53-1/2	25-7/16	17-11/16	3.1	22.0	2.5	3	LC25
7-6/5-0		89-1/2	59-1/2	25-7/16	20-1/16	3.5	24.9	2.5	3	LC25
7-6/5-2		89-1/2	61-1/2	25-7/16	20-7/8	3.6	25.8	2.5	3	LC25
7-6/5-6		89-1/2	65-1/2	25-7/16	22-7/16	3.9	27.7	2.5	3	LC25
8-0/2-6		95-1/2	29-1/2	27-7/16	8-1/16	1.5	11.7	2.5	3	LC25
8-0/3-0		95-1/2	35-1/2	27-7/16	10-7/16	1.9	14.9	2.5	3	LC25
8-0/3-2		95-1/2	37-1/2	27-7/16	11-1/4	2.1	15.9	2.5	3	LC25
8-0/3-6		95-1/2	41-1/2	27-7/16	12-7/8	2.4	18.0	2.5	3	LC25
8-0/3-10		95-1/2	45-1/2	27-7/16	14-7/16	2.7	20.1	2.5	3	LC25
8-0/4-0		95-1/2	47-1/2	27-7/16	15-1/4	2.9	21.1	2.5	3	LC25
8-0/4-4		95-1/2	51-1/2	27-7/16	16-7/8	3.2	23.2	2.5	3	LC25
8-0/4-6		95-1/2	53-1/2	27-7/16	17-11/16	3.3	24.3	2.5	3	LC25
8-0/5-0		95-1/2	59-1/2	27-7/16	20-1/16	3.8	27.4	2.5	3	LC25
8-0/5-2		95-1/2	61-1/2	27-7/16	20-7/8	3.9	28.5	2.5	3	LC25
8-0/5-6		95-1/2	65-1/2	27-7/16	22-7/16	4.2	30.6	2.5	3	LC25
9-0/2-6		107-1/2	29-1/2	31-7/16	8-1/16	1.7	13.6	2.5	3	LC25
9-0/3-0		107-1/2	35-1/2	31-7/16	10-7/16	2.2	17.2	2.5	3	LC25
9-0/3-2		107-1/2	37-1/2	31-7/16	11-1/4	2.4	18.4	2.5	3	LC25
9-0/3-6		107-1/2	41-1/2	31-7/16	12-7/8	2.8	20.9	2.5	3	LC25
9-0/3-10		107-1/2	45-1/2	31-7/16	14-7/16	3.1	23.3	2.5	3	LC25
9-0/4-0		107-1/2	47-1/2	31-7/16	15-1/4	3.3	24.5	2.5	3	LC25
9-0/4-4		107-1/2	51-1/2	31-7/16	16-7/8	3.6	26.9	2.5	3	LC25
9-0/4-6		107-1/2	53-1/2	31-7/16	17-11/16	3.8	28.1	2.5	3	LC25
9-0/5-0		107-1/2	59-1/2	31-7/16	20-1/16	4.3	31.8	2.5	3	LC25
9-0/5-2		107-1/2	61-1/2	31-7/16	20-7/8	4.5	33.0	2.5	3	LC25
9-0/5-6		107-1/2	65-1/2	31-7/16	22-7/16	4.9	35.4	2.5	3	LC25

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



SINGLE-HUNG

DESIGN DATA

Contemporary Sash

Single Vent Units



1-WIDE VENT UNITS – CONTEMPORARY SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	Standard	Upgrade
1-6/2-6		17-1/2	29-1/2	13-7/16	9-15/16	0.9	1.7	2.5	3	LC40	LC60
1-6/3-0		17-1/2	35-1/2	13-7/16	12-3/8	1.2	2.2	2.5	3	LC40	LC60
1-6/3-2		17-1/2	37-1/2	13-7/16	13-3/16	1.2	2.3	2.5	3	LC40	LC60
1-6/3-6		17-1/2	41-1/2	13-7/16	14-13/16	1.4	2.7	2.5	3	LC40	LC60
1-6/3-10		17-1/2	45-1/2	13-7/16	16-6/16	1.5	3.0	2.5	3	LC40	LC60
1-6/4-0		17-1/2	47-1/2	13-7/16	17-3/16	1.6	3.1	2.5	3	LC40	LC60
1-6/4-4		17-1/2	51-1/2	13-7/16	18-13/16	1.8	3.4	2.5	3	LC40	LC60
1-6/4-6		17-1/2	53-1/2	13-7/16	19-10/16	1.8	3.6	2.5	3	LC40	LC60
1-6/5-0		17-1/2	59-1/2	13-7/16	21-15/16	2.1	4.0	2.5	3	LC40	LC60
1-6/5-2		17-1/2	61-1/2	13-7/16	22-13/16	2.1	4.2	2.5	3	LC40	LC60
1-6/5-6		17-1/2	65-1/2	13-7/16	24-3/8	2.3	4.5	2.5	3	LC40	LC50
1-6/6-0		17-1/2	71-1/2	13-7/16	26-13/16	2.5	5.0	2.5	3	LC40	LC50
1-6/6-6		17-1/2	77-1/2	13-7/16	29-3/16	2.7	5.4	2.5	3	LC40	LC50
1-6/7-0		17-1/2	83-1/2	13-7/16	31-10/16	2.9	5.9	2.5	3	LC25	LC50
1-6/7-6		17-1/2	89-1/2	13-7/16	33-15/16	3.2	6.4	2.5	3	LC25	NA
1-6/8-0		17-1/2	95-1/2	13-7/16	36-3/8	3.4	6.8	2.5	3	LC25	NA
2-0/2-6		23-1/2	29-1/2	19-7/16	9-15/16	1.3	2.7	2.5	3	LC40	LC60
2-0/3-0		23-1/2	35-1/2	19-7/16	12-3/8	1.7	3.4	2.5	3	LC40	LC60
2-0/3-2		23-1/2	37-1/2	19-7/16	13-3/16	1.8	3.6	2.5	3	LC40	LC60
2-0/3-6		23-1/2	41-1/2	19-7/16	14-13/16	2.0	4.1	2.5	3	LC40	LC60
2-0/3-10		23-1/2	45-1/2	19-7/16	16-6/16	2.2	4.6	2.5	3	LC40	LC60
2-0/4-0		23-1/2	47-1/2	19-7/16	17-3/16	2.3	4.8	2.5	3	LC40	LC60
2-0/4-4		23-1/2	51-1/2	19-7/16	18-13/16	2.5	5.3	2.5	3	LC40	LC60
2-0/4-6		23-1/2	53-1/2	19-7/16	19-10/16	2.6	5.5	2.5	3	LC40	LC60
2-0/5-0		23-1/2	59-1/2	19-7/16	21-15/16	3.0	6.2	2.5	3	LC40	LC60
2-0/5-2		23-1/2	61-1/2	19-7/16	22-13/16	3.1	6.5	2.5	3	LC40	LC60
2-0/5-6		23-1/2	65-1/2	19-7/16	24-3/8	3.3	6.9	2.5	3	LC40	LC50
2-0/6-0		23-1/2	71-1/2	19-7/16	26-13/16	3.6	7.7	2.5	3	LC40	LC50
2-0/6-6		23-1/2	77-1/2	19-7/16	29-3/16	3.9	8.4	2.5	3	LC40	LC50
2-0/7-0		23-1/2	83-1/2	19-7/16	31-10/16	4.3	9.1	2.5	3	LC25	LC50
2-0/7-6		23-1/2	89-1/2	19-7/16	33-15/16	4.6	9.8	3	3	LC25	NA
2-0/8-0		23-1/2	95-1/2	19-7/16	36-3/8	4.9	10.5	3	3	LC25	NA
2-4/2-6		27-1/2	29-1/2	23-7/16	9-15/16	1.6	3.3	2.5	3	LC40	LC60
2-4/3-0		27-1/2	35-1/2	23-7/16	12-3/8	2.0	4.2	2.5	3	LC40	LC60
2-4/3-2		27-1/2	37-1/2	23-7/16	13-3/16	2.1	4.5	2.5	3	LC40	LC60
2-4/3-6		27-1/2	41-1/2	23-7/16	14-13/16	2.4	5.0	2.5	3	LC40	LC60
2-4/3-10		27-1/2	45-1/2	23-7/16	16-6/16	2.7	5.6	2.5	3	LC40	LC60
2-4/4-0		27-1/2	47-1/2	23-7/16	17-3/16	2.8	5.9	2.5	3	LC40	LC60
2-4/4-4		27-1/2	51-1/2	23-7/16	18-13/16	3.1	6.5	2.5	3	LC40	LC60
2-4/4-6		27-1/2	53-1/2	23-7/16	19-10/16	3.2	6.8	2.5	3	LC40	LC60
2-4/5-0		27-1/2	59-1/2	23-7/16	21-15/16	3.6	7.7	2.5	3	LC40	LC60
2-4/5-2		27-1/2	61-1/2	23-7/16	22-13/16	3.7	8.0	2.5	3	LC40	LC60
2-4/5-6		27-1/2	65-1/2	23-7/16	24-3/8	4.0	8.6	2.5	3	LC40	LC50
2-4/6-0		27-1/2	71-1/2	23-7/16	26-13/16	4.4	9.4	2.5	3	LC40	LC50
2-4/6-6		27-1/2	77-1/2	23-7/16	29-3/16	4.8	10.3	2.5	3	LC40	LC50
2-4/7-0		27-1/2	83-1/2	23-7/16	31-10/16	5.1	11.2	3	3	LC25	LC50
2-4/7-6		27-1/2	89-1/2	23-7/16	33-15/16	5.5	12.1	3	3	LC25	NA
2-4/8-0		27-1/2	95-1/2	23-7/16	36-3/8	5.9	13.0	3	3	LC25	NA

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



SINGLE-HUNG

DESIGN DATA

Contemporary Sash Single Vent Units



1-WIDE VENT UNITS – CONTEMPORARY SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft ²		Annealed	Tempered	Standard	Upgrade
2-6/2-6		29-1/2	29-1/2	25-7/16	9-15/16	1.8	3.6	2.5	3	LC40	LC60
2-6/3-0		29-1/2	35-1/2	25-7/16	12-3/8	2.2	4.6	2.5	3	LC40	LC60
2-6/3-2		29-1/2	37-1/2	25-7/16	13-3/16	2.3	4.9	2.5	3	LC40	LC60
2-6/3-6		29-1/2	41-1/2	25-7/16	14-13/16	2.6	5.5	2.5	3	LC40	LC60
2-6/3-10		29-1/2	45-1/2	25-7/16	16-6/16	2.9	6.2	2.5	3	LC40	LC60
2-6/4-0		29-1/2	47-1/2	25-7/16	17-3/16	3.0	6.5	2.5	3	LC40	LC60
2-6/4-4		29-1/2	51-1/2	25-7/16	18-13/16	3.3	7.1	2.5	3	LC40	LC60
2-6/4-6		29-1/2	53-1/2	25-7/16	19-10/16	3.5	7.4	2.5	3	LC40	LC60
2-6/5-0		29-1/2	59-1/2	25-7/16	21-15/16	3.9	8.4	2.5	3	LC40	LC60
2-6/5-2		29-1/2	61-1/2	25-7/16	22-13/16	4.0	8.7	2.5	3	LC40	LC60
2-6/5-6		29-1/2	65-1/2	25-7/16	24-3/8	4.3	9.4	2.5	3	LC40	LC50
2-6/6-0		29-1/2	71-1/2	25-7/16	26-13/16	4.7	10.3	2.5	3	LC40	LC50
2-6/6-6	E ₁	29-1/2	77-1/2	25-7/16	29-3/16	5.2	11.3	2.5	3	LC40	LC50
2-6/7-0	E ₁	29-1/2	83-1/2	25-7/16	31-10/16	5.6	12.3	3	3	LC25	LC50
2-6/7-6	E	29-1/2	89-1/2	25-7/16	33-15/16	6.0	13.2	3	3	LC25	NA
2-6/8-0	E	29-1/2	95-1/2	25-7/16	36-3/8	6.4	14.2	3	3	LC25	NA
2-8/2-6		31-1/2	29-1/2	27-7/16	9-15/16	1.9	3.9	2.5	3	LC40	LC60
2-8/3-0		31-1/2	35-1/2	27-7/16	12-3/8	2.4	5.0	2.5	3	LC40	LC60
2-8/3-2		31-1/2	37-1/2	27-7/16	13-3/16	2.5	5.3	2.5	3	LC40	LC60
2-8/3-6		31-1/2	41-1/2	27-7/16	14-13/16	2.8	6.0	2.5	3	LC40	LC60
2-8/3-10		31-1/2	45-1/2	27-7/16	16-6/16	3.1	6.7	2.5	3	LC40	LC60
2-8/4-0		31-1/2	47-1/2	27-7/16	17-3/16	3.3	7.0	2.5	3	LC40	LC60
2-8/4-4		31-1/2	51-1/2	27-7/16	18-13/16	3.6	7.7	2.5	3	LC40	LC60
2-8/4-6		31-1/2	53-1/2	27-7/16	19-10/16	3.7	8.1	2.5	3	LC40	LC60
2-8/5-0		31-1/2	59-1/2	27-7/16	21-15/16	4.2	9.1	2.5	3	LC40	LC60
2-8/5-2		31-1/2	61-1/2	27-7/16	22-13/16	4.3	9.5	2.5	3	LC40	LC60
2-8/5-6		31-1/2	65-1/2	27-7/16	24-3/8	4.6	10.2	2.5	3	LC40	LC50
2-8/6-0	E ₁	31-1/2	71-1/2	27-7/16	26-13/16	5.1	11.2	2.5	3	LC40	LC50
2-8/6-6	E ₁	31-1/2	77-1/2	27-7/16	29-3/16	5.6	12.3	2.5	3	LC40	LC50
2-8/7-0	E	31-1/2	83-1/2	27-7/16	31-10/16	6.0	13.3	2.5	3	LC25	LC50
2-8/7-6	E	31-1/2	89-1/2	27-7/16	33-15/16	6.5	14.4	3	3	LC25	NA
2-8/8-0	E	31-1/2	95-1/2	27-7/16	36-3/8	6.9	15.4	3	3	LC25	NA

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Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Contemporary Sash

Single Vent Units



1-WIDE VENT UNITS – CONTEMPORARY SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft ²		Annealed	Tempered	Standard	Upgrade
3-0/2-6		35-1/2	29-1/2	31-7/16	9-15/16	2.2	4.5	2.5	3	LC40	LC60
3-0/3-0		35-1/2	35-1/2	31-7/16	12-3/8	2.7	5.7	2.5	3	LC40	LC60
3-0/3-2		35-1/2	37-1/2	31-7/16	13-3/16	2.9	6.1	2.5	3	LC40	LC60
3-0/3-6		35-1/2	41-1/2	31-7/16	14-13/16	3.2	7.0	2.5	3	LC40	LC60
3-0/3-10		35-1/2	45-1/2	31-7/16	16-6/16	3.6	7.8	2.5	3	LC40	LC60
3-0/4-0		35-1/2	47-1/2	31-7/16	17-3/16	3.8	8.2	2.5	3	LC40	LC60
3-0/4-4		35-1/2	51-1/2	31-7/16	18-13/16	4.1	9.0	2.5	3	LC40	LC60
3-0/4-6		35-1/2	53-1/2	31-7/16	19-10/16	4.3	9.4	2.5	3	LC40	LC60
3-0/5-0		35-1/2	59-1/2	31-7/16	21-15/16	4.8	10.6	2.5	3	LC40	LC60
3-0/5-2		35-1/2	61-1/2	31-7/16	22-13/16	5.0	11.0	2.5	3	LC40	LC60
3-0/5-6	E1	35-1/2	65-1/2	31-7/16	24-3/8	5.3	11.8	2.5	3	LC40	LC50
3-0/6-0	E	35-1/2	71-1/2	31-7/16	26-13/16	5.9	13.0	2.5	3	LC40	LC50
3-0/6-6	E	35-1/2	77-1/2	31-7/16	29-3/16	6.4	14.2	3	3	LC40	LC50
3-0/7-0	E	35-1/2	83-1/2	31-7/16	31-10/16	6.9	15.4	3	3	LC25	LC50
3-0/7-6	E	35-1/2	89-1/2	31-7/16	33-15/16	7.4	16.7	3	3	LC25	NA
3-0/8-0	E	35-1/2	95-1/2	31-7/16	36-3/8	7.9	17.9	3	3	LC25	NA
3-4/2-6		39-1/2	29-1/2	35-7/16	9-15/16	2.5	5.1	2.5	3	LC40	LC60
3-4/3-0		39-1/2	35-1/2	35-7/16	12-3/8	3.1	6.5	2.5	3	LC40	LC60
3-4/3-2		39-1/2	37-1/2	35-7/16	13-3/16	3.2	7.0	2.5	3	LC40	LC60
3-4/3-6		39-1/2	41-1/2	35-7/16	14-13/16	3.6	7.9	2.5	3	LC40	LC60
3-4/3-10		39-1/2	45-1/2	35-7/16	16-6/16	4.0	8.8	2.5	3	LC40	LC60
3-4/4-0		39-1/2	47-1/2	35-7/16	17-3/16	4.2	9.3	2.5	3	LC40	LC60
3-4/4-4		39-1/2	51-1/2	35-7/16	18-13/16	4.6	10.2	2.5	3	LC40	LC60
3-4/4-6		39-1/2	53-1/2	35-7/16	19-10/16	4.8	10.7	2.5	3	LC40	LC60
3-4/5-0		39-1/2	59-1/2	35-7/16	21-15/16	5.4	12.0	2.5	3	LC40	LC60
3-4/5-2		39-1/2	61-1/2	35-7/16	22-13/16	5.6	12.5	2.5	3	LC40	LC60
3-4/5-6	E	39-1/2	65-1/2	35-7/16	24-3/8	6.0	13.4	2.5	3	LC40	LC50
3-4/6-0	E	39-1/2	71-1/2	35-7/16	26-13/16	6.6	14.8	3	3	LC40	LC50
3-4/6-6	E	39-1/2	77-1/2	35-7/16	29-3/16	7.2	16.2	3	3	LC40	LC50
3-4/7-0	E	39-1/2	83-1/2	35-7/16	31-10/16	7.8	17.6	3	3	LC25	LC50
3-4/7-6	E	39-1/2	89-1/2	35-7/16	33-15/16	8.4	18.9	3	3	LC25	NA
3-4/8-0	E	39-1/2	95-1/2	35-7/16	36-3/8	9.0	20.3	3	3	LC25	NA

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Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Contemporary Sash

Single Vent Units



1-WIDE VENT UNITS – CONTEMPORARY SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft ²		Annealed	Tempered	Standard	Upgrade
3-6/2-6		41-1/2	29-1/2	37-7/16	9-15/16	2.6	5.5	2.5	3	LC25	LC50
3-6/3-0		41-1/2	35-1/2	37-7/16	12-3/8	3.2	6.9	2.5	3	LC25	LC50
3-6/3-2		41-1/2	37-1/2	37-7/16	13-3/16	3.4	7.4	2.5	3	LC25	LC50
3-6/3-6		41-1/2	41-1/2	37-7/16	14-13/16	3.8	8.4	2.5	3	LC25	LC50
3-6/3-10		41-1/2	45-1/2	37-7/16	16-6/16	4.3	9.4	2.5	3	LC25	LC50
3-6/4-0		41-1/2	47-1/2	37-7/16	17-3/16	4.5	9.8	2.5	3	LC25	LC50
3-6/4-4		41-1/2	51-1/2	37-7/16	18-13/16	4.9	10.8	2.5	3	LC25	LC50
3-6/4-6		41-1/2	53-1/2	37-7/16	19-10/16	5.1	11.3	2.5	3	LC25	LC50
3-6/5-0		41-1/2	59-1/2	37-7/16	21-15/16	5.7	12.8	2.5	3	LC25	LC50
3-6/5-2		41-1/2	61-1/2	37-7/16	22-13/16	5.9	13.3	2.5	3	LC25	LC50
3-6/5-6	E	41-1/2	65-1/2	37-7/16	24-3/8	6.3	14.2	3	3	LC25	LC50
3-6/6-0	E	41-1/2	71-1/2	37-7/16	26-13/16	7.0	15.7	3	3	LC25	LC50
3-6/6-6	E	41-1/2	77-1/2	37-7/16	29-3/16	7.6	17.2	3	3	LC25	LC50
3-6/7-0	E	41-1/2	83-1/2	37-7/16	31-10/16	8.2	18.6	3	3	LC25	LC50
3-6/7-6	E	41-1/2	89-1/2	37-7/16	33-15/16	8.8	20.1	3	3	LC25	LC50
3-6/8-0	E	41-1/2	95-1/2	37-7/16	36-3/8	9.5	21.6	3	3	LC25	LC50
4-0/2-6		47-1/2	29-1/2	43-7/16	9-15/16	3.0	6.4	2.5	3	LC25	LC50
4-0/3-0		47-1/2	35-1/2	43-7/16	12-3/8	3.7	8.1	2.5	3	LC25	LC50
4-0/3-2		47-1/2	37-1/2	43-7/16	13-3/16	4.0	8.7	2.5	3	LC25	LC50
4-0/3-6		47-1/2	41-1/2	43-7/16	14-13/16	4.5	9.8	2.5	3	LC25	LC50
4-0/3-10		47-1/2	45-1/2	43-7/16	16-6/16	4.9	11.0	2.5	3	LC25	LC50
4-0/4-0		47-1/2	47-1/2	43-7/16	17-3/16	5.2	11.5	2.5	3	LC25	LC50
4-0/4-4		47-1/2	51-1/2	43-7/16	18-13/16	5.7	12.7	2.5	3	LC25	LC50
4-0/4-6		47-1/2	53-1/2	43-7/16	19-10/16	5.9	13.2	2.5	3	LC25	LC50
4-0/5-0		47-1/2	59-1/2	43-7/16	21-15/16	6.6	15.0	3	3	LC25	LC50
4-0/5-2		47-1/2	61-1/2	43-7/16	22-13/16	6.9	15.5	3	3	LC25	LC50
4-0/5-6	E	47-1/2	65-1/2	43-7/16	24-3/8	7.4	16.7	3	3	LC25	LC50
4-0/6-0	E	47-1/2	71-1/2	43-7/16	26-13/16	8.1	18.4	3	3	LC25	LC50
4-0/6-6	E	47-1/2	77-1/2	43-7/16	29-3/16	8.8	20.1	3	3	LC25	LC50
4-0/7-0	E	47-1/2	83-1/2	43-7/16	31-10/16	9.5	21.8	3	3	LC25	LC50
4-0/7-6	E	47-1/2	89-1/2	43-7/16	33-15/16	10.3	23.5	3	3	LC25	NA
4-0/8-0	E	47-1/2	95-1/2	43-7/16	36-3/8	11.0	25.2	3	3	LC25	NA
4-0/5-2		47-1/2	61-1/2	43-7/16	22-13/16	6.8	15.5	3	3	LC25	LC50
4-0/5-6	E	47-1/2	65-1/2	43-7/16	24-6/16	7.3	16.7	3	3	LC25	LC50
4-0/5-10	E	47-1/2	69-1/2	43-7/16	26-1/16	7.8	17.8	3	3	LC25	LC50
4-0/6-0	E	47-1/2	71-1/2	43-7/16	26-13/16	8.0	18.4	3	3	LC25	LC50
4-0/6-6	E	47-1/2	77-1/2	43-7/16	29-3/16	8.8	20.1	3	3	LC25	LC50
4-0/7-0	E	47-1/2	83-1/2	43-7/16	31-10/16	9.5	21.8	3	3	LC25	LC50
4-0/7-6	E	47-1/2	89-1/2	43-7/16	33-16/16	10.2	23.5	3	3	LC25	NA
4-0/8-0	E	47-1/2	95-1/2	43-7/16	36-6/16	10.9	25.2	3	3	LC25	NA

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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.

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Contemporary Sash 2-Wide Vent Units



2-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION – CONTEMPORARY SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	
3-0/2-6		35-1/2	29-1/2	13-7/16	9-15/16	0.9	3.6	2.5	3	LC25
3-0/3-0		35-1/2	35-1/2	13-7/16	12-3/8	1.1	4.6	2.5	3	LC25
3-0/3-2		35-1/2	37-1/2	13-7/16	13-3/16	1.2	4.9	2.5	3	LC25
3-0/3-6		35-1/2	41-1/2	13-7/16	14-13/16	1.4	5.6	2.5	3	LC25
3-0/3-10		35-1/2	45-1/2	13-7/16	16-6/16	1.5	6.2	2.5	3	LC25
3-0/4-0		35-1/2	47-1/2	13-7/16	17-3/16	1.6	6.6	2.5	3	LC25
3-0/4-4		35-1/2	51-1/2	13-7/16	18-13/16	1.7	7.2	2.5	3	LC25
3-0/4-6		35-1/2	53-1/2	13-7/16	19-10/16	1.8	7.5	2.5	3	LC25
3-0/5-0		35-1/2	59-1/2	13-7/16	21-15/16	2.0	8.5	2.5	3	LC25
3-0/5-2		35-1/2	61-1/2	13-7/16	22-13/16	2.1	8.8	2.5	3	LC25
3-0/5-6		35-1/2	65-1/2	13-7/16	24-3/8	2.2	9.5	2.5	3	LC25
3-0/6-0		35-1/2	71-1/2	13-7/16	26-13/16	2.5	10.4	2.5	3	LC25
3-0/6-6		35-1/2	77-1/2	13-7/16	29-3/16	2.7	11.4	2.5	3	LC25
3-0/7-0		35-1/2	83-1/2	13-7/16	31-10/16	2.9	12.4	2.5	3	LC25
3-0/7-6		35-1/2	89-1/2	13-7/16	33-15/16	3.1	13.4	2.5	3	LC25
3-0/8-0		35-1/2	95-1/2	13-7/16	36-3/8	3.3	14.3	2.5	3	LC25
4-0/2-6		47-1/2	29-1/2	19-7/16	9-15/16	1.3	5.5	2.5	3	LC25
4-0/3-0		47-1/2	35-1/2	19-7/16	12-3/8	1.7	7.0	2.5	3	LC25
4-0/3-2		47-1/2	37-1/2	19-7/16	13-3/16	1.8	7.5	2.5	3	LC25
4-0/3-6		47-1/2	41-1/2	19-7/16	14-13/16	2.0	8.4	2.5	3	LC25
4-0/3-10		47-1/2	45-1/2	19-7/16	16-6/16	2.2	9.4	2.5	3	LC25
4-0/4-0		47-1/2	47-1/2	19-7/16	17-3/16	2.3	9.9	2.5	3	LC25
4-0/4-4		47-1/2	51-1/2	19-7/16	18-13/16	2.5	10.9	2.5	3	LC25
4-0/4-6		47-1/2	53-1/2	19-7/16	19-10/16	2.6	11.4	2.5	3	LC25
4-0/5-0		47-1/2	59-1/2	19-7/16	21-15/16	2.9	12.9	2.5	3	LC25
4-0/5-2		47-1/2	61-1/2	19-7/16	22-13/16	3.0	13.4	2.5	3	LC25
4-0/5-6		47-1/2	65-1/2	19-7/16	24-3/8	3.3	14.3	2.5	3	LC25
4-0/6-0		47-1/2	71-1/2	19-7/16	26-13/16	3.6	15.8	2.5	3	LC25
4-0/6-6		47-1/2	77-1/2	19-7/16	29-3/16	3.9	17.3	2.5	3	LC25
4-0/7-0		47-1/2	83-1/2	19-7/16	31-10/16	4.2	18.8	2.5	3	LC25
4-0/7-6		47-1/2	89-1/2	19-7/16	33-15/16	4.5	20.2	3	3	LC25
4-0/8-0		47-1/2	95-1/2	19-7/16	36-3/8	4.9	21.7	3	3	LC25
4-8/2-6		55-1/2	29-1/2	23-7/16	9-15/16	1.6	6.7	2.5	3	LC25
4-8/3-0		55-1/2	35-1/2	23-7/16	12-3/8	2.0	8.5	2.5	3	LC25
4-8/3-2		55-1/2	37-1/2	23-7/16	13-3/16	2.1	9.1	2.5	3	LC25
4-8/3-6		55-1/2	41-1/2	23-7/16	14-13/16	2.4	10.4	2.5	3	LC25
4-8/3-10		55-1/2	45-1/2	23-7/16	16-6/16	2.6	11.6	2.5	3	LC25
4-8/4-0		55-1/2	47-1/2	23-7/16	17-3/16	2.8	12.2	2.5	3	LC25
4-8/4-4		55-1/2	51-1/2	23-7/16	18-13/16	3.0	13.4	2.5	3	LC25
4-8/4-6		55-1/2	53-1/2	23-7/16	19-10/16	3.2	14.0	2.5	3	LC25
4-8/5-0		55-1/2	59-1/2	23-7/16	21-15/16	3.5	15.8	2.5	3	LC25
4-8/5-2		55-1/2	61-1/2	23-7/16	22-13/16	3.7	16.4	2.5	3	LC25
4-8/5-6		55-1/2	65-1/2	23-7/16	24-3/8	3.9	17.6	2.5	3	LC25
4-8/6-0		55-1/2	71-1/2	23-7/16	26-13/16	4.3	19.4	2.5	3	LC25
4-8/6-6		55-1/2	77-1/2	23-7/16	29-3/16	4.7	21.2	2.5	3	LC25
4-8/7-0		55-1/2	83-1/2	23-7/16	31-10/16	5.1	23.0	3	3	LC25
4-8/7-6		55-1/2	89-1/2	23-7/16	33-15/16	5.5	24.8	3	3	LC25
4-8/8-0		55-1/2	95-1/2	23-7/16	36-3/8	5.9	26.6	3	3	LC25

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



SINGLE-HUNG

DESIGN DATA

Contemporary Sash

2-Wide Vent Units



2-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION – CONTEMPORARY SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	
5-0/2-6		59-1/2	29-1/2	25-7/16	9-15/16	1.7	7.4	2.5	3	LC25
5-0/3-0		59-1/2	35-1/2	25-7/16	12-3/8	2.2	9.3	2.5	3	LC25
5-0/3-2		59-1/2	37-1/2	25-7/16	13-3/16	2.3	10.0	2.5	3	LC25
5-0/3-6		59-1/2	41-1/2	25-7/16	14-13/16	2.6	11.3	2.5	3	LC25
5-0/3-10		59-1/2	45-1/2	25-7/16	16-6/16	2.9	12.6	2.5	3	LC25
5-0/4-0		59-1/2	47-1/2	25-7/16	17-3/16	3.0	13.3	2.5	3	LC25
5-0/4-4		59-1/2	51-1/2	25-7/16	18-13/16	3.3	14.6	2.5	3	LC25
5-0/4-6		59-1/2	53-1/2	25-7/16	19-10/16	3.4	15.3	2.5	3	LC25
5-0/5-0		59-1/2	59-1/2	25-7/16	21-15/16	3.8	17.2	2.5	3	LC25
5-0/5-2		59-1/2	61-1/2	25-7/16	22-13/16	4.0	17.9	2.5	3	LC25
5-0/5-6		59-1/2	65-1/2	25-7/16	24-3/8	4.3	19.2	2.5	3	LC25
5-0/6-0		59-1/2	71-1/2	25-7/16	26-13/16	4.7	21.2	2.5	3	LC25
5-0/6-6	E ₁	59-1/2	77-1/2	25-7/16	29-3/16	5.1	23.2	2.5	3	LC25
5-0/7-0	E ₁	59-1/2	83-1/2	25-7/16	31-10/16	5.5	25.1	3	3	LC25
5-0/7-6	E	59-1/2	89-1/2	25-7/16	33-15/16	5.9	27.1	3	3	LC25
5-0/8-0	E	59-1/2	95-1/2	25-7/16	36-3/8	6.4	29.1	3	3	LC25
5-4/2-6		63-1/2	29-1/2	27-7/16	9-15/16	1.9	8.0	2.5	3	LC25
5-4/3-0		63-1/2	35-1/2	27-7/16	12-3/8	2.3	10.1	2.5	3	LC25
5-4/3-2		63-1/2	37-1/2	27-7/16	13-3/16	2.5	10.8	2.5	3	LC25
5-4/3-6		63-1/2	41-1/2	27-7/16	14-13/16	2.8	12.3	2.5	3	LC25
5-4/3-10		63-1/2	45-1/2	27-7/16	16-6/16	3.1	13.7	2.5	3	LC25
5-4/4-0		63-1/2	47-1/2	27-7/16	17-3/16	3.2	14.4	2.5	3	LC25
5-4/4-4		63-1/2	51-1/2	27-7/16	18-13/16	3.5	15.8	2.5	3	LC25
5-4/4-6		63-1/2	53-1/2	27-7/16	19-10/16	3.7	16.5	2.5	3	LC25
5-4/5-0		63-1/2	59-1/2	27-7/16	21-15/16	4.2	18.7	2.5	3	LC25
5-4/5-2		63-1/2	61-1/2	27-7/16	22-13/16	4.3	19.4	2.5	3	LC25
5-4/5-6		63-1/2	65-1/2	27-7/16	24-3/8	4.6	20.8	2.5	3	LC25
5-4/6-0	E ₁	63-1/2	71-1/2	27-7/16	26-13/16	5.1	23.0	2.5	3	LC25
5-4/6-6	E ₁	63-1/2	77-1/2	27-7/16	29-3/16	5.5	25.1	2.5	3	LC25
5-4/7-0	E	63-1/2	83-1/2	27-7/16	31-10/16	6.0	27.2	2.5	3	LC25
5-4/7-6	E	63-1/2	89-1/2	27-7/16	33-15/16	6.4	29.4	3	3	LC25
5-4/8-0	E	63-1/2	95-1/2	27-7/16	36-3/8	6.9	31.5	3	3	LC25

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Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Contemporary Sash

2-Wide Vent Units



2-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION – CONTEMPORARY SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft ²		Annealed	Tempered	
6-0/2-6		71-1/2	29-1/2	31-7/16	9-15/16	2.2	9.2	2.5	3	LC25
6-0/3-0		71-1/2	35-1/2	31-7/16	12-3/8	2.7	11.7	2.5	3	LC25
6-0/3-2		71-1/2	37-1/2	31-7/16	13-3/16	2.9	12.5	2.5	3	LC25
6-0/3-6		71-1/2	41-1/2	31-7/16	14-13/16	3.2	14.2	2.5	3	LC25
6-0/3-10		71-1/2	45-1/2	31-7/16	16-6/16	3.6	15.8	2.5	3	LC25
6-0/4-0		71-1/2	47-1/2	31-7/16	17-3/16	3.7	16.6	2.5	3	LC25
6-0/4-4		71-1/2	51-1/2	31-7/16	18-13/16	4.1	18.3	2.5	3	LC25
6-0/4-6		71-1/2	53-1/2	31-7/16	19-10/16	4.2	19.1	2.5	3	LC25
6-0/5-0		71-1/2	59-1/2	31-7/16	21-15/16	4.8	21.6	2.5	3	LC25
6-0/5-2		71-1/2	61-1/2	31-7/16	22-13/16	4.9	22.4	2.5	3	LC25
6-0/5-6	E ₁	71-1/2	65-1/2	31-7/16	24-3/8	5.3	24.1	2.5	3	LC25
6-0/6-0	E	71-1/2	71-1/2	31-7/16	26-13/16	5.8	26.5	2.5	3	LC25
6-0/6-6	E	71-1/2	77-1/2	31-7/16	29-3/16	6.3	29.0	3	3	LC25
6-0/7-0	E	71-1/2	83-1/2	31-7/16	31-10/16	6.8	31.5	3	3	LC25
6-0/7-6	E	71-1/2	89-1/2	31-7/16	33-15/16	7.4	34.0	3	3	LC25
6-0/8-0	E	71-1/2	95-1/2	31-7/16	36-3/8	7.9	36.4	3	3	LC25
6-8/2-6		79-1/2	29-1/2	35-7/16	9-15/16	2.3	9.8	2.5	3	LC25
6-8/3-0		79-1/2	35-1/2	35-7/16	12-3/8	2.9	12.5	2.5	3	LC25
6-8/3-2		79-1/2	37-1/2	35-7/16	13-3/16	3.0	13.4	2.5	3	LC25
6-8/3-6		79-1/2	41-1/2	35-7/16	14-13/16	3.4	15.1	2.5	3	LC25
6-8/3-10		79-1/2	45-1/2	35-7/16	16-6/16	3.8	16.9	2.5	3	LC25
6-8/4-0		79-1/2	47-1/2	35-7/16	17-3/16	4.0	17.8	2.5	3	LC25
6-8/4-4		79-1/2	51-1/2	35-7/16	18-13/16	4.3	19.5	2.5	3	LC25
6-8/4-6		79-1/2	53-1/2	35-7/16	19-10/16	4.5	20.4	2.5	3	LC25
6-8/5-0		79-1/2	59-1/2	35-7/16	21-15/16	5.1	23.1	2.5	3	LC25
6-8/5-2		79-1/2	61-1/2	35-7/16	22-13/16	5.3	23.9	2.5	3	LC25
6-8/5-6	E	79-1/2	65-1/2	35-7/16	24-3/8	5.6	25.7	2.5	3	LC25
6-8/6-0	E	79-1/2	71-1/2	35-7/16	26-13/16	6.2	28.3	2.5	3	LC25
6-8/6-6	E	79-1/2	77-1/2	35-7/16	29-3/16	6.7	31.0	3	3	LC25
6-8/7-0	E	79-1/2	83-1/2	35-7/16	31-10/16	7.3	33.6	3	3	LC25
6-8/7-6	E	79-1/2	89-1/2	35-7/16	33-15/16	7.8	36.3	3	3	LC25
6-8/8-0	E	79-1/2	95-1/2	35-7/16	36-3/8	8.4	38.9	3	3	LC25

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Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Contemporary Sash

2-Wide Vent Units



2-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION – CONTEMPORARY SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	
7-0/2-6		83-1/2	29-1/2	37-7/16	9-15/16	2.4	10.5	2.5	3	LC25
7-0/3-0		83-1/2	35-1/2	37-7/16	12-3/8	3.0	13.3	2.5	3	LC25
7-0/3-2		83-1/2	37-1/2	37-7/16	13-3/16	3.2	14.2	2.5	3	LC25
7-0/3-6		83-1/2	41-1/2	37-7/16	14-13/16	3.6	16.1	2.5	3	LC25
7-0/3-10		83-1/2	45-1/2	37-7/16	16-6/16	4.0	18.0	2.5	3	LC25
7-0/4-0		83-1/2	47-1/2	37-7/16	17-3/16	4.2	18.9	2.5	3	LC25
7-0/4-4		83-1/2	51-1/2	37-7/16	18-13/16	4.6	20.8	2.5	3	LC25
7-0/4-6		83-1/2	53-1/2	37-7/16	19-10/16	4.8	21.7	2.5	3	LC25
7-0/5-0		83-1/2	59-1/2	37-7/16	21-15/16	5.4	24.5	2.5	3	LC25
7-0/5-2		83-1/2	61-1/2	37-7/16	22-13/16	5.6	25.4	2.5	3	LC25
7-0/5-6	E	83-1/2	65-1/2	37-7/16	24-3/8	6.0	27.3	2.5	3	LC25
7-0/6-0	E	83-1/2	71-1/2	37-7/16	26-13/16	6.5	30.1	3	3	LC25
7-0/6-6	E	83-1/2	77-1/2	37-7/16	29-3/16	7.1	32.9	3	3	LC25
7-0/7-0	E	83-1/2	83-1/2	37-7/16	31-10/16	7.7	35.7	3	3	LC25
7-0/7-6	E	83-1/2	89-1/2	37-7/16	33-15/16	8.3	38.5	3	3	LC25
7-0/8-0	E	83-1/2	95-1/2	37-7/16	36-3/8	8.9	41.3	3	3	LC25
8-0/2-6		95-1/2	29-1/2	43-7/16	9-15/16	3.0	13.0	2.5	3	LC25
8-0/3-0		95-1/2	35-1/2	43-7/16	12-3/8	3.7	16.4	2.5	3	LC25
8-0/3-2		95-1/2	37-1/2	43-7/16	13-3/16	4.0	17.6	2.5	3	LC25
8-0/3-6		95-1/2	41-1/2	43-7/16	14-13/16	4.4	19.9	2.5	3	LC25
8-0/3-10		95-1/2	45-1/2	43-7/16	16-6/16	4.9	22.2	2.5	3	LC25
8-0/4-0		95-1/2	47-1/2	43-7/16	17-3/16	5.2	23.4	2.5	3	LC25
8-0/4-4		95-1/2	51-1/2	43-7/16	18-13/16	5.6	25.7	2.5	3	LC25
8-0/4-6		95-1/2	53-1/2	43-7/16	19-10/16	5.9	26.9	2.5	3	LC25
8-0/5-0		95-1/2	59-1/2	43-7/16	21-15/16	6.6	30.3	3	3	LC25
8-0/5-2		95-1/2	61-1/2	43-7/16	22-13/16	6.8	31.5	3	3	LC25
8-0/5-6	E	95-1/2	65-1/2	43-7/16	24-3/8	7.3	33.8	3	3	LC25
8-0/6-0	E	95-1/2	71-1/2	43-7/16	26-13/16	8.0	37.3	3	3	LC25
8-0/6-6	E	95-1/2	77-1/2	43-7/16	29-3/16	8.8	40.7	3	3	LC25
8-0/7-0	E	95-1/2	83-1/2	43-7/16	31-10/16	9.5	44.2	3	3	LC25
8-0/7-6	E	95-1/2	89-1/2	43-7/16	33-15/16	10.2	47.7	3	3	LC25
8-0/8-0	E	95-1/2	95-1/2	43-7/16	36-3/8	10.9	51.2	3	3	LC25
8-0/5-2		95-1/2	61-1/2	43-7/16	22-13/16	6.8	31.1	3	3	LC25
8-0/5-6	E	95-1/2	65-1/2	43-7/16	24-6/16	7.3	33.3	3	3	LC25
8-0/5-10	E	95-1/2	69-1/2	43-7/16	26-1/16	7.8	35.7	3	3	LC25
8-0/6-0	E	95-1/2	71-1/2	43-7/16	26-13/16	8.0	36.8	3	3	LC25
8-0/6-6	E	95-1/2	77-1/2	43-7/16	29-3/16	8.8	40.2	3	3	LC25
8-0/7-0	E	95-1/2	83-1/2	43-7/16	31-10/16	9.5	43.6	3	3	LC25
8-0/7-6	E	95-1/2	89-1/2	43-7/16	33-16/16	10.2	47.1	3	3	LC25
8-0/8-0	E	95-1/2	95-1/2	43-7/16	36-6/16	10.9	50.5	3	3	LC25

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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.

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

Contemporary Sash
3-Wide Vent Units



3-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION – CONTEMPORARY SASH

Unit	Egress	Frame (Inches)		Clear Opening (Inches) (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width	Height	Width	Height	Ft²		Annealed	Tempered	
4-6/2-6		53-1/2	29-1/2	13-7/16	9-15/16	0.9	9.0	2.5	3	LC25
4-6/3-0		53-1/2	35-1/2	13-7/16	12-3/8	1.2	11.4	2.5	3	LC25
4-6/3-2		53-1/2	37-1/2	13-7/16	13-3/16	1.2	12.2	2.5	3	LC25
4-6/3-6		53-1/2	41-1/2	13-7/16	14-13/16	1.4	13.8	2.5	3	LC25
4-6/3-10		53-1/2	45-1/2	13-7/16	16-6/16	1.5	15.3	2.5	3	LC25
4-6/4-0		53-1/2	47-1/2	13-7/16	17-3/16	1.6	16.1	2.5	3	LC25
4-6/4-4		53-1/2	51-1/2	13-7/16	18-13/16	1.8	17.7	2.5	3	LC25
4-6/4-6		53-1/2	53-1/2	13-7/16	19-10/16	1.8	18.5	2.5	3	LC25
4-6/5-0		53-1/2	59-1/2	13-7/16	21-15/16	2.1	20.9	2.5	3	LC25
4-6/5-2		53-1/2	61-1/2	13-7/16	22-13/16	2.1	21.7	2.5	3	LC25
4-6/5-6		53-1/2	65-1/2	13-7/16	24-3/8	2.3	23.3	2.5	3	LC25
4-6/6-0		53-1/2	71-1/2	13-7/16	26-13/16	2.5	25.6	2.5	3	LC25
4-6/6-6		53-1/2	77-1/2	13-7/16	29-3/16	2.7	28.0	2.5	3	LC25
4-6/7-0		53-1/2	83-1/2	13-7/16	31-10/16	2.9	30.4	2.5	3	LC25
4-6/7-6		53-1/2	89-1/2	13-7/16	33-15/16	3.2	32.8	2.5	3	LC25
4-6/8-0		53-1/2	95-1/2	13-7/16	36-3/8	3.4	35.1	2.5	3	LC25
6-0/2-6		71-1/2	29-1/2	19-7/16	9-15/16	1.3	13.6	2.5	3	LC25
6-0/3-0		71-1/2	35-1/2	19-7/16	12-3/8	1.7	17.1	2.5	3	LC25
6-0/3-2		71-1/2	37-1/2	19-7/16	13-3/16	1.8	18.3	2.5	3	LC25
6-0/3-6		71-1/2	41-1/2	19-7/16	14-13/16	2.0	20.7	2.5	3	LC25
6-0/3-10		71-1/2	45-1/2	19-7/16	16-6/16	2.2	23.1	2.5	3	LC25
6-0/4-0		71-1/2	47-1/2	19-7/16	17-3/16	2.3	24.3	2.5	3	LC25
6-0/4-4		71-1/2	51-1/2	19-7/16	18-13/16	2.5	26.7	2.5	3	LC25
6-0/4-6		71-1/2	53-1/2	19-7/16	19-10/16	2.6	27.9	2.5	3	LC25
6-0/5-0		71-1/2	59-1/2	19-7/16	21-15/16	3.0	31.4	2.5	3	LC25
6-0/5-2		71-1/2	61-1/2	19-7/16	22-13/16	3.1	32.6	2.5	3	LC25
6-0/5-6		71-1/2	65-1/2	19-7/16	24-3/8	3.3	35.0	2.5	3	LC25
6-0/6-0		71-1/2	71-1/2	19-7/16	26-13/16	3.6	38.6	2.5	3	LC25
6-0/6-6		71-1/2	77-1/2	19-7/16	29-3/16	3.9	42.2	2.5	3	LC25
6-0/7-0		71-1/2	83-1/2	19-7/16	31-10/16	4.3	45.7	2.5	3	LC25
6-0/7-6		71-1/2	89-1/2	19-7/16	33-15/16	4.6	49.3	3	3	LC25
6-0/8-0		71-1/2	95-1/2	19-7/16	36-3/8	4.9	52.9	3	3	LC25
7-0/2-6		83-1/2	29-1/2	23-7/16	9-15/16	1.6	16.6	2.5	3	LC25
7-0/3-0		83-1/2	35-1/2	23-7/16	12-3/8	2.0	21.0	2.5	3	LC25
7-0/3-2		83-1/2	37-1/2	23-7/16	13-3/16	2.1	22.4	2.5	3	LC25
7-0/3-6		83-1/2	41-1/2	23-7/16	14-13/16	2.4	25.3	2.5	3	LC25
7-0/3-10		83-1/2	45-1/2	23-7/16	16-6/16	2.7	28.3	2.5	3	LC25
7-0/4-0		83-1/2	47-1/2	23-7/16	17-3/16	2.8	29.7	2.5	3	LC25
7-0/4-4		83-1/2	51-1/2	23-7/16	18-13/16	3.1	32.6	2.5	3	LC25
7-0/4-6		83-1/2	53-1/2	23-7/16	19-10/16	3.2	34.1	2.5	3	LC25
7-0/5-0		83-1/2	59-1/2	23-7/16	21-15/16	3.6	38.5	2.5	3	LC25
7-0/5-2		83-1/2	61-1/2	23-7/16	22-13/16	3.7	39.9	2.5	3	LC25
7-0/5-6		83-1/2	65-1/2	23-7/16	24-3/8	4.0	42.8	2.5	3	LC25
7-0/6-0		83-1/2	71-1/2	23-7/16	26-13/16	4.4	47.2	2.5	3	LC25
7-0/6-6		83-1/2	77-1/2	23-7/16	29-3/16	4.8	51.6	2.5	3	LC25
7-0/7-0		83-1/2	83-1/2	23-7/16	31-10/16	5.1	56.0	3	3	LC25
7-0/7-6		83-1/2	89-1/2	23-7/16	33-15/16	5.5	60.3	3	3	LC25
7-0/8-0		83-1/2	95-1/2	23-7/16	36-3/8	5.9	64.7	3	3	LC25

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



SINGLE-HUNG

DESIGN DATA

Contemporary Sash
3-Wide Vent Units



3-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION – CONTEMPORARY SASH

Unit	Egress	Frame (Inches)		Clear Opening (Inches) (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width	Height	Width	Height	Ft²		Annealed	Tempered	
7-6/2-6		89-1/2	29-1/2	25-7/16	9-15/16	1.7	17.9	2.5	3	LC25
7-6/3-0		89-1/2	35-1/2	25-7/16	12-3/8	2.2	22.6	2.5	3	LC25
7-6/3-2		89-1/2	37-1/2	25-7/16	13-3/16	2.3	24.1	2.5	3	LC25
7-6/3-6		89-1/2	41-1/2	25-7/16	14-13/16	2.6	27.3	2.5	3	LC25
7-6/3-10		89-1/2	45-1/2	25-7/16	16-6/16	2.9	30.4	2.5	3	LC25
7-6/4-0		89-1/2	47-1/2	25-7/16	17-3/16	3.0	32.0	2.5	3	LC25
7-6/4-4		89-1/2	51-1/2	25-7/16	18-13/16	3.3	35.1	2.5	3	LC25
7-6/4-6		89-1/2	53-1/2	25-7/16	19-10/16	3.4	36.7	2.5	3	LC25
7-6/5-0		89-1/2	59-1/2	25-7/16	21-15/16	3.8	41.4	2.5	3	LC25
7-6/5-2		89-1/2	61-1/2	25-7/16	22-13/16	4.0	43.0	2.5	3	LC25
7-6/5-6		89-1/2	65-1/2	25-7/16	24-3/8	4.3	46.1	2.5	3	LC25
7-6/6-0		89-1/2	71-1/2	25-7/16	26-13/16	4.7	50.8	2.5	3	LC25
7-6/6-6	E ₁	89-1/2	77-1/2	25-7/16	29-3/16	5.1	55.5	2.5	3	LC25
7-6/7-0	E ₁	89-1/2	83-1/2	25-7/16	31-10/16	5.5	60.2	3	3	LC25
7-6/7-6	E	89-1/2	89-1/2	25-7/16	33-15/16	5.9	64.9	3	3	LC25
7-6/8-0	E	89-1/2	95-1/2	25-7/16	36-3/8	6.3	69.6	3	3	LC25
8-0/2-6		95-1/2	29-1/2	27-7/16	9-15/16	1.9	19.6	2.5	3	LC25
8-0/3-0		95-1/2	35-1/2	27-7/16	12-3/8	2.4	24.8	2.5	3	LC25
8-0/3-2		95-1/2	37-1/2	27-7/16	13-3/16	2.5	26.5	2.5	3	LC25
8-0/3-6		95-1/2	41-1/2	27-7/16	14-13/16	2.8	30.0	2.5	3	LC25
8-0/3-10		95-1/2	45-1/2	27-7/16	16-6/16	3.1	33.4	2.5	3	LC25
8-0/4-0		95-1/2	47-1/2	27-7/16	17-3/16	3.3	35.1	2.5	3	LC25
8-0/4-4		95-1/2	51-1/2	27-7/16	18-13/16	3.6	38.6	2.5	3	LC25
8-0/4-6		95-1/2	53-1/2	27-7/16	19-10/16	3.7	40.3	2.5	3	LC25
8-0/5-0		95-1/2	59-1/2	27-7/16	21-15/16	4.2	45.5	2.5	3	LC25
8-0/5-2		95-1/2	61-1/2	27-7/16	22-13/16	4.3	47.2	2.5	3	LC25
8-0/5-6		95-1/2	65-1/2	27-7/16	24-3/8	4.6	50.7	2.5	3	LC25
8-0/6-0	E ₁	95-1/2	71-1/2	27-7/16	26-13/16	5.1	55.8	2.5	3	LC25
8-0/6-6	E ₁	95-1/2	77-1/2	27-7/16	29-3/16	5.6	61.0	2.5	3	LC25
8-0/7-0	E	95-1/2	83-1/2	27-7/16	31-10/16	6.0	66.2	2.5	3	LC25
8-0/7-6	E	95-1/2	89-1/2	27-7/16	33-15/16	6.5	71.4	3	3	LC25
8-0/8-0	E	95-1/2	95-1/2	27-7/16	36-3/8	6.9	76.5	3	3	LC25
9-0/2-6		107-1/2	29-1/2	31-7/16	9-15/16	2.2	22.7	2.5	3	LC25
9-0/3-0		107-1/2	35-1/2	31-7/16	12-3/8	2.7	28.6	2.5	3	LC25
9-0/3-2		107-1/2	37-1/2	31-7/16	13-3/16	2.9	30.6	2.5	3	LC25
9-0/3-6		107-1/2	41-1/2	31-7/16	14-13/16	3.2	34.6	2.5	3	LC25
9-0/3-10		107-1/2	45-1/2	31-7/16	16-6/16	3.6	38.6	2.5	3	LC25
9-0/4-0		107-1/2	47-1/2	31-7/16	17-3/16	3.8	40.6	2.5	3	LC25
9-0/4-4		107-1/2	51-1/2	31-7/16	18-13/16	4.1	44.6	2.5	3	LC25
9-0/4-6		107-1/2	53-1/2	31-7/16	19-10/16	4.3	46.6	2.5	3	LC25
9-0/5-0		107-1/2	59-1/2	31-7/16	21-15/16	4.8	52.5	2.5	3	LC25
9-0/5-2		107-1/2	61-1/2	31-7/16	22-13/16	5.0	54.5	2.5	3	LC25
9-0/5-6	E ₁	107-1/2	65-1/2	31-7/16	24-3/8	5.3	58.5	2.5	3	LC25
9-0/6-0	E	107-1/2	71-1/2	31-7/16	26-13/16	5.9	64.5	2.5	3	LC25
9-0/6-6	E	107-1/2	77-1/2	31-7/16	29-3/16	6.4	70.5	3	3	LC25
9-0/7-0	E	107-1/2	83-1/2	31-7/16	31-10/16	6.9	76.4	3	3	LC25
9-0/7-6	E	107-1/2	89-1/2	31-7/16	33-15/16	7.4	82.4	3	3	LC25
9-0/8-0	E	107-1/2	95-1/2	31-7/16	36-3/8	7.9	88.4	3	3	LC25
9-0/6-0	E	107-1/2	71-1/2	31-7/16	26-13/16	5.8	39.1	2.5	3	LC25
9-0/6-6	E	107-1/2	77-1/2	31-7/16	29-3/16	6.3	42.7	3	3	LC25
9-0/7-0	E	107-1/2	83-1/2	31-7/16	31-10/16	6.8	46.3	3	3	LC25
9-0/7-6	E	107-1/2	89-1/2	31-7/16	33-16/16	7.4	50.0	3	3	LC25
9-0/8-0	E	107-1/2	95-1/2	31-7/16	36-6/16	7.9	53.6	3	3	LC25

Egress Notes:

Check all applicable local codes for emergency egress requirements.

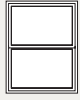
E₁ = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

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

Autolock hardware is not compatible with Maximum opening hardware.

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

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



SINGLE-HUNG

DESIGN DATA

24" Lower Sash

Single Vent Units



1-WIDE VENT UNITS - 24" LOWER SASH

Unit	Egress	Frame (Inches)		Clear Opening (Inches) (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft²		Annealed	Tempered	Standard	Upgrade
1-6/4-6		17-1/2	53-1/2	13-7/16	20-1/4	1.8	3.6	2.5	3	LC40	LC60
1-6/5-0		17-1/2	59-1/2	13-7/16	20-1/4	1.8	4.0	2.5	3	LC40	LC50
1-6/5-2		17-1/2	61-1/2	13-7/16	20-1/4	1.8	4.2	2.5	3	LC40	LC50
1-6/5-6		17-1/2	65-1/2	13-7/16	20-1/4	1.8	4.5	2.5	3	LC25	LC50
1-6/6-0		17-1/2	71-1/2	13-7/16	20-1/4	1.8	5.0	2.5	3	LC25	LC50
1-6/6-6		17-1/2	77-1/2	13-7/16	20-1/4	1.8	5.4	2.5	3	LC25	--
2-0/4-6		23-1/2	53-1/2	19-7/16	20-1/4	2.7	5.5	2.5	3	LC40	LC60
2-0/5-0		23-1/2	59-1/2	19-7/16	20-1/4	2.7	6.2	2.5	3	LC40	LC50
2-0/5-2		23-1/2	61-1/2	19-7/16	20-1/4	2.7	6.5	2.5	3	LC40	LC50
2-0/5-6		23-1/2	65-1/2	19-7/16	20-1/4	2.7	6.9	2.5	3	LC25	LC50
2-0/6-0		23-1/2	71-1/2	19-7/16	20-1/4	2.7	7.7	2.5	3	LC25	LC50
2-0/6-6		23-1/2	77-1/2	19-7/16	20-1/4	2.7	8.4	2.5	3	LC25	--
2-4/4-6		27-1/2	53-1/2	23-7/16	20-1/4	3.2	6.8	2.5	3	LC40	LC60
2-4/5-0		27-1/2	59-1/2	23-7/16	20-1/4	3.2	7.7	2.5	3	LC40	LC50
2-4/5-2		27-1/2	61-1/2	23-7/16	20-1/4	3.2	8.0	2.5	3	LC40	LC50
2-4/5-6		27-1/2	65-1/2	23-7/16	20-1/4	3.2	8.6	2.5	3	LC25	LC50
2-4/6-0		27-1/2	71-1/2	23-7/16	20-1/4	3.2	9.4	2.5	3	LC25	LC50
2-4/6-6		27-1/2	77-1/2	23-7/16	20-1/4	3.2	10.3	2.5	3	LC25	--
2-6/4-6		29-1/2	53-1/2	25-7/16	20-1/4	3.5	7.4	2.5	3.0	LC40	LC60
2-6/5-0		29-1/2	59-1/2	25-7/16	20-1/4	3.5	8.4	2.5	3.0	LC40	LC50
2-6/5-2		29-1/2	61-1/2	25-7/16	20-1/4	3.5	8.7	2.5	3.0	LC40	LC50
2-6/5-6		29-1/2	65-1/2	25-7/16	20-1/4	3.5	9.4	2.5	3.0	LC25	LC50
2-6/6-0		29-1/2	71-1/2	25-7/16	20-1/4	3.5	10.3	2.5	3.0	LC25	LC50
2-6/6-6		29-1/2	77-1/2	25-7/16	20-1/4	3.5	11.3	2.5	3.0	LC25	--
2-8/4-6		31-1/2	53-1/2	27-7/16	20-1/4	3.8	8.1	2.5	3	LC40	LC60
2-8/5-0		31-1/2	59-1/2	27-7/16	20-1/4	3.8	9.1	2.5	3	LC40	LC50
2-8/5-2		31-1/2	61-1/2	27-7/16	20-1/4	3.8	9.5	2.5	3	LC40	LC50
2-8/5-6		31-1/2	65-1/2	27-7/16	20-1/4	3.8	10.2	2.5	3	LC25	LC50
2-8/6-0		31-1/2	71-1/2	27-7/16	20-1/4	3.8	11.2	2.5	3	LC25	LC50
2-8/6-6		31-1/2	77-1/2	27-7/16	20-1/4	3.8	12.3	3	3	LC25	--
3-0/4-6		35-1/2	53-1/2	31-7/16	20-1/4	4.4	9.4	2.5	3	LC40	LC60
3-0/5-0		35-1/2	59-1/2	31-7/16	20-1/4	4.4	10.6	2.5	3	LC40	LC50
3-0/5-2		35-1/2	61-1/2	31-7/16	20-1/4	4.4	11.0	2.5	3	LC40	LC50
3-0/5-6		35-1/2	65-1/2	31-7/16	20-1/4	4.4	11.8	2.5	3	LC25	LC50
3-0/6-0		35-1/2	71-1/2	31-7/16	20-1/4	4.4	13.0	3	3	LC25	LC50
3-0/6-6		35-1/2	77-1/2	31-7/16	20-1/4	4.4	14.2	3	3	LC25	--
3-4/4-6		39-1/2	53-1/2	35-7/16	20-1/4	4.9	10.7	2.5	3	LC40	LC60
3-4/5-0		39-1/2	59-1/2	35-7/16	20-1/4	4.9	12.0	2.5	3	LC40	LC50
3-4/5-2		39-1/2	61-1/2	35-7/16	20-1/4	4.9	12.5	2.5	3	LC40	LC50
3-4/5-6		39-1/2	65-1/2	35-7/16	20-1/4	4.9	13.4	3	3	LC25	LC50
3-4/6-0		39-1/2	71-1/2	35-7/16	20-1/4	4.9	14.8	3	3	LC25	LC50
3-4/6-6		39-1/2	77-1/2	35-7/16	20-1/4	4.9	16.2	3	3	LC25	--
3-6/4-6		41-1/2	53-1/2	37-7/16	20-1/4	5.2	11.3	2.5	3	LC40	LC60
3-6/5-0		41-1/2	59-1/2	37-7/16	20-1/4	5.2	12.8	2.5	3	LC40	LC50
3-6/5-2		41-1/2	61-1/2	37-7/16	20-1/4	5.2	13.3	2.5	3	LC40	LC50
3-6/5-6		41-1/2	65-1/2	37-7/16	20-1/4	5.2	14.2	3	3	LC25	LC50
3-6/6-0		41-1/2	71-1/2	37-7/16	20-1/4	5.2	15.7	3	3	LC25	LC50
3-6/6-6		41-1/2	77-1/2	37-7/16	20-1/4	5.2	17.2	3	3	LC25	--
4-0/4-6		47-1/2	53-1/2	43-7/16	20-1/4	6.0	13.2	2.5	3	LC40	LC60
4-0/5-0		47-1/2	59-1/2	43-7/16	20-1/4	6.0	15.0	3	3	LC40	LC50
4-0/5-2		47-1/2	61-1/2	43-7/16	20-1/4	6.0	15.5	3	3	LC40	LC50
4-0/5-6		47-1/2	65-1/2	43-7/16	20-1/4	6.0	16.7	3	3	LC25	LC50
4-0/6-0		47-1/2	71-1/2	43-7/16	20-1/4	6.0	18.4	3	3	LC25	LC50
4-0/6-6		47-1/2	77-1/2	43-7/16	20-1/4	6.0	20.1	3	3	LC25	--

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

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



SINGLE-HUNG

DESIGN DATA

24" Lower Sash

2-Wide Vent Units



2-WIDE-VENT-UNIT-COMPOSITES-WITH-INTEGRAL-MULLION - 24" LOWER SASH

Unit	Egress	Frame (Inches)		Clear Opening (Inches) (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width	Height	Width	Height	Ft²		Annealed	Tempered	
3-0/4-6		35-1/2	53-1/2	13-7/16	20-1/4	1.8	7.2	2.5	3	LC25
3-0/5-0		35-1/2	59-1/2	13-7/16	20-1/4	1.8	8.1	2.5	3	LC25
3-0/5-2		35-1/2	61-1/2	13-7/16	20-1/4	1.8	8.4	2.5	3	LC25
3-0/5-6		35-1/2	65-1/2	13-7/16	20-1/4	1.8	9.0	2.5	3	LC25
3-0/6-0		35-1/2	71-1/2	13-7/16	20-1/4	1.8	9.9	2.5	3	LC25
3-0/6-6		35-1/2	77-1/2	13-7/16	20-1/4	1.8	10.9	2.5	3	LC25
4-0/4-6		47-1/2	53-1/2	19-7/16	20-1/4	2.7	11.0	2.5	3	LC25
4-0/5-0		47-1/2	59-1/2	19-7/16	20-1/4	2.7	12.5	2.5	3	LC25
4-0/5-2		47-1/2	61-1/2	19-7/16	20-1/4	2.7	12.9	2.5	3	LC25
4-0/5-6		47-1/2	65-1/2	19-7/16	20-1/4	2.7	13.9	2.5	3	LC25
4-0/6-0		47-1/2	71-1/2	19-7/16	20-1/4	2.7	15.3	2.5	3	LC25
4-0/6-6		47-1/2	77-1/2	19-7/16	20-1/4	2.7	16.7	2.5	3	LC25
4-8/4-6		55-1/2	53-1/2	23-7/16	20-1/4	3.2	13.6	2.5	3	LC25
4-8/5-0		55-1/2	59-1/2	23-7/16	20-1/4	3.2	15.4	2.5	3	LC25
4-8/5-2		55-1/2	61-1/2	23-7/16	20-1/4	3.2	16.0	2.5	3	LC25
4-8/5-6		55-1/2	65-1/2	23-7/16	20-1/4	3.2	17.1	2.5	3	LC25
4-8/6-0		55-1/2	71-1/2	23-7/16	20-1/4	3.2	18.9	2.5	3	LC25
4-8/6-6		55-1/2	77-1/2	23-7/16	20-1/4	3.2	20.6	2.5	3	LC25
5-0/4-6		59-1/2	53-1/2	25-3/16	20-1/4	3.5	14.9	2.5	3.0	LC25
5-0/5-0		59-1/2	59-1/2	25-3/16	20-1/4	3.5	16.8	2.5	3.0	LC25
5-0/5-2		59-1/2	61-1/2	25-3/16	20-1/4	3.5	17.5	2.5	3.0	LC25
5-0/5-6		59-1/2	65-1/2	25-3/16	20-1/4	3.5	18.7	2.5	3.0	LC25
5-0/6-0		59-1/2	71-1/2	25-3/16	20-1/4	3.5	20.7	2.5	3.0	LC25
5-0/6-6		59-1/2	77-1/2	25-3/16	20-1/4	3.5	22.6	2.5	3.0	LC25
5-4/4-6		63-1/2	53-1/2	27-7/16	20-1/4	3.8	16.2	2.5	3	LC25
5-4/5-0		63-1/2	59-1/2	27-7/16	20-1/4	3.8	18.3	2.5	3	LC25
5-4/5-2		63-1/2	61-1/2	27-7/16	20-1/4	3.8	19.0	2.5	3	LC25
5-4/5-6		63-1/2	65-1/2	27-7/16	20-1/4	3.8	20.4	2.5	3	LC25
5-4/6-0		63-1/2	71-1/2	27-7/16	20-1/4	3.8	22.5	2.5	3	LC25
5-4/6-6		63-1/2	77-1/2	27-7/16	20-1/4	3.8	24.6	3	3	LC25
6-0/4-6		71-1/2	53-1/2	31-7/16	20-1/4	4.4	18.8	2.5	3	LC25
6-0/5-0		71-1/2	59-1/2	31-7/16	20-1/4	4.4	21.2	2.5	3	LC25
6-0/5-2		71-1/2	61-1/2	31-7/16	20-1/4	4.4	22.0	2.5	3	LC25
6-0/5-6		71-1/2	65-1/2	31-7/16	20-1/4	4.4	23.6	2.5	3	LC25
6-0/6-0		71-1/2	71-1/2	31-7/16	20-1/4	4.4	26.0	3	3	LC25
6-0/6-6		71-1/2	77-1/2	31-7/16	20-1/4	4.4	28.5	3	3	LC25
6-8/4-6		79-1/2	53-1/2	35-7/16	20-1/4	4.9	21.3	2.5	3	LC25
6-8/5-0		79-1/2	59-1/2	35-7/16	20-1/4	4.9	24.1	2.5	3	LC25
6-8/5-2		79-1/2	61-1/2	35-7/16	20-1/4	4.9	25.0	2.5	3	LC25
6-8/5-6		79-1/2	65-1/2	35-7/16	20-1/4	4.9	26.9	3	3	LC25
6-8/6-0		79-1/2	71-1/2	35-7/16	20-1/4	4.9	29.6	3	3	LC25
6-8/6-6		79-1/2	77-1/2	35-7/16	20-1/4	4.9	32.4	3	3	LC25
7-0/4-6		83-1/2	53-1/2	37-7/16	20-1/4	5.2	22.6	2.5	3	LC25
7-0/5-0		83-1/2	59-1/2	37-7/16	20-1/4	5.2	25.6	2.5	3	LC25
7-0/5-2		83-1/2	61-1/2	37-7/16	20-1/4	5.2	26.5	2.5	3	LC25
7-0/5-6		83-1/2	65-1/2	37-7/16	20-1/4	5.2	28.5	3	3	LC25
7-0/6-0		83-1/2	71-1/2	37-7/16	20-1/4	5.2	31.4	3	3	LC25
7-0/6-6		83-1/2	77-1/2	37-7/16	20-1/4	5.2	34.3	3	3	LC25
8-0/4-6		95-1/2	53-1/2	43-7/16	20-1/4	6.0	26.5	2.5	3	LC25
8-0/5-0		95-1/2	59-1/2	43-7/16	20-1/4	6.0	29.9	3	3	LC25
8-0/5-2		95-1/2	61-1/2	43-7/16	20-1/4	6.0	31.1	3	3	LC25
8-0/5-6		95-1/2	65-1/2	43-7/16	20-1/4	6.0	33.3	3	3	LC25
8-0/6-0		95-1/2	71-1/2	43-7/16	20-1/4	6.0	36.8	3	3	LC25
8-0/6-6		95-1/2	77-1/2	43-7/16	20-1/4	6.0	40.2	3	3	LC25

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

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



SINGLE-HUNG

DESIGN DATA

24" Lower Sash

3-Wide Vent Units



3-WIDE-VENT-UNIT-COMPOSITES-WITH-INTEGRAL-MULLION - 24" LOWER SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ₁
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	Standard
4-6/4-6		53-1/2	53-1/2	13-7/16	20-1/4	1.8	10.7	2.5	3	LC25
4-6/5-0		53-1/2	59-1/2	13-7/16	20-1/4	1.8	12.1	2.5	3	LC25
4-6/5-2		53-1/2	61-1/2	13-7/16	20-1/4	1.8	12.6	2.5	3	LC25
4-6/5-6		53-1/2	65-1/2	13-7/16	20-1/4	1.8	13.5	2.5	3	LC25
4-6/6-0		53-1/2	71-1/2	13-7/16	20-1/4	1.8	14.9	2.5	3	LC25
4-6/6-6		53-1/2	77-1/2	13-7/16	20-1/4	1.8	16.3	2.5	3	LC25
6-0/4-6		71-1/2	53-1/2	19-7/16	20-1/4	2.7	16.5	2.5	3	LC25
6-0/5-0		71-1/2	59-1/2	19-7/16	20-1/4	2.7	18.7	2.5	3	LC25
6-0/5-2		71-1/2	61-1/2	19-7/16	20-1/4	2.7	19.4	2.5	3	LC25
6-0/5-6		71-1/2	65-1/2	19-7/16	20-1/4	2.7	20.8	2.5	3	LC25
6-0/6-0		71-1/2	71-1/2	19-7/16	20-1/4	2.7	23.0	2.5	3	LC25
6-0/6-6		71-1/2	77-1/2	19-7/16	20-1/4	2.7	25.1	2.5	3	LC25
7-0/4-6		83-1/2	53-1/2	23-7/16	20-1/4	3.2	20.4	2.5	3	LC25
7-0/5-0		83-1/2	59-1/2	23-7/16	20-1/4	3.2	23.1	2.5	3	LC25
7-0/5-2		83-1/2	61-1/2	23-7/16	20-1/4	3.2	23.9	2.5	3	LC25
7-0/5-6		83-1/2	65-1/2	23-7/16	20-1/4	3.2	25.7	2.5	3	LC25
7-0/6-0		83-1/2	71-1/2	23-7/16	20-1/4	3.2	28.3	2.5	3	LC25
7-0/6-6		83-1/2	77-1/2	23-7/16	20-1/4	3.2	31.0	2.5	3	LC25
7-6/4-6		89-1/2	53-1/2	24-3/4	20-1/4	3.4	22.3	2.5	3	LC25
7-6/5-0		89-1/2	59-1/2	24-3/4	20-1/4	3.4	25.2	2.5	3	LC25
7-6/5-2		89-1/2	61-1/2	24-3/4	20-1/4	3.4	26.2	2.5	3	LC25
7-6/5-6		89-1/2	65-1/2	24-3/4	20-1/4	3.4	28.1	2.5	3	LC25
7-6/6-0		89-1/2	71-1/2	24-3/4	20-1/4	3.4	31.0	2.5	3	LC25
7-6/6-6		89-1/2	77-1/2	24-3/4	20-1/4	3.4	33.9	2.5	3	LC25
8-0/4-6		95-1/2	53-1/2	27-7/16	20-1/4	3.8	24.3	2.5	3	LC25
8-0/5-0		95-1/2	59-1/2	27-7/16	20-1/4	3.8	27.4	2.5	3	LC25
8-0/5-2		95-1/2	61-1/2	27-7/16	20-1/4	3.8	28.5	2.5	3	LC25
8-0/5-6		95-1/2	65-1/2	27-7/16	20-1/4	3.8	30.6	2.5	3	LC25
8-0/6-0		95-1/2	71-1/2	27-7/16	20-1/4	3.8	33.7	2.5	3	LC25
8-0/6-6		95-1/2	77-1/2	27-7/16	20-1/4	3.8	36.8	3	3	LC25
9-0/4-6		107-1/2	53-1/2	31-7/16	20-1/4	4.4	28.1	2.5	3	LC25
9-0/5-0		107-1/2	59-1/2	31-7/16	20-1/4	4.4	31.8	2.5	3	LC25
9-0/5-2		107-1/2	61-1/2	31-7/16	20-1/4	4.4	33	2.5	3	LC25
9-0/5-6		107-1/2	65-1/2	31-7/16	20-1/4	4.4	35.4	2.5	3	LC25
9-0/6-0		107-1/2	71-1/2	31-7/16	20-1/4	4.4	39.1	3	3	LC25
9-0/6-6		107-1/2	77-1/2	31-7/16	20-1/4	4.4	42.7	3	3	LC25

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

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



SINGLE-HUNG

DESIGN DATA

30" Lower Sash

Single Vent Units



1-WIDE VENT UNITS - 30" LOWER SASH

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	Standard	Upgrade
1-6/5-6		17-1/2	65-1/2	13-7/16	27-7/16	2.4	4.5	2.5	3	LC40	LC50
1-6/6-0		17-1/2	71-1/2	13-7/16	27-7/16	2.4	5.0	2.5	3	LC25	LC50
1-6/6-6		17-1/2	77-1/2	13-7/16	27-7/16	2.4	5.4	2.5	3	LC25	LC50
2-0/5-6		23-1/2	65-1/2	19-7/16	27-7/16	3.5	6.9	2.5	3	LC40	LC50
2-0/6-0		23-1/2	71-1/2	19-7/16	27-7/16	3.5	7.7	2.5	3	LC25	LC50
2-0/6-6		23-1/2	77-1/2	19-7/16	27-7/16	3.5	8.4	2.5	3	LC25	LC50
2-4/5-6		27-1/2	65-1/2	23-7/16	27-7/16	4.2	8.6	2.5	3	LC40	LC50
2-4/6-0		27-1/2	71-1/2	23-7/16	27-7/16	4.2	9.4	2.5	3	LC25	LC50
2-4/6-6		27-1/2	77-1/2	23-7/16	27-7/16	4.2	10.3	2.5	3	LC25	LC50
2-6/5-6		29-1/2	65-1/2	25-7/16	27-7/16	4.8	9.4	2.5	3.0	LC40	LC50
2-6/6-0		29-1/2	71-1/2	25-7/16	27-7/16	4.8	10.4	2.5	3.0	LC25	LC50
2-6/6-6		29-1/2	77-1/2	25-7/16	27-7/16	4.8	11.4	2.5	3.0	LC25	LC50
2-8/5-6		31-1/2	65-1/2	27-7/16	27-7/16	4.9	10.2	2.5	3	LC40	LC50
2-8/6-0		31-1/2	71-1/2	27-7/16	27-7/16	4.9	11.2	2.5	3	LC25	LC50
2-8/6-6		31-1/2	77-1/2	27-7/16	27-7/16	4.9	12.3	2.5	3	LC25	LC50
3-0/5-6	E	35-1/2	65-1/2	31-7/16	27-7/16	5.7	11.8	2.5	3	LC40	LC50
3-0/6-0	E	35-1/2	71-1/2	31-7/16	27-7/16	5.7	13.0	2.5	3	LC25	LC50
3-0/6-6	E	35-1/2	77-1/2	31-7/16	27-7/16	5.7	14.2	3	3	LC25	LC50
3-4/5-6	E	39-1/2	65-1/2	35-7/16	27-7/16	6.4	13.4	2.5	3	LC40	LC50
3-4/6-0	E	39-1/2	71-1/2	35-7/16	27-7/16	6.4	14.8	3	3	LC25	LC50
3-4/6-6	E	39-1/2	77-1/2	35-7/16	27-7/16	6.4	16.2	3	3	LC25	LC50
3-6/5-6	E	41-1/2	65-1/2	37-7/16	27-7/16	6.8	14.2	2.5	3	LC40	LC50
3-6/6-0	E	41-1/2	71-1/2	37-7/16	27-7/16	6.8	15.7	3	3	LC25	LC50
3-6/6-6	E	41-1/2	77-1/2	37-7/16	27-7/16	6.8	17.2	3	3	LC25	LC50
4-0/5-6	E	47-1/2	65-1/2	43-7/16	27-7/16	7.9	16.7	3	3	LC40	LC50
4-0/6-0	E	47-1/2	71-1/2	43-7/16	27-7/16	7.9	18.4	3	3	LC25	LC50
4-0/6-6	E	47-1/2	77-1/2	43-7/16	27-7/16	7.9	20.1	3	3	LC25	LC50

Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

Autolock hardware is not compatible with Maximum opening hardware.

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

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

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



SINGLE-HUNG

DESIGN DATA

30" Lower Sash

2-Wide Vent Units

**2-WIDE-VENT-UNIT-COMPOSITES-WITH-INTEGRAL-MULLION - 30" LOWER SASH**

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	Standard
3-0/5-6		35-1/2	65-1/2	13-7/16	27-7/16	2.4	9.0	2.5	3	LC25
3-0/6-0		35-1/2	71-1/2	13-7/16	27-7/16	2.4	9.9	2.5	3	LC25
3-0/6-6		35-1/2	77-1/2	13-7/16	27-7/16	2.4	10.9	2.5	3	LC25
4-0/5-6		47-1/2	65-1/2	19-7/16	27-7/16	3.5	13.9	2.5	3	LC25
4-0/6-0		47-1/2	71-1/2	19-7/16	27-7/16	3.5	15.3	2.5	3	LC25
4-0/6-6		47-1/2	77-1/2	19-7/16	27-7/16	3.5	16.7	2.5	3	LC25
4-8/5-6		55-1/2	65-1/2	23-7/16	27-7/16	4.2	17.1	2.5	3	LC25
4-8/6-0		55-1/2	71-1/2	23-7/16	27-7/16	4.2	18.9	2.5	3	LC25
4-8/6-6		55-1/2	77-1/2	23-7/16	27-7/16	4.2	20.6	2.5	3	LC25
5-0/5-6		59-1/2	65-1/2	25-3/16	27-7/16	4.8	19.3	2.5	3.0	LC25
5-0/6-0		59-1/2	71-1/2	25-3/16	27-7/16	4.8	21.3	2.5	3.0	LC25
5-0/6-6		59-1/2	77-1/2	25-3/16	27-7/16	4.8	23.3	2.5	3.0	LC25
5-4/5-6		63-1/2	65-1/2	27-7/16	27-7/16	4.9	20.4	2.5	3	LC25
5-4/6-0		63-1/2	71-1/2	27-7/16	27-7/16	4.9	22.5	2.5	3	LC25
5-4/6-6		63-1/2	77-1/2	27-7/16	27-7/16	4.9	24.6	2.5	3	LC25
6-0/5-6	E	71-1/2	65-1/2	31-7/16	27-7/16	5.7	23.6	2.5	3	LC25
6-0/6-0	E	71-1/2	71-1/2	31-7/16	27-7/16	5.7	26.0	2.5	3	LC25
6-0/6-6	E	71-1/2	77-1/2	31-7/16	27-7/16	5.7	28.5	3	3	LC25
6-8/5-6	E	79-1/2	65-1/2	35-7/16	27-7/16	6.4	26.9	2.5	3	LC25
6-8/6-0	E	79-1/2	71-1/2	35-7/16	27-7/16	6.4	29.6	3	3	LC25
6-8/6-6	E	79-1/2	77-1/2	35-7/16	27-7/16	6.4	32.4	3	3	LC25
7-0/5-6	E	83-1/2	65-1/2	37-7/16	27-7/16	6.8	28.5	2.5	3	LC25
7-0/6-0	E	83-1/2	71-1/2	37-7/16	27-7/16	6.8	31.4	3	3	LC25
7-0/6-6	E	83-1/2	77-1/2	37-7/16	27-7/16	6.8	34.3	3	3	LC25
8-0/5-6	E	95-1/2	65-1/2	43-7/16	27-7/16	7.9	33.3	3	3	LC25
8-0/6-0	E	95-1/2	71-1/2	43-7/16	27-7/16	7.9	36.8	3	3	LC25
8-0/6-6	E	95-1/2	77-1/2	43-7/16	27-7/16	7.9	40.2	3	3	LC25

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.

Autolock hardware is not compatible with Maximum opening hardware.

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

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

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



SINGLE-HUNG

DESIGN DATA

30" Lower Sash

3-Wide Vent Units

**3-WIDE-VENT-UNIT-COMPOSITES-WITH-INTEGRAL-MULLION -30" LOWER SASH**

Unit	Egress	Frame		Clear Opening (Vent Units Only)			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Ft²		Annealed	Tempered	
4-6/5-6		53-1/2	65-1/2	13-7/16	27-7/16	2.4	13.5	2.5	3	LC25
4-6/6-0		53-1/2	71-1/2	13-7/16	27-7/16	2.4	14.9	2.5	3	LC25
4-6/6-6		53-1/2	77-1/2	13-7/16	27-7/16	2.4	16.3	2.5	3	LC25
6-0/5-6		71-1/2	65-1/2	19-7/16	27-7/16	3.5	20.8	2.5	3	LC25
6-0/6-0		71-1/2	71-1/2	19-7/16	27-7/16	3.5	23.0	2.5	3	LC25
6-0/6-6		71-1/2	77-1/2	19-7/16	27-7/16	3.5	25.1	2.5	3	LC25
7-0/5-6		83-1/2	65-1/2	23-7/16	27-7/16	4.2	25.7	2.5	3	LC25
7-0/6-0		83-1/2	71-1/2	23-7/16	27-7/16	4.2	28.3	2.5	3	LC25
7-0/6-6		83-1/2	77-1/2	23-7/16	27-7/16	4.2	31.0	2.5	3	LC25
7-6/5-6		89-1/2	65-1/2	24-3/4	27-7/16	4.7	29.2	2.5	3.0	LC25
7-6/6-0		89-1/2	71-1/2	24-3/4	27-7/16	4.7	32.2	2.5	3.0	LC25
7-6/6-6		89-1/2	77-1/2	24-3/4	27-7/16	4.7	35.2	2.5	3.0	LC25
8-0/5-6		95-1/2	65-1/2	27-7/16	27-7/16	4.9	30.6	2.5	3	LC25
8-0/6-0		95-1/2	71-1/2	27-7/16	27-7/16	4.9	33.7	2.5	3	LC25
8-0/6-6		95-1/2	77-1/2	27-7/16	27-7/16	4.9	36.8	2.5	3	LC25
9-0/5-6	E	107-1/2	65-1/2	31-7/16	27-7/16	5.7	35.4	2.5	3	LC25
9-0/6-0	E	107-1/2	71-1/2	31-7/16	27-7/16	5.7	39.1	2.5	3	LC25
9-0/6-6	E	107-1/2	77-1/2	31-7/16	27-7/16	5.7	42.7	3	3	LC25

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.

Autolock hardware is not compatible with Maximum opening hardware.

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

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

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



SINGLE-HUNG

DESIGN DATA

Equal Sash

5/8" Integral Flange



FIXED UNITS

Call Out	Egress	Frame		Clear Opening			Visible Glass Ft²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Width (Inches)	Height (Inches)	Width (Inches)	Height (Inches)	Area Ft²		Annealed	Tempered	Standard	High Performance
FL-12		18-1/8	25	14-1/8	4-7/8	0.4	2.1	2.5	3	LC40	LC60
FL-13		18-1/8	37-3/8	14-1/8	4-7/8	0.4	3.3	2.5	3	LC40	LC60
FL-14		18-1/8	49-5/8	14-1/8	4-7/8	0.4	4.5	2.5	3	LC40	LC60
FL-15		18-1/8	62	14-1/8	4-7/8	0.4	5.7	3	3	LC40	LC60
FL-16		18-1/8	75	14-1/8	4-7/8	0.4	7.0	3	3	LC40	LC60
FL-H32		25-1/2	25	21-1/2	8-1/2	1.2	3.2	2.5	3	LC40	LC60
FL-H33		25-1/2	37-3/8	21-1/2	8-1/2	1.2	5.0	2.5	3	LC40	LC60
FL-H34		25-1/2	49-5/8	21-1/2	8-1/2	1.2	6.8	3	3	LC40	LC60
FL-H35		25-1/2	62	21-1/2	8-1/2	1.2	8.7	3	3	LC40	LC60
FL-H36		25-1/2	75	21-1/2	8-1/2	1.2	10.6	3	3	LC40	LC60
FL-22		36	25	31-15/16	13-13/16	3.0	4.7	2.5	3	LC40	LC60
FL-23		36	37-3/8	31-15/16	13-13/16	3.0	7.4	2.5	3	LC40	LC60
FL-24		36	49-5/8	31-15/16	13-13/16	3.0	10.2	3	3	LC40	LC60
FL-25		36	62	31-15/16	13-13/16	3.0	12.9	3	3	LC40	LC60
FL-26		36	75	31-15/16	13-13/16	3.0	15.8	5	5	LC40	LC60
FL-32		52-1/8	25	48-1/8	21-7/8	7.2	7.0	3	3	LC25	LC50
FL-33		52-1/8	37-3/8	48-1/8	21-7/8	7.2	11.2	3	3	LC25	LC50
FL-34		52-1/8	49-5/8	48-1/8	21-7/8	7.2	15.3	5	5	LC25	LC50
FL-35		52-1/8	62	48-1/8	21-7/8	7.2	19.4	5	5	LC25	LC50
FL-36		52-1/8	75	48-1/8	21-7/8	7.2	23.8	5	5	LC25	LC50

(1) Maximum performance when glazed with the appropriate glass thickness.
To convert areas to square meters (m²), multiply square feet by 0.0929.



SINGLE-HUNG

DETAILED PRODUCT DESCRIPTIONS



FRAME

- Overall frame depth: 4-1/2" on all frame types except the 3-1/4" Block Pocket Replacement frame. The 3-1/4" Block Pocket Replacement frame has an overall frame depth of 4-7/8" for single-hung units.
- Frame members are mitered and heat fused to provide a fully welded corner assembly with virtually invisible SmoothSeam™ interior corner welds. Sill is fitted with weeps.
- Frame: [1-7/16" setback nail fin for 3-1/16" wall depth] [Block frame for 4-1/2" wall depth] [Block frame for 3-1/4" Block Pocket Replacement install] [Flush flange for 4-1/16" wall depth] [Integral flange for 3-7/8" wall depth].
- Interior and exterior frame surfaces are extruded rigid PVC.

SASH

- Sash members are extruded, rigid PVC [with optional foam insulation¹].
- Sash members are mitered and heat-fused to provide a fully welded corner assembly with virtually invisible SmoothSeam™ interior corner welds.
- Includes an integral extruded sash lift as standard. Surface mounted sash lifts are optional; if ordered the sash will come without an integral sash lift and will be reinforced with PVC inside the sash to screw the surface mounted sash lift into place.
- Contains sealed insulating glass.

WEATHERSTRIPPING

- Sash is weatherstripped around the sash perimeter with a fin-type, pile weather stripping and vinyl wrapped foam weatherstrip.

GLAZING SYSTEM

- Quality float glass complying with ASTM C 1036.
- Exterior face-glazed sealed insulating glass.
- [11/16"] [1"] Dual-Pane annealed [Advanced Low-E coated [with Argon]] [NaturalSun Low-E coated [with Argon]] [SunDefense™ Low-E coated [with Argon]] [Bronze, Advanced Low-E coated [with Argon]] [Gray Low-E coated [with Argon]] [Obscure³] [High Altitude²] [Tempered].
-or-
- 1-1/4" Triple-Pane annealed [Advanced Low-E coated with Argon] [NaturalSun Low-E coated with Argon] [Obscure³] [High Altitude²] [Tempered].
-or-
- Silicone-glazed 1" dual-pane impact-resistant insulating glass PVB. Laminated [clear] [Bronze²] [Opaque³] interior light. [Tempered] [Annealed] exterior light is [Advanced Low-E coated [with argon]] [SunDefense™ Low-E coated [with argon]] [Gray Low-E coated with argon]] [High Altitude¹].

INTERIOR / EXTERIOR

- All window frame members have an integral color extruded throughout the profiles.
- All exposed PVC surfaces are smooth, glossy and uniform in appearance.
- Frame color: [White] [Almond] [Brown exterior / White interior].

HARDWARE

- Galvanized block-and-tackle balances connected to sash with polyester cord and concealed within the frame.
- All fasteners are corrosion-resistant material compatible with PVC.
- Locks are factory-installed, zinc die cast, self-aligning, [cam action lock] [autolock] located on the check rail. Two sash locks are installed on units with 29-1/2" or greater frame width.
- Hardware finish is [White] [Almond] [Bright Brass] [Satin Nickel] [Oil-Rubbed Bronze].
- Tilt latches are factory installed, [Standard performance: glass filled nylon] [Performance upgrade or max opening hardware option: zinc die cast] and are located on the check rail of the lower sash. All tilt latch operators are glass filled nylon, color matched to the unit

SCREENS

- Set in aluminum frame and fitted to exterior of window.
- Screen frame finish is baked enamel, color to match exterior
- Screens for window with frame height ≤ 51-1/2" have one plunger per side, screens for windows with frame height > 51-1/2" have two plungers per side. Supplied complete with all necessary hardware.
- Conventional Black Fiberglass
 - Black vinyl coated 18/16 mesh fiberglass screen cloth complying with ASTM D 3656 and SMA 1201.
- or-
- InView™ Screens
 - Black vinyl coated 18/18 mesh fiberglass screen cloth complying with SMA 1201.

OPTIONAL PRODUCTS

Grilles

- Grilles-Between-the-Glass
 - Insulating glass contains [3/4"] [1"] contoured aluminum grilles permanently installed between two panes of glass.
 - Patterns are [Traditional] [6-Lite Prairie] [9-Lite Prairie] [Top Row] [Custom-Equally Divided].
 - Grilles match color of interior and exterior frame.
 - Available on units glazed with dual-pane and triple-pane insulated glass.
- Simulated-Divided-Light grilles without spacer
 - 7/8" grilles permanently bonded to the interior and exterior of glass.
 - Patterns are [Traditional] [6-Lite Prairie] [9-Lite Prairie] [Top Row] [Custom-Equally Divided].
 - Grilles match color of interior and exterior frame
 - Available only on units glazed with dual-pane insulated glass.

Hardware

- Optional Surface Mounted Sash Lift(s) furnished for field installation located on the bottom rail of the lower sash. Two sash lifts are furnished on units with 29-1/2" or greater frame width.
- Optional limited opening hardware available for vent units in [White] [Almond] extruded vinyl to match the unit; nominal 3-3/4" opening.
- Optional window opening control device available for field installation. Device allows window to open less than 4" with normal operation, with a release mechanism that allows the sash to open completely. Complies with ASTM F2090-10.

(1) Not available with performance upgrade.

(2) Dual-Pane IG High Altitude glazings are available with or without Argon. Triple-Pane IG High Altitude glazings are only available without Argon.

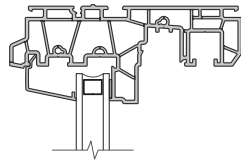
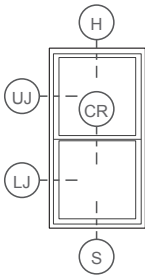
(3) Obscure glass not available with Bronze Advanced Low-E.



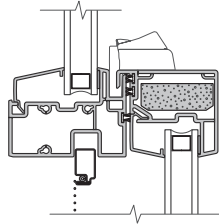
SINGLE-HUNG

UNIT SECTIONS

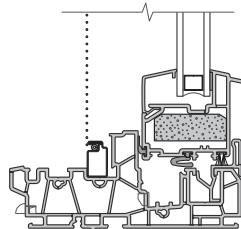
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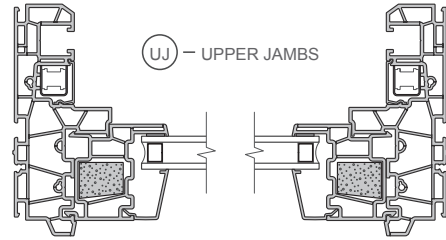
H — HEAD



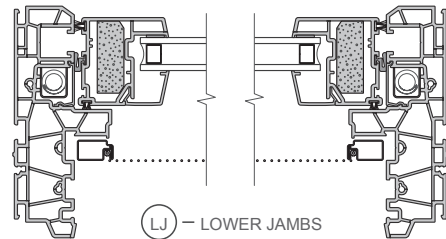
CR — CHECK RAIL



S — SILL



UJ — UPPER JAMBS



LJ — LOWER JAMBS

Scale 3" = 1' 0"

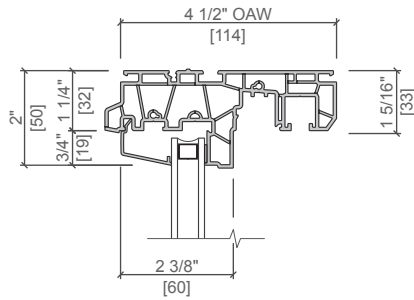
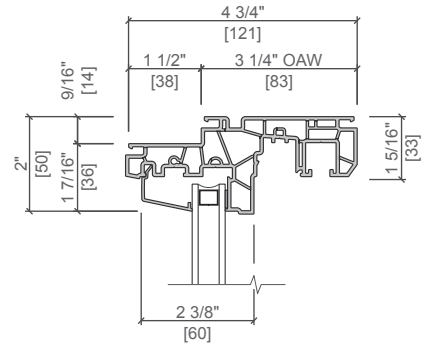
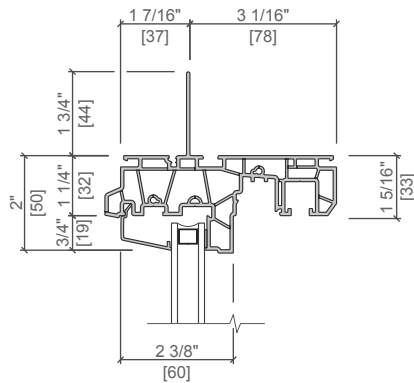
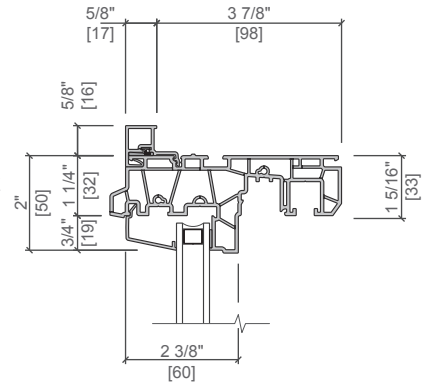
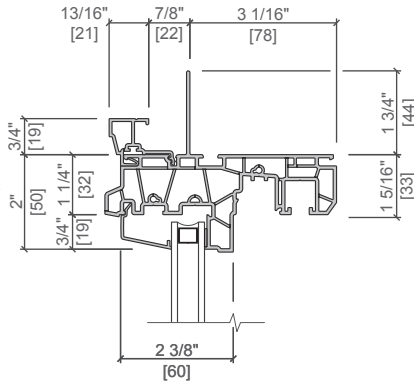
All dimensions are approximate.



SINGLE-HUNG

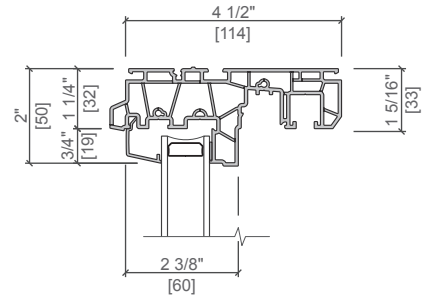
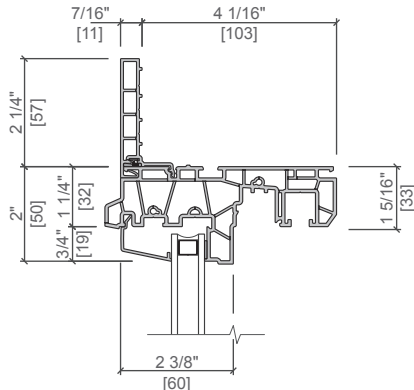
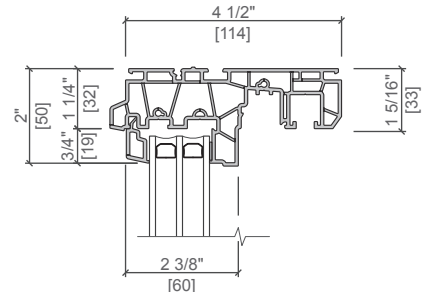
UNIT SECTIONS

Installation Types


STANDARD
BLOCK FRAME

POCKET
REPLACEMENT

STANDARD
NAIL FIN

BLOCK FRAME with
5/8" INTEGRAL FLANGE

NAIL FIN
with J-CHANNEL


Additional Glazing Options

1" Insulating Glass


DOUBLE WALL
FLUSH FLANGE

1 1/4" TRIPLE
PANE IG


Scale 3" = 1' 0"

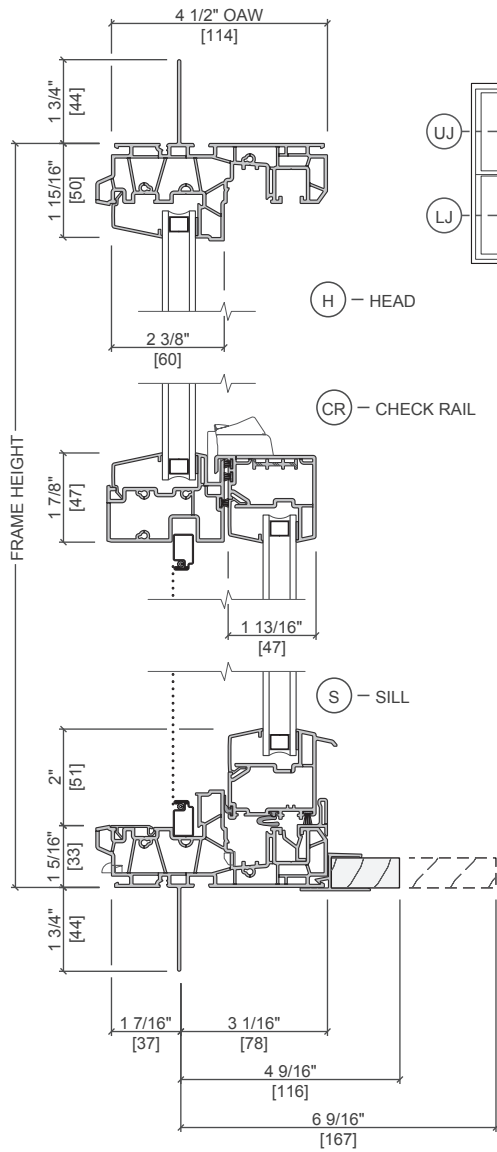
All dimensions are approximate.



SINGLE-HUNG

UNIT SECTIONS

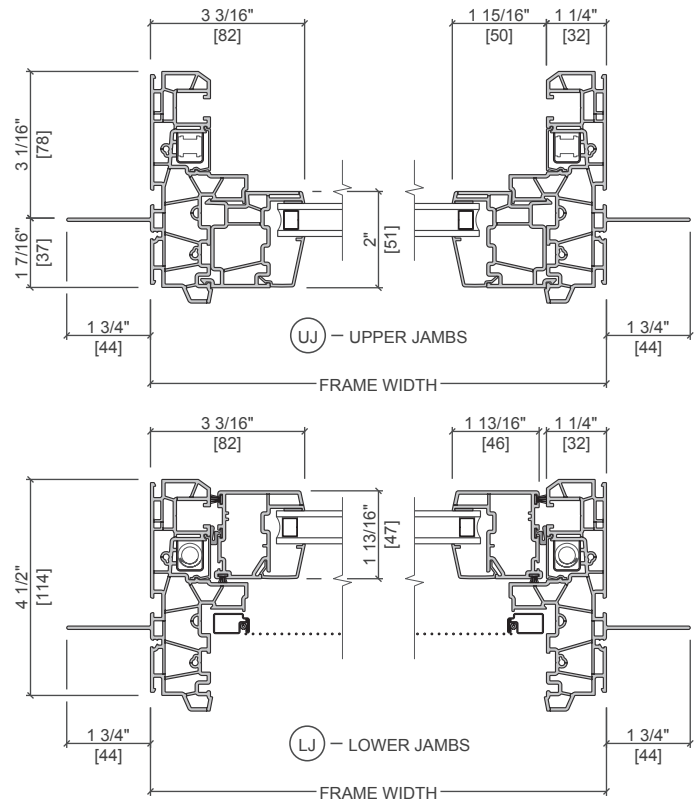
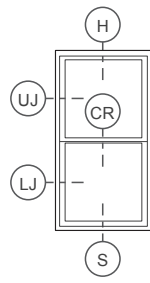
Standard Nail Fin



(H) — HEAD

(CR) — CHECK RAIL

(S) — SILL

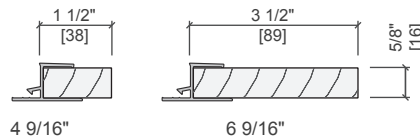


(UJ) — UPPER JAMBS

(LJ) — LOWER JAMBS

FRAME WIDTH

FRAME WIDTH



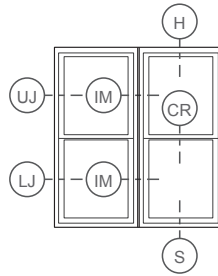
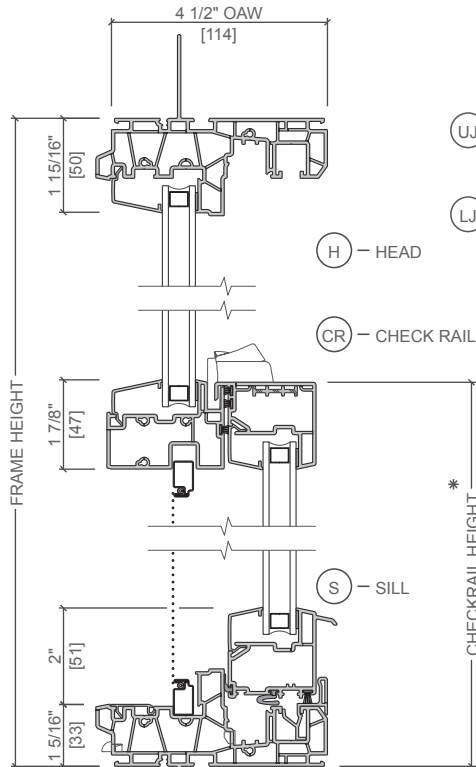
Optional Factory Applied Wood Jamb Extensions



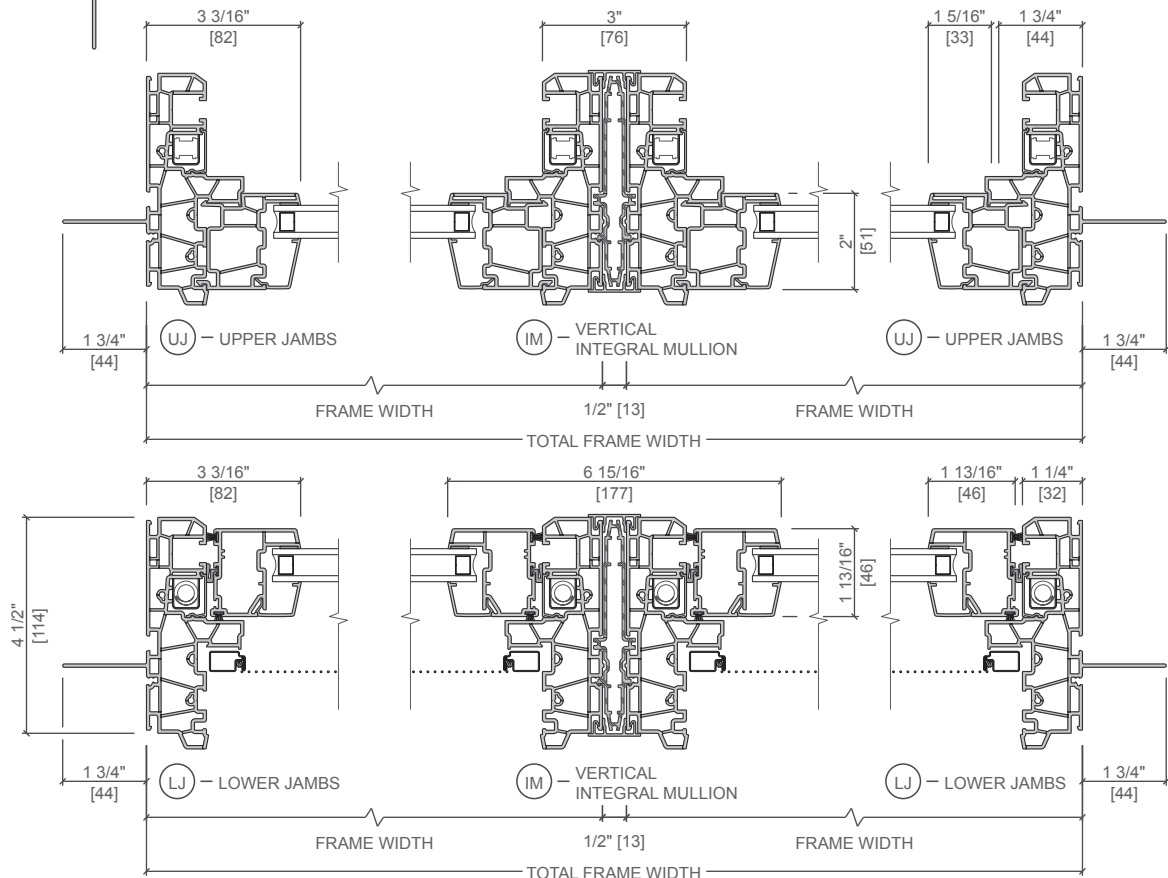
SINGLE-HUNG

UNIT SECTIONS

Integral Mullion with Standard Nail Fin



* Dimension required for ordering units with unequal sash.



Scale 3" = 1' 0"

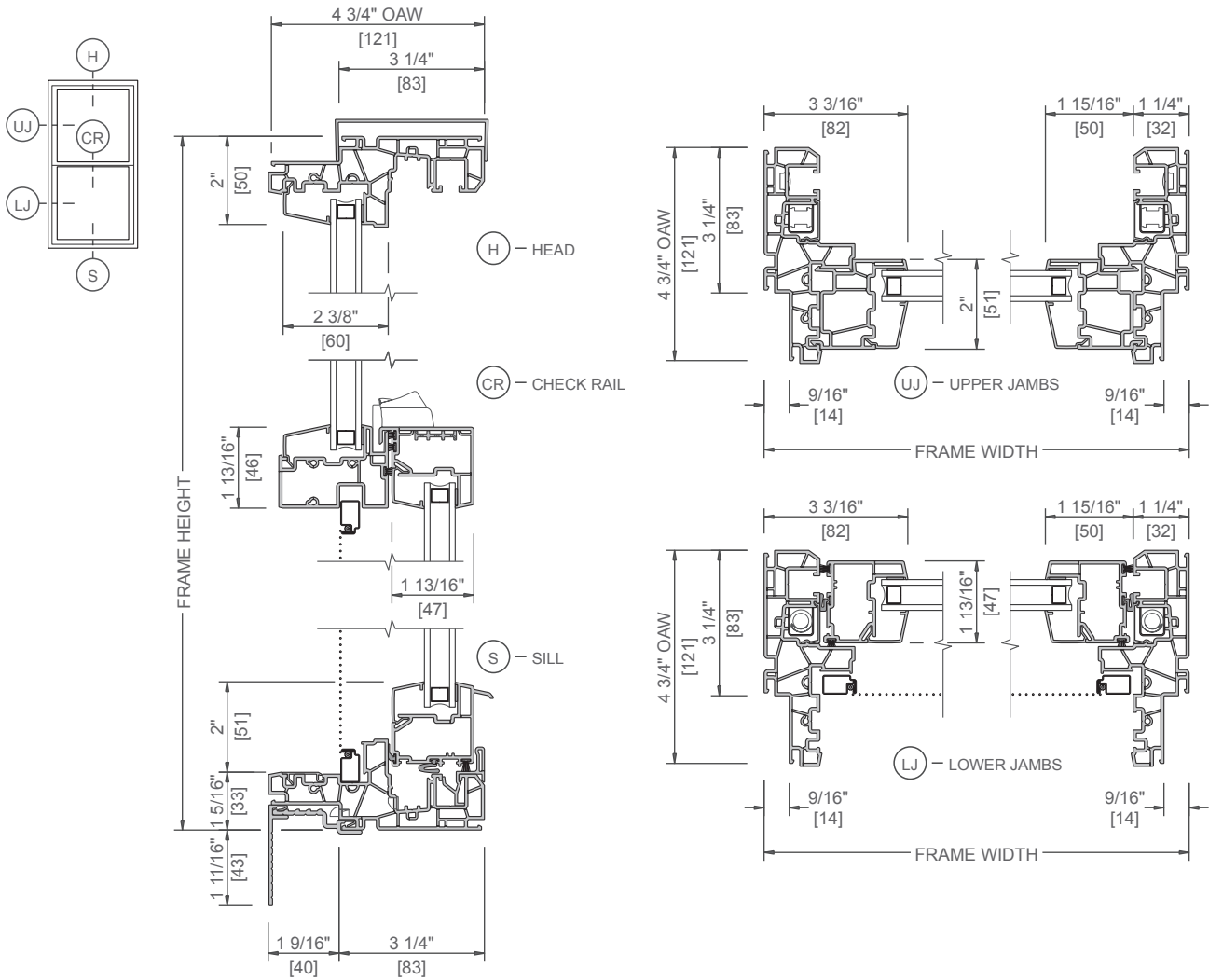
All dimensions are approximate.



SINGLE-HUNG

UNIT SECTIONS

Block Pocket Replacement Frame



Scale 3" = 1' 0"

All dimensions are approximate.