



Product Selection Guide

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Supporting documents for this product:

Test Reports:

https://media.pella.com/professional/adm/CertificationReports/Test_Reports_Vinyl-250.pdf?utm_source=pdfdoc

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

https://media.pella.com/professional/adm/Vinyl250-CSI_Specs/08_53_13_SH-250.rtf?utm_source=pdfdoc

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

https://media.pella.com/professional/adm/Vinyl250/V_250SH_DPD.rtf?utm_source=pdfdoc

Size Tables (requires appropriate CAD software to read and use):

https://media.pella.com/professional/adm/Vinyl250/V250-SH-Elev_D.dwg?utm_source=pdfdoc

CAD cross sections (requires appropriate CAD software to read and use):

https://media.pella.com/professional/adm/Vinyl250/V250-Single-Hung-Details_D.dwg?utm_source=pdfdoc

3D & BIM (requires appropriate software to read and use):

https://media.pella.com/professional/adm/RevitFiles/250-Revit/Window-Single_Hung-Pella-250.zip?utm_source=pdfdoc

Sketchup (requires appropriate software to read and use):

https://media.pella.com/professional/adm/Vinyl250/PellaSKP_250Series_Single-Hung.zip?utm_source=pdfdoc

Combination Recommendations:

https://media.pella.com/professional/adm/Vinyl250/V250_Combo.pdf?utm_source=pdfdoc

Installation Details:

https://media.pella.com/professional/adm/Vinyl250/V250-InstallDetails.pdf?utm_source=pdfdoc

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250 Series Single-Hung

Performance Data

Single-Hung	
Sizes	
Standard Sizes	S
Special Sizes Available Built on 1/8" Increments	O
Curve Top Shapes	O
Frames	
Nail Fin Only	O
Nail Fin with J-Channel	O
Nail Fin with Flat Casing (Northeast region only)	O
3-1/4" Block/ Replacement	S
Double Wall Flush Flange (West Region Only)	O
Integral 5/8" Flange	O
Performance₁	
Standard Performance	
Meets or Exceeds AAMA/WDMA Ratings	R-PG35 AAMA Certified
Air Infiltration (cfm/ft ² of frame @ 1.57 psf wind pressure.)	0.14
Design Pressure	35 psf
Water Penetration Resistance	5.43 psf
Performance Upgrade	
Meets or Exceeds AAMA/WDMA Ratings	R-PG50 AAMA Certified
Air Infiltration (cfm/ft ² of frame @ 1.57 psf wind pressure.) ₂	0.14
Design Pressure	50 psf
Water Penetration Resistance	7.52 psf
Nail Fin with Flat Casing (Northeast Region Only)	
Meets or Exceeds AAMA/WDMA Ratings	R-PG15 — R-PG35 AAMA Certified
Air Infiltration (cfm/ft ² of frame @ 1.57 psf wind pressure.)	0.13
Design Pressure	15 psf
Water Penetration Resistance	5.43 psf
Other Performance Criteria	
Forced Entry Resistance (Minimum Security Grade) ₃	40
Operating Force (lb) Initiate Motion / Maintain Motion (of AAMA tested size and glazing) ₄	35

Sound Transmission Class and Outdoor-Indoor Transmission Class

Frame Size Tested ₅	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	—	25	22
Single-Hung – Triple-Pane Insulating Glass						
48" x 60"	1"	3mm	3mm	3mm	28	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) Published performance data for air infiltration is determined by testing a minimum of four

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

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

(4) Glazing configurations may result in higher operational forces.

(5) 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.



250 Series Single-Hung

Features and Options

	Single-Hung
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
NaturalSun+ Low-E ₁	O
SunDefense™ Low-E ₁	O
SunDefense+ Low-E ₁	O
Additional Glazing Options	
Annealed glass	S
Tempered glass	O
Bronze-tinted Advanced Low-E ₁	O
Obscure glass ₂	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 Interior/White Exterior	S
Almond Interior/Almond Exterior	O
Fossil Interior/Fossil Exterior	O
White Interior/Brown Exterior ₃	O
White Interior/Black Exterior ₃	O

	Single-Hung
Hardware	
Color matched hardware	S
Sash Locks	
Standard Cam Lock	S
Autolock	O
Tilt-Wash Cleaning	
Bottom sash tilts to the interior	S
Screens	
InView™ flat screen	S
Hidden screens	O
Grilles	
Grilles-Between-the-Glass₃	
3/4" Contour	O
5/8" flat	O
Grille Patterns: Traditional, Prairie, Top Row, Custom - Equally Divided	O

S = Standard; O = Optional

(1) Not available with triple-pane glazing.

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

(3) Not available at launch for Nail Fin with flat casing option, contact your local sales representative for current offering.



250 Series Single-Hung

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S.				Canada ₂	
										Zone				ER	Zone
Vent – Dual-Pane										N	NC	SC	S	CA	
3/4"	Advanced Low-E IG	PEL-A-293-00182-00003	3	3	air	0.32	0.29	0.55	55						
	with SDL or grilles-between-the-glass	PEL-A-293-00182-00004				0.32	0.26	0.49	55						
3/4"	Advanced Low-E IG	PEL-A-293-00185-00003	3	3	argon	0.28	0.29	0.55	58						
	with SDL or grilles-between-the-glass	PEL-A-293-00185-00004				0.28	0.26	0.49	58						
3/4"	NaturalSun Low-E IG	PEL-A-293-00181-00003	3	3	air	0.33	0.51	0.62	54						
	with SDL or grilles-between-the-glass	PEL-A-293-00181-00004				0.33	0.46	0.55	54						
3/4"	NaturalSun Low-E IG	PEL-A-293-00184-00003	3	3	argon	0.29	0.51	0.62	57						
	with SDL or grilles-between-the-glass	PEL-A-293-00184-00004				0.29	0.46	0.55	57						
3/4"	NaturalSun+ Low-E IG	PEL-A-293-00379-00001	3	3	argon	0.25	0.49	0.61	45	N				35	CA
	with SDL or grilles-between-the-glass	PEL-A-293-00379-00002				0.25	0.44	0.54	45	N					
3/4"	SunDefense™ Low-E IG	PEL-A-293-00183-00003	3	3	air	0.31	0.22	0.51	55				S		
	with SDL or grilles-between-the-glass	PEL-A-293-00183-00004				0.31	0.20	0.45	55				S		
3/4"	SunDefense Low-E IG	PEL-A-293-00186-00003	3	3	argon	0.28	0.22	0.51	58			SC	S		
	with SDL or grilles-between-the-glass	PEL-A-293-00186-00004				0.28	0.20	0.45	58			SC	S		
3/4"	SunDefense+ Low-E IG	PEL-A-293-00380-00001	3	3	argon	0.24	0.21	0.49	47		NC	SC	S		
	with SDL or grilles-between-the-glass	PEL-A-293-00380-00002				0.24	0.19	0.44	47		NC	SC	S		
Vent – with Foam Insulation															
3/4"	Advanced Low-E IG	PEL-A-293-00280-00003	3	3	air	0.31	0.29	0.55	55						
	with SDL or grilles-between-the-glass	PEL-A-293-00280-00004				0.31	0.26	0.49	55						
3/4"	Advanced Low-E IG	PEL-A-293-00283-00003	3	3	argon	0.27	0.29	0.55	58						
	with SDL or grilles-between-the-glass	PEL-A-293-00283-00004				0.27	0.26	0.49	58						
3/4"	NaturalSun Low-E IG	PEL-A-293-00279-00003	3	3	air	0.32	0.51	0.62	54						
	with SDL or grilles-between-the-glass	PEL-A-293-00279-00004				0.32	0.46	0.55	54						
3/4"	NaturalSun Low-E IG	PEL-A-293-00282-00003	3	3	argon	0.28	0.51	0.62	57						
	with SDL or grilles-between-the-glass	PEL-A-293-00282-00004				0.28	0.46	0.55	57						
3/4"	NaturalSun+ Low-E IG	PEL-A-293-00407-00001	3	3	argon	0.24	0.49	0.61	46	N				36	CA
	with SDL or grilles-between-the-glass	PEL-A-293-00407-00002				0.24	0.44	0.54	46	N				34	CA
3/4"	SunDefense™ Low-E IG	PEL-A-293-00281-00003	3	3	air	0.30	0.22	0.51	55				S		
	with SDL or grilles-between-the-glass	PEL-A-293-00281-00004				0.30	0.20	0.45	55				S		
3/4"	SunDefense Low-E IG	PEL-A-293-00284-00003	3	3	argon	0.27	0.22	0.51	59			SC	S		
	with SDL or grilles-between-the-glass	PEL-A-293-00284-00004				0.27	0.20	0.45	59			SC	S		
3/4"	SunDefense+ Low-E IG	PEL-A-293-00408-00001	3	3	argon	0.23	0.21	0.49	47		NC	SC	S		
	with SDL or grilles-between-the-glass	PEL-A-293-00408-00002				0.23	0.19	0.44	47		NC	SC	S		
Tinted Glazing															
3/4"	Bronze Advanced Low-E IG	PEL-A-293-00185-00005	3	3	argon	0.28	0.29	0.40	58						
	with SDL or grilles-between-the-glass	PEL-A-293-00185-00006				0.28	0.26	0.36	58						
Tinted Glazing – with Foam Insulation															
3/4"	Bronze Advanced Low-E IG	PEL-A-293-00283-00005	3	3	argon	0.27	0.29	0.40	58						
	with SDL or grilles-between-the-glass	PEL-A-293-00283-00006				0.27	0.26	0.36	58						

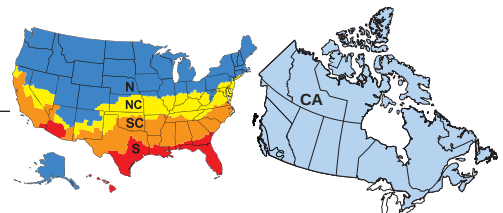
R-Value = 1/U-Factor
 SHGC = Solar Heat Gain Coefficient
 VLT % = Visible Light Transmission
 CR = Condensation Resistance
 ER = Canadian Energy Rating

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

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

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

Visit www.energystar.gov for Energy Star guidelines.





250 Series Single-Hung

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown						
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S.				Canada ₂		
										Zone	ER	Zone				
Vent – Dual-Pane with Structural Reinforcement										N	NC	SC	S	CA		
3/4"	Advanced Low-E IG	PEL-A-293-00231-00003	3	3	air	0.31	0.29	0.55	55							
	with SDL or grilles-between-the-glass	PEL-A-293-00231-00004				0.31	0.26	0.49	55							
3/4"	Advanced Low-E IG	PEL-A-293-00234-00003	3	3	argon	0.28	0.29	0.55	58							
	with SDL or grilles-between-the-glass	PEL-A-293-00234-00004				0.28	0.26	0.49	58							
3/4"	NaturalSun Low-E IG	PEL-A-293-00230-00003	3	3	air	0.32	0.51	0.62	54							
	with SDL or grilles-between-the-glass	PEL-A-293-00230-00004				0.32	0.46	0.55	54							
3/4"	NaturalSun Low-E IG	PEL-A-293-00233-00003	3	3	argon	0.29	0.51	0.62	57							
	with SDL or grilles-between-the-glass	PEL-A-293-00233-00004				0.29	0.46	0.55	57							
3/4"	NaturalSun+ Low-E IG	PEL-A-293-00393-00001	3	3	argon	0.25	0.49	0.61	45	N				35	CA	
	with SDL or grilles-between-the-glass	PEL-A-293-00393-00002				0.25	0.44	0.54	45	N						
3/4"	SunDefense™ Low-E IG	PEL-A-293-00232-00003	3	3	air	0.31	0.22	0.51	55				S			
	with SDL or grilles-between-the-glass	PEL-A-293-00232-00004				0.31	0.20	0.45	55				S			
3/4"	SunDefense Low-E IG	PEL-A-293-00235-00003	3	3	argon	0.27	0.22	0.51	59			SC	S			
	with SDL or grilles-between-the-glass	PEL-A-293-00235-00004				0.27	0.20	0.45	59			SC	S			
3/4"	SunDefense+ Low-E IG	PEL-A-293-00394-00001	3	3	argon	0.24	0.21	0.49	47		NC	SC	S			
	with SDL or grilles-between-the-glass	PEL-A-293-00394-00002				0.24	0.19	0.44	47		NC	SC	S			
Vent – Dual-Pane with Structural Reinforcement and Foam Insulation																
3/4"	Advanced Low-E IG	PEL-A-293-00329-00003	3	3	air	0.31	0.29	0.55	55							
	with SDL or grilles-between-the-glass	PEL-A-293-00329-00004				0.31	0.26	0.49	55							
3/4"	Advanced Low-E IG	PEL-A-293-00332-00003	3	3	argon	0.28	0.29	0.55	58							
	with SDL or grilles-between-the-glass	PEL-A-293-00332-00004				0.28	0.26	0.49	58							
3/4"	NaturalSun Low-E IG	PEL-A-293-00328-00003	3	3	air	0.32	0.51	0.62	54							
	with SDL or grilles-between-the-glass	PEL-A-293-00328-00004				0.32	0.46	0.55	54							
3/4"	NaturalSun Low-E IG	PEL-A-293-00331-00003	3	3	argon	0.29	0.51	0.62	57							
	with SDL or grilles-between-the-glass	PEL-A-293-00331-00004				0.29	0.46	0.55	57							
3/4"	NaturalSun+ Low-E IG	PEL-A-293-00421-00001	3	3	argon	0.24	0.49	0.61	45	N				36	CA	
	with SDL or grilles-between-the-glass	PEL-A-293-00421-00002				0.24	0.44	0.54	45	N				34	CA	
3/4"	SunDefense™ Low-E IG	PEL-A-293-00330-00003	3	3	air	0.31	0.22	0.51	55				S			
	with SDL or grilles-between-the-glass	PEL-A-293-00330-00004				0.31	0.20	0.45	55				S			
3/4"	SunDefense Low-E IG	PEL-A-293-00333-00003	3	3	argon	0.27	0.22	0.51	58			SC	S			
	with SDL or grilles-between-the-glass	PEL-A-293-00333-00004				0.27	0.20	0.45	58			SC	S			
3/4"	SunDefense+ Low-E IG	PEL-A-293-00422-00001	3	3	argon	0.23	0.21	0.49	47		NC	SC	S			
	with SDL or grilles-between-the-glass	PEL-A-293-00422-00002				0.23	0.19	0.44	47		NC	SC	S			
Tinted Glazing – with Structural Reinforcement																
3/4"	Bronze Advanced Low-E IG	PEL-A-293-00234-00005	3	3	argon	0.28	0.29	0.40	58							
	with SDL or grilles-between-the-glass	PEL-A-293-00234-00006				0.28	0.26	0.36	58							
Tinted Glazing – with Structural Reinforcement and Foam Insulation																
3/4"	Bronze Advanced Low-E IG	PEL-A-293-00332-00005	3	3	argon	0.28	0.29	0.40	58							
	with SDL or grilles-between-the-glass	PEL-A-293-00332-00006				0.28	0.26	0.36	58							

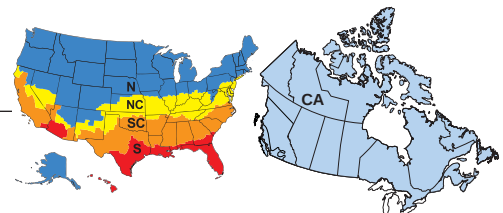
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250 Series Single-Hung

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown						
			Ext.	Middle	Int.		U-Factor	SHGC	VLT	CR	U. S.		Canada ₂				
											Zone	ER	Zone				
Vent – Triple-Pane Insulating Glass												N	NC	SC	S		CA
1"	Advanced Low-E Triple-pane IG	PEL-A-293-00198-00001	3	3	3	air	0.25	0.25	0.43	63		NC					
	with Grilles-between-the-glass	PEL-A-293-00199-00001					0.26	0.22	0.38	63			SC	S			
1"	Advanced Low-E Triple-pane IG	PEL-A-293-00202-00001	3	3	3	argon	0.22	0.25	0.43	66	N	NC					
	with Grilles-between-the-glass	PEL-A-293-00203-00001					0.22	0.22	0.38	66	N	NC	SC	S			
1"	NaturalSun Low-E Triple-pane IG	PEL-A-293-00196-00001	3	3	3	air	0.26	0.44	0.55	63	N						
	with Grilles-between-the-glass	PEL-A-293-00197-00001					0.26	0.40	0.49	63	N						
1"	NaturalSun Low-E Triple-pane IG	PEL-A-293-00200-00001	3	3	3	argon	0.22	0.44	0.55	66	N				36	CA	
	with Grilles-between-the-glass	PEL-A-293-00201-00001					0.23	0.40	0.49	66	N	NC			34	CA	
Vent – with Foam Insulation																	
1"	Advanced Low-E Triple-pane IG	PEL-A-293-00296-00001	3	3	3	air	0.24	0.25	0.43	64		NC					
	with Grilles-between-the-glass	PEL-A-293-00297-00001					0.24	0.22	0.38	63		NC	SC	S			
1"	Advanced Low-E Triple-pane IG	PEL-A-293-00300-00001	3	3	3	argon	0.20	0.25	0.43	67	N	NC			28	CA	
	with Grilles-between-the-glass	PEL-A-293-00301-00001					0.21	0.22	0.38	67	N	NC	SC	S	25	CA	
1"	NaturalSun Low-E Triple-pane IG	PEL-A-293-00294-00001	3	3	3	air	0.25	0.44	0.55	63	N						
	with Grilles-between-the-glass	PEL-A-293-00295-00001					0.25	0.40	0.49	63	N	NC					
1"	NaturalSun Low-E Triple-pane IG	PEL-A-293-00298-00001	3	3	3	argon	0.21	0.44	0.55	66	N				38	CA	
	with Grilles-between-the-glass	PEL-A-293-00299-00001					0.21	0.40	0.49	66	N	NC			35	CA	
Vent – with Structural Reinforcement																	
1"	Advanced Low-E Triple-pane IG	PEL-A-293-00247-00001	3	3	3	air	0.25	0.25	0.43	63		NC					
	with Grilles-between-the-glass	PEL-A-293-00248-00001					0.25	0.22	0.38	63		NC	SC	S			
1"	Advanced Low-E Triple-pane IG	PEL-A-293-00251-00001	3	3	3	argon	0.21	0.25	0.43	67	N	NC			27	CA	
	with Grilles-between-the-glass	PEL-A-293-00252-00001					0.21	0.22	0.38	67	N	NC	SC	S	25	CA	
1"	NaturalSun Low-E Triple-pane IG	PEL-A-293-00245-00001	3	3	3	air	0.25	0.44	0.55	63	N						
	with Grilles-between-the-glass	PEL-A-293-00246-00001					0.26	0.40	0.49	63	N						
1"	NaturalSun Low-E Triple-pane IG	PEL-A-293-00249-00001	3	3	3	argon	0.22	0.44	0.55	66	N				36	CA	
	with Grilles-between-the-glass	PEL-A-293-00250-00001					0.22	0.40	0.49	66	N	NC			34	CA	
Vent – with Foam Insulation and Structural Reinforcement																	
1"	Advanced Low-E Triple-pane IG	PEL-A-293-00345-00001	3	3	3	air	0.25	0.25	0.43	63		NC					
	with Grilles-between-the-glass	PEL-A-293-00346-00001					0.25	0.22	0.38	63		NC	SC	S			
1"	Advanced Low-E Triple-pane IG	PEL-A-293-00349-00001	3	3	3	argon	0.21	0.25	0.43	67	N	NC			27	CA	
	with Grilles-between-the-glass	PEL-A-293-00350-00001					0.21	0.22	0.38	67	N	NC	SC	S	25	CA	
1"	NaturalSun Low-E Triple-pane IG	PEL-A-293-00343-00001	3	3	3	air	0.25	0.44	0.55	63	N						
	with Grilles-between-the-glass	PEL-A-293-00344-00001					0.26	0.40	0.49	63	N						
1"	NaturalSun Low-E Triple-pane IG	PEL-A-293-00347-00001	3	3	3	argon	0.22	0.44	0.55	66	N				36	CA	
	with Grilles-between-the-glass	PEL-A-293-00348-00001					0.22	0.40	0.49	66	N	NC			34	CA	

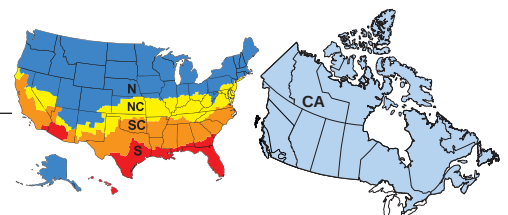
R-Value = 1/U-Factor
 SHGC = Solar Heat Gain Coefficient
 VLT % = Visible Light Transmission
 CR = Condensation Resistance
 ER = Canadian Energy Rating

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

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

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

Visit www.energystar.gov for Energy Star guidelines.

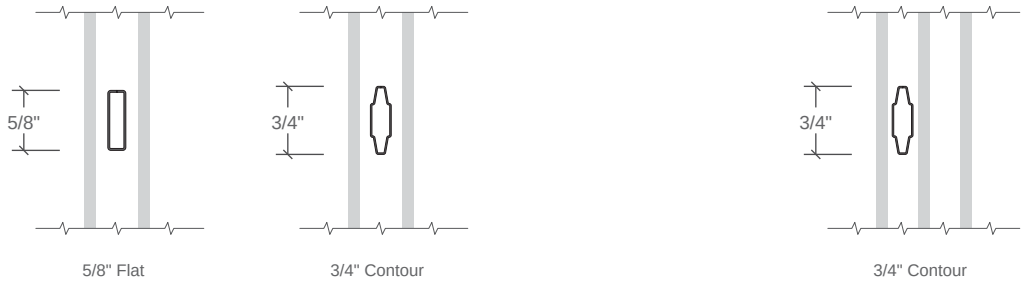




Grilles

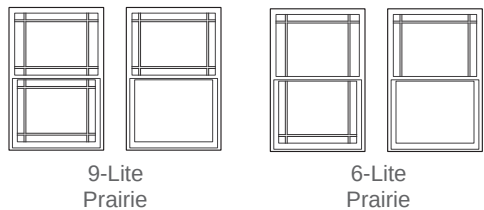
Grille Profiles

Grilles-Between-the-Glass

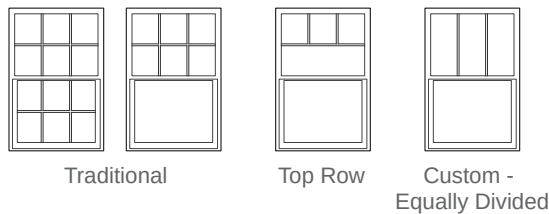


Grille Patterns

Prairie Lite Patterns



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



- 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

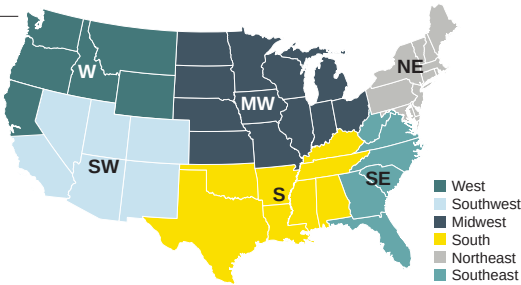
For traditional patterns, see size tables.



250 Series Single-Hung

Curve Top Grille Patterns (West, Southwest, South, Southeast Regions)

SINGLE VENT	
Traditional and Custom Traditional	
9-Lite Prairie	
Sunburst	
2- AND 3-WIDE COMBINATIONS	
Traditional and Custom Traditional	
9-Lite Prairie	
Sunburst	





250 Series Single-Hung

Size Tables

1 Wide Vent

	(610) (597)	(710) (699)	(762) (749)	(813) (800)	(914) (902)	(965) (953)	(1 067) (1 054)	(1 219) (1 207)	(1 372) (1 359)
Opening	2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 2"	3' 6"	4' 0"	4' 6"
Frame	23 1/2"	27 1/2"	29 1/2"	31 1/2"	35 1/2"	37 1/2"	41 1/2"	47 1/2"	53 1/2"
(914) (902)									
(965) (953)									
(1 067) (1 054)									
(1 1168) (1 1156)									
(1 219) (1 207)									
(1 321) (1 308)									
(1 372) (1 359)									
(1 524) (1 511)									
(1 575) (1 562)									
(1 676) (1 664)									
(1 829) (1 816)									
(1 981) (1 969)									

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.

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



250 Series Single-Hung

Size Tables

2 Wide Vent		(1 219) (1 207)	(1 422) (1 410)	(1 524) (1 511)	(1 626) (1 613)	(1 829) (1 816)	(1 930) (1 918)	(2 134) (2 121)	(2 438) (2 426)
Opening		4' 0"	4' 8"	5' 0"	5' 4"	6' 0"	6' 4"	7' 0"	8' 0"
Frame		47 1/2"	55 1/2"	59 1/2"	63 1/2"	71 1/2"	75 1/2"	83 1/2"	95 1/2"
(914) (902)	3' 0"								
		4-0/3-0	4-8/3-0	5-0/3-0	5-4/3-0	6-0/3-0	6-4/3-0	7-0/3-0	8-0/3-0
	(965) (953)								
		4-0/3-2	4-8/3-2	5-0/3-2	5-4/3-2	6-0/3-2	6-4/3-2	7-0/3-2	8-0/3-2
	(1 067) (1 054)								
		4-0/3-6	4-8/3-6	5-0/3-6	5-4/3-6	6-0/3-6	6-4/3-6	7-0/3-6	8-0/3-6
	(1 168) (1 156)								
		4-0/3-10	4-8/3-10	5-0/3-10	5-4/3-10	6-0/3-10	6-4/3-10	7-0/3-10	8-0/3-10
	(1 219) (1 207)								
		4-0/4-0	4-8/4-0	5-0/4-0	5-4/4-0	6-0/4-0	6-4/4-0	7-0/4-0	8-0/4-0
	(1 321) (1 308)								
		4-0/4-4	4-8/4-4	5-0/4-4	5-4/4-4	6-0/4-4	6-4/4-4	7-0/4-4	8-0/4-4
	(1 372) (1 359)								
		4-0/4-6	4-8/4-6	5-0/4-6	5-4/4-6	6-0/4-6	6-4/4-6	7-0/4-6	8-0/4-6
	(1 524) (1 511)								
		4-0/5-0	4-8/5-0	5-0/5-0	5-4/5-0	6-0/5-0	6-4/5-0	7-0/5-0	8-0/5-0
(1 575) (1 562)	5' 2"								
		4-0/5-2	4-8/5-2	5-0/5-2	5-4/5-2	6-0/5-2	6-4/5-2	7-0/5-2	8-0/5-2
	(1 676) (1 664)								
		4-0/5-6	4-8/5-6	5-0/5-6	5-4/5-6	6-0/5-6	6-4/5-6	7-0/5-6	8-0/5-6
	(1 829) (1 816)								
		4-0/6-0	4-8/6-0	5-0/6-0	5-4/6-0	6-0/6-0	6-4/6-0	7-0/6-0	8-0/6-0
	(1 981) (1 969)								
		4-0/6-6	4-8/6-6	5-0/6-6	5-4/6-6	6-0/6-6	6-4/6-6	7-0/6-6	8-0/6-6
	6' 6"								
		4-0/6-6	4-8/6-6	5-0/6-6	5-4/6-6	6-0/6-6	6-4/6-6	7-0/6-6	8-0/6-6

Not to scale.

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.

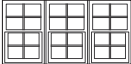
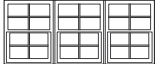
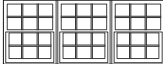
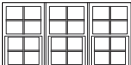
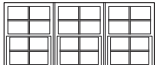
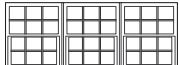
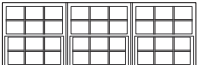
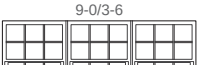
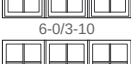
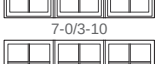
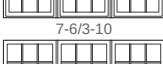
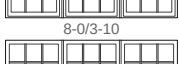
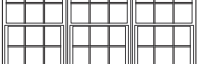
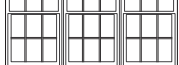
See Design Data pages in this section for clear opening dimensions.



250 Series Single-Hung

Size Tables

3 Wide Vent

		(1 829) (1 816)	(2 134) (2 121)	(2 286) (2 273)	(2 438) (2 426)	(2 743) (2 731)
Opening		6' 0"	7' 0"	7' 6"	8' 0"	9' 0"
Frame		71 1/2"	83 1/2"	89 1/2"	95 1/2"	107 1/2"
(914) (902)	3' 0"	 6-0/3-0	 7-0/3-0	 7-6/3-0	 8-0/3-0	 9-0/3-0
(965) (953)	3' 2"	 6-0/3-2	 7-0/3-2	 7-6/3-2	 8-0/3-2	 9-0/3-2
(1 067) (1 054)	3' 6"	 6-0/3-6	 7-0/3-6	 7-6/3-6	 8-0/3-6	 9-0/3-6
(1 1168) (1 1156)	3' 10"	 6-0/3-10	 7-0/3-10	 7-6/3-10	 8-0/3-10	 9-0/3-10
(1 219) (1 207)	4' 0"	 6-0/4-0	 7-0/4-0	 7-6/4-0	 8-0/4-0	 9-0/4-0
(1 321) (1 308)	4' 4"	 6-0/4-4	 7-0/4-4	 7-6/4-4	 8-0/4-4	 9-0/4-4
(1 372) (1 359)	4' 6"	 6-0/4-6	 7-0/4-6	 7-6/4-6	 8-0/4-6	 9-0/4-6
(1 524) (1 511)	5' 0"	 6-0/5-0	 7-0/5-0	 7-6/5-0	 8-0/5-0	 9-0/5-0 E ₁
(1 575) (1 562)	5' 2"	 6-0/5-2	 7-0/5-2	 7-6/5-2	 8-0/5-2	 9-0/5-2 E ₁
(1 676) (1 664)	5' 6"	 6-0/5-6	 7-0/5-6	 7-6/5-6	 8-0/5-6 E ₁	
(1 829) (1 816)	6' 0"	 6-0/6-0	 7-0/6-0	 7-6/6-0 E ₁	 8-0/6-0 E ₁	
(1 981) (1 969)	6' 6"	 6-0/6-6	 7-0/6-6 E ₁	 7-6/6-6 E		

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.

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

Not to scale.



250 Series Single-Hung

Size Tables - Cottage Sash

1 Wide Cottage Vent

		(610) (597)	(710) (699)	(762) (749)	(813) (800)	(914) (902)	(965) (953)	(1 067) (1 054)	(1 219) (1 207)	(1 372) (1 359)
Opening		2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 2"	3' 6"	4' 0"	4' 6"
Frame		23 1/2"	27 1/2"	29 1/2"	31 1/2"	35 1/2"	37 1/2"	41 1/2"	47 1/2"	53 1/2"
(914) (902)	3' 0"									
	35 1/2"	2-0/3-0	2-4/3-0	2-6/3-0	2-8/3-0	3-0/3-0	3-2/3-0	3-6/3-0	4-0/3-0	4-6/3-0
(965) (953)	3' 2"									
	37 1/2"	2-0/3-2	2-4/3-2	2-6/3-2	2-8/3-2	3-0/3-2	3-2/3-2	3-6/3-2	4-0/3-2	4-6/3-2
(1 067) (1 054)	3' 6"									
	41 1/2"	2-0/3-6	2-4/3-6	2-6/3-6	2-8/3-6	3-0/3-6	3-2/3-6	3-6/3-6	4-0/3-6	4-6/3-6
(1 1188) (1 1156)	3' 10"									
	45 1/2"	2-0/3-10	2-4/3-10	2-6/3-10	2-8/3-10	3-0/3-10	3-2/3-10	3-6/3-10	4-0/3-10	4-6/3-10
(1 219) (1 207)	4' 0"									
	47 1/2"	2-0/4-0	2-4/4-0	2-6/4-0	2-8/4-0	3-0/4-0	3-2/4-0	3-6/4-0	4-0/4-0	4-6/4-0
(1 321) (1 308)	4' 4"									
	51 1/2"	2-0/4-4	2-4/4-4	2-6/4-4	2-8/4-4	3-0/4-4	3-2/4-4	3-6/4-4	4-0/4-4	4-6/4-4
(1 372) (1 359)	4' 6"									
	53 1/2"	2-0/4-6	2-4/4-6	2-6/4-6	2-8/4-6	3-0/4-6	3-2/4-6	3-6/4-6	4-0/4-6	4-6/4-6
(1 524) (1 511)	5' 0"									
	59 1/2"	2-0/5-0	2-4/5-0	2-6/5-0	2-8/5-0	3-0/5-0	3-2/5-0	3-6/5-0	4-0/5-0	4-6/5-0
(1 575) (1 562)	5' 2"									
	61 1/2"	2-0/5-2	2-4/5-2	2-6/5-2	2-8/5-2	3-0/5-2	3-2/5-2	3-6/5-2	4-0/5-2	4-6/5-2
(1 676) (1 664)	5' 6"									
	65 1/2"	2-0/5-6	2-4/5-6	2-6/5-6	2-8/5-6	3-0/5-6	3-2/5-6	3-6/5-6	4-0/5-6	4-6/5-6

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.

Not to scale.



250 Series Single-Hung

Size Tables - Contemporary Sash

1 Wide Contemporary Vent

		(610) (597)	(710) (699)	(762) (749)	(813) (800)	(914) (902)	(965) (953)	(1 067) (1 054)	(1 219) (1 207)	(1 372) (1 359)
Opening		2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 2"	3' 6"	4' 0"	4' 6"
Frame		23 1/2"	27 1/2"	29 1/2"	31 1/2"	35 1/2"	37 1/2"	41 1/2"	47 1/2"	53 1/2"
(914) (902)	3' 0"									
		2-0/3-0	2-4/3-0	2-6/3-0	2-8/3-0	3-0/3-0	3-2/3-0	3-6/3-0	4-0/3-0	4-6/3-0
(965) (953)	3' 2"									
		2-0/3-2	2-4/3-2	2-6/3-2	2-8/3-2	3-0/3-2	3-2/3-2	3-6/3-2	4-0/3-2	4-6/3-2
(1 067) (1 054)	3' 6"									
		2-0/3-6	2-4/3-6	2-6/3-6	2-8/3-6	3-0/3-6	3-2/3-6	3-6/3-6	4-0/3-6	4-6/3-6
(1 168) (1 156)	3' 10"									
		2-0/3-10	2-4/3-10	2-6/3-10	2-8/3-10	3-0/3-10	3-2/3-10	3-6/3-10	4-0/3-10	4-6/3-10
(1 219) (1 207)	4' 0"									
		2-0/4-0	2-4/4-0	2-6/4-0	2-8/4-0	3-0/4-0	3-2/4-0	3-6/4-0	4-0/4-0	4-6/4-0
(1 321) (1 308)	4' 4"									
		2-0/4-4	2-4/4-4	2-6/4-4	2-8/4-4	3-0/4-4	3-2/4-4	3-6/4-4	4-0/4-4	4-6/4-4
(1 372) (1 359)	4' 6"									
		2-0/4-6	2-4/4-6	2-6/4-6	2-8/4-6	3-0/4-6	3-2/4-6	3-6/4-6	4-0/4-6	4-6/4-6
(1 524) (1 511)	5' 0"									
		2-0/5-0	2-4/5-0	2-6/5-0	2-8/5-0	3-0/5-0	3-2/5-0	3-6/5-0	4-0/5-0	4-6/5-0
(1 575) (1 562)	5' 2"									
		2-0/5-2	2-4/5-2	2-6/5-2	2-8/5-2	3-0/5-2	3-2/5-2	3-6/5-2	4-0/5-2	4-6/5-2
(1 676) (1 664)	5' 6"									
		2-0/5-6	2-4/5-6	2-6/5-6	2-8/5-6	3-0/5-6	3-2/5-6	3-6/5-6	4-0/5-6	4-6/5-6

Not to scale.



250 Series Single-Hung

Size Tables - Contemporary Sash

1 Wide Contemporary Vent

		(610) (597)	(710) (699)	(762) (749)	(813) (800)	(914) (902)	(965) (953)	(1 067) (1 054)	(1 219) (1 207)
Opening		2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 2"	3' 6"	4' 0"
Frame		23 1/2"	27 1/2"	29 1/2"	31 1/2"	35 1/2"	37 1/2"	41 1/2"	47 1/2"
(1 829) (1 816) 6' 0"	71 1/2"								
		2-0/6-0	2-4/6-0	2-6/6-0	2-8/6-0	3-0/6-0 E ₁	3-2/6-0 E ₁	3-6/6-0 E	4-0/6-0 E
	(1 981) (1 969) 6' 6"								
(2 134) (2 121) 7' 0"	77 1/2"								
		2-0/6-6	2-4/6-6	2-6/6-6	2-8/6-6 E ₁	3-0/6-6 E	3-2/6-6 E	3-6/6-6 E	4-0/6-6 E
(2 134) (2 121) 7' 0"	83 1/2"								
		2-0/7-0	2-4/7-0	2-6/7-0 E ₁	2-8/7-0 E ₁	3-0/7-0 E	3-2/7-0 E	3-6/7-0 E	4-0/7-0 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.

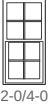
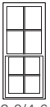
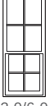
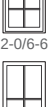
Not to scale.



250 Series Single-Hung

Size Tables - 24" Lower Sash

1 Wide Vent

		(610) (597)	(710) (699)	(762) (749)	(813) (800)	(914) (902)	(965) (953)	(1 067) (1 054)	(1 219) (1 207)	(1 372) (1 359)
Opening		2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 2"	3' 6"	4' 0"	4' 6"
Frame		23 1/2"	27 1/2"	29 1/2"	31 1/2"	35 1/2"	37 1/2"	41 1/2"	47 1/2"	53 1/2"
(1 219) (1 207)	4' 0"	 2-0/4-0	 2-4/4-0	 2-6/4-0	 2-8/4-0	 3-0/4-0	 3-2/4-0	 3-6/4-0	 4-0/4-0	 4-6/4-0
	4' 4"	 2-0/4-4	 2-4/4-4	 2-6/4-4	 2-8/4-4	 3-0/4-4	 3-2/4-4	 3-6/4-4	 4-0/4-4	 4-6/4-4
	4' 6"	 2-0/4-6	 2-4/4-6	 2-6/4-6	 2-8/4-6	 3-0/4-6	 3-2/4-6	 3-6/4-6	 4-0/4-6	 4-6/4-6
	5' 0"	 2-0/5-0	 2-4/5-0	 2-6/5-0	 2-8/5-0	 3-0/5-0	 3-2/5-0	 3-6/5-0	 4-0/5-0	 4-6/5-0
	5' 2"	 2-0/5-2	 2-4/5-2	 2-6/5-2	 2-8/5-2	 3-0/5-2	 3-2/5-2	 3-6/5-2	 4-0/5-2	 4-6/5-2
	5' 6"	 2-0/5-6	 2-4/5-6	 2-6/5-6	 2-8/5-6	 3-0/5-6	 3-2/5-6	 3-6/5-6	 4-0/5-6	 4-6/5-6
	6' 0"	 2-0/6-0	 2-4/6-0	 2-6/6-0	 2-8/6-0	 3-0/6-0	 3-2/6-0	 3-6/6-0	 4-0/6-0	
	6' 6"	 2-0/6-6	 2-4/6-6	 2-6/6-6	 2-8/6-6	 3-0/6-6	 3-2/6-6	 3-6/6-6	 4-0/6-6	
	7' 0"	 2-0/7-0	 2-4/7-0	 2-6/7-0	 2-8/7-0	 3-0/7-0	 3-2/7-0	 3-6/7-0	 4-0/7-0	
(2 134) (2 121)	83 1/2"	 2-0/7-0	 2-4/7-0	 2-6/7-0	 2-8/7-0	 3-0/7-0	 3-2/7-0	 3-6/7-0	 4-0/7-0	

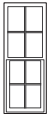
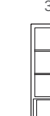
Not to scale.



250 Series Single-Hung

Size Tables - 30" Lower Sash

1 Wide Vent

		(610) (597)	(710) (699)	(762) (749)	(813) (800)	(914) (902)	(965) (953)	(1 067) (1 054)	(1 219) (1 207)	(1 372) (1 359)	
Opening		2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 2"	3' 6"	4' 0"	4' 6"	
Frame		23 1/2"	27 1/2"	29 1/2"	31 1/2"	35 1/2"	37 1/2"	41 1/2"	47 1/2"	53 1/2"	
(1 524) (1 511)	5' 0"	59 1/2"	 30" (Lower Sash) 2-0/5-0	 30" (Lower Sash) 2-4/5-0	 30" (Lower Sash) 2-6/5-0	 30" (Lower Sash) 2-8/5-0	 30" (Lower Sash) 3-0/5-0 E ₁	 30" (Lower Sash) 3-2/5-0 E ₁	 30" (Lower Sash) 3-6/5-0 E	 30" (Lower Sash) 4-0/5-0 E	 30" (Lower Sash) 4-6/5-0 E
	5' 2"	61 1/2"	 30" (Lower Sash) 2-0/5-2	 30" (Lower Sash) 2-4/5-2	 30" (Lower Sash) 2-6/5-2	 30" (Lower Sash) 2-8/5-2	 30" (Lower Sash) 3-0/5-2 E ₁	 30" (Lower Sash) 3-2/5-2 E ₁	 30" (Lower Sash) 3-6/5-2 E	 30" (Lower Sash) 4-0/5-2 E	 30" (Lower Sash) 4-6/5-2 E
	5' 6"	65 1/2"	 30" (Lower Sash) 2-0/5-6	 30" (Lower Sash) 2-4/5-6	 30" (Lower Sash) 2-6/5-6	 30" (Lower Sash) 2-8/5-6	 30" (Lower Sash) 3-0/5-6 E ₁	 30" (Lower Sash) 3-2/5-6 E ₁	 30" (Lower Sash) 3-6/5-6 E	 30" (Lower Sash) 4-0/5-6 E	 30" (Lower Sash) 4-6/5-6 E
	6' 0"	71 1/2"	 30" (Lower Sash) 2-0/6-0	 30" (Lower Sash) 2-4/6-0	 30" (Lower Sash) 2-6/6-0	 30" (Lower Sash) 2-8/6-0	 30" (Lower Sash) 3-0/6-0 E ₁	 30" (Lower Sash) 3-2/6-0 E ₁	 30" (Lower Sash) 3-6/6-0 E	 30" (Lower Sash) 4-0/6-0 E	
	6' 6"	77 1/2"	 30" (Lower Sash) 2-0/6-6	 30" (Lower Sash) 2-4/6-6	 30" (Lower Sash) 2-6/6-6	 30" (Lower Sash) 2-8/6-6	 30" (Lower Sash) 3-0/6-6 E ₁	 30" (Lower Sash) 3-2/6-6 E ₁	 30" (Lower Sash) 3-6/6-6 E	 30" (Lower Sash) 4-0/6-6 E	
	7' 0"	83 1/2"	 30" (Lower Sash) 2-0/7-0	 30" (Lower Sash) 2-4/7-0	 30" (Lower Sash) 2-6/7-0	 30" (Lower Sash) 2-8/7-0	 30" (Lower Sash) 3-0/7-0 E ₁	 30" (Lower Sash) 3-2/7-0 E ₁	 30" (Lower Sash) 3-6/7-0 E	 30" (Lower Sash) 4-0/7-0 E	

Not to scale.

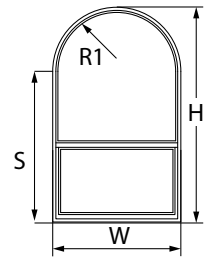


250 Series Single-Hung

Frame Size Dimensions Curved Shapes (West, Southwest, South, Southeast Regions)

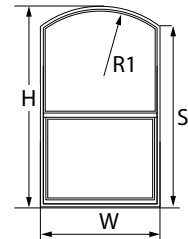
Springline

	Equal Sash		Cottage Sash		Contemporary Sash		24" Lower Sash		30" Lower Sash	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Frame Width (W)	23-1/2	53-1/2	23-1/2	53-1/2	23-1/2	53-1/2	23-1/2	53-1/2	23-1/2	53-1/2
Frame Height (H)	41-1/4	77-1/2	(W÷2) +S	65-1/2	(W÷2) +S	83-1/2	(W÷2) +S	83-1/2	(W÷2) +S	83-1/2
Short Leg Height (S)	29-1/2	H- (W÷2)	26-1/2	H- (W÷2)	34-1/2	H- (W÷2)	47-5/8	H- (W÷2)	59-5/8	H- (W÷2)
Radius (R1)	11-3/4	26-3/4	11-3/4	26-3/4	11-3/4	26-3/4	11-3/4	26-3/4	11-3/4	26-3/4



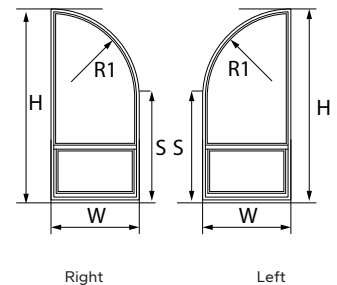
Arch-Head

	Equal Sash		Cottage Sash		Contemporary Sash		24" Lower Sash		30" Lower Sash	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Frame Width (W)	17-1/2	53-1/2	17-1/2	53-1/2	17-1/2	53-1/2	17-1/2	53-1/2	17-1/2	53-1/2
Frame Height (H)	> S	77-1/2	> S	65-1/2	> S	96	> S	83-1/2	> S	83-1/2
Short Leg Height (S)	23-1/2	< H	28-1/2	< H	28-1/2	90	47-5/8	< H	59-5/8	< H
Radius (R1)	11-3/4	239-3/4	11-3/4	239-3/4	11-3/4	239-3/4	11-3/4	239-3/4	11-3/4	239-3/4



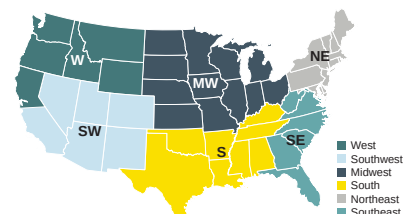
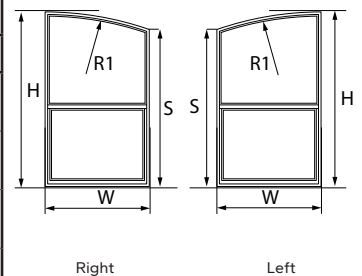
Partial Springline

	Equal Sash		Cottage Sash		Contemporary Sash		24" Lower Sash		30" Lower Sash	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Frame Width (W)	23-1/2	53-1/2	23-1/2	53-1/2	23-1/2	53-1/2	23-1/2	53-1/2	23-1/2	53-1/2
Frame Height (H)	41-1/4	77-1/2	S+W	65-1/2	S+W	83-1/2	S+W	83-1/2	S+W	83-1/2
Short Leg Height (S)	29-1/2	H - W	26-1/2	H - W	34-1/2	H - W	47-5/8	H - W	59-5/8	H - W
Radius (R1)	23-1/2	53-1/2	23-1/2	53-1/2	23-1/2	53-1/2	23-1/2	53-1/2	23-1/2	53-1/2



Partial Arch-Head

	Equal Sash		Cottage Sash		Contemporary Sash		24" Lower Sash		30" Lower Sash	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Frame Width (W)	17-1/2	53-1/2	17-1/2	53-1/2	17-1/2	53-1/2	17-1/2	53-1/2	17-1/2	53-1/2
Frame Height (H)	40	77-1/2	> S	65-1/2	> S	96	> S	83-1/2	> S	83-1/2
Short Leg Height (S)	23-1/2	< H	28-1/2	< H	28-1/2	90	47-5/8	< H	59-5/8	< H
Radius (R1)	17-1/2	239-3/4	17-1/2	239-3/4	17-1/2	239-3/4	17-1/2	239-3/4	17-1/2	239-3/4

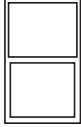
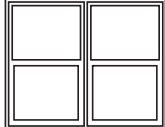
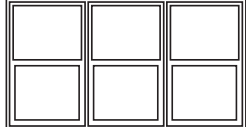


All dimensions are in inches unless otherwise noted.



250 Series Single-Hung

Special Sizes and 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)	53-1/2" W x 77-1/2" H (1359 x 1969)	29-1/2" W x 23-1/2" H (749 x 597)	48 Ft ² (4.46 m ²) 95-1/2" W x 77-1/2" H (2 426 x 1 969)	44-1/2" W x 23-1/2" H (1 130 x 597)	48 Ft ² (4.46 m ²) 107-1/2" W x 77-1/2" H (2 731 x 1 969)
Cottage Sash	14-1/2" W x 28-1/2" H (368 x 724)	53-1/2" W x 65-1/2" H (1 359 x 1 664)	29-1/2" W x 28-1/2" H (749 x 724)	95-1/2" W x 65-1/2" H (2 426 x 1 664)	44-1/2" W x 28-1/2" H (1 130 x 724)	107-1/2" W x 65-1/2" H (2 731 x 1 664)
Contemporary Sash	14-1/2" W x 28-1/2" H (368 x 724)	Standard Performance 53-1/2" W x 96" H (1359 x 2438)	29-1/2" W x 28-1/2" H (749 x 724)	95-1/2" W x 83-1/2" H (2 426 x 2 121)	44-1/2" W x 28-1/2" H (1 130 x 724)	107-1/2" W x 83-1/2" H (2 731 x 2 121)
24" Lower Sash	14-1/2" W x 47-5/8" H (368 x 1 210)	Standard Performance 53-1/2" W x 65-1/2" H (1 359 x 1 664)	29-1/2" W x 47-1/2" H (749 x 1 207)	95-1/2" W x 65-1/2" H (2 426 x 1 664)	44-1/2" W x 47-1/2" H (1 130 x 1 207)	107-1/2" W x 65-1/2" H (2 731 x 1 664)
30" Lower Sash	14-1/2" W x 59-5/8" H (368 x 1 514)	Standard Performance 53-1/2" W x 65-1/2" H (1 359 x 1 664)	29-1/2" W x 59-1/2" H (749 x 1 511)	95-1/2" W x 65-1/2" H (2 426 x 1 664)	44-1/2" W x 59-1/2" H (1 130 x 1 511)	107-1/2" W x 65-1/2" H (2 731 x 1 664)

Sizes shown are for dual-pane 3mm annealed glass, other glass configurations affect maximum size available, contact your sales representative for details.

Sizes shown are region dependent, contact your sales representative for offering details.

General Notes:

- Rough Opening—Frame Dimension + 1/2"
- Keep frame dimensions to the nearest 1/8" increment
- Maximum frame area for single and two-wide = 48 ft²
- Maximum frame area for 3-wide is 54 ft²
- 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)



250 Series Single-Hung

Special Sizes and Dimensions

Glass Formulas

	Actual Glass Width	Actual Glass Height	Visible Glass Width	Visible Glass Height
Single Unit	Equal Sash	$(AUGH \text{ or } ALGH = FH - 5) \div 2$	AGW - 1"	AGH - 1"
	Cottage Sash	Lower Actual Glass Height = $(FH - 5) \times .6$ Upper Actual Glass Height = $(FH - 5) \times .4$		
	Contemporary	Lower Actual Glass Height = $(FH - 5) \times .4$ Upper Actual Glass Height = $(FH - 5) \times .6$		
	24" Lower Sash	Lower Actual Glass Height = $(47.5 - 5) \div 2$ Upper Actual Glass Height = $(FH - 5) - ALGH$		
	30" Lower Sash	Lower AGH = $(59.5 - 5) \div 2$ Upper Actual Glass Height = $(FH - 5) - ALGH$		
2-Wide	Equal Sash	$(FH - 5) / 2$	AGW - 1"	AGH - 1"
	Cottage Sash	Lower Actual Glass Height = $(FH - 5) \times .6$ Upper Actual Glass Height = $(FH - 5) \times .4$		
	Contemporary	Lower Actual Glass Height = $(FH - 5) \times .4$ Upper Actual Glass Height = $(FH - 5) \times .6$		
	24" Lower Sash	Lower Actual Glass Height = $(47.5 - 5) \div 2$ Upper Actual Glass Height = $(FH - 5) - ALGH$		
	30" Lower Sash	Lower Actual Glass Height = $(59.5 - 5) \div 2$ Upper Actual Glass Height = $(FH - 5) - ALGH$		
3-Wide Equal	Equal Sash	$(FH - 5) \div 2$	AGW - 1"	AGH - 1"
	Cottage Sash	Lower Actual Glass Height = $(FH - 5) \times .6$ Upper Actual Glass Height = $(FH - 5) \times .4$		
	Contemporary	Lower Actual Glass Height = $(FH - 5) \times .4$ Upper Actual Glass Height = $(FH - 5) \times .6$		
	24" Lower Sash	Lower Actual Glass Height = $(47.5 - 5) \div 2$ Upper Actual Glass Height = $(FH - 5) - ALGH$		
	30" Lower Sash	Lower Actual Glass Height = $(59.5 - 5) \div 2$ Upper Actual Glass Height = $(FH - 5) - ALGH$		

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 - 4.25	$(FH \div 2) - 5.536$	$FH - ALGH - 8.036$	$FH - AUGH - 7.547$	18.1875	24.1875
Clear opening with Auto Lock		$(FH \div 2) - 5.536$	$FH - ALGH - 8.036$	$FH - AUGH - 7.547$	18.1875	24.1875

Clear Opening Area (ft²) = (COW x COH) ÷ 144

Frame Area (ft²) = (Frame Width x Frame Height) ÷ 144

Glass and clear opening information applies to rectangular units only.

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



250 Series Single-Hung

Design Data

1-WIDE VENT UNITS — EQUAL SASH

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
2-0/3-0		23-1/2	35-1/2	19-1/4	12-3/16	1.6	3.6	2.5	3.0	R35	R50
2-0/3-2		23-1/2	37-1/2	19-1/4	13-3/16	1.7	3.9	2.5	3.0	R35	R50
2-0/3-6		23-1/2	41-1/2	19-1/4	15-3/16	2.0	4.4	2.5	3.0	R35	R50
2-0/3-10		23-1/2	45-1/2	19-1/4	17-3/16	2.3	4.9	2.5	3.0	R35	R50
2-0/4-0		23-1/2	47-1/2	19-1/4	18-3/16	2.4	5.1	2.5	3.0	R35	R50
2-0/4-4		23-1/2	51-1/2	19-1/4	20-3/16	2.7	5.6	2.5	3.0	R35	R50
2-0/4-6		23-1/2	53-1/2	19-1/4	21-3/16	2.8	5.9	2.5	3.0	R35	R50
2-0/5-0		23-1/2	59-1/2	19-1/4	24-3/16	3.2	6.7	2.5	3.0	R35	R50
2-0/5-2		23-1/2	61-1/2	19-1/4	25-3/16	3.3	6.9	2.5	3.0	R35	R50
2-0/5-6		23-1/2	65-1/2	19-1/4	27-3/16	3.6	7.4	2.5	3.0	R35	R50
2-0/6-0		23-1/2	71-1/2	19-1/4	30-3/16	4.0	8.2	2.5	3.0	R35	R50
2-0/6-6		23-1/2	77-1/2	19-1/4	33-3/16	4.4	8.9	2.5	3.0	R35	R50
2-4/3-0		27-1/2	35-1/2	23-1/4	12-3/16	1.9	4.4	2.5	3.0	R35	R50
2-4/3-2		27-1/2	37-1/2	23-1/4	13-3/16	2.1	4.7	2.5	3.0	R35	R50
2-4/3-6		27-1/2	41-1/2	23-1/4	15-3/16	2.4	5.3	2.5	3.0	R35	R50
2-4/3-10		27-1/2	45-1/2	23-1/4	17-3/16	2.7	5.9	2.5	3.0	R35	R50
2-4/4-0		27-1/2	47-1/2	23-1/4	18-3/16	2.9	6.3	2.5	3.0	R35	R50
2-4/4-4		27-1/2	51-1/2	23-1/4	20-3/16	3.2	6.9	2.5	3.0	R35	R50
2-4/4-6		27-1/2	53-1/2	23-1/4	21-3/16	3.4	7.2	2.5	3.0	R35	R50
2-4/5-0		27-1/2	59-1/2	23-1/4	24-3/16	3.9	8.1	2.5	3.0	R35	R50
2-4/5-2		27-1/2	61-1/2	23-1/4	25-3/16	4.0	8.4	2.5	3.0	R35	R50
2-4/5-6		27-1/2	65-1/2	23-1/4	27-3/16	4.3	9.0	2.5	3.0	R35	R50
2-4/6-0		27-1/2	71-1/2	23-1/4	30-3/16	4.8	10.0	2.5	3.0	R35	R50
2-4/6-6	E1	27-1/2	77-1/2	23-1/4	33-3/16	5.3	10.9	2.5	3.0	R35	R50
2-6/3-0		29-1/2	35-1/2	25-1/4	12-3/16	2.1	4.8	2.5	3.0	R35	R50
2-6/3-2		29-1/2	37-1/2	25-1/4	13-3/16	2.3	5.1	2.5	3.0	R35	R50
2-6/3-6		29-1/2	41-1/2	25-1/4	15-3/16	2.6	5.8	2.5	3.0	R35	R50
2-6/3-10		29-1/2	45-1/2	25-1/4	17-3/16	3.0	6.5	2.5	3.0	R35	R50
2-6/4-0		29-1/2	47-1/2	25-1/4	18-3/16	3.1	6.8	2.5	3.0	R35	R50
2-6/4-4		29-1/2	51-1/2	25-1/4	20-3/16	3.5	7.5	2.5	3.0	R35	R50
2-6/4-6		29-1/2	53-1/2	25-1/4	21-3/16	3.7	7.8	2.5	3.0	R35	R50
2-6/5-0		29-1/2	59-1/2	25-1/4	24-3/16	4.2	8.8	2.5	3.0	R35	R50
2-6/5-2		29-1/2	61-1/2	25-1/4	25-3/16	4.4	9.2	2.5	3.0	R35	R50
2-6/5-6		29-1/2	65-1/2	25-1/4	27-3/16	4.7	9.9	2.5	3.0	R35	R50
2-6/6-0	E1	29-1/2	71-1/2	25-1/4	30-3/16	5.2	10.9	2.5	3.0	R35	R50
2-6/6-6	E	29-1/2	77-1/2	25-1/4	33-3/16	5.8	11.9	2.5	3.0	R35	R50

1 of 3

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.

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

(—) = Not Available

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



250 Series Single-Hung

Design Data

1-WIDE VENT UNITS — EQUAL SASH

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft²	Glass Thickness (mm)		Performance Class & Grade ₁	
		Width	Height	Width	Height	Ft²		Annealed	Tempered	Standard	Upgrade
2-8/3-0		31-1/2	35-1/2	27-1/4	12-3/16	2.3	5.2	2.5	3.0	R35	R50
2-8/3-2		31-1/2	37-1/2	27-1/4	13-3/16	2.5	5.6	2.5	3.0	R35	R50
2-8/3-6		31-1/2	41-1/2	27-1/4	15-3/16	2.8	6.3	2.5	3.0	R35	R50
2-8/3-10		31-1/2	45-1/2	27-1/4	17-3/16	3.2	7.0	2.5	3.0	R35	R50
2-8/4-0		31-1/2	47-1/2	27-1/4	18-3/16	3.4	7.4	2.5	3.0	R35	R50
2-8/4-4		31-1/2	51-1/2	27-1/4	20-3/16	3.8	8.1	2.5	3.0	R35	R50
2-8/4-6		31-1/2	53-1/2	27-1/4	21-3/16	4.0	8.5	2.5	3.0	R35	R50
2-8/5-0		31-1/2	59-1/2	27-1/4	24-3/16	4.5	9.6	2.5	3.0	R35	R50
2-8/5-2		31-1/2	61-1/2	27-1/4	25-3/16	4.7	9.9	2.5	3.0	R35	R50
2-8/5-6	E1	31-1/2	65-1/2	27-1/4	27-3/16	5.1	10.7	2.5	3.0	R35	R50
2-8/6-0	E	31-1/2	71-1/2	27-1/4	30-3/16	5.7	11.8	2.5	3.0	R35	R50
2-8/6-6	E	31-1/2	77-1/2	27-1/4	33-3/16	6.2	12.9	2.5	3.0	R35	R50
3-0/3-0		35-1/2	35-1/2	31-1/4	12-3/16	2.6	6.0	2.5	3.0	R35	R50
3-0/3-2		35-1/2	37-1/2	31-1/4	13-3/16	2.8	6.4	2.5	3.0	R35	R50
3-0/3-6		35-1/2	41-1/2	31-1/4	15-3/16	3.3	7.2	2.5	3.0	R35	R50
3-0/3-10		35-1/2	45-1/2	31-1/4	17-3/16	3.7	8.1	2.5	3.0	R35	R50
3-0/4-0		35-1/2	47-1/2	31-1/4	18-3/16	3.9	8.5	2.5	3.0	R35	R50
3-0/4-4		35-1/2	51-1/2	31-1/4	20-3/16	4.3	9.3	2.5	3.0	R35	R50
3-0/4-6		35-1/2	53-1/2	31-1/4	21-3/16	4.6	9.8	2.5	3.0	R35	R50
3-0/5-0	E1	35-1/2	59-1/2	31-1/4	24-3/16	5.2	11.0	2.5	3.0	R35	R50
3-0/5-2	E1	35-1/2	61-1/2	31-1/4	25-3/16	5.4	11.4	2.5	3.0	R35	R50
3-0/5-6	E	35-1/2	65-1/2	31-1/4	27-3/16	5.9	12.3	2.5	3.0	R35	R50
3-0/6-0	E	35-1/2	71-1/2	31-1/4	30-3/16	6.5	13.5	2.5	3.0	R35	R50
3-0/6-6	E	35-1/2	77-1/2	31-1/4	33-3/16	7.2	14.8	2.5	3.0	R35	R50
3-2/3-0		37-1/2	35-1/2	33-1/4	12-3/16	2.8	6.4	2.5	3.0	R35	R50
3-2/3-2		37-1/2	37-1/2	33-1/4	13-3/16	3.0	6.8	2.5	3.0	R35	R50
3-2/3-6		37-1/2	41-1/2	33-1/4	15-3/16	3.5	7.7	2.5	3.0	R35	R50
3-2/3-10		37-1/2	45-1/2	33-1/4	17-3/16	3.9	8.6	2.5	3.0	R35	R50
3-2/4-0		37-1/2	47-1/2	33-1/4	18-3/16	4.2	9.1	2.5	3.0	R35	R50
3-2/4-4		37-1/2	51-1/2	33-1/4	20-3/16	4.6	10.0	2.5	3.0	R35	R50
3-2/4-6		37-1/2	53-1/2	33-1/4	21-3/16	4.8	10.4	2.5	3.0	R35	R50
3-2/5-0	E1	37-1/2	59-1/2	33-1/4	24-3/16	5.5	11.8	2.5	3.0	R35	R50
3-2/5-2	E	37-1/2	61-1/2	33-1/4	25-3/16	5.8	12.2	2.5	3.0	R35	R50
3-2/5-6	E	37-1/2	65-1/2	33-1/4	27-3/16	6.2	13.1	2.5	3.0	R35	R50
3-2/6-0	E	37-1/2	71-1/2	33-1/4	30-3/16	6.9	14.4	2.5	3.0	R35	R50
3-2/6-6	E	37-1/2	77-1/2	33-1/4	33-3/16	7.6	15.8	2.5	3.0	R35	R50

2 of 3

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.

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

(—) = Not Available

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



250 Series Single-Hung

Design Data

1-WIDE VENT UNITS — EQUAL SASH

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
3-6/3-0		41-1/2	35-1/2	37-1/4	12-3/16	3.1	7.2	2.5	3.0	R35	R50
3-6/3-2		41-1/2	37-1/2	37-1/4	13-3/16	3.4	7.7	2.5	3.0	R35	R50
3-6/3-6		41-1/2	41-1/2	37-1/4	15-3/16	3.9	8.7	2.5	3.0	R35	R50
3-6/3-10		41-1/2	45-1/2	37-1/4	17-3/16	4.4	9.7	2.5	3.0	R35	R50
3-6/4-0		41-1/2	47-1/2	37-1/4	18-3/16	4.7	10.2	2.5	3.0	R35	R50
3-6/4-4		41-1/2	51-1/2	37-1/4	20-3/16	5.2	11.2	2.5	3.0	R35	R50
3-6/4-6		41-1/2	53-1/2	37-1/4	21-3/16	5.4	11.7	2.5	3.0	R35	R50
3-6/5-0	E	41-1/2	59-1/2	37-1/4	24-3/16	6.2	13.2	2.5	3.0	R35	R50
3-6/5-2	E	41-1/2	61-1/2	37-1/4	25-3/16	6.5	13.7	2.5	3.0	R35	R50
3-6/5-6	E	41-1/2	65-1/2	37-1/4	27-3/16	7.0	14.7	2.5	3.0	R35	R50
3-6/6-0	E	41-1/2	71-1/2	37-1/4	30-3/16	7.8	16.2	2.5	3.0	R35	R50
3-6/6-6	E	41-1/2	77-1/2	37-1/4	33-3/16	8.5	17.7	2.5	3.0	R35	R50
4-0/3-0		47-1/2	35-1/2	43-1/4	12-3/16	3.6	8.4	2.5	3.0	R35	R50
4-0/3-2		47-1/2	37-1/2	43-1/4	13-3/16	3.9	8.9	2.5	3.0	R35	R50
4-0/3-6		47-1/2	41-1/2	43-1/4	15-3/16	4.5	10.1	2.5	3.0	R35	R50
4-0/3-10		47-1/2	45-1/2	43-1/4	17-3/16	5.1	11.3	2.5	3.0	R35	R50
4-0/4-0		47-1/2	47-1/2	43-1/4	18-3/16	5.4	11.9	2.5	3.0	R35	R50
4-0/4-4		47-1/2	51-1/2	43-1/4	20-3/16	6.0	13.1	2.5	3.0	R35	R50
4-0/4-6		47-1/2	53-1/2	43-1/4	21-3/16	6.3	13.6	2.5	3.0	R35	R50
4-0/5-0	E	47-1/2	59-1/2	43-1/4	24-3/16	7.2	15.4	2.5	3.0	R35	R50
4-0/5-2	E	47-1/2	61-1/2	43-1/4	25-3/16	7.5	16.0	2.5	3.0	R35	R50
4-0/5-6	E	47-1/2	65-1/2	43-1/4	27-3/16	8.1	17.2	2.5	3.0	R35	R50
4-0/6-0	E	47-1/2	71-1/2	43-1/4	30-3/16	9.0	18.9	2.5	3.0	R35	R50
4-0/6-6	E	47-1/2	77-1/2	43-1/4	33-3/16	9.9	20.7	2.5	3.0	R35	—
4-6/3-0		53-1/2	35-1/2	49-1/4	12-3/16	4.1	9.5	2.5	3.0	—	R50
4-6/3-2		53-1/2	37-1/2	49-1/4	13-3/16	4.5	10.2	2.5	3.0	—	R50
4-6/3-6		53-1/2	41-1/2	49-1/4	15-3/16	5.2	11.6	2.5	3.0	—	R50
4-6/3-10		53-1/2	45-1/2	49-1/4	17-3/16	5.8	12.9	2.5	3.0	—	R50
4-6/4-0		53-1/2	47-1/2	49-1/4	18-3/16	6.2	13.6	2.5	3.0	—	R50
4-6/4-4		53-1/2	51-1/2	49-1/4	20-3/16	6.9	14.9	2.5	3.0	—	R50
4-6/4-6		53-1/2	53-1/2	49-1/4	21-3/16	7.2	15.6	2.5	3.0	—	R50
4-6/5-0	E	53-1/2	59-1/2	49-1/4	24-3/16	8.2	17.6	2.5	3.0	—	R50
4-6/5-2	E	53-1/2	61-1/2	49-1/4	25-3/16	8.6	18.3	2.5	3.0	—	R50
4-6/5-6	E	53-1/2	65-1/2	49-1/4	27-3/16	9.3	19.6	2.5	3.0	—	R50

3 of 3

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.

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

(—) = Not Available

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



250 Series Single-Hung

Design Data

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

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
4-0/3-0		47-1/2	35-1/2	19-1/4	12-3/16	1.6	7.2	2.5	3.0	R35	R50
4-0/3-2		47-1/2	37-1/2	19-1/4	13-3/16	1.7	7.7	2.5	3.0	R35	R50
4-0/3-6		47-1/2	41-1/2	19-1/4	15-3/16	2.0	8.7	2.5	3.0	R35	R50
4-0/3-10		47-1/2	45-1/2	19-1/4	17-3/16	2.3	9.8	2.5	3.0	R35	R50
4-0/4-0		47-1/2	47-1/2	19-1/4	18-3/16	2.4	10.3	2.5	3.0	R35	R50
4-0/4-4		47-1/2	51-1/2	19-1/4	20-3/16	2.7	11.3	2.5	3.0	R35	R50
4-0/4-6		47-1/2	53-1/2	19-1/4	21-3/16	2.8	11.8	2.5	3.0	R35	R50
4-0/5-0		47-1/2	59-1/2	19-1/4	24-3/16	3.2	13.3	2.5	3.0	R35	R50
4-0/5-2		47-1/2	61-1/2	19-1/4	25-3/16	3.3	13.8	2.5	3.0	R35	R50
4-0/5-6		47-1/2	65-1/2	19-1/4	27-3/16	3.6	14.8	2.5	3.0	R35	R50
4-0/6-0		47-1/2	71-1/2	19-1/4	30-3/16	4.0	16.3	2.5	3.0	R35	—
4-0/6-6		47-1/2	77-1/2	19-1/4	33-3/16	4.4	17.9	2.5	3.0	NC	—
4-8/3-0		55-1/2	35-1/2	23-1/4	12-3/16	1.9	8.8	2.5	3.0	R35	R50
4-8/3-2		55-1/2	37-1/2	23-1/4	13-3/16	2.1	9.4	2.5	3.0	R35	R50
4-8/3-6		55-1/2	41-1/2	23-1/4	15-3/16	2.4	10.7	2.5	3.0	R35	R50
4-8/3-10		55-1/2	45-1/2	23-1/4	17-3/16	2.7	11.9	2.5	3.0	R35	R50
4-8/4-0		55-1/2	47-1/2	23-1/4	18-3/16	2.9	12.5	2.5	3.0	R35	R50
4-8/4-4		55-1/2	51-1/2	23-1/4	20-3/16	3.2	13.8	2.5	3.0	R35	R50
4-8/4-6		55-1/2	53-1/2	23-1/4	21-3/16	3.4	14.4	2.5	3.0	R35	R50
4-8/5-0		55-1/2	59-1/2	23-1/4	24-3/16	3.9	16.2	2.5	3.0	R35	R50
4-8/5-2		55-1/2	61-1/2	23-1/4	25-3/16	4.0	16.8	2.5	3.0	R35	R50
4-8/5-6		55-1/2	65-1/2	23-1/4	27-3/16	4.3	18.1	2.5	3.0	R35	R50
4-8/6-0		55-1/2	71-1/2	23-1/4	30-3/16	4.8	19.9	2.5	3.0	R35	—
4-8/6-6	E1	55-1/2	77-1/2	23-1/4	33-3/16	5.3	21.8	2.5	3.0	NC	—
4-11/3-0		59-1/2	35-1/2	25-1/4	12-3/16	2.1	9.6	2.5	3.0	R35	R50
4-11/3-2		59-1/2	37-1/2	25-1/4	13-3/16	2.3	10.3	2.5	3.0	R35	R50
4-11/3-6		59-1/2	41-1/2	25-1/4	15-3/16	2.6	11.6	2.5	3.0	R35	R50
4-11/3-10		59-1/2	45-1/2	25-1/4	17-3/16	3.0	13.0	2.5	3.0	R35	R50
4-11/4-0		59-1/2	47-1/2	25-1/4	18-3/16	3.1	13.6	2.5	3.0	R35	R50
4-11/4-4		59-1/2	51-1/2	25-1/4	20-3/16	3.5	15.0	2.5	3.0	R35	R50
4-11/4-6		59-1/2	53-1/2	25-1/4	21-3/16	3.7	15.7	2.5	3.0	R35	R50
4-11/5-0		59-1/2	59-1/2	25-1/4	24-3/16	4.2	17.7	2.5	3.0	R35	R50
4-11/5-2		59-1/2	61-1/2	25-1/4	25-3/16	4.4	18.4	2.5	3.0	R35	R50
4-11/5-6		59-1/2	65-1/2	25-1/4	27-3/16	4.7	19.7	2.5	3.0	R35	R50
4-11/6-0	E1	59-1/2	71-1/2	25-1/4	30-3/16	5.2	21.7	2.5	3.0	R35	—
4-11/6-6	E1	59-1/2	77-1/2	25-1/4	33-3/16	5.8	23.7	2.5	3.0	NC	—
5-4/3-0		63-1/2	35-1/2	27-1/4	12-3/16	2.3	10.4	2.5	3.0	R35	R50
5-4/3-2		63-1/2	37-1/2	27-1/4	13-3/16	2.5	11.1	2.5	3.0	R35	R50
5-4/3-6		63-1/2	41-1/2	27-1/4	15-3/16	2.8	12.6	2.5	3.0	R35	R50
5-4/3-10		63-1/2	45-1/2	27-1/4	17-3/16	3.2	14.0	2.5	3.0	R35	R50
5-4/4-0		63-1/2	47-1/2	27-1/4	18-3/16	3.4	14.8	2.5	3.0	R35	R50
5-4/4-4		63-1/2	51-1/2	27-1/4	20-3/16	3.8	16.2	2.5	3.0	R35	R50
5-4/4-6		63-1/2	53-1/2	27-1/4	21-3/16	4.0	17.0	2.5	3.0	R35	R50
5-4/5-0		63-1/2	59-1/2	27-1/4	24-3/16	4.5	19.1	2.5	3.0	R35	R50
5-4/5-2		63-1/2	61-1/2	27-1/4	25-3/16	4.7	19.9	2.5	3.0	R35	R50
5-4/5-6	E1	63-1/2	65-1/2	27-1/4	27-3/16	5.1	21.3	2.5	3.0	R35	R50
5-4/6-0	E	63-1/2	71-1/2	27-1/4	30-3/16	5.7	23.5	2.5	3.0	R35	—
5-4/6-6	E	63-1/2	77-1/2	27-1/4	33-3/16	6.2	25.7	2.5	3.0	NC	—

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.

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

1 of 2

(—) = Not Available

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

NC = Composites over 72" tall are not WDMA/AAMA Certified.



250 Series Single-Hung

Design Data

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

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
6-0/3-0		71-1/2	35-1/2	31-1/4	12-3/16	2.6	12.0	2.5	3.0	R35	R50
6-0/3-2		71-1/2	37-1/2	31-1/4	13-3/16	2.8	12.8	2.5	3.0	R35	R50
6-0/3-6		71-1/2	41-1/2	31-1/4	15-3/16	3.3	14.5	2.5	3.0	R35	R50
6-0/3-10		71-1/2	45-1/2	31-1/4	17-3/16	3.7	16.2	2.5	3.0	R35	R50
6-0/4-0		71-1/2	47-1/2	31-1/4	18-3/16	3.9	17.0	2.5	3.0	R35	R50
6-0/4-4		71-1/2	51-1/2	31-1/4	20-3/16	4.3	18.7	2.5	3.0	R35	R50
6-0/4-6		71-1/2	53-1/2	31-1/4	21-3/16	4.6	19.5	2.5	3.0	R35	R50
6-0/5-0	E1	71-1/2	59-1/2	31-1/4	24-3/16	5.2	22.1	2.5	3.0	R35	R50
6-0/5-2	E1	71-1/2	61-1/2	31-1/4	25-3/16	5.4	22.9	2.5	3.0	R35	R50
6-0/5-6	E	71-1/2	65-1/2	31-1/4	27-3/16	5.9	24.6	2.5	3.0	R35	R50
6-0/6-0	E	71-1/2	71-1/2	31-1/4	30-3/16	6.5	27.1	2.5	3.0	R35	—
6-0/6-6	E	71-1/2	77-1/2	31-1/4	33-3/16	7.2	29.6	2.5	3.0	NC	—
6-4/3-0		75-1/2	35-1/2	33-1/4	12-3/16	2.8	12.8	2.5	3.0	R35	—
6-4/3-2		75-1/2	37-1/2	33-1/4	13-3/16	3.0	13.7	2.5	3.0	R35	—
6-4/3-6		75-1/2	41-1/2	33-1/4	15-3/16	3.5	15.5	2.5	3.0	R35	—
6-4/3-10		75-1/2	45-1/2	33-1/4	17-3/16	3.9	17.2	2.5	3.0	R35	—
6-4/4-0		75-1/2	47-1/2	33-1/4	18-3/16	4.2	18.1	2.5	3.0	R35	—
6-4/4-4		75-1/2	51-1/2	33-1/4	20-3/16	4.6	19.9	2.5	3.0	R35	—
6-4/4-6		75-1/2	53-1/2	33-1/4	21-3/16	4.8	20.8	2.5	3.0	R35	—
6-4/5-0	E1	75-1/2	59-1/2	33-1/4	24-3/16	5.5	23.5	2.5	3.0	R35	—
6-4/5-2	E	75-1/2	61-1/2	33-1/4	25-3/16	5.8	24.4	2.5	3.0	R35	—
6-4/5-6	E	75-1/2	65-1/2	33-1/4	27-3/16	6.2	26.2	2.5	3.0	R35	—
6-4/6-0	E	75-1/2	71-1/2	33-1/4	30-3/16	6.9	28.9	2.5	3.0	R35	—
6-4/6-6	E	75-1/2	77-1/2	33-1/4	33-3/16	7.6	31.6	2.5	3.0	NC	—
7-0/3-0		83-1/2	35-1/2	37-1/4	12-3/16	3.1	14.3	2.5	3.0	R35	—
7-0/3-2		83-1/2	37-1/2	37-1/4	13-3/16	3.4	15.4	2.5	3.0	R35	—
7-0/3-6		83-1/2	41-1/2	37-1/4	15-3/16	3.9	17.4	2.5	3.0	R35	—
7-0/3-10		83-1/2	45-1/2	37-1/4	17-3/16	4.4	19.4	2.5	3.0	R35	—
7-0/4-0		83-1/2	47-1/2	37-1/4	18-3/16	4.7	20.4	2.5	3.0	R35	—
7-0/4-4		83-1/2	51-1/2	37-1/4	20-3/16	5.2	22.4	2.5	3.0	R35	—
7-0/4-6		83-1/2	53-1/2	37-1/4	21-3/16	5.4	23.4	2.5	3.0	R35	—
7-0/5-0	E	83-1/2	59-1/2	37-1/4	24-3/16	6.2	26.4	2.5	3.0	R35	—
7-0/5-2	E	83-1/2	61-1/2	37-1/4	25-3/16	6.5	27.4	2.5	3.0	R35	—
7-0/5-6	E	83-1/2	65-1/2	37-1/4	27-3/16	7.0	29.5	2.5	3.0	R35	—
7-0/6-0	E	83-1/2	71-1/2	37-1/4	30-3/16	7.8	32.5	2.5	3.0	R35	—
7-0/6-6	E	83-1/2	77-1/2	37-1/4	33-3/16	8.5	35.5	2.5	3.0	NC	—
8-0/3-0		95-1/2	35-1/2	43-1/4	12-3/16	3.6	16.7	2.5	3.0	R35	—
8-0/3-2		95-1/2	37-1/2	43-1/4	13-3/16	3.9	17.9	2.5	3.0	R35	—
8-0/3-6		95-1/2	41-1/2	43-1/4	15-3/16	4.5	20.2	2.5	3.0	R35	—
8-0/3-10		95-1/2	45-1/2	43-1/4	17-3/16	5.1	22.6	2.5	3.0	R35	—
8-0/4-0		95-1/2	47-1/2	43-1/4	18-3/16	5.4	23.8	2.5	3.0	R35	—
8-0/4-4		95-1/2	51-1/2	43-1/4	20-3/16	6.0	26.1	2.5	3.0	R35	—
8-0/4-6		95-1/2	53-1/2	43-1/4	21-3/16	6.3	27.3	2.5	3.0	R35	—
8-0/5-0	E	95-1/2	59-1/2	43-1/4	24-3/16	7.2	30.8	2.5	3.0	R35	—
8-0/5-2	E	95-1/2	61-1/2	43-1/4	25-3/16	7.5	32.0	2.5	3.0	R35	—
8-0/5-6	E	95-1/2	65-1/2	43-1/4	27-3/16	8.1	34.3	2.5	3.0	R35	—
8-0/6-0	E	95-1/2	71-1/2	43-1/4	30-3/16	9.0	37.8	2.5	3.0	R35	—

2 of 2

Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

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

(—) = Not Available

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

NC = Composites over 72" tall are not WDMA/AAMA Certified.



250 Series Single-Hung

Design Data

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

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ⁽¹⁾	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
6-0/3-0		71-1/2	35-1/2	19-1/4	12-3/16	1.6	10.8	2.5	3.0	R35	—
6-0/3-2		71-1/2	37-1/2	19-1/4	13-3/16	1.7	11.6	2.5	3.0	R35	—
6-0/3-6		71-1/2	41-1/2	19-1/4	15-3/16	2.0	13.1	2.5	3.0	R35	—
6-0/3-10		71-1/2	45-1/2	19-1/4	17-3/16	2.3	14.6	2.5	3.0	R35	—
6-0/4-0		71-1/2	47-1/2	19-1/4	18-3/16	2.4	15.4	2.5	3.0	R35	—
6-0/4-3		71-1/2	51-1/2	19-1/4	20-3/16	2.7	16.9	2.5	3.0	R35	—
6-0/4-6		71-1/2	53-1/2	19-1/4	21-3/16	2.8	17.7	2.5	3.0	R35	—
6-0/5-0		71-1/2	59-1/2	19-1/4	24-3/16	3.2	20.0	2.5	3.0	R35	—
6-0/5-2		71-1/2	61-1/2	19-1/4	25-3/16	3.3	20.7	2.5	3.0	R35	—
6-0/5-6		71-1/2	65-1/2	19-1/4	27-3/16	3.6	22.2	2.5	3.0	R30	—
6-0/6-0		71-1/2	71-1/2	19-1/4	30-3/16	4.0	24.5	2.5	3.0	R30	—
6-0/6-6		71-1/2	77-1/2	19-1/4	33-3/16	4.4	26.8	2.5	3.0	NC	—
7-0/3-0		83-1/2	35-1/2	23-1/4	12-3/16	1.9	13.2	2.5	3.0	R35	—
7-0/3-2		83-1/2	37-1/2	23-1/4	13-3/16	2.1	14.1	2.5	3.0	R35	—
7-0/3-6		83-1/2	41-1/2	23-1/4	15-3/16	2.4	16.0	2.5	3.0	R35	—
7-0/3-10		83-1/2	45-1/2	23-1/4	17-3/16	2.7	17.8	2.5	3.0	R35	—
7-0/4-0		83-1/2	47-1/2	23-1/4	18-3/16	2.9	18.8	2.5	3.0	R35	—
7-0/4-3		83-1/2	51-1/2	23-1/4	20-3/16	3.2	20.6	2.5	3.0	R35	—
7-0/4-6		83-1/2	53-1/2	23-1/4	21-3/16	3.4	21.6	2.5	3.0	R35	—
7-0/5-0		83-1/2	59-1/2	23-1/4	24-3/16	3.9	24.3	2.5	3.0	R35	—
7-0/5-2		83-1/2	61-1/2	23-1/4	25-3/16	4.0	25.3	2.5	3.0	R35	—
7-0/5-6		83-1/2	65-1/2	23-1/4	27-3/16	4.3	27.1	2.5	3.0	R30	—
7-0/6-0		83-1/2	71-1/2	23-1/4	30-3/16	4.8	29.9	2.5	3.0	R30	—
7-0/6-6	E1	83-1/2	77-1/2	23-1/4	33-3/16	5.3	32.7	2.5	3.0	NC	—
7-6/3-0		89-1/2	35-1/2	24-7/8	12-3/16	2.1	14.4	2.5	3.0	R35	—
7-6/3-2		89-1/2	37-1/2	24-7/8	13-3/16	2.3	15.4	2.5	3.0	R35	—
7-6/3-6		89-1/2	41-1/2	24-7/8	15-3/16	2.6	17.4	2.5	3.0	R35	—
7-6/3-10		89-1/2	45-1/2	24-7/8	17-3/16	3.0	19.5	2.5	3.0	R35	—
7-6/4-0		89-1/2	47-1/2	24-7/8	18-3/16	3.1	20.5	2.5	3.0	R35	—
7-6/4-3		89-1/2	51-1/2	24-7/8	20-3/16	3.5	22.5	2.5	3.0	R35	—
7-6/4-6		89-1/2	53-1/2	24-7/8	21-3/16	3.7	23.5	2.5	3.0	R35	—
7-6/5-0		89-1/2	59-1/2	24-7/8	24-3/16	4.2	26.5	2.5	3.0	R35	—
7-6/5-2		89-1/2	61-1/2	24-7/8	25-3/16	4.4	27.5	2.5	3.0	R35	—
7-6/5-6		89-1/2	65-1/2	24-7/8	27-3/16	4.7	29.6	2.5	3.0	R30	—
7-6/6-0	E1	89-1/2	71-1/2	24-7/8	30-3/16	5.2	32.6	2.5	3.0	R30	—
7-6/6-6	E	89-1/2	77-1/2	24-7/8	33-3/16	5.8	35.6	2.5	3.0	NC	—
8-0/3-0		94-1/2	35-1/2	27-1/4	12-3/16	2.3	15.6	2.5	3.0	R35	—
8-0/3-2		94-1/2	37-1/2	27-1/4	13-3/16	2.5	16.7	2.5	3.0	R35	—
8-0/3-6		94-1/2	41-1/2	27-1/4	15-3/16	2.8	18.9	2.5	3.0	R35	—
8-0/3-10		94-1/2	45-1/2	27-1/4	17-3/16	3.2	21.1	2.5	3.0	R35	—
8-0/4-0		94-1/2	47-1/2	27-1/4	18-3/16	3.4	22.1	2.5	3.0	R35	—
8-0/4-3		94-1/2	51-1/2	27-1/4	20-3/16	3.8	24.3	2.5	3.0	R35	—
8-0/4-6		94-1/2	53-1/2	27-1/4	21-3/16	4.0	25.4	2.5	3.0	R35	—
8-0/5-0		94-1/2	59-1/2	27-1/4	24-3/16	4.5	28.7	2.5	3.0	R35	—
8-0/5-2		94-1/2	61-1/2	27-1/4	25-3/16	4.7	29.8	2.5	3.0	R35	—
8-0/5-6	E1	94-1/2	65-1/2	27-1/4	27-3/16	5.1	32.0	2.5	3.0	R30	—
8-0/6-0	E1	94-1/2	71-1/2	27-1/4	30-3/16	5.7	35.3	2.5	3.0	R30	—
9-0/3-0		107-1/2	35-1/2	31-1/4	12-3/16	2.6	18.0	2.5	3.0	R35	—
9-0/3-2		107-1/2	37-1/2	31-1/4	13-3/16	2.8	19.2	2.5	3.0	R35	—
9-0/3-6		107-1/2	41-1/2	31-1/4	15-3/16	3.3	21.7	2.5	3.0	R35	—
9-0/3-10		107-1/2	45-1/2	31-1/4	17-3/16	3.7	24.3	2.5	3.0	R35	—
9-0/4-0		107-1/2	47-1/2	31-1/4	18-3/16	3.9	25.5	2.5	3.0	R35	—
9-0/4-3		107-1/2	51-1/2	31-1/4	20-3/16	4.3	28.0	2.5	3.0	R35	—
9-0/4-6		107-1/2	53-1/2	31-1/4	21-3/16	4.6	29.3	2.5	3.0	R35	—
9-0/5-0	E1	107-1/2	59-1/2	31-1/4	24-3/16	5.2	33.1	2.5	3.0	R35	—
9-0/5-2	E1	107-1/2	61-1/2	31-1/4	25-3/16	5.4	34.3	2.5	3.0	R35	—

(—) = Not Available

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

NC = Composites over 72" tall are not WDMA/AAMA Certified.



250 Series Single-Hung

Design Data

1-WIDE VENT UNITS — COTTAGE SASH

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft²		Annealed	Tempered	Standard	Upgrade
2-0/3-0		23-1/2	35-1/2	19-1/4	9-1/8	1.2	3.6	2.5	3.0	R35	R50
2-0/3-2		23-1/2	37-1/2	19-1/4	9-15/16	1.3	3.8	2.5	3.0	R35	R50
2-0/3-6		23-1/2	41-1/2	19-1/4	11-9/16	1.5	4.3	2.5	3.0	R35	R50
2-0/3-10		23-1/2	45-1/2	19-1/4	13-1/8	1.7	4.8	2.5	3.0	R35	R50
2-0/4-0		23-1/2	47-1/2	19-1/4	13-15/16	1.8	5.1	2.5	3.0	R35	R50
2-0/4-3		23-1/2	51-1/2	19-1/4	15-9/16	2.0	5.6	2.5	3.0	R35	R50
2-0/4-6		23-1/2	53-1/2	19-1/4	16-5/16	2.1	5.8	2.5	3.0	R35	R50
2-0/5-0		23-1/2	59-1/2	19-1/4	18-3/4	2.5	6.6	2.5	3.0	R35	R50
2-0/5-2		23-1/2	61-1/2	19-1/4	19-9/16	2.6	6.8	2.5	3.0	R35	R50
2-0/5-6		23-1/2	65-1/2	19-1/4	21-1/8	2.8	7.3	2.5	3.0	R35	R50
2-4/3-0		27-1/2	35-1/2	23-1/4	9-1/8	1.4	4.4	2.5	3.0	R35	R50
2-4/3-2		27-1/2	37-1/2	23-1/4	9-15/16	1.6	4.7	2.5	3.0	R35	R50
2-4/3-6		27-1/2	41-1/2	23-1/4	11-9/16	1.8	5.3	2.5	3.0	R35	R50
2-4/3-10		27-1/2	45-1/2	23-1/4	13-1/8	2.1	5.9	2.5	3.0	R35	R50
2-4/4-0		27-1/2	47-1/2	23-1/4	13-15/16	2.2	6.2	2.5	3.0	R35	R50
2-4/4-3		27-1/2	51-1/2	23-1/4	15-9/16	2.5	6.8	2.5	3.0	R35	R50
2-4/4-6		27-1/2	53-1/2	23-1/4	16-5/16	2.6	7.1	2.5	3.0	R35	R50
2-4/5-0		27-1/2	59-1/2	23-1/4	18-3/4	3.0	8.0	2.5	3.0	R35	R50
2-4/5-2		27-1/2	61-1/2	23-1/4	19-9/16	3.1	8.3	2.5	3.0	R35	R50
2-4/5-6		27-1/2	65-1/2	23-1/4	21-1/8	3.4	9.0	2.5	3.0	R35	R50
2-6/3-0		29-1/2	35-1/2	25-1/4	9-1/8	1.6	4.8	2.5	3.0	R35	R50
2-6/3-2		29-1/2	37-1/2	25-1/4	9-15/16	1.7	5.1	2.5	3.0	R35	R50
2-6/3-6		29-1/2	41-1/2	25-1/4	11-9/16	2.0	5.8	2.5	3.0	R35	R50
2-6/3-10		29-1/2	45-1/2	25-1/4	13-1/8	2.3	6.4	2.5	3.0	R35	R50
2-6/4-0		29-1/2	47-1/2	25-1/4	13-15/16	2.4	6.8	2.5	3.0	R35	R50
2-6/4-4		29-1/2	51-1/2	25-1/4	15-9/16	2.7	7.4	2.5	3.0	R35	R50
2-6/4-6		29-1/2	53-1/2	25-1/4	16-5/16	2.8	7.8	2.5	3.0	R35	R50
2-6/5-0		29-1/2	59-1/2	25-1/4	18-3/4	3.2	8.8	2.5	3.0	R35	R50
2-6/5-2		29-1/2	61-1/2	25-1/4	19-9/16	3.4	9.1	2.5	3.0	R35	R50
2-6/5-6		29-1/2	65-1/2	25-1/4	21-1/8	3.7	9.8	2.5	3.0	R35	R50
2-8/3-0		31-1/2	35-1/2	27-1/4	9-1/8	1.7	5.2	2.5	3.0	R35	R50
2-8/3-2		31-1/2	37-1/2	27-1/4	9-15/16	1.8	5.5	2.5	3.0	R35	R50
2-8/3-6		31-1/2	41-1/2	27-1/4	11-9/16	2.1	6.2	2.5	3.0	R35	R50
2-8/3-10		31-1/2	45-1/2	27-1/4	13-1/8	2.4	7.0	2.5	3.0	R35	R50
2-8/4-0		31-1/2	47-1/2	27-1/4	13-15/16	2.6	7.3	2.5	3.0	R35	R50
2-8/4-3		31-1/2	51-1/2	27-1/4	15-9/16	2.9	8.0	2.5	3.0	R35	R50
2-8/4-6		31-1/2	53-1/2	27-1/4	16-5/16	3.0	8.4	2.5	3.0	R35	R50
2-8/5-0		31-1/2	59-1/2	27-1/4	18-3/4	3.5	9.5	2.5	3.0	R35	R50
2-8/5-2		31-1/2	61-1/2	27-1/4	19-9/16	3.7	9.9	2.5	3.0	R35	R50
2-8/5-6		31-1/2	65-1/2	27-1/4	21-1/8	4.0	10.6	2.5	3.0	R35	R50

1 of 2

(-) = Not Available

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



250 Series Single-Hung

Design Data

1-WIDE VENT UNITS — COTTAGE SASH

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
3-0/3-0		35-1/2	35-1/2	31-1/4	9-1/8	1.9	5.9	2.5	3.0	R35	R50
3-0/3-2		35-1/2	37-1/2	31-1/4	9-15/16	2.1	6.4	2.5	3.0	R35	R50
3-0/3-6		35-1/2	41-1/2	31-1/4	11-9/16	2.5	7.2	2.5	3.0	R35	R50
3-0/3-10		35-1/2	45-1/2	31-1/4	13-1/8	2.8	8.0	2.5	3.0	R35	R50
3-0/4-0		35-1/2	47-1/2	31-1/4	13-15/16	3.0	8.4	2.5	3.0	R35	R50
3-0/4-3		35-1/2	51-1/2	31-1/4	15-9/16	3.3	9.3	2.5	3.0	R35	R50
3-0/4-6		35-1/2	53-1/2	31-1/4	16-5/16	3.5	9.7	2.5	3.0	R35	R50
3-0/5-0		35-1/2	59-1/2	31-1/4	18-3/4	4.0	11.0	2.5	3.0	R35	R50
3-0/5-2		35-1/2	61-1/2	31-1/4	19-9/16	4.2	11.4	2.5	3.0	R35	R50
3-0/5-6		35-1/2	65-1/2	31-1/4	21-1/8	4.5	12.2	2.5	3.0	R35	R50
3-2/3-0		37-1/2	35-1/2	33-1/4	9-1/8	2.1	6.3	2.5	3.0	R35	R50
3-2/3-2		37-1/2	37-1/2	33-1/4	9-15/16	2.3	6.8	2.5	3.0	R35	R50
3-2/3-6		37-1/2	41-1/2	33-1/4	11-9/16	2.6	7.7	2.5	3.0	R35	R50
3-2/3-10		37-1/2	45-1/2	33-1/4	13-1/8	3.0	8.6	2.5	3.0	R35	R50
3-2/4-0		37-1/2	47-1/2	33-1/4	13-15/16	3.2	9.0	2.5	3.0	R35	R50
3-2/4-3		37-1/2	51-1/2	33-1/4	15-9/16	3.5	9.9	2.5	3.0	R35	R50
3-2/4-6		37-1/2	53-1/2	33-1/4	16-5/16	3.7	10.3	2.5	3.0	R35	R50
3-2/5-0		37-1/2	59-1/2	33-1/4	18-3/4	4.3	11.7	2.5	3.0	R35	R50
3-2/5-2		37-1/2	61-1/2	33-1/4	19-9/16	4.5	12.1	2.5	3.0	R35	R50
3-2/5-6		37-1/2	65-1/2	33-1/4	21-1/8	4.8	13.0	2.5	3.0	R35	R50
3-6/3-0		41-1/2	35-1/2	37-1/4	9-1/8	2.3	7.1	2.5	3.0	R35	R50
3-6/3-2		41-1/2	37-1/2	37-1/4	9-15/16	2.5	7.6	2.5	3.0	R35	R50
3-6/3-6		41-1/2	41-1/2	37-1/4	11-9/16	2.9	8.6	2.5	3.0	R35	R50
3-6/3-10		41-1/2	45-1/2	37-1/4	13-1/8	3.4	9.6	2.5	3.0	R35	R50
3-6/4-0		41-1/2	47-1/2	37-1/4	13-15/16	3.6	10.1	2.5	3.0	R35	R50
3-6/4-3		41-1/2	51-1/2	37-1/4	15-9/16	4.0	11.1	2.5	3.0	R35	R50
3-6/4-6		41-1/2	53-1/2	37-1/4	16-5/16	4.2	11.6	2.5	3.0	R35	R50
3-6/5-0		41-1/2	59-1/2	37-1/4	18-3/4	4.8	13.1	2.5	3.0	R35	R50
3-6/5-2		41-1/2	61-1/2	37-1/4	19-9/16	5.0	13.6	2.5	3.0	R35	R50
3-6/5-6		41-1/2	65-1/2	37-1/4	21-1/8	5.4	14.6	2.5	3.0	R35	R50
4-0/3-0		47-1/2	35-1/2	43-1/4	9-1/8	2.7	8.3	2.5	3.0	R35	R50
4-0/3-2		47-1/2	37-1/2	43-1/4	9-15/16	2.9	8.9	2.5	3.0	R35	R50
4-0/3-6		47-1/2	41-1/2	43-1/4	11-9/16	3.4	10.1	2.5	3.0	R35	R50
4-0/3-10		47-1/2	45-1/2	43-1/4	13-1/8	3.9	11.2	2.5	3.0	R35	R50
4-0/4-0		47-1/2	47-1/2	43-1/4	13-15/16	4.1	11.8	2.5	3.0	R35	R50
4-0/4-3		47-1/2	51-1/2	43-1/4	15-9/16	4.6	13.0	2.5	3.0	R35	R50
4-0/4-6		47-1/2	53-1/2	43-1/4	16-5/16	4.9	13.6	2.5	3.0	R35	R50
4-0/5-0		47-1/2	59-1/2	43-1/4	18-3/4	5.6	15.3	2.5	3.0	R35	R50
4-0/5-2		47-1/2	61-1/2	43-1/4	19-9/16	5.8	15.9	2.5	3.0	R35	R50
4-0/5-6		47-1/2	65-1/2	43-1/4	21-1/8	6.3	17.1	2.5	3.0	R35	R50
4-6/3-0		53-1/2	35-1/2	49-1/4	9-1/8	3.1	9.5	2.5	3.0	—	R50
4-6/3-2		53-1/2	37-1/2	49-1/4	9-15/16	3.4	10.2	2.5	3.0	—	R50
4-6/3-6		53-1/2	41-1/2	49-1/4	11-9/16	3.9	11.5	2.5	3.0	—	R50
4-6/3-10		53-1/2	45-1/2	49-1/4	13-1/8	4.5	12.8	2.5	3.0	—	R50
4-6/4-0		53-1/2	47-1/2	49-1/4	13-15/16	4.7	13.5	2.5	3.0	—	R50
4-6/4-3		53-1/2	51-1/2	49-1/4	15-9/16	5.3	14.8	2.5	3.0	—	R50
4-6/4-6		53-1/2	53-1/2	49-1/4	16-5/16	5.5	15.5	2.5	3.0	—	R50
4-6/5-0		53-1/2	59-1/2	49-1/4	18-3/4	6.4	17.5	2.5	3.0	—	R50
4-6/5-2		53-1/2	61-1/2	49-1/4	19-9/16	6.6	18.2	2.5	3.0	—	R50
4-6/5-6		53-1/2	65-1/2	49-1/4	21-1/8	7.2	19.5	3.0	3.0	—	R50

2 of 2

(—) = Not Available

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



250 Series Single-Hung

Design Data

2-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION — COTTAGE SASH

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft²		Annealed	Tempered	Standard	Upgrade
4-0/3-0		47-1/2	35-1/2	19-1/4	9-1/8	2.4	8.1	2.5	3.0	R35	R50
4-0/3-2		47-1/2	37-1/2	19-1/4	9-15/16	2.6	8.7	2.5	3.0	R35	R50
4-0/3-6		47-1/2	41-1/2	19-1/4	11-9/16	3.0	9.8	2.5	3.0	R35	R50
4-0/3-10		47-1/2	45-1/2	19-1/4	13-1/8	3.4	11.0	2.5	3.0	R35	R50
4-0/4-0		47-1/2	47-1/2	19-1/4	13-15/16	3.6	11.5	2.5	3.0	R35	R50
4-0/4-4		47-1/2	51-1/2	19-1/4	15-9/16	4.0	12.7	2.5	3.0	R35	R50
4-0/4-6		47-1/2	53-1/2	19-1/4	16-5/16	4.2	13.3	2.5	3.0	R35	R50
4-0/5-0		47-1/2	59-1/2	19-1/4	18-3/4	5.0	15.0	2.5	3.0	R35	R50
4-0/5-2		47-1/2	61-1/2	19-1/4	19-9/16	5.2	15.5	2.5	3.0	R35	R50
4-0/5-6		47-1/2	65-1/2	19-1/4	21-1/8	5.6	16.7	2.5	3.0	R35	R50
4-8/3-0		55-1/2	35-1/2	23-1/4	9-1/8	2.8	9.7	2.5	3.0	R35	R50
4-8/3-2		55-1/2	37-1/2	23-1/4	9-15/16	3.2	10.4	2.5	3.0	R35	R50
4-8/3-6		55-1/2	41-1/2	23-1/4	11-9/16	3.6	11.7	2.5	3.0	R35	R50
4-8/3-10		55-1/2	45-1/2	23-1/4	13-1/8	4.2	13.1	2.5	3.0	R35	R50
4-8/4-0		55-1/2	47-1/2	23-1/4	13-15/16	4.4	13.8	2.5	3.0	R35	R50
4-8/4-4		55-1/2	51-1/2	23-1/4	15-9/16	5.0	15.2	2.5	3.0	R35	R50
4-8/4-6		55-1/2	53-1/2	23-1/4	16-5/16	5.2	15.8	2.5	3.0	R35	R50
4-8/5-0		55-1/2	59-1/2	23-1/4	18-3/4	6.0	17.9	2.5	3.0	R35	R50
4-8/5-2		55-1/2	61-1/2	23-1/4	19-9/16	6.2	18.6	2.5	3.0	R35	R50
4-8/5-6		55-1/2	65-1/2	23-1/4	21-1/8	6.8	19.9	2.5	3.0	R35	R50
4-11/3-0		59-1/2	35-1/2	25-1/4	9-1/8	3.2	10.5	2.5	3.0	R35	R50
4-11/3-2		59-1/2	37-1/2	25-1/4	9-15/16	3.4	11.2	2.5	3.0	R35	R50
4-11/3-6		59-1/2	41-1/2	25-1/4	11-9/16	4.0	12.7	2.5	3.0	R35	R50
4-11/3-10		59-1/2	45-1/2	25-1/4	13-1/8	4.6	14.2	2.5	3.0	R35	R50
4-11/4-0		59-1/2	47-1/2	25-1/4	13-15/16	4.8	14.9	2.5	3.0	R35	R50
4-11/4-4		59-1/2	51-1/2	25-1/4	15-9/16	5.4	16.4	2.5	3.0	R35	R50
4-11/4-6		59-1/2	53-1/2	25-1/4	16-5/16	5.6	17.1	2.5	3.0	R35	R50
4-11/5-0		59-1/2	59-1/2	25-1/4	18-3/4	6.4	19.3	2.5	3.0	R35	R50
4-11/5-2		59-1/2	61-1/2	25-1/4	19-9/16	6.8	20.1	2.5	3.0	R35	R50
4-11/5-6		59-1/2	65-1/2	25-1/4	21-1/8	7.4	21.5	2.5	3.0	R35	R50
5-4/3-0		63-1/2	35-1/2	27-1/4	9-1/8	3.4	11.3	2.5	3.0	R35	R50
5-4/3-2		63-1/2	37-1/2	27-1/4	9-15/16	3.6	12.1	2.5	3.0	R35	R50
5-4/3-6		63-1/2	41-1/2	27-1/4	11-9/16	4.2	13.7	2.5	3.0	R35	R50
5-4/3-10		63-1/2	45-1/2	27-1/4	13-1/8	4.8	15.3	2.5	3.0	R35	R50
5-4/4-0		63-1/2	47-1/2	27-1/4	13-15/16	5.2	16.0	2.5	3.0	R35	R50
5-4/4-4		63-1/2	51-1/2	27-1/4	15-9/16	5.8	17.6	2.5	3.0	R35	R50
5-4/4-6		63-1/2	53-1/2	27-1/4	16-5/16	6.0	18.4	2.5	3.0	R35	R50
5-4/5-0		63-1/2	59-1/2	27-1/4	18-3/4	7.0	20.8	2.5	3.0	R35	R50
5-4/5-2		63-1/2	61-1/2	27-1/4	19-9/16	7.4	21.6	2.5	3.0	R35	R50
5-4/5-6		63-1/2	65-1/2	27-1/4	21-1/8	8.0	23.2	2.5	3.0	R35	R50
6-0/3-0		71-1/2	35-1/2	31-1/4	9-1/8	3.8	12.9	2.5	3.0	R35	R50
6-0/3-2		71-1/2	37-1/2	31-1/4	9-15/16	4.2	13.8	2.5	3.0	R35	R50
6-0/3-6		71-1/2	41-1/2	31-1/4	11-9/16	5.0	15.6	2.5	3.0	R35	R50
6-0/3-10		71-1/2	45-1/2	31-1/4	13-1/8	5.6	17.4	2.5	3.0	R35	R50
6-0/4-0		71-1/2	47-1/2	31-1/4	13-15/16	6.0	18.3	2.5	3.0	R35	R50
6-0/4-4		71-1/2	51-1/2	31-1/4	15-9/16	6.6	20.1	2.5	3.0	R35	R50
6-0/4-6		71-1/2	53-1/2	31-1/4	16-5/16	7.0	21.0	2.5	3.0	R35	R50
6-0/5-0		71-1/2	59-1/2	31-1/4	18-3/4	8.0	23.7	2.5	3.0	R35	R50
6-0/5-2		71-1/2	61-1/2	31-1/4	19-9/16	8.4	24.6	2.5	3.0	R35	R50
6-0/5-6		71-1/2	65-1/2	31-1/4	21-1/8	9.0	26.4	2.5	3.0	R35	R50

1 of 2

(—) = Not Available

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



250 Series Single-Hung

Design Data

2-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION — COTTAGE SASH

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft²		Annealed	Tempered	Standard	Upgrade
6-4/3-0		75-1/2	35-1/2	33-1/4	9-1/8	4.2	13.7	2.5	3.0	R35	—
6-4/3-2		75-1/2	37-1/2	33-1/4	9-15/16	4.6	14.6	2.5	3.0	R35	—
6-4/3-6		75-1/2	41-1/2	33-1/4	11-9/16	5.2	16.5	2.5	3.0	R35	—
6-4/3-10		75-1/2	45-1/2	33-1/4	13-1/8	6.0	18.5	2.5	3.0	R35	—
6-4/4-0		75-1/2	47-1/2	33-1/4	13-15/16	6.4	19.4	2.5	3.0	R35	—
6-4/4-4		75-1/2	51-1/2	33-1/4	15-9/16	7.0	21.3	2.5	3.0	R35	—
6-4/4-6		75-1/2	53-1/2	33-1/4	16-5/16	7.4	22.3	2.5	3.0	R35	—
6-4/5-0		75-1/2	59-1/2	33-1/4	18-3/4	8.6	25.2	2.5	3.0	R35	—
6-4/5-2		75-1/2	61-1/2	33-1/4	19-9/16	9.0	26.1	2.5	3.0	R35	—
6-4/5-6		75-1/2	65-1/2	33-1/4	21-1/8	9.6	28.0	2.5	3.0	R35	—
7-0/3-0		83-1/2	35-1/2	37-1/4	9-1/8	4.6	15.2	2.5	3.0	R35	—
7-0/3-2		83-1/2	37-1/2	37-1/4	9-15/16	5.0	16.3	2.5	3.0	R35	—
7-0/3-6		83-1/2	41-1/2	37-1/4	11-9/16	5.8	18.5	2.5	3.0	R35	—
7-0/3-10		83-1/2	45-1/2	37-1/4	13-1/8	6.8	20.6	2.5	3.0	R35	—
7-0/4-0		83-1/2	47-1/2	37-1/4	13-15/16	7.2	21.7	2.5	3.0	R35	—
7-0/4-4		83-1/2	51-1/2	37-1/4	15-9/16	8.0	23.8	2.5	3.0	R35	—
7-0/4-6		83-1/2	53-1/2	37-1/4	16-5/16	8.4	24.9	2.5	3.0	R35	—
7-0/5-0		83-1/2	59-1/2	37-1/4	18-3/4	9.6	28.1	2.5	3.0	R35	—
7-0/5-2		83-1/2	61-1/2	37-1/4	19-9/16	10.0	29.2	2.5	3.0	R35	—
7-0/5-6		83-1/2	65-1/2	37-1/4	21-1/8	10.8	31.3	2.5	3.0	R35	—
8-0/3-0		95-1/2	35-1/2	43-1/4	9-1/8	5.4	17.6	2.5	3.0	R35	—
8-0/3-2		95-1/2	37-1/2	43-1/4	9-15/16	5.8	18.9	2.5	3.0	R35	—
8-0/3-6		95-1/2	41-1/2	43-1/4	11-9/16	6.8	21.3	2.5	3.0	R35	—
8-0/3-10		95-1/2	45-1/2	43-1/4	13-1/8	7.8	23.8	2.5	3.0	R35	—
8-0/4-0		95-1/2	47-1/2	43-1/4	13-15/16	8.2	25.0	2.5	3.0	R35	—
8-0/4-4		95-1/2	51-1/2	43-1/4	15-9/16	9.2	27.5	2.5	3.0	R35	—
8-0/4-6		95-1/2	53-1/2	43-1/4	16-5/16	9.8	28.8	2.5	3.0	R35	—
8-0/5-0		95-1/2	59-1/2	43-1/4	18-3/4	11.2	32.5	2.5	3.0	R35	—
8-0/5-2		95-1/2	61-1/2	43-1/4	19-9/16	11.6	33.7	2.5	3.0	R35	—
8-0/5-6		95-1/2	65-1/2	43-1/4	21-1/8	12.6	36.2	2.5	3.0	R35	—

2 of 2

(—) = Not Available

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



250 Series Single-Hung

Design Data

3-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION — COTTAGE SASH

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
6-0/3-0		71-1/2	35-1/2	19-1/4	9-1/8	3.6	12.7	2.5	3.0	R35	—
6-0/3-2		71-1/2	37-1/2	19-1/4	9-15/16	3.9	13.6	2.5	3.0	R35	—
6-0/3-6		71-1/2	41-1/2	19-1/4	11-9/16	4.5	15.3	2.5	3.0	R35	—
6-0/3-10		71-1/2	45-1/2	19-1/4	13-1/8	5.1	17.1	2.5	3.0	R35	—
6-0/4-0		71-1/2	47-1/2	19-1/4	13-15/16	5.4	18.0	2.5	3.0	R35	—
6-0/4-3		71-1/2	51-1/2	19-1/4	15-9/16	6.0	19.8	2.5	3.0	R35	—
6-0/4-6		71-1/2	53-1/2	19-1/4	16-5/16	6.3	20.7	2.5	3.0	R35	—
6-0/5-0		71-1/2	59-1/2	19-1/4	18-3/4	7.5	23.3	2.5	3.0	R35	—
6-0/5-2		71-1/2	61-1/2	19-1/4	19-9/16	7.8	24.2	2.5	3.0	R35	—
7-0/3-0		83-1/2	35-1/2	23-1/4	9-1/8	4.2	15.0	2.5	3.0	R35	—
7-0/3-2		83-1/2	37-1/2	23-1/4	9-15/16	4.8	16.1	2.5	3.0	R35	—
7-0/3-6		83-1/2	41-1/2	23-1/4	11-9/16	5.4	18.2	2.5	3.0	R35	—
7-0/3-10		83-1/2	45-1/2	23-1/4	13-1/8	6.3	20.3	2.5	3.0	R35	—
7-0/4-0		83-1/2	47-1/2	23-1/4	13-15/16	6.6	21.4	2.5	3.0	R35	—
7-0/4-3		83-1/2	51-1/2	23-1/4	15-9/16	7.5	23.5	2.5	3.0	R35	—
7-0/4-6		83-1/2	53-1/2	23-1/4	16-5/16	7.8	24.6	2.5	3.0	R35	—
7-0/5-0		83-1/2	59-1/2	23-1/4	18-3/4	9.0	27.7	2.5	3.0	R35	—
7-0/5-2		83-1/2	61-1/2	23-1/4	19-9/16	9.3	28.8	2.5	3.0	R35	—
7-4/3-0		89-1/2	35-1/2	24-7/8	9-1/8	4.8	16.2	2.5	3.0	R35	—
7-4/3-2		89-1/2	37-1/2	24-7/8	9-15/16	5.1	17.4	2.5	3.0	R35	—
7-4/3-6		89-1/2	41-1/2	24-7/8	11-9/16	6.0	19.7	2.5	3.0	R35	—
7-4/3-10		89-1/2	45-1/2	24-7/8	13-1/8	6.9	21.9	2.5	3.0	R35	—
7-4/4-0		89-1/2	47-1/2	24-7/8	13-15/16	7.2	23.1	2.5	3.0	R35	—
7-4/4-3		89-1/2	51-1/2	24-7/8	15-9/16	8.1	25.4	2.5	3.0	R35	—
7-4/4-6		89-1/2	53-1/2	24-7/8	16-5/16	8.4	26.5	2.5	3.0	R35	—
7-4/5-0		89-1/2	59-1/2	24-7/8	18-3/4	9.6	29.9	2.5	3.0	R35	—
7-4/5-2		89-1/2	61-1/2	24-7/8	19-9/16	10.2	31.1	2.5	3.0	R35	—
8-0/3-0		95-1/2	35-1/2	27-1/4	9-1/8	5.1	17.4	2.5	3.0	R35	—
8-0/3-2		95-1/2	37-1/2	27-1/4	9-15/16	5.4	18.6	2.5	3.0	R35	—
8-0/3-6		95-1/2	41-1/2	27-1/4	11-9/16	6.3	21.1	2.5	3.0	R35	—
8-0/3-10		95-1/2	45-1/2	27-1/4	13-1/8	7.2	23.5	2.5	3.0	R35	—
8-0/4-0		95-1/2	47-1/2	27-1/4	13-15/16	7.8	24.8	2.5	3.0	R35	—
8-0/4-3		95-1/2	51-1/2	27-1/4	15-9/16	8.7	27.2	2.5	3.0	R35	—
8-0/4-6		95-1/2	53-1/2	27-1/4	16-5/16	9.0	28.4	2.5	3.0	R35	—
8-0/5-0		95-1/2	59-1/2	27-1/4	18-3/4	10.5	32.1	2.5	3.0	R35	—
8-0/5-2		95-1/2	61-1/2	27-1/4	19-9/16	11.1	33.3	2.5	3.0	R35	—
9-0/3-0		107-1/2	35-1/2	31-1/4	9-1/8	5.7	19.8	2.5	3.0	R35	—
9-0/3-2		107-1/2	37-1/2	31-1/4	9-15/16	6.3	21.2	2.5	3.0	R35	—
9-0/3-6		107-1/2	41-1/2	31-1/4	11-9/16	7.5	24.0	2.5	3.0	R35	—
9-0/3-10		107-1/2	45-1/2	31-1/4	13-1/8	8.4	26.7	2.5	3.0	R35	—
9-0/4-0		107-1/2	47-1/2	31-1/4	13-15/16	9.0	28.1	2.5	3.0	R35	—
9-0/4-3		107-1/2	51-1/2	31-1/4	15-9/16	9.9	30.9	2.5	3.0	R35	—
9-0/4-6		107-1/2	53-1/2	31-1/4	16-5/16	10.5	32.3	2.5	3.0	R35	—
9-0/5-0		107-1/2	59-1/2	31-1/4	18-3/4	12.0	36.5	2.5	3.0	R35	—
9-0/5-2		107-1/2	61-1/2	31-1/4	19-9/16	12.6	37.9	2.5	3.0	R35	—

(—) = Not Available

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



250 Series Single-Hung

Design Data

1-WIDE VENT UNITS — CONTEMPORARY SASH

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
2-0/3-0		23-1/2	35-1/2	19-1/4	9-5/8	1.2	3.7	2.5	3.0	R35	R50
2-0/3-2		23-1/2	37-1/2	19-1/4	10-7/16	1.3	3.9	2.5	3.0	R35	R50
2-0/3-6		23-1/2	41-1/2	19-1/4	12-1/16	1.6	4.4	2.5	3.0	R35	R50
2-0/3-10		23-1/2	45-1/2	19-1/4	13-5/8	1.8	4.9	2.5	3.0	R35	R50
2-0/4-0		23-1/2	47-1/2	19-1/4	14-7/16	1.9	5.2	2.5	3.0	R35	R50
2-0/4-3		23-1/2	51-1/2	19-1/4	16-1/16	2.1	5.7	2.5	3.0	R35	R50
2-0/4-6		23-1/2	53-1/2	19-1/4	16-7/8	2.2	6.0	2.5	3.0	R35	R50
2-0/5-0		23-1/2	59-1/2	19-1/4	19-1/4	2.5	6.7	2.5	3.0	R35	R50
2-0/5-2		23-1/2	61-1/2	19-1/4	20-1/16	2.6	7.0	2.5	3.0	R35	R50
2-0/5-6		23-1/2	65-1/2	19-1/4	21-5/8	2.8	7.5	2.5	3.0	R35	R50
2-0/6-0		23-1/2	71-1/2	19-1/4	24-1/16	3.2	8.3	2.5	3.0	R35	R50
2-0/6-6		23-1/2	77-1/2	19-1/4	26-7/16	3.5	9.0	2.5	3.0	R35	R50
2-0/7-0		23-1/2	83-1/2	19-1/4	28-7/8	3.8	9.8	2.5	3.0	R35	—
2-4/3-0		27-1/2	35-1/2	23-1/4	9-5/8	1.5	4.4	2.5	3.0	R35	R50
2-4/3-2		27-1/2	37-1/2	23-1/4	10-7/16	1.6	4.8	2.5	3.0	R35	R50
2-4/3-6		27-1/2	41-1/2	23-1/4	12-1/16	1.9	5.4	2.5	3.0	R35	R50
2-4/3-10		27-1/2	45-1/2	23-1/4	13-5/8	2.2	6.0	2.5	3.0	R35	R50
2-4/4-0		27-1/2	47-1/2	23-1/4	14-7/16	2.3	6.3	2.5	3.0	R35	R50
2-4/4-3		27-1/2	51-1/2	23-1/4	16-1/16	2.5	6.9	2.5	3.0	R35	R50
2-4/4-6		27-1/2	53-1/2	23-1/4	16-7/8	2.7	7.3	2.5	3.0	R35	R50
2-4/5-0		27-1/2	59-1/2	23-1/4	19-1/4	3.1	8.2	2.5	3.0	R35	R50
2-4/5-2		27-1/2	61-1/2	23-1/4	20-1/16	3.2	8.5	2.5	3.0	R35	R50
2-4/5-6		27-1/2	65-1/2	23-1/4	21-5/8	3.4	9.1	2.5	3.0	R35	R50
2-4/6-0		27-1/2	71-1/2	23-1/4	24-1/16	3.8	10.1	2.5	3.0	R35	R50
2-4/6-6		27-1/2	77-1/2	23-1/4	26-7/16	4.2	11.0	2.5	3.0	R35	R50
2-4/7-0		27-1/2	83-1/2	23-1/4	28-7/8	4.6	11.9	2.5	3.0	R35	—
2-6/3-0		29-1/2	35-1/2	25-1/4	9-5/8	1.6	4.8	2.5	3.0	R35	R50
2-6/3-2		29-1/2	37-1/2	25-1/4	10-7/16	1.8	5.2	2.5	3.0	R35	R50
2-6/3-6		29-1/2	41-1/2	25-1/4	12-1/16	2.1	5.9	2.5	3.0	R35	R50
2-6/3-10		29-1/2	45-1/2	25-1/4	13-5/8	2.3	6.5	2.5	3.0	R35	R50
2-6/4-0		29-1/2	47-1/2	25-1/4	14-7/16	2.5	6.9	2.5	3.0	R35	R50
2-6/4-4		29-1/2	51-1/2	25-1/4	16-1/16	2.8	7.6	2.5	3.0	R35	R50
2-6/4-6		29-1/2	53-1/2	25-1/4	16-7/8	2.9	7.9	2.5	3.0	R35	R50
2-6/5-0		29-1/2	59-1/2	25-1/4	19-1/4	3.3	8.9	2.5	3.0	R35	R50
2-6/5-2		29-1/2	61-1/2	25-1/4	20-1/16	3.5	9.3	2.5	3.0	R35	R50
2-6/5-6		29-1/2	65-1/2	25-1/4	21-5/8	3.7	9.9	2.5	3.0	R35	R50
2-6/6-0		29-1/2	71-1/2	25-1/4	24-1/16	4.2	11.0	2.5	3.0	R35	R50
2-6/6-6		29-1/2	77-1/2	25-1/4	26-7/16	4.6	12.0	2.5	3.0	R35	R50
2-6/7-0	E1	29-1/2	83-1/2	25-1/4	28-7/8	5.0	13.0	2.5	3.0	R35	-

1 of 3

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.

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

(—) = Not Available

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



250 Series Single-Hung

Design Data

1-WIDE VENT UNITS — CONTEMPORARY SASH

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
2-8/3-0		31-1/2	35-1/2	27-1/4	9-5/8	1.8	5.2	2.5	3.0	R35	R50
2-8/3-2		31-1/2	37-1/2	27-1/4	10-7/16	1.9	5.6	2.5	3.0	R35	R50
2-8/3-6		31-1/2	41-1/2	27-1/4	12-1/16	2.2	6.3	2.5	3.0	R35	R50
2-8/3-10		31-1/2	45-1/2	27-1/4	13-5/8	2.5	7.1	2.5	3.0	R35	R50
2-8/4-0		31-1/2	47-1/2	27-1/4	14-7/16	2.7	7.4	2.5	3.0	R35	R50
2-8/4-3		31-1/2	51-1/2	27-1/4	16-1/16	3.0	8.2	2.5	3.0	R35	R50
2-8/4-6		31-1/2	53-1/2	27-1/4	16-7/8	3.1	8.5	2.5	3.0	R35	R50
2-8/5-0		31-1/2	59-1/2	27-1/4	19-1/4	3.6	9.6	2.5	3.0	R35	R50
2-8/5-2		31-1/2	61-1/2	27-1/4	20-1/16	3.7	10.0	2.5	3.0	R35	R50
2-8/5-6		31-1/2	65-1/2	27-1/4	21-5/8	4.0	10.7	2.5	3.0	R35	R50
2-8/6-0		31-1/2	71-1/2	27-1/4	24-1/16	4.5	11.9	2.5	3.0	R35	R50
2-8/6-6	E1	31-1/2	77-1/2	27-1/4	26-7/16	5.0	13.0	2.5	3.0	R35	R50
2-8/7-0	E1	31-1/2	83-1/2	27-1/4	28-7/8	5.4	14.1	2.5	3.0	R35	—
3-0/3-0		35-1/2	35-1/2	31-1/4	9-5/8	2.0	6.0	2.5	3.0	R35	R50
3-0/3-2		35-1/2	37-1/2	31-1/4	10-7/16	2.2	6.5	2.5	3.0	R35	R50
3-0/3-6		35-1/2	41-1/2	31-1/4	12-1/16	2.6	7.3	2.5	3.0	R35	R50
3-0/3-10		35-1/2	45-1/2	31-1/4	13-5/8	2.9	8.1	2.5	3.0	R35	R50
3-0/4-0		35-1/2	47-1/2	31-1/4	14-7/16	3.1	8.6	2.5	3.0	R35	R50
3-0/4-3		35-1/2	51-1/2	31-1/4	16-1/16	3.4	9.4	2.5	3.0	R35	R50
3-0/4-6		35-1/2	53-1/2	31-1/4	16-7/8	3.6	9.8	2.5	3.0	R35	R50
3-0/5-0		35-1/2	59-1/2	31-1/4	19-1/4	4.1	11.1	2.5	3.0	R35	R50
3-0/5-2		35-1/2	61-1/2	31-1/4	20-1/16	4.3	11.5	2.5	3.0	R35	R50
3-0/5-6		35-1/2	65-1/2	31-1/4	21-5/8	4.6	12.4	2.5	3.0	R35	R50
3-0/6-0	E1	35-1/2	71-1/2	31-1/4	24-1/16	5.2	13.6	2.5	3.0	R35	R50
3-0/6-6	E	35-1/2	77-1/2	31-1/4	26-7/16	5.7	14.9	2.5	3.0	R35	R50
3-0/7-0	E	35-1/2	83-1/2	31-1/4	28-7/8	6.2	16.2	2.5	3.0	R35	—
3-2/3-0		37-1/2	35-1/2	33-1/4	9-5/8	2.2	6.4	2.5	3.0	R35	R50
3-2/3-2		37-1/2	37-1/2	33-1/4	10-7/16	2.4	6.9	2.5	3.0	R35	R50
3-2/3-6		37-1/2	41-1/2	33-1/4	12-1/16	2.7	7.8	2.5	3.0	R35	R50
3-2/3-10		37-1/2	45-1/2	33-1/4	13-5/8	3.1	8.7	2.5	3.0	R35	R50
3-2/4-0		37-1/2	47-1/2	33-1/4	14-7/16	3.3	9.1	2.5	3.0	R35	R50
3-2/4-3		37-1/2	51-1/2	33-1/4	16-1/16	3.7	10.0	2.5	3.0	R35	R50
3-2/4-6		37-1/2	53-1/2	33-1/4	16-7/8	3.8	10.5	2.5	3.0	R35	R50
3-2/5-0		37-1/2	59-1/2	33-1/4	19-1/4	4.4	11.8	2.5	3.0	R35	R50
3-2/5-2		37-1/2	61-1/2	33-1/4	20-1/16	4.6	12.3	2.5	3.0	R35	R50
3-2/5-6		37-1/2	65-1/2	33-1/4	21-5/8	4.9	13.2	2.5	3.0	R35	R50
3-2/6-0	E1	37-1/2	71-1/2	33-1/4	24-1/16	5.5	14.5	2.5	3.0	R35	R50
3-2/6-6	E	37-1/2	77-1/2	33-1/4	26-7/16	6.1	15.9	2.5	3.0	R35	R50
3-2/7-0	E	37-1/2	83-1/2	33-1/4	28-7/8	6.6	17.2	2.5	3.0	R35	—

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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.

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

(—) = Not Available

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



250 Series Single-Hung

Design Data

1-WIDE VENT UNITS — CONTEMPORARY SASH

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
3-6/3-0		41-1/2	35-1/2	37-1/4	9-5/8	2.4	7.2	2.5	3.0	R35	R50
3-6/3-2		41-1/2	37-1/2	37-1/4	10-7/16	2.7	7.7	2.5	3.0	R35	R50
3-6/3-6		41-1/2	41-1/2	37-1/4	12-1/16	3.1	8.7	2.5	3.0	R35	R50
3-6/3-10		41-1/2	45-1/2	37-1/4	13-5/8	3.5	9.7	2.5	3.0	R35	R50
3-6/4-0		41-1/2	47-1/2	37-1/4	14-7/16	3.7	10.3	2.5	3.0	R35	R50
3-6/4-3		41-1/2	51-1/2	37-1/4	16-1/16	4.1	11.3	2.5	3.0	R35	R50
3-6/4-6		41-1/2	53-1/2	37-1/4	16-7/8	4.3	11.8	2.5	3.0	R35	R50
3-6/5-0		41-1/2	59-1/2	37-1/4	19-1/4	4.9	13.3	2.5	3.0	R35	R50
3-6/5-2		41-1/2	61-1/2	37-1/4	20-1/16	5.1	13.8	2.5	3.0	R35	R50
3-6/5-6		41-1/2	65-1/2	37-1/4	21-5/8	5.6	14.8	2.5	3.0	R35	R50
3-6/6-0	E	41-1/2	71-1/2	37-1/4	24-1/16	6.2	16.3	2.5	3.0	R35	R50
3-6/6-6	E	41-1/2	77-1/2	37-1/4	26-7/16	6.8	17.8	2.5	3.0	R35	R50
3-6/7-0	E	41-1/2	83-1/2	37-1/4	28-7/8	7.4	19.4	2.5	3.0	R35	—
4-0/3-0		47-1/2	35-1/2	43-1/4	9-5/8	2.8	8.4	2.5	3.0	R35	R50
4-0/3-2		47-1/2	37-1/2	43-1/4	10-7/16	3.1	9.0	2.5	3.0	R35	R50
4-0/3-6		47-1/2	41-1/2	43-1/4	12-1/16	3.6	10.2	2.5	3.0	R35	R50
4-0/3-10		47-1/2	45-1/2	43-1/4	13-5/8	4.1	11.4	2.5	3.0	R35	R50
4-0/4-0		47-1/2	47-1/2	43-1/4	14-7/16	4.3	11.9	2.5	3.0	R35	R50
4-0/4-3		47-1/2	51-1/2	43-1/4	16-1/16	4.8	13.1	2.5	3.0	R35	R50
4-0/4-6		47-1/2	53-1/2	43-1/4	16-7/8	5.0	13.7	2.5	3.0	R35	R50
4-0/5-0		47-1/2	59-1/2	43-1/4	19-1/4	5.7	15.5	2.5	3.0	R35	R50
4-0/5-2		47-1/2	61-1/2	43-1/4	20-1/16	6.0	16.1	2.5	3.0	R35	R50
4-0/5-6		47-1/2	65-1/2	43-1/4	21-5/8	6.5	17.2	2.5	3.0	R35	R50
4-0/6-0	E	47-1/2	71-1/2	43-1/4	24-1/16	7.2	19.0	2.5	3.0	R35	R50
4-0/6-6	E	47-1/2	77-1/2	43-1/4	26-7/16	7.9	20.8	2.5	3.0	R35	—
4-0/7-0	E	47-1/2	83-1/2	43-1/4	28-7/8	8.6	22.6	2.5	3.0	R35	—
4-6/3-0		53-1/2	35-1/2	49-1/4	9-5/8	3.3	9.6	2.5	3.0	—	R50
4-6/3-2		53-1/2	37-1/2	49-1/4	10-7/16	3.5	10.3	2.5	3.0	—	R50
4-6/3-6		53-1/2	41-1/2	49-1/4	12-1/16	4.1	11.6	2.5	3.0	—	R50
4-6/3-10		53-1/2	45-1/2	49-1/4	13-5/8	4.6	13.0	2.5	3.0	—	R50
4-6/4-0		53-1/2	47-1/2	49-1/4	14-7/16	4.9	13.6	2.5	3.0	—	R50
4-6/4-3		53-1/2	51-1/2	49-1/4	16-1/16	5.4	15.0	2.5	3.0	—	R50
4-6/4-6		53-1/2	53-1/2	49-1/4	16-7/8	5.7	15.6	2.5	3.0	—	R50
4-6/5-0		53-1/2	59-1/2	49-1/4	19-1/4	6.5	17.7	2.5	3.0	—	R50
4-6/5-2		53-1/2	61-1/2	49-1/4	20-1/16	6.8	18.3	2.5	3.0	—	R50
4-6/5-6		53-1/2	65-1/2	49-1/4	21-5/8	7.4	19.7	2.5	3.0	—	R50

3 of 3

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.

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

(—) = Not Available

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



250 Series Single-Hung

Design Data

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

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
4-0/3-0		47-1/2	35-1/2	19-1/4	9-5/8	2.4	8.2	2.5	3.0	R35	R50
4-0/3-2		47-1/2	37-1/2	19-1/4	10-7/16	2.6	8.8	2.5	3.0	R35	R50
4-0/3-6		47-1/2	41-1/2	19-1/4	12-1/16	3.2	9.9	2.5	3.0	R35	R50
4-0/3-10		47-1/2	45-1/2	19-1/4	13-5/8	3.6	11.1	2.5	3.0	R35	R50
4-0/4-0		47-1/2	47-1/2	19-1/4	14-7/16	3.8	11.7	2.5	3.0	R35	R50
4-0/4-4		47-1/2	51-1/2	19-1/4	16-1/16	4.2	12.8	2.5	3.0	R35	R50
4-0/4-6		47-1/2	53-1/2	19-1/4	16-7/8	4.4	13.4	2.5	3.0	R35	R50
4-0/5-0		47-1/2	59-1/2	19-1/4	19-1/4	5.0	15.1	2.5	3.0	R35	R50
4-0/5-2		47-1/2	61-1/2	19-1/4	20-1/16	5.2	15.7	2.5	3.0	R35	R50
4-0/5-6		47-1/2	65-1/2	19-1/4	21-5/8	5.6	16.8	2.5	3.0	R35	R50
4-0/6-0		47-1/2	71-1/2	19-1/4	24-1/16	6.4	18.6	2.5	3.0	R35	—
4-8/3-0		55-1/2	35-1/2	23-1/4	9-5/8	3.0	9.8	2.5	3.0	R35	R50
4-8/3-2		55-1/2	37-1/2	23-1/4	10-7/16	3.2	10.5	2.5	3.0	R35	R50
4-8/3-6		55-1/2	41-1/2	23-1/4	12-1/16	3.8	11.9	2.5	3.0	R35	R50
4-8/3-10		55-1/2	45-1/2	23-1/4	13-5/8	4.4	13.2	2.5	3.0	R35	R50
4-8/4-0		55-1/2	47-1/2	23-1/4	14-7/16	4.6	13.9	2.5	3.0	R35	R50
4-8/4-4		55-1/2	51-1/2	23-1/4	16-1/16	5.0	15.3	2.5	3.0	R35	R50
4-8/4-6		55-1/2	53-1/2	23-1/4	16-7/8	5.4	16.0	2.5	3.0	R35	R50
4-8/5-0		55-1/2	59-1/2	23-1/4	19-1/4	6.2	18.0	2.5	3.0	R35	R50
4-8/5-2		55-1/2	61-1/2	23-1/4	20-1/16	6.4	18.7	2.5	3.0	R35	R50
4-8/5-6		55-1/2	65-1/2	23-1/4	21-5/8	6.8	20.1	2.5	3.0	R35	R50
4-8/6-0		55-1/2	71-1/2	23-1/4	24-1/16	7.6	22.2	2.5	3.0	R35	—
4-11/3-0		59-1/2	35-1/2	25-1/4	9-5/8	3.2	10.6	2.5	3.0	R35	R50
4-11/3-2		59-1/2	37-1/2	25-1/4	10-7/16	3.6	11.3	2.5	3.0	R35	R50
4-11/3-6		59-1/2	41-1/2	25-1/4	12-1/16	4.2	12.8	2.5	3.0	R35	R50
4-11/3-10		59-1/2	45-1/2	25-1/4	13-5/8	4.6	14.3	2.5	3.0	R35	R50
4-11/4-0		59-1/2	47-1/2	25-1/4	14-7/16	5.0	15.0	2.5	3.0	R35	R50
4-11/4-4		59-1/2	51-1/2	25-1/4	16-1/16	5.6	16.5	2.5	3.0	R35	R50
4-11/4-6		59-1/2	53-1/2	25-1/4	16-7/8	5.8	17.3	2.5	3.0	R35	R50
4-11/5-0		59-1/2	59-1/2	25-1/4	19-1/4	6.6	19.5	2.5	3.0	R35	R50
4-11/5-2		59-1/2	61-1/2	25-1/4	20-1/16	7.0	20.2	2.5	3.0	R35	R50
4-11/5-6		59-1/2	65-1/2	25-1/4	21-5/8	7.4	21.7	2.5	3.0	R35	R50
4-11/6-0		59-1/2	71-1/2	25-1/4	24-1/16	8.4	23.9	2.5	3.0	R35	—
5-4/3-0		63-1/2	35-1/2	27-1/4	9-5/8	3.6	11.4	2.5	3.0	R35	R50
5-4/3-2		63-1/2	37-1/2	27-1/4	10-7/16	3.8	12.2	2.5	3.0	R35	R50
5-4/3-6		63-1/2	41-1/2	27-1/4	12-1/16	4.4	13.8	2.5	3.0	R35	R50
5-4/3-10		63-1/2	45-1/2	27-1/4	13-5/8	5.0	15.4	2.5	3.0	R35	R50
5-4/4-0		63-1/2	47-1/2	27-1/4	14-7/16	5.4	16.2	2.5	3.0	R35	R50
5-4/4-4		63-1/2	51-1/2	27-1/4	16-1/16	6.0	17.8	2.5	3.0	R35	R50
5-4/4-6		63-1/2	53-1/2	27-1/4	16-7/8	6.2	18.6	2.5	3.0	R35	R50
5-4/5-0		63-1/2	59-1/2	27-1/4	19-1/4	7.2	20.9	2.5	3.0	R35	R50
5-4/5-2		63-1/2	61-1/2	27-1/4	20-1/16	7.4	21.7	2.5	3.0	R35	R50
5-4/5-6	E1	63-1/2	65-1/2	27-1/4	21-5/8	8.0	23.3	2.5	3.0	R35	R50
5-4/6-0	E	63-1/2	71-1/2	27-1/4	24-1/16	9.0	25.7	2.5	3.0	R20	—

1 of 2

Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

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

(—) = Not Available

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



250 Series Single-Hung

Design Data

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

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ₁	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
6-0/3-0		71-1/2	35-1/2	31-1/4	9-5/8	4.0	13.0	2.5	3.0	R35	R50
6-0/3-2		71-1/2	37-1/2	31-1/4	10-7/16	4.4	13.9	2.5	3.0	R35	R50
6-0/3-6		71-1/2	41-1/2	31-1/4	12-1/16	5.2	15.7	2.5	3.0	R35	R50
6-0/3-10		71-1/2	45-1/2	31-1/4	13-5/8	5.8	17.5	2.5	3.0	R35	R50
6-0/4-0		71-1/2	47-1/2	31-1/4	14-7/16	6.2	18.4	2.5	3.0	R35	R50
6-0/4-4		71-1/2	51-1/2	31-1/4	16-1/16	6.8	20.2	2.5	3.0	R35	R50
6-0/4-6		71-1/2	53-1/2	31-1/4	16-7/8	7.2	21.1	2.5	3.0	R35	R50
6-0/5-0	E1	71-1/2	59-1/2	31-1/4	19-1/4	8.2	23.9	2.5	3.0	R35	R50
6-0/5-2	E1	71-1/2	61-1/2	31-1/4	20-1/16	8.6	24.8	2.5	3.0	R35	R50
6-0/5-6	E	71-1/2	65-1/2	31-1/4	21-5/8	9.2	26.6	2.5	3.0	R35	R50
6-0/6-0	E	71-1/2	71-1/2	31-1/4	24-1/16	10.4	29.3	2.5	3.0	R35	—
6-4/3-0		75-1/2	35-1/2	33-1/4	9-5/8	4.4	13.7	2.5	3.0	R35	—
6-4/3-2		75-1/2	37-1/2	33-1/4	10-7/16	4.8	14.7	2.5	3.0	R35	—
6-4/3-6		75-1/2	41-1/2	33-1/4	12-1/16	5.4	16.6	2.5	3.0	R35	—
6-4/3-10		75-1/2	45-1/2	33-1/4	13-5/8	6.2	18.6	2.5	3.0	R35	—
6-4/4-0		75-1/2	47-1/2	33-1/4	14-7/16	6.6	19.5	2.5	3.0	R35	—
6-4/4-4		75-1/2	51-1/2	33-1/4	16-1/16	7.4	21.5	2.5	3.0	R35	—
6-4/4-6		75-1/2	53-1/2	33-1/4	16-7/8	7.6	22.4	2.5	3.0	R35	—
6-4/5-0	E	75-1/2	59-1/2	33-1/4	19-1/4	8.8	25.3	2.5	3.0	R35	—
6-4/5-2	E	75-1/2	61-1/2	33-1/4	20-1/16	9.2	26.3	2.5	3.0	R35	—
6-4/5-6	E	75-1/2	65-1/2	33-1/4	21-5/8	9.8	28.2	2.5	3.0	R35	—
6-4/6-0	E	75-1/2	71-1/2	33-1/4	24-1/16	11.0	31.1	2.5	3.0	R35	—
7-0/3-0		83-1/2	35-1/2	37-1/4	9-5/8	4.8	15.3	2.5	3.0	R35	—
7-0/3-2		83-1/2	37-1/2	37-1/4	10-7/16	5.4	16.4	2.5	3.0	R35	—
7-0/3-6		83-1/2	41-1/2	37-1/4	12-1/16	6.2	18.6	2.5	3.0	R35	—
7-0/3-10		83-1/2	45-1/2	37-1/4	13-5/8	7.0	20.7	2.5	3.0	R35	—
7-0/4-0		83-1/2	47-1/2	37-1/4	14-7/16	7.4	21.8	2.5	3.0	R35	—
7-0/4-4		83-1/2	51-1/2	37-1/4	16-1/16	8.2	23.9	2.5	3.0	R35	—
7-0/4-6		83-1/2	53-1/2	37-1/4	16-7/8	8.6	25.0	2.5	3.0	R35	—
7-0/5-0	E	83-1/2	59-1/2	37-1/4	19-1/4	9.8	28.2	2.5	3.0	R35	—
7-0/5-2	E	83-1/2	61-1/2	37-1/4	20-1/16	10.2	29.3	2.5	3.0	R35	—
7-0/5-6	E	83-1/2	65-1/2	37-1/4	21-5/8	11.2	31.5	2.5	3.0	R35	—
7-0/6-0	E	83-1/2	71-1/2	37-1/4	24-1/16	12.4	34.7	2.5	3.0	R35	—
8-0/3-0		95-1/2	35-1/2	43-1/4	9-5/8	5.6	17.7	2.5	3.0	R35	—
8-0/3-2		95-1/2	37-1/2	43-1/4	10-7/16	6.2	18.9	2.5	3.0	R35	—
8-0/3-6		95-1/2	41-1/2	43-1/4	12-1/16	7.2	21.4	2.5	3.0	R35	—
8-0/3-10		95-1/2	45-1/2	43-1/4	13-5/8	8.2	23.9	2.5	3.0	R35	—
8-0/4-0		95-1/2	47-1/2	43-1/4	14-7/16	8.6	25.2	2.5	3.0	R35	—
8-0/4-4		95-1/2	51-1/2	43-1/4	16-1/16	9.6	27.6	2.5	3.0	R35	—
8-0/4-6		95-1/2	53-1/2	43-1/4	16-7/8	10.0	28.9	2.5	3.0	R35	—
8-0/5-0	E	95-1/2	59-1/2	43-1/4	19-1/4	11.4	32.6	2.5	3.0	R35	—
8-0/5-2	E	95-1/2	61-1/2	43-1/4	20-1/16	12.0	33.9	2.5	3.0	R35	—
8-0/5-6	E	95-1/2	65-1/2	43-1/4	21-5/8	13.0	36.3	2.5	3.0	R35	—
8-0/6-0	E	95-1/2	71-1/2	43-1/4	24-1/16	14.4	40.1	2.5	3.0	R35	—

2 of 2

Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

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

(—) = Not Available

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



250 Series Single-Hung

Design Data

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

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
6-0/3-0		71-1/2	35-1/2	19-1/4	9-5/8	1.2	12.8	2.5	3.0	R35	—
6-0/3-2		71-1/2	37-1/2	19-1/4	10-7/16	1.3	13.7	2.5	3.0	R35	—
6-0/3-6		71-1/2	41-1/2	19-1/4	12-1/16	1.6	15.4	2.5	3.0	R35	—
6-0/3-10		71-1/2	45-1/2	19-1/4	13-5/8	1.8	17.2	2.5	3.0	R35	—
6-0/4-0		71-1/2	47-1/2	19-1/4	14-7/16	1.9	18.1	2.5	3.0	R35	—
6-0/4-3		71-1/2	51-1/2	19-1/4	16-1/16	2.1	19.9	2.5	3.0	R35	—
6-0/4-6		71-1/2	53-1/2	19-1/4	16-7/8	2.2	20.8	2.5	3.0	R35	—
6-0/5-0		71-1/2	59-1/2	19-1/4	19-1/4	2.5	23.5	2.5	3.0	R35	—
6-0/5-2		71-1/2	61-1/2	19-1/4	20-1/16	2.6	24.4	2.5	3.0	R35	—
7-0/3-0		83-1/2	35-1/2	23-1/4	9-5/8	1.5	15.1	2.5	3.0	R35	—
7-0/3-2		83-1/2	37-1/2	23-1/4	10-7/16	1.6	16.2	2.5	3.0	R35	—
7-0/3-6		83-1/2	41-1/2	23-1/4	12-1/16	1.9	18.3	2.5	3.0	R35	—
7-0/3-10		83-1/2	45-1/2	23-1/4	13-5/8	2.2	20.4	2.5	3.0	R35	—
7-0/4-0		83-1/2	47-1/2	23-1/4	14-7/16	2.3	21.5	2.5	3.0	R35	—
7-0/4-3		83-1/2	51-1/2	23-1/4	16-1/16	2.5	23.6	2.5	3.0	R35	—
7-0/4-6		83-1/2	53-1/2	23-1/4	16-7/8	2.7	24.7	2.5	3.0	R35	—
7-0/5-0		83-1/2	59-1/2	23-1/4	19-1/4	3.1	27.9	2.5	3.0	R35	—
7-0/5-2		83-1/2	61-1/2	23-1/4	20-1/16	3.2	28.9	2.5	3.0	R35	—
7-4/3-0		89-1/2	35-1/2	24-7/8	9-5/8	1.6	16.3	2.5	3.0	R35	—
7-4/3-2		89-1/2	37-1/2	24-7/8	10-7/16	1.8	17.5	2.5	3.0	R35	—
7-4/3-6		89-1/2	41-1/2	24-7/8	12-1/16	2.1	19.8	2.5	3.0	R35	—
7-4/3-10		89-1/2	45-1/2	24-7/8	13-5/8	2.3	22.0	2.5	3.0	R35	—
7-4/4-0		89-1/2	47-1/2	24-7/8	14-7/16	2.5	23.2	2.5	3.0	R35	—
7-4/4-3		89-1/2	51-1/2	24-7/8	16-1/16	2.8	25.5	2.5	3.0	R35	—
7-4/4-6		89-1/2	53-1/2	24-7/8	16-7/8	2.9	26.6	2.5	3.0	R35	—
7-4/5-0		89-1/2	59-1/2	24-7/8	19-1/4	3.3	30.1	2.5	3.0	R35	—
7-4/5-2		89-1/2	61-1/2	24-7/8	20-1/16	3.5	31.2	2.5	3.0	R35	—
8-0/3-0		95-1/2	35-1/2	27-1/4	9-5/8	1.8	17.5	2.5	3.0	R35	—
8-0/3-2		95-1/2	37-1/2	27-1/4	10-7/16	1.9	18.7	2.5	3.0	R35	—
8-0/3-6		95-1/2	41-1/2	27-1/4	12-1/16	2.2	21.2	2.5	3.0	R35	—
8-0/3-10		95-1/2	45-1/2	27-1/4	13-5/8	2.5	23.7	2.5	3.0	R35	—
8-0/4-0		95-1/2	47-1/2	27-1/4	14-7/16	2.7	24.9	2.5	3.0	R35	—
8-0/4-3		95-1/2	51-1/2	27-1/4	16-1/16	3.0	27.3	2.5	3.0	R35	—
8-0/4-6		95-1/2	53-1/2	27-1/4	16-7/8	3.1	28.6	2.5	3.0	R35	—
8-0/5-0		95-1/2	59-1/2	27-1/4	19-1/4	3.6	32.3	2.5	3.0	R35	—
8-0/5-2		95-1/2	61-1/2	27-1/4	20-1/16	3.7	33.5	2.5	3.0	R35	—
9-0/3-0		107-1/2	35-1/2	31-1/4	9-5/8	2.0	19.9	2.5	3.0	R35	—
9-0/3-2		107-1/2	37-1/2	31-1/4	10-7/16	2.2	21.3	2.5	3.0	R35	—
9-0/3-6		107-1/2	41-1/2	31-1/4	12-1/16	2.6	24.1	2.5	3.0	R35	—
9-0/3-10		107-1/2	45-1/2	31-1/4	13-5/8	2.9	26.9	2.5	3.0	R35	—
9-0/4-0		107-1/2	47-1/2	31-1/4	14-7/16	3.1	28.3	2.5	3.0	R35	—
9-0/4-3		107-1/2	51-1/2	31-1/4	16-1/16	3.4	31.0	2.5	3.0	R35	—
9-0/4-6		107-1/2	53-1/2	31-1/4	16-7/8	3.6	32.4	2.5	3.0	R35	—
9-0/5-0		107-1/2	59-1/2	31-1/4	19-1/4	4.1	36.6	2.5	3.0	R35	—
9-0/5-2		107-1/2	61-1/2	31-1/4	20-1/16	4.3	38.0	2.5	3.0	R35	—

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.

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

(—) = Not Available

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



250 Series Single-Hung

Design Data

1-WIDE VENT UNITS — 24" Lower Sash

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
2-0/4-0		23-1/2	47-1/2	19-1/4	18-3/16	2.4	5.1	2.5	3.0	R35	R50
2-0/4-4		23-1/2	51-1/2	19-1/4	18-3/16	2.4	5.7	2.5	3.0	R35	R50
2-0/4-6		23-1/2	53-1/2	19-1/4	18-3/16	2.4	5.9	2.5	3.0	R35	R50
2-0/5-0		23-1/2	59-1/2	19-1/4	18-3/16	2.4	6.7	2.5	3.0	R35	R50
2-0/5-2		23-1/2	61-1/2	19-1/4	18-3/16	2.4	7.0	2.5	3.0	R35	R50
2-0/5-6		23-1/2	65-1/2	19-1/4	18-3/16	2.4	7.5	2.5	3.0	R35	R50
2-0/6-0		23-1/2	71-1/2	19-1/4	18-3/16	2.4	8.3	2.5	3.0	R35	R50
2-0/6-6		23-1/2	77-1/2	19-1/4	18-3/16	2.4	9.1	2.5	3.0	R35	R50
2-0/7-0		23-1/2	83-1/2	19-1/4	18-3/16	2.4	9.9	2.5	3.0	R35	—
2-4/4-0		27-1/2	47-1/2	23-1/4	18-3/16	2.9	6.3	2.5	3.0	R35	R50
2-4/4-4		27-1/2	51-1/2	23-1/4	18-3/16	2.9	6.9	2.5	3.0	R35	R50
2-4/4-6		27-1/2	53-1/2	23-1/4	18-3/16	2.9	7.2	2.5	3.0	R35	R50
2-4/5-0		27-1/2	59-1/2	23-1/4	18-3/16	2.9	8.2	2.5	3.0	R35	R50
2-4/5-2		27-1/2	61-1/2	23-1/4	18-3/16	2.9	8.5	2.5	3.0	R35	R50
2-4/5-6		27-1/2	65-1/2	23-1/4	18-3/16	2.9	9.2	2.5	3.0	R35	R50
2-4/6-0		27-1/2	71-1/2	23-1/4	18-3/16	2.9	10.1	2.5	3.0	R35	R50
2-4/6-6		27-1/2	77-1/2	23-1/4	18-3/16	2.9	11.1	2.5	3.0	R35	R50
2-4/7-0		27-1/2	83-1/2	23-1/4	18-3/16	2.9	12.1	2.5	3.0	R35	—
2-6/4-0		29-1/2	47-1/2	25-1/4	18-3/16	3.1	6.8	2.5	3.0	R35	R50
2-6/4-4		29-1/2	51-1/2	25-1/4	18-3/16	3.1	7.5	2.5	3.0	R35	R50
2-6/4-6		29-1/2	53-1/2	25-1/4	18-3/16	3.1	7.9	2.5	3.0	R35	R50
2-6/5-0		29-1/2	59-1/2	25-1/4	18-3/16	3.1	8.9	2.5	3.0	R35	R50
2-6/5-2		29-1/2	61-1/2	25-1/4	18-3/16	3.1	9.3	2.5	3.0	R35	R50
2-6/5-6		29-1/2	65-1/2	25-1/4	18-3/16	3.1	10.0	2.5	3.0	R35	R50
2-6/6-0		29-1/2	71-1/2	25-1/4	18-3/16	3.1	11.0	2.5	3.0	R35	R50
2-6/6-6		29-1/2	77-1/2	25-1/4	18-3/16	3.1	12.1	2.5	3.0	R35	R50
2-6/7-0		29-1/2	83-1/2	25-1/4	18-3/16	3.1	13.1	2.5	3.0	R35	—
2-8/4-0		31-1/2	47-1/2	27-1/4	18-3/16	3.4	7.4	2.5	3.0	R35	R50
2-8/4-4		31-1/2	51-1/2	27-1/4	18-3/16	3.4	8.1	2.5	3.0	R35	R50
2-8/4-6		31-1/2	53-1/2	27-1/4	18-3/16	3.4	8.5	2.5	3.0	R35	R50
2-8/5-0		31-1/2	59-1/2	27-1/4	18-3/16	3.4	9.7	2.5	3.0	R35	R50
2-8/5-2		31-1/2	61-1/2	27-1/4	18-3/16	3.4	10.0	2.5	3.0	R35	R50
2-8/5-6		31-1/2	65-1/2	27-1/4	18-3/16	3.4	10.8	2.5	3.0	R35	R50
2-8/6-0		31-1/2	71-1/2	27-1/4	18-3/16	3.4	11.9	2.5	3.0	R35	R50
2-8/6-6		31-1/2	77-1/2	27-1/4	18-3/16	3.4	13.1	2.5	3.0	R35	R50
2-8/7-0		31-1/2	83-1/2	27-1/4	18-3/16	3.4	14.2	2.5	3.0	R35	—
3-0/4-0		35-1/2	47-1/2	31-1/4	18-3/16	3.9	8.5	2.5	3.0	R35	R50
3-0/4-4		35-1/2	51-1/2	31-1/4	18-3/16	3.9	9.4	2.5	3.0	R35	R50
3-0/4-6		35-1/2	53-1/2	31-1/4	18-3/16	3.9	9.8	2.5	3.0	R35	R50
3-0/5-0		35-1/2	59-1/2	31-1/4	18-3/16	3.9	11.1	2.5	3.0	R35	R50
3-0/5-2		35-1/2	61-1/2	31-1/4	18-3/16	3.9	11.5	2.5	3.0	R35	R50
3-0/5-6		35-1/2	65-1/2	31-1/4	18-3/16	3.9	12.4	2.5	3.0	R35	R50
3-0/6-0		35-1/2	71-1/2	31-1/4	18-3/16	3.9	13.7	2.5	3.0	R35	R50
3-0/6-6		35-1/2	77-1/2	31-1/4	18-3/16	3.9	15.0	2.5	3.0	R35	R50
3-0/7-0		35-1/2	83-1/2	31-1/4	18-3/16	3.9	16.3	2.5	3.0	R35	—

1 of 2

(—) = Not Available

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

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



250 Series Single-Hung

Design Data

1-WIDE VENT UNITS — 24" Lower Sash

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft²		Annealed	Tempered	Standard	Upgrade
3-2/4-0		37-1/2	47-1/2	33-1/4	18-3/16	4.1	9.1	2.5	3.0	R35	R50
3-2/4-4		37-1/2	51-1/2	33-1/4	18-3/16	4.1	10.0	2.5	3.0	R35	R50
3-2/4-6		37-1/2	53-1/2	33-1/4	18-3/16	4.1	10.5	2.5	3.0	R35	R50
3-2/5-0		37-1/2	59-1/2	33-1/4	18-3/16	4.1	11.8	2.5	3.0	R35	R50
3-2/5-2		37-1/2	61-1/2	33-1/4	18-3/16	4.1	12.3	2.5	3.0	R35	R50
3-2/5-6		37-1/2	65-1/2	33-1/4	18-3/16	4.1	13.2	2.5	3.0	R35	R50
3-2/6-0		37-1/2	71-1/2	33-1/4	18-3/16	4.1	14.6	2.5	3.0	R35	R50
3-2/6-6		37-1/2	77-1/2	33-1/4	18-3/16	4.1	16.0	2.5	3.0	R35	R50
3-2/7-0		37-1/2	83-1/2	33-1/4	18-3/16	4.1	17.4	2.5	3.0	R35	—
3-6/4-0		41-1/2	47-1/2	37-1/4	18-3/16	4.7	10.2	2.5	3.0	R35	R50
3-6/4-4		41-1/2	51-1/2	37-1/4	18-3/16	4.7	11.2	2.5	3.0	R35	R50
3-6/4-6		41-1/2	53-1/2	37-1/4	18-3/16	4.7	11.7	2.5	3.0	R35	R50
3-6/5-0		41-1/2	59-1/2	37-1/4	18-3/16	4.7	13.3	2.5	3.0	R35	R50
3-6/5-2		41-1/2	61-1/2	37-1/4	18-3/16	4.7	13.8	2.5	3.0	R35	R50
3-6/5-6		41-1/2	65-1/2	37-1/4	18-3/16	4.7	14.9	2.5	3.0	R35	R50
3-6/6-0		41-1/2	71-1/2	37-1/4	18-3/16	4.7	16.4	2.5	3.0	R35	R50
3-6/6-6		41-1/2	77-1/2	37-1/4	18-3/16	4.7	18.0	2.5	3.0	R35	R50
3-6/7-0		41-1/2	83-1/2	37-1/4	18-3/16	4.7	19.5	2.5	3.0	R35	—
4-0/4-0		47-1/2	47-1/2	43-1/4	18-3/16	5.4	11.9	2.5	3.0	R35	R50
4-0/4-4		47-1/2	51-1/2	43-1/4	18-3/16	5.4	13.1	2.5	3.0	R35	R50
4-0/4-6		47-1/2	53-1/2	43-1/4	18-3/16	5.4	13.7	2.5	3.0	R35	R50
4-0/5-0		47-1/2	59-1/2	43-1/4	18-3/16	5.4	15.5	2.5	3.0	R35	R50
4-0/5-2		47-1/2	61-1/2	43-1/4	18-3/16	5.4	16.1	2.5	3.0	R35	R50
4-0/5-6		47-1/2	65-1/2	43-1/4	18-3/16	5.4	17.3	2.5	3.0	R35	R50
4-0/6-0		47-1/2	71-1/2	43-1/4	18-3/16	5.4	19.1	2.5	3.0	R35	R50
4-0/6-6		47-1/2	77-1/2	43-1/4	18-3/16	5.4	20.9	2.5	3.0	R35	—
4-0/7-0		47-1/2	83-1/2	43-1/4	18-3/16	5.4	22.7	2.5	3.0	R35	—
4-6/4-0		53-1/2	47-1/2	49-1/4	18-3/16	6.2	13.6	2.5	3.0	—	R50
4-6/4-4		53-1/2	51-1/2	49-1/4	18-3/16	6.2	14.9	2.5	3.0	—	R50
4-6/4-6		53-1/2	53-1/2	49-1/4	18-3/16	6.2	15.6	2.5	3.0	—	R50
4-6/5-0		53-1/2	59-1/2	49-1/4	18-3/16	6.2	17.7	2.5	3.0	—	R50
4-6/5-2		53-1/2	61-1/2	49-1/4	18-3/16	6.2	18.4	2.5	3.0	—	R50
4-6/5-6		53-1/2	65-1/2	49-1/4	18-3/16	6.2	19.7	2.5	3.0	—	R50

2 of 2

(—) = Not Available

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

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



250 Series Single-Hung

Design Data

2-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION — 24" Lower Sash

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft²	Glass Thickness (mm)		Performance Class & Grade ⁽¹⁾	
		Width	Height	Width	Height	Ft²		Annealed	Tempered	Standard	Upgrade
4-0/4-0		47-1/2	47-1/2	19-1/4	18-3/16	2.4	10.3	2.5	3.0	R35	R50
4-0/4-3		47-1/2	51-1/2	19-1/4	18-3/16	2.4	11.3	2.5	3.0	R35	R50
4-0/4-6		47-1/2	53-1/2	19-1/4	18-3/16	2.4	11.9	2.5	3.0	R35	R50
4-0/5-0		47-1/2	59-1/2	19-1/4	18-3/16	2.4	13.5	2.5	3.0	R35	R50
4-0/5-2		47-1/2	61-1/2	19-1/4	18-3/16	2.4	14.0	2.5	3.0	R35	R50
4-0/5-6		47-1/2	65-1/2	19-1/4	18-3/16	2.4	15.1	2.5	3.0	R35	R50
4-0/6-0		47-1/2	71-1/2	19-1/4	18-3/16	2.4	16.7	2.5	3.0	R35	—
4-8/4-0		55-1/2	47-1/2	23-1/4	18-3/16	2.9	12.5	2.5	3.0	R35	R50
4-8/4-3		55-1/2	51-1/2	23-1/4	18-3/16	2.9	13.8	2.5	3.0	R35	R50
4-8/4-6		55-1/2	53-1/2	23-1/4	18-3/16	2.9	14.5	2.5	3.0	R35	R50
4-8/5-0		55-1/2	59-1/2	23-1/4	18-3/16	2.9	16.4	2.5	3.0	R35	R50
4-8/5-2		55-1/2	61-1/2	23-1/4	18-3/16	2.9	17.0	2.5	3.0	R35	R50
4-8/5-6		55-1/2	65-1/2	23-1/4	18-3/16	2.9	18.3	2.5	3.0	R35	R50
4-8/6-0		55-1/2	71-1/2	23-1/4	18-3/16	2.9	20.3	2.5	3.0	R35	—
5-4/4-0		63-1/2	47-1/2	27-1/4	18-3/16	3.1	14.8	2.5	3.0	R35	R50
4-11/4-0		59-1/2	47-1/2	25-1/4	18-3/16	3.1	13.6	2.5	3.0	R35	R50
4-11/4-4		59-1/2	51-1/2	25-1/4	18-3/16	3.1	15.0	2.5	3.0	R35	R50
4-11/4-6		59-1/2	53-1/2	25-1/4	18-3/16	3.1	15.7	2.5	3.0	R35	R50
4-11/5-0		59-1/2	59-1/2	25-1/4	18-3/16	3.1	17.8	2.5	3.0	R35	R50
4-11/5-2		59-1/2	61-1/2	25-1/4	18-3/16	3.1	18.6	2.5	3.0	R35	R50
4-11/5-6		59-1/2	65-1/2	25-1/4	18-3/16	3.1	20.0	2.5	3.0	R35	R50
4-11/6-0		59-1/2	71-1/2	25-1/4	18-3/16	3.4	22.1	2.5	3.0	R35	—
5-4/4-3		63-1/2	51-1/2	27-1/4	18-3/16	3.4	16.3	2.5	3.0	R35	R50
5-4/4-6		63-1/2	53-1/2	27-1/4	18-3/16	3.4	17.0	2.5	3.0	R35	R50
5-4/5-0		63-1/2	59-1/2	27-1/4	18-3/16	3.4	19.3	2.5	3.0	R35	R50
5-4/5-2		63-1/2	61-1/2	27-1/4	18-3/16	3.4	20.1	2.5	3.0	R35	R50
5-4/5-6		63-1/2	65-1/2	27-1/4	18-3/16	3.4	21.6	2.5	3.0	R35	R50
5-4/6-0		63-1/2	71-1/2	27-1/4	18-3/16	3.4	23.8	2.5	3.0	R35	—
6-0/4-0		71-1/2	47-1/2	31-1/4	18-3/16	3.9	17.0	2.5	3.0	R35	R50
6-0/4-3		71-1/2	51-1/2	31-1/4	18-3/16	3.9	18.8	2.5	3.0	R35	R50
6-0/4-6		71-1/2	53-1/2	31-1/4	18-3/16	3.9	19.6	2.5	3.0	R35	R50
6-0/5-0		71-1/2	59-1/2	31-1/4	18-3/16	3.9	22.2	2.5	3.0	R35	R50
6-0/5-2		71-1/2	61-1/2	31-1/4	18-3/16	3.9	23.1	2.5	3.0	R35	R50
6-0/5-6		71-1/2	65-1/2	31-1/4	18-3/16	3.9	24.8	2.5	3.0	R35	R50
6-0/6-0		71-1/2	71-1/2	31-1/4	18-3/16	3.9	27.4	2.5	3.0	R35	—
6-4/4-0		75-1/2	47-1/2	33-1/4	18-3/16	4.1	18.1	2.5	3.0	R35	—
6-4/4-3		75-1/2	51-1/2	33-1/4	18-3/16	4.1	20.0	2.5	3.0	R35	—
6-4/4-6		75-1/2	53-1/2	33-1/4	18-3/16	4.1	20.9	2.5	3.0	R35	—
6-4/5-0		75-1/2	59-1/2	33-1/4	18-3/16	4.1	23.7	2.5	3.0	R35	—
6-4/5-2		75-1/2	61-1/2	33-1/4	18-3/16	4.1	24.6	2.5	3.0	R35	—
6-4/5-6		75-1/2	65-1/2	33-1/4	18-3/16	4.1	26.5	2.5	3.0	R35	—
6-4/6-0		75-1/2	71-1/2	33-1/4	18-3/16	4.1	29.2	2.5	3.0	R35	—
7-0/4-0		83-1/2	47-1/2	37-1/4	18-3/16	4.7	20.4	2.5	3.0	R35	—
7-0/4-3		83-1/2	51-1/2	37-1/4	18-3/16	4.7	22.5	2.5	3.0	R35	—
7-0/4-6		83-1/2	53-1/2	37-1/4	18-3/16	4.7	23.5	2.5	3.0	R35	—
7-0/5-0		83-1/2	59-1/2	37-1/4	18-3/16	4.7	26.6	2.5	3.0	R35	—
7-0/5-2		83-1/2	61-1/2	37-1/4	18-3/16	4.7	27.6	2.5	3.0	R35	—
7-0/5-6		83-1/2	65-1/2	37-1/4	18-3/16	4.7	29.7	2.5	3.0	R35	—
7-0/6-0		83-1/2	71-1/2	37-1/4	18-3/16	4.7	32.8	2.5	3.0	R35	—
8-0/4-0		95-1/2	47-1/2	43-1/4	18-3/16	5.4	23.8	2.5	3.0	R35	—
8-0/4-3		95-1/2	51-1/2	43-1/4	18-3/16	5.4	26.2	2.5	3.0	R35	—
8-0/4-6		95-1/2	53-1/2	43-1/4	18-3/16	5.4	27.4	2.5	3.0	R35	—
8-0/5-0		95-1/2	59-1/2	43-1/4	18-3/16	5.4	31.0	2.5	3.0	R35	—
8-0/5-2		95-1/2	61-1/2	43-1/4	18-3/16	5.4	32.2	2.5	3.0	R35	—
8-0/5-6		95-1/2	65-1/2	43-1/4	18-3/16	5.4	34.6	2.5	3.0	R35	—
8-0/6-0		95-1/2	71-1/2	43-1/4	18-3/16	5.4	38.2	2.5	3.0	R35	—

(—) = Not Available

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

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



250 Series Single-Hung

Design Data

3-WIDE VENT UNIT COMPOSITES WITH INTEGRAL MULLION — 24" Lower Sash

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft ²	Glass Thickness (mm)		Performance Class & Grade ⁽¹⁾	
		Width	Height	Width	Height	Ft ²		Annealed	Tempered	Standard	Upgrade
6-0/4-0		70-1/2	47-1/2	19-1/4	18-3/16	2.4	15.7	2.5	3.0	R35	—
6-0/4-3		70-1/2	51-1/2	19-1/4	18-3/16	2.4	17.3	2.5	3.0	R35	—
6-0/4-6		70-1/2	53-1/2	19-1/4	18-3/16	2.4	18.1	2.5	3.0	R35	—
6-0/5-0		70-1/2	59-1/2	19-1/4	18-3/16	2.4	20.6	2.5	3.0	R35	—
6-0/5-2		70-1/2	61-1/2	19-1/4	18-3/16	2.4	21.4	2.5	3.0	R35	—
7-0/4-0		82-1/2	47-1/2	23-1/4	18-3/16	2.9	19.1	2.5	3.0	R35	—
7-0/4-3		82-1/2	51-1/2	23-1/4	18-3/16	2.9	21.0	2.5	3.0	R35	—
7-0/4-6		82-1/2	53-1/2	23-1/4	18-3/16	2.9	22.0	2.5	3.0	R35	—
7-0/5-0		82-1/2	59-1/2	23-1/4	18-3/16	2.9	25.0	2.5	3.0	R35	—
7-0/5-2		82-1/2	61-1/2	23-1/4	18-3/16	2.9	25.9	2.5	3.0	R35	—
7-4/4-0		89-1/2	47-1/2	24-7/8	18-3/16	3.1	20.7	2.5	3.0	R35	—
7-4/4-3		89-1/2	51-1/2	24-7/8	18-3/16	3.1	22.9	2.5	3.0	R35	—
7-4/4-6		89-1/2	53-1/2	24-7/8	18-3/16	3.1	23.9	2.5	3.0	R35	—
7-4/5-0		89-1/2	59-1/2	24-7/8	18-3/16	3.1	27.1	2.5	3.0	R35	—
7-4/5-2		89-1/2	61-1/2	24-7/8	18-3/16	3.1	28.2	2.5	3.0	R35	—
8-0/4-0		94-1/2	47-1/2	27-1/4	18-3/16	3.4	22.4	2.5	3.0	R35	—
8-0/4-3		94-1/2	51-1/2	27-1/4	18-3/16	3.4	24.7	2.5	3.0	R35	—
8-0/4-6		94-1/2	53-1/2	27-1/4	18-3/16	3.4	25.9	2.5	3.0	R35	—
8-0/5-0		94-1/2	59-1/2	27-1/4	18-3/16	3.4	29.3	2.5	3.0	R35	—
8-0/5-2		94-1/2	61-1/2	27-1/4	18-3/16	3.4	30.5	2.5	3.0	R35	—
9-0/4-0		106-1/2	47-1/2	31-1/4	18-3/16	3.9	25.8	2.5	3.0	R35	—
9-0/4-3		106-1/2	51-1/2	31-1/4	18-3/16	3.9	28.4	2.5	3.0	R35	—
9-0/4-6		106-1/2	53-1/2	31-1/4	18-3/16	3.9	29.8	2.5	3.0	R35	—
9-0/5-0		106-1/2	59-1/2	31-1/4	18-3/16	3.9	33.7	2.5	3.0	R35	—
9-0/5-2		106-1/2	61-1/2	31-1/4	18-3/16	3.9	35.0	2.5	3.0	R35	—

(—) = Not Available

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

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



250 Series Single-Hung

Design Data

1-WIDE VENT UNITS — 30" Lower Sash

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft²	Glass Thickness (mm)		Performance Class & Grade ¹	
		Width	Height	Width	Height	Ft²		Annealed	Tempered	Standard	Upgrade
2-0/5-0		23-1/2	59-1/2	19-1/4	24-3/16	3.2	6.7	2.5	3.0	R35	R50
2-0/5-2		23-1/2	61-1/2	19-1/4	24-3/16	3.2	6.9	2.5	3.0	R35	R50
2-0/5-6		23-1/2	65-1/2	19-1/4	24-3/16	3.2	7.5	2.5	3.0	R35	R50
2-0/6-0		23-1/2	71-1/2	19-1/4	24-3/16	3.2	8.3	2.5	3.0	R35	R50
2-0/6-6		23-1/2	77-1/2	19-1/4	24-3/16	3.2	9.1	2.5	3.0	R35	R50
2-0/7-0		23-1/2	83-1/2	19-1/4	24-3/16	3.2	9.9	2.5	3.0	R35	—
2-4/5-0		27-1/2	59-1/2	23-1/4	24-3/16	3.9	8.1	2.5	3.0	R35	R50
2-4/5-2		27-1/2	61-1/2	23-1/4	24-3/16	3.9	8.4	2.5	3.0	R35	R50
2-4/5-6		27-1/2	65-1/2	23-1/4	24-3/16	3.9	9.1	2.5	3.0	R35	R50
2-4/6-0		27-1/2	71-1/2	23-1/4	24-3/16	3.9	10.0	2.5	3.0	R35	R50
2-4/6-6		27-1/2	77-1/2	23-1/4	24-3/16	3.9	11.0	2.5	3.0	R35	—
2-4/7-0		27-1/2	83-1/2	23-1/4	24-3/16	3.9	12.0	2.5	3.0	R35	—
2-6/5-0		29-1/2	59-1/2	25-1/4	24-3/16	4.2	8.8	2.5	3.0	R35	R50
2-6/5-2		29-1/2	61-1/2	25-1/4	24-3/16	4.2	9.2	2.5	3.0	R35	R50
2-6/5-6		29-1/2	65-1/2	25-1/4	24-3/16	4.2	9.9	2.5	3.0	R35	R50
2-6/6-0		29-1/2	71-1/2	25-1/4	24-3/16	4.2	10.9	2.5	3.0	R35	R50
2-6/6-6		29-1/2	77-1/2	25-1/4	24-3/16	4.2	12.0	2.5	3.0	R35	R50
2-6/7-0		29-1/2	83-1/2	25-1/4	24-3/16	4.2	13.0	2.5	3.0	R35	—
2-8/5-0		31-1/2	59-1/2	27-1/4	24-3/16	4.5	9.6	2.5	3.0	R35	R50
2-8/5-2		31-1/2	61-1/2	27-1/4	24-3/16	4.5	9.9	2.5	3.0	R35	R50
2-8/5-6		31-1/2	65-1/2	27-1/4	24-3/16	4.5	10.7	2.5	3.0	R35	R50
2-8/6-0		31-1/2	71-1/2	27-1/4	24-3/16	4.5	11.8	2.5	3.0	R35	R50
2-8/6-6		31-1/2	77-1/2	27-1/4	24-3/16	4.5	13.0	2.5	3.0	R35	R50
2-8/7-0		31-1/2	83-1/2	27-1/4	24-3/16	4.5	14.1	2.5	3.0	R35	—
3-0/5-0	E1	35-1/2	59-1/2	31-1/4	24-3/16	5.2	11.0	2.5	3.0	R35	R50
3-0/5-2	E1	35-1/2	61-1/2	31-1/4	24-3/16	5.2	11.5	2.5	3.0	R35	R50
3-0/5-6	E1	35-1/2	65-1/2	31-1/4	24-3/16	5.2	12.3	2.5	3.0	R35	R50
3-0/6-0	E1	35-1/2	71-1/2	31-1/4	24-3/16	5.2	13.6	2.5	3.0	R35	R50
3-0/6-6	E1	35-1/2	77-1/2	31-1/4	24-3/16	5.2	14.9	2.5	3.0	R35	R50
3-0/7-0	E1	35-1/2	83-1/2	31-1/4	24-3/16	5.2	16.2	2.5	3.0	R35	—
3-2/5-0	E1	37-1/2	59-1/2	33-1/4	24-3/16	5.5	11.8	2.5	3.0	R35	R50
3-2/5-2	E1	37-1/2	61-1/2	33-1/4	24-3/16	5.5	12.2	2.5	3.0	R35	R50
3-2/5-6	E1	37-1/2	65-1/2	33-1/4	24-3/16	5.5	13.1	2.5	3.0	R35	R50
3-2/6-0	E1	37-1/2	71-1/2	33-1/4	24-3/16	5.5	14.5	2.5	3.0	R35	R50
3-2/6-6	E1	37-1/2	77-1/2	33-1/4	24-3/16	5.5	15.9	2.5	3.0	R35	R50
3-2/7-0	E1	37-1/2	83-1/2	33-1/4	24-3/16	5.5	17.3	2.5	3.0	R35	—
3-6/5-0	E	41-1/2	59-1/2	37-1/4	24-3/16	6.2	13.2	2.5	3.0	R35	R50
3-6/5-2	E	41-1/2	61-1/2	37-1/4	24-3/16	6.2	13.7	2.5	3.0	R35	R50
3-6/5-6	E	41-1/2	65-1/2	37-1/4	24-3/16	6.2	14.8	2.5	3.0	R35	R50
3-6/6-0	E	41-1/2	71-1/2	37-1/4	24-3/16	6.2	16.3	2.5	3.0	R35	R50
3-6/6-6	E	41-1/2	77-1/2	37-1/4	24-3/16	6.2	17.9	2.5	3.0	R35	R50
3-6/7-0	E	41-1/2	83-1/2	37-1/4	24-3/16	6.2	19.4	2.5	3.0	R35	—
4-0/5-0	E	47-1/2	59-1/2	43-1/4	24-3/16	7.2	15.4	2.5	3.0	R35	R50
4-0/5-2	E	47-1/2	61-1/2	43-1/4	24-3/16	7.2	16.0	2.5	3.0	R35	R50
4-0/5-6	E	47-1/2	65-1/2	43-1/4	24-3/16	7.2	17.2	2.5	3.0	R35	R50
4-0/6-0	E	47-1/2	71-1/2	43-1/4	24-3/16	7.2	19.0	2.5	3.0	R35	R50
4-0/6-6	E	47-1/2	77-1/2	43-1/4	24-3/16	7.2	20.8	2.5	3.0	R35	—
4-0/7-0	E	47-1/2	83-1/2	43-1/4	24-3/16	7.2	22.6	2.5	3.0	R35	—
4-6/5-0	E	53-1/2	59-1/2	49-1/4	24-3/16	8.2	17.6	2.5	3.0	—	R50
4-6/5-2	E	53-1/2	61-1/2	49-1/4	24-3/16	8.2	18.3	2.5	3.0	—	R50
4-6/5-6	E	53-1/2	65-1/2	49-1/4	24-3/16	8.2	19.6	2.5	3.0	—	R50

(—) = Not Available

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

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



250 Series Single-Hung

Design Data

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

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft²	Glass Thickness (mm)		Performance Class & Grade ₁	
		Width	Height	Width	Height	Ft²		Annealed	Tempered	Standard	Upgrade
4-0/5-0		47-1/2	59-1/2	19-1/4	24-3/16	3.2	13.3	2.5	3.0	R35	R50
4-0/5-2		47-1/2	61-1/2	19-1/4	24-3/16	3.2	13.8	2.5	3.0	R35	R50
4-0/5-6		47-1/2	65-1/2	19-1/4	24-3/16	3.2	14.9	2.5	3.0	R35	R50
4-0/6-0		47-1/2	71-1/2	19-1/4	24-3/16	3.2	16.5	2.5	3.0	R35	—
4-8/5-0		55-1/2	59-1/2	23-1/4	24-3/16	3.9	16.2	2.5	3.0	R35	R50
4-8/5-2		55-1/2	61-1/2	23-1/4	24-3/16	3.9	16.9	2.5	3.0	R35	R50
4-8/5-6		55-1/2	65-1/2	23-1/4	24-3/16	3.9	18.2	2.5	3.0	R35	R50
4-8/6-0		55-1/2	71-1/2	23-1/4	24-3/16	3.9	20.1	2.5	3.0	R35	—
4-11/5-0		59-1/2	59-1/2	25-1/4	24-3/16	4.2	17.7	2.5	3.0	R35	R50
4-11/5-2		59-1/2	61-1/2	25-1/4	24-3/16	4.2	18.4	2.5	3.0	R35	R50
4-11/5-6		59-1/2	65-1/2	25-1/4	24-3/16	4.2	19.8	2.5	3.0	R35	R50
4-11/6-0		59-1/2	71-1/2	25-1/4	24-3/16	4.2	21.9	2.5	3.0	R35	—
5-4/5-0		63-1/2	59-1/2	27-1/4	24-3/16	4.5	19.1	2.5	3.0	R35	R50
5-4/5-2		63-1/2	61-1/2	27-1/4	24-3/16	4.5	19.9	2.5	3.0	R35	R50
5-4/5-6		63-1/2	65-1/2	27-1/4	24-3/16	4.5	21.4	2.5	3.0	R35	R50
5-4/6-0		63-1/2	71-1/2	27-1/4	24-3/16	4.5	23.7	2.5	3.0	R35	—
6-0/5-0	E ₁	71-1/2	59-1/2	31-1/4	24-3/16	5.2	22.1	2.5	3.0	R35	R50
6-0/5-2	E ₁	71-1/2	61-1/2	31-1/4	24-3/16	5.2	22.9	2.5	3.0	R35	R50
6-0/5-6	E ₁	71-1/2	65-1/2	31-1/4	24-3/16	5.2	24.7	2.5	3.0	R35	R50
6-0/6-0	E ₁	71-1/2	71-1/2	31-1/4	24-3/16	5.2	27.3	2.5	3.0	R35	—
6-4/5-0	E ₁	75-1/2	59-1/2	33-1/4	24-3/16	5.5	23.5	2.5	3.0	R35	—
6-4/5-2	E ₁	75-1/2	61-1/2	33-1/4	24-3/16	5.5	24.4	2.5	3.0	R35	—
6-4/5-6	E ₁	75-1/2	65-1/2	33-1/4	24-3/16	5.5	26.3	2.5	3.0	R35	—
6-4/6-0	E ₁	75-1/2	71-1/2	33-1/4	24-3/16	5.5	29.1	2.5	3.0	R35	—
7-0/5-0	E	83-1/2	59-1/2	37-1/4	24-3/16	6.2	26.4	2.5	3.0	R35	—
7-0/5-2	E	83-1/2	61-1/2	37-1/4	24-3/16	6.2	27.5	2.5	3.0	R35	—
7-0/5-6	E	83-1/2	65-1/2	37-1/4	24-3/16	6.2	29.5	2.5	3.0	R35	—
7-0/6-0	E	83-1/2	71-1/2	37-1/4	24-3/16	6.2	32.6	2.5	3.0	R35	—
8-0/5-0	E	95-1/2	59-1/2	43-1/4	24-3/16	7.2	30.8	2.5	3.0	R35	—
8-0/5-2	E	95-1/2	61-1/2	43-1/4	24-3/16	7.2	32.0	2.5	3.0	R35	—
8-0/5-6	E	95-1/2	65-1/2	43-1/4	24-3/16	7.2	34.4	2.5	3.0	R35	—
8-0/6-0	E	95-1/2	71-1/2	43-1/4	24-3/16	7.2	38.0	2.5	3.0	R35	—

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

Unit	Egress	Frame (inches)		Clear Opening (inches) (Vent Units Only)			Visible Glass Ft²	Glass Thickness (mm)		Performance Class & Grade ₁	
		Width	Height	Width	Height	Ft²		Annealed	Tempered	Standard	Upgrade
6-0/5-0		71-1/2	59-1/2	19-1/4	24-3/16	3.2	20.0	2.5	3.0	R35	—
6-0/5-2		71-1/2	61-1/2	19-1/4	24-3/16	3.2	20.8	2.5	3.0	R35	—
7-0/5-0		83-1/2	59-1/2	23-1/4	24-3/16	3.9	24.3	2.5	3.0	R35	—
7-0/5-2		83-1/2	61-1/2	23-1/4	24-3/16	3.9	25.3	2.5	3.0	R35	—
7-4/5-0		89-1/2	59-1/2	24-7/8	24-3/16	4.2	26.5	2.5	3.0	R35	—
7-4/5-2		89-1/2	61-1/2	24-7/8	24-3/16	4.2	27.6	2.5	3.0	R35	—
8-0/5-0		95-1/2	59-1/2	27-1/4	24-3/16	4.5	28.7	2.5	3.0	R35	—
8-0/5-2		95-1/2	61-1/2	27-1/4	24-3/16	4.5	29.8	2.5	3.0	R35	—
9-0/5-0	E ₁	107-1/2	59-1/2	31-1/4	24-3/16	5.2	33.1	2.5	3.0	R35	—
9-0/5-2	E ₁	107-1/2	61-1/2	31-1/4	24-3/16	5.2	34.4	2.5	3.0	R35	—

(—) = Not Available

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

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



Frame

- Overall frame depth: 3-1/4" on all frame types.
- Frame members are mitered and heat fused to provide a fully welded corner assembly. Sill is fitted with weeps.
- Frame: [1-1/8" setback nail fin for 2-1/8" wall depth] [nail fin with flat casing for 2-1/8" wall depth,] [Block frame for 3-1/4" wall depth] [Double Wall Flush Flange for 3" wall depth] [Integral 5/8" flange for 3" wall depth].
- Interior and exterior frame surfaces are extruded rigid uPVC.

Sash

- Sash members are extruded, rigid uPVC [with optional foam insulation].
- Sash members are mitered and heat-fused to provide a fully welded corner assembly.
- Includes an integral extruded sash lift as standard.
- Contains sealed insulating glass.

Weatherstripping

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

Glazing System

- Quality float glass complying with ASTM C 1036.
- Exterior face-glazed sealed insulating glass.
- Dual-Pane insulating glass [[annealed] [tempered]] [[Advanced] [NaturalSun] [SunDefense™] Low-E coated [with Argon]] [[NaturalSun+] [SunDefense+] Low-E with argon]] [Bronze, Advanced Low-E coated [with Argon]] [Obscure₃] [High Altitude₂].
- or-
- 1" Triple-Pane [[annealed] [tempered]] [[Advanced] [NaturalSun] Low-E coated [with Argon]] [Obscure₃] [High Altitude₂].

Interior / Exterior

- Window frame and sash members are [[White] [Almond] [Fossil] with integral color extruded throughout the profiles] [[Brown] [Black] laminate exterior, consisting of a solar reflective coating exceeding AAMA 307 test requirements, with White integral color extruded throughout the profiles on the interior].
- All exposed PVC surfaces are smooth, glossy and uniform in appearance.

Hardware

- Constant force balances connected to sash with stainless steel spring 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 locks] [AutoLocks] located on the check rail. Two sash locks are installed on units with 29-1/2" or greater frame width.
- Tilt latches are factory installed, [zinc die cast (advanced performance)] [nylon 6 (standard)] and are located on the check rail of the lower sash.
- Hardware finish is [White] [Almond] [Fossil].

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.
- InView™ flat screen
 - Black vinyl coated 18/18 mesh fiberglass screen cloth complying with ASTM D 3656 and SMA 1201.
- or-
- Hidden screen (Available only to select markets/sales channels, contact your local sales representative for details).

Optional Products

Grilles

- Grilles-Between-the-Glass
 - [Dual-Pane Insulating glass contains [[3/4"] [1"] contoured] [5/8" flat] aluminum grilles permanently installed between two panes of glass] [Triple-Pane Insulating glass contains 3/4" contoured aluminum grilles permanently installed between three panes of glass].
 - Patterns are [Traditional] [6-Lite Prairie] [9-Lite Prairie] [Top Row].
 - Interior grille color matches interior frame.
 - Exterior grille color [3/4" Grille is [White] [Almond₄] [Fossil₄] [Brown] [Black]] [1" Grille is [White] [Almond₄] [Fossil₄]] [5/8" Grille is [White] [Almond₄] [Fossil₄]].

Hardware

- Optional limited opening hardware available for vent units in [White] [Almond] [Fossil] 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) Flat casing availability is limited to Northeast region. Contact your local sales representative for current offering.

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

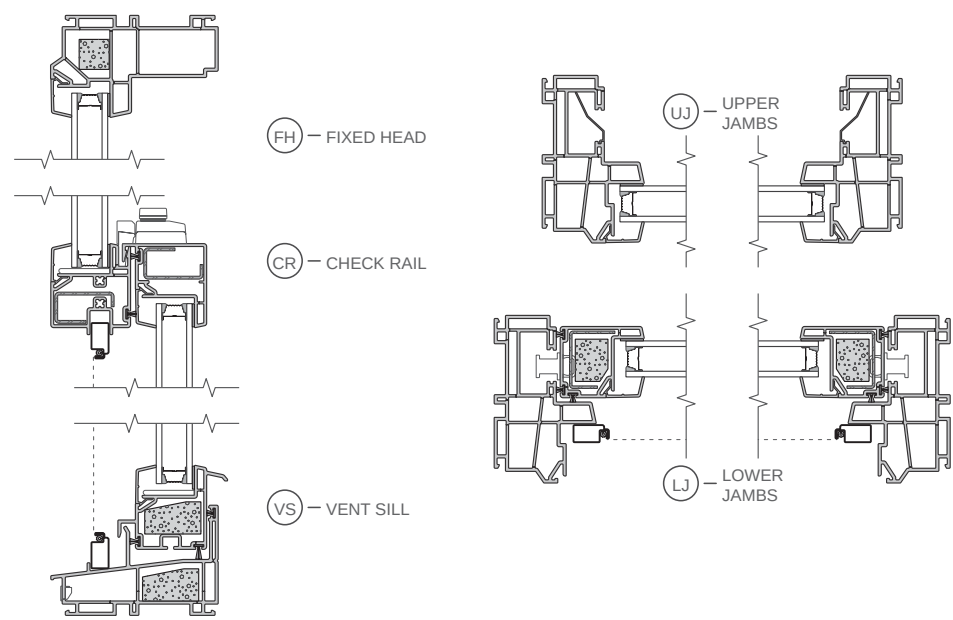
(3) Obscure glass not available with Bronze Advanced, SunDefense+ or NaturalSun+ Low-E IG.

(4) Almond grilles only available on Almond units. Almond units with grilles will have an Almond grille color, Fossil extruded color units with grilles have a Fossil grille color.



250 Series Single-Hung

Unit sections - Optional Foam Insulation



Scale 3" = 1' 0"

All dimensions are approximate.

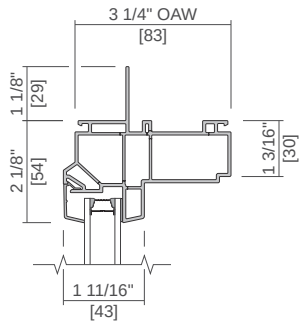


250 Series Single-Hung

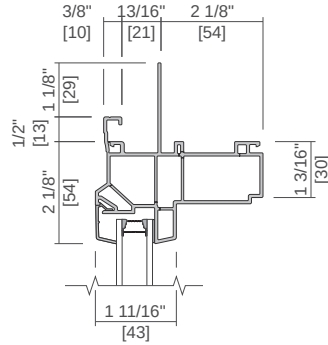
Unit sections - Frame Types

NEW CONSTRUCTION FRAME

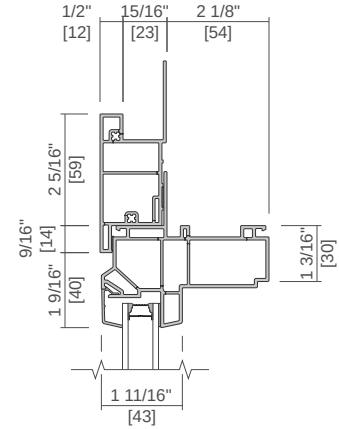
Standard Nailing Fin



Standard Fin with J-Channel

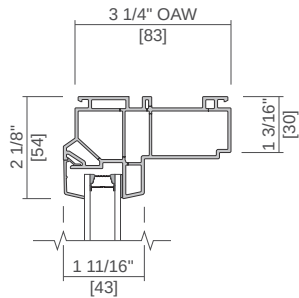


Standard Fin with Flat Casing

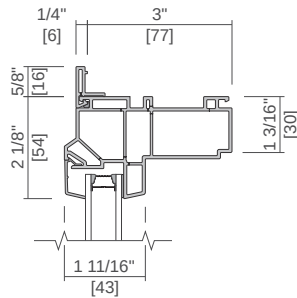


REPLACEMENT FRAME

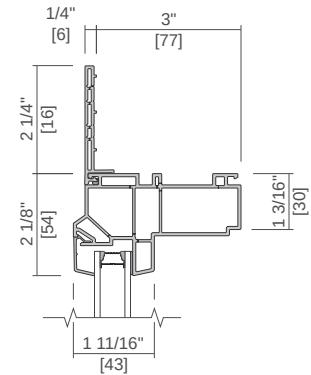
Standard Block Frame



5/8" Flush Flange

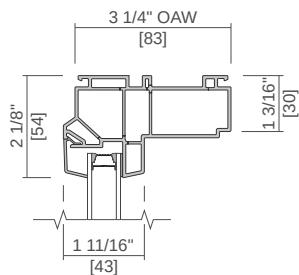


Double Wall Flush Flange

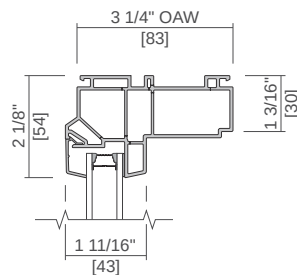


GLAZING OPTIONS

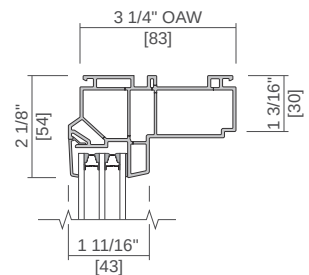
1 1/16" IG



3/4" IG



1" Triple IG



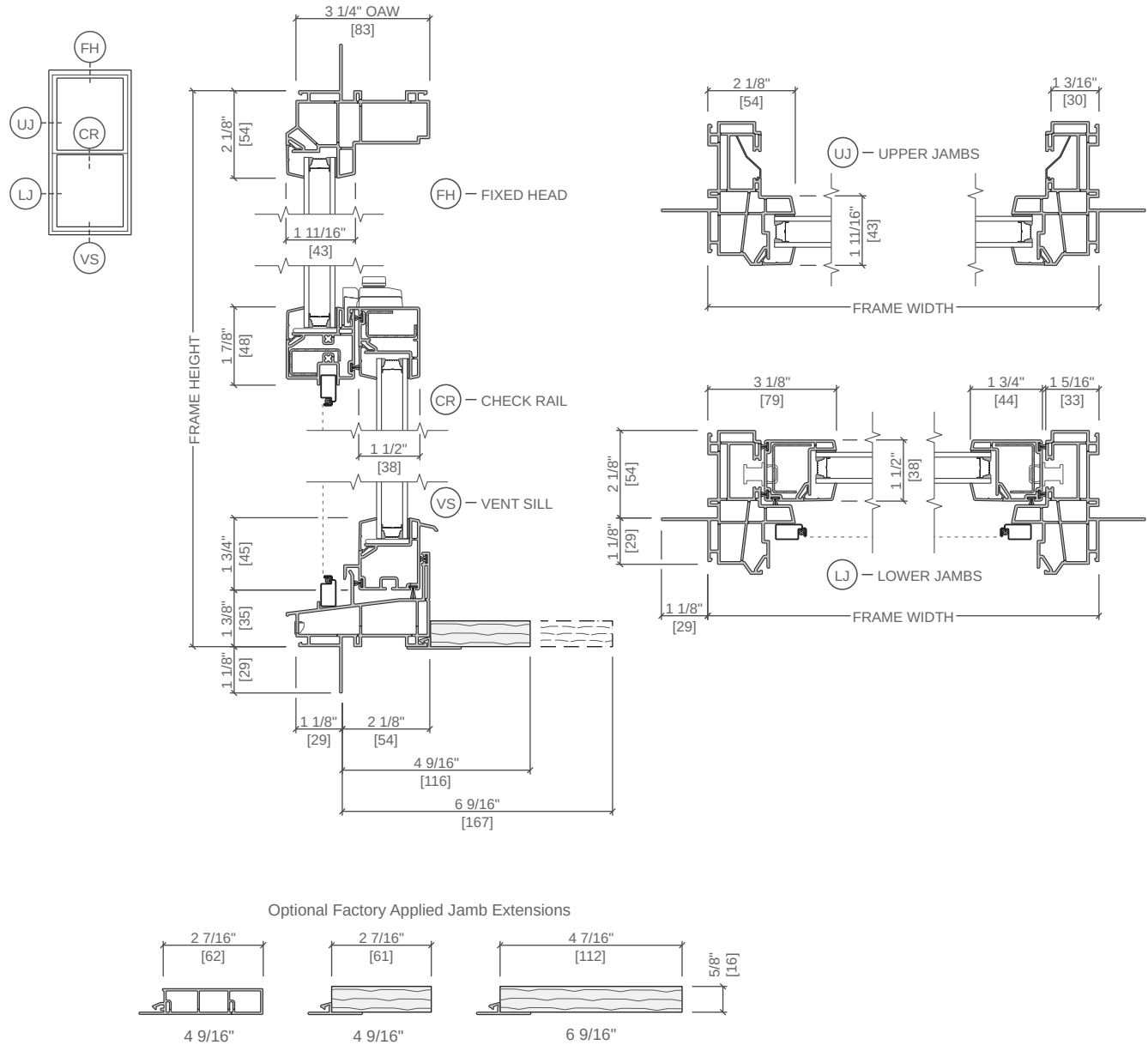
Scale 3" = 1' 0"

All dimensions are approximate.



250 Series Single-Hung

Unit sections - Nail Fin

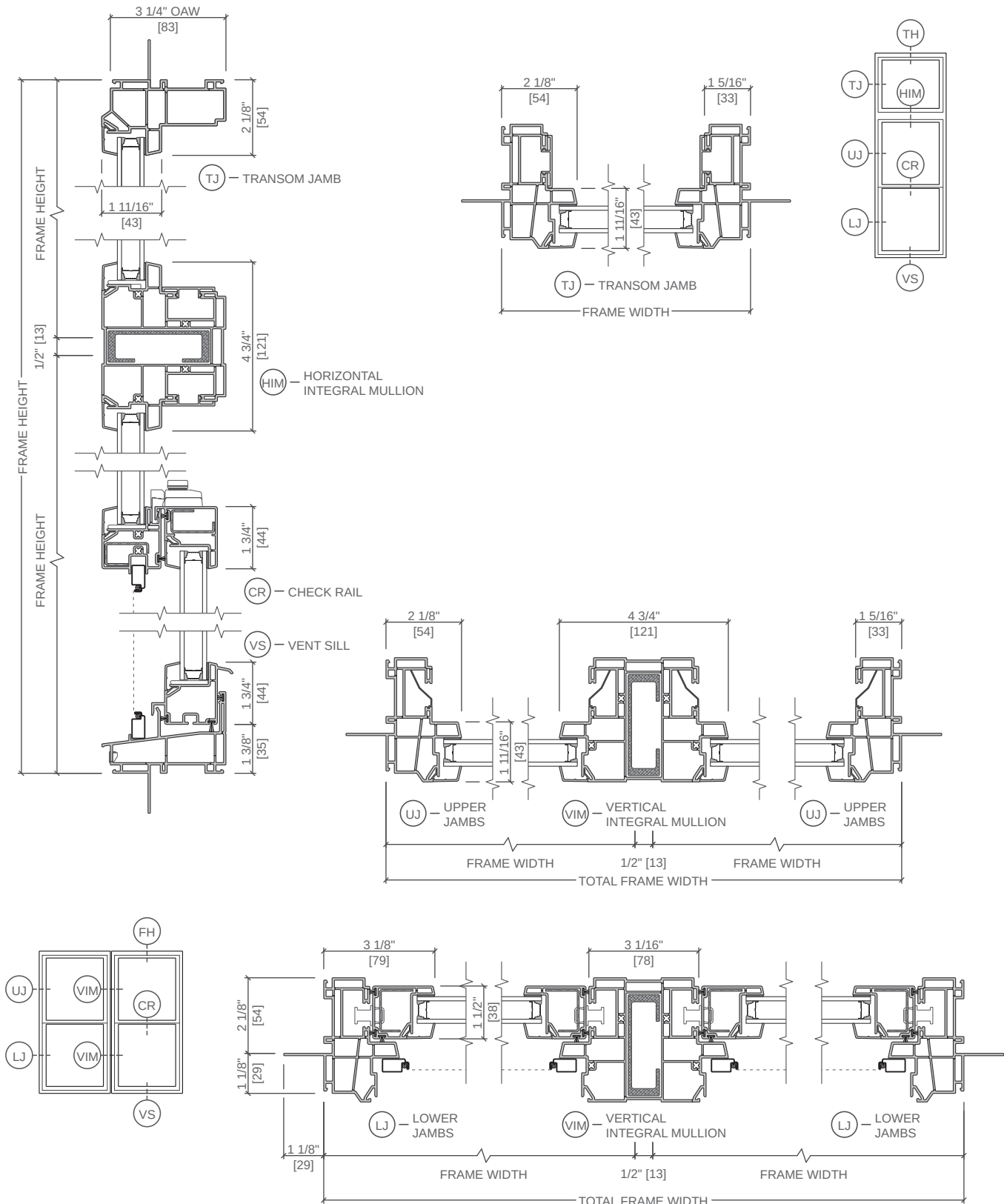


Scale 3" = 1' 0"
All dimensions are approximate.



250 Series Single-Hung

Unit sections - Nail Fin



Scale 3" = 1' 0"

All dimensions are approximate.



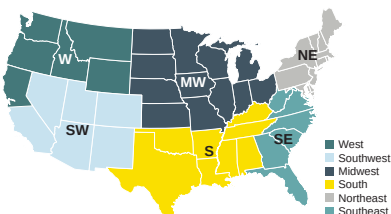
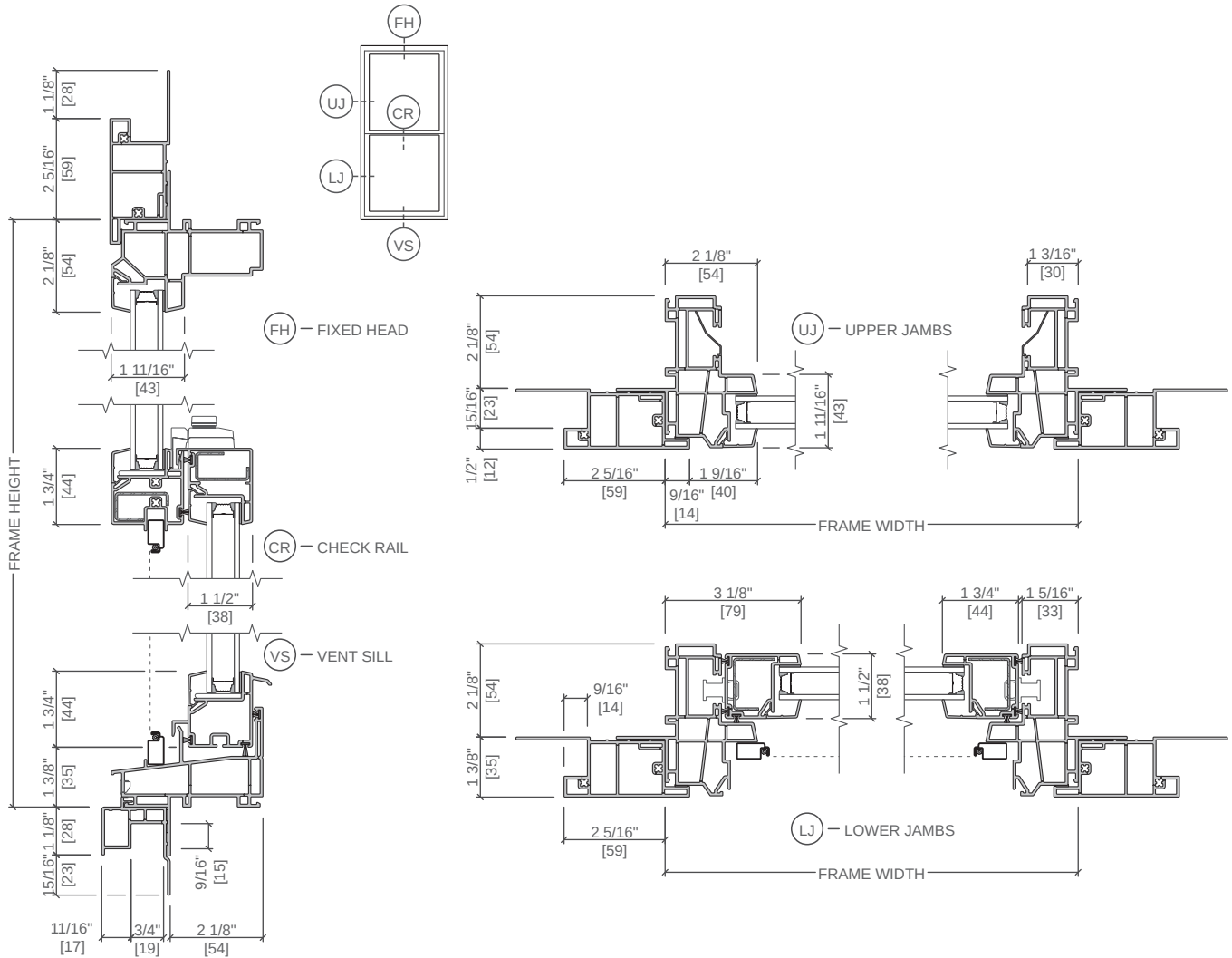
The technical drawings illustrate the 8000 Series window frame assembly. The top section shows a vertical cross-section of the frame with dimensions: 2 1/8" [54] for the fixed head (FH), 1 11/16" [43] for the upper jamb (UJ), 1 7/8" [48] for the check rail (CR), and 1 3/8" [35] for the vent sill (VS). The bottom section shows a horizontal cross-section of the frame with dimensions: 3 1/8" [79] for the lower jamb (LJ), 3 1/16" [78] for the vertical integral mullion (VIM), 6 3/4" [171] for the frame width, and 1 3/4" [44] and 1 5/16" [33] for the lower jamb (LJ). The total frame width is 1 1/2" [38]. The 'No Screen' condition is shown on the left, and the 'With Screen' condition is shown on the right. The plan view at the bottom right shows the frame assembly with dimensions: 2 13/16" [72] for the upper jamb (UJ), 4 3/4" [121] for the vertical integral mullion (VIM), and 1 3/16" [30] for the upper jamb (UJ).

All dimensions are approximate.



250 Series Single-Hung

Unit sections - Nail Fin with Flat Casing



Scale 3" = 1' 0"

All dimensions are approximate.

Flat casing availability is limited to Northeast region. Contact your local sales representative for current offering.