



SINGLE-HUNG

## SECTION DIRECTORY



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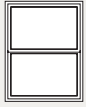
**General Notes:**

Specifications subject to change without notice. Go to [www.PellaADM.com](http://www.PellaADM.com) for most current technical data.

For complete CSI Format Specifications, see [www.PellaADM.com](http://www.PellaADM.com).

X = Venting or sliding panel as viewed from the exterior.

O = Fixed panel as viewed from the exterior.



SINGLE-HUNG

## BRAND SUMMARY



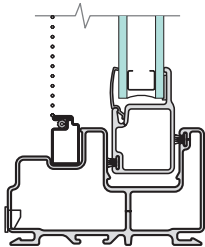
### Pella® Impervia® Single-Hung

windows are traditional in every detail—with all the Pella innovations you demand. All three frame types and sash material feature Duracast® fiberglass composite, Pella's patented, five layer, engineered fiberglass composite. Duracast fiberglass composite is the strongest, most durable material available in windows and doors. Each window uses three-way reinforced corners for increased strength. All frame and sash corners are locked in place with corner locks and injected with a dual purpose sealant/adhesive for long-lasting performance. Frame corners are additionally secured with mechanical fasteners. Pella Impervia products are pre-finished with powder-coat paint. Virtually indestructible, this paint meets the stringent AAMA 623 standards. Powder-coat paint is resistant to dents, scratches and damaging UV light. Duracast fiberglass composite withstands extreme heat (over 200° F), intense cold (-40° F), and is seacoast worthy.



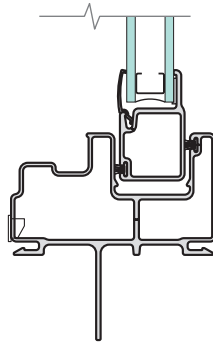
#### BLOCK FRAME

The 3" deep block frame is our most versatile frame. Units can be installed in masonry openings using installation clips, concealed jamb screws or in wood frame openings using optional fins. Units can also be field-joined together. Our block frames may easily be used as a replacement window without removing the existing frame or damaging the exterior.



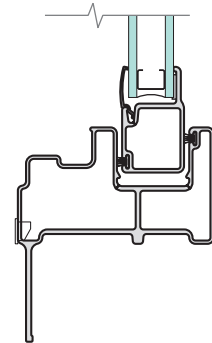
#### INTEGRAL NAILING FIN

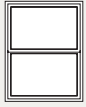
The integral nailing fin features a standard continuous fin, adding a protective weather barrier to the frame itself and allowing for hassle-free installation. The frame is also installation friendly for stucco applications.



#### FLUSH FLANGE

Our flush flange frames are designed specifically for replacement application on stucco exteriors in southwest arid climates. The flush flange allows for quick installation, without removing the existing frame or damaging stucco exterior.





SINGLE-HUNG

## PRODUCT SELECTION GUIDE

Size and Performance Data  
Sound Transmission Class



	BLOCK FRAME	INTEGRAL NAILING FIN	FLANGE FRAME
<b>SIZES</b>			
Standard Vent	●	●	●
Standard Fixed	●	●	●
Standard Fixed Companion	●	●	●
Special Sizes Available	●	●	●
<b>PERFORMANCE <sup>1</sup></b>			
Meets or Exceeds AAMA/WDMA Ratings	H-LC30-H-LC50 Hallmark Certified	H-LC30-H-LC50 Hallmark Certified	H-LC30-H-LC50 Hallmark Certified
Air Infiltration (cfm/ft <sup>2</sup> of frame @ 1.57 psf wind pressure)	0.10	0.10	0.10
Water Resistance	6-7.5 psf	6-7.5 psf	6-7.5 psf
Design Pressure	45-50 psf	45-50 psf	45-50 psf
<b>OTHER PERFORMANCE CRITERIA</b>			
Forced Entry Resistance Level (Minimum Security Grade) <sup>2</sup>	40	40	40
Maximum Operating Force (lb) Initiate Motion/Maintain Motion	16 / 11 for units with sash ≤ 12 ft <sup>2</sup> 21 / 30 for units with sash > 12 ft <sup>2</sup>		
Maximum Locking Force (lb) Lock/Unlock	6 / 6	6 / 6	6 / 6

### Sound Transmission Class and Outdoor-Indoor Transmission Class

Frame Size Tested <sup>3</sup>	Glazing System			STC Rating	OITC Rating
	Overall Glazing Thickness	Exterior Glass Thickness	Interior Glass Thickness		
<b>SINGLE-HUNG</b>					
47-1/2" x 77-1/2"	11/16"	4mm	4mm	26	21

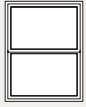
S = Standard; O = Optional

(1) Performance stated is for single units only.

Composite units are not AAMA/WDMA performance certified. Pella Impervia composites are engineered to meet performance class and grade shown in the design data tables.

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

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



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## PRODUCT SELECTION GUIDE

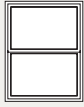
Features and Options



	BLOCK FRAME	INTEGRAL NAILING FIN	FLANGE FRAME
<b>GLAZING</b>			
<b>Glazing Type</b>			
Dual-pane Insulating Glass	S	S	S
<b>Insulated Glass Options / Low-E Types</b>			
Clear Insulating Glass (no Low-E coating)	S	S	S
Advanced Low-E Insulating Glass	O	O	O
SunDefense™ Low-E Insulating Glass	O	O	O
AdvancedComfort Low-E Insulating Glass	O	O	O
NaturalSun Low-E Insulating Glass	O	O	O
<b>Additional Glass Options</b>			
Annealed Glass	S	S	S
Tempered Glass	O	O	O
Obscure Glass <sub>1</sub>	O	O	O
<b>Gas Fill / High Altitude</b>			
Argon	S	S	S
High Altitude	O	O	O
High Altitude with argon	O	O	O
<b>EXTERIOR / INTERIOR</b>			
Powder-Coat White	S	S	S
Powder-Coat Tan, Brown, Black, or Morning Sky Gray	O	O	O
Dual-color (All exterior colors available with White interior)	O	–	O
<b>HARDWARE</b>			
Match interior finish	S	S	S
Satin Nickel, Bright Brass or Oil-Rubbed Bronze	O	O	O
<b>Sash Locks</b>			
Self-aligning sash lock	S	S	S
<b>SCREENS</b>			
Conventional Black Fiberglass	O	O	O
InView™ Screens	O	O	O
<b>GRILLES</b>			
<b>Grilles-Between-the-Glass</b>			
3/4" Contoured	O	O	O
<b>Patterns</b>			
Traditional	O	O	O
Prairie	O	O	O
Top Row	O	O	O
Special	O	O	O
<b>Easy-Clean</b>			
Exterior glass is easy to clean from interior by removing venting sash	S	S	S

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

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



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# GLAZING PERFORMANCE - TOTAL UNIT

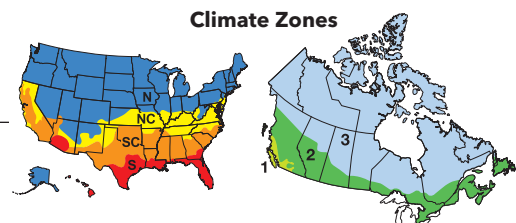
Single-Hung

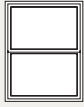


Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values <sub>1</sub>				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown									
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.				Canada <sub>2</sub>					
										Zone				ER	Zone				
										N	NC	SC	S				1	2	3
11/16"	Clear IG	PEL-N-102-00506-00001	2.5	2.5	air	0.48	0.60	63	43										
	with grilles-between-the-glass	PEL-N-102-00507-00001				0.48	0.54	56	43										
11/16"	Clear IG	PEL-N-102-00506-00003	3	3	air	0.48	0.59	62	43										
	with grilles-between-the-glass	PEL-N-102-00507-00003				0.48	0.53	55	43										
11/16"	Advanced Low-E IG	PEL-N-102-00536-00001	2.5	2.5	argon	0.31	0.29	53	57										
	with grilles-between-the-glass	PEL-N-102-00537-00001				0.31	0.26	47	57										
11/16"	Advanced Low-E IG	PEL-N-102-00536-00003	3	3	argon	0.31	0.28	53	57										
	with grilles-between-the-glass	PEL-N-102-00537-00003				0.31	0.26	47	57										
11/16"	SunDefense™ IG	PEL-N-102-00548-00001	2.5	2.5	argon	0.30	0.21	49	57										
	with grilles-between-the-glass	PEL-N-102-00549-00001				0.30	0.19	44	57										
11/16"	SunDefense™ IG	PEL-N-102-00548-00003	3	3	argon	0.30	0.21	49	57										
	with grilles-between-the-glass	PEL-N-102-00549-00003				0.30	0.19	43	57										
11/16"	AdvancedComfort Low-E IG	PEL-N-102-00572-00001	2.5	2.5	argon	0.27	0.28	52	45							22			
	with grilles-between-the-glass	PEL-N-102-00573-00001				0.27	0.25	46	45						20				
11/16"	AdvancedComfort Low-E IG	PEL-N-102-00572-00003	3	3	argon	0.27	0.28	52	45						22				
	with grilles-between-the-glass	PEL-N-102-00573-00003				0.27	0.25	46	45						20				
11/16"	NaturalSun Low-E IG	PEL-N-102-00524-00002	2.5	2.5	argon	0.32	0.53	60	56						30				
	with grilles-between-the-glass	PEL-N-102-00525-00002				0.32	0.48	54	56						27				
11/16"	NaturalSun Low-E IG	PEL-N-102-00524-00006	3	3	argon	0.32	0.52	60	56						29				
	with grilles-between-the-glass	PEL-N-102-00525-00006				0.32	0.47	53	56						26				
<b>VENT – WITH FOAM INSULATION</b>																			
11/16"	Advanced Low-E IG	PEL-N-102-00620-00001	2.5	2.5	argon	0.28	0.29	53	57						21				
	with grilles-between-the-glass	PEL-N-102-00621-00001				0.28	0.26	47	57						19				
11/16"	Advanced Low-E IG	PEL-N-102-00620-00003	3	3	argon	0.28	0.28	53	57						20				
	with grilles-between-the-glass	PEL-N-102-00621-00003				0.28	0.26	47	57						19				
11/16"	SunDefense IG	PEL-N-102-00632-00001	2.5	2.5	argon	0.28	0.21	49	58						16				
	with grilles-between-the-glass	PEL-N-102-00633-00001				0.28	0.19	44	58										
11/16"	SunDefense IG	PEL-N-102-00632-00003	3	3	argon	0.28	0.21	49	58						16				
	with grilles-between-the-glass	PEL-N-102-00633-00003				0.28	0.19	43	58										
11/16"	AdvancedComfort Low-E IG	PEL-N-102-00656-00001	2.5	2.5	argon	0.25	0.28	52	45						24				
	with grilles-between-the-glass	PEL-N-102-00657-00001				0.25	0.25	46	45						22				
11/16"	AdvancedComfort Low-E IG	PEL-N-102-00656-00003	3	3	argon	0.25	0.28	52	45						24				
	with grilles-between-the-glass	PEL-N-102-00657-00003				0.25	0.25	46	45						22				
11/16"	NaturalSun Low-E IG	PEL-N-102-00608-00002	2.5	2.5	argon	0.29	0.53	60	57						34				
	with grilles-between-the-glass	PEL-N-102-00609-00002				0.29	0.48	54	57						31				
11/16"	NaturalSun Low-E IG	PEL-N-102-00608-00006	3	3	argon	0.29	0.52	60	57						33				
	with grilles-between-the-glass	PEL-N-102-00609-00006				0.29	0.47	53	57						30				

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

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500. ENERGY STAR® values are updated to 2015 (Version 6) criteria.  
 (2) The values shown are based on Canada's updated ENERGY STAR® 2015 initiative. For center-glass values, see the Product Performance section.  
 See the Product Performance section for more detailed information or visit [www.energystar.gov](http://www.energystar.gov) for Energy Star guidelines.





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# GLAZING PERFORMANCE - TOTAL UNIT

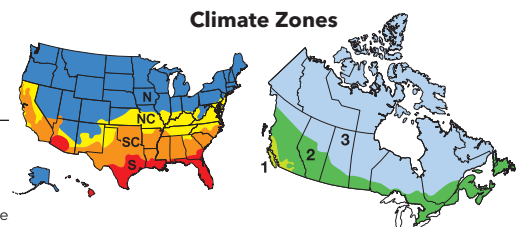
High Altitude

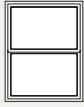


Glass Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values <sub>1</sub>				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown									
			Ext.	Int.		U-Factor	SHGC	VLT %	CR	U. S.			Canada <sub>2</sub>						
										Zone			ER	Zone					
										N	NC	SC	S				1	2	3
11/16"	(HA) Advanced Low-E IG	PEL-N-102-00530-00001	2.5	2.5	air	0.34	0.29	53	54										
	with grilles-between-the-glass	PEL-N-102-00531-00001				0.34	0.26	47	54										
11/16"	(HA) Advanced Low-E IG	PEL-N-102-00530-00003	3	3	air	0.34	0.29	53	54										
	with grilles-between-the-glass	PEL-N-102-00531-00003				0.34	0.26	47	54										
11/16"	(HA) SunDefense IG	PEL-N-102-00542-00001	2.5	2.5	air	0.34	0.22	49	54										
	with grilles-between-the-glass	PEL-N-102-00543-00001				0.34	0.20	44	54										
11/16"	(HA) SunDefense IG	PEL-N-102-00542-00003	3	3	air	0.34	0.22	49	54										
	with grilles-between-the-glass	PEL-N-102-00543-00003				0.34	0.20	43	54										
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-102-00566-00001	2.5	2.5	air	0.30	0.28	52	42										
	with grilles-between-the-glass	PEL-N-102-00567-00001				0.30	0.25	46	42										
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-102-00566-00003	3	3	air	0.30	0.28	52	42										
	with grilles-between-the-glass	PEL-N-102-00567-00003				0.30	0.25	46	42										
11/16"	(HA) NaturalSun Low-E IG	PEL-N-102-00518-00002	2.5	2.5	air	0.35	0.53	60	53								26		
	with grilles-between-the-glass	PEL-N-102-00519-00002				0.35	0.47	54	53										
11/16"	(HA) NaturalSun Low-E IG	PEL-N-102-00518-00006	3	3	air	0.35	0.52	60	53								26		
	with grilles-between-the-glass	PEL-N-102-00519-00006				0.35	0.47	53	53										
<b>HIGH ALTITUDE GLAZING – WITH FOAM INSULATION</b>																			
11/16"	(HA) Advanced Low-E IG	PEL-N-102-00614-00001	2.5	2.5	air	0.32	0.29	53	54										
	with grilles-between-the-glass	PEL-N-102-00615-00001				0.32	0.26	47	54										
11/16"	(HA) Advanced Low-E IG	PEL-N-102-00614-00003	3	3	air	0.32	0.29	53	54										
	with grilles-between-the-glass	PEL-N-102-00615-00003				0.32	0.26	47	54										
11/16"	(HA) SunDefense IG	PEL-N-102-00626-00001	2.5	2.5	air	0.32	0.22	49	54										
	with grilles-between-the-glass	PEL-N-102-00627-00001				0.32	0.20	44	54										
11/16"	(HA) SunDefense IG	PEL-N-102-00626-00003	3	3	air	0.32	0.22	49	54										
	with grilles-between-the-glass	PEL-N-102-00627-00003				0.32	0.20	43	54										
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-102-00650-00001	2.5	2.5	air	0.27	0.28	52	42								22		
	with grilles-between-the-glass	PEL-N-102-00651-00001				0.27	0.25	46	42								20		
11/16"	(HA) AdvancedComfort Low-E IG	PEL-N-102-00650-00003	3	3	air	0.27	0.28	52	42								22		
	with grilles-between-the-glass	PEL-N-102-00651-00003				0.27	0.25	46	42								20		
11/16"	(HA) NaturalSun Low-E IG	PEL-N-102-00602-00002	2.5	2.5	air	0.33	0.53	60	53								29		
	with grilles-between-the-glass	PEL-N-102-00603-00002				0.33	0.47	54	53								25		
11/16"	(HA) NaturalSun Low-E IG	PEL-N-102-00602-00006	3	3	air	0.33	0.52	60	53								28		
	with grilles-between-the-glass	PEL-N-102-00603-00006				0.33	0.47	53	53								25		

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.  
 (2) The values shown are based on Canada's updated ENERGY STAR® initiative.  
 For center-glass values, see the Product Performance section.  
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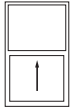
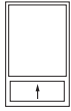
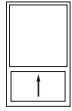
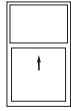
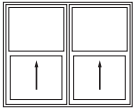
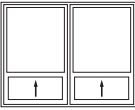
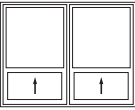
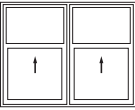
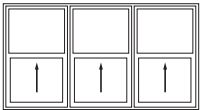
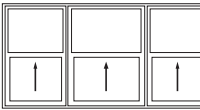
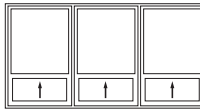
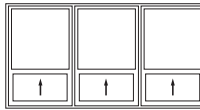
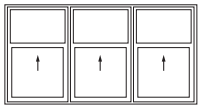
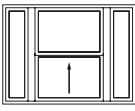
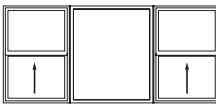




SINGLE-HUNG

SPECIAL SIZES AND COMPOSITE ASSEMBLES

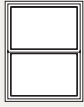


(EQUAL) VENT UNIT	24" LOWER SASH VENT UNIT	30" LOWER SASH VENT UNIT	42" LOWER SASH VENT UNIT
 <p><b>MINIMUM</b> 1' 5-1/2" W x 1' 11-1/2" H (445 x 609)</p> <p><b>MAXIMUM</b> 3' 11-1/2" W x 6' 5-1/2" H (1 219 x 1 968)</p>	 <p><b>MINIMUM</b> 1' 5-1/2" W x 4' 5-1/2" H (445 x 1 359)</p> <p><b>MAXIMUM</b> 3' 11-1/2" W x 6' 5-1/2" H (1 219 x 1 981)</p>	 <p><b>MINIMUM</b> 1' 5-1/2" W x 5' 5-1/2" H (457 x 1 664)</p> <p><b>MAXIMUM</b> 3' 11-1/2" W x 6' 11-1/2" H (1 219 x 2 134)</p>	 <p><b>MINIMUM</b> 1' 5-1/2" W x 5' 5-1/2" H (445 x 1 664)</p> <p><b>MAXIMUM</b> 3' 11-1/2" W x 5' 5-1/2" H (1 219 x 1 676)</p>
2-WIDE (EQUAL) VENT UNIT COMPOSITE	2-WIDE 24" LOWER SASH VENT UNIT COMPOSITE	2-WIDE 30" LOWER SASH VENT UNIT COMPOSITE	2-WIDE 42" LOWER SASH VENT UNIT COMPOSITE
 <p><b>MINIMUM</b> 2' 11-1/2" W x 1' 11-1/2" H (914 x 609)</p> <p><b>MAXIMUM</b> 7' 11-1/2" W x 5' 11-1/2" H (3 657 x 1 816)</p>	 <p><b>MINIMUM</b> 2' 11-1/2" W x 4' 5-1/2" H (914 x 1 359)</p> <p><b>MAXIMUM</b> 7' 11-1/2" W x 6' 5-1/2" H (2 438 x 1 981)</p>	 <p><b>MINIMUM</b> 2' 11-1/2" W x 5' 5-1/2" H (914 x 1 664)</p> <p><b>MAXIMUM</b> 7' 11-1/2" W x 6' 11-1/2" H (2 438 x 2 134)</p>	 <p><b>MINIMUM</b> 2' 11-1/2" W x 5' 5-1/2" H (914 x 1 676)</p> <p><b>MAXIMUM</b> 7' 11-1/2" W x 5' 5-1/2" H (2 438 x 1 676)</p>
3-WIDE (EQUAL) VENT UNIT COMPOSITE	3-WIDE (UNEQUAL) VENT UNIT COMPOSITE	3-WIDE 24" LOWER SASH VENT UNIT COMPOSITE	3-WIDE 30" LOWER SASH VENT UNIT COMPOSITE
 <p><b>MINIMUM</b> 4' 5-1/2" W x 1' 11-1/2" H (1 371 x 609)</p> <p><b>MAXIMUM</b> 8' 11-1/2" W x 6' 5-1/2" H (2 743 x 1 981)</p>	 <p><b>MINIMUM</b> 4' 5-1/2" W x 1' 11-1/2" H (1 371 x 609)</p> <p><b>MAXIMUM</b> 8' 11-1/2" W x 6' 5-1/2" H (2 743 x 1 981)</p>	 <p><b>MINIMUM</b> 4' 5-1/2" W x 4' 5-1/2" H (1 130 x 1 359)</p> <p><b>MAXIMUM</b> 8' 11-1/2" W x 6' 5-1/2" H (2 743 x 1 981)</p>	 <p><b>MINIMUM</b> 4' 5-1/2" W x 5' 5-1/2" H (1 371 x 1 664)</p> <p><b>MAXIMUM</b> 8' 11-1/2" W x 6' 5-1/2" H (2 743 x 1 981)</p> <p>- or -</p> <p>7' 11-1/2" W x 6' 11-1/2" H (2 426 x 2 133)</p>
3-WIDE 42" LOWER SASH VENT UNIT COMPOSITE	VENT WITH FIXED FLANKERS UNIT COMPOSITE	FIXED WITH VENT FLANKERS UNIT COMPOSITE	
 <p><b>MINIMUM</b> 4' 5-1/2" W x 5' 5-1/2" H (1 371 x 1 664)</p> <p><b>MAXIMUM</b> 8' 11-1/2" W x 5' 5-1/2" H (2 743 x 1 664)</p>	 <p><b>MINIMUM</b> 3' 9-1/2" W x 2' 11-1/2" H (1 981 x 914)</p> <p><b>MAXIMUM</b> Vent: 3' 11-1/2" W x 4' 11-1/2" H (1 219 x 1 524) Fixed: 1' 1-1/2" W x 4' 11-1/2" H (343 x 1 524)</p>	 <p><b>MINIMUM</b> 4' 1/2" W x 1' 11-1/2" H (1 245 x 610)</p> <p><b>MAXIMUM</b> 9' 11-1/2" W x 5' 11-1/2" H (3 048 x 1 828) Center Unit Width ≤ 4' 11-1/2"</p>	

**General Notes:**

- To convert areas to square meters (m2), multiply square feet by 0.0929.
- Rough Opening = Frame Dimension + 1/2".
- Keep frame dimensions to the nearest 1/4" increment.
- Tempered glass must measure > 18-1/2" diagonally.
- Single units with a frame height of 59-1/2" or greater are available with a dry-wall pass through option.

Composite units are not AAMA/WDMA performance certified. Pella Impervia composites are engineered to meet the performance class and grade shown in the Design Data tables. For special size units, use the performance class and grade for the next larger standard size unit.



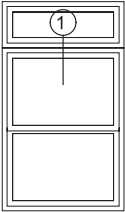
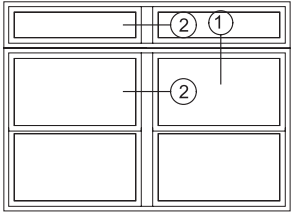
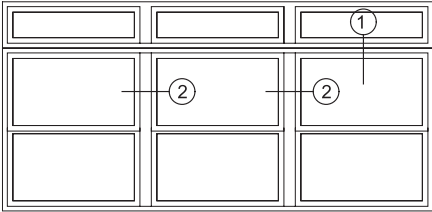
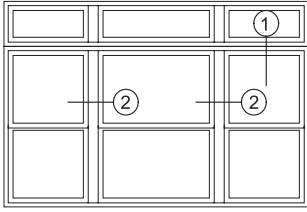
SINGLE-HUNG

# COMBINATIONS ASSEMBLES



## COMBINATIONS

A combination is defined as an assembly formed by two or more separate windows or doors whose frames are mullioned together utilizing a combination mullion or reinforcing mullion. See the combinations section for requirements, configurations and size limitations. Consult with your local Pella representative for currently offered factory assembled combinations.

FIXED OVER SINGLE-HUNG	2-WIDE FIXED OVER SINGLE-HUNG	3-WIDE FIXED OVER SINGLE-HUNG	3-WIDE FIXED OVER 3-WIDE WITH UNEQUAL CENTER
			
<p><b>MINIMUM</b> 1' 5-1/2" W x 3' 1" H (445 x 940)</p> <p><b>MAXIMUM</b> 3' 11-1/2" W x 7' 11" H (1 207 x 2 413)</p>	<p><b>MINIMUM</b> 2' 11-1/2" W x 3' 1" H (902 x 940)</p> <p><b>MAXIMUM</b> 7' 11-1/2" W x 7' 11" H (2 426 x 2 413)</p>	<p><b>MINIMUM</b> 4' 5-1/2" W x 3' 1" H (1 359 x 940)</p> <p><b>MAXIMUM</b> 8' 11-1/2" W x 7' 11" H (2 731 x 2 413)</p>	<p><b>MINIMUM</b> 4' 5-1/2" W x 3' 1" H (1 359 x 940)</p> <p><b>MAXIMUM</b> 8' 11-1/2" W x 7' 11" H (2 731 x 2 413)</p>

- ① Joining Mullion
- ② Integral Mullion

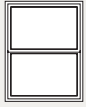


[Click here for the Impervia Combinations Section](#)

- Downloadable PDF file.

Determining and meeting the structural load requirements and design of the rough opening is the responsibility of the architect or engineer. Window and door frame systems are not designed to support additional elements or components of the building wall system.





SINGLE-HUNG

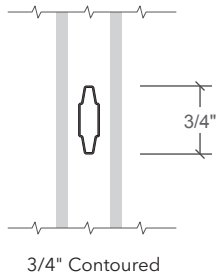
# GRILLE TYPES

## Grilles-Between-the-Glass



### Grille Profiles

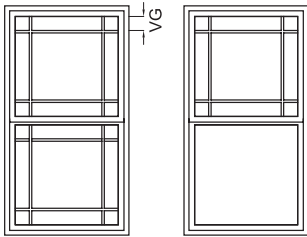
#### GRILLES-BETWEEN-THE-GLASS



3/4" Contoured

### Grille Patterns

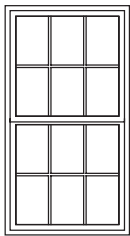
#### PRAIRIE LITE PATTERNS



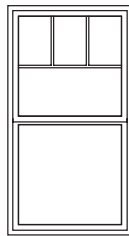
9-Lite Prairie

- Standard corner lite dimension for Prairie patterns = 4" visible glass (VG).
- Pattern availability may vary depending on size of unit.

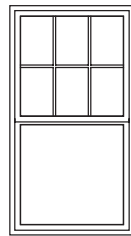
#### OTHER PATTERNS



Traditional



Top Row<sub>1</sub>



Special

- Pattern availability may vary depending on size of unit.

(1) Standard visible glass to center line of separator bar = 14" or half of total visible glass height, whichever is smaller. Multiple rows are available up to 50% glass size.



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## SIZE TABLES

### Fixed Transoms and Vent Units



#### Fixed Units

	(457) (445)	(610) (597)	(711) (699)	(762) (749)	9/16" (813) (800)	(914) (902)	(1 067) (1 054)	(1 219) (1 207)
Opening	1' 6"	2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 6"	4' 0"
Frame	1' 5 1/2"	1' 11 1/2"	2' 3 1/2"	2' 5 1/2"	2' 7 1/2"	2' 11 1/2"	3' 5 1/2"	3' 11 1/2"
1' 2"	1-6/1-2	2-0/1-2	2-4/1-2	2-6/1-2	2-8/1-2	3-0/1-2	3-6/1-2	4-0/1-2
1' 6"	1-6/1-6	2-0/1-6	2-4/1-6	2-6/1-6	2-8/1-6	3-0/1-6	3-6/1-6	4-0/1-6
2' 0"	1-6/2-0	2-0/2-0	2-4/2-0	2-6/2-0	2-8/2-0	3-0/2-0	3-6/2-0	4-0/2-0

#### Vent Units

	(610) (597)	(762) (749)	(914) (902)	(1 067) (1 054)	(1 219) (1 207)	(1 372) (1 359)	(1 524) (1 511)	(1 676) (1 664)	(1 829) (1 816)	(1 981) (1 969)
Opening	2' 0"	2' 6"	3' 0"	3' 6"	4' 0"	4' 6"	5' 0"	5' 6"	6' 0"	6' 6"
Frame	1' 11 1/2"	2' 5 1/2"	2' 11 1/2"	3' 5 1/2"	3' 11 1/2"	4' 5 1/2"	4' 11 1/2"	5' 5 1/2"	5' 11 1/2"	6' 5 1/2"
2' 0"	1-6/2-0	2-0/2-0	2-4/2-0	2-6/2-0	2-8/2-0					
2' 6"	1-6/2-6	2-0/2-6	2-4/2-6	2-6/2-6	2-8/2-6					
3' 0"	1-6/3-0	2-0/3-0	2-4/3-0	2-6/3-0	2-8/3-0	3-0/3-0	3-6/3-0	4-0/3-0		
3' 6"	1-6/3-6	2-0/3-6	2-4/3-6	2-6/3-6	2-8/3-6	3-0/3-6	3-6/3-6	4-0/3-6		
4' 0"	1-6/4-0	2-0/4-0	2-4/4-0	2-6/4-0	2-8/4-0	3-0/4-0	3-6/4-0	4-0/4-0		
4' 6"	1-6/4-6	2-0/4-6	2-4/4-6	2-6/4-6	2-8/4-6	3-0/4-6	3-6/4-6	4-0/4-6		
5' 0"	1-6/5-0	2-0/5-0	2-4/5-0	2-6/5-0	2-8/5-0	3-0/5-0	3-6/5-0	4-0/5-0		
5' 6"	1-6/5-6	2-0/5-6	2-4/5-6	2-6/5-6	2-8/5-6	3-0/5-6	3-6/5-6	4-0/5-6		
6' 0"	1-6/6-0	2-0/6-0	2-4/6-0	2-6/6-0	2-8/6-0	3-0/6-0	3-6/6-0	4-0/6-0		
6' 6"	1-6/6-6	2-0/6-6	2-4/6-6	2-6/6-6	2-8/6-6	3-0/6-6	3-6/6-6	4-0/6-6		

#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

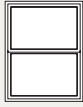
(1) Does not meet egress with High Performance sill adapter kit installed.

(2) Unit meets E1 with High Performance sill adapter kit installed.

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

Not to scale.

Special size units are available in 1/4" increments.
















































SINGLE-HUNG

## SIZE TABLES

### Fixed Units



Transoms		(356) (343)	(1 067) (1 054)	(1 219) (1 207)	(1 372) (1 359)	(1 524) (1 511)
Opening	1' 2"	3' 6"	4' 0"	4' 6"	5' 0"	
Frame	1' 1 1/2"	3' 5 1/2"	3' 11 1/2"	4' 5 1/2"	4' 11 1/2"	
(356) (343)	1' 2"	 3-6/1-2	 4-0/1-2	 4-6/1-2	 5-0/1-2	
(457) (446)	1' 6"	 3-6/1-6	 4-0/1-6	 4-6/1-6	 5-0/1-6	
(610) (597)	2' 0"	 3-6/2-0	 4-0/2-0	 4-6/2-0	 5-0/2-0	
(914) (902)	3' 0"	 1-2/3-0	 3-6/3-0	 4-0/3-0	 4-6/3-0	 5-0/3-0
(1 067) (1 054)	3' 6"	 1-2/3-6	 3-6/3-6	 4-0/3-6	 4-6/3-6	 5-0/3-6
(1 219) (1 207)	4' 0"	 1-2/4-0	 3-6/4-0	 4-0/4-0	 4-6/4-0	 5-0/4-0
(1 372) (1 359)	4' 6"	 1-2/4-6	 3-6/4-6	 4-0/4-6	 4-6/4-6	 5-0/4-6
(1 524) (1 511)	5' 0"	 1-2/5-0	 3-6/5-0	 4-0/5-0	 4-6/5-0	 5-0/5-0
(1 676) (1 664)	5' 6"		 3-6/5-6	 4-0/5-6	 4-6/5-6	 5-0/5-6
(1 829) (1 816)	6' 0"		 3-6/6-0	 4-0/6-0	 4-6/6-0	 5-0/6-0

Not to scale.

Special size units are available in 1/4" increments.



SINGLE-HUNG

## SIZE TABLES

### Cottage and Contemporary Units



#### Cottage Units

	(457) (445)	(610) (597)	(711) (699)	(762) (749)	(813) (800)	(914) (902)	(1 067) (1 054)	(1 219) (1 207)
Opening	1' 6"	2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 6"	4' 0"
Frame	1' 5 1/2"	1' 11 1/2"	2' 3 1/2"	2' 5 1/2"	2' 7 1/2"	2' 11 1/2"	3' 5 1/2"	3' 11 1/2"
42" (Lower Sash)								
	1-6/5-6 42V	2-0/5-6 42V	2-4/5-6 42V	2-6/5-6 42V	2-8/5-6 42V	3-0/5-6 42V	3-6/5-6 42V	4-0/5-6 42V

Special size Cottage units are available in 1/4" increments on widths only.

#### Contemporary Units

(1 676) (1 664)	5' 6"	5' 5 1/2"	42"									
(1 372) (1 359)	4' 6"	4' 5 1/2"	24"	(Lower Sash)								
(1 524) (1 511)	5' 0"	4' 11 1/2"	24"	(Lower Sash)								
(1 676) (1 664)	5' 6"	5' 5 1/2"	24"	(Lower Sash)								
(1 829) (1 816)	6' 0"	5' 11 1/2"	24"	(Lower Sash)								
(1 981) (1 969)	6' 6"	6' 5 1/2"	24"	(Lower Sash)								

Not to scale.

Special size Contemporary units are available in 1/4" increments.

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



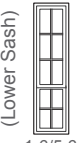
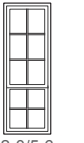
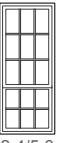
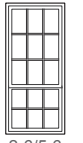
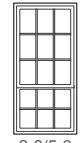
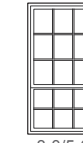

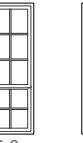
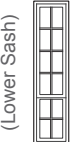
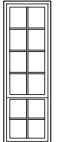

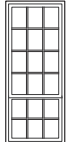
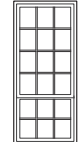
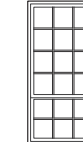

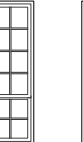
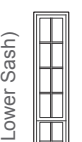
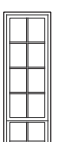
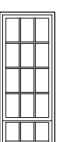
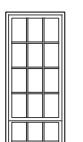
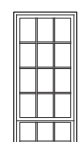
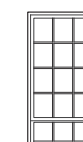

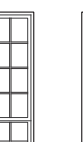



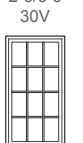
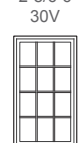
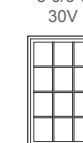

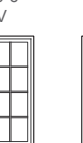
SINGLE-HUNG

## SIZE TABLES

### Contemporary Units



#### Contemporary Units

	(457) (445)	(610) (597)	(711) (699)	(762) (749)	(813) (800)	(914) (902)	(1 067) (1 054)	(1 219) (1 207)
Opening	1' 6"	2' 0"	2' 4"	2' 6"	2' 8"	3' 0"	3' 6"	4' 0"
Frame	1' 5 1/2"	1' 11 1/2"	2' 3 1/2"	2' 5 1/2"	2' 7 1/2"	2' 11 1/2"	3' 5 1/2"	3' 11 1/2"
(1 676) (1 664) 5' 6"	 (Lower Sash) 1-6/5-6 30V	 (Lower Sash) 2-0/5-6 30V	 (Lower Sash) 2-4/5-6 30V	 (Lower Sash) 2-6/5-6 30V	 (Lower Sash) 2-8/5-6 30V	 (Lower Sash) 3-0/5-6 30V	 (Lower Sash) 3-6/5-6 30V	 (Lower Sash) 4-0/5-6 30V
(1 829) (1 816) 6' 0"	 (Lower Sash) 1-6/6-0 30V	 (Lower Sash) 2-0/6-0 30V	 (Lower Sash) 2-4/6-0 30V	 (Lower Sash) 2-6/6-0 30V	 (Lower Sash) 2-8/6-0 30V	 (Lower Sash) 3-0/6-0 30V	 (Lower Sash) 3-6/6-0 30V	 (Lower Sash) 4-0/6-0 30V
(1 981) (1 969) 6' 6"	 (Lower Sash) 1-6/6-6 30V	 (Lower Sash) 2-0/6-6 30V	 (Lower Sash) 2-4/6-6 30V	 (Lower Sash) 2-6/6-6 30V	 (Lower Sash) 2-8/6-6 30V	 (Lower Sash) 3-0/6-6 30V	 (Lower Sash) 3-6/6-6 30V	 (Lower Sash) 4-0/6-6 30V
(2 134) (2 121) 7' 0"	 (Lower Sash) 1-6/7-0 30V	 (Lower Sash) 2-0/7-0 30V	 (Lower Sash) 2-4/7-0 30V	 (Lower Sash) 2-6/7-0 30V	 (Lower Sash) 2-8/7-0 30V	 (Lower Sash) 3-0/7-0 30V	 (Lower Sash) 3-6/7-0 30V	 (Lower Sash) 4-0/7-0 30V

#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

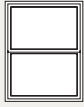
(1) Does not meet egress with High Performance sill adapter kit installed.

(2) Unit meets E1 with High Performance sill adapter kit installed.

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

Not to scale.

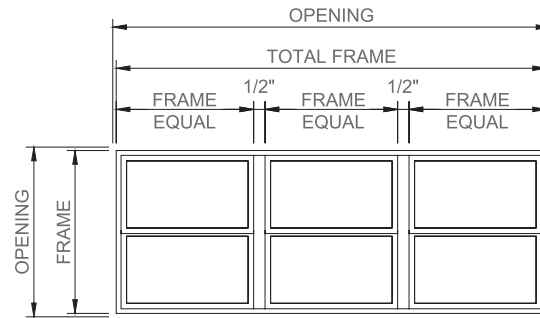
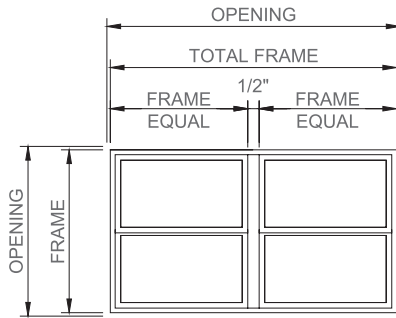
Special size Contemporary units are available in 1/4" increments.



SINGLE-HUNG

## SIZE TABLES

### 2-Wide and 3-Wide Vent Composites with Integral Mullion



2-Wide Composite Equal Vent Standard Size Chart

Equal Vent		WIDTH									
		ROUGH OPENING			3' 0"	4' 0"	4' 8"	5' 4"	6' 0"	7' 0"	8' 0"
		Contemporary	Cottage	FRAME	2' 11-1/2"	3' 11-1/2"	4' 7-1/2"	5' 3-1/2"	5' 11-1/2"	6' 11-1/2"	7' 11-1/2"
	24" Vent	30" Vent	42" Vent								
HEIGHT	2' 0"	-	-	1' 11-1/2"	1-6/2-0	2-0/2-0	2-4/2-0	2-8/2-0	-	-	-
	2' 6"	-	-	2' 5-1/2"	1-6/2-6	2-0/2-6	2-4/2-6	2-8/2-6	-	-	-
	3' 0"	-	-	2' 11-1/2"	1-6/3-0	2-0/3-0	2-4/3-0	2-8/3-0	3-0/3-0	3-6/3-0	4-0/3-0
	3' 6"	-	-	3' 5-1/2"	1-6/3-6	2-0/3-6	2-4/3-6	2-8/3-6	3-0/3-6	3-6/3-6	4-0/3-6
	4' 0"	-	-	3' 11-1/2"	1-6/4-0	2-0/4-0	2-4/4-0	2-8/4-0	3-0/4-0	3-6/4-0	4-0/4-0
	4' 6"	4' 6"	-	4' 5-1/2"	1-6/4-6	2-0/4-6	2-4/4-6	2-8/4-6	3-0/4-6	3-6/4-6	4-0/4-6
	5' 0"	5' 0"	-	4' 11-1/2"	1-6/5-0	2-0/5-0	2-4/5-0	2-8/5-0	3-0/5-0	3-6/5-0	4-0/5-0
	5' 6"	5' 6"	5' 6"	5' 5-1/2"	1-6/5-6	2-0/5-6	2-4/5-6	2-8/5-6	3-0/5-6	3-6/5-6	4-0/5-6
	6' 0"	6' 0"	6' 0"	5' 11-1/2"	1-6/6-0	2-0/6-0	2-4/6-0	2-8/6-0	3-0/6-0	3-6/6-0	4-0/6-0
	6' 6"	6' 6"	6' 6"	6' 5-1/2"	1-6/6-6	2-0/6-6	2-4/6-6	2-8/6-6	3-0/6-6	3-6/6-6	NA
-	-	7' 0"	6' 11-1/2"	1-6/7-0	2-0/7-0	2-4/7-0	2-8/7-0	NA	NA	NA	

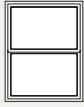
3-Wide Composite Equal Vent Standard Size Chart

Equal Vent		WIDTH							
		ROUGH OPENING			4' 6"	6' 0"	7' 0"	8' 0"	9' 0"
		Contemporary	Cottage	FRAME	4' 5-1/2"	5' 11-1/2"	6' 11-1/2"	7' 11-1/2"	8' 11-1/2"
	24" Vent	30" Vent	42" Vent						
HEIGHT	2' 0"	-	-	1' 11-1/2"	1-6/2-0	2-0/2-0	2-4/2-0	2-8/2-0	-
	2' 6"	-	-	2' 5-1/2"	1-6/2-6	2-0/2-6	2-4/2-6	2-8/2-6	-
	3' 0"	-	-	2' 11-1/2"	1-6/3-0	2-0/3-0	2-4/3-0	2-8/3-0	3-0/3-0
	3' 6"	-	-	3' 5-1/2"	1-6/3-6	2-0/3-6	2-4/3-6	2-8/3-6	3-0/3-6
	4' 0"	-	-	3' 11-1/2"	1-6/4-0	2-0/4-0	2-4/4-0	2-8/4-0	3-0/4-0
	4' 6"	4' 6"	-	4' 5-1/2"	1-6/4-6	2-0/4-6	2-4/4-6	2-8/4-6	3-0/4-6
	5' 0"	5' 0"	-	4' 11-1/2"	1-6/5-0	2-0/5-0	2-4/5-0	2-8/5-0	3-0/5-0
	5' 6"	5' 6"	5' 6"	5' 5-1/2"	1-6/5-6	2-0/5-6	2-4/5-6	2-8/5-6	3-0/5-6
	6' 0"	6' 0"	6' 0"	5' 11-1/2"	1-6/6-0	2-0/6-0	2-4/6-0	2-8/6-0	3-0/6-0
	6' 6"	6' 6"	6' 6"	6' 5-1/2"	1-6/6-6	2-0/6-6	2-4/6-6	2-8/6-6	3-0/6-6
7' 0"	7' 0"	-	6' 11-1/2"	1-6/7-0	2-0/7-0	2-4/7-0	2-8/7-0	NA	

NA = Not Available; (-) = Not available as a standard size

Composite units are not AAMA/WDMA performance certified. Pella Impervia composites are engineered to meet the performance class and grade shown in the Design Data tables.

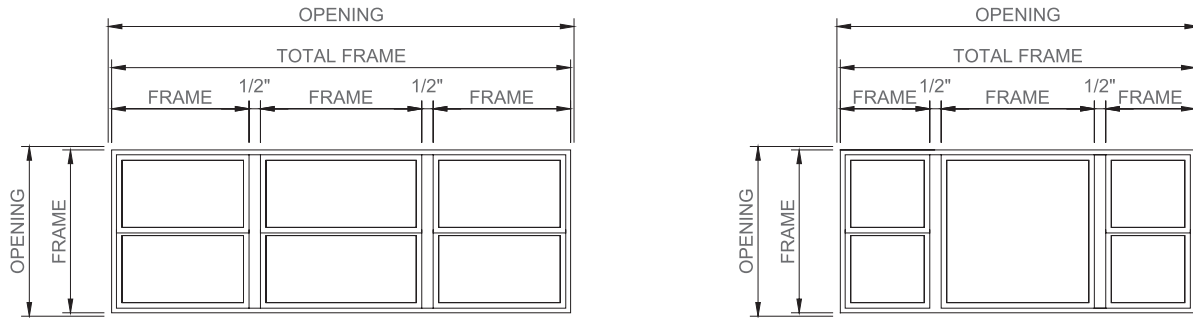
When ordering and sizing composites, use overall frame/rough opening dimension.



SINGLE-HUNG

## SIZE TABLES

### 3-Wide Composites with Integral Mullion



### 3-Wide Composite with Unequal Center Size Limitations

	OPENING WIDTH		OPENING HEIGHT		FRAME WIDTH		FRAME HEIGHT	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
OVERALL COMPOSITE <sup>1</sup>	4' 6"	9' 0"	2' 0"	7' 0"	4' 5-1/2"	8' 11-1/2"	1' 11-1/2"	6' 11-1/2"
SINGLE-HUNG FLANKERS <sup>2</sup>	-	-	-	-	1' 5-1/2"	3' 11-1/2"	1' 11-1/2"	6' 11-1/2"
CENTER SINGLE-HUNG <sup>2</sup>	-	-	-	-	1' 5-1/2"	3' 11-1/2"	1' 11-1/2"	6' 11-1/2"

(-) = Does not apply.

(1) Keep frame dimensions to nearest 1/4" increments.

(2) Nominal frame sizes.

Check mullion reinforcing tables to determine design pressure limitation of integral mullion for desired frame sizes. See the Installation and Performance section for structural limitations.

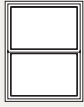
### 3-Wide Composite with Center Fixed Standard Size Chart

		WIDTH															
		ROUGH OPENING		6' 6"		7' 0"		7' 6"		8' 0"		8' 1"		8' 6"		8' 8"	
HEIGHT	FRAME	6' 5-1/2"		6' 11-1/2"		7' 5-1/2"		7' 11-1/2"		8' 0-1/2"		8' 5-1/2"		8' 7-1/2"		8' 9-1/2"	
		Vent Flankers	Fixed Center	Vent Flankers	Fixed Center	Vent Flankers	Fixed Center	Vent Flankers	Fixed Center	Vent Flankers	Fixed Center	Vent Flankers	Fixed Center	Vent Flankers	Fixed Center	Vent Flankers	Fixed Center
3' 0"	2' 11-1/2"	1-6/3-0	3-6/3-0	1-6/3-0	4-0/3-0	1-6/3-0	4-6/3-0	1-6/3-0	5-0/3-0	2-4/3-0	3-6/3-0	2-0/3-0	4-6/3-0	2-4/3-0	4-0/3-0	2-8/3-0	3-6/3-0
		-	-	-	-	2-0/3-0	3-6/3-0	2-0/3-0	4-0/3-0	-	-	-	-	-	-	-	-
3' 6"	3' 5-1/2"	1-6/3-6	3-6/3-6	1-6/3-6	4-0/3-6	1-6/3-6	4-6/3-6	1-6/3-6	5-0/3-6	2-4/3-6	3-6/3-6	2-0/3-6	4-0/3-6	2-4/3-6	4-0/3-6	2-8/3-6	3-6/3-6
		-	-	-	-	2-0/3-6	3-6/3-6	2-0/3-6	4-0/3-6	-	-	-	-	-	-	-	-
4' 0"	3' 11-1/2"	1-6/4-0	3-6/4-0	1-6/4-0	4-0/4-0	1-6/4-0	4-6/4-0	1-6/4-0	5-0/4-0	2-4/3-0	3-6/4-0	2-0/4-0	4-6/4-0	2-4/4-0	4-0/4-0	2-8/4-0	3-6/4-0
		-	-	-	-	2-0/4-0	3-6/4-0	2-0/4-0	4-0/4-0	-	-	-	-	-	-	-	-
4' 6"	4' 5-1/2"	1-6/4-6	3-6/4-6	1-6/4-6	4-0/4-6	1-6/4-6	4-6/4-6	1-6/4-6	5-0/4-6	2-4/4-6	3-6/4-6	2-0/4-6	4-6/4-6	2-4/4-6	4-0/4-6	2-8/4-6	3-6/4-6
		-	-	-	-	2-0/4-6	3-6/4-6	2-0/4-6	4-0/4-6	-	-	-	-	-	-	-	-
5' 0"	4' 11-1/2"	1-6/5-0	3-6/5-0	1-6/5-0	4-0/5-0	1-6/5-0	4-6/5-0	1-6/5-0	5-0/5-0	2-4/5-0	3-6/5-0	2-0/5-0	4-6/5-0	2-4/5-0	4-0/5-0	2-8/5-0	3-6/5-0
		-	-	-	-	2-0/5-0	3-6/5-0	2-0/5-0	4-0/5-0	-	-	-	-	-	-	-	-
5' 6"	5' 5-1/2"	1-6/5-6	3-6/5-6	1-6/5-6	4-0/5-6	1-6/5-6	4-6/5-6	1-6/5-6	5-0/5-6	2-4/5-6	3-6/5-6	2-0/5-6	4-0/5-6	2-4/5-6	5-0/5-6	2-8/5-6	3-6/5-6
		-	-	-	-	2-0/5-6	3-6/5-6	2-0/5-6	4-0/5-6	-	-	-	-	-	-	-	-
6' 0"	5' 11-1/2"	1-6/6-0	3-6/6-0	1-6/6-0	4-0/6-0	1-6/6-0	4-6/6-0	1-6/6-0	5-0/6-0	2-4/6-0	3-6/6-0	2-0/6-0	4-6/6-0	2-4/6-0	4-0/6-0	2-8/6-0	3-6/6-0
		-	-	-	-	2-0/6-0	3-6/6-0	2060	4-0/6-0	-	-	-	-	-	-	-	-

(-) = Not available as a standard size

Composite units are not AAMA/WDMA performance certified. Pella Impervia composites are engineered to meet the performance class and grade shown in the Design Data tables.

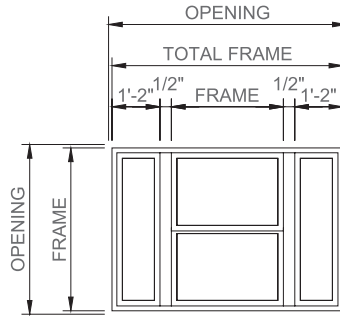
When ordering and sizing composites, use overall frame/rough opening dimension.



SINGLE-HUNG

## SIZE TABLES

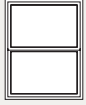
### 3-Wide Composites with Integral Mullion



### 3-Wide Composite - Vent with Fixed Flankers Standard Size Chart

		WIDTH													
		3' 10"		4' 4"		4' 8"		5' 0"		5' 4"		5' 10"		6' 4"	
HEIGHT	ROUGH OPENING	3' 9-1/2"		4' 3-1/2"		4' 7-1/2"		4' 11-1/2"		5' 3-1/2"		5' 9-1/2"		6' 3-1/2"	
	FRAME	Fixed Flankers	Vent Center	Fixed Flankers	Vent Center	Fixed Flankers	Vent Center	Fixed Flankers	Vent Center	Fixed Flankers	Vent Center	Fixed Flankers	Vent Center	Fixed Flankers	Vent Center
3' 0"	2' 11-1/2"	1-2/3-0	1-6/3-0	1-2/3-0	2-0/3-0	1-2/3-0	2-4/3-0	1-2/3-0	2-8/3-0	1-2/3-0	3-0/3-0	1-2/3-0	3-6/3-0	1-2/3-0	4-0/3-0
3' 6"	3' 5-1/2"	1-2/3-6	1-6/3-6	1-2/3-6	2-0/3-6	1-2/3-6	2-4/3-6	1-2/3-6	2-8/3-6	1-2/3-6	3-0/3-6	1-2/3-6	3-6/3-6	1-2/3-6	4-0/3-6
4' 0"	3' 11-1/2"	1-2/4-0	1-6/4-0	1-2/4-0	2-0/4-0	1-2/4-0	2-4/4-0	1-2/4-0	2-8/4-0	1-2/4-0	3-0/4-0	1-2/4-0	3-6/4-0	1-2/4-0	4-0/4-0
4' 6"	4' 5-1/2"	1-2/4-6	1-6/4-6	1-2/4-6	2-0/4-6	1-2/4-6	2-4/4-6	1-2/4-6	2-8/4-6	1-2/4-6	3-0/4-6	1-2/4-6	3-6/4-6	1-2/4-6	4-0/4-6
5' 0"	4' 11-1/2"	1-2/5-0	1-6/5-0	1-2/5-0	2-0/5-0	1-2/5-0	2-4/5-0	1-2/5-0	2-8/5-0	1-2/5-0	3-0/5-0	1-2/5-0	3-6/5-0	1-2/5-0	4-0/5-0





SINGLE-HUNG

## DESIGN DATA

### Single Vent Units



#### SINGLE VENT UNITS

Unit	Egress	Clear Opening		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sup>3</sup>
		Width (Inches)	Height (Inches)			Annealed	Tempered	
1-6/2-0		13-15/16	8-3/16	0.8	1.2	2.5	3	LC50
1-6/2-6		13-15/16	11-3/16	1.1	1.7	2.5	3	LC50
1-6/3-0		13-15/16	14-3/16	1.4	2.2	2.5	3	LC50
1-6/3-6		13-15/16	17-3/16	1.7	2.6	2.5	3	LC50
1-6/4-0		13-15/16	20-3/16	2.0	3.1	2.5	3	LC50
1-6/4-6		13-15/16	23-3/16	2.2	3.6	2.5	3	LC50
1-6/5-0		13-15/16	26-3/16	2.5	4.1	2.5	3	LC50
1-6/5-6		13-15/16	29-3/16	2.8	4.5	2.5	3	LC50
1-6/6-0		13-15/16	32-3/16	3.1	5.0	2.5	3	LC30/LC50
1-6/6-6		13-15/16	35-3/16	3.4	5.5	2.5	3	LC30/LC50
2-0/2-0		19-15/16	8-3/16	1.1	1.8	2.5	3	LC50
2-0/2-6		19-15/16	11-3/16	1.5	2.6	2.5	3	LC50
2-0/3-0		19-15/16	14-3/16	2.0	3.3	2.5	3	LC50
2-0/3-6		19-15/16	17-3/16	2.4	4.0	2.5	3	LC50
2-0/4-0		19-15/16	20-3/16	2.8	4.7	2.5	3	LC50
2-0/4-6		19-15/16	23-3/16	3.2	5.5	2.5	3	LC50
2-0/5-0		19-15/16	26-3/16	3.6	6.2	2.5	3	LC50
2-0/5-6		19-15/16	29-3/16	4.0	6.9	2.5	3	LC50
2-0/6-0		19-15/16	32-3/16	4.5	7.6	2.5	3	LC30/LC50
2-0/6-6		19-15/16	35-3/16	4.9	8.4	2.5	3	LC30/LC50
2-4/2-0		23-15/16	8-3/16	1.4	2.3	2.5	3	LC50
2-4/2-6		23-15/16	11-3/16	1.7	3.1	2.5	3	LC50
2-4/3-0		23-15/16	14-3/16	2.4	4.0	2.5	3	LC50
2-4/3-6		23-15/16	17-3/16	2.9	4.9	2.5	3	LC50
2-4/4-0		23-15/16	20-3/16	3.4	5.8	2.5	3	LC50
2-4/4-6		23-15/16	23-3/16	3.8	6.7	2.5	3	LC50
2-4/5-0		23-15/16	26-3/16	4.3	7.6	2.5	3	LC50
2-4/5-6		23-15/16	29-3/16	4.8	8.5	2.5	3	LC50
2-4/6-0	E1	23-15/16	32-3/16	5.3	9.4	2.5	3	LC30/LC50
2-4/6-6	E	23-15/16	35-3/16	5.8	10.3	2.5	3	LC30/LC50
2-6/2-0		25-15/16	8-3/16	1.5	2.5	2.5	3	LC50
2-6/2-6		25-15/16	11-3/16	2.0	3.5	2.5	3	LC50
2-6/3-0		25-15/16	14-3/16	2.6	4.5	2.5	3	LC50
2-6/3-6		25-15/16	17-3/16	3.1	5.4	2.5	3	LC50
2-6/4-0		25-15/16	20-3/16	3.6	6.4	2.5	3	LC50
2-6/4-6		25-15/16	23-3/16	4.2	7.4	2.5	3	LC50
2-6/5-0		25-15/16	26-3/16	4.7	8.4	2.5	3	LC50
2-6/5-6	E1	25-15/16	29-3/16	5.3	9.3	2.5	3	LC50
2-6/6-0	E	25-15/16	32-3/16	5.8	10.3	2.5	3	LC30/LC50
2-6/6-6	E	25-15/16	35-3/16	6.3	11.3	2.5	3	LC30/LC50

#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

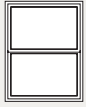
E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.

(1) = Does not meet egress with High Performance sill adapter kit installed.

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

The second value, where shown, is the maximum performance with Performance Upgrade Kit applied.

To convert area to square meters (m<sup>2</sup>), multiply square feet by 0.0929.



SINGLE-HUNG

## DESIGN DATA

### Single Vent Units (Continued)



#### SINGLE VENT UNITS

Unit	Egress	Clear Opening		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sup>3</sup>
		Width (Inches)	Height (Inches)			Annealed	Tempered	
2-8/2-0		27-15/16	8-3/16	1.6	2.7	2.5	3	LC50
2-8/2-6		27-15/16	11-3/16	2.2	3.7	2.5	3	LC50
2-8/3-0		27-15/16	14-3/16	2.7	4.8	2.5	3	LC50
2-8/3-6		27-15/16	17-3/16	3.3	5.9	2.5	3	LC50
2-8/4-0		27-15/16	20-3/16	3.9	6.9	2.5	3	LC50
2-8/4-6		27-15/16	23-3/16	4.5	8.0	2.5	3	LC50
2-8/5-0	E <sub>1</sub> (1)	27-15/16	26-3/16	5.1	9.0	2.5	3	LC50
2-8/5-6	E <sub>1</sub>	27-15/16	29-3/16	5.6	10.1	2.5	3	LC50
2-8/6-0	E	27-15/16	32-3/16	6.2	11.2	2.5	3	LC30/LC50
2-8/6-6	E	27-15/16	35-3/16	6.8	12.2	2.5	3	LC30/LC50
3-0/3-0		31-15/16	14-3/16	3.1	5.5	2.5	3	LC50
3-0/3-6		31-15/16	17-3/16	3.8	6.8	2.5	3	LC50
3-0/4-0		31-15/16	20-3/16	4.5	8.0	2.5	3	LC50
3-0/4-6		31-15/16	23-3/16	5.1	9.2	2.5	3	LC50
3-0/5-0	E <sub>2</sub> (2)	31-15/16	26-3/16	5.8	10.5	2.5	3	LC50
3-0/5-6	E	31-15/16	29-3/16	6.5	11.7	2.5	3	LC50
3-0/6-0	E	31-15/16	32-3/16	7.1	12.9	2.5	3	LC30/LC50
3-0/6-6	E	31-15/16	35-3/16	7.8	14.1	2.5	3	LC30/LC50
3-6/3-0		37-15/16	14-3/16	3.7	6.7	2.5	3	LC30/LC50
3-6/3-6		37-15/16	17-3/16	4.8	8.2	2.5	3	LC30/LC50
3-6/4-0		37-15/16	20-3/16	5.3	9.6	2.5	3	LC30/LC50
3-6/4-6		37-15/16	23-3/16	6.1	11.1	2.5	3	LC30/LC50
3-6/5-0	E	37-15/16	26-3/16	6.9	12.6	2.5	3	LC30/LC50
3-6/5-6	E	37-15/16	29-3/16	7.7	14.1	2.5	3	LC30/LC50
3-6/6-0	E	37-15/16	32-3/16	8.5	15.5	2.5	3	LC30/LC50
3-6/6-6	E	37-15/16	35-3/16	9.3	17.0	2.5	3	LC30/LC50
4-0/3-0		43-15/16	14-3/16	4.3	7.8	2.5	3	LC30/LC50
4-0/3-6		43-15/16	17-3/16	5.2	9.5	2.5	3	LC30/LC50
4-0/4-0		43-15/16	20-3/16	6.2	11.3	2.5	3	LC30/LC50
4-0/4-6		43-15/16	23-3/16	7.1	13.0	2.5	3	LC30/LC50
4-0/5-0	E	43-15/16	26-3/16	8.0	14.7	2.5	3	LC30/LC50
4-0/5-6	E	43-15/16	29-3/16	8.9	16.4	2.5	3	LC30/LC50
4-0/6-0	E	43-15/16	32-3/16	9.8	18.2	3	3	LC30/LC50
4-0/6-6	E	43-15/16	35-3/16	10.7	19.9	3	3	LC30/LC50

#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

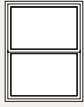
E<sub>1</sub> = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.

(2) Unit meets E<sub>1</sub> with High Performance sill adapter kit installed.

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

The second value, where shown, is the maximum performance with Performance Upgrade Kit applied.

To convert area to square meters (m<sup>2</sup>), multiply square feet by 0.0929.



SINGLE-HUNG

## DESIGN DATA

### Cottage and Contemporary Vent Units



#### COTTAGE – 42" LOWER SASH HEIGHT UNITS

Unit	Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sup>1</sup>
		Width	Height			Annealed	Tempered	
1-6/5-6		13-15/16	20-3/16	2.0	4.5	2.5	3	LC50
2-0/5-6		19-15/16	20-3/16	2.8	6.9	2.5	3	LC50
2-4/5-6		23-15/16	20-3/16	3.4	8.5	2.5	3	LC40/LC50
<b>2-6/5-6</b>		<b>25-15/16</b>	<b>20-3/16</b>	<b>3.6</b>	<b>9.3</b>	<b>2.5</b>	<b>3</b>	<b>LC40/LC50</b>
2-8/5-6		27-15/16	20-3/16	3.9	10.1	2.5	3	LC40/LC50
3-0/5-6		31-15/16	20-3/16	4.5	11.7	2.5	3	LC40/LC50
3-6/5-6		37-15/16	20-3/16	5.3	14.1	2.5	3	LC40/LC50
4-0/5-6		43-15/16	20-3/16	6.2	16.4	2.5	3	LC40/LC50

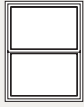
#### CONTEMPORARY – 24" LOWER SASH HEIGHT UNITS

Unit	Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sup>1</sup>
		Width	Height			Annealed	Tempered	
1-6/4-6		13-15/16	20-3/16	2.0	3.6	2.5	3	LC50
1-6/5-0		13-15/16	20-3/16	2.0	4.1	2.5	3	LC50
1-6/5-6		13-15/16	20-3/16	2.0	4.5	2.5	3	LC50
1-6/6-0		13-15/16	20-3/16	2.0	5.0	2.5	3	LC40/LC50
1-6/6-6		13-15/16	20-3/16	2.0	5.5	2.5	3	LC40/LC50
2-0/4-6		19-15/16	20-3/16	2.8	5.5	2.5	3	LC50
2-0/5-0		19-15/16	26-3/16	3.6	6.2	2.5	3	LC50
2-0/5-6		19-15/16	20-3/16	2.8	6.9	2.5	3	LC50
2-0/6-0		19-15/16	20-3/16	2.8	7.6	2.5	3	LC40/LC50
2-0/6-6		19-15/16	20-3/16	2.8	8.4	2.5	3	LC40/LC50
2-4/4-6		23-15/16	20-3/16	3.4	6.7	2.5	3	LC50
2-4/5-0		23-15/16	20-3/16	3.4	7.6	2.5	3	LC50
2-4/5-6		23-15/16	20-3/16	3.4	8.5	2.5	3	LC40/LC50
2-4/6-0		23-15/16	20-3/16	3.4	9.4	2.5	3	LC40/LC50
2-4/6-6		23-15/16	20-3/16	3.4	10.3	2.5	3	LC40/LC50
2-6/4-6		25-15/16	20-3/16	3.6	7.4	2.5	3	LC50
2-6/5-0		25-15/16	20-3/16	3.6	8.4	2.5	3	LC50
2-6/5-6		25-15/16	20-3/16	3.6	9.3	2.5	3	LC40/LC50
2-6/6-0		25-15/16	20-3/16	3.6	10.3	2.5	3	LC40/LC50
2-6/6-6		25-15/16	20-3/16	3.6	11.3	2.5	3	LC40/LC50
2-8/4-6		27-15/16	20-3/16	3.9	8.0	2.5	3	LC50
2-8/5-0		27-15/16	20-3/16	3.9	9.0	2.5	3	LC50
2-8/5-6		27-15/16	20-3/16	3.9	10.1	2.5	3	LC40/LC50
2-8/6-0		27-15/16	20-3/16	3.9	11.2	2.5	3	LC40/LC50
2-8/6-6		27-15/16	20-3/16	3.9	12.2	2.5	3	LC40/LC50
3-0/4-6		31-15/16	20-3/16	4.5	9.2	2.5	3	LC50
3-0/5-0		31-15/16	20-3/16	4.5	10.5	2.5	3	LC50
3-0/5-6		31-15/16	20-3/16	4.5	11.7	2.5	3	LC40/LC50
3-0/6-0		31-15/16	20-3/16	4.5	12.9	2.5	3	LC40/LC50
3-0/6-6		31-15/16	20-3/16	4.5	14.1	2.5	3	LC40/LC50
3-6/4-6		37-15/16	20-3/16	5.3	11.1	2.5	3	LC30/LC50
3-6/5-0		37-15/16	20-3/16	5.3	12.6	2.5	3	LC30/LC50
3-6/5-6		37-15/16	20-3/16	5.3	14.1	2.5	3	LC40/LC50
3-6/6-0		37-15/16	20-3/16	5.3	15.5	2.5	3	LC40/LC50
3-6/6-6		37-15/16	20-3/16	5.3	17.0	2.5	3	LC40/LC50
4-0/4-6		43-15/16	20-3/16	6.2	13.0	2.5	3	LC30/LC50
4-0/5-0		43-15/16	20-3/16	6.2	14.7	2.5	3	LC30/LC50
4-0/5-6		43-15/16	20-3/16	6.2	16.4	2.5	3	LC40/LC50
4-0/6-0		43-15/16	20-3/16	6.2	18.2	3	3	LC40/LC50
4-0/6-6		43-15/16	20-3/16	6.2	19.9	3	3	LC40/LC50

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

To convert area to square meters (m<sup>2</sup>), multiply square feet by 0.0929.

The second value, where shown, is the maximum performance with Performance Upgrade Kit applied.



SINGLE-HUNG

## DESIGN DATA

### Cottage and Contemporary Vent Units (Continued)



#### CONTEMPORARY – 30" LOWER SASH HEIGHT UNITS

Unit	Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sub>3</sub>
		Width	Height			Annealed	Tempered	
1-6/5-6		13-15/16	26-3/16	2.5	4.5	2.5	3	LC50
1-6/6-0		13-15/16	26-3/16	2.5	5.0	2.5	3	LC40/LC50
1-6/6-6		13-15/16	26-3/16	2.5	5.5	2.5	3	LC40/LC50
1-6/7-0		13-15/16	26-3/16	2.5	6.0	2.5	3	LC40/LC50
2-0/5-6		19-15/16	26-3/16	3.6	6.9	2.5	3	LC50
2-0/6-0		19-15/16	26-3/16	3.6	7.6	2.5	3	LC40/LC50
2-0/6-6		19-15/16	26-3/16	3.6	8.4	2.5	3	LC40/LC50
2-0/7-0		19-15/16	26-3/16	3.6	9.1	2.5	3	LC40/LC50
2-4/5-6		23-15/16	26-3/16	4.3	8.5	2.5	3	LC40/LC50
2-4/6-0		23-15/16	26-3/16	4.3	9.4	2.5	3	LC30/LC50
2-4/6-6		23-15/16	26-3/16	4.3	10.3	2.5	3	LC30/LC50
2-4/7-0		23-15/16	26-3/16	4.3	11.2	2.5	3	LC40/LC50
2-6/5-6		25-15/16	26-3/16	3.6	9.3	2.5	3	LC40/LC50
2-6/6-0		25-15/16	26-3/16	3.6	10.3	2.5	3	LC30/LC50
2-6/6-6		25-15/16	26-3/16	3.6	11.3	2.5	3	LC30/LC50
2-6/7-0		25-15/16	26-3/16	3.6	5.4	2.5	3	LC40/LC50
2-8/5-6	E1(2)	27-15/16	26-3/16	5.1	10.1	2.5	3	LC40/LC50
2-8/6-0	E1(2)	27-15/16	26-3/16	5.1	11.2	2.5	3	LC30/LC50
2-8/6-6	E1(2)	27-15/16	26-3/16	5.1	12.2	2.5	3	LC30/LC50
2-8/7-0	E1(2)	27-15/16	26-3/16	5.1	13.3	2.5	3	LC40/LC50
3-0/5-6	E(1)	31-15/16	26-3/16	5.8	11.7	2.5	3	LC40/LC50
3-0/6-0	E(1)	31-15/16	26-3/16	5.8	12.9	2.5	3	LC30/LC50
3-0/6-6	E(1)	31-15/16	26-3/16	5.8	14.1	2.5	3	LC30/LC50
3-0/7-0	E(1)	31-15/16	26-3/16	5.8	15.4	2.5	3	LC40/LC50
3-6/5-6	E	37-15/16	26-3/16	6.9	14.1	2.5	3	LC30/LC50
3-6/6-0	E	37-15/16	26-3/16	6.9	15.5	2.5	3	LC30/LC50
3-6/6-6	E	37-15/16	26-3/16	6.9	17.0	2.5	3	LC30/LC50
3-6/7-0	E	37-15/16	26-3/16	6.9	18.5	2.5	3	LC40/LC50
4-0/5-6	E	43-15/16	26-3/16	8.0	16.4	2.5	3	LC30/LC50
4-0/6-0	E	43-15/16	26-3/16	8.0	18.2	3	3	LC30/LC50
4-0/6-6	E	43-15/16	26-3/16	8.0	19.9	3	3	LC30/LC50
4-0/7-0	E	43-15/16	26-3/16	8.0	21.6	3	3	LC40/LC50

#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

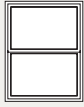
(1) Does not meet egress with High Performance sill adapter kit installed.

(2) Unit meets E1 with High Performance sill adapter kit installed.

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

The second value, where shown, is the maximum performance with Performance Upgrade Kit applied.

To convert area to square meters (m<sup>2</sup>), multiply square feet by 0.0929.



SINGLE-HUNG

## DESIGN DATA

### Single Fixed Units



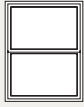
#### SINGLE FIXED UNITS

Unit	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sub>1</sub>
		Annealed	Tempered	
<b>FLANKER UNITS</b>				
1-2/3-0	1.5	2.5	3	CW50
1-2/3-6	1.8	2.5	3	CW50
1-2/4-0	2.1	2.5	3	CW50
1-2/4-6	2.5	2.5	3	CW50
1-2/5-0	2.8	3	3	CW50
<b>TRANSOM UNITS</b>				
1-6/1-2	0.6	2.5	3	CW50
1-6/1-6	0.9	2.5	3	CW50
1-6/2-0	1.4	2.5	3	CW50
2-0/1-2	0.9	2.5	3	CW50
2-0/1-6	1.4	2.5	3	CW50
2-0/2-0	2.1	2.5	3	CW50
2-4/1-2	1.1	2.5	3	CW50
2-4/1-6	1.7	2.5	3	CW50
2-4/2-0	2.6	2.5	3	CW50
2-6/1-2	1.2	2.5	3	CW50
2-6/1-6	1.9	2.5	3	CW50
2-6/2-0	2.8	2.5	3	CW50
2-8/1-2	1.3	2.5	3	CW50
2-8/1-6	2.0	2.5	3	CW50
2-8/2-0	3.1	2.5	3	CW50
3-0/1-2	1.5	2.5	3	CW50
3-0/1-6	2.3	2.5	3	CW50
3-0/2-0	3.6	2.5	3	CW50
3-6/1-2	1.8	2.5	3	CW50
3-6/1-6	2.8	2.5	3	CW50
3-6/2-0	4.3	2.5	3	CW50
4-0/1-2	2.1	2.5	3	CW50
4-0/1-6	3.3	2.5	3	CW50
4-0/2-0	5.0	2.5	3	CW50

#### SINGLE FIXED UNITS

Unit	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sub>1</sub>
		Annealed	Tempered	
3-6/1-2	1.8	2.5	3	CW50
3-6/1-6	2.8	2.5	3	CW50
3-6/2-0	4.3	2.5	3	CW50
3-6/3-0	7.2	2.5	3	CW50
3-6/3-6	8.7	2.5	3	CW50
3-6/4-0	10.2	3	3	CW50
3-6/4-6	11.7	3	3	CW50
3-6/5-0	13.2	3	3	CW50
3-6/5-6	14.6	3	3	CW50
3-6/6-0	16.1	3	3	CW50
4-0/1-2	2.1	3	3	CW50
4-0/1-6	3.3	2.5	3	CW50
4-0/2-0	5	2.5	3	CW50
4-0/3-0	8.5	2.5	3	CW50
4-0/3-6	10.2	3	3	CW50
4-0/4-0	11.9	3	3	CW50
4-0/4-6	13.7	3	3	CW50
4-0/5-0	15.4	3	3	CW50
4-0/5-6	17.1	3	3	CW50
4-0/6-0	18.8	5	3	CW50
4-6/1-2	2.5	3	3	CW50
4-6/1-6	3.8	2.5	3	CW50
4-6/2-0	5.7	2.5	3	CW50
4-6/3-0	9.7	2.5	3	CW50
4-6/3-6	11.7	3	3	CW50
4-6/4-0	13.7	3	3	CW50
4-6/4-6	15.6	3	3	CW50
4-6/5-0	17.6	5	3	CW50
4-6/5-6	19.6	5	3	CW50
4-6/6-0	21.6	5	3	CW50
5-0/1-2	2.8	3	3	CW50
5-0/1-6	4.2	2.5	3	CW50
5-0/2-0	6.5	2.5	3	CW50
5-0/3-0	10.9	3	3	CW50
5-0/3-6	13.2	3	3	CW50
5-0/4-0	15.4	3	3	CW50
5-0/4-6	17.6	5	5	CW50
5-0/5-0	19.8	5	5	CW50
5-0/5-6	22.1	5	5	CW50
5-0/6-0	24.3	5	5	CW50

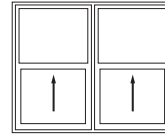
(1) Maximum performance when glazed with the appropriate glass thickness.  
To convert area to square meters (m<sup>2</sup>), multiply square feet by 0.0929.



SINGLE-HUNG

## DESIGN DATA

### 2-Wide Composite Units



#### VENT UNIT – EQUAL SASH

Unit	Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sup>1,2</sup>
		Width	Height			Annealed	Tempered	
3-0/2-0		13-15/16	8-3/16	1.6	2.4	2.5	3	LC30
3-0/2-6		13-15/16	11-3/16	2.2	3.4	2.5	3	LC30
3-0/3-0		13-15/16	14-3/16	2.7	4.3	2.5	3	LC30
3-0/3-6		13-15/16	17-3/16	3.3	5.3	2.5	3	LC30
3-0/4-0		13-15/16	20-3/16	3.9	6.3	2.5	3	LC30
3-0/4-6		13-15/16	23-3/16	4.5	7.2	2.5	3	LC30
3-0/5-0		13-15/16	26-3/16	5.1	8.2	2.5	3	LC30
3-0/5-6		13-15/16	29-3/16	5.6	9.1	2.5	3	LC30
3-0/6-0		13-15/16	32-3/16	6.2	10.1	2.5	3	LC30
3-0/6-6		13-15/16	35-3/16	6.8	11.0	2.5	3	LC30
4-0/2-0		19-15/16	8-3/16	2.3	3.7	2.5	3	LC30
4-0/2-6		19-15/16	11-3/16	3.1	5.2	2.5	3	LC30
4-0/3-0		19-15/16	14-3/16	3.9	6.6	2.5	3	LC30
4-0/3-6		19-15/16	17-3/16	4.8	8.1	2.5	3	LC30
4-0/4-0		19-15/16	20-3/16	5.6	9.5	2.5	3	LC30
4-0/4-6		19-15/16	23-3/16	6.4	11.0	2.5	3	LC30
4-0/5-0		19-15/16	26-3/16	7.2	12.4	2.5	3	LC30
4-0/5-6		19-15/16	29-3/16	8.1	13.9	2.5	3	LC30
4-0/6-0		19-15/16	32-3/16	8.9	15.3	2.5	3	LC30
4-0/6-6		19-15/16	35-3/16	9.7	16.8	2.5	3	LC30
4-8/2-0		23-15/16	8-3/16	2.7	4.6	2.5	3	LC30
4-8/2-6		23-15/16	11-3/16	3.7	6.4	2.5	3	LC30
4-8/3-0		23-15/16	14-3/16	4.7	8.2	2.5	3	LC30
4-8/3-6		23-15/16	17-3/16	5.7	9.9	2.5	3	LC30
4-8/4-0		23-15/16	20-3/16	6.7	11.7	2.5	3	LC30
4-8/4-6		23-15/16	23-3/16	7.7	13.5	2.5	3	LC30
4-8/5-0		23-15/16	26-3/16	8.7	15.3	2.5	3	LC30
4-8/5-6		23-15/16	29-3/16	9.7	17.1	2.5	3	LC30
4-8/6-0	E1	23-15/16	32-3/16	10.7	18.9	2.5	3	LC30
4-8/6-6	E	23-15/16	35-3/16	11.7	20.7	2.5	3	LC30
5-0/2-0		25-15/16	8-3/16	2.9	5.0	2.5	3	LC30
5-0/2-6		25-15/16	11-3/16	4.0	7.0	2.5	3	LC30
5-0/3-0		25-15/16	14-3/16	5.1	8.9	2.5	3	LC30
5-0/3-6		25-15/16	17-3/16	6.2	10.9	2.5	3	LC30
5-0/4-0		25-15/16	20-3/16	7.3	12.8	2.5	3	LC30
5-0/4-6		25-15/16	23-3/16	8.3	14.8	2.5	3	LC30
5-0/5-0		25-15/16	26-3/16	9.4	16.7	2.5	3	LC30
5-0/5-6	E1	25-15/16	29-3/16	10.5	18.7	2.5	3	LC30
5-0/6-0	E	25-15/16	32-3/16	11.6	20.6	2.5	3	LC30
5-0/6-6	E	25-15/16	35-3/16	12.7	22.6	2.5	3	LC30

#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

(3) = If high performance sill adapter kit is installed unit will not meet egress.

(4) = Unit meets E1 if high performance sill adapter kit is installed.

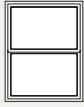
V = Vent Only

(1) Composite units are not AAMA/WDMA performance certified. Pella Impervia Composites are engineered to meet the performance class and grade shown.

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

To convert area to square meters (m<sup>2</sup>), multiply square feet by 0.0929.

When ordering and sizing composites, use overall frame/rough opening dimensions.



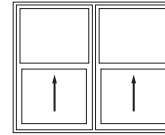
SINGLE-HUNG

## DESIGN DATA

### 2-Wide Composite Units



#### VENT UNIT – EQUAL SASH



Unit	Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sup>1,2</sup>
		Width	Height			Annealed	Tempered	
5-4/2-0		27-15/16	8-3/16	3.2	5.4	2.5	3	LC30
5-4/2-6		27-15/16	11-3/16	4.3	7.6	2.5	3	LC30
5-4/3-0		27-15/16	14-3/16	5.5	9.7	2.5	3	LC30
5-4/3-6		27-15/16	17-3/16	6.7	11.8	2.5	3	LC30
5-4/4-0		27-15/16	20-3/16	7.8	13.9	2.5	3	LC30
5-4/4-6		27-15/16	23-3/16	9.0	16.0	2.5	3	LC30
5-4/5-0	E1(3)	27-15/16	26-3/16	10.2	18.2	2.5	3	LC30
5-4/5-6	E1	27-15/16	29-3/16	11.3	20.3	2.5	3	LC30
5-4/6-0	E	27-15/16	32-3/16	12.5	22.4	2.5	3	LC30
5-4/6-6	E	27-15/16	35-3/16	13.6	24.5	2.5	3	R25
6-0/3-0		31-15/16	14-3/16	6.3	11.2	2.5	3	LC30
6-0/3-6		31-15/16	17-3/16	7.6	13.6	2.5	3	LC30
6-0/4-0		31-15/16	20-3/16	8.9	16.1	2.5	3	LC30
6-0/4-6		31-15/16	23-3/16	10.3	18.6	2.5	3	LC30
6-0/5-0	E(4)	31-15/16	26-3/16	11.6	21.0	2.5	3	LC30
6-0/5-6	E	31-15/16	29-3/16	12.9	23.5	2.5	3	LC30
6-0/6-0	E	31-15/16	32-3/16	14.3	25.9	2.5	3	LC30
6-0/6-6	E	31-15/16	35-3/16	15.6	28.4	2.5	3	R20
7-0/3-0		37-15/16	14-3/16	7.5	13.5	2.5	3	LC30
7-0/3-6		37-15/16	17-3/16	9.0	16.4	2.5	3	LC30
7-0/4-0		37-15/16	20-3/16	10.6	19.4	2.5	3	LC30
7-0/4-6		37-15/16	23-3/16	12.2	22.3	2.5	3	LC30
7-0/5-0	E	37-15/16	26-3/16	13.8	25.3	2.5	3	LC30
7-0/5-6	E	37-15/16	29-3/16	15.4	28.2	2.5	3	LC30
7-0/6-0	E	37-15/16	32-3/16	16.9	31.2	2.5	3	R25
7-0/6-6	E	37-15/16	35-3/16	18.5	34.1	2.5	3	R20
8-0/3-0		43-15/16	14-3/16	8.6	15.8	2.5	3	LC30
8-0/3-6		43-15/16	17-3/16	10.5	19.2	2.5	3	LC30
8-0/4-0		43-15/16	20-3/16	12.3	22.7	2.5	3	LC30
8-0/4-6		43-15/16	23-3/16	14.1	26.1	2.5	3	LC30
8-0/5-0	E	43-15/16	26-3/16	16.0	29.6	2.5	3	LC30
8-0/5-6	E	43-15/16	29-3/16	17.8	33.0	2.5	3	R25
8-0/6-0	E	43-15/16	32-3/16	19.6	36.5	2.5	3	R20

#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

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

(4) = Unit meets E1 if high performance sill adapter kit is installed.

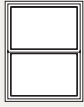
V = Vent Only

(1) Composite units are not AAMA/WDMA performance certified. Pella Impervia Composites are engineered to meet the performance class and grade shown.

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

To convert area to square meters (m<sup>2</sup>), multiply square feet by 0.0929.

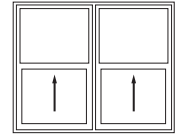
When ordering and sizing composites, use overall frame/rough opening dimensions.



SINGLE-HUNG

## DESIGN DATA

### 2-Wide Composite Units



#### COTTAGE VENT UNITS – UNEQUAL 42" LOWER SASH

Unit	Lower Sash	Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sup>1,2</sup>
			Width	Height			Annealed	Tempered	
3-0/5-6	42V		13-15/16	20-3/16	3.9	9.1	2.5	3	LC30
4-0/5-6	42V		19-15/16	20-3/16	5.6	13.9	2.5	3	LC30
4-8/5-6	42V		23-15/16	20-3/16	6.7	17.1	2.5	3	LC30
5-0/5-6	42V		25-15/16	20-3/16	7.3	18.7	2.5	3	LC30
5-4/5-6	42V		27-15/16	20-3/16	7.8	20.3	2.5	3	LC30
6-0/5-6	42V		31-15/16	20-3/16	8.9	23.5	2.5	3	LC30
7-0/5-6	42V		37-15/16	20-3/16	10.6	28.2	2.5	3	LC30
8-0/5-6	42V		43-15/16	20-3/16	12.3	33.0	2.5	3	R25

#### CONTEMPORARY VENT UNITS – UNEQUAL 30" LOWER SASH

Unit	Lower Sash	Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sup>1,2</sup>
			Width	Height			Annealed	Tempered	
3-0/7-0	30V		13-15/16	26-3/16	5.1	12.0	2.5	3	LC30
4-0/7-0	30V		19-15/16	26-3/16	7.2	18.3	2.5	3	LC30
4-8/7-0	30V		23-15/16	26-3/16	8.7	22.4	2.5	3	R20
5-0/7-0	30V		25-15/16	26-3/16	9.4	24.5	2.5	3	R20
5-4/7-0	30V	E1(3)	27-15/16	26-3/16	10.2	26.6	2.5	3	R20

#### CONTEMPORARY VENT UNITS – UNEQUAL 24" LOWER SASH

Unit	Lower Sash	Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sup>1,2</sup>
			Width	Height			Annealed	Tempered	
3-0/5-6	24V		13-15/16	20-3/16	3.9	9.1	2.5	3	LC30
3-0/6-0	24V		13-15/16	20-3/16	3.9	10.1	2.5	3	LC30
3-0/6-6	24V		13-15/16	20-3/16	3.9	11.0	2.5	3	LC30
4-0/5-6	24V		19-15/16	20-3/16	5.6	13.9	2.5	3	LC30
4-0/6-0	24V		19-15/16	20-3/16	5.6	15.3	2.5	3	LC30
4-0/6-6	24V		19-15/16	20-3/16	5.6	16.8	2.5	3	LC30
4-8/5-6	24V		23-15/16	20-3/16	6.7	17.1	2.5	3	LC30
4-8/6-0	24V		23-15/16	20-3/16	6.7	18.9	2.5	3	LC30
4-8/6-6	24V		23-15/16	20-3/16	6.7	20.7	2.5	3	LC30
5-0/5-6	24V		25-15/16	20-3/16	7.3	18.7	2.5	3	LC30
5-0/6-0	24V		25-15/16	20-3/16	7.3	20.6	2.5	3	LC30
5-0/6-6	24V		25-15/16	20-3/16	7.3	22.6	2.5	3	LC30
5-4/5-6	24V		27-15/16	20-3/16	7.8	20.3	2.5	3	LC30
5-4/6-0	24V		27-15/16	20-3/16	7.8	22.4	2.5	3	LC30
5-4/6-6	24V		27-15/16	20-3/16	7.8	24.5	2.5	3	R25
6-0/5-6	24V		31-15/16	20-3/16	8.9	23.5	2.5	3	LC30
6-0/6-0	24V		31-15/16	20-3/16	8.9	25.9	2.5	3	LC30
6-0/6-6	24V		31-15/16	20-3/16	8.9	28.4	2.5	3	R20
7-0/5-6	24V		37-15/16	20-3/16	10.6	28.2	2.5	3	LC30
7-0/6-0	24V		37-15/16	20-3/16	10.6	31.2	2.5	3	R20
7-0/6-6	24V		37-15/16	20-3/16	10.6	34.1	2.5	3	R20
8-0/5-6	24V		43-15/16	20-3/16	12.3	33.0	3	3	R25
8-0/6-0	24V		43-15/16	20-3/16	12.3	36.5	3	3	R20

#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

(3) = If high performance sill adapter kit is installed unit will not meet egress.

V = Vent only.

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

(2) Composite units are not AAMA/WDMA performance certified. Pella Impervia Composites are engineered to meet the performance class and grade shown.

To convert area to square meters (m<sup>2</sup>), multiply square feet by 0.0929.





SINGLE-HUNG

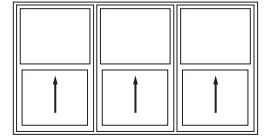
## DESIGN DATA

### 3-Wide Composite Units



#### VENT UNITS – EQUAL SASH

Unit	Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sup>1,2</sup>
		Width	Height			Annealed	Tempered	
4-6/2-0		13.934	8.163	2.4	3.7	2.5	3	LC30
4-6/2-6		13.934	11.163	3.2	5.1	2.5	3	LC30
4-6/3-0		13.934	14.163	4.1	6.5	2.5	3	LC30
4-6/3-6		13.934	17.163	5.0	8.0	2.5	3	LC30
4-6/4-0		13.934	20.163	5.9	9.4	2.5	3	LC30
4-6/4-6		13.934	23.163	6.7	10.8	2.5	3	LC30
4-6/5-0		13.934	26.163	7.6	12.2	2.5	3	LC30
4-6/5-6		13.934	29.163	8.5	13.7	2.5	3	LC30
4-6/6-0		13.934	32.163	9.3	15.1	2.5	3	LC30
4-6/6-6		13.934	35.163	10.2	16.5	2.5	3	LC30
6-0/2-0		19.934	8.163	3.4	5.6	2.5	3	LC30
6-0/2-6		19.934	11.163	4.6	7.8	2.5	3	LC30
6-0/3-0		19.934	14.163	5.9	9.9	2.5	3	LC30
6-0/3-6		19.934	17.163	7.1	12.1	2.5	3	LC30
6-0/4-0		19.934	20.163	8.4	14.3	2.5	3	LC30
6-0/4-6		19.934	23.163	9.6	16.5	2.5	3	LC30
6-0/5-0		19.934	26.163	10.9	18.7	2.5	3	LC30
6-0/5-6		19.934	29.163	12.1	20.8	2.5	3	LC30
6-0/6-0		19.934	32.163	13.4	23.0	2.5	3	LC30
6-0/6-6		19.934	35.163	14.6	25.2	2.5	3	LC30
7-0/2-0		23.934	8.163	4.1	6.9	2.5	3	LC30
7-0/2-6		23.934	11.163	5.6	9.5	2.5	3	LC30
7-0/3-0		23.934	14.163	7.1	12.2	2.5	3	LC30
7-0/3-6		23.934	17.163	8.6	14.9	2.5	3	LC30
7-0/4-0		23.934	20.163	10.1	17.6	2.5	3	LC30
7-0/4-6		23.934	23.163	11.5	20.3	2.5	3	LC30
7-0/5-0		23.934	26.163	13.0	22.9	2.5	3	LC30
7-0/5-6		23.934	29.163	14.5	25.6	2.5	3	LC30
7-0/6-0	E <sub>1</sub>	23.934	32.163	16.0	28.3	2.5	3	LC30
7-0/6-6	E	23.934	35.163	17.5	31.0	2.5	3	LC30
7-6/2-0		25-15/16	8-3/16	4.4	7.5	2.5	3	LC30
7-6/2-6		25-15/16	11-3/16	6.0	10.4	2.5	3	LC30
7-6/3-0		25-15/16	14-3/16	7.7	13.4	2.5	3	LC30
7-6/3-6		25-15/16	17-3/16	9.3	16.3	2.5	3	LC30
7-6/4-0		25-15/16	20-3/16	10.9	19.2	2.5	3	LC30
7-6/4-6		25-15/16	23-3/16	12.5	22.2	2.5	3	LC30
7-6/5-0		25-15/16	26-3/16	14.1	25.1	2.5	3	LC30
7-6/5-6		25-15/16	29-3/16	15.8	28.0	2.5	3	LC30
7-6/6-0		25-15/16	32-3/16	17.4	30.9	2.5	3	LC30
7-6/6-6		25-15/16	35-3/16	19.0	33.9	2.5	3	LC30
8-0/2-0		27.934	8.163	4.8	8.1	2.5	3	LC30
8-0/2-6		27.934	11.163	6.5	11.3	2.5	3	LC30
8-0/3-0		27.934	14.163	8.2	14.5	2.5	3	LC30
8-0/3-6		27.934	17.163	10.0	17.7	2.5	3	LC30
8-0/4-0		27.934	20.163	11.7	20.9	2.5	3	LC30
8-0/4-6		27.934	23.163	13.5	24.0	2.5	3	LC30
8-0/5-0	E <sub>1</sub> (3)	27.934	26.163	15.2	27.2	2.5	3	LC30
8-0/5-6	E <sub>1</sub>	27.934	29.163	17.0	30.4	2.5	3	LC30
8-0/6-0	E	27.934	32.163	18.7	33.6	2.5	3	LC30
8-0/6-6	E	27.934	35.163	20.5	36.8	2.5	3	R25
9-0/3-0		31.934	14.163	9.4	16.8	2.5	3	LC30
9-0/3-6		31.934	17.163	11.4	20.5	2.5	3	LC30
9-0/4-0		31.934	20.163	13.4	24.1	2.5	3	LC30
9-0/4-6		31.934	23.163	15.4	27.8	2.5	3	LC30
9-0/5-0	E(4)	31.934	26.163	17.4	31.5	2.5	3	LC30
9-0/5-6	E	31.934	29.163	19.4	35.2	2.5	3	LC30
9-0/6-0	E	31.934	32.163	21.4	38.9	2.5	3	LC30
9-0/6-6	E	31.934	35.163	23.4	42.5	2.5	3	R20



#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

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

E<sub>1</sub> = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.

(3) = If high performance sill adapter kit is installed unit will not meet egress.

(4) = Unit meets E<sub>1</sub> if high performance sill adapter kit is installed.

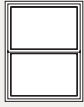
V = Vent Only

(1) Composite units are not AAMA/WDMA performance certified. Pella Impervia Composites are engineered to meet the performance class and grade shown.

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

When ordering and sizing composites, use overall frame/rough opening dimensions.

To convert area to square meters (m<sup>2</sup>), multiply square feet by 0.0929.



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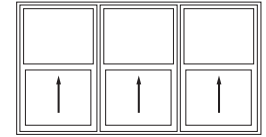
## DESIGN DATA

### 3-Wide Composite Units



#### COTTAGE VENT UNITS – UNEQUAL 42" LOWER SASH

Unit	Lower Sash	Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sup>1,2</sup>
			Width	Height			Annealed	Tempered	
4-6/5-6	42V		13-15/16	20-3/16	5.9	13.7	2.5	3	LC30
6-0/5-6	42V		19-15/16	20-3/16	8.4	20.8	2.5	3	LC30
7-0/5-6	42V		23-15/16	20-3/16	10.1	25.6	2.5	3	LC30
7-6/5-6	42V		25-15/16	20-3/16	10.9	28.0	2.5	3	LC30
8-0/5-6	42V		27-15/16	20-3/16	11.7	30.4	2.5	3	LC30
9-0/5-6	42V		31-15/16	20-3/16	13.4	35.2	2.5	3	LC30



#### CONTEMPORARY VENT UNITS – UNEQUAL 30" LOWER SASH

Unit	Lower Sash	Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sup>1,2</sup>
			Width	Height			Annealed	Tempered	
4-6/7-0	30V		13-15/16	26-3/16	7.6	18.0	2.5	3	LC30
6-0/7-0	30V		19-15/16	26-3/16	10.9	27.4	2.5	3	LC30
7-0/7-0	30V		23-15/16	26-3/16	13.0	33.7	2.5	3	R20
7-6/7-0	30V		25-15/16	26-3/16	14.1	36.8	2.5	3	R20
8-0/7-0	30V	E1(3)	27-15/16	26-3/16	15.2	39.9	2.5	3	R20

#### CONTEMPORARY VENT UNITS – UNEQUAL 24" LOWER SASH

Unit	Lower Sash	Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Standard Glass Thickness (mm)		Performance Class & Grade <sup>1,2</sup>
			Width	Height			Annealed	Tempered	
4-6/5-6	24V		13-15/16	20-3/16	5.9	13.7	2.5	3	LC30
4-6/6-0	24V		13-15/16	20-3/16	5.9	15.1	2.5	3	LC30
4-6/6-6	24V		13-15/16	20-3/16	5.9	16.5	2.5	3	LC30
6-0/5-6	24V		19-15/16	20-3/16	8.4	20.8	2.5	3	LC30
6-0/6-0	24V		19-15/16	20-3/16	8.4	23.0	2.5	3	LC30
6-0/6-6	24V		19-15/16	20-3/16	8.4	25.2	2.5	3	LC30
7-0/5-6	24V		23-15/16	20-3/16	10.1	25.6	2.5	3	LC30
7-0/6-0	24V		23-15/16	20-3/16	10.1	28.3	2.5	3	LC30
7-0/6-6	24V		23-15/16	20-3/16	10.1	31.0	2.5	3	LC30
7-6/5-6	24V		25-15/16	20-3/16	10.9	28.0	2.5	3	LC30
7-6/6-0	24V		25-15/16	20-3/16	10.9	30.9	2.5	3	LC30
7-6/6-6	24V		25-15/16	20-3/16	10.9	33.9	2.5	3	LC30
8-0/5-6	24V		27-15/16	20-3/16	11.7	30.4	2.5	3	LC30
8-0/6-0	24V		27-15/16	20-3/16	11.7	33.6	2.5	3	LC30
8-0/6-6	24V		27-15/16	20-3/16	11.7	36.8	2.5	3	R25
9-0/5-6	24V		31-15/16	20-3/16	13.4	35.2	2.5	3	LC30
9-0/6-0	24V		31-15/16	20-3/16	13.4	38.9	2.5	3	LC30
9-0/6-6	24V		31-15/16	20-3/16	13.4	42.5	2.5	3	R20

#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

- E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft<sup>2</sup>.
- E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.
- (3) = If high performance sill adapter kit is installed unit will not meet egress.

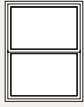
V = Vent Only

(1) Composite units are not AAMA/WDMA performance certified. Pella Impervia Composites are engineered to meet the performance class and grade shown.

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

When ordering and sizing composites, use overall frame / rough opening dimensions.

To convert area to square meters (m<sup>2</sup>), multiply square feet by 0.0929.



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## DESIGN DATA

### Fixed Flankers Composite Units



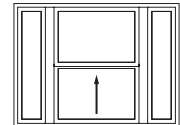
#### FIXED FLANKERS COMPOSITE UNITS

Unit			Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Center Unit Glass Thickness (mm)		Flanker Glass Thickness (mm)		Performance Class & Grade <sup>1,2</sup>
Left Flanking	Center Unit	Right Flanking		Width	Height			Annealed	Tempered	Annealed	Tempered	
1-2/3-0	1-6/3-0	1-2/3-0		13-15/16	14-3/16	1.4	5.2	2.5	3	2.5	3	LC30
1-2/3-6	1-6/3-6	1-2/3-6		13-15/16	17-3/16	1.7	6.3	2.5	3	2.5	3	LC30
1-2/4-0	1-6/4-0	1-2/4-0		13-15/16	20-3/16	2.0	7.4	2.5	3	3	3	LC30
1-2/4-6	1-6/4-6	1-2/4-6		13-15/16	23-3/16	2.2	8.5	2.5	3	3	3	LC30
1-2/5-0	1-6/5-0	1-2/5-0		13-15/16	26-3/16	2.5	9.6	2.5	3	3	3	LC30
1-2/3-0	2-0/3-0	1-2/3-0		19-15/16	14-3/16	2.0	6.4	2.5	3	2.5	3	LC30
1-2/3-6	2-0/3-6	1-2/3-6		19-15/16	17-3/16	2.4	7.7	2.5	3	2.5	3	LC30
1-2/4-0	2-0/4-0	1-2/4-0		19-15/16	20-3/16	2.8	9.0	2.5	3	3	3	LC30
1-2/4-6	2-0/4-6	1-2/4-6		19-15/16	23-3/16	3.2	10.4	2.5	3	3	3	LC30
1-2/5-0	2-0/5-0	1-2/5-0		19-15/16	26-3/16	3.6	11.7	2.5	3	3	3	LC30
1-2/3-0	2-4/3-0	1-2/3-0		23-15/16	14-3/16	2.4	7.1	2.5	3	2.5	3	LC30
1-2/3-6	2-4/3-6	1-2/3-6		23-15/16	17-3/16	2.9	8.6	2.5	3	2.5	3	LC30
1-2/4-0	2-4/4-0	1-2/4-0		23-15/16	20-3/16	3.4	10.1	2.5	3	3	3	LC30
1-2/4-6	2-4/4-6	1-2/4-6		23-15/16	23-3/16	3.8	11.7	2.5	3	3	3	LC30
1-2/5-0	2-4/5-0	1-2/5-0		23-15/16	26-3/16	4.3	13.2	2.5	3	3	3	LC30
1-2/3-0	2-6/3-0	1-2/3-0		25-15/16	14-3/16	2.6	7.5	2.5	3	2.5	3	LC30
1-2/3-6	2-6/3-6	1-2/3-6		25-15/16	17-3/16	3.1	9.1	2.5	3	2.5	3	LC30
1-2/4-0	2-6/4-0	1-2/4-0		25-15/16	20-3/16	3.6	10.7	2.5	3	3	3	LC30
1-2/4-6	2-6/4-6	1-2/4-6		25-15/16	23-3/16	4.2	12.3	2.5	3	3	3	LC30
1-2/5-0	2-6/5-0	1-2/5-0		25-15/16	26-3/16	4.7	13.9	2.5	3	3	3	LC30
1-2/3-0	2-8/3-0	1-2/3-0		27-15/16	14-3/16	2.7	7.9	2.5	3	2.5	3	LC30
1-2/3-6	2-8/3-6	1-2/3-6		27-15/16	17-3/16	3.3	9.6	2.5	3	2.5	3	LC30
1-2/4-0	2-8/4-0	1-2/4-0		27-15/16	20-3/16	3.9	11.2	2.5	3	3	3	LC30
1-2/4-6	2-8/4-6	1-2/4-6		27-15/16	23-3/16	4.5	12.9	2.5	3	3	3	LC30
1-2/5-0	2-8/5-0	1-2/5-0	E1	27-15/16	26-3/16	5.1	14.6	2.5	3	3	3	LC30
1-2/3-0	3-0/3-0	1-2/3-0		31-15/16	14-3/16	3.1	8.6	2.5	3	2.5	3	LC30
1-2/3-6	3-0/3-6	1-2/3-6		31-15/16	17-3/16	3.8	10.5	2.5	3	2.5	3	LC30
1-2/4-0	3-0/4-0	1-2/4-0		31-15/16	20-3/16	4.5	12.3	2.5	3	3	3	LC30
1-2/4-6	3-0/4-6	1-2/4-6		31-15/16	23-3/16	5.1	14.2	2.5	3	3	3	LC30
1-2/5-0	3-0/5-0	1-2/5-0	E(3)	31-15/16	26-3/16	5.8	16.0	2.5	3	3	3	LC30
1-2/3-0	3-6/3-0	1-2/3-0		37-15/16	14-3/16	3.7	9.8	2.5	3	2.5	3	LC30
1-2/3-6	3-6/3-6	1-2/3-6		37-15/16	17-3/16	4.5	11.9	2.5	3	2.5	3	LC30
1-2/4-0	3-6/4-0	1-2/4-0		37-15/16	20-3/16	5.3	14.0	2.5	3	3	3	LC30
1-2/4-6	3-6/4-6	1-2/4-6		37-15/16	23-3/16	6.1	16.1	2.5	3	3	3	LC30
1-2/5-0	3-6/5-0	1-2/5-0	E	37-15/16	26-3/16	6.9	18.2	2.5	3	3	3	LC30
1-2/3-0	4-0/3-0	1-2/3-0		43-15/16	14-3/16	4.3	10.9	2.5	3	2.5	3	LC30
1-2/3-6	4-0/3-6	1-2/3-6		43-15/16	17-3/16	5.2	13.3	2.5	3	2.5	3	LC30
1-2/4-0	4-0/4-0	1-2/4-0		43-15/16	20-3/16	6.2	15.6	2.5	3	3	3	LC30
1-2/4-6	4-0/4-6	1-2/4-6		43-15/16	23-3/16	7.1	18.0	2.5	3	3	3	LC30
1-2/5-0	4-0/5-0	1-2/5-0	E	43-15/16	26-3/16	8.0	20.3	2.5	3	3	3	LC30

#### Egress Notes:

Check all applicable local codes for emergency egress requirements.

- E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft<sup>2</sup>.
- E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.
- (3) = If high performance sill adapter kit is installed unit will not meet egress.

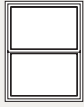


(1) Composite units are not AAMA/WDMA performance certified. Pella Impervia Composites are engineered to meet the performance class and grade shown.

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

When ordering and sizing composites, use overall frame/rough opening dimensions.

To convert area to square meters (m<sup>2</sup>), multiply square feet by 0.0929.



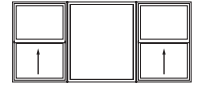
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## DESIGN DATA

### 3-Wide Composite Units with Center Fixed



#### FIXED FLANKERS COMPOSITE UNITS



Unit			Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Center Unit Glass Thickness (mm)		Flanker Glass Thickness (mm)		Performance Class & Grade <sup>1,2</sup>
Left Flanking	Center Unit	Right Flanking		Width	Height			Annealed	Tempered	Annealed	Tempered	
1-6/3-0	3-6/3-0	1-6/3-0		13-15/16	14-3/16	2.7	11.6	2.5	3	2.5	3	LC30
1-6/3-6	3-6/3-6	1-6/3-6		13-15/16	17-3/16	3.3	14.0	2.5	3	2.5	3	LC30
1-6/4-0	3-6/4-0	1-6/4-0		13-15/16	20-3/16	3.9	16.5	3	3	2.5	3	LC30
1-6/4-6	3-6/4-6	1-6/4-6		13-15/16	23-3/16	4.5	18.9	3	3	2.5	3	LC30
1-6/5-0	3-6/5-0	1-6/5-0		13-15/16	26-3/16	5.1	21.3	3	3	2.5	3	LC30
1-6/5-6	3-6/5-6	1-6/5-6		13-15/16	29-3/16	5.6	23.7	3	3	2.5	3	LC30
1-6/6-0	3-6/6-0	1-6/6-0		13-15/16	32-3/16	6.2	26.2	3	3	2.5	3	LC30
1-6/3-0	4-0/3-0	1-6/3-0		13-15/16	14-3/16	2.7	12.8	2.5	3	2.5	3	LC30
1-6/3-6	4-0/3-6	1-6/3-6		13-15/16	17-3/16	3.3	15.5	3	3	2.5	3	LC30
1-6/4-0	4-0/4-0	1-6/4-0		13-15/16	20-3/16	3.9	18.2	3	3	2.5	3	LC30
1-6/4-6	4-0/4-6	1-6/4-6		13-15/16	23-3/16	4.5	20.9	3	3	2.5	3	LC30
1-6/5-0	4-0/5-0	1-6/5-0		13-15/16	26-3/16	5.1	23.5	3	3	2.5	3	LC30
1-6/5-6	4-0/5-6	1-6/5-6		13-15/16	29-3/16	5.6	26.2	3	3	2.5	3	LC30
1-6/6-0	4-0/6-0	1-6/6-0		13-15/16	32-3/16	6.2	28.9	5	5	2.5	3	LC30
2-0/3-0	3-6/3-0	2-0/3-0		19-15/16	14-3/16	3.9	13.9	2.5	3	2.5	3	LC30
1-6/3-6	4-6/3-6	1-6/3-6		13-15/16	17-3/16	3.3	17.0	3	3	2.5	3	LC30
2-0/3-6	3-6/3-6	2-0/3-6		19-15/16	17-3/16	4.8	16.8	2.5	3	2.5	3	LC30
1-6/4-0	4-6/4-0	1-6/4-0		13-15/16	20-3/16	3.9	19.9	3	3	2.5	3	LC30
2-0/4-0	3-6/4-0	2-0/4-0		19-15/16	20-3/16	5.6	19.7	3	3	2.5	3	LC30
1-6/4-6	4-6/4-6	1-6/4-6		13-15/16	23-3/16	4.5	22.8	3	3	2.5	3	LC30
2-0/4-6	3-6/4-6	2-0/4-6		19-15/16	23-3/16	6.4	22.7	2.5	3	2.5	3	LC30
1-6/5-0	4-6/5-0	1-6/5-0		13-15/16	26-3/16	5.1	25.8	5	5	2.5	3	LC30
2-0/5-0	3-6/5-0	2-0/5-0		19-15/16	26-3/16	7.2	25.6	3	3	2.5	3	LC30
1-6/5-6	4-6/5-6	1-6/5-6		13-15/16	29-3/16	5.6	28.7	5	5	2.5	3	LC30
2-0/5-6	3-6/5-6	2-0/5-6		19-15/16	29-3/16	8.1	28.5	3	3	2.5	3	LC30
1-6/6-0	4-6/6-0	1-6/6-0		13-15/16	32-3/16	6.2	31.6	5	5	2.5	3	LC30
2-0/6-0	3-6/6-0	2-0/6-0		19-15/16	32-3/16	8.9	31.5	3	3	2.5	3	LC30
1-6/3-0	5-0/3-0	1-6/3-0		13-15/16	14-3/16	2.7	15.3	3	3	2.5	3	LC30
2-0/3-0	4-0/3-0	2-0/3-0		19-15/16	14-3/16	3.9	15.1	2.5	3	2.5	3	LC30
1-6/3-6	5-0/3-6	1-6/3-6		13-15/16	17-3/16	3.3	18.5	3	3	2.5	3	LC30
2-0/3-6	4-0/3-6	2-0/3-6		19-15/16	17-3/16	4.8	18.3	3	3	2.5	3	LC30
1-6/4-0	5-0/4-0	1-6/4-0		13-15/16	20-3/16	3.9	21.6	3	3	2.5	3	LC30
2-0/4-0	4-0/4-0	2-0/4-0		19-15/16	20-3/16	5.6	21.5	3	3	2.5	3	LC30
1-6/4-6	5-0/4-6	1-6/4-6		13-15/16	23-3/16	4.5	24.8	5	5	2.5	3	LC30
2-0/4-6	4-0/4-6	2-0/4-6		19-15/16	23-3/16	6.4	24.6	3	3	2.5	3	LC30
1-6/5-0	5-0/5-0	1-6/5-0		13-15/16	26-3/16	5.1	28.0	5	5	2.5	3	LC30
2-0/5-0	4-0/5-0	2-0/5-0		19-15/16	26-3/16	7.2	27.8	3	3	2.5	3	LC30
1-6/5-6	5-0/5-6	1-6/5-6		13-15/16	29-3/16	5.6	31.2	5	5	2.5	3	LC30
2-0/5-6	4-0/5-6	2-0/5-6		19-15/16	29-3/16	8.1	31.0	3	3	2.5	3	LC30
1-6/6-0	5-0/6-0	1-6/6-0		13-15/16	32-3/16	6.2	34.4	5	5	2.5	3	R25
2-0/6-0	4-0/6-0	2-0/6-0		19-15/16	32-3/16	8.9	34.2	5	5	2.5	3	LC30
2-4/3-0	3-6/3-0	2-4/3-0		23-15/16	14-3/16	4.7	15.4	2.5	3	2.5	3	LC30
2-4/3-6	3-6/3-6	2-4/3-6		23-15/16	17-3/16	5.7	18.7	2.5	3	2.5	3	LC30
2-4/4-0	3-6/4-0	2-4/4-0		23-15/16	20-3/16	6.7	21.9	3	3	2.5	3	LC30
2-4/4-6	3-6/4-6	2-4/4-6		23-15/16	23-3/16	7.7	25.2	3	3	2.5	3	LC30
2-4/5-0	3-6/5-0	2-4/5-0		23-15/16	26-3/16	8.7	28.4	3	3	2.5	3	LC30
2-4/5-6	3-6/5-6	2-4/5-6		23-15/16	29-3/16	9.7	31.7	3	3	2.5	3	LC30

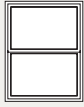
Continued on next page

(1) Composite units are not AAMA/WDMA performance certified. Pella Impervia Composites are engineered to meet the performance class and grade shown.

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

When ordering and sizing composites, use overall frame/rough opening dimensions.

To convert area to square meters (m<sup>2</sup>), multiply square feet by 0.0929.



SINGLE-HUNG

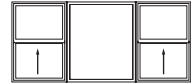
## DESIGN DATA

3-Wide Composite Units with Center Fixed  
Miscellaneous Formulas



### FIXED FLANKERS COMPOSITE UNITS

Unit			Egress	Clear Opening (Inches)		Vent Area Ft <sup>2</sup>	Visible Glass Ft <sup>2</sup>	Center Unit Glass Thickness (mm)		Flanker Glass Thickness (mm)		Performance Class & Grade 1,2
Left Flanking	Center Unit	Right Flanking		Width	Height			Annealed	Tempered	Annealed	Tempered	
2-4/6-0	3-6/6-0	2-4/6-0	E1	23-15/16	32-3/16	10.7	35.0	3	3	2.5	3	LC30
2-0/3-0	4-6/3-0	2-0/3-0		19-15/16	14-3/16	3.9	16.3	2.5	3	2.5	3	LC30
2-0/3-6	4-0/3-6	2-0/3-6		19-15/16	17-3/16	4.8	18.3	3	3	2.5	3	LC30
2-0/4-0	4-6/4-0	2-0/4-0		19-15/16	20-3/16	5.6	23.2	3	3	2.5	3	LC30
2-0/4-6	4-6/4-6	2-0/4-6		19-15/16	23-3/16	6.4	26.6	3	3	2.5	3	LC30
2-0/5-0	4-6/5-0	2-0/5-0		19-15/16	26-3/16	7.2	30.0	5	5	2.5	3	LC30
2-0/5-6	4-0/5-6	2-0/5-6		19-15/16	29-3/16	8.1	31.0	3	3	2.5	3	LC30
2-0/6-0	4-6/6-0	2-0/6-0		19-15/16	32-3/16	8.9	36.9	5	5	2.5	3	R25
2-4/3-0	4-0/3-0	2-4/3-0		23-15/16	14-3/16	4.7	16.6	2.5	3	2.5	3	LC30
2-4/3-6	4-0/3-6	2-4/3-6		23-15/16	17-3/16	5.7	20.1	3	3	2.5	3	LC30
2-4/4-0	4-0/4-0	2-4/4-0		23-15/16	20-3/16	6.7	23.6	3	3	2.5	3	LC30
2-4/4-6	4-0/4-6	2-4/4-6		23-15/16	23-3/16	7.7	27.2	3	3	2.5	3	LC30
2-4/5-0	4-0/5-0	2-4/5-0		23-15/16	26-3/16	8.7	30.7	3	3	2.5	3	LC30
2-4/5-6	5-0/5-6	2-4/5-6		23-15/16	29-3/16	9.7	39.1	5	5	2.5	3	LC30
2-4/6-0	4-0/6-0	2-4/6-0	E1	23-15/16	32-3/16	10.7	37.7	5	5	2.5	3	LC30
2-8/3-0	3-6/3-0	2-8/3-0		27-15/16	14-3/16	5.5	16.9	2.5	3	2.5	3	LC30
2-8/3-6	3-6/3-6	2-8/3-6		27-15/16	17-3/16	6.7	20.5	2.5	3	2.5	3	LC30
2-8/4-0	3-6/4-0	2-8/4-0		27-15/16	20-3/16	7.8	24.1	3	3	2.5	3	LC30
2-8/4-6	3-6/4-6	2-8/4-6		27-15/16	23-3/16	9.0	27.7	3	3	2.5	3	LC30
2-8/5-0	3-6/5-0	2-8/5-0	E1(3)	27-15/16	26-3/16	10.2	31.3	3	3	2.5	3	LC30
2-8/5-6	3-6/5-6	2-8/5-6	E1	27-15/16	29-3/16	11.3	34.9	3	3	2.5	3	LC30
2-8/6-0	3-6/6-0	2-8/6-0	E	27-15/16	32-3/16	12.5	38.5	3	3	2.5	3	R25



**Egress Notes:**  
Check all applicable local codes for emergency egress requirements.  
E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft<sup>2</sup>.  
E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft<sup>2</sup>.  
(3) = If high performance sill adapter kit is installed unit will not meet egress.

### Miscellaneous Formulas

	TOTAL GLASS HEIGHT (TGH)	ACTUAL GLASS WIDTH	ACTUAL VENT GLASS HEIGHT (AVGH)	ACTUAL FIXED GLASS HEIGHT (AFGH)	VISIBLE GLASS WIDTH	VENT VISIBLE GLASS HEIGHT	FIXED VISIBLE GLASS HEIGHT (FVGH)
VENT	FH - 6-1/4"	FW - 5-1/8"	(FH/2) - 3-1/8"	TGH - AVGH	FW - 6-1/16"	(FH/2) - 4-1/16" or AVGH - 15/16"	AFGH - 15/16"
CONTEMPORARY 2' VENT	FH - 6-1/4"	FW - 5-1/8"	20-5/8"	TGH - AVGH	FW - 6-1/16"	19-11/16"	AFGH - 15/16"
CONTEMPORARY 2'6" VENT	FH - 6-1/4"	FW - 5-1/8"	26-5/8"	TGH - AVGH	FW - 6-1/16"	25-11/16"	AFGH - 15/16"
COTTAGE 3'6" VENT	FH - 6-1/4"	FW - 5-1/8"	38-5/8"	TGH - AVGH	FW - 6-1/16"	37-11/16"	AFGH - 15/16"

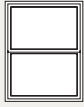
### Clear Opening Formulas (Equal Vent Single Units Only)

CLEAR OPENING	Width = Frame Width - 3-9/16" Height = ((Frame Height / 2) - 3-9/16"
VENT SASH HEIGHT	Actual Vent Glass + 2-5/16"

**KEY:**

AGW = Actual Glass Width  
AGH = Actual Glass Height  
AVGH = Actual Vent Glass Height  
AFGH = Actual Fixed Glass Height  
TGH = Total Glass Height  
COW = Clear Opening Width  
COH = Clear Opening Height

(1) Composite units are not AAMA/WDMA performance certified. Pella Impervia Composites are engineered to meet the performance class and grade shown. See individual unit Design Data pages for glass thickness.  
(2) Maximum performance when glazed with the appropriate glass thickness.  
When ordering and sizing composites, use overall frame / rough opening dimensions.  
To convert area to square meters (m<sup>2</sup>), multiply square feet by 0.0929.



## SINGLE-HUNG

# DETAILED PRODUCT DESCRIPTIONS



### FRAME

- Frame is Duracast® fiberglass composite – five-layer pultruded fiberglass material [with optional foam insulation<sup>1</sup>] reinforced with a Pella patented interlocking mat.
- Overall frame depth is 3".
- Nominal wall thickness of Duracast fiberglass composite members is .050" to .070" thick.
- Frame corners are mitered, joined and bonded with corner lock and mechanically fastened with injected polyurethane adhesive.
- Sill is fitted with weep valve assemblies.
- Jamb contains factory drilled (counter-bored) installation screw holes. Block and Flush Flange frames only.

### SASH

- Sash is Duracast fiberglass composite–five-layer pultruded fiberglass material [with optional foam insulation<sup>1</sup>] reinforced with a Pella patented interlocking mat.
- All sash members have mitered corners bonded with corner lock and sealed with injected polyurethane adhesive.

### EXTERIOR / INTERIOR

- Duracast fiberglass composite surfaces with powder-coat paint finish.
  - Color is [White] [Tan] [Brown] [Black] [Morning Sky Gray].
  - or –
  - Dual-color option [Tan] [Brown] [Black] [Morning Sky Gray] exterior with White interior.

### GLAZING SYSTEM

- Quality float glass complying with ASTM C 1036.
- 1 1/16" insulating glass [[annealed] [tempered]] [obscure<sup>3</sup>] [[clear] [Advanced] [SunDefense™] [AdvancedComfort] [NaturalSun] Low-E coated, with argon]] sealed and bonded to sash.
- High altitude glazing [with argon] available.

### WEATHERSTRIPPING

- Sash is weatherstripped around the perimeter with a dual fin-type pile weatherstrip.

### HARDWARE

- Galvanized block-and-tackle balances connected to sash with polyester cord and concealed within the frame.
- Lower sash shall be fully operable for ventilation.
- Window jamb has take-out clips to remove vent.
- All fasteners are of a corrosion-resistant material.
- Two locks are installed on units 37" wide or greater.
- Locks are zinc die-cast, self-aligning cam action factory-installed on the interlocker [powder-coat painted [White] [Tan] [Brown] [Black] [Morning Sky Gray] to match finish] [Satin Nickel] [Bright Brass] [Oil-Rubbed Bronze].

### OPTIONAL PRODUCTS

#### Screens

- Conventional Black Fiberglass
  - Half-size with black vinyl coated 18/16 mesh fiberglass screen cloth complying with ASTM D 3656 and SMA 1201.
  - Set in aluminum frame and fitted to outside of window.
  - Supplied complete with all necessary hardware.
  - Screen frame finish is baked enamel, color to match exterior.
- InView™ Screen
  - Half-size with black vinyl coated 18/18 mesh fiberglass screen cloth complying with SMA 1201.
  - Set in aluminum frame and fitted to outside of window.
  - Supplied complete with all necessary hardware.
  - Screen frame finish is baked enamel, color to match exterior.

#### Grilles

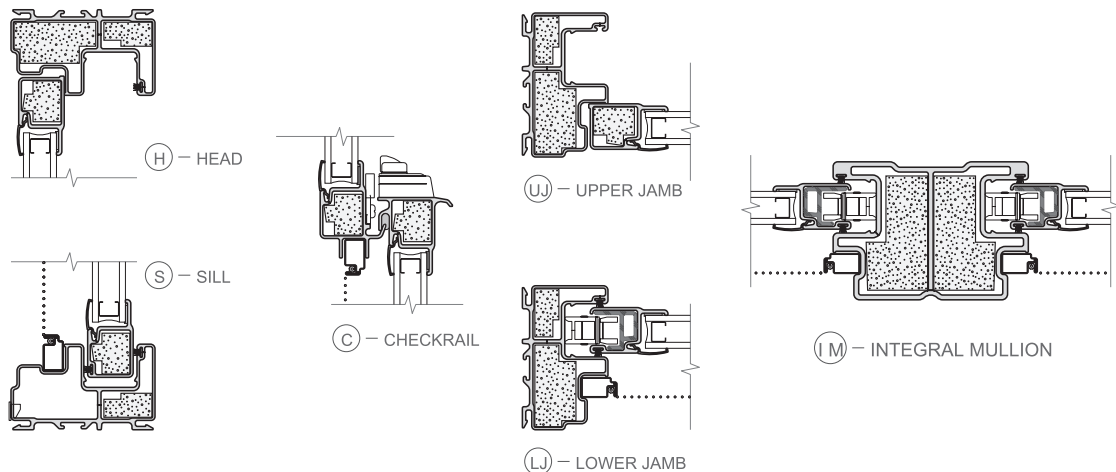
- Grilles-Between-the-Glass
  - Insulating glass contains 3/4" contoured aluminum grilles permanently installed between two panes of glass.
  - Grilles are factory prefinished [White] [Tan] [Brown] [Black] [Morning Sky Gray] to match interior and exterior finish.

#### Hardware

- Optional limited opening device available for vent units in [White] [Tan] [Brown] [Black] [Morning Sky Gray] vinyl to match interior of 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.
- Optional field applied Duracast sash lift available for vent units in [White] [Tan] [Brown] [Black] [Morning Sky Gray].

### FOAM INSULATION INSERTS<sup>1</sup>

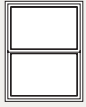
#### Single Hung



(1) Foam insulation inserts are not available with clear glazing.

(2) Dual-color finish is not available on products with integral nailing fin.

(3) Obscure glazing is not available when AdvancedComfort Low-E coated IG is specified.



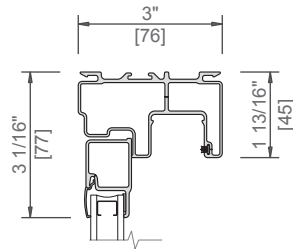
SINGLE-HUNG

# UNIT SECTIONS

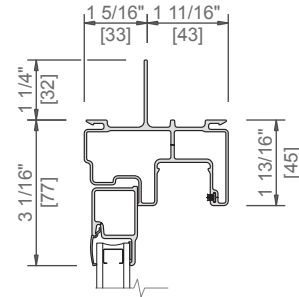
## Frame Types



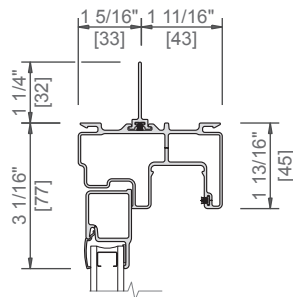
STANDARD  
BLOCK FRAME



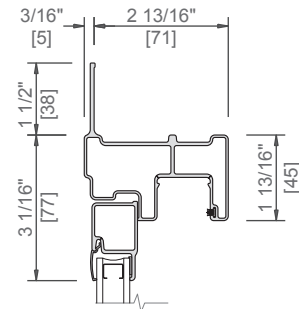
INTEGRAL NAILING FIN



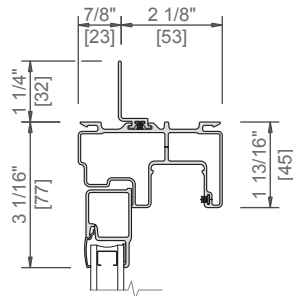
BLOCK FRAME  
STANDARD FIN



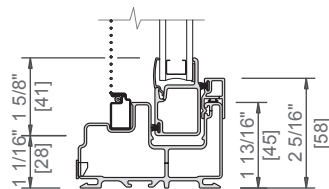
FLUSH FLANGE



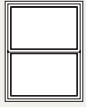
BLOCK FRAME  
OFFSET FIN



BLOCK FRAME  
DP50 SILL DAM



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

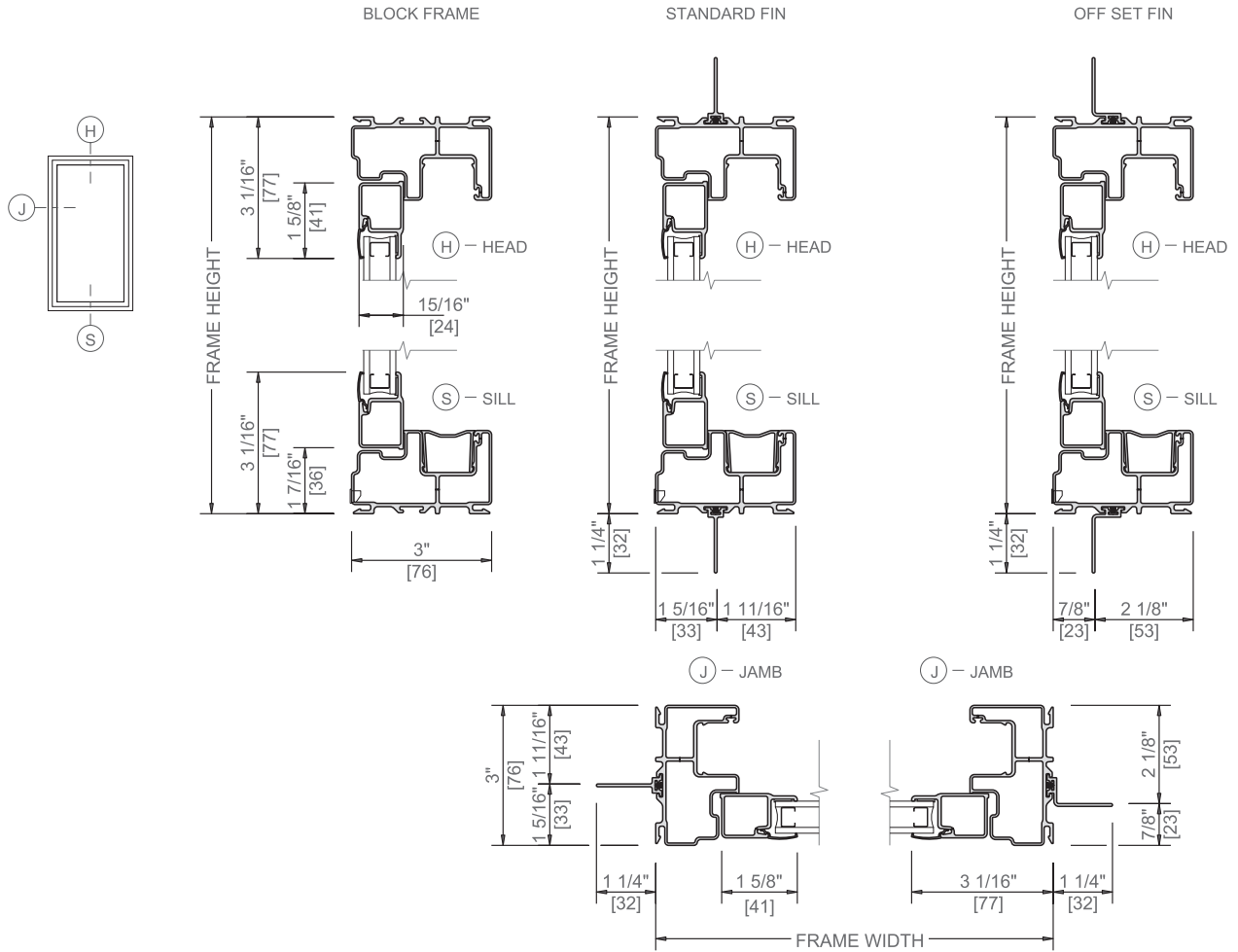


SINGLE-HUNG

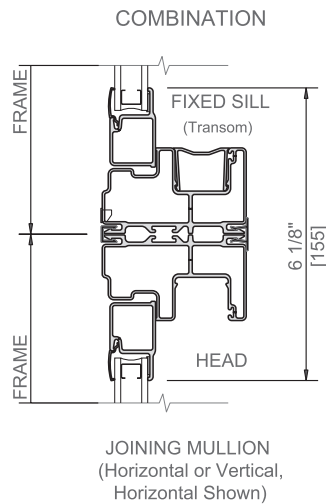
## UNIT SECTIONS

Block Frame

Fixed Unit



### TYPICAL JOINING MULLIONS

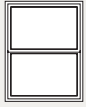


Scale 3" = 1' 0"

All dimensions are approximate.

See Combination section for mullion application and structural limitations.

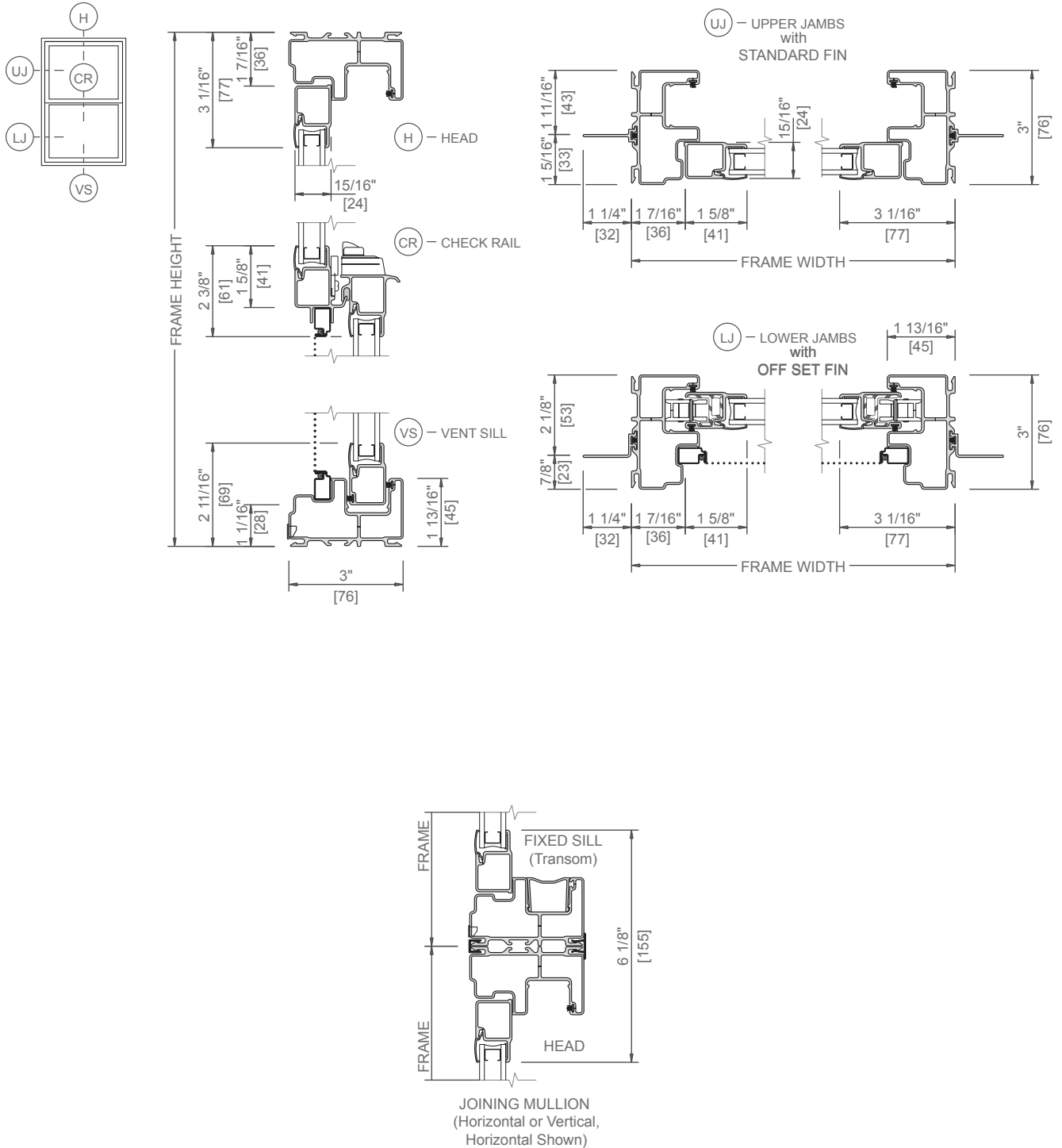




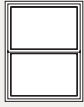
SINGLE-HUNG

## UNIT SECTIONS

Block Frame



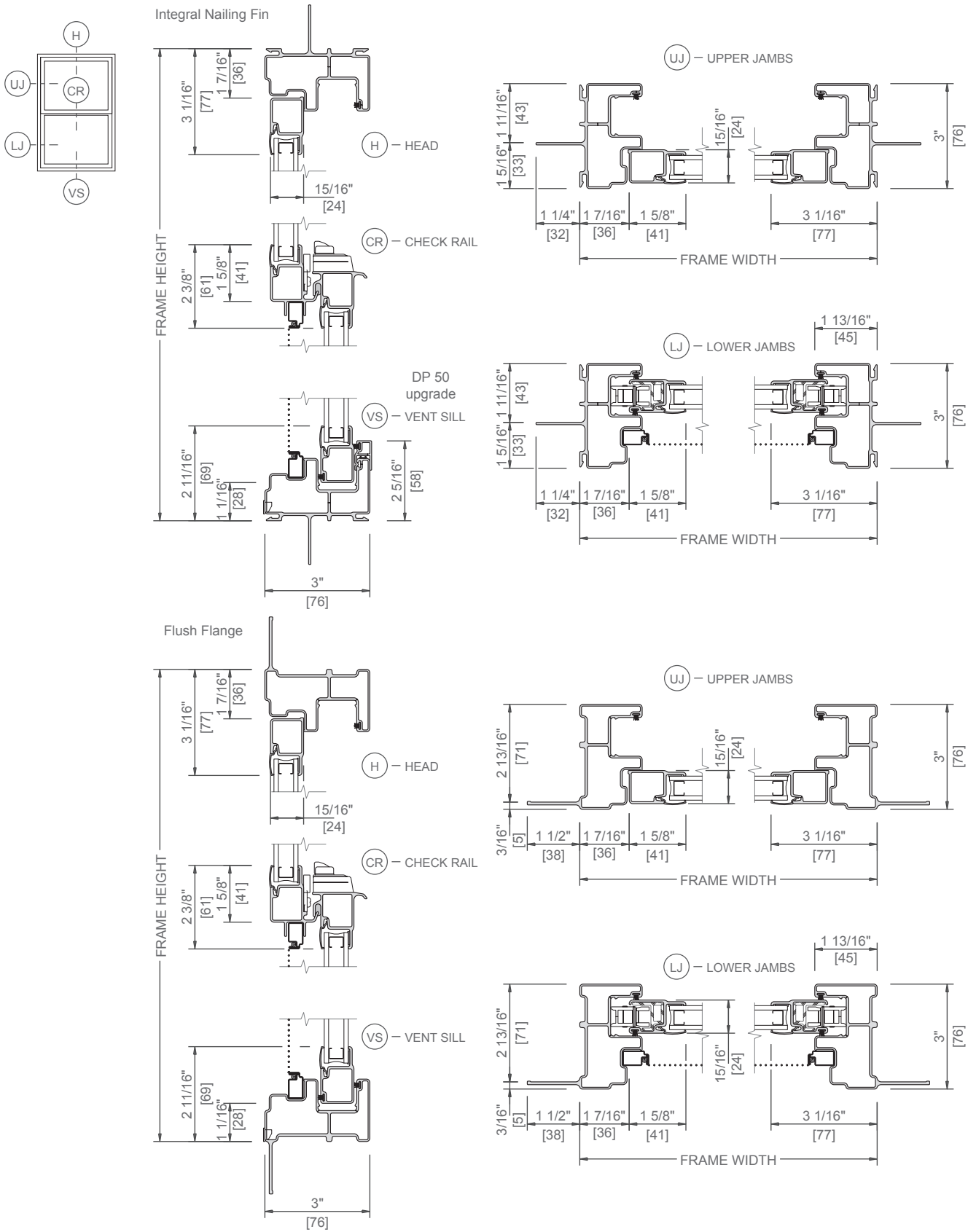
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 All dimensions are approximate.



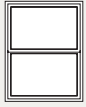
SINGLE-HUNG

# UNIT SECTIONS

## Integral Nailing Fin Frame / Flush Flange Frame



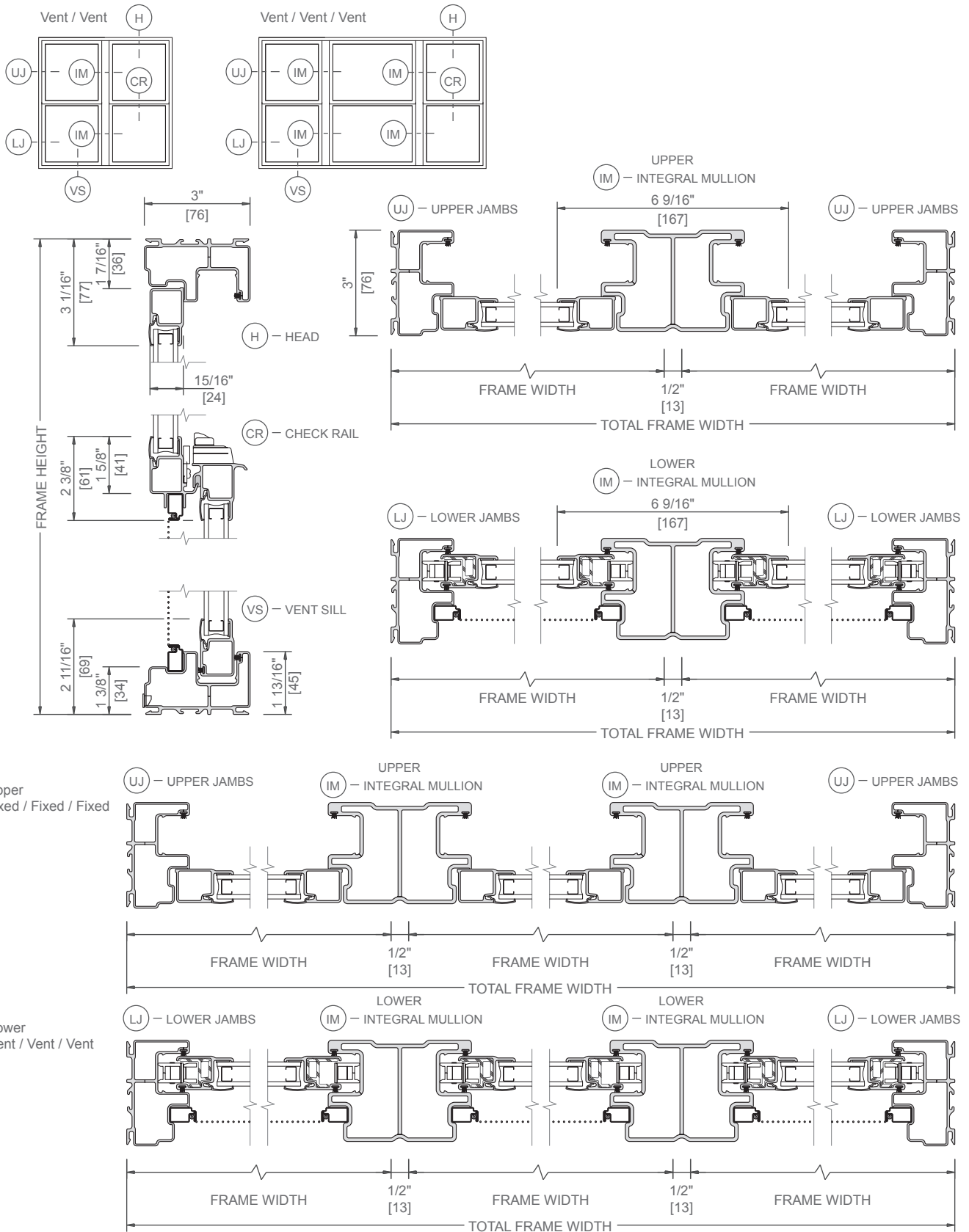
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All dimensions are approximate.



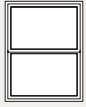
SINGLE-HUNG

# UNIT SECTIONS

## Block Frame with Integral Mullion Composites



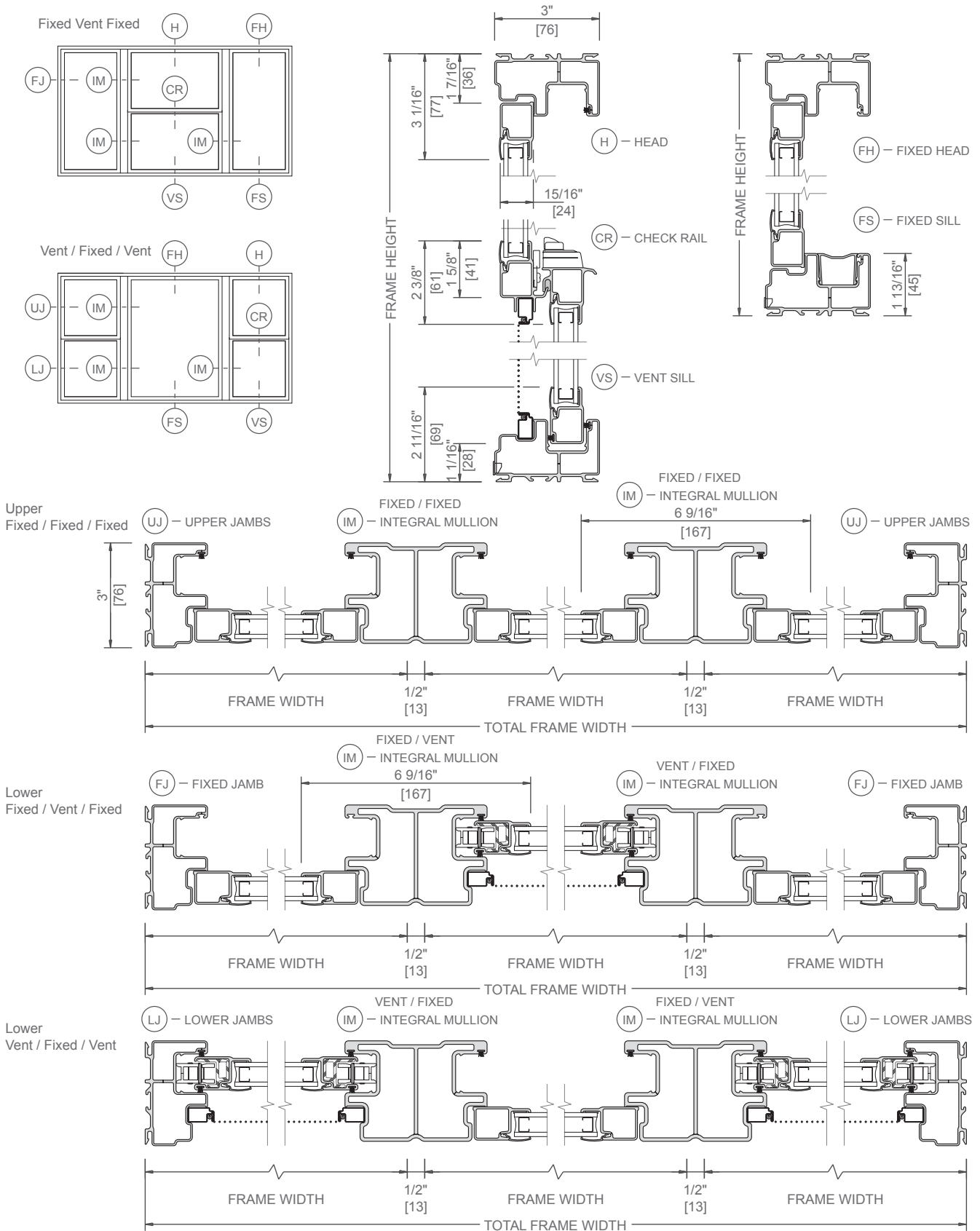
Scale 3" = 1' 0"  
All dimensions are approximate.



SINGLE-HUNG

# UNIT SECTIONS

## Block Frame with Integral Mullion Composites



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