Altitude Limits for Products With Dual-Pane Glass

The chart below gives the altitude limit in feet for 400 Series products with dual-pane glass in this guide. If the installation of a given product is at an altitude greater than that shown in this chart, a capillary breather tube must be ordered. Be aware that the use of a capillary breather tube eliminates argon gas blend fill and will result in a slightly lower thermal performance (approximately 0.02 increase in unit U-Factor). For NFRC certified total unit performance on units with capillary breather tubes for higher altitude applications, see your Andersen supplier.

The use of dual-pane insulating glass without capillary breather tubes at altitudes higher than its rating will result in severe glass distortion, increased glass breakage potential and a risk of seal failure. Smaller units are most affected by altitude changes. An increase in altitude results in a decrease in atmospheric pressure. A sealed insulating glass unit attempts to combat this change by increasing its volume to reduce its pressure. One way to increase its volume is by glass deflection. A smaller unit is stiffer and does not deflect as much as a larger unit therefore, it cannot relieve the pressure as readily. Thus, the load applied to the glass is greater, resulting in a greater risk for breakage. Another way the unit tries to increase its volume is by increasing the edge area; i.e., the seal area. The increased pressure applied to the edge seal load for a smaller unit is therefore greater, increasing the chance for seal failure.

Andersen® Product	2,000	3,000	4,000		5,000		6,000		7,000		8,000		9,000		10,000			
400 Series Casement and Awning Windows			CR12 CR125 AR21 AR251		CR13 CR135 CR14 CR145 CR15 CR155 CR16 CN12 CN125 CN13 AR281	AR31 AR351 AR41 AR451 AR51 AR551 AR61 AN21 AN251 AN281 AN31	CN135 CN14 CN145 CN15 CN155 CN16 AN351 AN41	AN451 AN51 AN551 AN61	C12 C125 C13 C135 C155 C16 CW12 A21	A251 A281 A31 A351 A551 A61 AW21	C14 C145 C15 CW125 CW13 CW135 CW14 CW145 CX125 A41	A451 A51 AW251 AW281 AW31 AW351 AW41 AW451 AX251	CW155 CW16 CX13 CX135 CX14 CX145 CX15 AW551 AW61 AX281	AX31 AX351 AX41 AX451 AX51 AXW281	CW15 CX155 CX16 CXW13 CXW135 CXW14 CXW145 CXW15 CXW155 CXW16	AW51 AX551 AX61 AXW31 AXW351 AXW41 AXW451 AXW51 AXW551 AXW16	A335 A3535 AP32V AP352V AP42V	
	3,000			4,000					8,000		9,000		10,000					
400 Series Casement/Awning Picture and Transom Windows	CTR1510 CTR1810 CTR2010 CTR2410 CTR2810 CTR2910 CTR3010	CTR3410 CTR4010 CTR4810 CTR5210 CTR51110 CTC5110 CTC6010	PTR3010 PTR3510 PTR4010 PTR4510 PTR5010 PTR5510 PTR6010	CTR7010					P3030 P3035 P3040 P3045 P3050 P3055	P3530 P4030 P4530 P5030 P5530	P3060 P6030		P3535 P3540 P3545 P3550 P3555 P3560	P4035 P4040 P4045 P4050 P4055 P4060	P4535 P4540 P4545 P4550 P4555 P4560	P5035 P5040 P5045 P5050 P5055 P5060	P5535 P5540 P5545 P5550 P6035 P6040	P6045 P6050
400 Series Woodwright® Double-Hung Windows Designate product code WDH, WS, WA or WU. E = equal sash C = cottage or reverse cottage sash			18210 20210 24210 26210 28210 210210 30210 34210 38210		1832 1836 18310 1842 1846 18410 1852 1856E 1856C 18510 1862 2032 2036	2432 2436 2632 2636 2832 2836 21032 21036 3032 3036 3432 3436 3832	20310 2042 2046 20410 2052 2056E 2056C 20510 2062 24310 2442 26310 2642	28310 2842 210310 21042 30310 3042 34310 3442 3836 38310 3842	2446 24410 2452 2456E 2456C 24510 2462 2646 2656C 2846 2856C 3046 3056C	3446 3456C 3846 3856C	26410 2652 2656E 26510 2662 28410 2852 2856E 28510 2862 210410 21052 30410	3052 34410 3452 38410 3852	21056 210510 21062 3056E 30510 3062 3456E 34510 3856E 38510		3462 3862			
400 Series Woodwright Picture Windows		WPW10310 WPW1042 WPW1046 WPW10410 WPW1052 WPW1056 WPW10510 WPW1062									WPW30310 WPW3042 WPW3046 WPW30410 WPW3052 WPW3056 WPW34510 WPW3462		WPW30510 WPW3062 WPW3446 WPW34410 WPW3452 WPW3456		WPW34310 WPW3442 WPW310310 WPW31042 WPW31046 WPW310410 WPW31052 WPW31056 WPW310510	WPW31062 WPW42310 WPW4242 WPW4246 WPW42410 WPW4252 WPW4256 WPW42510 WPW4262	WPW410310 WPW41042 WPW41046 WPW410410 WPW41052 WPW41056 WPW410510 WPW41062 WPW56310	WPW5642 WPW5646 WPW56410 WPW5652 WPW5656 WPW56510 WPW5662
	3,000	4,000																
400 Series Woodwright Transom Windows	WTR1810 WTR2010 WTR2410 WTR2610 WTR2810 WTR21010 WTR3010 WTR3410 WTR3810 WTR31010 WTR4210 WTR41010 WTR5610 WTR6210	WTR1815 WTR1817 WTR18111 WTR1821 WTR1823 WTR1827 WTR1831 WTR2015 WTR2017 WTR2415 WTR2417 WTR2615 WTR2617 WTR2815	WTR2817 WTR21015 WTR21017 WTR3015 WTR3017 WTR3415 WTR3417 WTR3815 WTR3817 WTR31015 WTR31017 WTR4215 WTR4217 WTR41015	WTR41017 WTR5615 WTR5617 WTR6215 WTR6217	WTR20111 WTR2021 WTR2023 WTR2027 WTR2031 WTR24111 WTR26111 WTR28111 WTR210111 WTR30111 WTR34111 WTR38111 WTR310111 WTR410111	WTR62111	WTR2421 WTR2423 WTR2427 WTR2431 WTR2621 WTR2623 WTR2821 WTR2823 WTR21021 WTR21023 WTR3021 WTR3023 WTR3421 WTR3423	WTR3821 WTR3823 WTR31021 WTR31023 WTR42111 WTR4221 WTR4223 WTR41021 WTR41023 WTR5621 WTR5623 WTR6221 WTR6223	WTR2627 WTR2631 WTR2827 WTR2831 WTR21027 WTR3027 WTR3427 WTR3827 WTR31027 WRT4227 WRT41027 WTR5627 WTR6227		WTR21031 WTR3031 WTR4231 WTR41031 WTR5631 WTR6231		WTR3431 WTR3831 WTR31031					
400 Series Tilt-Wash Double-Hung Windows E = equal sash C = cottage or reverse cottage sash					TW18210 TW1832 TW1836 TW18310 TW1842 TW1846 TW18410 TW1852 TW1856E TW1856C TW20210 TW2032	TW210210 TW21032 TW24210 TW2432 TW26210 TW2632 TW28210 TW2832 TW30210 TW3032 TW34210 TW38210	TW18510 TW1862 TW1872 TW1876 TW2036 TW2436 TW2636 TW2836 TW21036 TW3036 TW3432 TW3436	TW3832	TW20310 TW2042 TW2046 TW20410 TW2052 TW2056E TW2056C TW20510 TW2062 TW24310 TW2442 TW26310	TW2642 TW28310 TW2842 TW210310 TW21042 TW30310 TW3042 TW34310 TW3442 TW3836 TW38310 TW3842	TW2072 TW2076 TW2446 TW24410 TW2452 TW2456E TW2456C TW24510 TW2462 TW2472 TW2476		TW2646 TW26410 TW2652 TW2656E TW2656C TW26510 TW2662 TW2672 TW2676 TW2846 TW28410 TW2856C	TW21046 TW210410 TW21056C TW3046 TW30410 TW3056C TW3446 TW34410 TW3456C TW3846 TW38410 TW3856C	TW2852 TW2856E TW28510 TW2862 TW2872 TW2876 TW21052 TW21056E TW210510 TW21062 TW21072 TW21076	TW3052 TW3056E TW30510 TW3062 TW3072 TW3076 TW3452 TW3456E TW34510 TW3462 TW3472 TW3476	TW3852 TW3856E TW38510 TW3862 TW3872 TW3876	

- Deflection of glass will occur on units with larger glass areas. If interior/exterior grilles are used on double-hung windows, gliding windows or gliding patio doors at higher altitudes without capillary breather tubes, some interference may occur, affecting operation.
- Contact your Andersen supplier for altitude limits for custom-size windows and patio doors.

continued on next page

Altitude Limits for Products With Dual-Pane Glass *(continued)*

Andersen® Product	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
400 Series Tilt-Wash Picture Windows		DHP10310 DHP1042 DHP1046 DHP10410 DHP1052 DHP1056 DHP10510 DHP1062					DHP30510	DHP3042 DHP3046 DHP30410 DHP3052 DHP3056 DHP30310 DHP3062	DHP34310 DHP3442 DHP3446 DHP34410 DHP3452 DHP3456 DHP34510 DHP3462 DHP310310 DHP31042 DHP31046 DHP310410 DHP31052 DHP31056 DHP310510 DHP31062 DHP42310 DHP4242 DHP4246 DHP42410 DHP4252 DHP4256 DHP42510 DHP4262 DHP410310 DHP41042 DHP41046 DHP410410 DHP41052 DHP41056 DHP410510 DHP41062 DHP56310 DHP5642 DHP5646 DHP56410 DHP5652 DHP5656 DHP56510 DHP5662
	3,000	4,000							
400 Series Tilt-Wash Transom Windows	TWT1810 TWT2010 TWT2410 TWT2610 TWT2810 TWT21010 TWT3010 TWT3410 TWT3810 TWT31010 TWT4210 TWT41010 TWT5610 TWT6210	TWT1815 TWT1817 TWT18111 TWT1821 TWT1823 TWT1827 TWT1831 TWT2015 TWT2017 TWT2415 TWT2417 TWT2615 TWT2617 TWT2815	TWT2817 TWT21015 TWT21017 TWT3015 TWT3017 TWT3415 TWT3417 TWT3815 TWT3817 TWT31015 TWT31017 TWT4215 TWT4217 TWT41015 TWT41017 TWT5615 TWT5617 TWT6215 TWT6217	TWT20111 TWT2021 TWT2023 TWT2027 TWT2031 TWT24111 TWT2421 TWT26111 TWT2621 TWT28111 TWT2821 TWT210111 TWT21021 TWT30111 TWT3021 TWT34111 TWT3421 TWT38111 TWT3821 TWT310111 TWT31021 TWT42111 TWT410111 TWT56111 TWT62111	TWT2423 TWT2427 TWT2431 TWT2623 TWT2627 TWT2631 TWT2823 TWT21023 TWT3023 TWT3423 TWT3823 TWT31023 TWT4221 TWT4223 TWT41021 TWT5621 TWT6221 TWT6223	TWT2827 TWT2831 TWT21027 TWT21031 TWT3027 TWT3427 TWT3827 TWT31027 TWT4227 TWT41023 TWT41027 TWT5623 TWT6227	TWT3031 TWT5627 TWT5631	TWT3431 TWT3831 TWT31031 TWT4231 TWT41031 TWT6231	
400 Series Gliding Windows			G32 G33 G336 G34 G35 G42 G52	G62	G43 G436	G44 G45	G53 G536 G54	G55 G63	G636 G64 G65
		4,000							
400 Series Half Circle, Quarter Circle and Elliptical Windows		CTC1 CTCW1 CTCX1	CTCXW1 CTN20 CTN24 CTN28 CTN30 ET6	CTN34 ET8	CTC2 CTQC1	CTCW2 CTCX2 CTC3 CTN28-2 CTN30-2 CTQCW1	CTQCX1		CTQA3
400 Series Circle and Oval Windows			OVL1824	OVL2030	CIR20	CIR24		OVL3048	CIR30
400 Series Extended Gothic, Octagon, Monumental Quarter Circle, and Monumental Circle Windows		GT2036 OC20	GT2440 OC24		GT3046 OC30		GT4056 QR40 FR40		FR60
	3,000								
400 Series Eyebrow Windows	FCD28 FCD30	FCD34 FCD38	FCCXW3 FCC2 FCCW2 FCFW50	FCFW60					
	3,000								
400 Series Arch Windows	AFC106 AFC11 AFC12 AFC13 AFC135 AFCW106 AFCW11 AFCP3006 AFCP301	AFC206 AFC21 AFCW206 AFCW21 AFFW5006 AFFW501 AFFW6006 AFFW8006 AFFW12006	AFC14 AFC145 AFC15 AFC155 AFC16 AFC18 AFCW12 AFCW13 AFCW135 AFCW14 AFCP302 AFFW601 AFFW801	AFCW145 AFCW15 AFCW155 AFCW16 AFCW18 AFCW22 AFC22 AFFW502 AFFW1201	AFCP303 AFCP3035 AFCP304 AFCP3045 AFCP305 AFFW602	AFCP3055 AFCP306 AFCP308 AFC23 AFCW23 AFFW802 AFFW1202	AFC235 AFC24 AFC245 AFC25 AFC255 AFC26 AFCW235 AFFW503 AFFW5035 AFFW603	AFFW6035	AFC28 AFCW24 AFCW245 AFCW25 AFCW255 AFCW26 AFCW28 AFFW504 AFFW5045 AFFW505 AFFW5055 AFFW506 AFFW508 AFFW604 AFFW6045 AFFW605 AFFW6055 AFFW606 AFFW608 AFFW803 AFFW8035 AFFW804 AFFW8045 AFFW805 AFFW8055 AFFW806
								10,000	
400 Series Springline™ Windows		SE3106		SE311	SE312 SE313 SE3135 SE314 SE3145 SE5406	SE315 SE3155 SE316 SE5806 ELFW6006 ELFW601 SE6006	SP402 SP403 SP4035 SP404 SP4045 SP405 SP4055 SE541 SE581 SE601 ELFW8006	SP406 SE542 SE543 SE5435 SE544 SE5445 SE545 SE5455 SE546 SE582 SE583 SE5835	SE584 SE5845 SE585 SE5855 SE586 ELFW602 SE602 SE603 SE6035 SE604 SE6045 SE605 SE6055 SE606 ELFW801 ELFW802 SP8006 SP801 SP802
	3,000		4,000	5,000					
400 Series Springline Flanker Windows	CR3 CR35 CR4 CR5	CR6 CN3 CN35 CN4	CN5 CN6 C35 C4 C5 C6 CW35	CW4 CW5 CW6	CXW4 CXW5	CXW6			
400 Series Flexiframe® Windows Rectangular*		0-24" (0-610)	25-27" (635-689)	28-30" (711-762)	31-35" (787-889)	36-40" (914-1016)	41-46" (1041-1168)	47-50" (1194-1270)	> 50" (1270)
Non-Rectangular*	35" (0-889)	36-46" (914-1168)	47-54" (1194-1372)	55-60" (1397-1524)	61-70" (1549-1778)	71-80" (1803-2032)	> 80" (2032)		
400 Series Frenchwood® Gliding Patio Doors									FWG5068 FWG50611 FWG5080 FWG6068 FWG60611 FWG6080 FWG8068 FWG80611 FWG8080
400 Series Frenchwood Hinged Inswing Patio Doors							FWH4168 FWH41611 FWH4180		FWH5068 FWH50611 FWH5080 FWH5468 FWH54611 FWH5480 FWH6068 FWH60611 FWH6080
400 Series Frenchwood Patio Door Sidelights				FWSL1368 FWSL13611 FWSL1380 FWSL1768 FWSL17611 FWSL1780					
400 Series Frenchwood Patio Door Sidelight Transoms			FWSLT1311 FWSLT1316 FWSLT13110 FWSLT1711 FWSLT1716 FWSLT17110						
	4,000								
400 Series Frenchwood Patio Door Transoms	FWT2111 FWT2116 FWT21110 FWT2711	FWT2716 FWT27110 FWT2911 FWT2916	FWT29110 FWT3111 FWT3116 FWT31110 FWT4111 FWT4116 FWT41110 FWT5011	FWT5016 FWT50110 FWT5411 FWT5416 FWT54110 FWT6011 FWT6016 FWT60110					

- Deflection of glass will occur on units with larger glass areas. If interior/exterior grilles are used on double-hung windows, gliding windows or gliding patio doors at higher altitudes without capillary breather tubes, some interference may occur, affecting operation.
- Altitude limits for patio doors shown in two-panel configurations. These limits also qualify for same-size panels used in single- or multi-panel configurations.
- Contact your Andersen supplier for altitude limits for custom-size windows and patio doors.
- Dimensions in parentheses are in millimeters.

Altitude Limits for Products With Triple-Pane Glass

The chart below gives the altitude limit in feet for 400 Series products with triple-pane glass in this guide. If the installation of a given product is at an altitude greater than that shown in this chart, a capillary breather tube must be ordered. Be aware that the use of a capillary breather tube eliminates argon gas blend fill and will result in a slightly lower thermal performance (approximately 0.02 increase in unit U-Factor). For NFRC certified total unit performance on units with capillary breather tubes for higher altitude applications, see your Andersen supplier.

The use of triple-pane insulating glass without capillary breather tubes at altitudes higher than its rating will result in severe glass distortion, increased glass breakage potential and a risk of seal failure. Smaller units are most affected by altitude changes. An increase in altitude results in a decrease in atmospheric pressure. A sealed insulating glass unit attempts to combat this change by increasing its volume to reduce its pressure. One way to increase its volume is by glass deflection. A smaller unit is stiffer and does not deflect as much as a larger unit therefore, it cannot relieve the pressure as readily. Thus, the load applied to the glass is greater, resulting in a greater risk for breakage. Another way the unit tries to increase its volume is by increasing the edge area; i.e., the seal area. The increased pressure applied to the edge seal load for a smaller unit is therefore greater, increasing the chance for seal failure.

Andersen® Product	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
400 Series Frenchwood® Gliding Patio Doors									FWG5068 FWG50611 FWG5080 FWG6068 FWG60611 FWG6080 FWG8068 FWG80611 FWG8080
400 Series Frenchwood Hinged Inswing Patio Doors						FWH4168 FWH4180 FWH41611			FWH5068 FWH50611 FWH5080 FWH5468 FWH54611 FWH5480 FWH6068 FWH60611 FWH6080
400 Series Frenchwood Patio Door Sidelights			FWSL1368 FWSL1380 FWSL13611	FWSL1768 FWSL1780 FWSL17611					
400 Series Frenchwood Patio Door Sidelight Transoms		FWSLT1311 FWSLT1316 FWSLT13110 FWSLT1711 FWSLT1716	FWSLT17110						
400 Series Frenchwood Patio Door Transoms		FWT2111 FWT2711 FWT2911 FWT3111 FWT4111 FWT5011 FWT5411 FWT6011 FWT2116 FWT2716 FWT2916 FWT3116 FWT4116 FWT5016 FWT5416 FWT6016	FWT21110 FWT27110 FWT29110 FWT31110 FWT41110 FWT50110 FWT54110 FWT60110						

- Deflection of glass will occur on units with larger glass areas. If interior/exterior grilles are used on gliding patio doors at higher altitudes without capillary breather tubes, some interference may occur, affecting operation.
- Altitude limits for patio doors shown in two-panel configurations. These limits also qualify for same-size panels used in single- or multi-panel configurations.
- Contact your Andersen supplier for altitude limits for custom-size patio doors.