



Calculation based on ISO 15099

Product name: <b>Universal Fixed Window Exterior Glazed</b>				Center-of-glass properties		
ASHRAE/IECC /DOE North American Climate Zone	North, East, South- facing West - facing			Cardinal E180/ Arg/ Clear/ Arg/ E180 (6mm) 44,0mm No Grids		
Climate specific recommendations:		Whole-window installed U-value		Ucog-Value		
		W/m2K	BTU/hr.ft2.F	SHGC	W/m2K	BTU/hr.ft2.F
8		0.92	0.16	0.514	0.743	0.131
7		0.91	0.16	0.514	0.730	0.129
6		0.90	0.16	0.514	0.723	0.127
5		0.90	0.16	0.514	0.723	0.127
4		0.90	0.16	0.514	0.724	0.127
Marine North	✓	0.90	0.16	0.514	0.725	0.128
Marine South		0.90	0.16	0.514	0.729	0.128
3		0.90	0.16	0.514	0.726	0.128
2 West		0.91	0.16	0.514	0.736	0.130
2 East		0.91	0.16	0.514	0.736	0.130
Universal Fixed Window Exterior Cardinal Endur		FRAME		Psi-spacer		Psi-opaque
		Frame height		U-frame		W/mK
		mm	in	W/m2K	BTU/hr.ft2.F	
	Head	58	2.27	0.99	0.17	0.020
	Sill	58	2.27	0.99	0.17	0.012
	left jamb	58	2.27	1.00	0.18	0.012
	right jamb	58	2.27	1.00	0.18	0.012
						Grade A


Valid through November 2022

Calculation based on ISO 15099

Product name: <b>Universal Fixed Window Exterior Glazed</b>				Center-of-glass properties		
ASHRAE/IECC /DOE North American Climate Zone	North, East, West - facing	South- facing				Cardinal E180/ Arg/ Clear/ Arg/ E180 (6mm) 44,0mm SDL/no Internal grids < 25.4mm
Climate specific recommendations:			Whole-window installed U-value		Ucog-Value	
			W/m2K	BTU/hr.ft2.F	SHGC	BTU/hr.ft2.F
8			0.92	0.16	0.452	0.131
7			0.91	0.16	0.452	0.129
6			0.90	0.16	0.452	0.127
5			0.90	0.16	0.452	0.127
4			0.90	0.16	0.452	0.127
Marine North			0.90	0.16	0.452	0.128
Marine South	✓		0.90	0.16	0.452	0.128
3	✓		0.90	0.16	0.452	0.128
2 West			0.91	0.16	0.452	0.130
2 East			0.91	0.16	0.452	0.130
Universal Fixed Window Exterior Cardinal Endur		FRAME			Psi-spacer	
		Frame height		U-frame		Psi
		mm	in	W/m2K	BTU/hr.ft2.F	
Head	58	2.27	0.99	0.17	0.020	0.012
Sill	58	2.27	0.99	0.17	0.020	0.012
left jamb	58	2.27	1.00	0.18	0.020	0.012
right jamb	58	2.27	1.00	0.18	0.020	0.012
					Psi-opaque	
					W/mK	
					BTU/hr.ft.F	
					Grade A	


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ASHRAE/IECC /DOE North American Climate Zone	North, East, West - facing	South-facing			Cardinal E180/ Arg/ Clear/ Arg/ E180 (6mm) 44,0mm Internal grids And SDL with Internal grids < 25.4mm maintain 3mm clearance			
Climate specific recommendations:			Whole-window installed U-value		Ucog-Value			
			W/m2K	BTU/hr.ft2.F	SHGC	BTU/hr.ft2.F		
8			0.92	0.16	0.452	0.131		
7			0.91	0.16	0.452	0.129		
6			0.90	0.16	0.452	0.127		
5			0.90	0.16	0.452	0.127		
4			0.90	0.16	0.452	0.127		
Marine North			0.90	0.16	0.452	0.128		
Marine South	✓		0.90	0.16	0.452	0.128		
3	✓		0.90	0.16	0.452	0.128		
2 West			0.91	0.16	0.452	0.130		
2 East			0.91	0.16	0.452	0.130		
Universal Fixed Window Exterior Cardinal Endur		FRAME			Psi-spacer		Psi-opaque	
		Frame height		U-frame		Ψ		W/mK
		mm	in	W/m2K	BTU/hr.ft2.F	W/mK	BTU/hr.ft.F	
Head		58	2.27	0.99	0.17	0.020	0.012	0.080
Sill		58	2.27	0.99	0.17	0.020	0.012	BTU/hr.ft.F
left jamb		58	2.27	1.00	0.18	0.020	0.012	0.046
right jamb		58	2.27	1.00	0.18	0.020	0.012	Grade A

Valid through November 2022

Calculation based on ISO 15099


Product name: Universal Fixed Window Exterior Glazed				Center-of-glass properties				
ASHRAE/IECC /DOE North American Climate Zone	South-facing	North, East, West - facing	<div> Passive House Institute US</div>			Cardinal E180/ Arg/ Clear/ Arg/ E180 (6mm) 44,0mm Internal grids And SDL with Internal grids < 25.4mm		
Climate specific recommendations:		Whole-window installed U-value			Ucog-Value			
		W/m2K	BTU/hr.ft2.F	SHGC	W/m2K	BTU/hr.ft2.F		
		8	0.97	0.17	0.452	0.743	0.131	
		7	0.96	0.17	0.452	0.730	0.129	
		6	0.96	0.17	0.452	0.723	0.127	
		5	0.96	0.17	0.452	0.723	0.127	
		4	0.96	0.17	0.452	0.724	0.127	
		Marine North	0.96	0.17	0.452	0.725	0.128	
		Marine South	✓	0.96	0.17	0.452	0.729	0.128
		3	✓	0.96	0.17	0.452	0.726	0.128
2 West		0.97	0.17	0.452	0.736	0.130		
2 East		0.97	0.17	0.452	0.736	0.130		
Universal Fixed Window Exterior		FRAME			Psi-spacer		Psi-opaque	
Cardinal Endur		Frame height		U-frame		Ψ		W/mK
		mm	in	W/m2K	BTU/hr.ft2.F	W/mK	BTU/hr.ft.F	
Head		58	2.27	0.99	0.17	0.020	0.012	0.080
Sill		58	2.27	0.99	0.17	0.020	0.012	BTU/hr.ft.F
left jamb		58	2.27	1.00	0.18	0.020	0.012	0.046
right jamb		58	2.27	1.00	0.18	0.020	0.012	Grade A

Calculation based on ISO 15099

Product name: Universal Fixed Window Exterior Glazed				Center-of-glass properties				
ASHRAE/IECC /DOE North American Climate Zone	South-facing	North, East, West - facing	<div> Passive House Institute US</div>			Cardinal E180/ Arg/ Clear/ Arg/ E180 (6mm) 44,0mm    SDL/no Internal grids >= 25.4mm		
Climate specific recommendations:			Whole-window installed U-value		Ucog-Value			
			W/m2K	BTU/hr.ft2.F	SHGC	W/m2K	BTU/hr.ft2.F	
8			0.92	0.16	0.394	0.743	0.131	
7			0.91	0.16	0.394	0.730	0.129	
6			0.90	0.16	0.394	0.723	0.127	
5			0.90	0.16	0.394	0.723	0.127	
4			0.90	0.16	0.394	0.724	0.127	
Marine North		✓	0.90	0.16	0.394	0.725	0.128	
Marine South	✓		0.90	0.16	0.394	0.729	0.128	
3	✓		0.90	0.16	0.394	0.726	0.128	
2 West			0.91	0.16	0.394	0.736	0.130	
2 East			0.91	0.16	0.394	0.736	0.130	
Universal Fixed Window Exterior		FRAME			Psi-spacer		Psi-opaque	
Cardinal Endur		Frame height		U-frame		Ψ		W/mK
		mm	in	W/m2K	BTU/hr.ft2.F	W/mK	BTU/hr.ft.F	
Head		58	2.27	0.99	0.17	0.020	0.012	0.080
Sill		58	2.27	0.99	0.17	0.020	0.012	BTU/hr.ft.F
left jamb		58	2.27	1.00	0.18	0.020	0.012	0.046
right jamb		58	2.27	1.00	0.18	0.020	0.012	Grade A


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Climate specific recommendations:		Whole-window installed U-value		Ucog-Value	
		W/m2K	BTU/hr.ft2.F	SHGC	W/m2K
					BTU/hr.ft2.F
8		0.92	0.16	0.394	0.743
7		0.91	0.16	0.394	0.730
6		0.90	0.16	0.394	0.723
5		0.90	0.16	0.394	0.723
4		0.90	0.16	0.394	0.724
Marine North	✓	0.90	0.16	0.394	0.725
Marine South	✓	0.90	0.16	0.394	0.729
3	✓	0.90	0.16	0.394	0.726
2 West		0.91	0.16	0.394	0.736
2 East		0.91	0.16	0.394	0.736
Universal Fixed Window Exterior		FRAME		Psi-spacer	
Cardinal Endur		U-frame		Ψ	
		mm	in	W/m2K	BTU/hr.ft2.F
Head		58	2.27	0.99	0.17
Sill		58	2.27	0.99	0.17
left jamb		58	2.27	1.00	0.18
right jamb		58	2.27	1.00	0.18
				W/mK	BTU/hr.ft2.F
				0.020	0.012
				0.020	0.012
				0.020	0.012
				0.020	0.012
				W/mK	Grade A

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		Whole-window installed U-value		Ucog-Value		
				SHGC		
		W/m2K	BTU/hr.ft2.F		W/m2K	BTU/hr.ft2.F
<b>Climate specific recommendations:</b>						
8		0.97	0.17	0.394	0.743	0.131
7		0.96	0.17	0.394	0.730	0.129
6		0.96	0.17	0.394	0.723	0.127
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<b>Universal Fixed Window Exterior</b>		FRAME		Psi-spacer		Psi-opaque
<b>Cardinal Endur</b>		Frame height		Ψ		W/mK
		mm	in	W/mK	BTU/hr.ft.F	
Head		58	2.27	0.99	0.17	0.020
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