



Calculation based on ISO 15099

Product name: Universal Fixed Window Exterior Glazed				Center-of-glass properties		
ASHRAE/IECC /DOE North American Climate Zone	North, East, South- facing West - facing			Cardinal E180/ Arg/ E180/ Arg/ i89(#6) (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		0.84	0.15	0.487	0.653	0.115
7		0.83	0.15	0.487	0.642	0.113
6		0.82	0.14	0.487	0.635	0.112
5	✓	0.82	0.14	0.487	0.634	0.112
4		0.82	0.14	0.487	0.632	0.111
Marine North		0.82	0.14	0.487	0.631	0.111
Marine South	✓	0.81	0.14	0.487	0.628	0.111
3	✓	0.82	0.14	0.487	0.630	0.111
2 West		0.78	0.14	0.487	0.589	0.104
2 East		0.78	0.14	0.487	0.589	0.104
Universal Fixed Window Exterior		FRAME		Psi-spacer		Psi-opaque
Cardinal Endur		Frame height		Ψ		W/mK
		mm	in	W/m2K	BTU/hr.ft2.F	
Head		58	2.27	1.12	0.20	0.010
Sill		58	2.27	1.12	0.20	0.006
left jamb		58	2.27	1.14	0.20	0.010
right jamb		58	2.27	1.14	0.20	0.010


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ASHRAE/IECC /DOE North American Climate Zone	North, East, South- facing West - facing			Cardinal E180/ Arg/ E180/ Arg/ i89(#6) (6mm) 44,0mm SDL/no Internal grids < 25.4mm		
		Whole-window installed U-value		Ucog-Value		
		W/m2K	BTU/hr.ft2.F	SHGC	W/m2K	BTU/hr.ft2.F
Climate specific recommendations:						
8		0.84	0.15	0.429	0.653	0.115
7		0.83	0.15	0.429	0.642	0.113
6		0.82	0.14	0.429	0.635	0.112
5	✓	0.82	0.14	0.429	0.634	0.112
4		0.82	0.14	0.429	0.632	0.111
Marine North		0.82	0.14	0.429	0.631	0.111
Marine South	✓	0.81	0.14	0.429	0.628	0.111
3	✓	0.82	0.14	0.429	0.630	0.111
2 West		0.78	0.14	0.429	0.589	0.104
2 East		0.78	0.14	0.429	0.589	0.104
Universal Fixed Window Exterior		FRAME		Psi-spacer		Psi-opaque
Cardinal Endur		Frame height		Ψ		W/mK
		mm	in	W/m2K	BTU/hr.ft2.F	
Head		58	2.27	1.12	0.20	0.010
Sill		58	2.27	1.12	0.20	0.006
left jamb		58	2.27	1.14	0.20	0.010
right jamb		58	2.27	1.14	0.20	0.006


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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		0.84	0.15	0.429	0.653	0.115
7		0.83	0.15	0.429	0.642	0.113
6		0.82	0.14	0.429	0.635	0.112
5	✓	0.82	0.14	0.429	0.634	0.112
4		0.82	0.14	0.429	0.632	0.111
Marine North		0.82	0.14	0.429	0.631	0.111
Marine South	✓	0.81	0.14	0.429	0.628	0.111
3	✓	0.82	0.14	0.429	0.630	0.111
2 West		0.78	0.14	0.429	0.589	0.104
2 East		0.78	0.14	0.429	0.589	0.104
Universal Fixed Window Exterior		FRAME		Psi-spacer		Psi-opaque
Cardinal Endur		Frame height		Ψ		W/mK
		mm	in	W/m2K	BTU/hr.ft2.F	
Head		58	2.27	1.12	0.20	0.010
Sill		58	2.27	1.12	0.20	0.006
left jamb		58	2.27	1.14	0.20	0.010
right jamb		58	2.27	1.14	0.20	0.010


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ASHRAE/IECC /DOE North American Climate Zone	South-facing	North, East, West - facing	<div> Passive House Institute US</div>			Cardinal E180/ Arg/ E180/ Arg/ i89(#6) (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			0.89	0.16	0.429	0.653	0.115	
7			0.88	0.16	0.429	0.642	0.113	
6			0.88	0.15	0.429	0.635	0.112	
5			0.88	0.15	0.429	0.634	0.112	
4			0.88	0.15	0.429	0.632	0.111	
Marine North			0.87	0.15	0.429	0.631	0.111	
Marine South	✓		0.87	0.15	0.429	0.628	0.111	
3	✓		0.87	0.15	0.429	0.630	0.111	
2 West			0.84	0.15	0.429	0.589	0.104	
2 East			0.84	0.15	0.429	0.589	0.104	
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	1.12	0.20	0.010	0.006	0.078
Sill		58	2.27	1.12	0.20	0.010	0.006	BTU/hr.ft.F
left jamb		58	2.27	1.14	0.20	0.010	0.006	0.045
right jamb		58	2.27	1.14	0.20	0.010	0.006	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		0.84	0.15	0.374	0.653 0.115
7		0.83	0.15	0.374	0.642 0.113
6		0.82	0.14	0.374	0.635 0.112
5	✓	0.82	0.14	0.374	0.634 0.112
4	✓	0.82	0.14	0.374	0.632 0.111
Marine North	✓	0.82	0.14	0.374	0.631 0.111
Marine South	✓	0.81	0.14	0.374	0.628 0.111
3	✓	0.82	0.14	0.374	0.630 0.111
2 West		0.78	0.14	0.374	0.589 0.104
2 East		0.78	0.14	0.374	0.589 0.104
Universal Fixed Window Exterior		FRAME		Psi-spacer	
Cardinal Endur	Frame height	U-frame		Ψ	Psi-opaque
		mm	in	W/mK	BTU/hr.ft.F
Head	58	2.27	1.12	0.20	0.010 0.006
Sill	58	2.27	1.12	0.20	0.010 0.006
left jamb	58	2.27	1.14	0.20	0.010 0.006
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Universal Fixed Window Exterior		FRAME		Psi-spacer	
Cardinal Endur	Frame height		U-frame		Psi-opaque
	mm	in	W/m2K	BTU/hr.ft2.F	
Head	58	2.27	1.12	0.20	0.010 0.006 0.078
Sill	58	2.27	1.12	0.20	0.010 0.006 BTU/hr.ft.F
left jamb	58	2.27	1.14	0.20	0.010 0.006 0.045
right jamb	58	2.27	1.14	0.20	0.010 0.006 Grade A

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left jamb		58	2.27	1.14	0.20	0.045
right jamb		58	2.27	1.14	0.20	Grade A

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