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ADDENDA

ANSI/ASHRAE/IES Addendum am to ANSI/ASHRAE/IES Standard 90.1-2022

Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings

Approved by ASHRAE and the American National Standards Institute on April 30, 2025, and by the Illuminating Engineering Society on March 31, 2025.

This addendum was approved by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. Instructions for how to submit a change can be found on the ASHRAE[®] website (https://www.ashrae.org/continuous-maintenance).

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FOREWORD

Addendum am revises the fenestration prescriptive criteria in Tables 5.5-0 through 5.5-8. The proposed changes were subjected to ASHRAE cost-effectiveness analyses to show positive life-cycle energy savings using an average heating and cooling scalar of 21.8 as well as engineering judgment to achieve consensus. A new footnote is added with an allowance in zones 5–7 for products installed at higher elevations to increase product availability, but this is only intended for prescriptive compliance. To restrict the use of the allowance, edits are made to Section 12 and Normative Appendix C to clarify that the footnote is not used in the baseline building. A similar edit is not required in Normative Appendix G, as an independent baseline envelope is used.

In addition to the updated prescriptive criteria, corrections have also been made to the nonswinging opaque door U-factor for semiheated spaces in zones 0–2 that is physically impossible, and an error in the SI values for fixed and operable fenestration U-factors for semiheated spaces in zone 0 that do not match the IP values.

Informative Note: In this addendum, changes to the current standard are indicated in the text by <u>underlining</u> (for additions) and <u>strikethrough</u> (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum am to Standard 90.1-2022

Modify Tables 5.5-0 through 5.5-8 as follows (IP).

Table 5.5-0 Building Envelope Requirements for Climate Zone 0 (A,B)*

	N	Nonresidential			Residential		Semiheated		
Opaque Elements	Assembly Maximum	Insula Min. R		Assembly Maximum	Insulation Min. R-Value		Assembly Maximum	Insula Min. R-	
			(Opaque Door	'S				
Swinging	U-0.370			U-0.370			U-0.700		
Nonswinging	U-0.310			U-0.310			U- 1.450 <u>1.20</u>		
Fenestration	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	0.50- 0.48	0.22 <u>0.21</u>	1.10 (for all	0.50 <u>0.48</u>	0.22 <u>0.21</u>	1.10	1.20	NR	NR
Operable	0.62	0.20- 0.19	types)	0.62	0.20 <u>0.19</u>	(for all types)	1.20	(for all types)	(for all types)
Entrance door	0.83	0.20- 0.19		0.83	<u>0.20</u> <u>0.19</u>		1.10		
			Skylig	ght, 0% to 3%	of Roof				
All types	0.70- <u>0.68</u>	0.30	NR	0.70 <u>0.68</u>	0.30	NR	1.80	NR	NR

Table 5.5-1 Building Envelope Requirements for Climate Zone 1 (A,B)*

	N	Nonresidential			Residential			Semiheated	
Opaque Elements	Assembly Maximum	Insula Min. R		Assembly Maximum	Insula Min. R-		Assembly Maximum	Insula Min. R-	
			(Opaque Door	rs				
Swinging	U-0.370			U-0.370			U-0.700		
Nonswinging	U-0.310			U-0.310			U- 1.450 <u>1.20</u>		
Fenestration	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	0.50- 0.48	0.23	1.10 (for all	0.50 <u>0.48</u>	0.23	1.10	1.20	NR	NR
Operable	0.62	0.21	types)	0.62	0.21	(for all types)	1.20	(for all types)	(for all types)
Entrance door	0.83	0.21		0.83	0.21		1.10		
			Skylig	ght, 0% to 3%	o of <i>Roof</i>				
All types	0.70- 0.68	0.30	NR	0.70- 0.68	0.30	NR	1.80	NR	NR

Table 5.5-2 Building Envelope Requirements for Climate Zone 2 (A,B)*

	ľ	Nonresidential			Residential			Semiheated	
Opaque Elements	Assembly Maximum	·		Assembly Maximum	Insula Min. R-		Assembly Maximum	Insulation Min. R-Value	
			(Opaque Door	S				
Swinging	U-0.370			U-0.370			U-0.700		
Nonswinging	U-0.310			U-0.310			U- 1.450 <u>1.20</u>		
Fenestration	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	0.45	0.25 <u>0.23</u>	1.10 (for all	0.45	0.25	1.10	0.50 - <u>0.48</u>	NR	NR
Operable	0.60	0.23 <u>0.21</u>	types)	0.60	0.23	(for all types)	0.65 <u>0.62</u>	(for all types)	(for all types)
Entrance door	0.77	0.23 <u>0.21</u>		0.77	0.23		0.77		
			Skylig	ght, 0% to 3%	of Roof				
All types	0.65	0.30	NR	0.65	0.30	NR	0.90 - <u>0.75</u>	NR	NR

Table 5.5-3 Building Envelope Requirements for Climate Zone 3 (A,B,C)*

	1	Nonresidential			Residential			Semiheated	
Fenestration	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	0.42 <u>0.38</u>	0.25	1.10 (for all	0.42 <u>0.38</u>	0.25	1.10	0.50- 0.48	NR	NR
Operable	0.54	0.23	types)	0.54	0.23	(for all types)	0.65 <u>0.62</u>	(for all types)	(for all types)
Entrance door	0.68	0.23		0.68	0.23	,	0.77	,	,
			Skylig	ht, 0% to 3%	o of <i>Roof</i>				
All types	0.55	0.30	NR	0.55	0.30	NR	0.90 <u>0.75</u>	NR	NR

Table 5.5-4 Building Envelope Requirements for Climate Zone 4 (A,B,C)*

	1	Nonresidential			Residential			Semiheated		
Fenestration	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC	
			Vertical Fene	estration, 0%	to 40% of Wall					
Fixed	0.36 - <u>0.35</u>	0.36- 0.34	1.10 (for all	0.36 <u>0.35</u>	0.36 <u>0.34</u>	1.10	0.50 <u>0.45</u>	NR	NR	
Operable	0.45 <u>0.43</u>	0.33 <u>0.31</u>	types)	0.45 <u>0.43</u>	0.33 <u>0.31</u>	(for all types)	0.65 <u>0.60</u>	(for all types)	(for all types)	
Entrance door	0.63	0.33 <u>0.31</u>		0.63	0.33 <u>0.31</u>		0.77			
			Skylig	ght, 0% to 3%	of Roof					
All types	0.50 - <u>0.48</u>	0.40	NR	0.50 <u>0.48</u>	0.40	NR	0.75 <u>0.65</u>	NR	NR	

Table 5.5-5 Building Envelope Requirements for Climate Zone 5 (A,B,C)*

	ľ	Nonresidential			Residential			Semiheated	
Fenestration	Assembly Max. U ^c	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U ^c	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	0.36 <u>0.32</u>	0.38	1.10 (for all	0.36 <u>0.32</u>	0.38	1.10	0.50 <u>0.42</u>	NR	NR
Operable	0.45 <u>0.39</u>	0.33	types)	0.45 <u>0.39</u>	0.33	(for all types)	0.65 - <u>0.54</u>	(for all types)	(for all types)
Entrance door	0.63	0.33		0.63	0.33		0.77		
			Skylig	ht, 0% to 3%	of Roof				
All types	0.50 <u>0.48</u>	0.40	NR	0.50 <u>0.48</u>	0.40	NR	0.75 <u>0.65</u>	NR	NR

c. At sites located 4000 feet or more above sea level, the assembly maximum U-factor is permitted to be increased by 0.02 Btu/hr \times ft $^2 \times$ °F.

Table 5.5-6 Building Envelope Requirements for Climate Zone 6 (A,B)*

	1	Nonresidential			Residential			Semiheated	
Fenestration	Assembly Max. U ^c	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U ^c	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	0.34 <u>0.31</u>	0.38	1.10 (for all	0.34 <u>0.31</u>	0.38	1.10	0.39 <u>0.35</u>	NR	NR
Operable	0.42 <u>0.38</u>	0.34	types)	0.42 <u>0.38</u>	0.34	(for all types)	0.48 <u>0.43</u>	(for all types)	(for all types)
Entrance door	0.63	0.34		0.63	0.34		0.68		,
			Skylig	ht, 0% to 3%	of Roof				
All types	0.47 <u>0.46</u>	0.40	NR	0.50 - <u>0.46</u>	0.40	NR	0.75 <u>0.65</u>	NR	NR

c. At sites located 4000 ft or more above sea level, the assembly maximum *U-factor* is permitted to be increased by 0.02 Btu/hr × ft²× °F.

Table 5.5-7 Building Envelope Requirements for Climate Zone 7*

	1	Nonresidential			Residential			Semiheated	
Fenestration	Assembly Max. U ^b	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U ^b	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	0.29 <u>0.28</u>	0.40	1.10 (for all	0.29 <u>0.28</u>	0.40	1.10	0.36 <u>0.32</u>	NR	NR
Operable	0.36 - <u>0.35</u>	0.36	types)	0.36 <u>0.35</u>	0.36	(for all types)	0.44 <u>0.39</u>	(for all types)	(for all types)
Entrance door	0.63	0.36		0.63	0.36		0.63		,
			Skylig	ht, 0% to 3%	o of <i>Roof</i>				
All types	0.44	NR	NR	0.44	NR	NR	0.75 <u>0.55</u>	NR	NR

b. At sites located 4000 ft or more above sea level, the assembly maximum *U-factor* is permitted to be increased by 0.02 Btu/hr × ft² × °F.

Table 5.5-8 Building Envelope Requirements for Climate Zone 8*

	1	Nonresidential			Residential			Semiheated	
Fenestration	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	0.26 <u>0.25</u>	0.40	1.10 (for all	0.26 <u>0.25</u>	0.40	1.10	0.36 <u>0.31</u>	NR	NR
Operable	0.32 <u>0.31</u>	0.36	types)	0.32 <u>0.31</u>	0.36	(for all types)	0.44 - <u>0.38</u>	(for all types)	(for all types)
Entrance door	0.63	0.36		0.63	0.36		0.63		
			Skylig	ht, 0% to 3%	o of <i>Roof</i>				
All types	0.41 <u>0.40</u>	NR	NR	0.41 <u>0.40</u>	NR	NR	0.75 <u>0.55</u>	NR	NR

Modify Tables 5.5-0 through 5.5-8 as follows (SI).

Table 5.5-0 Building Envelope Requirements for Climate Zone 0 (A,B)*

	N	Nonresidential			Residential			Semiheated	
Opaque Elements	Assembly Maximum	Insulation Min. R-Value		Assembly Maximum	Insula Min. R-		Assembly Maximum	Insula Min. R-	
				Opaque Doo	ors				
Swinging	U-2.101			U-2.101			U-3.975		
Nonswinging	U-1.760			U-1.760			U- 8.233 <u>6.81</u>		
Fenestration	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	2.84 <u>2.72</u>	0.22 <u>0.21</u>	1.10 (for all	2.84 <u>2.72</u>	0.22 <u>0.21</u>	1.10	2.84 <u>6.81</u>	NR	NR
Operable	3.52	0.20 0.19	types)	3.52	0.20 <u>0.19</u>	(for all types)	3.69 <u>6.81</u>	(for all types)	(for all types)
Entrance door	4.71	0.20- 0.19		4.71	0.20- 0.19		6.25		
			Skylig	ht, 0% to 3%	o of <i>Roof</i>				
All types	3.973 <u>3.86</u>	0.30	NR	3.973 <u>3.86</u>	0.30	NR	10.22	NR	NR

Table 5.5-1 Building Envelope Requirements for Climate Zone 1 (A,B)*

	N	Nonresidential			Residential			Semiheated	
Opaque Elements	Assembly Maximum	Insua Min. R		Assembly Maximum	Insual Min. R-		Assembly Maximum	Insula Min. R-	
				Opaque Doo	ors				
Swinging	U-2.101			U-2.101			U-3.975		
Nonswinging	U-1.760			U-1.760			U- <u>8.233</u> <u>6.81</u>		
Fenestration	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	2.84 <u>2.72</u>	0.23	1.10 (for all	2.84 <u>2.72</u>	0.23	1.10	6.81	NR	NR
Operable	3.52	0.21	types)	3.52	0.21	(for all types)	6.81	(for all types)	(for all types)
Entrance door	4.71	0.21		4.71	0.21		6.25		
			Skylig	ght, 0% to 3%	of Roof				
All types	3.97 <u>3.86</u>	0.30	NR	3.97 - <u>3.86</u>	0.30	NR	10.22	NR	NR

Table 5.5-2 Building Envelope Requirements for Climate Zone 2 (A,B)*

	ľ	Nonresidential			Residential			Semiheated		
Opaque Elements	Assembly Maximum	Insua Min. R		Assembly Maximum	•		Assembly Maximum		Insulation Min. R-Value	
				Opaque Doo	ors					
Swinging	U-2.101			U-2.101			U-3.975			
Nonswinging	U-1.760			U-1.760			U- <u>8.233</u> <u>6.81</u>			
Fenestration	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGO	
			Vertical Fene	estration, 0%	to 40% of Wall					
Fixed	2.56	0.25 <u>0.23</u>	1.10 (for all	2.56	0.25	1.10	2.84 <u>2.72</u>	NR	NR	
Operable	3.41	0.23 <u>0.21</u>	types)	3.41	0.23	(for all types)	3.69 <u>3.52</u>	(for all types)	(for all types)	
Entrance door	4.37	0.23 <u>0.21</u>		4.37	0.23		4.37			
			Skylig	ght, 0% to 3%	o of <i>Roof</i>					
All types	3.69	0.30	NR	3.69	0.30	NR	5.11- <u>4.26</u>	NR	NR	

Table 5.5-3 Building Envelope Requirements for Climate Zone 3 (A,B,C)*

	Residential			Semiheated	
bly . Assembly GC Max. U	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
Fenestration, 0	% to 40% of <i>Wall</i>				
r all 2.38 2.16	0.25	1.10	2.84 <u>2.72</u>	NR	NR
3.07	0.23	(for all types)	3.69 <u>3.52</u>	(for all types)	(for all types)
3.86	0.23		0.77		
kylight, 0% to 3	% of <i>Roof</i>				
3.12	0.30	NR	5.11 <u>4.26</u>	NR	NR
R	R 3.12	R 3.12 0.30	R 3.12 0.30 NR	R 3.12 0.30 NR 5.11 4.26	R 3.12 0.30 NR <u>5.11-4.26</u> NR

Table 5.5-4 Building Envelope Requirements for Climate Zone 4 (A,B,C)*

	1	Nonresidential			Residential			Semiheated	
Fenestration	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	2.04 <u>1.99</u>	0.36 <u>0.34</u>	1.10 (for all	2.04 <u>1.99</u>	0.36 <u>0.34</u>	1.10	2.84 <u>2.55</u>	NR	NR
Operable	2.56 - <u>2.44</u>	0.33 <u>0.31</u>	types)	2.56 <u>2.44</u>	0.33 <u>0.31</u>	(for all types)	3.69 <u>3.41</u>	(for all types)	(for all types)
Entrance door	3.58	0.33 <u>0.31</u>		3.58	0.33 <u>0.31</u>		4.37		
			Skylig	ght, 0% to 3%	of Roof				
All types	2.84 <u>2.72</u>	0.40	NR	2.84 <u>2.72</u>	0.40	NR	4.26 <u>3.69</u>	NR	NR

Table 5.5-5 Building Envelope Requirements for Climate Zone 5 (A,B,C)*

	Nonresidential				Residential			Semiheated		
Fenestration	Assembly Max. U ^c	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U ^c	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC	
			Vertical Fene	estration, 0%	to 40% of Wall					
Fixed	2.04 - <u>1.82</u>	0.38	1.10 (for all	2.04 <u>1.82</u>	0.38	1.10	2.84 <u>2.38</u>	NR	NR	
Operable	2.56- 2.21	0.33	types)	2.56- 2.21	0.33	(for all types)	3.69 - <u>3.06</u>	(for all types)	(for all types)	
Entrance door	3.58	0.33		3.58	0.33		4.37			
			Skylig	ht, 0% to 3%	of Roof					
All types	2.84 <u>2.72</u>	0.40	NR	2.84 <u>2.72</u>	0.40	NR	4.26 <u>3.69</u>	NR	NR	

c. At sites located 1200 m or more above sea level, the assembly maximum *U-factor* is permitted to be increased by 0.11 W/m²K.

Table 5.5-6 Building Envelope Requirements for Climate Zone 6 (A,B)*

	N	Nonresidential			Residential			Semiheated	
Fenestration	Assembly Max. U ^c	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U ^c	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	1.93 <u>1.76</u>	0.38	1.10 (for all	1.93 <u>1.76</u>	0.38	1.10	2.21 <u>1.99</u>	NR	NR
Operable	2.38- 2.16	0.34	types)	2.38 <u>2.16</u>	0.34	(for all types)	2.73 <u>2.44</u>	(for all types)	(for all types)
Entrance door	3.58	0.34		3.58	0.34		3.86		
			Skylig	tht, 0% to 3%	of Roof				
All types	2.67 <u>2.61</u>	0.40	NR	2.84 <u>2.61</u>	0.40	NR	4.26 <u>3.69</u>	NR	NR

c. At sites located 1200 m or more above sea level, the assembly maximum *U-factor* is permitted to be increased by 0.11 W/m²K.

Table 5.5-7 Building Envelope Requirements for Climate Zone 7*

	1	Nonresidential			Residential			Semiheated	
Fenestration	Assembly Max. U ^b	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U ^b	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	1.65 <u>1.59</u>	0.40	1.10 (for all	1.65 <u>1.59</u>	0.40	1.10	2.04 <u>1.82</u>	NR	NR
Operable	2.04 <u>1.99</u>	0.36	types)	2.04 <u>1.99</u>	0.36	(for all types)	2.50 <u>2.21</u>	(for all types)	(for all types)
Entrance door	3.58	0.36		3.58	0.36		3.58	,	,
			Skylig	tht, 0% to 3%	of Roof				
All types	2.50	NR	NR	2.50	NR	NR	4.26 <u>3.12</u>	NR	NR

b. At sites located 1200 m or more above sea level, the assembly maximum *U-factor* is permitted to be increased by 0.11 W/m²K.

Table 5.5-8 Building Envelope Requirements for Climate Zone 8*

	1	Nonresidential			Residential			Semiheated	
Fenestration	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max. SHGC	Assembly Min. VT/SHGC	Assembly Max. U	Assembly Max.SHGC	Assembly Min. VT/SHGC
			Vertical Fene	estration, 0%	to 40% of Wall				
Fixed	1.48 <u>1.42</u>	0.40	1.10 (for all	1.48 <u>1.42</u>	0.40	1.10	2.04 <u>1.76</u>	NR	NR
Operable	1.82 <u>1.76</u>	0.36	types)	1.82 <u>1.76</u>	0.36	(for all types)	2.50 <u>2.16</u>	(for all types)	(for all types)
Entrance door	3.58	0.36		3.58	0.36		3.58		,
			Skylig	ht, 0% to 3%	of Roof				
All types	2.33 <u>2.27</u>	NR	NR	2.33- 2.27	NR	NR	4 .26 - <u>3.12</u>	NR	NR

Modify Table 12.5.1 as follows. The remainder of the table is unchanged.

Table 12.5.1 Modeling Requirements for Calculating Design Energy Cost and Energy Cost Budget

Proposed Design (Column A) Design Energy Cost (DEC)	Budget Building Design (Column B) Energy Cost Budget (ECB)
5. Building Envelope	
(unchanged)	d. No shading projections are to be modeled; <i>fenestration</i> shall be assumed to be flush with the <i>wall</i> or <i>roof</i> . If the <i>fenestration area</i> for new <i>buildings</i> or additions exceeds the maxi- mum allowed by Section 5.5.4.2, the area shall be reduced proportionally along each exposure until the limit set in Section 5.5.4.2 is met. If the <i>vertical fenestration area</i> facing west or east of the <i>proposed design</i> exceeds the area limit set in Section 5.5.4.5 then the <i>energy cost budget</i> shall be generated by simulating the <i>budget building design</i> with its actual <i>orientation</i> and again after rotating the entire <i>budget building design</i> 90, 180, and 270 degrees and then averaging the results. <i>Fenestration U-factor</i> shall be equal to the criteria from Tables 5.5-0 through 5.5-8 for the appropriate climate without use of <i>fenestration</i> footnotes, and the <i>SHGC</i> shall be equal to the criteria from Tables 5.5-0 through 5.5-8 for the appropriate climate. For portions of those tables where there are no <i>SHGC</i> requirements, the <i>SHGC</i> shall be equal to that determined in accordance with Section C3.6(d). The <i>VT</i> shall be equal to that determined in accordance with Section C3.6(d). The <i>fenestration</i> model for <i>building envelope alterations</i> shall reflect the limitations on area, <i>U-factor</i> , and <i>SHGC</i> as described in Section 5.1.4.

Modify Appendix C as follows. The remainder of the appendix is unchanged.

C3.6 Calculation of Base Envelope Performance Factor. The simulation model for calculating the *base* envelope performance factor shall modify the simulation model for calculating the proposed envelope performance factor as follows:

[...]

d. Fenestration shall be assumed to be flush with the wall or roof. Fenestration U-factor and SHGC shall be the maximum allowed for the appropriate class of construction, space conditioning category, and climate zone in accordance with Section 5.5.4 without use of fenestration footnotes in Tables 5.5-5 through 5.5-7. Where there is no SHGC requirement, the SHGC shall be equal to 0.40 for all vertical fenestration and 0.55 for skylights. The VT for fenestration in the base envelope design shall be equal to 1.10 times the SHGC.

[...]

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