

Public Code Change Proposal Form

To Amend the 2018 Illinois Energy Conservation Code

Code Section: Table 402.4

<i>Office Use Only</i>	
Proposal Number:	C06-01
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Date: March 28, 2018
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Related Sections Impacted by this Amendment:

Table C402.4 Building Envelope Fenestration Maximum U-Factor and SHGC Requirements

Revise as Follow (in strike-thru / underline format):

Delete Table C402.4 and replace with new Table C402.4

**Table C402.4
Building Envelope Fenestration Maximum U-Factor and SHGC Requirements**

<u>CLIMATE ZONE</u>	<u>4</u>		<u>5</u>	
<u>Vertical Fenestration</u>				
<u>U-Factor</u>				
<u>Windows rated in accordance with AAMA/WDMA/CSA 101/I.S/A440^A (Class AW windows) and curtain walls</u>				
<u>Fixed fenestration</u>	<u>0.36</u>		<u>0.36</u>	
<u>Operable fenestration</u>	<u>0.43</u>		<u>0.43</u>	
<u>All other vertical fenestration</u>				
<u>All fenestration</u>	<u>0.30</u>		<u>0.27</u>	
Entrance doors (No change)	0.77		0.77	
<u>SHGC (No Change)</u>				
Orientation	SEW	N	SEW	N
PF < 0.2	0.36	0.48	0.38	0.51
0.2 ≤ PF < 0.5	0.43	0.53	0.46	0.56
PF ≥ 0.5	0.58	0.58	0.61	0.61
<u>Skylights (No Change)</u>				
<u>U-Factor</u>	<u>0.48</u>		<u>0.48</u>	
<u>SHGC</u>	<u>0.38</u>		<u>0.38</u>	
<u>^A Curtain wall, and storefront fenestration shall comply with the U-factor and SHGC requirements for Class AW fixed windows.</u>				

Reason:

The proposal replaces the fenestration table with a table that divides different types of window requirements in a way that is more reasonable and equitable than the current table and updates the requirements to more efficient values. Instead of using material as the dividing factor in the table, this proposal uses construction factors. It provides a separate, less stringent requirement for curtain wall and Class AW windows. These are windows where the frames must play a structural role beyond what is seen in typical "punched opening" windows. This is why meeting more stringent requirements is often not feasible or cost effective for these windows; they must meet those requirements while also meeting structural requirements and the solutions that can do both are more costly than the solutions that just improve energy performance.

The current table divides windows by material type, with less stringent requirements for metal windows. However, the only type of metal windows that actually struggle to meet the more stringent requirements are large "Class AW" architectural windows like picture windows, and curtain wall systems where frames must meet a structural load. "Punched opening" metal windows can meet the same requirements as other materials since they do not have frames that need to meet the same kind of structural load as these other types of metal windows. This table only allows curtain wall windows and rated "Class AW" windows to use the less stringent requirement. It maintains the less stringent requirement for window types where meeting the more stringent requirements would require costly materials or construction, while maintaining the more stringent requirement metal windows that are not so restrained by feasibility. The Class AW designation comes from the AAMA/CSA 101/I.S.2/A440 ANSI Standard. The 2018 edition of the IECC has almost no improvement in the requirements for windows, with only a small improvement in SHGC values. This creates a significant missed opportunity for efficiency in Illinois. The proposed table updates the U-factor requirements based on requirements that are being incorporated into the New York State Stretch Energy Code.

Cost Impact:

This change will increase cost. Re-categorizing may result in some limited cost increase, but that will be due to eliminating what was effectively a loophole in the code. A cost study for the increased stringency found a \$0.62/sf incremental cost for a 6-story mid-rise multifamily building in Portland with 20% window to wall ratio. Windows are key to the thermal performance of the buildings and making this change will allow the energy code to better meet its goal of conserving energy.

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A proponent shall not submit multiple amendments to the same code section. When a proponent submits multiple amendments to the same section, the proposals shall be considered as incomplete proposals. The proponent of the proposal shall be notified and the proposal shall be held until the deficiencies are corrected, with a final date set for receipt of a corrected submittal. If the corrected amendment is received after the final date, the proposal shall not be considered by the ILECAC. This restriction shall not apply to amendments that attempt to address differing subject matter within a code section.