

## **EC41–09/10**

### **Table 402.1.1; IRC Table N1102.1**

**Proponent:** Bill Prindle, ICF International, representing the Energy Efficient Codes Coalition; Jeff Harris, Alliance to Save Energy; Harry Misuriello, American Council for an Energy-Efficient Economy (ACEEE); Garrett Stone, Brickfield, Burchette, Ritts & Stone; Steve Rosenstock, Edison Electric Institute; Brian Dean, ICF International

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IECC COMMITTEE. PART II WILL BE HEARD BY THE IRC BUILDING/ENERGY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

**PART I – IECC**

Revise table as follows:

**TABLE 402.1.1  
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT<sup>a</sup>**

CLIMATE ZONE	FENESTRATION U-FACTOR <sup>b</sup>	SKYLIGHT <sup>b</sup> U-FACTOR	GLAZED FENESTRATION SHGC <sup>b, e</sup>	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE <sup>i</sup>	FLOOR R-VALUE	BASEMENT <sup>c</sup> WALL R-VALUE	SLAB <sup>d</sup> R-VALUE & DEPTH	CRAWL SPACE <sup>c</sup> WALL R-VALUE
1	1.2	0.75	<del>0.30</del> 0.25	30	13	3/4	13	0	0	0
2	0.65 <sup>j</sup>	0.75	<del>0.30</del> 0.25	30	13	4/6	13	0	0	0
3	0.50 <sup>j</sup>	0.65	<del>0.30</del> 0.25 <sup>e</sup>	30	13	5/8	19	5/13 <sup>f</sup>	0	5/13
4 except Marine	0.35	0.60	NR	38	13	5/10	19	10/13	10, 2 ft	10/13
5 and Marine 4	0.35	0.60	NR	38	20 or 13+5 <sup>h</sup>	13/17	30 <sup>g</sup>	10/13	10, 2 ft	10/13
6	0.35	0.60	NR	49	20 or 13+5 <sup>h</sup>	15/19	30 <sup>g</sup>	15/19	10, 4 ft	10/13
7 and 8	0.35	0.60	NR	49	21	19/21	38 <sup>g</sup>	15/19	10, 4 ft	10/13

(Footnotes remain unchanged)

**PART II – IRC BUILDING/ENERGY**

Revise table as follows:

**TABLE N1102.1  
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT<sup>a</sup>**

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT <sup>b</sup> U-FACTOR	GLAZED FENESTRATION SHGC <sup>b</sup>	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE <sup>k</sup>	FLOOR R-VALUE	BASEMENT <sup>c</sup> WALL R-VALUE	SLAB <sup>d</sup> R-VALUE AND DEPTH	CRAWL SPACE <sup>c</sup> WALL R-VALUE
1	1.2	0.75	<del>0.35</del> 0.25	30	13	3/4	13	0	0	0
2	0.65 <sup>j</sup>	0.75	<del>0.35</del> 0.25	30	13	4/6	13	0	0	0
3	0.50 <sup>j</sup>	0.65	<del>0.35</del> <sup>e,j</sup> 0.25 <sup>e,j</sup>	30	13	5/8	19	5/13 <sup>f</sup>	0	5/13
4 except Marine	0.35	0.60	NR	38	13	5/10	19	10/13	10, 2 ft	10/13
5 and Marine 4	0.35	0.60	NR	38	20 or 13 + 5 <sup>h</sup>	13/17	30 <sup>f</sup>	10/13	10, 2 ft	10/13
6	0.35	0.60	NR	49	20 or 13 + 5 <sup>h</sup>	15/19	30 <sup>g</sup>	10/13	10, 4 ft	10/13
7 and 8	0.35	0.60	NR	49	21	19/21	30 <sup>g</sup>	10/13	10, 4 ft	10/13

(Footnotes remain unchanged)

**Reason:** This proposal increases energy efficiency, reduces peak demand and sizing of cooling systems, and improves comfort in climate zones 1-3 by lowering the prescriptive SHGC values to 0.25. The need for and viability of lower SHGCs for these cooling climates is already recognized in the 2006 and 2009 *IECC* for commercial buildings, where the prescriptive value without an overhang is 0.25, establishing a precedent for a 0.25 SHGC. This proposal would establish the same value for residential buildings as well.

This proposal would reduce fenestration solar gain in hot climates (zones 1-3) in the *IECC* by almost 17% and in the *IRC* by almost 29%. Without even factoring in the increased cost of on-peak energy that this proposal would avoid, this proposal would provide an average of approximately 1% in additional heating and cooling purchased energy savings, in addition to reduced peak electrical demand, over the values set in the 2009 *IECC*. There should be no negative construction cost impact from this increase in energy code stringency since the existing SHGC requirements already effectively dictate a low solar gain low-e window and the new requirements will also require low solar gain low-e glass, but only with a lower SHGC. Such lower SHGC glass is readily available in the market. Moreover, the potential for smaller HVAC systems could generate construction cost savings. Finally, by maintaining the same SHGC requirements for all three zones, this proposal will promote lower costs of construction as a result of economies of scale, reduced inventory requirements and increased competition among suppliers of these fenestration products.

This proposal represents a reasonable and cost effective improvement that will provide states and local jurisdictions with an option to easily increase the efficiency of their code.

**Cost Impact:** The code change proposal will increase the cost of construction.

**PART I – IECC**

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

**PART II – IRC BUILDING/ENERGY**

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

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