CD#:		Date Rec'd.:		Log No.:		Proposal No.:	

PUBLIC PROPOSAL FORM

FOR PUBLIC PROPOSALS ON THE INTERNATIONAL CODES
2004/2005 CODE DEVELOPMENT CYCLE

PLEASE SEE REVERSE FOR INSTRUCTIONS ON SUBMITTING PUBLIC PROPOSALS. PROPOSALS MUST COMPLY WITH THESE INSTRUCTIONS.

CLOSING DATE: All Proposals Must Be Received by August 20, 2004.
The 2004/2005 Code Development Hearings are tentatively scheduled for February 21 – March 2, 2005 in Cincinnati, OH.

1) **Indicate the format in which you would like to receive your Public Proposals Monograph (PPM), Report of the Hearing (ROH) and Final Action Agenda (FAA):**

[X] Paper [ ] * CD [ ] *Download from ICC Website

(*Note: A paper copy will not be sent to you if you have chosen the CD or Download format.)

2) **PLEASE TYPE OR PRINT CLEARLY: FORMS WILL BE RETURNED if they contain unreadable information.**

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3) ***Signature:** _____ [X] **Signature on File (see over)**

** I hereby grant and assign to ICC all rights in copyright I may have in any authorship contributions I make to ICC in connection with this proposal. I understand that I will have no rights in any ICC publications that use such contributions in the form submitted by me or another similar form and certify that such contributions are not protected by the copyright of any other person or entity.*

4) **Cost Impact:** **Indicate if this Proposal:** [ ] **will** [X] **will not** **increase the cost of construction.**

5) Indicate appropriate International Code(s) associated with this Public Proposal – Please use Acronym: **IECC**

If you have also submitted a separate coordination change to another I-Code, please indicate the code: _____
(See back of this form for list of names and acronyms for the International Codes).

6) **Revision to:** [ ] **Section** _____ [ ] **Table** **802.2(2)** [ ] **Figure** _____

7) **PROPOSAL Please check appropriate box:**

[X] **Revise as follows:** [ ] **Add new text as follows** [ ] **Delete and substitute as follows:** [ ] **Delete without Substitution(s):**

Show the proposed NEW, REVISED or DELETED TEXT in legislative format: ~~Line through text to be deleted.~~ Underline text to be added.

[X] PROPOSAL *Continued* (Attach additional sheets as necessary)

8) **SUPPORTING INFORMATION (State purpose and reason, and provide substantiation to support proposed change):**

Supporting Statement:

[X] SUPPORTING INFORMATION *Continued* (Attach additional sheets as necessary)

PLEASE USE SEPARATE FORM FOR EACH PROPOSAL

SUBMITTAL AS A DOCUMENT ATTACHED TO AN E-MAIL IS PREFERRED

7. Proposal - continued

Revise Table 802.2(2) as shown:

Table 802.2(2)

Climate Zone	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
~~Windows~~ Glazed Assemblies (40% maximum)								
~~Factory-assembled glazed fenestration products~~ Other framing materials								
U-Factor	1.20	0.75	0.65	0.40	0.35	0.35	0.35	0.35
SHGC	0.40	0.40	0.40	~~0.40~~ NR	~~0.40~~ NR	~~0.40~~ NR	NR	NR
~~Site-built glazed products~~ Metal Framing								
Curtainwall/Storefront U-Factor	1.20	~~0.75~~ 0.70	~~0.65~~ 0.60	0.50	0.45	0.45	0.45	0.45
Entrance Door U-Factor	1.20	1.10	0.90	0.85	0.80	0.80	0.80	0.80
All Other – U-Factor[1]	1.20	0.75	0.65	0.55	0.55	0.55	0.50	0.50
SHGC: PF< 0.25	0.25	0.25	0.25	0.40	0.40	0.40	NR	NR
SHGC: 0.25 ≤ PF < 0.50	0.33	0.33	0.33	NR	NR	NR	NR	NR
SHGC: PF ≥ 0.50	0.40	0.40	0.40	NR	NR	NR	NR	NR
Skylights (3% maximum)								
Glass								
U-Factor	1.60	1.05	0.90	0.60	0.60	0.60	0.60	0.60
SHGC	0.40	0.40	0.40	0.40	0.40	0.40	NR	NR
Plastic								
U-Factor	1.90	1.90	1.30	1.30	1.30	0.90	0.90	0.60
SHGC	0.35	0.35	0.35	0.62	0.62	0.62	NR	NR

[1]All others includes operable windows, fixed windows and non-entrance doors.

~~Factory-Assembled Glazed Fenestration Product.~~ ~~Fenestration product are shipped to the field as factory-assembled units comprised of specified frame and glazing components including: operable and fixed windows; and skylights.~~

~~Site-Built Glazed Product.~~ ~~Fenestration products that are designed to be field glazed or field assembled units comprised of specified frame and glazing components including: operable and fixed windows; curtain walls, window walls, storefronts, sloped glazing and skylights.~~

8. Supporting Statement - continued

This proposal eliminates the distinction between “factory assembled” and “site built” fenestration products, adjusts the U-factor for commercial glazed systems to a reasonable level that manufacturers of commercial glazed systems can meet while still providing systems that have the strength and durability needed in commercial buildings and revises the SHGC requirement for residential type windows to be consistent with the requirements for residential windows in Chapter 4 of the IECC and Chapter 11 of the IRC.

The distinction between factory assembled vs. site built fenestration products in Table 802.2(2) will create significant difficulties for the product manufacturer, the builder and the code official. A number of different types of glazed assemblies, including operable windows, unitized curtainwall systems; storefront strip windows, window walls and entrances are often partially assembled in a factory and not really complete until they reach the job site. For example, windows may be factory glazed into a sash, then set into a frame that was constructed on the job site. How does one determine at what point such an assembly goes from being site built to factory assembled?

Also, often the decision regarding the type of fenestration product and level of its assembly purchased for the building is typically made by the Construction Manager, General Contractor and/or Glazing Contractor during final contract negotiations. Factors such as available manpower, site restrictions, existing backlog, specified product, quality control, warranty, budget, etc. will all influence the type of product eventually used on the building. The architect and/or mechanical engineer are unable to predict these factors during their design development and preparation of the Construction Documents.

This proposal replaces the “factory assembled” and “site built” distinction with “metal framing” and “other framing materials”. The original author of Table 802.2(2) has stated that the intention of the two classifications of “factory assembled” and “site built” fenestration products were non-metal residential style windows purchased off the shelf for use in small commercial buildings, and metal fenestration products commonly used in larger commercial buildings with higher structural requirements, respectively. This proposal seeks to greatly improve the usability of Table 802.2(2) by clarifying these classifications and corresponding requirements. Establishing performance criteria based on the material used for framing allows the designer and builder to respond to the specific needs of the project. In instances where small windows are used, or larger windows that do not require a high design pressure resistance, the non-metal framed products can be used. In instances where metal-framed glazed assemblies are needed for additional strength or resistance to impact, metal framed glazed assemblies can be used.

The very elements of aluminum that are necessary to meet life safety and structural needs make it challenging to meet the levels of thermal efficiency required by Table 802.2(2). The performance level of aluminum framed glazing systems in terms of

energy efficiency is below that of glazed systems framed with vinyl or wood. The values that were approved for either site built or factory built glazed assemblies in Table 802.2(2) cannot be reasonably met by aluminum framed systems.

At the same time the strength and durability needed for large glazed openings, commercial entrance doors and glazed assemblies subjected to high wind pressures or impact by wind borne debris in commercial buildings can only be met with an aluminum or steel framed assembly. This is why 85% of the glazed assemblies in commercial buildings are aluminum framed.

The ICC has acknowledged the inherent difference between residential and commercial construction by its adoption of the IRC and IBC respectively. Likewise the windows industry acknowledges that there are different needs in residential and commercial products.

Table 802.2(2) in its present state would only permit triple glazed systems, smaller windows that can be provided using non-metallic frames, and opaque, insulated doors in the exterior envelope of commercial buildings. Since such enclosures of commercial space are often not desirable in commercial buildings, particularly for retail stores, designers and builders who want to build spaces that potential customers will want to buy or lease will be forced to use the performance based methods of the IECC to demonstrate compliance. This in turn will counter the effect sought through the recent rewrite of the entire IECC, which was to simplify compliance.

The proposed revisions offer a simplified, balanced solution to this dilemma. The more stringent performance criteria that can be reached by non-metal framed windows are maintained, as is the SHGC requirements of the existing table for the types of glazed assemblies most commonly used in commercial buildings. The proposal establishes different performance criteria for metal framed glazed assemblies based on the type of assembly. The metal-framed assemblies are broken into three groups, curtainwall/storefront, entrance doors and others.

Lower U-factors can be obtained for fixed aluminum framed glazing systems such as curtainwall and storefront because they do not contain operable parts or require overlapping framing. Therefore slightly lower U-factors are given for curtainwall and storefront than for other types of metal-framed systems.

The most unforgiving of all glazed systems is the commercial entrance door. To achieve low U-Factors for metal framed glazing systems a thermally broken framing system must be used. The nature of a thermally broken aluminum frame, however, is that it is not durable enough to stand up to the demands of a commercial entrance door, which will often be opened a million times or more over its lifetime. Also, ADA compliant entrance doors require a 10-inch high bottom rail. This rail has a very high U-Factor, which contributes to the overall U-factor for the entire entrance door. At the same time, the entrance door comprises less than 1% of the overall building envelope.

The U-Factors presented in this proposal for metal framed glazed assemblies in climate zones 5 to 8 would require double paned low-e glass or triple paned clear glass to achieve, with a thermally broken framing system for all but the entrance doors. They are also somewhat consistent with the current requirements of ASHRAE for commercial buildings with less than 40% window to wall ratio, and with the requirements of the 2003 IECC under similar conditions.

The proposed changes to SHGC for nonmetal framed glazed assemblies in climate zones 4 to 6 are for consistency with the values approved for residential products in Table 402.1 of the IECC and Table N1102.1 (3) of the IRC. For the “factory assembled” residential-style products, the U factors were chosen to match the residential requirements these tables. The same was not done, however, with the SHGC requirements. Those requirements in for climate zones 4 to 6 in the current Table 802.2.2 are not consistent with the other tables, or the U.S. Department of Energy’s Energy Star program for these types of products. To correct this inconsistency, this proposal changes the SHGC requirements from “0.40” in zones 4 to 6 to “NR” for non-metal products.

At present, Table 802.2(2) does not give builders of commercial buildings very good options. They can bear the redesign costs to use more efficient products that may require additional structural calculations or an architectural change in the facade. They may use ASHRAE 90.1 on a building-by-building basis with all the unique paperwork for each one. They may even seek a 'variance' to completely ignore the energy code in favor of the structural code.

The more appropriate option would be to provide the builder, designer and code official with a simple, reasonable way to build commercial buildings. We think this proposed revision to Table 802.2(2) offers that option, and we urge the IECC committee to approve it.