

October 28, 2009

To: All IECC Code Development Committee Members

Subject: Glass Industry Concerns on Current IECC Proposals

We are writing on behalf of the Glass Association of North America (GANA), its Energy Committee, and the undersigned companies to formally convey industry-wide concern over and opposition to the following proposals:

- visible light transmission (VT)/Solar Heat Gain Coefficient (SHGC) ratio > 1.5
- window to wall ratio < 30%
- unjustified U-factor and SHGC requirements

These unwarranted restrictions and limitations appear in one or more of the following proposals: EC 166, 168, 169, 175, and 180. GANA supports the goal to increase the energy efficiency of buildings, but does not believe the above proposals are sufficiently supported by a scientific basis to warrant the significant impact on the glass and glazing industry these proposals will have if approved.

These proposals, individually and collectively, fail to recognize the need for different glazing solutions across climate zones, building use, orientation, and the specific environment in which the building is being built. These proposals represent a “one size fits all” approach that will limit the glazing choices to a small range of glazing products and preclude dynamic glazing solutions which provide significant energy savings and provide a tool to achieve zero energy buildings. Moreover, the resulting small range of usable products may not be the appropriate products in all climate zones thereby affecting occupants’ thermal and visual comfort. The resulting discomfort will alter occupant behavior in the management of blinds and/or thermostat settings, both negatively impacting anticipated energy savings. New high performance window and glazing technologies are available today that can provide for even larger glass window areas without compromising energy performance. Indeed, windows should not be considered as poor energy performing materials.

To briefly elaborate on the views on the VT/SHGC criteria, the commercial glazing community is in virtual universal agreement that the proposed minimum of 1.5 for VT/SHGC ratio is flawed and will not provide overall energy savings. Although the intent is to increase daylighting in buildings and reduce the need for lighting energy, the glass and glazing industry believes strongly the reverse will occur, and in fact implementation is likely to result in an increase in energy usage.

Principal weaknesses associated with the proposed VT/SHGC requirement are:

- The proposal precludes the use of many high performance glare control products currently on the market that offer moderate light transmission, such as spectrally selective tinted and coated products, which balance daylighting with glare control and solar heat gain. Moderate transmission glare control products provide more uniform illumination and less glare on the workspace — especially in southern climates where sunlight intensity is high for a large portion of the year. If the light transmission of the glass is too high, glare and non-uniform lighting (e.g. small bright areas adjacent to darker areas) will lead occupants to close blinds and/or turn on more task lighting, increasing lighting usage and therefore increasing energy use.

- The proposal precludes the use of dynamic glazing solutions. Dynamic glass is a key energy savings technology and an important tool in achieving the zero energy buildings goal in 2030. However, without specific guidance otherwise, code officials will choose to use the performance values of the high and low extremes of the product's VT range (e.g. the highest VT state and the lowest VT state) to get to a VT/SHGC value. The VT/SHGC values for both the high and the low transmission states do not meet the VT/SHGC >1.5 criterion. Likewise, verbiage is needed to provide interpretation of the SHGC values for dynamic solutions. Currently, while the tinted state properties of dynamic glass will meet the SHGC requirements for all climate zones, the properties of the highest transmission states do not. Indeed, the Department of Energy (DOE) is supporting development to further increase the transmission and SHGC of dynamic glass solutions in order to capture energy savings from passive solar heat gain. The proposal, by providing a significant barrier to the adoption of dynamic glazing solutions, greatly increases the risk of not achieving that energy-savings goal unless additional interpretive language is added to the proposal.
- A fixed VT/SHGC ratio as proposed does not account for the fact that a large darker piece of glazing actually admits more light than a small clearer piece of glazing. This proposed requirement penalizes the glazing that provides more total light and does so in a more uniform manner with less need for blinds to control glare.
- Even the remote possibility for saving energy in buildings is extremely limited unless the space also includes automatic daylighting controls. The large majority of individual room sizes in buildings is well below this daylighting control threshold size; yet, this VT/SHGC is required in all spaces, even though there will be at best minimal or no energy savings.
- Even if energy savings do result from the VT/SHGC proposal, those savings have not yet been quantified to determine whether they are significant enough to justify the elimination of a wide range of products from the market, potentially causing an anti-competitive impact in the marketplace. Taking into consideration true whole building interaction, we believe there is far greater energy savings by expanding the spaces where daylighting controls are implemented, rather than selecting certain glass types and eliminating others without adequate justification.

This list of opponents to the above proposals includes glass companies that market products that could actually benefit from these proposals; yet, they too are adamantly opposed to the proposals as they are viewed as fundamentally uncoordinated, flawed, and inappropriate for many applications.

GANA looks forward to working within the ICC process to arrive at a science-based, technologically viable alternative that will accomplish the concurrent goals of increasing daylighting, reducing artificial lighting energy needs, and reducing energy consumption.

Sincerely,

GLASS ASSOCIATION OF NORTH AMERICA



Bill Yanek  
GANA Executive Vice President

**On behalf of:**

GANA Board of Directors  
GANA Energy Committee  
AGC Flatglass North America  
Arch Aluminum & Glass Co., Inc.  
Benteler Mechanical Engineering  
Billco Manufacturing, Inc.  
Cytec Industries Inc.  
Edgetech IG, Inc.  
Edgeworks, Inc.  
The Facade Group, LLC

Fenestra Insulated Glass, Ltd.  
GCI Industries  
Guardian Industries Corp.  
JA Weir Associates  
JE Berkowitz LP  
Kawneer Company, Inc.  
MTH Industries, Inc.  
Oldcastle Glass  
Pilkington North America  
PPG Industries, Inc.

SAGE Electrochromics, Inc.  
Soladigm, Inc.  
Solutia Inc.  
Technoform North America  
Tem-Pace, Inc.  
Viracon Inc.  
Vitro America, LLC  
Vitrum Industries, Ltd.  
Walker Glass Co., Ltd.  
Zeledyne, LLC