



## **Via Electronic Submission**

November 18, 2011

Doug Anderson  
ENERGY STAR Home Improvement Program  
Environmental Protection Agency  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460-0001

Subject: ENERGY STAR® Program Requirements for Residential Windows, Doors, and Skylights  
– Version 6.0 Framework Document comments

Dear Mr. Anderson:

The Window and Door Manufacturers Association (WDMA) would like to provide the following comments for consideration by EPA on the ENERGY STAR for Windows, Doors, and Skylights – Version 6.0 Product Specification Framework Document

To briefly preface our comments, they are based on several guiding principles that WDMA strongly believes are critical to the effectiveness of the ENERGY STAR windows, doors and skylights program. Those principles are also in line with the guiding principles of the ENERGY STAR program as a whole.

Specifically:

- Improving the energy efficiency of existing homes, particularly the replacement of the existing stock of single-pane windows, skylights (including converting plastic to glass) and glass doors with energy efficient products represents one of the greatest opportunities for reducing residential energy use in North America. The ENERGY STAR windows, doors, and skylights program should play a critical role in achieving that objective.
- Revisions to program requirements must not undermine the reasonable affordability of ENERGY STAR fenestration products which is critically important to consumers in their decision to purchase them.
- Energy savings must also provide meaningful upfront savings in energy costs if the criteria are intended to drive consumer behavior. Without the benefit of a reasonable rate of return on the decision to purchase ENERGY STAR products, the importance and value of the program to the consumer will be greatly diminished.
- Development and implementation of the Version 6.0 criteria must take into consideration the logistics and seasonality of product manufacturing, the time and resources necessary for new product launches, and for this revision in particular, the extreme economic challenges that are currently being faced in the US.
- Program requirements should be streamlined to the extent possible, should allow adequate flexibility for options with minimal impact on energy performance to be added without affecting a product's qualification, and the program in general should better align with the Canadian ENERGY STAR fenestration program to remove unnecessary barriers to commerce.

With those guiding principles in mind, we offer the following comments:

## **Section II. Program Elements Considered for Adoption**

### **a. Structural Requirements**

We support the inclusion of new provisions in the Version 6.0 criteria that would require window, skylight and sliding door products to be tested and certified to the applicable structural requirements in the North American Fenestration Standard/Specification for windows, doors, and skylights – AAMA/WDMA/CSA – 101/I.S.2/A440 (NAFS) in order to be ENERGY STAR qualified. Testing and certification to the NAFS is already required for compliance with the applicable structural requirements for these products in the International Building Code (IBC) and International Residential Code (IRC) meaning ENERGY STAR qualified window, skylight and sliding door assemblies used in new construction must already be NAFS certified. We believe that ENERGY STAR criteria needs to ensure that these ENERGY STAR qualified products used in existing construction meet the same structural performance requirements as for new construction.

For those reasons, we believe that the ENERGY STAR program should also require water penetration resistance, in addition to air infiltration resistance requirements for these products in accordance with or consistent with NAFS. We believe that water penetration resistance is a durability attribute that should also be embodied in the ENERGY STAR program. The incorporation of water penetration resistance as well as structural requirements in the ENERGY STAR criteria is consistent with and compliments the incorporation of new air leakage requirements, all of which we believe would add greatly to the strength and credibility of the overall residential windows, doors and skylights program.

Regarding the Agency's concern that new requirements for NAFS certification could lead to a backlog at testing facilities and inundate WDMA resources, we believe such concerns, while appreciated, may be greater than warranted, even with the addition of water penetration resistance criteria as recommended above. We believe the Agency's concern is based on a significant underestimation of the number of ENERGY STAR products that are already NAFS certified. While WDMA and the AAMA are the leading NAFS certifiers there are other accredited entities that also certify products to NAFS. Although we do not know the actual numbers, we believe the 25% the Agency has cited as being certified through WDMA's and AAMA's programs is not an accurate representation of actual ENERGY STAR fenestration products that are NAFS certified. Regardless of the actual numbers, we believe NAFS certification should be required for the reasons stated above.

### **b. Products Installed at High Altitude**

We believe that the Agency must further explore the inclusion of a provision permitting specific, limited allowances in the ENERGY STAR for Windows, Doors, and Skylights – Version 6.0 criteria for products installed at high altitude. The use of breather tubes remains the most common and proven method for properly ensuring that pressure changes in response to altitude changes do not result in damage or unacceptable distortion of the glazing assembly.

Regarding the other ways that some manufacturers have identified to handle the problem as the Agency notes in the framework document, that discussion is extremely vague and provides insufficient information to comment on with respect to the decision of whether or not to include high altitude product allowances. The lack of information on those other ways is concerning to us and we believe that given the weight the Agency seems to be giving these other ways in the high altitude allowance decision, the Agency needs to provide more substantive detail on exactly what those other ways are and make that information available to all program partners to allow them the opportunity to provide meaningful feedback on this matter before any final determination is made by the Agency.

Regarding the *addition* of a provision permitting specific, limited allowances for ENERGY STAR products installed at high altitude, we believe there are at least two viable options that we encourage the Agency to consider further. The first, which is our strongest preference, would be for the addition of new “High Altitude” sub-zone in each climate zone adjusting only the U-factor for the zone by a very limited amount, i.e. 0.03. Such an allowance would have minimal impact on the energy performance of the building. A second approach would be to permit specific allowances, i.e. 0.03 for products within an ENERGY STAR approved product line that will be installed at high altitude.

We believe it is especially critical that the Agency consider permitting specific limited allowance such as those proposed above for Version 6.0 given the significant increase in U-factor stringency the Agency is proposing. Furthermore, we believe that as the Agency acknowledges in the framework document, there is only a small number of products installed at high altitude so the scope the allowances would be limited, and again, with minimal impact on the overall energy performance of the home or building they will be installed in. Without such allowances we are concerned it will be impossible to provide ENERGY STAR qualified product for high altitude use.

### **c. Impact Resistant Products**

As with special consideration for high altitude products, we believe there should also be limited U-factor allowances for impact resistant product in Version 6.0 because of the significant increases in U-factor stringency the agency is proposing. We believe the two concepts proposed above for high altitude allowances, are equally viable for consideration by the Agency for impact rated product, i.e, either impact resistant sub-zones or product line allowances. A third option is to allow ENERGY STAR qualified products that are required by code to be impact resistant to maintain their ENERGY STAR qualification.

### **e. Lifecycle Analysis**

We concur with the Agency’s decision to exclude LCA attributes from Version 6.0. Experience with the use of LCA for establishing minimum environmental impact requirements in voluntary or mandatory programs and the existence of reliable LCA data for that purpose is still very limited. Inclusion of any such provisions in Version 6.0 would be premature and difficult to implement.

We would also like to take this opportunity to a correct an incorrect statement made by the Agency in this section of the framework document stating the LCA project attempted by the Center for Sustainable Building Research (CSBR) lacked industry support. That is not true.

In fact, WDMA and other industry groups initially viewed the elements embodied in the study as a sound approach based upon our evaluation and understanding of the project as proposed. Given the importance of the objectives, the results such a project will generate, how the results would be used, the resources needed to accomplish the project (a very substantial financial commitment was requested by the CSBR to fund the study), and the broad constituency we represent, very careful consideration was warranted on our part. In the course of doing so the CSBR made the decision to cancel the project because we were not able to commit funding under the timeline they had imposed. It was not due to a lack of industry support.

### **Section III. Program Elements Remaining Unchanged**

#### **a. ENERGY STAR Climate Zones**

Despite the ample discussion regarding climate zones that was held during the development of Version 5.0, there are further revisions we believe would improve implementation of the program that we are recommending the Agency consider for incorporation into Version 6.0.

Specifically we are proposing that consideration be given to revising the climate zone map as follows:

- combine the South Central and North Central Zones into a new South Central Zone;
- maintain the current Northern Zone delineation but make it the North Central Zone; and,
- create a new Northern Zone that would incorporate the coldest climates in the northern U.S. and all of Canada

A proposed map delineating these zones is provided in Attachment A to these comments.

We believe the revisions we are proposing better align with the climate zones in the International Energy Conservation Code (IECC) and ASHRAE 90.1 and the respective fenestration energy performance requirements in each. Among the many benefits derived from better alignment with the IECC would be improved labeling and inventory logistics for product manufacturers thus alleviating some of the existing labeling complexity that adds cost to the program without benefit to the consumer. In addition, it would simplify labeling and production of collateral materials, in turn improving the ease of use for consumers, specifiers, and contractors.

Furthermore, the inclusion of Canada would be a substantial and needed step in better aligning the U.S. and Canadian programs. One significant problem faced by manufacturers is the lack of adequate alignment between the U.S. and Canadian programs. As such, meaningless barriers to the use of the same product “across the border” are in place and should be removed.

While unifying or better aligning the U.S. and Canadian programs would require a significant effort, it is very much needed and would greatly benefit manufacturers, consumers and specifiers. Specifically, manufacturers who market products throughout North America would benefit from consistent criteria that would greatly improve qualification, labeling and inventory logistics, eliminating significant costs that do not provide manufacturers or consumers any benefit. Consumers and specifiers would also benefit by having simplified consistent criteria that is logically applied, is easier to use, improves product availability and expands the range of efficient product choices available to them.

#### **b. Tubular Daylighting Devices**

WDMA concurs with the Agency’s proposal to continue the requirement that TDD’s follow skylight criteria. We believe that given the current testing technology it is reasonable to maintain a single set of criteria for Version 6.0 which also avoids adding unnecessary complexity to the program. In addition, this maintains consistency with how TDDs are defined and considered by national model building codes which is critical and in the best interest of manufacturers and consumers alike.

### **Section IV. New Additions to Program Requirements**

#### **a. Air Leakage**

WDMA is supportive of including air leakage requirements in Version 6.0 under provisions that are consistent with the IECC. As the agency notes, the air leakage requirements being proposed are already required for fenestration by the IECC and can be met by most if not all fenestration product. As with the inclusion of structural requirements, we believe that ENERGY STAR criteria needs to ensure that

ENERGY STAR qualified fenestration products installed in existing homes and buildings meet the same air infiltration performance requirements for fenestration installed in new construction. We believe the inclusion of air leakage requirements will add greatly to the strength and credibility of the residential windows, doors and skylights program.

Regarding the provisions under consideration, our comments are as follows:

**Certification:** Certification to NFRC 400 or NAFS through any accredited certification entity or certification program for demonstrating compliance with the proposed rating requirements should be acceptable under the ENERGY STAR program, i.e., any that are acceptable under IECC such as WDMA's Hallmark certification. We believe there is no justification for deviating from these established, proven certification options. Any deviation would be inconsistent with current industry practice and code enforcement, would require many existing products that are already certified as meeting the proposed rating requirements to be recertified, and it would force many manufacturers to change the certification paths they currently follow if they wish to participate in the ENERGY STAR program, without any added benefit. Each of these would be a significant disincentive for manufacturers to participate in the ENERGY STAR program and thus a disservice to consumers.

**Documentation/labeling/CPD:** As with certification, we believe current documentation and labeling practices for air leakage are sufficient for purposes of demonstrating compliance with the ENERGY STAR program and availing test results for consumers and contractors that are interested in them. We are therefore not supportive of any new program requirements for documenting air leakage test results in the CPD or that would result in significant changes in the way manufacturers currently document their air leakage test results.

Reporting air leakage test results in the CPD is currently not done because it would add needless, very challenging complexity and costs to the documentation practices manufacturers must already follow and more importantly, it simply isn't necessary. Specific air leakage values beyond what is already required by most energy codes and what is proposed for Version 6.0 is not a product characteristic used for product selection because air infiltration rates below 0.3 cfm/ft<sup>2</sup> have an insignificant impact on the energy performance of the fenestration assembly and overall energy performance of the home or building they are installed in. Furthermore, if a consumer or contractor wishes to obtain air leakage rate information for a specific product, it is readily available from the manufacturer. Therefore we also believe there is very little to no value to adding air infiltration as a search criteria in the forthcoming CPD-based ENERGY STAR search feature. We believe it would seldom if ever be used. Finally, including test results in the CPD would serve no purpose with respect to verifying compliance with the ENERGY STAR air leakage criteria.

For these reasons any new requirements for documenting test results in the CPD or an ENERGY STAR search feature would only add to the cost and complexity of participating in the ENERGY STAR program without providing any real benefit. We strongly recommend no requirement for documenting test results in the CPD or ENERGY STAR search feature be included in Version 6.0.

## **b. Installation Instructions**

We agree that poor installation is a common source of poor fenestration product performance. However, if the quality of the product is poor, poor product performance can also be expected regardless of how it is installed. Many of the poor performance complaints the Agency receives may be mistakenly assumed to be the result of poor installation when in fact it may be the quality of the product itself. That is why we support the inclusion of requirements for NAFS certification which we believe would by itself reduce the number of complaints the Agency receives by ensuring the product meets proper performance specifications. In addition, poor installation is not necessarily directly related to the availability of adequately informative installation instructions. Any installation instruction is of little benefit if it is ignored or the installer lacks sound installation skills.

The International Building Code (IBC) and International Residential Code (IRC) both require manufacturers to provide installation instructions which leading manufacturers already do. Therefore a new program requirement that manufacturers make installation instructions available for ENERGY STAR qualified products on-line is not necessarily problematic. However, the program should not dictate what must be included in the instructions other than they be adequate for common installations. Therefore if Version 6.0 is to include new requirements that manufacturers must make installation instructions available on-line, the provisions should not use the term “detailed” because it is too ambiguous. We do not believe the Agency has the same level of installation expertise that manufacturers do and consequently does not have sufficient expertise to determine what constitutes “detailed” or whether or not a particular set of instructions provide adequate detail for the fenestration product they were developed for. That decision needs to be left to the expertise of the manufacturer based on their specific products.

Furthermore, there are also situations where because of the specific home or building design and the building materials used, unique installation methods that are not covered by the manufacturer’s installation instructions may be necessary, especially for proper flashing. In those situations manufacturers must rely on the expertise of skilled installers or design professionals to determine what is necessary for proper installation. Such situations are provided for in the IBC and IRC which allow those alternative installation methods to be used under those circumstances.

With respect to trade associations developing and availing installation instructions, that is not a viable approach. As noted above, the expertise for developing proper installation instructions for any given fenestration product lies with the manufacturer of the product and in situations not covered by the manufacturer’s instructions, with a skilled installer or design professional. This is not a role WDMA can effectively play and could not accept.

Regardless, as previously stated, installation instructions are of little benefit if they are ignored or not followed properly which is out of the control of the manufacturer despite whatever disclaimers manufacturers may include. Therefore in response to the Agency’s questions of whether it should consider alternative or supplementary methods for educating consumers on proper installation, we believe the agency could consider providing consumer guidance that would be helpful in selecting qualified, reputable installers.

#### **V. Proposed Revisions to Product Criteria**

In general we believe the ENERGY STAR for windows, doors, and skylights program has reached a point where any revisions to the existing criteria need to be much more carefully considered than in past revisions. Efficiency requirements for fenestration are rapidly approaching levels that are returning diminishing gains in overall home energy efficiency and cost effectiveness, especially when considering the substantially greater costs for producing fenestration that must meet substantially more stringent requirements.

In reviewing the preliminary proposed criteria changes presented in the framework document, the ability to provide comments is somewhat limited without more detailed information on the Agency’s feasibility analysis or LBNL’s energy savings analysis cited as the basis for the proposed changes. Both analyses are clearly influential and we are very interested in reviewing them once they are released. In the meantime we offer the following comments regarding product criteria changes for Version 6.0.

On the whole we believe the greatest gains to be made in improving home energy efficiency exist with reasonable increases in stringency for the Southern, South-Central and North-Central climate zones, in particular the South-Central and North-Central zones.

We do not believe the same opportunity exists for the Northern Zone and we are concerned that overly aggressive requirements, especially for the Northern Zone will result in expensive fenestration products that are yielding diminishing, non cost-effective improvements in overall energy efficiency of the homes and buildings they are installed in. The unintended consequence we believe likely to result is consumers being left with ENERGY STAR products that are generally not considered a sensible, cost effective option which they will decline to purchase, and worse still, left without clear, prominent guidance for easily and confidently identifying affordable products that *do* provide meaningful, cost-effective improvements in energy efficiency.

Regarding the Agency's assessment of product availability and manufacturers capabilities to produce affordable products in relation to the preliminary product criteria currently being proposed, we are concerned that the Agency's may be relying too heavily on the product information contained in the CPD. Without benefit of the Agency's feasibility analysis, it is difficult to know how the CPD is being used, but it appears to us that it is being used as an indicator of product availability in the marketplace, manufacturing feasibility and even for energy savings assumptions. The CPD is not appropriate or nor is it intended to be used for any of those purposes. Therefore we believe that any decision or assumption regarding whether changes in the program criteria are overly burdensome on manufacturers, or other assumptions about the industry's ability to produce affordable, cost effective fenestration products or actual energy savings that may result are flawed and need to be reconsidered if they are based primarily or in large part on data contained in the CPD.

With these points in mind and based upon the feedback we have received from our members, we offer the following recommendations and comments on the specific criteria changes being proposed

#### **a. Windows**

##### **Northern Zone**

**U-factor** – We strongly urge the Agency to reconsider the range of 0.25 – 0.27. We believe this range is overly aggressive and based on no new energy modeling by the Agency, but rather on re-weighting of existing modeling that we have several concerns with. In short, we are concerned by the fact that the modeling is not based on the 2012 or even 2009 IECC and as result over estimates the true gains in energy efficiency that can be achieved by fenestration meeting the proposed requirements. As such, we do not believe the Agency can adequately justify the significant reduction in U-factor that is currently proposed for this zone. We are therefore not supportive of them.

As indicated above, a reduction in U-factor to 0.27 or below will significantly raise the cost of manufacturing compliant products and the cost to consumers for windows that do not provide gains in the overall energy performance of the home or building or reduction in energy costs significant enough to offset the increased product cost. This is especially true for existing construction. We feel strongly that if the Agency reduces the criteria to 0.27 or below, there will be no meaningful return on investment and little demand or desire for ENERGY STAR qualified products. This in turn will force many program partners to forego manufacturing products for the Northern Zone all together and ultimately leave consumers without a viable ENERGY STAR product or clear, prominent guidance for easily and confidently identifying affordable products that *do* provide meaningful, cost effective improvements in energy efficiency.

For these reasons we are urging the Agency to consider maintaining the existing product criteria for the Northern Zone in Version 6.0.

**SHGC** – Maintaining “Any” is acceptable.

**Equivalent Energy Performance** - WDMA supports removal of this equivalent criteria option.

#### **North-Central Zone**

**U-factor** – No lower than 0.30 for the reasons stated above regarding Northern Zone U-factor

**SHGC** – The proposed range of 0.35 – 0.40 is reasonable.

#### **South-Central Zone**

**U-factor** – No lower than 0.32 for the reasons stated above regarding Northern Zone U-factor.

**SHGC** – No lower than the proposed 0.25

#### **Southern Zone**

**U-factor** – The proposed 0.40 is reasonable.

**SHGC** – No lower than 0.25. As noted in our opening comments on Section V, the CPD is not intended to nor should it serve as the basis or a significant factor in determining sound ENERGY STAR product criteria. In this particular instance, there has also been no discussion on the impact lowering the SHGC below 0.25 has on visible transmittance (VT) and reducing daylighting. Today's glazing technologies have reached the point where they are already blocking out virtually all of the radiation that causes solar heat gain. In order to get the SHGC any lower than a 0.25 more of the visible spectrum must be blocked, resulting in an undesirable VT and increased use of artificial light that offsets or even negates any efficiency gains that may result from installation of the improved fenestration.

#### **b. Doors**

In general, we again caution against the use of the CPD to serve as the basis or primary factor in determining what the appropriate program criteria for fenestration should be. Because the CPD does in fact appear to be the primary basis for preliminary changes being proposed for the door criteria and without any other analysis including the Agency's feasibility analysis, or discussion substantiating those proposed changes, we are unable to express support for the U-factor ranges being proposed for all three levels of glazing or the reduction in SHGC to 0.25 for any door lite.

We are particularly concerned with the proposed reduction of the SHGC to 0.25 for doors lites, especially for doors with half-lites or greater. In order for these lites to meet a SHGC of 0.25 or lower, a different glass package is necessary because of the different coatings that are required to achieve the 0.25. That results in significant differences in appearance from the glass package used for windows to meet the same the SHGC – the door lites will be darker. This will mean that ENERGY STAR door lites and windows used in the same home or building will be mismatched which is not only problematic for manufacturers because a different glass package is necessary only for the doors, it is unacceptable to consumers.

Given the lack of what we believe is adequate substantiation for reducing door lite SHGC criteria to 0.25 in terms of demonstrating significant gains in overall building efficiency and concerns over the mismatching of glass packages for doors and windows in the same climate zones, we believe the current SHGC criteria should be maintained for Version 6.0.

We believe that any concerns that maintaining the current door lite SHGC's does not sufficiently drive door efficiency technology are alleviated by any increase in the U-factor requirements for doors which will indisputably result in more efficient doors regardless.

In summary, at this time we recommend that the Agency propose U-factors no lower than highest value in each range, that being: Opaque – 0.19; ≤ ½-Lite – 0.25; and, > ½-Lite – 0.30, and no changes be made to the SHGC criteria unless further substantiation beyond CPD based determinations can be provided.

### **c. Skylights**

Once again, the proposed product criteria appear to be primarily based on CPD and Ducker Research data that is not intended nor appropriate for use as the primary substantiation for the market analysis. Furthermore, the arbitrary exclusion of the plastic-glazed portion of the unit skylight products used in residential buildings does not seem reasonable. We therefore cannot support them at this time.

As with the proposed criteria for doors, we do not believe adequate, skylight specific analysis has been provided to justify the significantly lower U-factors and SHGCs that are being proposed for each zone. Even the highest values in each range are still much lower than what we believe is reasonable, especially without sound substantiation.

In addition, we are concerned by the significant deviation in SHGC requirements for skylights versus those for windows based on the same lack of justification for doing so. Nowhere in the framework document is there a discussion of why SHGC requirements are for the first time being proposed for the Northern Climate Zone or why the drastic SHGC changes proposed for the North-Central Zone are lower than those for windows in that zone. Not only are both inconsistent with established energy codes and green building program requirements which incorporate different SHGC requirements than those for windows because of the additional daylighting benefits skylights provide, they seem to ignore those daylighting benefits as well as the passive solar heating benefits skylights provide in these climate zones.

With these concerns in mind, we believe that if the Version 6.0 U-factor criteria for skylights in all four zones and SHGC in the Northern and North-Central Zones is even at the highest end of the ranges being proposed, and the SHGC is set at 0.25 in the South-Central and Southern zones, the feasibility of manufacturing cost effective ENERGY STAR skylights (and foregoing the benefits they provide) will be greatly undermined. As with windows, this would likely leave many consumers without a viable ENERGY STAR skylight product or clear, prominent guidance for easily and confidently identifying affordable skylight products that *do* provide meaningful, cost effective improvements in energy efficiency. This would be especially detrimental to encouraging the replacement of existing less efficient skylights.

Given what we believe is a substantial lack of justification for the proposed changes in the skylight criteria, we strongly urge the Agency to reevaluate U-factor ranges for all four climate zones that are approximately 10 percent higher than what is currently being proposed in the framework document; that the SHGC for the Southern and South-Central zones be maintained at the current 0.30; that consideration for the SHGC for the North-Central zone fall within the range of 0.35-0.40; and, that under no circumstance should there be any SHGC requirement in the Northern zone. These recommendations are summarized as follows:

**Northern Zone**

**U-factor** – 0.47 – 0.52

**SHGC** – Any

**North-Central Zone**

**U-factor** – 0.52 – 0.55

**SHGC** – 0.35 – 0.40

**South-Central Zone**

**U-factor** – 0.55 – 0.58

**SHGC** – Maintain 0.30. Again, we believe that inadequate skylight specific modeling or analysis has been provided for substantiating the SHGC changes proposed in the framework document. In addition, we believe any concerns that maintaining the SHGC for this zone does not sufficiently drive skylight technology are alleviated by the any increase in the U-factor requirements which indisputably will result in more efficient skylights.

**Southern Zone**

**U-factor** – 0.58 – 0.65

**SHGC** – Maintain 0.30 – For the same reasons stated for the South-Central Zone

In addition to WDMA's comments on the skylight criteria, VELUX is submitting separate comments they shared with us covering many skylight related concerns in addition to, and further explaining, those we have expressed above. WDMA member VELUX's comments are particularly helpful in assisting the Agency fully understand the need for the ENERGY STAR program to properly distinguish between skylights and windows and we trust the Agency will consider them carefully. We also reaffirm that TDDs should continue to be included in the skylight segment until further studies justifying separate treatment suggest otherwise.

**Additional Comments**

**Version 6.0 Timeline**

After thorough consideration by our manufacturer members, above all we strongly urge that consideration be given to extending the timeline for implementing the Version 6.0 criteria. Specifically we recommend that the effective date be no earlier than January 1, 2015. This reaffirms a long standing recommendation from WDMA and our manufacturing members, having advocated for January 1, 2015 to be the effective

date for the Version 6.0 criteria since the Version 5.0/6.0 revision process began. We are maintaining that recommendation for the following reasons.

The time, financial and human resources necessary for a transition to new criteria including modifying production, qualifying and labeling new products, market assessments, modifications to marketing plans and materials, launching the new product lines, etc., are enormous. Such changes are challenging enough during good economic times, however during the unprecedented, extremely unhealthy economic conditions we are currently facing and expect to face for the foreseeable future, this transition is certain to be the most challenging ever encountered by the fenestration industry. This will be especially true for products in the Northern climate zone based on the criteria changes that are currently under consideration, and even more so for all products in general if new criteria such as air-infiltration is to be added. Making certain industry has adequate time to prepare is essential.

Furthermore, while manufacturers can take preliminary steps in anticipation of expected program changes, most of the real work that is necessary to make the transition cannot begin until program revisions are finalized and released to program partners. A lead time of approximately 24 months from the time new requirements are finalized until they become effective is critical to a manufacturer's ability to effectively and smoothly plan for, produce, and market the new products. Under the current timeline for developing and finalizing the criteria by late 2012, an effective date of January 1, 2015 would adequately accommodate that need.

We also believe there are other substantial benefits to be gained by establishing an effective date of January 1, 2015. In particular, better alignment with established manufacturing cycles and with revisions to the International Energy Conservation Code (IECC).

With respect to manufacturing cycles, new product introductions are best accomplished on a calendar-year basis due to the annually cyclical nature of the building products industry. Given the historical slowdown during the winter months and lower new construction activity, the first of January is the best date to begin shipping products labeled to new criteria. This also allows manufacturers' marketing departments to plan for new product literature and display and advertise promotions. Implementation dates that do not align with these established business cycles are disruptive and add to the transition burden. This is not in the best interests of industry, consumers or the ENERGY STAR program in general.

In that vein, we also strongly urge EPA to forego the use of any transition label process as was used with the transition to Version 5.0. This added significant unnecessary costs to the transition, greatly frustrated manufacturers and dealers, disrupted distribution and dealer bases, and ultimately created far more confusion than it alleviated. Education of the new criteria can be easily handled through point of purchase displays and manufacturer website information.

Finally, given the considerations stated above, the current proposed timeline for implementing new Version 6.0 criteria is simply too soon after the January 4, 2010 effective date of the Version 5.0 criteria. It also does not allow manufacturers to adequately recover the investments they made in complying with the 2010 criteria.

Short lived program changes are overly burdensome on industry and do not allow sufficient time for manufacturers to recover the investments they have made in the new products they must manufacture, nor are they in the best interest of consumers. Ideally, significant changes in performance criteria should be maintained for a period of five to six years. Periods of this length could also better accommodate greater increments in the program criteria. All considered, the net gain of a five to six year program approach would be equivalent aggregate energy and carbon savings over time achieved in a more cost effective and practical way that would better benefit all stakeholders.

Furthermore, changes in ENERGY STAR fenestration criteria are not necessary to spur advances in technology or product innovation. Competition in the industry and the industry's active involvement in environmental stewardship ensure that.

Concerns raised that maintaining the same criteria for a period of five to six years will result in too great of market penetration for qualified products should be thoughtfully weighed against the points made above and the significant benefits that are still derived regardless, especially with the high level of efficiency that is already required for ENERGY STAR fenestration products and what will be greater still under Version 6.0. Even if ENERGY STAR products achieve a considerable share of the market, they will still be substantially more energy efficient than what will otherwise be required by energy codes in nearly all markets for the foreseeable future, and they will always result in even greater gains in efficiency in the replacement market.

### **Qualified Product Flexibility**

As the EPA develops Version 6.0 criteria we strongly urge that consideration also be given to other program improvements. Specifically, we would like for EPA to consider new provisions allowing manufacturers to offer certain approved options to qualified products without impacting the ENERGY STAR qualification of the product when the option would have only a slight impact on energy performance. The lack of such provisions has caused problems in the marketplace that could be avoided by including these new provisions which we believe would enhance the program.

As an example, one particular problem that manufacturers frequently encounter and one that consumers find difficult to understand deals with grilles. The addition of grilles to fenestration products can result in slight increases to the U-factor of the overall product. In cases where the addition of grilles can increase the U-factor of the product to just outside the "hard" ENERGY STAR criteria for which the base product is qualified, there is confusion when the consumer who is paying more for a feature upgrade, finds the option has disqualified the product as an ENERGY STAR product even though the overall energy performance is not significantly affected if at all. For example, a base product may meet the Northern Zone U-Factor of 0.30, but with the addition of grilles, the U-Factor may increase to 0.31 technically compromising the product's qualification. However, since grilles also lower SHGC, the peak and average energy effects of the U-factor increase is largely mitigated.

One remedy to this problem would be to incorporate provisions allowing a standard qualified product from a product line/style to serve as the reference product for determining ENERGY STAR qualification and allow products within the same line/style using the same glass package to maintain its qualification if grilles or other options with minimal impact on energy performance are added.

### **Dynamic Glazing**

We would also like for the agency to consider modifications to approaches in the way dynamic glazing must qualify for ENERGY STAR.

Dynamic glazing offers significant energy savings and peak load reductions through its ability to dynamically and optimally control solar heat gains and daylighting, especially when that control is automated. However, in order for dynamic glazing to qualify under the current program requirements, the highest labeled SHGC of the product must be used as the metric for determining compliance with the applicable SHGC criteria. This completely disregards the range of SHGC efficiency provided which can be substantially better than the actual SHGC that is required. This means that even the highest performing dynamic glazing products on the market, which have a wide dynamic range, do not meet the requirements except in the Northern zone where any SHGC is allowed.

We understand and do not disagree with the current reasoning when considering dynamic glazing that is *not* automatically controlled because optimum performance is less predictable. However, we believe that

optimum performance is reasonably ensured when the dynamic glazing *is* automatically controlled and therefore believe automatically controlled dynamic glazing should be able to qualify for ENERGY STAR using the lowest labeled SHGC as the metric for determining compliance with the applicable SHGC criteria.

ASHRAE 90.1 and the IECC permit the lowest labeled SHGC to be used as the metric for compliance with the respective SHGC requirements regardless of whether or not the dynamic glazing is automatically controlled. Our recommendation for allowing the lowest SHGC only if the dynamic glazing is automatically controlled maintains the ENERGY STAR requirements as more stringent than both of those energy codes.

By not distinguishing automatically controlled dynamic glazing, the ENERGY STAR program is inadvertently creating a roadblock to the wider use of this high performance technology in the market. Window manufacturers that would like to use automatic dynamic glazing in their products because of the energy efficiency it provides are discouraged from doing so because not only does it come at a premium, their windows currently cannot qualify for ENERGY STAR in climate zones where SHGC is most important. The ENERGY STAR program should not discourage the use of advanced technologies in this way as is currently the case with respect to automatically controlled dynamic glazing. We therefore encourage the Agency consider program changes that properly distinguish automatically controlled dynamic glazing for qualification purposes. WDMA also welcomes the opportunity to further discuss with the Agency how best to incorporate such provisions in a way that will ensure these products provide energy and daylighting performance consistent with the ENERGY STAR program objectives.

### **Conclusion**

In conclusion, we greatly appreciate this opportunity to provide our comments and have attempted to include substantive detail. However, we feel it is important that we also discuss them with you in person prior to the Agency's finalizing the Draft 1 Criteria and Analysis Report and are therefore requesting a meeting with you at your convenience in order to do so. I will be following up with you separately on that request.

Please let me know if in the meantime you have any questions on any the matters raised in our comments.

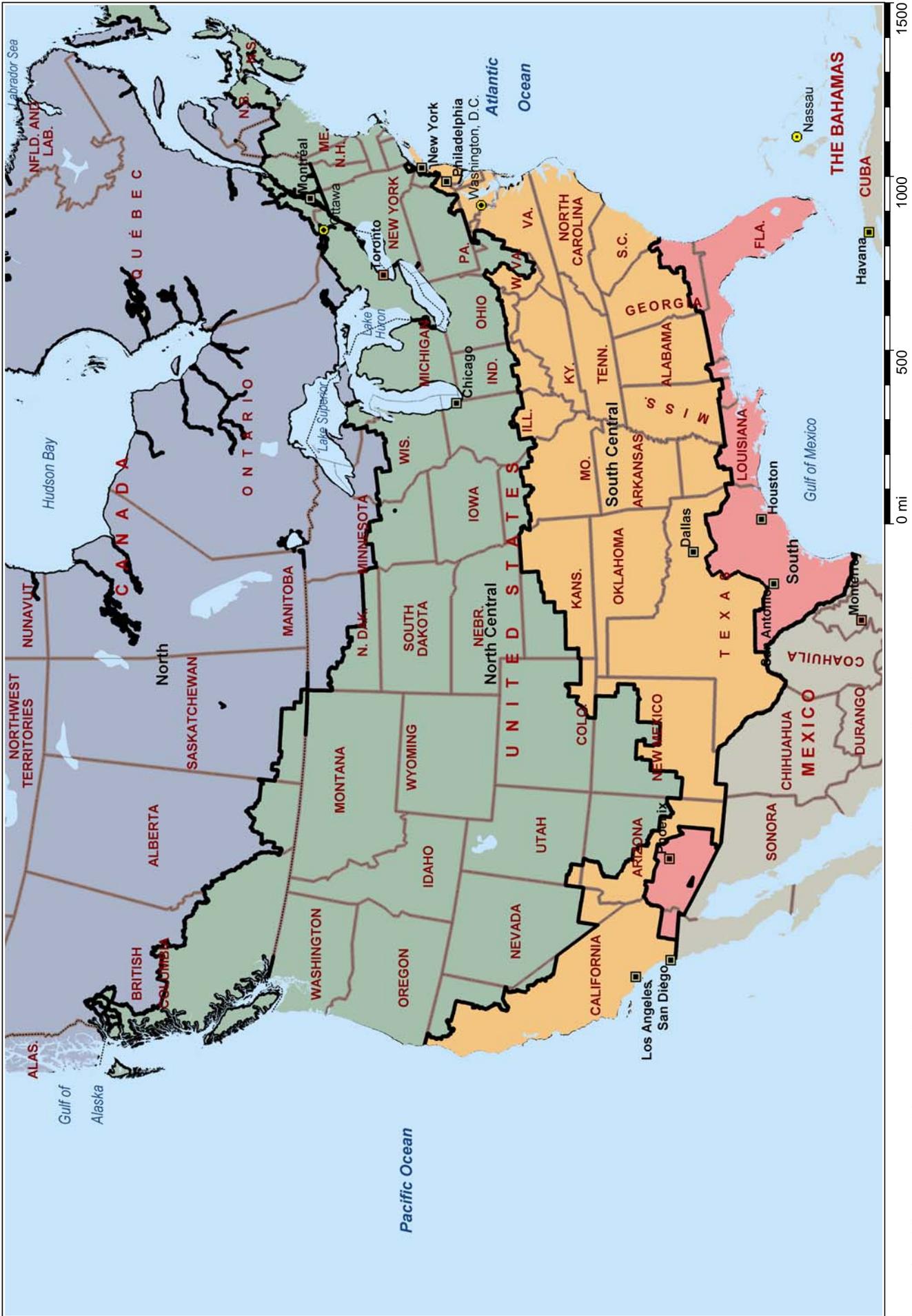
Sincerely,



Jeffrey T. Inks  
Vice President, Code and Regulatory Affairs

cc: WDMA Exterior Products Code Committee  
WDMA Regulatory Affairs Steering Committee

US & Canada 4 Zone Energy Star



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