



August 20, 2021

Mr. Doug Anderson  
U.S. Environmental Protection Agency  
1201 Constitution Ave, NW  
Washington, DC 20004

RE: Draft 1 Version 7.0 ENERGY STAR Window, Doors, and Skylights Specification

Dear Mr. Anderson,

ODL, Inc is grateful for the opportunity to provide comments on the *Draft 1 Version 7.0 ENERGY STAR product specification* and the *Response to Comments on the Specification Discussion Guide*. We respectfully offer the following observations and suggestions.

Dynamic Glazing:

We appreciate your support of dynamic glazing as expressed in the EPA's *Response to Comments on the Discussion Guide* paper. Your interest in finding a way to account for the energy savings of dynamic products is justified by the significant energy savings these products provide. The EPA *Response to Comments* paper outlined several different methods of calculating the energy savings. We believe the best method will become apparent once additional performance ratings can be easily found in the NFRC certified product directory, then sorted and ranked.

To that end, ODL is working with the NFRC Blinds Between Glass (BBG) Task Group and the NFRC Certified Product Directory (CPD) staff to establish an easier means of finding BBG data in the CPD. We are confident this team will find a successful solution.

In anticipation of these NFRC CPD improvements, ODL supports a mid-cycle change of Version 7.0 with special ENERGY STAR criteria for dynamic glazing in windows and doors. This is another step toward the goal to have ENERGY STAR qualified dynamic glazing, with automated control, included in the ENERGY STAR Smart Home Energy Management System (SHEMS) specification. This aligns with DOE's R&D Opportunities Report on Emerging Technologies R&D (5/20) which states "Dynamic glazings have been field validated and have shown significant potential in reducing peak electricity demand, reducing total energy use, and improving comfort."

Dynamic Glazing avoids 24/7 Low Visible Transmittance:

In addition to the significant energy savings of dynamic glazing described above, further justification for special ENERGY STAR criteria for dynamic glazing is its personalized reduction of high solar heat gain while avoiding the 24/7 presence of dark glass and poor visible transmittance. Upgrading the Low-E glass in a conventional IGU offers a *slight* reduction of SHGC but a regrettable 24/7 detrimental effect upon visible transmittance. Conversely, when dynamic glazing is active it reduces solar heat gain at twice the effectiveness of Low-E improvements. To coin a phrase, dynamic glazing is "there when you need it, not when you don't". Dynamic glazing's dramatic reduction of solar heat gain warrants a special set of ENERGY STAR criteria for these products.

Further justification for special criteria: 1" thin triple air spaces are not compatible with blinds between glass: Version 7.0 drives the application of 1" thin-triple technology as a means of improving the U-factor performance of 1-lite windows; no sash changes are required for a 1" IGU. Regrettably, 1" thin triple technology is not compatible with blinds between glass and grilles between glass (GBGs) to consumers in windows.

- Triple-glazed BBG's require one of the airspaces to be at least 5/8" to accommodate the slats; the overall thickness of a triple-glazed BBG will be greater than 1.5". This unusual IG thickness discourages most window manufacturers from making the necessary investments in tooling, validation, development, and certification of such a sash and window.
- Without a special ENERGY STAR criteria to incentivize consumers to purchase window BBGs, consumers will purchase 1-lites using 1" thin-triple technology and thereby lose the solar heat gain control of blinds between glass.

Note: Door lites are not limited to 1" thin triple technology. The typical IG thickness of a triple-glazed blind, 1-5/8", is retained to the door by a specially-tooled lite frame. Door manufacturers are not affected.

Also: Grilles between glass (GBG) within a 1" thin triple will ruin the U-factor performance of a thin triple because the proximity of the grille to the glass is terribly conductive. Adding grilles between glass to a 1" thin triple negates the purpose for switching to a 1" thin triple construction. Window manufacturers will instead use alternate IG technology such as dual Low-E along with its negative effects of 24/7 poor light transmittance, argon/krypton, and expensive spacers for grilles between glass.

In summary, 1" thin triples will make two popular products, window BBGs and GBGs, less competitive and less attractive to consumers. That is an unintended consequence to avoid. The DOE is supporting ongoing R&D in other low U-factor enabling technologies that could allow for more flexibility inside the IGU. These technologies have the potential to provide consumers with the style options they enjoy today in the high-performance windows of the future. We submit that future criteria changes align with the availability of technologies that do not limit style choices.

#### 18-month implementation schedule:

The EPA has already received comments from many manufacturers on this topic. One point which hasn't been mentioned by others, though, is the effect of widespread material shortages in the supply chain. Many door manufacturers have a 40-week lead time on deliveries. Others have stopped taking orders until they can catch up. Quite frankly, things are awful right now working with existing materials and existing suppliers. Now is not the time for a typical 12-month implementation phase. An 18-month implementation phase is more appropriate and should provide the necessary time to implement new shipments from new suppliers, to qualify new materials and new suppliers, etc.

#### Shorter payback period – upcoming innovations:

The ENERGY STAR team did a very good job explaining the payback period in your July 27<sup>th</sup> webinar. It was very informative and impressive. However, the calculations didn't consider some promising breakthrough technologies which are on the horizon. The NFRC has presented these breakthrough technologies in a monthly Emerging Technology series. If a handful of these breakthrough technologies come to fruition in a few years, then consumers will regret investing in today's technology which have only incremental performance improvements. Using a payback period of 10-13 years encourages an investment in today's technology and sets the stage for buyer's remorse in a few years. For this reason, using a shorter payback period is justified.

Northern Climate Zone Designation for mountain regions of California and North Carolina:

ODL doesn't have a recommendation of whether these two regions should be included in the northern climate zone or the north-central climate zone. Please consider the following in your decision, though: Treat the California and North Carolina regions as two separate decisions, not as one decision applied to two regions. The eastern mountain area of California has different reasons for its zone classification than the Piedmont region of North Carolina.

- Strain on retailers and distributors: California and neighboring Nevada will already have a northern climate zone in the Version 7.0 proposal; converting California's eastern mountain area to the northern zone will not be a great burden for California's and Nevada's distributors and retail outlets who will already be stocking material for the northern zone. On the other hand, North Carolina and neighboring Tennessee have only 2 climate zones and designating the Piedmont region as a northern zone adds a third zone to this region's distributors and retail outlets. It enlarges their inventories and strains their warehouses.
- IECC Zone 6 vs 5: The boundaries of the IECC zones are similar to those of the ENERGY STAR zones. The IECC considers California's eastern mountain area as a Zone 6 region whereas the North Carolina Piedmont region is considered a milder Zone 5 by the IECC. Making a compromise for the North Carolina's Piedmont region is a smaller climate zone compromise than it is for California's eastern mountain region.
- Populations of the CA and NC regions:
  - The two counties of California's eastern mountain area have a population of only 16,000. It is unlikely the carbon footprint of 16,000 residents using north-central zone ENERGY STAR fenestration is substantially greater than if they were using northern zone fenestration.
  - The population of the affected seven counties in North Carolina is 270,000. It seems we are unfairly scrutinizing a region of 270,000 while we are *not* scrutinizing many metro areas at the border of the northern and north-central zones with populations which far exceed 270,000. Franklin County (with Columbus, OH) has a population of 1,324,000. It sits within a peninsula of the north-central region with the northern region on three sides of the peninsula. Franklin County seems to be getting a pass whereas the Piedmont region is getting scrutinized. Is that appropriate?
- If the facts and calculations don't reveal a clear decision of which climate zone is appropriate, then perhaps the EPA should seek input directly from the local affected communities in California and North Carolina. There might already be a local preference for northern zone vs north-central zone products.

ODL, Inc thanks you again for your willingness to listen to our comments and observation. We look forward to working with you in the future.

Sincerely,



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