Executive Summary – Stakeholder Comments

- The Addition of Minimum SHGCs in the Northern Zone
- Adding Equivalent U-Factor / SHGC Combinations in the Northern Zone
- Lowering U-Factor to 0.25 in the Northern Zone
Minimum SHGC

• EPA’s Report says that “high-gain, low U-factor products” are “extremely uncommon” and a minimum SHGC would violate the Energy Star principle that “products are broadly available.” (Draft 1 Criteria and Analysis Report, pp. 26-27).

*****These statements are incorrect*****

• EVERY primary glass manufacturer offers a high-solar gain product for sale in the U.S. marketplace.

• The same primary glass makers supply both the U.S. and Canada.

• The Canadian Energy Star database, where high-solar gain products are encouraged, shows that over 20,000 high-solar gain products are available.

• Applying the regression model developed by LBNL in 2008, numerous high-solar gain products can readily be matched with U-factors to deliver equivalent energy performance to low U-factors in the north.
Product Availability - High-Solar Gain Low E

- PPG offers **three** high-solar gain products:
  – Sungate 400, Sungate 500 and Sungate 600
- Guardian offers **four** high-solar gain products:
  – ClimaGuard 75/68, 80/70, IS-15 and IS-20
- Cardinal offers **two** high-solar gain products:
  – LoE-180 and LoE-i81
- NSG/Pilkington offers **one** high-solar gain product – Energy Advantage
- AGC offers **three** high-solar gain products:
  – Comfort E2, E-PS and Ti-PS.

- Given that **13 different high-solar gain products** are available from **5 different manufacturers**, EPA’s statement that such products are “extremely rare” is not correct.
Equivalent U-factor/SHGC Combinations in the North

- The Draft 1 Criteria will unfairly *preclude* a number of equivalent energy performing products from bearing the Energy Star label. Currently, only *one* set of equivalent energy performing products will qualify for the Energy Star label, namely, a 0.28 U-factor with an SHGC $\geq 0.32$.

- Pursuant to the regression model published in 2008 by LBNL, windows meeting these criteria will also deliver equivalent energy performance:
  - $U$-factor $= 0.29$ with $SHGC \geq 0.37$
  - $U$-factor $= 0.30$ with $SHGC \geq 0.42$.

- There is also no legitimate basis upon which to discriminate against these equivalent energy performing windows by depriving them of an Energy Star label in the northern zone.
In a recent unofficial poll, Window and Door asked readers what they thought of EPA’s Draft 1 criteria. As of 8/7/12, 61% of those responding thought the criteria should have been more stringent.

The criteria issued by DOE in 2003 resulted in an aggregate national energy savings of 12.0 trillion Btus (tBtus).

The last criteria revision issued by DOE in 2009 resulted in an aggregate national energy savings of 9.2 tBtus.

EPA’s Draft 1 Criteria will only result in an aggregate energy savings of 2.2 tBtus, or one-fourth of the savings resulting from the last Energy Star revision cycle.

In the last revision cycle, the northern zone alone resulted in a 1.97 tBtust savings while EPA’s Draft 1 criteria will only save 0.52 tBtus, or about one-fourth of the energy savings captured in the last cycle.
Lower Northern U-Factor

- Why are the aggregate energy savings so low in this cycle compared to earlier Energy Star cycles?

- In part, because EPA’s northern U-factor criteria is so high that, instead of leading the market to the best performing products, it will continue to permit a full 41.5% of the products that are currently on the market to meet the new criteria. (See, Report, p. 20).

- This contradicts Energy Star’s own stated goal of selecting “efficiency levels reflective of the top 25% of models available on the market.” (See, Report, p. 7).

- What should be done?

- One thing that could greatly increase aggregate national energy savings in the northern zone is a reduction in U-factor to 0.25.
  - EPA’s own data clearly shows that 4th surface low-e double glazed units can easily achieve 0.26, 0.25 and even 0.24 U-factors.
  - Figure 14 of the Report shows that 7% of the double glazed units in the CPD are 4th surface low-e windows with U-factors ≤ 0.25. (See, Report p. 24).
Passive Solar & 4th Surface Low E Coatings

- The chart below shows high-solar gain Low E coatings that are marketed by the U.S. primary glass manufacturers. Every one of the U.S. glass manufacturers offers at least one #4 surface window coating:

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Product Name</th>
<th>Coating Type</th>
<th>4th Surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPG</td>
<td>Sungate 400</td>
<td>Soft Coat</td>
<td>No</td>
</tr>
<tr>
<td>PPG</td>
<td>Sungate 500</td>
<td>Hard Coat</td>
<td>No</td>
</tr>
<tr>
<td>PPG</td>
<td>Sungate 600</td>
<td>Hard Coat</td>
<td>Yes</td>
</tr>
<tr>
<td>NSG / Pilkington</td>
<td>Energy Advantage</td>
<td>Hard Coat</td>
<td>Yes</td>
</tr>
<tr>
<td>Cardinal</td>
<td>LoE-180</td>
<td>Soft Coat</td>
<td>No</td>
</tr>
<tr>
<td>Cardinal</td>
<td>LoE-181</td>
<td>Soft Coat</td>
<td>Yes</td>
</tr>
<tr>
<td>Guardian</td>
<td>ClimaGuard 75/68</td>
<td>Soft Coat</td>
<td>No</td>
</tr>
<tr>
<td>Guardian</td>
<td>ClimaGuard 80/70</td>
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</tr>
<tr>
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<td>ClimaGuard IS-15</td>
<td>Soft Coat</td>
<td>Yes</td>
</tr>
<tr>
<td>Guardian</td>
<td>ClimaGuard IS-20</td>
<td>Soft Coat</td>
<td>Yes</td>
</tr>
<tr>
<td>AGC</td>
<td>Comfort E2</td>
<td>Hard Coat</td>
<td>Yes</td>
</tr>
<tr>
<td>AGC</td>
<td>Comfort EPS</td>
<td>Hard Coat</td>
<td>Yes</td>
</tr>
<tr>
<td>AGC</td>
<td>Comfort Ti-PS</td>
<td>Soft Coat</td>
<td>No</td>
</tr>
</tbody>
</table>
• Some window manufacturers have expressed concern that condensation may be an issue with use of 4th surface low-e products.
• In fact, the surface temperature of these products are at least 4°F warmer at the center of glass than double pane clear glass with a ½” air gap.
• Over extensive use spanning more than 25 years, there is no documented evidence to support the notion that properly manufactured double pane clear units with a ½” air gap have experienced harmful condensation in cold climates.
• Given that 4th surface low-e products are 4°F warmer at the center of glass, if condensation exists, it will be related to the cooler frame and spacer surfaces, not the glass.
Contact Information

Thomas S Zaremba
Roetzel & Andress, LPA
1 Seagate, Suite 1700
Toledo, Ohio 43604
Phone: 419-254-5246
Tzaremba@RALaw.com

www.ralaw.com

Akron • Chicago • Cincinnati • Cleveland • Columbus • Fort Lauderdale
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