

Fritted glass task group

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Jacob C. Jonsson

Windows and Envelope Materials Group

Building Technology and Urban Systems Division



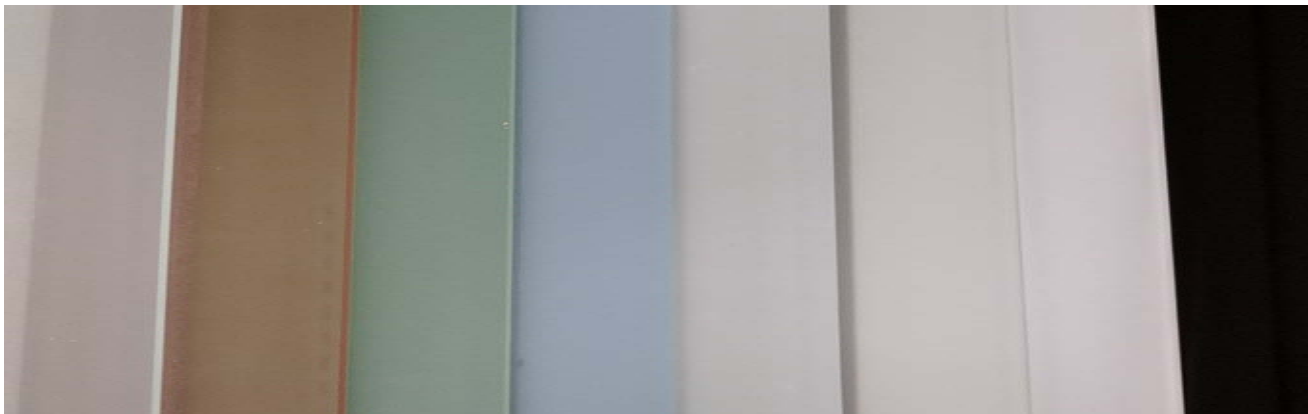
ENERGY TECHNOLOGIES AREA

SCOPE and Members

- ◆ *Find a way to obtain spectral data for fritted glass in a manner that would allow WINDOW calculations of IGUs. Determine best practice how to obtain data and verify the accuracy of these practices.*
- ◆ *Jason Theios, Dan Wacek, Jacob Jonsson, Helen Rose Wilson, Mike Buchanan, Ben West, Michael Hawkings, Lisa Winkler, Julia Schimmelpenningh, David Cooper, Joe Richard, Mike Thoman, Paul Bush, Jen Padgett , Chris Fronsoe, Jordan Lagerman*

Main negative

- ◆ How does this impact the rating of obscure glazing?
 - ❑ The diffuse glazing TG had been focused on fritted glazing, diffuse applied films, and diffuse interlayers
 - ❑ It is possible that the suggested changes affects the current method, which was not the intention
 - ❑ Possible solution would be to allow current method as default and new method as optional/elected



Current procedure for obscure glass – U-value NFRC 100

- ◆ **Obscure Glazing:** *glazing having an image, pattern, or texture that distorts the vision through the glazing.*
- ◆ For the purpose of determining U-factors, only glazing tint and/or obscurity (including obscure glass, fritted glass, or wired glass) shall be permitted to be assumed to have the same U-factor as the clear glass and does not need to be simulated separately unless this change is associated with a change in coating properties
- ◆ Obscure, patterned, and tinted versions of a clear glazing tested using this procedure may be represented by the clear glazing results as long as the product emissivity does not change.

Current procedure for obscure glass – SHGC NFRC 200

- ◆ Ratings for products with obscured, wired, and/or stained glass shall be deemed to be equivalent to the ratings for clear glass

Comparison of U and SHGC for some fritted glass products

| Product | Single Pane | | Dual Pane, diffuse inner pane | | Dual pane, diffuse outer pane | |
|-------------------------|-------------|-------|-------------------------------|-------|-------------------------------|-------|
| | U | SHGC | U | SHGC | U | SHGC |
| 6mm Clear | 5.818 | 0.818 | 2.689 | 0.704 | 2.689 | 0.704 |
| 6 mm clear frit (V1089) | 5.825 | 0.715 | 2.721 | 0.64 | 2.69 | 0.607 |
| 6 mm red frit (V1090) | 5.825 | 0.667 | 2.721 | 0.631 | 2.69 | 0.554 |
| 6 mm green frit(V1088) | 5.825 | 0.665 | 2.721 | 0.624 | 2.69 | 0.555 |
| 6 mm blue frit (V1089) | 5.825 | 0.701 | 2.721 | 0.642 | 2.69 | 0.589 |
| 6 mm white frit(V175) | 5.825 | 0.451 | 2.721 | 0.491 | 2.69 | 0.355 |
| 6 mm Opacicoat (Black) | 5.825 | 0.301 | 2.721 | 0.496 | 2.69 | 0.159 |

Fritted surface calculated with emissivity of .88

Identical thickness used

Comparison of U and SHGC for some laminate products

| Product | Single Pane | | Dual Pane, diffuse inner pane | | Dual pane, diffuse outer pane | |
|------------------------------|-------------|-------|-------------------------------|-------|-------------------------------|-------|
| | U | SHGC | U | SHGC | U | SHGC |
| 7mm clear | 5.76 | 0.799 | 2.663 | 0.678 | 2.663 | 0.678 |
| 7 mm laminate (Safelex 2165) | 5.694 | 0.811 | 2.648 | 0.699 | 2.65 | 0.673 |
| 7 mm laminate (Safelex 2180) | 5.694 | 0.224 | 2.648 | 0.297 | 2.65 | 0.16 |

Laminates calculated with emissivity of .79
 Identical thicknesses used

Summary / Discussion

- ◆ What products are being simulated today using the obscure path?
- ◆ SHGC of a clear glass will be higher than most products being considered by the diffuse glazing TG, therefore default would be conservative
- ◆ Not suggesting recertification of existing products
- ◆ Is it possible to allow using clear as default for any obscure glass, and allowing the new procedure to be optional/elected?