



# Washington State Building Code Council

*Improving the built environment by promoting health, safety and welfare*

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## STATE BUILDING CODE INTERPRETATION NO. 14-13

- CODE:** 2012 Washington State Energy Code, Commercial
- SECTION:** C402.3.1.3 High performance fenestration
- QUESTION 1:** Can a project using the high performance glazing alternate exceed 40 percent glazing area via the target area adjustment for both the glazing U value and SHGC?
- ANSWER 1:** **Yes. The intent of the SBCC in the 6/14/2013 council meeting was to allow the proposed building vertical fenestration area as a percentage of the gross above grade window to wall ratio to exceed 40%. The attached modifications to the 2012 WSEC are proposed to correct errors and omissions in filed rule to be consistent with the council motion.**
- QUESTION 2:** Can the proposed vertical fenestration elements exceed the target U- factors as defined in this section if the overall building complies via component performance?
- ANSWER 2:** **Yes, Buildings utilizing C402.3.1.3 are allowed to use the Target UA calculation as specified in C402.3.1.3 and Equation C402-1. The proposed UA must meet the target UA in accordance with equation C402-1.**
- QUESTION 3:** Can the proposed vertical fenestration elements exceed the target SHGC as defined in this section if the overall building complies via component performance?
- ANSWER 3:** **Yes. Buildings utilizing C402.3.1.3 are allowed to use the SHGC\*A trade-off calculation. The proposed SHGC\*A must meet the target in accordance with equation C402-3. The target building would utilize a 0.35 SHGC per C402.3.1.3. Additionally, the target building would use a vertical fenestration area that equals the proposed building and does not exceed 40% of the gross above- grade wall area.**
- QUESTION 4:** Can a project using the high performance glazing alternate area-weight vertical fenestration U-factors, so some elements such as storefront windows exceed the target while other elements perform better?

**ANSWER 4:** Yes, This is allowed per section C402.1.2. The proposed UA must meet the target UA in accordance with equation C402-1.

**SUPERSEDES:** None

**REQUESTED BY:** Pierce County

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### Corrections recommended to 2012 WSEC to correct errors and omissions:

If the vertical fenestration area as a percent of gross exterior above-grade wall area does not exceed the maximum allowed in Section C402.3.1.3:

- $A_{mwt}$  = The proposed opaque above grade mass wall area,  $A_{mw}$ .
- $A_{mwbgt}$  = The proposed opaque below grade mass wall area,  $A_{mwb}$ .
- $A_{mbwt}$  = The proposed opaque above grade metal building wall area,  $A_{mbw}$ .
- $A_{mbwbgt}$  = The proposed opaque below grade metal building wall area,  $A_{mbwb}$ .
- $A_{sftw}$  = The proposed opaque above grade steel framed wall area,  $A_{mfa}$ .
- $A_{sftwbgt}$  = The proposed opaque below grade steel framed wall area,  $A_{mfb}$ .
- $A_{wftw}$  = The proposed opaque above grade wall wood framed and other area,  $A_{wfa}$ .
- $A_{wftwbgt}$  = The proposed opaque below grade wall wood framed and other area,  $A_{wfb}$ .
- $A_{vgt}$  = The proposed vertical fenestration area with nonmetal framing,  $A_{vg}$ .
- $A_{vgmf}$  = The proposed vertical fenestration area with fixed metal framing,  $A_{vgm}$ .
- $A_{vgmot}$  = The proposed vertical fenestration area with operable metal framing,  $A_{vgmo}$ .
- $A_{vgdt}$  = The proposed entrance door area,  $A_{vgd}$ .

or

~~For buildings utilizing Section C402.3.1.3, vertical fenestration area as a percent of gross exterior above-grade wall may not exceed the amount allowed by that section. For all other buildings,~~ if the vertical fenestration area as a percent of gross exterior above-grade wall area exceeds the maximum allowed in Section C402.3.1, the area of each vertical fenestration element shall be reduced in the base envelope design by the same percentage and the net area of each above-grade wall type increased proportionately by the same percentage so that the total vertical fenestration area is exactly equal to the allowed percentage per Section C402.3.1 of the gross above-grade wall area. The target wall area of a given wall type shall be the sum of the proposed below-grade area and the increased above-grade area.

and

If the skylight area as a percent of gross exterior roof area does not exceed the maximum allowed in Section C402.3.1:

- $A_{radt}$  = The proposed roof area with insulation entirely above the deck,  $A_{rad}$ .
- $A_{mrt}$  = The proposed roof area for metal buildings,  $A_{mr}$ .
- $A_{rat}$  = The proposed attic and other roof area,  $A_{or}$ .
- $A_{ogat}$  = The proposed skylight area,  $A_{ogr}$ .

or

If the skylight area as a percent of gross exterior roof area exceeds the maximum allowed in Section C402.3.1, the area of each skylight element shall be reduced in the base envelope design by the same percentage and the net area of each roof type increased proportionately by the same percentage so that the total skylight area is exactly equal to the allowed percentage per Section C402.3.1 of the gross roof area.

**\*NOTE:** The vertical fenestration area does not include opaque doors and opaque spandrel panels.