

**Oregon  
INTERPRETIVE RULING 99-2**

**Shading Coefficient Conversion**

**REQUESTED BY:** Building Codes Structures Board Energy Committee

**ACTION REQUESTED:** An interpretive ruling regarding equivalent window shading coefficient specification.

**CODE SECTION:** 1998 Oregon Structural Specialty Code (OSSC), Tables 13-D and 13-E.

**BACKGROUND:** The present method for specifying a window's shading coefficient (SC) requires that the applicant indicate the window or skyJigj1.t center of glass shading coefficient. The reason this is done is that in typical non-residential construction the glazing is specified and purchased independently from the window framing. In recent years an increasing number of windows do not specify the glazing SC but rather the assembly's Solar Heat Gain Coefficient (SHGC).

**DISCUSSION:** The SHGC value is based on a window assembly's ability to block sun light from entering the building. A value of 0.50 indicates that only 50 percent of the solar gains occur when compared to a single pane window.

The majority of manufactured window assemblies have been tested by the National Fenestration Rating Council protocols and as such have had their SGHC determined. Labels on NFRC-tested

windows do not include the SC value, but instead have their SGHC specified. When such windows are used in non-residential buildings, building code jurisdictions do not currently have a method for evaluating compliance.

**FINDINGS:** Code requires glazing to meet center of glass shading coefficient values. As a matter of convenience to permit applicants and building inspectors, the code should provide a method for converting a window's specified SHGC into an equivalent shading coefficient. The first order approximation used in the 1997 ASHRAE fundamentals provides a method for such a conversion (Chapter 29.23, equation 38). The accuracy of this equation is sufficient for the purposes of the code. Center of glass SHGC at normal incidence values may be converted to SC values by the following equation:

$$SC = \frac{SHGC}{0.87}$$

Alternatively, the SHGC may be used to show compliance providing it is not greater than 0.50 (0.57 is the maximum allowable SC center of glass).

**CONCLUSION:** The Building Codes Structures Board accepts the recommendations of the Energy Committee and the findings listed above in regards to shading coefficient conversion.

(signed 5/5/99)

Theadore F. Argo III, Vice Chair, for

John A. Talbott, P.E., Chairman

Building Codes Structures Board

**RULING:** The recommendations and findings of the Building Codes Structures Board are accepted.

(signed 5/6/99)

Joseph A. Brewer III, Administrator

Building Codes Division

RESCINDED