

Technical Interpretation TI-2016.0624.001

Document: **ANSI Z97.1-2015**

Date: January 13, 2016

Referenced Section(s): Section 3 Definitions

Section 5.1.4 Interpretation of Results

This section describes the impact test Specimen Evaluation Criteria for the different types of safety glazings (laminated glazing, tempered glass, organic coated glazing and plastic glazing).

Interpretation Request: (What needs clarification/modification/removal?)

There is no reference to Vacuum Insulating Glass (VIG) in ANSI Z97.1-2015. It is unclear how to test safety glazing used in VIG products to this standard.

Request Rationale:

For safety glazing used in an insulating glass unit (IGU), each lite of safety glazing is tested and labelled independently to ANSI Z97.1-2015 prior to assembly into the IGU. Due to the complex manufacturing process of VIGs, there is a chance the safety glazing lites can be affected (altered) during the manufacturing (vacuum) process. In order to verify that the safety characteristics of the safety glazing lites have not been altered, each safety glazing lite needs to undergo the VIG process independently prior to testing to ANSI Z97.1-2015. For example, a tempered lite that is to be installed in a VIG unit would undergo the VIG manufacturing process independent from being installed in the VIG, and then the tempered lite would be tested to ANSI Z97.1-2015. The purpose would be to verify the VIG manufacturing process does not “de-temper” the glass.

Suggested Revised Language:

Section 3 Definitions – the following definition and note need to be added to this section:

Vacuum Insulating Glass (VIG): A manufactured assembly of two lites of glass, hermetically sealed together around the edges, encapsulating a narrow highly evacuated space. NOTE: When testing VIG units to this standard, each lite of safety glazing must undergo the VIG manufacturing process independently and tested as a single lite.”

Interpretation:

Definition of VIG would need to be proposed with new revision and cannot be added to the standard at this time. The interpretation contains a modified version of the proposed definition for descriptive purposes of the glazing unit.

Vacuum Insulating Glass (VIG) is a manufactured assembly of at least two lites of glass separated by pillars, sealed at the edges with the gap between the glass lites under vacuum. VIG units shall be tested in accordance with section 5.1. Specimens shall be tested as a final product. Specimens shall be impacted in accordance with the protocol for asymmetrical glazing.

Laminated glass in a VIG is evaluated as Type 1. Tempered glass in a VIG is evaluated as Type 2. For Type 2, the average of the thinnest measurement of each of the ten geometrically largest particles shall be used for allowable mass for the pass/fail criteria.

Rationale:

VIG is a new technology and should be considered as a single unit much the same as a laminated glass as it is permanently fused at the edges in order to maintain the “vacuum”. Lites have been noted as de-tempering with the additional process of creating a VIG and therefore the final unit needs to be tested. The requirement for all lites to break ensures the entire unit can be evaluated as safety glass. The glass mass requirement takes into account the thinnest glass of the unit and requires the largest pieces to be examined regardless of the lite they come from. This interpretation does not apply to common insulating glass units.

Keywords: Compliance, Impact, Rating, Vacuum Insulating Units, label

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