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LAMINATED GLASS IMPACT RESISTANCE ANSI Z97-1 and CPSC 16 CFR 1201

The American National Standard Institute and the US Consumer Product Safety Commission establishes the safety performance specifications and test methods for glazing materials used in buildings.

Their goal is to promote safety as well as reduce or minimize the likelihood of injury from cutting or piercing injury when glazing materials are broken by human contact.

The ANSI Z97.1 and CPSC 16 CFR 1201 impact test, designed to simulate the impact created by a running person, involves a leather punching bag filled with 100 lbs of lead shot dropping onto a lite of .030 PVB laminated glass at a distance of 48 inches.

This test, termed Category II, states that in the event that breakage occurs, the glass will fragment as follows:

Numerous cracks appear, but no shear or opening is allowed within the test piece through which a 3" diameter sphere can pass with a maximum force of 18 N is applied (in accordance with Annex A). In addition, if particles are detached from the test piece up to five minutes after impact, they shall, in total, weigh no more than a mass equivalent to 10 square inches of the original test piece.

When breakage occurs, the ten largest crack free particles shall be collected when five minutes subsequent to the impact and shall weigh no more than the equivalent weight of ten square inches of the original specimen. For purposes of impact test evaluation when breakage occurs, the average thickness of a tempered glass specimen containing grooves, bevels, or thickness altering fabrication shall be considered the average of the thinnest measurement of each of the ten geometrically largest crack free particles. This average thickness shall be used to determine the maximum allowable weight of the ten largest crack-free particles.