

3M™ Window Film

Safety and Security Segments

Safety Glazing

What is Safety Glazing? Generally speaking, safety glazing is any glass or plastic glazed product that is expected to break “safely” upon impact. Consider typical annealed float glass, which is commonly used on the windows of your home. When annealed glass breaks, it fragments into large, jagged shards that are capable of causing serious human injury. Annealed glass is not safety glass.

So where is Safety Glazing used? In the United States and many other regions of the world, building code requires that certain areas which use architectural glazing mitigate risk of human injury by using safety glazing. These high risk areas are those which may be more vulnerable to glass breakage due to accidental human impact. Examples include, glass doors, patio doors, shower doors and enclosures, balcony glass, elevator glass, and any glazing that is within 18 inches of floor level.

Tempered glass, however, breaks into relatively small pieces that pose a much lower risk to bodily injury. Additionally, tempered glass is more resistant to breaking. Tempered Glass is generally considered safety glazing.

Impact Tests for Safety Glazing

Impact resistance is tested by mounting a glass specimen, approximately 3 feet wide by 6 feet tall, into a test fixture. The test fixture has a pendulum containing a 100-lb bag that acts as the impactor. The impactor is dropped from a specified height to generate a certain level of impact force. Two primary heights (and corresponding forces) are used: an 18” drop height, which corresponds to 150 ft-lbs of force; and a 4-foot drop height, corresponding to 400 foot-pounds of force. Force, in foot-pounds is simply calculated by multiplying the weight of the impactor (in pounds) times the drop height (in feet).

ANSI Z97.1 and 16 CFR 1201 both require that multiple specimens are tested, and that an equal number of impacts are conducted on the filmed side of the glass as well as the glass side. Film attachment systems are NOT used; although there is a specified clamping pressure intended to keep the test specimen mounted in the frame, the test specimen is allowed to dislodge from the test fixture during impact.

Code Compliance

Safety Glazing applications almost always involve a code official’s approval. Building Code in the US references the two industry standards just mentioned – ANSI Z97.1 and 16 CFR 1201. 3M has tested its safety and security window films to both standards. To determine which product is most suitable, refer to the 3M specification documents for that product, or go to the 3M Dealer Advantage site to view the 3rd party test reports. When submitting documents to a local code official, forward the relevant 3rd party test report to demonstrate compliance.

Supporting documentation for Safety Glazing

- 3rd Party test reports on the Dealer Advantage Website
- Safety Glazing decals available from Staples website

Important:

The information provided in this report is believed to be reliable; however, due to the wide variety of intervening factors, 3M does not warrant that the results will necessarily be obtained. All details concerning product specifications and terms of sale are available from 3M.