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Glass in building — Destructive-windstorm-resistant security glazing — Test and classification

Verre dans la construction — Vitrages de protection résistant aux tempêtes destructrices — Essai et classification

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 160, *Glass in building*, Subcommittee SC 2, *Use considerations*.

This third edition cancels and replaces the second edition (ISO 16932:2016), which has been technically revised. The main changes compared to the previous edition are as follows:

— updated hazard classifications;

— modification of missile impact weight requirements.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Glass in building — Destructive-windstorm-resistant security glazing — Test and classification

1 Scope

1.1 This document determines resistance of security glazing products to natural threats characterized by simulated destructive-windstorm events.

1.2 The test method determines the performance of security-glazing for use in fenestration assemblies under conditions representative of events that occur in severe, destructive-windstorm environments using simulated missile impact(s) followed by the application of cyclic static-pressure differentials.

1.3 A missile-propulsion device, an air pressure system and a test chamber are used to model some conditions that can be representative of windborne debris and pressures in a windstorm environment.

1.4 The performance determined by this test method relates to the ability of glazing in the building envelope to remain without openings during a windstorm.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 48-2, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 2: Hardness between 10 IRHD and 100 IRHD*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
windstorm-resistant security glazing
glass-based fenestration glazing product, usually transparent or translucent, intended to protect property or people from natural threats

3.2
destructive windstorm
severe weather event with high winds and turbulent gusts, such as a tropical cyclone having a *basic wind speed* (3.3) equal to or greater than 50 m/s, capable of generating *windborne debris* (3.11)

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3.3
basic wind speed
V
velocity of the wind used in calculation as determined by the authority having jurisdiction

Note 1 to entry: The basic wind speed is intended to represent the gust wind speed design basis for a tropical cyclone such as used to describe a 50-year recurrence period or annual 0,02 probability of being exceeded.

3.4
fenestration assembly
glazing system intended to be installed in a building

EXAMPLE Exterior windows and glazed doors.

3.5
air-pressure differential
P
specified maximum differential in static air pressure across the specimen, creating an inward or outward load

Note 1 to entry: The air-pressure differential is expressed in pascal or its multiples.

3.6
missile
object that is propelled towards a *test specimen* (3.8)

3.7
cyclic test load
specified differential in static air pressure, creating an inward or outward load, to which the specimen is subjected in a series of cycles

Note 1 to entry: The cyclic test load can be positive or negative.

3.8
test specimen
glazing materials and glazing unit assembled in a standard frame

Note 1 to entry: See Annex B.

3.9
test-loading programme
entire sequence of air-pressure cycles applied to the *test specimen* (3.8)

3.10
lumber missile
dressed piece of surface-dried, soft-wood, structural timber that impacts the glazing surface of the specimen

3.11
windborne debris
objects carried by the wind in windstorms

3.12
design pressure
uniform, static air-pressure difference, inward or outward, for which the *test specimen* (3.8) is designed under service load conditions, using local conventional structural engineering specifications and concepts

Note 1 to entry: This pressure is determined by either analytical or wind-tunnel procedures.

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