

Windows — Soft and heavy body impact — Test method, safety requirements and classification

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ICS 91.060.50

National foreword

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The UK participation in its preparation was entrusted by Technical Committee B/538, Doors, windows, shutters, building hardware and curtain walling, to Subcommittee B/538/1 & 2, Doors and windows, which has the responsibility to:

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Foreword

This document (EN 13049:2003) has been prepared by Technical Committee CEN/TC 33 “Doors, windows, shutters, building hardware and curtain walling”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2003, and conflicting national standards shall be withdrawn at the latest by October 2003.

This European Standard is one of a series of standards for windows.

No existing European Standard is superseded.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies the test method, safety requirements and classification when determining the effect on a window impacted with a soft and heavy body. Any secondary moving sashes, casements or fixed lights which may be mounted internally to the main casements or sashes, shall also be similarly tested.

The test applies to all infill of whatever materials including glass. It is not intended to evaluate the strength of the glass when used as an infill. It is intended to assess the interactions between all components of a window with particular regard to safety in use.

The test has been devised to suit all window types, configurations and materials.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

ENV 1630, *Windows, doors and shutters — Burglar resistance — Test method for the determination of resistance to manual burglary attempts*

prEN 12519, *Doors and windows — Terminology*

EN 12600, *Glass in building — Pendulum test — Impact test method and classification for flat glass*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions in prEN 12519 apply.

4 Apparatus

The apparatus shall consist of a rigid surround frame into which the complete specimen can be mounted using the fixing system and devices provided by the manufacturer.

The impactor as specified in EN 12600 shall be mounted on a horizontal or vertical axis, as best befits the requirements of access to the impact point. In addition wires, pulleys, hooks and suitable height adjusting devices are needed, as specified in EN 12600.

5 Test specimen

The test specimen shall be supplied in fully operable condition. It shall be suitable for fixing into the surround frame in accordance with the manufacturer's instructions.

The test specimen shall be provided with the most unfavourable glazing bead profile with infill to fit.

Storage and testing shall be carried out in a non-destructive environment within the ranges of 10 °C to 30 °C and 25 % to 75 % relative humidity.

6 Test procedure

Fix the specimen vertically into the surround frame. The test specimen shall be level, square and without visible twist resulting from the use of fixing devices.

Operate any openable parts of the test specimen five times immediately before testing.

Secure all casements or sashes in accordance with their normal operating mode and by use of the hardware provided.

Tests shall be performed separately, one impact on each test specimen. Select, e.g. by means of pre-tests or calculations, the most dangerous impact point to strike the following:

- ¾ the centre of the infill or
- ¾ a corner of the infill or
- ¾ the centre of the longest edge of the largest area of the infill.

The direction of impact shall be as specified by the applicant or manufacturer.

With the impactor hanging in its free state, adjacent to the impact point, attach the release hook to it. Raise the impactor, by means of the height adjusting device until the drop height is correctly set, as judged from a reference point on the impactor.

Disengage the release hook allowing the impactor to swing freely until it strikes the test specimen perpendicular to the infill.

The drop height shall be set to an accuracy of 10 mm.

7 Test report

Prepare a test report ensuring that it shall positively identify the test specimens and record all parameters of the test procedure.

Record results in such a way that they, together with results of other tests and information declared by the manufacturer can be used in the determination of the classification of those test specimens and their performances.

The following information shall also be recorded:

- ¾ reference to this European Standard;
- ¾ all relevant details concerning the type, specified dimensions, materials and form of construction;
- ¾ details of all impact points and directions of impact;
- ¾ drop height (mm);
- ¾ results of the test;
- ¾ details of any damage during the test;
- ¾ name of the manufacturer;
- ¾ name of the testing authority;
- ¾ date of test;
- ¾ name of applicant.

8 Safety requirements and classifications

The drop height to be set shall be selected from Table 1. To qualify for a particular class the following requirements shall be met:

- ¾ any opening shall not allow the ellipsoid, as specified in ENV 1630, to pass;
- ¾ the impact shall not detach or dislodge any casement or sash of the test specimen nor disconnect any hardware or infill retaining components, nor shall any of its composite parts become dislodged or shattered in a dangerous manner;
- ¾ the mass of any dislodged part shall not exceed 50 g.

Table 1 — Impact levels/drop heights

Classification	1	2	3	4	5
Drop height (mm)	200	300	450	700	950

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