

Curtain walling — Resistance to wind load — Performance requirements

The European Standard EN 13116:2001 has the status of a
British Standard

ICS 91.060.10

National foreword

This British Standard is the official English language version of EN 13116:2001.

The UK participation in its preparation was entrusted by Technical Committee B/538, Windows, doors, shutters, hardware and curtain walling, to Subcommittee B/538/6, Curtain walling, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
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This British Standard, having been prepared under the direction of the Sector Policy and Strategy Committee for Building and Civil Engineering, was published under the authority of the Standards Policy and Strategy Committee on 29 August 2001

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English version

Curtain walling - Resistance to wind load - Performance requirements

Façade rideaux - Résistance structurelle au vent -
Prescriptions de performance

Vorhangfassaden - Widerstand gegen Windlast -
Leistungsanforderungen

This European Standard was approved by CEN on 9 May 2001.

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Contents

	page
Foreword	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Requirements	5
5 Test method	6
6 Classification	6
Bibliography	7

Foreword

This European Standard 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of an identical text or by endorsement, at the latest by January 2002, and conflicting national standards shall be withdrawn at the latest by January 2002.

This European Standard forms part of a series of European Standards dedicated to curtain walling products as defined in the curtain walling product standard prEN 13830.

This European Standard complements a series of curtain walling standards for performance requirements and methods of test as defined in the product standard prEN 13830.

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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies the structural performance requirements of curtain walling under wind load, both its fixed and openable parts, under positive and negative static air pressure.

This standard applies to any curtain walling product as defined in prEN 13830.

2 Normative references

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

prEN 12152	<i>Curtain walling - Air permeability - Performance requirements and classification.</i>
EN 12179	<i>Curtain walling - Resistance to wind load - Test methods.</i>
prEN 13830	<i>Curtain walling - Product standard.</i>
ENV 1991-2-4	<i>Eurocode 1: Basis of design and actions on structures - Part 2-4: Actions on structures - Wind actions.</i>

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in prEN 12152, together with the following, apply:

3.1

test pressure

differential pressure between the two faces of the test specimen, expressed in Pascals (Pa)

3.2

positive pressure

when outer face is subjected to higher pressure than inner face

3.3

negative pressure

when inner face is subjected to higher pressure than outer face

3.4

design wind load

the load calculated following the procedure specified within Eurocode ENV 1991-2-4 and represented in this test with positive and negative test pressures on the test specimen

3.5

increased load (safety load)

1,5 times design wind load expressed in Pascals

3.6**residual deformation**

change in shape or dimension which does not disappear when the test pressure is removed

3.7**frontal displacement**

movement of a point on a member measured normal to the member

3.8**frontal deflection**

maximum frontal displacement of a member, minus half the sum of the frontal displacement at each end of the member

4 Requirements

- 4.1 The curtain wall shall safely transmit the design load via the points of support back to the building structure.
- 4.2 The curtain wall shall be capable of accommodating the design load without any reduction in the specified performance requirements, except as specified in 4.3.5.
- 4.3 Performance under design load.
- 4.3.1 The frontal deflection, under positive and negative design loads, shall not exceed 1/200 of the span of the framing member, measured between points of structural support, or 15 mm whichever is less.
- 4.3.2 The frontal deflection shall be temporary deformation only, and shall recover after the removal of load by a minimum of 95% within a time period of 1 h.
- 4.3.3 Frontal displacement of fixings of framing members at their connections to the building structure or other structural components shall be limited to less than 1 mm and this shall be allowed as residual deformation.
- 4.3.4 As this displacement is allowed under both positive and negative design loads, then the limit shall be taken from an assessed neutral position.
- 4.3.5 The positive difference between the air permeability measured at maximum pressure in the first and second tests, should not differ by more than $0,3 \text{ m}^3/\text{h}\cdot\text{m}^2$ ($0,1 \text{ m}^3/\text{h}\cdot\text{m}$ length of joint).
- 4.4 Performance under increased load.
- 4.4.1 Under both positive and negative increased load no permanent damage shall occur to framing members, infill panels, opening units, fasteners or anchors.

EN 13116:2001 (E)

- 4.4.2 Panels, glazing beads and decorative capping pieces shall remain securely held and gaskets shall not be displaced.
- 4.4.3 If a pane of glass breaks during the increased load test, then it may be replaced and the test continued only if, following close examination, the cause of breakage is not attributable to any fault in the glazing technique or the supporting frame.

5 Test method

The specimen unit shall be tested in accordance with EN 12179 and following the test sequence as specified in prEN 13830.

6 Classification

Due to the many diverse elevational layouts and dimensional variations which are accommodated by curtain wall installations, it is not practical to structurally classify the large variety of curtain wall systems and purpose designed constructions.

Previous test results of curtain walls may be applicable to other installations of identical construction provided they are of similar elevational layout and dimension.

Bibliography

prEN 13119 *Curtain walling - Terminology.*

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