

Curtain walling — Product standard

The European Standard EN 13830:2003 has the status of a
British Standard

ICS 91.060.10

National foreword

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The UK participation in its preparation was entrusted by Technical Committee B/538, Doors, windows, 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 international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
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This British Standard, was published under the authority of the Standards Policy and Strategy Committee on 11 September 2003

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 22, an inside back cover and a back cover.

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Amendments issued since publication

Amd. No.	Date	Comments

© BSI 11 September 2003

English version

Curtain walling - Product standard

Façades rideaux - Norme de produit

Vorhangfassaden - Produktnorm

This European Standard was approved by CEN on 24 July 2003.

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Foreword

This document EN 13830:2003 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of an identical text or by endorsement, at the latest by March 2004, and conflicting national standards shall be withdrawn at the latest June 2005.

This document replaces no existing European standard.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative annex ZA, which is an integral part of this document.

Annex A is normative. Annexes B and C are informative.

This document includes a Bibliography.

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.

Introduction

This European Standard specifies the major technical characteristics of curtain walling and includes a systematic framework of performance requirements and test criteria to ensure conformity to the essential requirements of the Construction Products Directive and to provide appropriate principles in the technical specification of the product.

For the purposes of this standard, curtain walling is defined as an external vertical building enclosure produced by elements mainly of metal, timber or plastic.

Curtain walling embraces many different forms of construction, but generally it comprises one of the following: Stick construction, Unitised construction, Spandrel construction.

1 Scope

This European Standard specifies characteristics of curtain walling and provides technical information on the varying performance requirements which apply throughout Europe and the test criteria and sequence of testing to which the product is subjected, in order to demonstrate conformity. Reference is made to other European Standards related to the performance and testing of curtain walling and, where appropriate, attention is drawn to European Standards which relate to products incorporated into curtain walling.

This standard applies to curtain walling ranging from a vertical position to 15° from the vertical, onto the building face. It can include elements of sloping glazing contained within the curtain wall.

Curtain walling is not a product which can be completed in all respects within a manufacturing area, but is a series of components and/or prefabricated units which only become a finished product when assembled together on site.

This standard is applicable to the whole of the curtain walling, including the flashings, closures and copings.

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).

2.1 Requirement Standards

EN 12152	<i>Curtain walling - Air permeability - Performance requirements and classification.</i>
EN 12154	<i>Curtain walling - Watertightness - Performance requirements and classification.</i>
EN 13116	<i>Curtain walling - Resistance to wind load - Performance requirements.</i>
prEN 14019	<i>Curtain walling - Impact resistance - Performance requirements.</i>

2.2 Test and Calculation Standards

EN 1991-1-1	<i>Eurocode 1: Actions on structures – Part 1-1: General actions – Densities, self-weight and imposed loads for buildings.</i>
EN 12153	<i>Curtain walling - Air permeability - Test method.</i>

EN 12155	<i>Curtain walling - Watertightness – Laboratory test under static pressure.</i>
EN 12179	<i>Curtain walling – Resistance to wind load - Test method.</i>
EN 12600	<i>Glass in building - Pendulum test - Impact test method and classification for flat glass.</i>
prEN 13119	<i>Curtain walling - Terminology.</i>
EN 13501-1	<i>Fire classification of construction products and building elements - Part 1: Classification using test data from reaction to fire tests.</i>
EN 13501-2	<i>Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services.</i>
prEN 13947	<i>Thermal performances of curtain walling - Calculation of thermal transmittance - Simplified method.</i>
EN ISO 140-3	<i>Acoustics – Measurement of sound insulation in buildings and of building elements – Part 3: Laboratory measurements of airborne sound insulation of building elements (ISO 140-3:1995).</i>
EN ISO 717-1	<i>Acoustics – Rating of sound insulation in buildings and of building elements – Part 1: Airborne sound insulation (ISO 717-1:1996).</i>

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions in prEN 13119 and the following apply.

3.1

curtain walling

usually consists of vertical and horizontal structural members, connected together and anchored to the supporting structure of the building and infilled, to form a lightweight, space enclosing continuous skin, which provides, by itself or in conjunction with the building construction, all the normal functions of an external wall, but does not take on any of the load bearing characteristics of the building structure

3.2

stick construction

light carrier framework of site assembled components supporting prefabricated opaque and/or translucent infill panels

3.3

unitised construction

pre-assembled interlinking storey height or multi-storey height modules, complete with infill panels

3.4

spandrel construction

pre-assembled interlinking part storey height modules, complete with infill panels

3.5

curtain walling system

collection of components from which a curtain walling kit may be created for subsequent installation on a building. It can give rise to one or more different kits.

3.6

curtain walling kit

collection of components or pre-fabricated units which, when installed on a building, form a curtain wall

4 Requirements

4.1 Resistance to wind load

The curtain walling shall be sufficiently rigid to resist the declared wind loads for serviceability (5.2.3. c), both positive and negative, when tested in accordance with EN 12179. It shall transfer the declared wind loads to the building's structure, safely, via the fixings intended for that purpose. The declared wind load results from testing in accordance with EN 12179.

Under the declared wind loads the maximum frontal deflection of the curtain walling's framing members shall not exceed $L/200$, or 15 mm, whichever is the less, when measured between the points of support or anchorage to the building's structure, in compliance with EN 13116.

NOTE 1 The design wind loads likely to act upon the curtain walling should be calculated in accordance with technical specifications or other provisions valid in the place of use.

NOTE 2 The stiffness of the curtain walling should be determined by calculation. When calculating the rigidity of the curtain walling no account should be taken of the potential stiffening effect of the glass.

NOTE 3 The engineering stresses induced into framing components and structural brackets shall be no greater than those specified within the appropriate materials standard from which the components and brackets are made.

4.2 Dead load (Self-weight)

The curtain walling shall sustain its self-weight plus any attachments incorporated into it by original design. It shall transfer the weight to the building structure, safely, via the fixings intended for that purpose.

Self-weights shall be determined in accordance with EN 1991-1-1.

The maximum deflection of any main horizontal framing from vertical loads shall not exceed $L/500$ or 3 mm, whichever is the less.

4.3 Resistance against impact

Where specifically required tests shall be performed in accordance with EN 12600:2002, clause 5. The results shall be classified in accordance with prEN 14019. Where glass products are concerned they shall comply with EN 12600.

4.4 Air permeability

An air permeability test shall be carried out in accordance with EN 12153. The results shall be expressed in accordance with EN 12152.

4.5 Watertightness

A water-tightness test shall be carried out in accordance with EN 12155. The results shall be expressed in accordance with EN 12154.