

BS EN 12210:2016



BSI Standards Publication

Windows and doors — Resistance to wind load — Classification

National foreword

This British Standard is the UK implementation of EN 12210:2016. It supersedes BS EN 12210:2000 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/538/1, Windows and doors.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2016.
Published by BSI Standards Limited 2016

ISBN 978 0 580 82211 7

ICS 91.060.50

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2016.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

EUROPEAN STANDARD

EN 12210

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2016

ICS 91.060.50

Supersedes EN 12210:1999

English Version

Windows and doors - Resistance to wind load - Classification

Fenêtres et portes - Résistance au vent - Classification

Fenster und Türen - Widerstandsfähigkeit bei Windlast
- Klassifizierung

This European Standard was approved by CEN on 9 January 2016.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents		Page
European foreword		3
1	Scope	4
2	Normative references	4
3	Terms and definitions	4
4	Classification	4
5	Classification of relative frontal deflection	5
6	Requirements	5
6.1	General	5
6.2	Due to wind pressure P1 and P2	5
6.3	Due to wind pressure P3	5
7	Classification for resistance to wind load	5

European foreword

This document (EN 12210:2016) 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 September 2016, and conflicting national standards shall be withdrawn at the latest by September 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12210:1999.

The revision of this European Standard clarifies only the classification and does not affect existing evidence of EN 12210.

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

In comparison with EN 12210:1999, the following significant changes were made:

- a) Clause 4: Class 0 deleted;
- b) Sub-clause 6.1 inserted;
- c) Sub-clause 6.2: Revision of the whole paragraph: Guidance NB-CPD/SG06/11/079 from Group of Notified Bodies for the Construction Products Directive 89/106/EEC included.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard defines the classification of test results for completely assembled windows and doors of any materials after testing in accordance with EN 12211.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated referenced, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1026, *Windows and doors — Air permeability — Test method*

EN 12207, *Windows and doors — Air permeability — Classification*

EN 12211, *Windows and doors — Resistance to wind load — Test method*

EN 12519, *Windows and pedestrian doors — Terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12519 and EN 12211 apply.

4 Classification

EN 12211 describes a method of test to determine the limits (P1, P2 and P3) for the test specimen. These limits are expressed in Pascals (Pa). The relationships between the limits are:

- $P2 = 0,5 P1$;
- $P3 = 1,5 P1$.

Classification shall be according to the results of wind resistance tests to positive and negative test pressures. Test pressures are given in Table 1.

NOTE This classification can be used with other relevant standards or codes of practice and can thus be used to provide correlation with actual exposure requirements.

Table 1 — Classification of wind load

Class	P1 Pa	P2 ^a Pa	P3 Pa
1	400	200	600
2	800	400	1200
3	1200	600	1800
4	1600	800	2400
5	2000	1000	3000
E xxxx ^b	xxxx		

^a This pressure having been repeated 50 times.

^b Test specimen tested with wind loading above class 5, where xxxx is the actual test pressure P1 expressed in Pa (e.g. 2350).

5 Classification of relative frontal deflection

The relative frontal deflection of the most deforming framing member of the test specimen measured at test pressure P1 shall be classified as in Table 2.

Table 2 — Classification of relative frontal deflection

Class	Relative frontal deflection
A	$\leq 1/150$
B	$\leq 1/200$
C	$\leq 1/300$

6 Requirements

6.1 General

The following requirements shall also be met in order that the product can be classified.

6.2 Due to wind pressure P1 and P2

No visible failures (e.g. opening of the test specimen, loosening of the sash/casement or leaf, separation of hardware or glazing beads) when viewed by normal or corrected vision at a distance of 1 m in natural and/or artificial light.

The test specimen shall remain functional and the air permeability after tests P1 and P2 shall not exceed the upper limits of the claimed air permeability class as specified in EN 12207 by more than 20 %.

The claimed air permeability class can be determined by means of the air permeability test preceding the wind load test. Before the resistance to wind load test according to EN 12211, the air permeability test according to EN 1026 shall be completed. The results of the air permeability test determine the initial classification. When the air permeability is measured again after the wind loads P1 and P2 have been applied, the measured values for the repeated air permeability test shall not exceed the upper limits of the class for the air permeability claimed by the manufacturer by more than 20 % (following the previous classification rules used). However, if the upper limits of the class determined by the initial classification are exceeded by more than 20 %, the manufacturer may claim a lower air permeability class than that achieved in the initial classification. In these circumstances, the report shall state that if the manufacturer wishes to claim a class for the air permeability for the product, combined with a class for resistance to wind load, only the air permeability class achieved in combination with the wind load test may be claimed.

6.3 Due to wind pressure P3

Failures such as bending and/or twisting of any building hardware and splitting or cracking of framing members shall be permitted provided that no parts become detached and the test specimen remains closed. However if glass breaks it is permitted for it to be replaced and the test to be repeated once more.

If building hardware bends, twists or breaks leading to a failure (e.g. opening of the test specimen, loosening of the sash/casement or leaf, separation of hardware or glazing beads), the defective part may be replaced, but the full test has to be repeated.

7 Classification for resistance to wind load

Wind loads and relative frontal deflection shall be combined into one overall classification as indicated in Table 3.

Only the highest test deflection obtained from testing with positive and negative pressure at each pressure step requested by the manufacturer shall be used for overall classification. Therefore it is not permissible to take an average of the different results obtained from testing with positive and negative pressure.

Table 3 — Resistance to wind load — Classification

Wind load class	Relative frontal deflection		
	A	B	C
1	A1	B1	C1
2	A2	B2	C2
3	A3	B3	C3
4	A4	B4	C4
5	A5	B5	C5
Exxxx	AExxxx	BExxxx	CExxxx

NOTE In the resistance to wind load classification, the letter refers to the relative frontal deflection, see Table 2, and the number to the wind load class, see Table 1.

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards-based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Copyright in BSI publications

All the content in BSI publications, including British Standards, is the property of and copyrighted by BSI or some person or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use.

Save for the provisions below, you may not transfer, share or disseminate any portion of the standard to any other person. You may not adapt, distribute, commercially exploit, or publicly display the standard or any portion thereof in any manner whatsoever without BSI's prior written consent.

Storing and using standards

Standards purchased in soft copy format:

- A British Standard purchased in soft copy format is licensed to a sole named user for personal or internal company use only.
- The standard may be stored on more than 1 device provided that it is accessible by the sole named user only and that only 1 copy is accessed at any one time.
- A single paper copy may be printed for personal or internal company use only.

Standards purchased in hard copy format:

- A British Standard purchased in hard copy format is for personal or internal company use only.
- It may not be further reproduced – in any format – to create an additional copy. This includes scanning of the document.

If you need more than 1 copy of the document, or if you wish to share the document on an internal network, you can save money by choosing a subscription product (see 'Subscriptions').

Reproducing extracts

For permission to reproduce content from BSI publications contact the BSI Copyright & Licensing team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email subscriptions@bsigroup.com.

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Useful Contacts

Customer Services

Tel: +44 345 086 9001

Email (orders): orders@bsigroup.com

Email (enquiries): cservices@bsigroup.com

Subscriptions

Tel: +44 345 086 9001

Email: subscriptions@bsigroup.com

Knowledge Centre

Tel: +44 20 8996 7004

Email: knowledgecentre@bsigroup.com

Copyright & Licensing

Tel: +44 20 8996 7070

Email: copyright@bsigroup.com

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK