Conformity Marking History

The Construction Products Directive (CPD) had the aim to create a single European market by removing the technical barriers to trade between member states through the use of harmonized standards and approvals.

It is only with the harmonized standards for a particular product that the Construction Product Directive becomes effective. Since the introduction of EN 14351-1 the Construction Product Regulations are now applicable to windows and doors.

1989 **European Construction Products Directive (89/106/EEC)**
This European Directive introduced the concept of Harmonised Standards and with the intentions to mandate CE marking for construction products.

1991 **UK Construction Product Regulations (SI 1991/1620)**
Statuary UK Regulations that implement of the European Directive into UK Law.

2010 **BS EN 14351-1**
Harmonised standard which allows the performance of windows and doors to be established and allows for CE Marking and declaration of values, subject to Initial Type Testing and Factory Production Control.

2014 **European Construction Products Regulations**
Proposed European regulation to mandate all European countries to enforce the declaration though CE Marking.

2021 **Brexit**
UK and Northern Ireland formally exit the European Union. The new conformity marks UKCA and UKNI marking are become valid alongside the exiting CE Marking.

2023 **CE Marking ceases in UK and NI**
From the 1st January 2023 CE Marking will cease to be accepted in UK and NI. Only UKCA Marking or UKNI Marking will be accepted.

What is Conformity Marking?

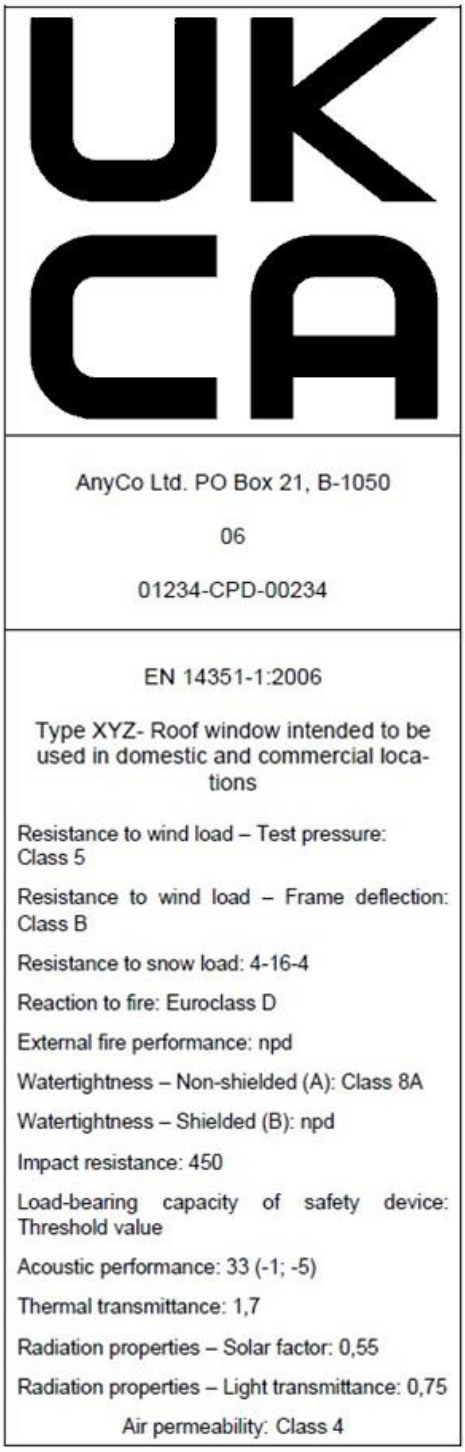
Conformity Marking applies to many products relating to many different market sectors children's toys, production machinery and now Windows and Doors. Conformity Marking indicates the performance characteristics of a product for the information of purchasers, but does not guarantee that the product is suitable for a particular purpose.

For windows and doors the Conformity Marking is covered by the harmonised standard BS EN 14351-1.

UKCA Mark declaration:
① Who manufactured the product
② Which year the product was manufactured ③ Number of the European Standard
④ The declared performance of the product.

Unlike some other Conformity Markings (for toys or other products), a construction product Conformity Marking does not mean that the product meets absolute safety requirements. This is also not a quality standard but a declaration of product performance.

The declaration is self-certifying and can be based on system house testing, Initial Type Testing (ITT) or project specific tests. To make the declaration a Factory Production Control Procedures (FPC) such as ISO 9001 needs to be established, documented, maintained and internally audited.



Conformity Marking after Brexit

After Brexit two new conformity marks have been introduced, UKCA for Great Britain and the UKNI Mark for Northern Ireland. The conformity marking used will depend on the market the product is being sold into.

Great Britain

CE

Valid until 1/1/2023

→

UK CA

Valid from 1/1/2021

For product sold into Great Britain you can now use the new UKCA Mark and during a transitional period Great Britain will continue to recognise the CE Marked products up until January 2023. After January 2023 then only the new UKCA mark will be recognised.

Northern Ireland

CE

OR

CE UK NI

Valid from 1/1/2021

Northern Ireland will accept the UKNI mark but will continue to recognise the CE Mark alongside the new Mark. The recognition of the CE Mark will remain in place with the special agreement under the Northern Ireland Protocol.

European Union

CE

UKCA and UKNI will not be recognised in the European Union which will only accept CE Marking.

Third Party Certification

Conformity Marking allows for clear comparisons between the performance different suppliers allowing informed choices to be made.

CE Marking for a specifier

- Show where a product has been tested against a harmonised European standard.
- That the performance information being compared is reliable and by a notified body.
- Allows fair comparisons between different products.
- Ensures open trade and improves competition

Performance requirements commonly form part of commercial contracts specification and also provide marketing opportunities. With CE Marking this formalises the declaration of performance allowing a fabricator to certify based on System House Testing.

- Allows manufacturers to make a declaration on performance.
- Contractual requirements for performance can be met.
- Establishes Factory Production Control Procedures
- Provides marketing opportunities

Third Party Certification

Concerns with this simplistic informal approach are that there is no test on the competence of the fabricators procedures to ensure that the fabricated product achieves the performance tested.

Contract specific certification is sometimes required alongside national schemes to improve accountability such as BSI Kitemark and BM Trada, Q Mark Scheme and Secure by Design these also certify the actual fabricator production procedures with an external audit.

Conformity Marking

Whilst the CE Mark is not externally audited it does go further than simply by declaring the product performance to BS 6375. It is reliant on the fabricator to self-declare that procedures are in place to ensure consistency of fabricated product whilst formalising when System House Testing is applicable.

Applying the UKCA Mark

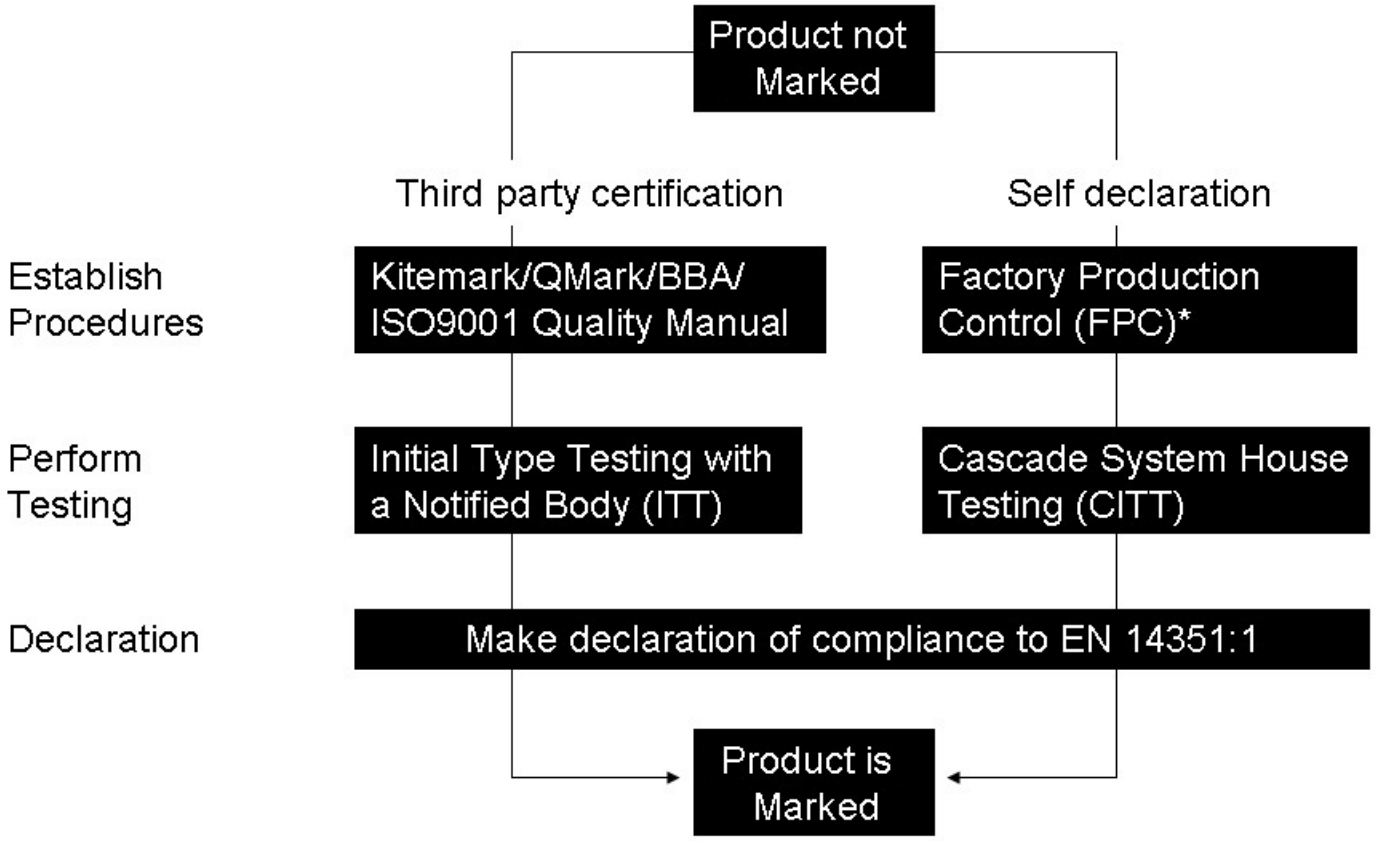
The CE Marking symbol as well as the accompanying information shall be affixed visibly, legibly and indelibly, in hierarchy of preference, on one or more of the following locations

1) Any suitable part of the product itself.
   Providing the visibility is ensured when the leaves, casements or sashes are opened;
2) on an attached label;
3) on its packaging;
4) on the accompanying commercial document(s) or the manufacturer's published technical specification(s). Where the information is split (e.g. only the CE marking symbol appears on the product itself), the location(s) lower in the hierarchy shall repeat that part of the information already placed higher up in the hierarchy.

The fabricator shall provide sufficient information to ensure the traceability of their product (e.g. by means of product codes) giving the link between the product, the fabricator and the production. This information shall either be contained on a product label or detailed in accompanying documents or in the fabricator's published technical specification(s). Relevant designations of characteristics (see Clause 5) as well as information about intended use, handling, installation, maintenance and care (see Clause 6) shall either be contained on a product label or detailed in accompanying documents or in the fabricator's published technical specification(s).

Becoming UKCA Marked

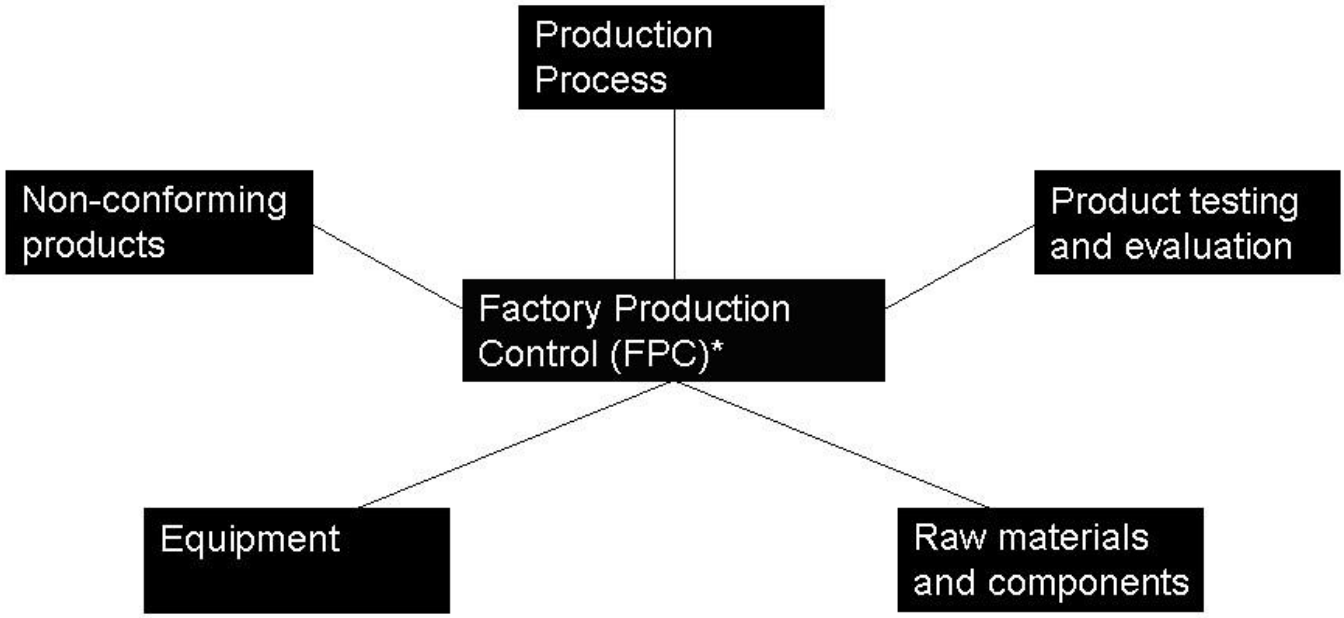
To become CE compliant a Fabricator must establish procedures and reference performance Initial Type Testing. This may either be through third part certification or self-declaration. Initial Type Tests from a Systems House can be cascaded down the supply chain to a competent fabricator.



* The FPC should be assessed by a notified body for CE Marking Products of Attestation level 1

Factory Production Control FPC

To CE Mark a product the fabricator shall establish, document and maintain a FPC system to ensure that the products placed on the market conform within the stated performance characteristics.



Production Process

To ensure consistence and accuracy of production, the FPC system shall document the production process involved.

This shall include

1) Identify the checking procedures at various stages of production.

2) The individuals responsible for all stages of production.

Record Checks/Corrective action

During the production process itself, a record shall be kept of all checks, their results, and any corrective actions taken.

This record shall be sufficiently detailed and accurate to demonstrate that all stages of the production phase, and all checks, have been carried out satisfactorily.

Product Testing/Inspection and Evaluation

The fabricator shall establish procedures to ensure that the stated values of all of the characteristics are maintained.

Regular Testing and Inspection

1) Test and/or inspection non-finished products or parts
2) Test and/or inspection the finished products.

Testing plan

Test and/or inspection shall be performed and evaluated in accordance with a test plan (including frequencies and criteria) prepared by the fabricator and in accordance with the performance characteristic in the CE Mark and any relevant test standards.

Raw Materials and Components

To ensure consistence of fabricated product the incoming/raw material should be checked for quality and defects which may effect the performance.

Maintain documents of material specifications

The specifications of all incoming raw materials and components shall be documented,

Goods inward inspection

Document/maintain goods inward inspection scheme

Maintain Equipment

Weighing, measuring and testing equipment shall be calibrated and regularly inspected according to documented procedures, frequencies and criteria.

Regularly Inspect equipment

Manufacturing: Equipment used in the manufacturing process shall be regularly inspected and maintained to ensure use, wear or failure does not cause inconsistency in the manufacturing process.

Inspections and maintenance shall be carried out and recorded in accordance with the fabricator's written procedures and the records retained for the period defined in the fabricator's FPC procedures.

Handling of Non conforming products

The fabricator shall have written procedures which specify how non-conforming products shall be dealt with.

Any such events shall be recorded as they occur and these records shall be kept for the period defined in the fabricator's written procedures.

Initial Type Testing

Initial type testing shall be performed to show conformity with BS EN 14351-1:2006. Performance through ITT for may be determined through calculation simulation testing or from tabular data dependent on the performance.

Initial Type Testing (ITT)
Cascading Initial Type Testing (CITT)
Further Type Testing (FTT)

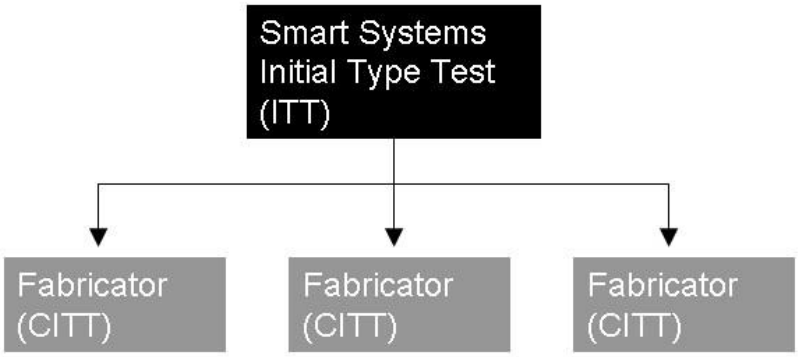
Testing Weather Performance
EN 1026, Windows and doors - Air permeability - Test method
EN 1027, Windows and doors - Watertightness - Test method
EN 12211, Windows and doors - Resistance to wind load - Test method

Impact/Load Resistance Testing
EN 950, Door leaves - Determination of the resistance to hard body impact
EN 947, Hinged or pivoted doors - Determination of the resistance to vertical load
EN 948, Hinged or pivoted doors - Determination of the resistance to static torsion
EN 949, Windows and curtain walling, doors, blinds and shutters - Determination of the resistance to soft and heavy body impact for door

Security Testing
ENV 1628, Windows, doors, shutters - Burglar resistance - Test method for the determination of resistance under static loading
ENV 1629, Windows, doors, shutters - Burglar resistance - Test method for the determination of resistance under dynamic loading
ENV 1630, Windows, doors, shutters - Burglar resistance - Test method for the determination of resistance to manual burglary attempts

Testing Thermal Performance
EN ISO 10077-1, Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 1: Simplified method (ISO 10077-1 :2000)
EN ISO 10077-2, Thermal performance of windows, doors and shutters- Calculation of thermal transmittance - Part 2: Numerical method for frames (ISO 10077-2:2003)
EN 14351-1(E)
EN ISO 12567-1, Thermal performance of windows and doors - Determination of thermal transmittance by hot box method - Part 1: Complete windows and doors (ISO 12567-1 :2000) EN ISO 12567-2, Thermal performance of windows and doors - Determination of thermal transmittance by hot box method - Part 2: Roof windows and other projecting windows (ISO 12567-2)

Cascading Initial Type Testing



It may not be necessary for each fabricator to re-test characteristics for which he can provide documentary evidence. Cascading allows a fabricator to use test results obtained from a systems company.

Provided that:

- The (CITT) report must be representative of the products for they are used to CE Mark against.
- The products are assembled are in accordance with Smart Systems technical manuals and supporting documentation to ensuring that there is no reduction in the stated performance values from the (CITT).
- Where the fabricator uses (CITT) reports from Smarts, he shall not be absolved from his responsibilities with regard to the product performance and compliance to BS EN 14351.
- If the product is not representative of the (CITT) then Further Type Testing (FTT) by the fabricator may be necessary.

Further Type Testing

Whenever a change occurs in the window and external pedestrian doorset design, the raw material or supplier of the components, or the production process (subject to the definition of a family), which would change significantly one or more of the characteristics (i.e. the design becomes dissimilar; see 3.4), the type tests shall be repeated for the appropriate characteristic(s).

Handling installation maintenance and care.

When the installation is the responsibility of a third party the fabricator is not absolved of responsibility. The fabricator must provide sufficient information on the installation to ensure that the performance of the product is not compromised.

Installation instructions (for supply only)

The fabricator shall provide information

1) storage and handling
2) installation requirements and techniques (on site)

Maintenance and cleaning instructions

End use instructions including instructions on component replacement and safety in use instructions. (Particular attention to safety devices, power operated external pedestrian doorsets and Power operated windows).

Product Performance

The fabricator shall identify which characteristics have been determined and the level of performance declared. The characteristic shall be identified either by its title or by the reference number given in the first column of the appropriate table.

No.	Clause	Characteristic/ value/dimension	Classification/value							Class/ de-clared value
1	4.2	**Resistance to wind load** Test pressure P1 (Pa)	npd	1 *(400)*	2 *(800)*	3 *(1200)*	4 *(1600)*	5 *(2000)*	Exxxx (> 2000)	5
2	4.2	**Resistance to wind load** Frame deflection	npd	A *(≤1/150)*		B *(≤1/200)*		C *(≤1/300)*		B
3	4.3	**Resistance to snow and permanent load**	npd	Declared information on the infill 4-16-4 (e.g. type and thickness of glass)						4-16-4
14	4.14	**Air permeability** Max. test pressure (Pa) Reference air permeability at 100 Pa ($m^3/(h \cdot m^2)$ or $m^3/(h \cdot m)$)	npd	1 (150) (50 or 12,50)		2 (300) (27 or 6,75)	3 (600) (9 or 2,25)	4 (600) (3 or 0,75)		4

Key

○——○ Performance profile of the window in question

△.....△ Requirement profile for one specified end use

Table 1 — Classification of characteristics for windows

No.	Clause	Characteristic/ value/dimension	Classification/value								Class/ de-clared value
1	4.2	**Resistance to wind load** Test pressure P1 (Pa)	npd	1 *(400)*	2 *(800)*	3 *(1200)*	4 *(1600)*	5 *(2000)*	Exxxx (> 2000)		
2	4.2	**Resistance to wind load** Frame deflection	npd	A *(≤1/150)*		B *(≤1/200)*		C *(≤1/300)*			
3	4.3	**Resistance to snow and permanent load**	npd	Declared information on the infill (e.g. type and thickness of glass)							
4	4.4.1	**Reaction to fire**	npd	F	E	D	C	B	A2	A1	
	4.4.2	**External fire performance**	npd	see EN 13501-5							
5	4.5	**Watertightness** Non–shielded (A) Test pressure (Pa)	npd	1 A *(0)*	2 A *(50)*	3 A *(100)*	4 A *(150)*	5 A *(200)*	6 A *(250)*	7 A *(300)*	8 A *(450)*	9 A *(600)*	Exxx *(>600)*
6	4.5	**Watertightness** Shielded (B) Test pressure (Pa)	npd	1 B *(0)*	2 B *(50)*	3 B *(100)*	4 B *(150)*	5 B *(200)*	6 B *(250)*	7 B *(300)*			
7	4.6	**Dangerous substances**	npd	As required by regulations									
8	4.7	**Impact resistance** Drop height (mm)	npd	200	300	450	700	950					
9	4.8	**Load-bearing capacity of safety devices**	npd[a]	Threshold value									
10	4.11	**Acoustic performance** Sound insulation R_w (C;C_{Tr}) (dB)	npd	Declared values									
11	4.12	**Thermal transmittance** U_w (W/(m^2 · K))	npd	Declared value									
12	4.13	**Radiation properties** Solar factor (g)	npd	Declared value									
13	4.13	**Radiation properties** Light transmittance (τ_v)	npd	Declared value									

(Continued)

Table 1 (concluded)

No.	Clause	Characteristic/ value/dimension	Classification/value								Class/ de-clared value
14	4.14	**Air permeability**		1	2	3	4				
		Max. test pressure (Pa)	npd	(150)	(300)	(600)	(600)				
		Reference air permeability at 100 Pa ($m^3/(h \cdot m^2)$ or $m^3/(h \cdot m)$)		(50 or 12,50)	(27 or 6,75)	(9 or 2,25)	(3 or 0,75)				
15	4.16	**Operating forces** [b]	npd	1		2					
16	4.17	**Mechanical strength**	npd	1	2	3	4				
17	4.18	**Ventilation**									
		Air flow exponent *n*	npd	Declared values							
		Air flow characteristic *K*									
		Air flow rates									
18	4.19	**Bullet resistance**	npd	FB1	FB2	FB3	FB4	FB5	FB6	FB7	FSG
19	4.20.1	**Explosion resistance**									
		Shock tube	npd	EPR1		EPR2		EPR3		EPR4	
20	4.20.2	**Explosion resistance**									
		Range test	npd	EXR1		EXR2		EXR3	EXR4	EXR5	
21	4.21	**Resistance to repeated opening and closing**									
		Number of cycles	npd	5000		10 000		20 000			
22	4.22	**Behaviour between different climates**	npd	[To be prepared]							
23	4.23	**Burglar resistance**									
			npd	1	2	3	4	5	6		

NOTE 1 **npd**: no performance determined.

NOTE 2 The figures in brackets are for information.

a Only if safety device(s) is (are) not provided.

b Manually operated windows only.

Table 2 — Classification of characteristics for external pedestrian doorsets

No.	Clause	Characteristic/ value/dimension	Classification/value										Class/ de-clared value
1	4.2	**Resistance to wind load** Test pressure P1 (Pa)	npd	1 *(400)*	2 *(800)*	3 *(1200)*	4 *(1600)*	5 *(2000)*	Exxxx (> 2000)				
2	4.2	**Resistance to wind load** Frame deflection	npd	A *(≤1/150)*		B *(≤1/200)*		C *(≤1/300)*					
3	4.5	**Watertightness** Non–shielded **(A)** Test pressure **(Pa)**	npd	1 A *(0)*	2 A *(50)*	3 A *(100)*	4 A *(150)*	5 A *(200)*	6 A *(250)*	7 A *(300)*	8 A *(450)*	9 A *(600)*	Exxx *(>600)*
4	4.5	**Watertightness** Shielded **(B)** Test pressure **(Pa)**	npd	1 B *(0)*	2 B *(50)*	3 B *(100)*	4 B *(150)*	5 B *(200)*	6 B *(250)*	7 B *(300)*			
5	4.6	**Dangerous substances**	npd	As required by regulations									
6	4.7	**Impact resistance** Drop height (mm)	npd	200	300	450	700	950					
7	4.8	**Load-bearing capacity of safety devices**	npd[a]	Threshold value									
8	4.9	**Height and width**	npd	Declared values									
9	4.10	**Ability to release**	npd	See EN 179, EN 1125, prEN 13633 or prEN 13637									
10	4.11	**Acoustic performance** Sound insulation R_w (C;C_{tr}) (dB)	npd	Declared values									
11	4.12	**Thermal transmittance** U_D (W/(m^2 · K))	npd	Declared value									
12	4.13	**Radiation properties** Solar factor (g)	npd	Declared value									

(Continued)

Table 2 (concluded)

No.	Clause	Characteristic/ value/dimension	Classification/value								Class/ de-clared value
13	4.13	**Radiation properties**									
		Light transmittance (τ_v)	npd	Declared value							
14	4.14	**Air permeability**									
		Max. test pressure (Pa)	npd	1 (150)		2 (300)		3 (600)		4 (600)	
		Reference air permeability at 100 Pa ($m^3/(h \cdot m^2)$) or $m^3/(h \cdot m)$)		(50 or 12,50)		(27 or 6,75)		(9 or 2,25)		(3 or 0,75)	
15	4.16	**Operating forces** [b]	npd	1		2		3		4	
16	4.17	**Mechanical strength**	npd	1		2		3		4	
17	4.18	**Ventilation**									
		Air flow exponent *n* Air flow characteristic *K* Air flow rates	npd	Declared values							
18	4.19	**Bullet resistance**	npd	FB1	FB2	FB3	FB4	FB5	FB6	FB7	FSG
19	4.20.1	**Explosion resistance**									
		Shock tube	npd	EPR1		EPR2		EPR3		EPR4	
20	4.20.2	**Explosion resistance**									
		Range test	npd	EXR1		EXR2		EXR3		EXR4	EXR5
21	4.21	**Resistance to repeated opening and closing**									
		Number of cycles	npd	5 000	10000	20000	50000	100000	200000	500000	1000000
22	4.22	**Behaviour between different climates**									
		Permissible deformation	npd	1(x)°		2(x)°		3(x)°			
23	4.23	**Burglar resistance**	npd	1	2	3	4	5	6		

NOTE 1 **npd**: no performance determined.

NOTE 2 The figures in brackets are for information.

a Only if safety device(s) is (are) not provided.

b Manually operated doorsets only.

c Test climate (a, b, c, d or e) shall be stated.

Table A.1 — Interdependence between characteristics and components

Characteristics	Components				
	Hardware[a]	Weather[b] stripping	Frame, casement, sash, leaf		Glazing[e]
			Material[c]	Profile[d]	
Resistance to wind load	(Y)	(Y)	Y	Y	Y
Resistance to snow load	N	N	N	N	Y
Reaction to fire	(Y)	Y	Y	(Y)	N
External fire performance	(Y)	(Y)	(Y)	(Y)	(Y)
Watertightness	(Y)	Y	(Y)	Y	N
Dangerous substances	(Y)	(Y)	(Y)	N	(Y)
Impact resistance	(Y)	N	(Y)	(Y)	Y
Load-bearing capacity of safety devices	Y	N	Y	Y	N
Ability to release	Y	(Y)	(Y)	(Y)	N
Acoustic performance [f]	N	(Y)	(Y)	Y	Y
Thermal transmittance	N	(Y)	(Y)	Y	Y
Radiation properties	N	N	N	N	Y
Air permeability	(Y)	Y	(Y)	Y	N
Operating forces	Y	Y	(Y)	(Y)	(Y)
Mechanical strength	Y	N	(Y)	Y	(Y)
Ventilation	N	N	N	Y	N
Bullet resistance	N	N	Y	Y	Y
Explosion resistance	Y	N	Y	Y	Y
Resistance to repeated opening and closing	Y	(Y)	(Y)	(Y)	(Y)
Behaviour between different climates	N	(Y)	Y	Y	N
Burglar resistance	Y	N	Y	Y	Y

Key

Y Modification of the component will probably change the characteristic in question

(Y) Modification of the component will possibly change the characteristic in question

N Modification of the component will probably not change the characteristic in question

Products	Intended use(s)	Levels or class(es)	Attestation of conformity system(s)
Doors and gates (with or without related hardware)	Fire/smoke compartmentation and escape routes		1
	On escape routes		1
	Other declared specific uses and/or uses subject to other specific requirements, in particular noise, energy, tightness and safety in use		3
	For internal communication only		4
Windows (with or without related hardware)	Fire/smoke compartmentation and on escape routes		1
	Any other		3
Roof windows	For uses subject to resistance to fire regulations (e. g. fire compartmentation)	Any	3
	For uses subject to reaction to fire regulations[a]	A1(*), A2(*), B(*), C(*).	1
		A1(**), A2(**), B(**), C(**),D,E	3
	For uses subject to external fire performance regulations[b]	(A1 to E)(***),F	4
		Products requiring testing	3
		Products "deemed to satisfy" without testing (CWFT lists)	4
	For uses contributing to stiffening the roof structure	—	3
	For uses other than those specified above	—	3

NOTE The grey shaded areas are for the completeness of the Mandates. They are not covered by this European Standard, see Figure 1.

System 1: See CPD Annex III.2.(i), without audit testing of samples

System 3: See CPD Annex III.2.(ii), Second possibility

System 4: See CPD Annex III.2.(ii), Third possibility

* Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material)

** Products/materials not covered by footnote (*)

*** Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of classes A1 according to Commission Decision 96/603/EC, as amended).

a see Commission Decision 2000/147/EC

b see Commission Decision 2001/671/EC