

CE



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Construction Products Directive

Evaluation of Conformity as laid down in the harmonised European Standards (hENs)

November 2004

European Association of Flat Glass Manufacturers
Groupement Européen Des Producteurs De Verre Plat



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A Background

GEPVP and CE Marking

The GEPVP acts, on behalf of IBN (Belgium National Standards body), as the secretariat for CEN TC129 – Glass in Building.

The Marketing Communication Committee of this organisation has prepared a set of summary documents, on behalf of the glass industry, that will form the 'Guide to the Marking of Glass for Building'. These documents will explain the Construction Products Directive (CPD) and its impact on the glass and construction industries. This Directive encompasses the harmonisation of standards throughout the Member States of the European Union.

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The first document (A guide to CE marking for glass in building 2003 onwards) outlined the background to the CPD, the mandate M135 – Glass in building, the types of standards being produced and 'Systems of Attestation of Conformity' that are applicable for any intended use.

This second document explains the 'Evaluation of Conformity' as laid down in the harmonised European Standards (hENs) for all products to be CE marked. It is recommended to be familiar with the first document before reading this one.

Further publications will cover specific product groups as and when the hENs become available.

The product groups are:

- > Basic soda lime silicate glass products (EN 572-9)
- > Thermally treated soda lime silicate glass products (EN 12150-2, EN 1863-2, EN 14179-2)
- > Laminated glass and laminated safety glass (EN 14449)
- > Coated glass (EN 1096-4)
- > Insulating glass units (EN 1279-5)
- > Others

B Audience

This second document is targeted at all glass manufacturers, processors and others within the glass trade who will be legally required to CE mark their products to enable them to place their products on the EU market.

C Scope

This document explains the route that a manufacturer MUST follow to show that the product conforms to the appropriate 'Evaluation of Conformity' standard leading to CE marking. It has been prepared as a map explaining how to proceed. The map will be made product group specific in further publications as mentioned above.

D Methodology (see also summary Figure 1)

The following steps are required:

a) purchase a copy of the hEN from a national standardisation body. See D.1. or an approved agent such as the Glass and Glazing Federation

b) understand the structure of an hEN, which is identical for all product standards. See D.2.

c) using the hEN, do the following:

- > go to Annex ZA (see definition in D.3)

It is the last part of an hEN but is actually the starting point of the map.

Annex ZA will allow you to understand:

- the evaluation of conformity within the hEN
- the requirements within the hEN

- > define the **intended use (“essential characteristic”)** – Table ZA.1 first column (see D.3.1).

A column has been added to the left hand side of Table ZA.1 to incorporate “Ref N°” to enable the reader to move between Table ZA.2, Figure 2 and Figure 3.

- > determine the **system of attestation of conformity** for the claimed intended uses – Table ZA.2 (see D.3.2).

A column has been added to the left hand side of Table ZA.2 to incorporate “Ref N°” to enable the reader to move between Table ZA.1, Figure 2 and Figure 3.

- > determine the assignment of tasks of the notified body and the manufacturer- Tables ZA.3.1, ZA.3.2 and ZA.3.3. (see D.3.3, Figure 2 and Attachment 6)

d) based on c) determine from the fourth column in one of the Tables ZA.3.1 to ZA.3.3 (see Attachment 6) the applicable **evaluation of conformity clauses**. That is Clause 5 (see Attachment 2) and Annex A (see Attachment 4) of the hEN .

e) based on the intended use given in D.3.1 Table ZA.1 first column, determine from the second column the particular **requirements** listed in Clause 4 of the hEN (see Attachment 1). Carry out the required actions (resulting from the assigned tasks), i.e. conformity with the definition of ‘glass product’, characteristics of ‘glass product’ and determination of the “essential characteristics”.

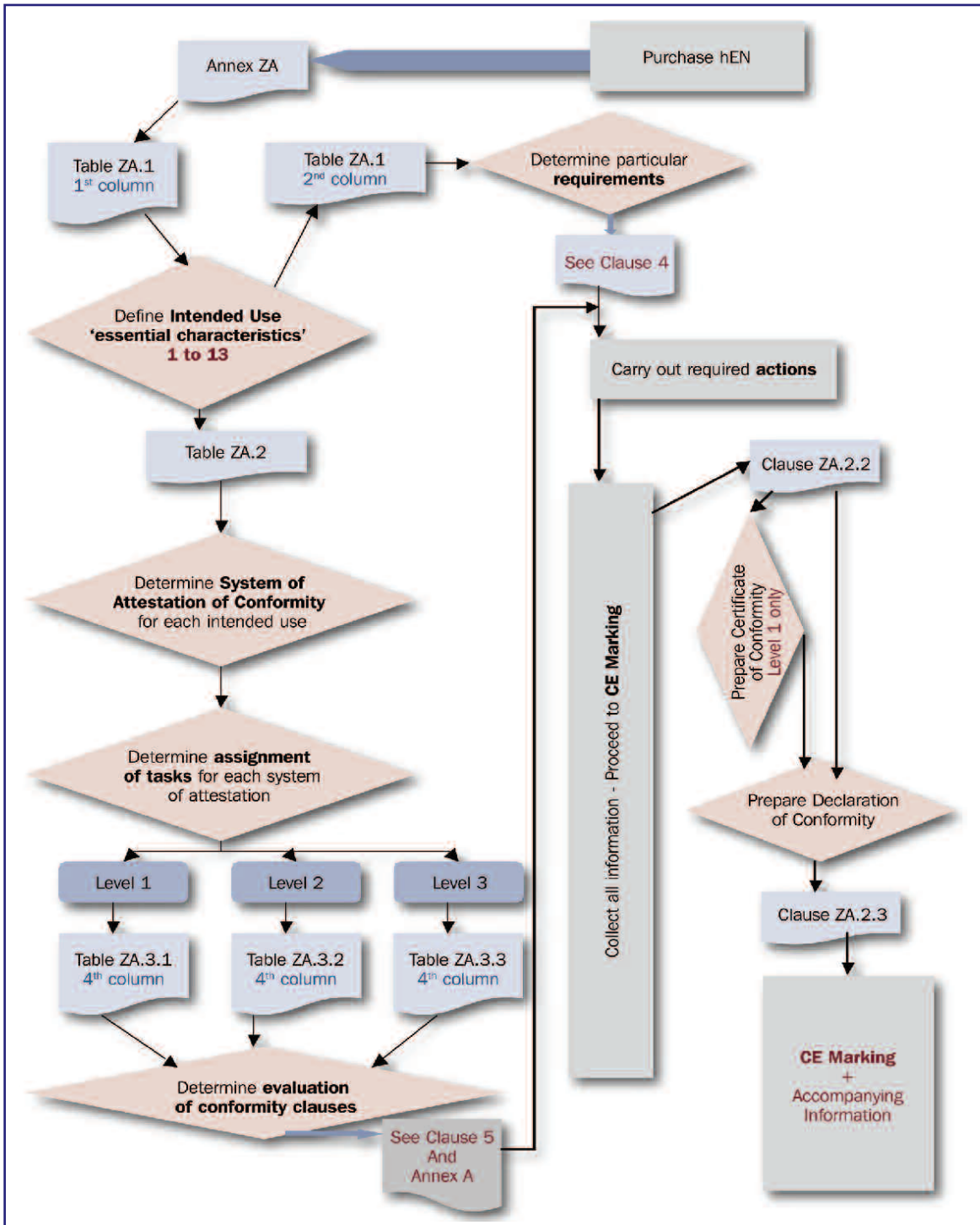
f) when all appropriate steps have been undertaken, proceed to **CE Marking** (see Clauses ZA.2.2 and ZA.3 Attachment 6). Clause ZA.2.2 deals with CE certificate and declaration of conformity.

Clause ZA.3 deals with CE marking and labelling. One of the requirements is information on the essential characteristics listed in Table ZA.1 and Figure 3. The information is either a declared performance or a declaration of no performance declared (NPD). A generic CE Mark label is given as Figure ZA.1 in Attachment 6.

Figure 3 is a diagrammatic representation of how to get to the information for incorporation into a CE mark label.

Note: Clause 6 of the hEN (see Attachment 3) advises on marking with special reference to the need for product marking.

Figure I – Summary of methodology



D.1 Purchase of harmonised European Norms (hENs)

All harmonised European Norms (hENs) and supporting standards, i.e. product, test method, calculation method, etc. may be purchased from the national standards bodies. Their website addresses are given in Attachment 7.

D.2 Structure of hEN

This structure is the same for all hENs.

Contents of hEN		Reference in this document
Foreword		
1	Scope	
2	Normative references	
3	Definitions	
4	Requirements	Attachment 1
5	Evaluation of conformity	Attachment 2
6	Marking and labelling	Attachment 3
Annex A (Normative)	Factory production control	Attachment 4
Various annexes	Test methods relating to factory production control	Product standard specific
Annex V (Informative)	Provisions for the voluntary involvement of third party(ies)	Attachment 5
Annex ZA (Informative)	Provisions of EU Construction Product Directive	Attachment 6

D.3 ANNEX ZA

Clauses of this European Standard addressing the provisions of EU Construction Products Directive (see also Attachment 6)

A candidate harmonised European Norm contains an informative Annex ZA, which indicates those clauses of the standard that support the fulfilment of the essential requirements of the Construction Products Directive.

When the European Commission accepts the candidate harmonised European Norm as a hEN then reference is made in the official journal of the EC. This makes the Annex ZA normative, i.e. it must be obeyed.

Contact your national standards body and/or national glass association to know when the Annex ZA has become normative.

D.3.1 Intended use (“essential characteristic”) – Table ZA.1

The colour coding has been duplicated within chapter E (Schematic overview).

Key:

Black clause numbers relate to product group – basic soda lime silicate glass.

Red clause numbers relate to processed products, i.e. thermally treated, laminated, coated, insulating glass units.

Table ZA.1 – Relevant clauses for glass and intended use in buildings and construction works

Ref No	Product - Glass products covered under the scope of this standard Intended use: In buildings and construction works			
	Essential Characteristics	Requirements in this and other European Standard(s)	Mandated Levels and/or classes	Notes
Define the intended use	Safety in the case of fire –			
	(1)	Resistance to fire (for glass for use in a glazed assembly intended specifically for fire resistance)	4.1, 4.2.1 and 4.2.2.1 4.2, 4.3.1 and 4.3.2.1	All Minutes
	(2)	Reaction to fire	4.1, 4.2.1 and 4.2.2.2 4.2, 4.3.1 and 4.3.2.2	Any Euroclasses
	(3)	External fire performance (for roof coverings only)	4.1, 4.2.1 and 4.2.2.3 4.2, 4.3.1 and 4.3.2.3	Any Euroclasses
	Safety in Use –			
	(4)	Bullet resistance: Shatter properties and resistance to attack	4.1, 4.2.1 and 4.2.2.4 4.2, 4.3.1 and 4.3.2.4	- Classes of convenience
	(5)	Explosion resistance: Impact behaviour and resistance to attack	4.1, 4.2.1 and 4.2.2.5 4.2, 4.3.1 and 4.3.2.5	- Classes of convenience
	(6)	Burglar resistance: Shatter properties and resistance to attack	4.1, 4.2.1 and 4.2.2.6 4.2, 4.3.1 and 4.3.2.6	- Classes of convenience
	(7)	Pendulum body impact resistance: Shatter properties (safe breakability) and resistance to impact	4.1, 4.2.1 and 4.2.2.7 4.2, 4.3.1 and 4.3.2.7	- Classes of convenience
	(8)	Mechanical resistance: Resistance against sudden temperature changes and temperature differentials	4.1, 4.2.1 and 4.2.2.8 4.2, 4.3.1 and 4.3.2.8	- K and/or °C
	(9)	Mechanical resistance: Resistance against wind, snow, permanent and imposed load and/or imposed loads of the glass unit	4.1, 4.2.1 and 4.2.2.9 4.2, 4.3.1 and 4.3.2.9	- mm
	(10)	Protection against noise: Direct airborne sound reduction	4.1, 4.2.1 and 4.2.2.10 4.2, 4.3.1 and 4.3.2.10	- dB
	Energy conservation and heat retention: –			
(11)	Thermal properties	4.1, 4.2.1 and 4.2.2.11 4.2, 4.3.1 and 4.3.2.11	- W/m².K	
(12)	Radiation properties: - light transmittance and reflectance	4.1, 4.2.1 and 4.2.2.12 4.2, 4.3.1 and 4.3.2.12	- Fractions or %	
(13)	- solar energy characteristics	4.1, 4.2.1 and 4.2.2.13 4.2, 4.3.1 and 4.3.2.13	- Fractions or %	

D.3.2 System of attestation of conformity for the claimed intended uses - Table ZA.2

Clause ZA.2 of the hEN deals with procedure(s) for the attestation of conformity of glass products.

Table ZA.2 lists the systems of attestation of conformity for the intended uses.

Table ZA.2 – System(s) of attestation of conformity

Ref No	Product(s)	Intended use(s)	Level(s) or class(es)	Attestation of conformity system(s)
(1)	All "glass products"	For uses in a glazed assembly intended specifically to provide fire resistance	Any	1
(2)		For uses subject to reaction to fire regulations	Euroclasses A1, A2, B, C, D, E	3
			Euroclasses A1*, F	4
(3)		For uses subject to external fire performance regulations	Products requiring testing	3
			Products "deemed to satisfy" without testing	4
(4, 5)		For use as anti-bullet, or anti-explosion glazing	-	1
(6, 7, 8, 9)		For other uses liable to present "safety-in-use" risks and subject to such regulations	-	3
(10, 11, 12, 13)		For uses relating to energy conservation and/or noise reduction	-	3
	For uses other than those specified above	-	4	

System 1: see Directive 89/106/EEC (CPD) Annex III.2.(i), without audit-testing of samples.
 System 3: see Directive 89/106/EEC (CPD) Annex III.2.(ii), Second possibility.
 System 4: see Directive 89/106/EEC (CPD) Annex III.2.(ii), Third possibility

* 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 2000/605/EC)

D.3.3 Assignment of evaluation of conformity tasks – Tables ZA.3.1 to ZA.3.3 (See Attachment 6)

Tables ZA.3.1 to ZA.3.3 detail the assignment of tasks between the manufacturer and the notified body for the different systems of attestation of conformity. These tables make reference to the applicable clauses within the hEN.

Figure 2 sets out the assignment of tasks dependent on the system of attestation of conformity.

Figure 2 – Relationship between Intended Use, System of Attestation and Roles of Manufacturer and Notified Body

Intended Use		System of Attestation of Conformity	ITT (Initial type testing)		FPC (Factory Production Control)			
			Producer/ manufacturer	Notified Testing Body	Producer/ manufacturer	Notified Certification Body		
						Inspection of FPC Documentation	Initial Inspection of Factory	Continuous Surveillance of FPC
Safety in Case of Fire	Resistance to Fire (1)	I		x	x	x	x	x
	Reaction to Fire (2)	3 or 4	Y	x	x			
	External Fire Performance (3)	3 or 4	Y	x	x			
Safety in Use	Bullet Resistance (4)	I		x	x	x	x	x
	Explosion Resistance (5)	I		x	x	x	x	x
	Burglar Resistance (6)	3		x	x			
	Pendulum Body Impact (7)	3		x	x			
	Resistance against Temperature (8)	3		x	x			
	Resistance against Wind, Snow etc (9)	3		x	x			
Protection against Noise	Direst airborne sound reduction (10)	3		x	x			
Energy Conservation and Heat Retention	Thermal Properties (11)	3		x	x			
	Light transmittance/reflectance (12)	3		x	x			
	Solar energy characteristics (13)	3		x	x			
Anything else		4	x		x			

Key: Y applicable for system of attestation 4

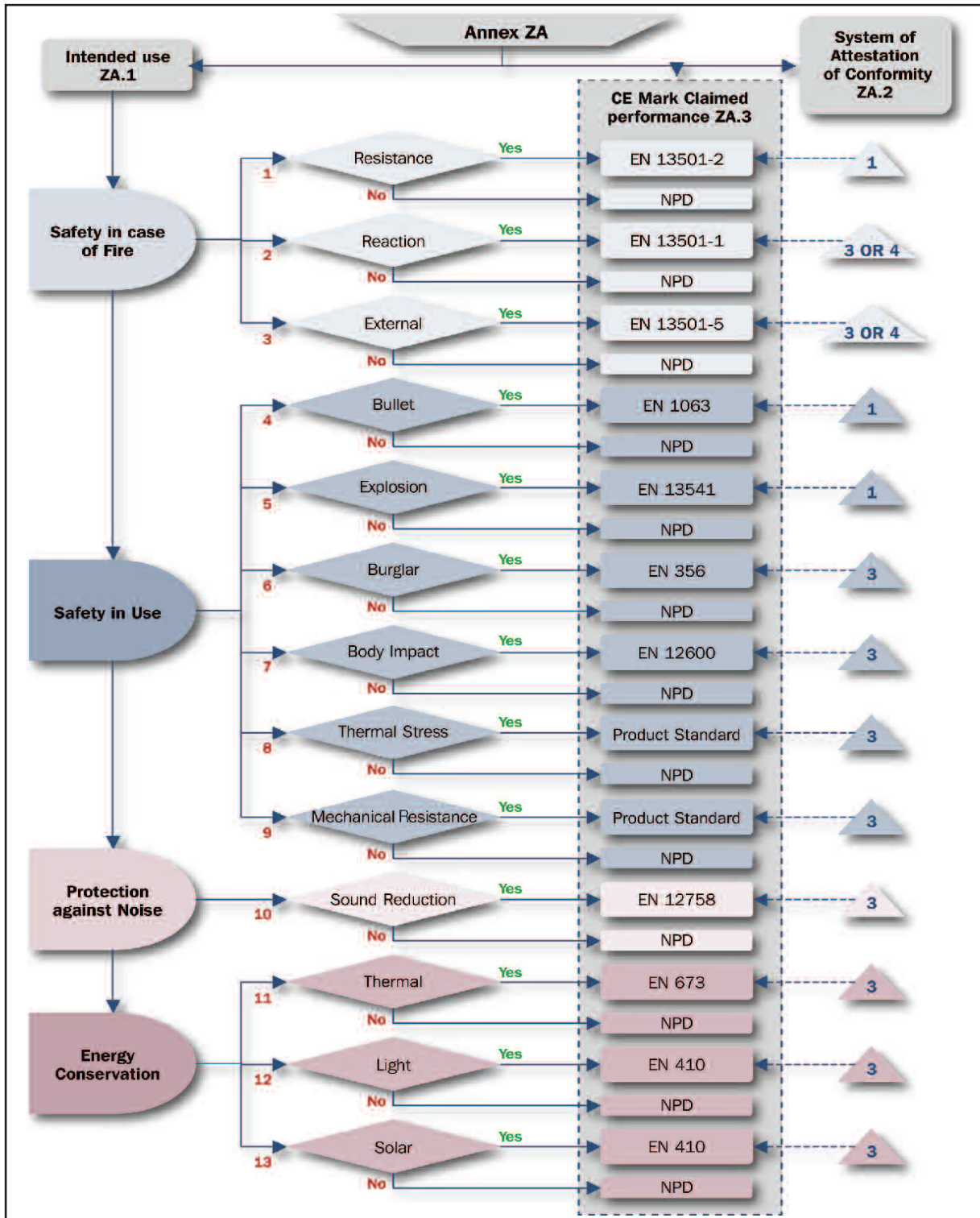
E Schematic Overview

Figure 3 is a diagrammatic representation of the relationship between intended use (Table ZA.1), system of attestation of conformity (Table ZA.2) and the claimed performances (Clause ZA.3).

The information has been colour coded to tie in with Clause D.3.1 Table ZA.1. The information has also been numbered to tie in with Clause D.3.1 Table ZA.1, Clause D.3.2 Table ZA.2 and Figure 2.

This Figure will allow the manufacturer to decide on the way forward for any particular intended use.

Figure 3 – Relationship between intended use (ZA.1) system of attestation of conformity (ZA.2) and the claimed performances (ZA.3)



F Glossary

These definitions have been prepared as a means of assisting understanding of the terms used within a specific hEN.

Product definition (for basic and special basic products only)

The definition/description as given in the appropriate Part I of the standard of the product.

Product description (for processed products)

A document that details the relevant parameters, e.g. process conditions, structure, etc, for defining a product that complies with the standard. It includes specific references to characteristics that are modified by the production process.

System description (for insulating glass units)

Description of components and the edge seal of the insulating glass unit in terms relevant to identification and in terms relevant to edge seal performance, e.g. moisture penetration index, gas loss rate.

Evaluation of conformity

The process by which a manufacturer shows that the product is in conformity with the harmonised European Standard (hEN). This consists of factory production control (FPC) and initial type testing (ITT).

System of Attestation of Conformity

The process that identifies the relevant roles of the manufacturer and any third party, i.e. Notified Body, in showing conformity of the product with the harmonised European Standard (hEN). Reference attachment 7 tables ZA.3.1, ZA.3.2 and ZA.3.3



The substitution of materials shall maintain the conformity with the product description. The substituting material can be added to the product family and also the product description when compliance has been demonstrated.

(4.1 or 4.2) Conformity with the definition of...
(Product group specific)

Proving that the product is the product

(4.2 or 4.3) Determination of the characteristics' performances

Showing that the product has the requisite product properties

(4.2.1 or 4.3.1) Characteristics of ...
(Product group specific)

A means of changing from one production plant to another without re-testing

(4.2.2 or 4.3.2) Determination of the characteristics of ...

If the glass product's manufacturer wishes to claim that any performance characteristic is independent of the production equipment used then the factory production control system shall be in accordance with this standard including his specific process control conditions.

How you meet the 13 mandated characteristics

(4.2.2.1 to 13 or 4.3.2.1 to 13) Determination of the characteristics of ...
See Figure 2

(4.3 or 4.4) Durability

When products conform to the definition of glass products as 4.1 or 4.2 the characteristics' performances in 4.2.2 or 4.3.2 are ensured during an economically reasonable working life.

A statement that says if the product is made correctly then its working life and those of its characteristics are reasonable

The durability of glass products, including their characteristics, shall be ensured by the following:

- > Compliance with this standard
- > Compliance with instructions from the glass product manufacturer or supplier

Makes it a requirement for manufacturers to offer installation instructions

The manufacturer shall supply specific installation instructions or make reference to appropriate technical specifications.

Only applicable for basic glass products

(4.4) Characteristics other than those in listed in 4.2

(4.5) Dangerous substances

Materials used in products shall not release any dangerous substances in excess of the maximum permitted levels specified in a relevant European Standard for the material or permitted in the national regulations of the Member State of destination

Of no interest as the products covered by the 'glass in building' standards do not release these types of substances

Attachment 2: hEN Clause 5 Evaluation of Conformity

5 Evaluation of Conformity

5.1 General

Evaluation of Conformity in accordance with this standard shall be as a result of Factory Production Control (FPC) and Initial Type Testing (ITT) in accordance with this standard.

- 1) Factory production control;
 - This shall include, the following:
 - a) Inspection of samples taken at the factory in accordance with a prescribed test plan;
 - b) Initial inspection of the factory and of factory production control;
 - c) Continuous surveillance and assessment of the factory production control.

- 2) Initial type testing of the product;

Note: There may be a need to involve a third party, with 1b, 1c, and/or 2, for the purpose of regulatory marking (see Annex ZA).

5.2 Initial type testing of the product (see 5.1, 2)

5.2.1 General

All the product's characteristics shall be initial type tested to verify they are in conformity with the requirements of this standard. In addition instead of performing any actual testing, initial type testing may make use of:

- > generally accepted and/or conventional and/or standardised values, in the Clause 2 referenced standards, or in publications that are referred to in these standards;
- > standardised calculation methods and recognised calculation methods in Clause 2 referenced standards, or in publications that are referred to in these standards;
- > test report(s) on the basis of 5.2.1.2 when made available except for the characteristics listed in 5.2.2;
- > where components are used whose characteristics have already been determined, by the component manufacturer, on the basis of conformity with other product standards, these characteristics need not be reassessed providing they remain unchanged by the manufacturing process;
- > release of dangerous substances may be assessed indirectly by controlling the content of the substance concerned;
- > durability may be assessed indirectly by controlling the production processes according to this standard;

Note 1: Products CE marked in accordance with appropriate harmonised European specifications may be presumed to have the performances stated with the CE marking.

Note 2: There may be a need to involve a third party for the purpose of regulatory marking (see Annex ZA).

The nub of the hEN is the relationship between FPC and ITT.

The FPC follows the Annex A and associated Tables A1 to A6.

The ITT is the means of proving that the product meets the requirements in the Part I of the standard as well as determining the performance against the 13 characteristics.

It is important NOT to confuse ITT with the need to do actual tests. Values for product characteristics can be obtained in several ways. For example:
Density is given in EN 572-1
U-value can be worked out using EN 673.
Reports of testing undertaken historically.
Using CE marked components; toughening of float glass does not change its light transmittance therefore the incoming value can be used.

Depending on system of attestation need for involvement of notified body.



When actual testing is required then the Initial Type Testing (ITT) shall be undertaken on a sample representative of the product taken from direct production or a prototype, any plant and/or line.

Whenever a change occurs in the raw material or the production process (subject to the definition of the family), which would change significantly one or more of the characteristics, the type tests shall be repeated for the appropriate characteristics.

5.2.1.1 Multiple lines/sites

If a manufacturer operates more than one line and/or site, the following can reduce the requirement for multiple Initial Type Testing (ITT):

- (i) The manufacturers' technical file for a product shall specifically cover all sites and/or lines of the same manufacturer¹,
- (ii) The manufacturer shall establish direct relationship between production control, initial type testing and on-going internal audit testing,
- (iii) The manufacturer shall have a responsible individual designated to ensure product compliance based on:
 - > The operation of a consistent Factory Production Control system on all applicable sites and/or lines,
 - > The manufacturer having obtained evidence that shows the product to be consistent, with respect to both product characteristics and intended use characteristics,
 - > The manufacturer has in place an internal auditing scheme, including product consistency.

5.2.1.2 Historic data

Tests previously performed in accordance with the provisions of this standard (same product, same characteristic(s), same or more onerous test method, sampling method and attestation of conformity) may be taken into account. (EN 1279-5 has a different version).

5.2.2 Initial type testing if the product belongs to (Specific to product group)

5.2.3 Initial type testing of characteristics' performances

All characteristics in 4.3 shall be subject to initial type tests in accordance with Clause 5.2.1.

5.3 Factory production control and inspection of samples in accordance with the prescribed test plan (see 5.1, 1a and b)

Factory production control means the permanent internal control of production exercised by the manufacturer.

All elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and

ITT should be undertaken on samples that relate to the FPC.

This clause sets down a method for reducing the number of ITT tests if the manufacturer has numerous lines and/or sites.

This method imposes a strict regime on the manufacturer that may be more costly than having an ITT for each line.

This clause is of use if some characteristics have been determined before the hEN is published. Care is needed for System of Attestation I.

Details will be given in the future product specific documents

¹ The terms 'manufacturer' and 'producer' are understood as being synonyms (see CPD working document NB-CPD/02/019-issued 24 April 2002 - page 1)

procedures. This production control system documentation shall ensure a common understanding of quality assurance and enable the achievement of the required product characteristics and the effective operation of the production control system to be checked.

Factory production control shall be according to Annex A of this standard.

Note 1: A factory production control system similar to EN ISO 9001 made product specific to this standard is deemed to satisfy the requirements of this clause.

Note 2: There may be a need to involve a third party for the purpose of regulatory marking (see Annex ZA).

Annex A of this standard also summarizes the tests that shall be carried out by the manufacturer as part of the production control in the factory, and as further testing of samples taken at the factory in accordance with a prescribed test plan. (FPC for insulating glass units is given in EN 1279-6 and not in Annex A).

5.4 Initial inspection of factory and of factory production control (see 5.1, 1c)

The initial inspection of the factory and of the factory production control shall cover the parameters listed in Table A2 - A6 in conjunction with Annex A..

Note: There may be a need to involve a third party for the purpose of regulatory marking (see Annex ZA).

5.5 Continuous surveillance and assessment of factory production control (see 5.1, 1c)

The continuous surveillance and assessment of the factory production control shall cover the parameters listed in with Annex A.

(The Table is product group specific).

Note: There may be a need to involve a third party for the purpose of regulatory marking (see Annex ZA).

See Annex A.

Requirement for a notified certification body for System of Attestation I.
Reference Section F glossary.

This only applies for a product with an intended use requiring a System of Attestation I.

This only applies for a product with an intended use requiring a System of Attestation I.



Attachment 3: hEN Clause 6 Marking and labelling

6. Marking and labelling

6.1 General

All voluntary marking and/or labelling shall comply with Annex V 3.

Care shall be taken to ensure that any voluntary marking and/or labelling does not cause confusion with respect to the mandatory requirements.

Note: All marking and/or labelling of product to demonstrate compliance with the regulatory requirement is detailed in Annex ZA.

6.2 Product marking

The glass product shall/shall not be marked

(Product group specific)

6.3 Product characteristics

The manufacturer or his agent shall organise a system of references that allows for the following:

exactly which characteristics have to be assessed (see Clause 4.2.2 or 4.3.2);

- > those characteristics that will be assessed;
- > the values, classes, categories, etc. that have been determined for those characteristics.

This system shall be documented as part of the evaluation of conformity.

6.4 “Characteristics/performance identification paper”

The manufacturer shall prepare a “characteristics/performance identification paper” based on the information collected on the product characteristics (see 6.3). This document shall be part of the manufacturer's technical file and is the basis for the accompanying information as required for regulatory purposes.

The “characteristics/performance identification paper” can be a catalogue in any media format (paper, disk, website, etc.), always identifiable by the reference that accompanies the marking with the product. The catalogue shall contain the values or classes of the characteristics for which a performance is declared. If no performance is declared, an indication of no performance determined (NPD) shall be made.

Note 1: The conditions of use of NPD are given in Annex ZA.

Note 2: The catalogue should not contain any information other than that relevant to the “characteristics/performance identification paper”.

The hEN will specify if product marking is required and the content of the mark.

Important that the manufacturer understands when/where NPD can be used.

Attachment 4: hEN Annex A Factory production control

A.1 Factory Production Control Requirements

A.1.1 General

The factory production control system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control incoming materials or components, equipment, the production process and the product.

Note: An FPC system conforming with the requirements of EN ISO 9001 and made specific to the requirements of this standard is deemed to satisfy the requirements of this standard.

A.1.2 Organisation

A.1.2.1 Responsibility and authority

The responsibility, authority and the interrelation of all personnel who manage, perform and verify work affecting conformity shall be defined, particularly for personnel who have the organizational freedom and authority to:

- a) initiate action to prevent the occurrence of product non-conformity;
- b) identify and record any product non-conformances.

A.1.2.2 Management representative for factory production control

The manufacturer shall appoint a management representative who, irrespective of other responsibilities, shall have defined authority and responsibility for ensuring that the requirements of this standard are implemented and maintained.

A.1.2.3 Management review

The production control system shall be reviewed by the manufacturer's management at appropriate intervals in accordance with the manufacturer's documented control system to ensure its continuing suitability and effectiveness. Records of such reviews shall be maintained for a minimum period of five years.

A.1.3 Control system

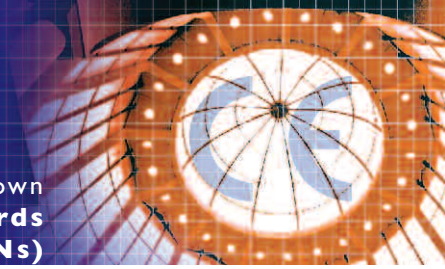
A.1.3.1 General

The manufacturer shall establish and maintain a documented system as a means of ensuring that the product conforms to the relevant EN Standard. The following requirements shall be fulfilled.

A.1.3.2 Personnel

The manufacturer shall use appropriately trained personnel for the operation and inspection of all inspection and production equipment.

If a manufacturer operates an ISO 9001 system and incorporates the specific requirements of this Annex, especially the Tables, then he is deemed to comply. If not then the manufacturer must comply with all of Annex A, including Tables.



A.1.3.3 Documentation

The manufacturer's documentation and procedures shall be relevant to the production and process control of the glass product, and shall be adequately described in a manual which shall include:

- a) The organizational structure, responsibilities and authorities of the management with regard to product conformity.
- b) The procedures for specifying and verifying the incoming materials.
- c) The manufacturing, production control and other techniques, processes and systematic actions that will be used.
- d) The inspections that will be carried out before production, the inspection and tests during and after production, and the frequency at which they will be carried out.
- e) Required records of the inspections, tests and assessments.
- f) Records of non-conformity situations requiring corrective actions and the actions taken.
- g) Unless otherwise indicated in national regulations, records must be kept for a minimum of one year after manufacturing the product

A.1.3.4 Test equipment

Calibration of test equipment necessary for factory production control shall be documented.

Note: The precision of calibration required is implied by the accuracy of the test method and tolerances specified.

A.1.3.5 Inspection and testing

Clause A.3 designates the inspections and tests by means of Tables. The requirements and records shall be normative.

Frequencies shall be regarded as a minimum frequency.

A.2 Marking

The manufacturer shall establish, document and maintain procedures for marking of the products. The product shall be marked in accordance with the established documents.

For tracing purposes, the manufacturer shall establish and maintain the records required in Clause A.3.

A.3 Inspection and testing tables of glass product production

A.3.1 Information on Table(s) A.1 to A6

Table(s) A.1 to A consists of three parts:

- > section 1: Material control
- > section 2: Production control
- > section 3: Product control

When a manufacturing process is such that one or more of the listed inspections or tests are not applicable or physically not practical, the concerned inspection or test may be ignored.

The inspections and/or tests on incoming materials shall be carried out before use.

In the case of non-conforming materials, action shall be taken so that:

- > non-conforming raw materials cannot be used
- > non-conforming products cannot be delivered.

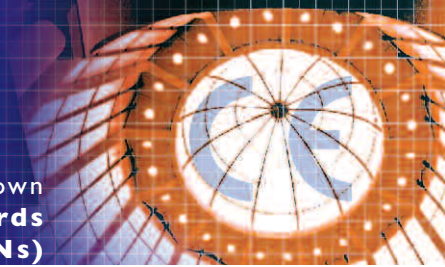
The required records in Tables A.1 may be any document, e.g. order documents, production documents, logbook, etc., as described in the FPC procedures and associated documentation.

For those criteria where no record is required this situation shall only apply until a complaint regarding that criteria is received. Records shall subsequently be kept to show that corrective action has been successful.

The machinery and equipment used for manufacturing the products shall be checked at periods consistent with the manufacturer's documented process control against defined parameters, maintained and adjusted for optimal results.

A.3.2 Use of proxy testing

A manufacturer may employ a test method or method of evaluation other than those referred to in the Table A.1 to A6 . However, it shall be the manufacturer's responsibility to prepare suitable documentation describing such tests and their correlation with the recommended method to ensure that the appropriate characteristic is as declared.



Attachment 5: hEN Provisions for voluntary involvement of third party(ies)

V.1 General

A manufacturer may employ third party(ies) for conformity assessment, which may involve a combination of initial type testing, inspection of factory production control, continuous surveillance and auditing of the product. The results of the conformity assessment by the bodies acting for regulators may be used by third party(ies) in carrying out their assigned tasks.

V.2 Voluntary tasks for third parties

A third party may be voluntarily contracted to perform the initial type testing, inspection of factory production control, continuous surveillance and auditing of the product.

Where a third party is voluntarily involved in the evaluation of conformity of the glass products covered by this European Standard then the assessment shall be in accordance with Clause 5, Evaluation of Conformity in this Standard.

A manufacturer may also voluntarily involve a third party in the control of characteristics, e.g. visual aspects, colour, etc., that are over and above the characteristics required for regulatory purposes.

V.3 Marking and labelling

The format of the label and the position should be agreed between the body involved and the manufacturer.

All marks and/or labels of a voluntary nature should be affixed so as not to be confused with those marks and/or labels that are required for regulatory purposes.

In order to prevent confusion with any regulatory marking and/or labelling, any marking and/or labelling associated with the involvement of third party(ies) on a voluntary basis should be accompanied with the following warning: "This marking/labelling has no relationship with any product characteristic covered by any regulatory marking and/or labelling".

This Annex whilst drafted as Annex V will have differing references depending upon product standard.

The use of a voluntary third party must not take away from the requirements of the hEN, e.g. if the System of Attestation is 3 then the Initial Type Test must be done by a Notified Testing Body.

The use of a voluntary third party to cover non-harmonised characteristics is permissible.

The use of voluntary national quality marks must not take away from the CE mark and must not be confusing.

This details the way to comply with the standard.

Attachment 5: hEN Provisions for voluntary involvement of third party(ies)

Annex ZA (Informative)

Clauses of this European Standard addressing provisions of the EU Construction Products Directive

ZA.1 gives the scope of the Annex. Table ZA.1 details the applicable intended uses (essential characteristics) – see 4.3.1

ZA.1 Scope and relevant characteristics

This European Standard has been prepared under a mandate M/135 “Flat glass, profiled glass and glass block products” given to CEN by the European Commission and the European Free Trade Association.

The clauses of this European standard shown in this Annex meet the requirements of mandate M/135 given under the EU Construction Products Directive (89/106/EEC).

Compliance with these clauses confers a presumption of fitness of the glass product characteristics covered by this Annex for the intended uses herein; reference should be made to the information accompanying the CE marking.

WARNING: Other requirements and other EU Directives, not affecting the fitness for intended uses, can be applicable to the thermally toughened soda lime silicate safety glass falling within the scope of this European Standard.

Note 1: In addition to any specific clauses relating to dangerous substances contained in this Standard, there may be other requirements applicable to products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

Note 2: An informative database of European and national provisions on dangerous substances is available at <http://europa.eu.int/comm/enterprise/construction/internal/dangsub/dangmain.htm>.

This annex has the same scope as Clause 1 of this standard with regard to the products covered. It establishes the conditions for the CE marking of glass intended for the use indicated below and shows the relevant clauses applicable (see Table ZA.1).

Construction Product: Glass product
Intended uses: In buildings and construction works

The requirement on a certain characteristic is not applicable in those Member States where there are no regulatory requirements on that characteristic for the intended end use of the product. In this case, manufacturers placing their products on the market of these Member States are not obliged to determine nor declare the performance of their products with regard to this characteristic and the option “No Performance Determined” (NPD) in the information accompanying the CE marking (see ZA.3) may be used. The NPD option may not be used, however, where the characteristic is subject to a threshold level

ZA.2 deals with the system of attestation of conformity – see 4.3.2; especially Table ZA.1.

ZA.3 deals with assignment of evaluation of conformity tasks – see 4.3.3, Figure 2 and tables ZA.3.1 to ZA.3.3.

Table ZA.3.1 – Assignment of evaluation of conformity tasks for glass products under system 1

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks for the manufacturer	Factory Production Control (FPC)	Parameters related to all relevant characteristics of Table ZA.1	5.3
	Further testing of samples taken at factory	All relevant characteristics of Table ZA.1	Annex A
	Initial type testing	All relevant characteristics of Table ZA.1, except: Resistance to fire, Anti-bullet Anti-explosion	5.2
Tasks for the notified body	Initial type testing	Resistance to fire, Anti-bullet Anti-explosion	5.2
	Initial inspection of factory and FPC	Parameters related to all relevant characteristics of Table ZA.1, in particular: Resistance to fire, Anti-bullet Anti-explosion	5.4
	Continuous surveillance, assessment and approval of FPC	Parameters related to all relevant characteristics of Table ZA.1, in particular: Resistance to fire, Anti-bullet Anti-explosion	5.5

Table ZA.3.2 – Assignment of evaluation of conformity tasks for glass products under system 3

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks for the manufacturer	Factory production control (FPC)	Parameters related to all relevant characteristics of Table ZA.1	5.3
	Initial type testing	All other relevant characteristics of Table ZA.1 other than those shown below	5.2
Tasks for the notified body	Initial type testing	Reaction to fire; Euroclasses A1, A2, B, C, D, E External fire performance Burglar resistance Pendulum body impact resistance Direct airborne sound insulation Thermal properties Radiation properties: - light transmittance and reflection - solar energy characteristics	5.2

Table ZA.3.3 – Assignment of evaluation of conformity tasks for glass products under system 4

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks for the manufacturer	Factory Production Control (FPC.)	Parameters related to all relevant characteristics of Table ZA.1	5.3
	Initial type testing	Reaction to fire; Euroclasses AI*, F All relevant characteristics of Table ZA.1	5.2

ZA.2.2 EC Certificate and Declaration of Conformity

In case of products under system 1: When compliance with the conditions of this Annex is achieved, the certification body shall draw up a certificate of conformity (EC Certificate of Conformity), which entitles the manufacturer to affix the CE marking. This certificate shall include:

- > name, address and identification number of the certification body;
- > name and address of the manufacturer, or his authorised representative established in the European Economic Area (EEA), and place of production;
- > description of the product (type, identification, use, etc.)
- > provisions to which the product conforms (i.e. Annex ZA of this standard)
- > particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions, etc.);
- > the number of the certificate;
- > conditions and period of validity of the certificate, where applicable;
- > name of, and position held by, the person empowered to sign the certificate.

In addition, the manufacturer shall draw up a declaration of conformity (EC Declaration of Conformity) including the following:

- > name and address of the manufacturer, or his authorised representative established in the EEA;
- > name and address of the certification body;
- > description of the product (type, identification, use, etc.), and a copy of the information accompanying

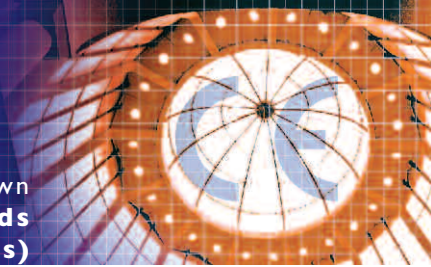
the CE

marking;

- > provisions to which the product conforms (i.e. Annex ZA of this standard);
- > particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions, etc.);
- > number of the accompanying EC Certificate of Conformity;
- > name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or of his authorised representative.

In case of products under system 3: When compliance with the conditions of this Annex is achieved, the manufacturer or his agent established in the EEA shall prepare and retain a declaration of conformity (EC Declaration of Conformity), which entitles the manufacturer to affix the CE marking. This declaration shall include:

- > name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;
- > description of the product (type, identification, use,...), and a copy of the information accompanying the CE marking;
- > provisions to which the product conforms (i.e. Annex ZA of this EN 572-9);
- > particular conditions applicable to the use of the product, (e.g. provisions for use under certain conditions, etc);
- > name and address of the notified laboratory(ies);
- > name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or his authorised representative.



In case of products under system 4: When compliance with this Annex is achieved, the manufacturer or his agent established in the EEA shall prepare and retain a declaration of conformity (EC Declaration of conformity), which entitles the manufacturer to affix the CE marking. This declaration shall include:

- > name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;
- > description of the product (type, identification, use,...), and a copy of the information accompanying the CE marking;
- > provisions to which the product conforms (i.e. Annex ZA of this EN 572-9);
- > particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions, etc.);
- > name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or of his authorised representative.

Note: Duplication of information between the declaration and certificate should be avoided. To avoid duplication of information, cross-reference between documents may be made when one contains more information than the other.

The above mentioned declaration and certificate shall be presented in the official language or languages of the Member State in which the product is to be used.

ZA.3 CE marking and labelling

The manufacturer or his authorised representative established within the EEA is responsible for the affixing of the CE marking. The CE marking symbol to be affixed shall be in accordance with Directive 93/68/EC and shall be shown on the glass product (or when not possible it may be on the accompanying label, the packaging or on the accompanying commercial documents e.g. a delivery note). The following information shall accompany the CE marking symbol:

- > identification number of the certification body (only for products under systems I);
- > name or identifying mark and registered address of the producer;
- > the last two digits of the year in which the marking is affixed;
- > number of the EC Certificate of conformity or factory production control certificate (if relevant);
- > reference to this European Standard;
- > description of the product: generic name, material, dimensions, ... and intended use;
- > information on those relevant essential characteristics listed in table ZA.1 which are to be declared presented as:
- > declared values and, where relevant, level or class (including “pass” for pass/fail requirements, where necessary) to declare for each essential characteristic as indicated in “Notes” in table ZA.1;
- > as an alternative, standard designation(s) alone or in combination with declared values as above, and; “No performance determined” for characteristics where this is relevant.

The “No Performance Determined” (NPD) option may not be used where the characteristic is subject to a threshold level. Otherwise, the NPD option may be used when and where the characteristic, for a given intended use, is not subject to regulatory requirements in the Member State of destination.

Figure 1 gives an example of the information to be given on the product, label, packaging and/or commercial documents.

Table ZA.3.3 – Assignment of evaluation of conformity tasks for glass products under system 4


 01234	<p>CE conformity marking, consisting of the CE -symbol given in directive 93/68/EEC.</p> <p>Identification number of the certification body (where relevant) [A]</p>
AnyCo Ltd, PO Box 21, B-1050 06 01234-CPD-00234	<p>Name or identifying mark and registered address of the producer</p> <p>Last two digits of the year in which the marking was affixed</p> <p>Certificate number (where relevant) [B]</p>
<p style="text-align: center;">EN Product type</p> <p>Product type, intended to be used in buildings and construction works</p> <p>Characteristics</p> <ul style="list-style-type: none"> Resistance to fire Reaction to fire External fire performance Bullet resistance Explosion resistance Burglar resistance Pendulum body impact resistance Resistance against sudden temperature changes and temperature differentials Wind, snow, permanent and imposed load resistance Direct airborne sound insulation Thermal properties Radiation properties: <ul style="list-style-type: none"> > light transmission and reflection > solar energy characteristics 	<p>No. of European Standard</p> <p>Description of product and information on regulated characteristics (see Table ZA.1 and Figure 3)</p>

Figure 1 - Example of CE marking information

[A] and [B] only applicable for products claiming essential characteristics that require a System of Attestation I, i.e. fire resistance, bullet resistance, explosion resistance.

Attachment 7: Website addresses for the EU 25 standardisation bodies

Country	National Body	Internet Page
Austria	Österreichisches Normungsinstitut (ON)	http://www.on-norm.at/
Belgium	IBN/BIN	http://www.ibn.be
Cyprus	Cyprus Organisation for the Promotion of Quality (CYS)	http://www2.cytanet.com.cy/cys
Czech Republic	Czech Standards Institute (CSNI)	http://www.csni.cz
Denmark	Danish Standards (DS)	http://www.ds.dk/
Estonia	Eesti Standardikeskus (EVS)	http://www.evs.ee
Finland	Finnish Standards Association (SFS)	http://www.sfs.fi/
France	Association Française de Normalisation (AFNOR)	http://www.afnor.fr/
Germany	Deutsches Institut für Normung (DIN)	http://www.din.de
Greece	Hellenic Organization for Standardization (ELOT)	http://www.elot.gr/
Hungary	Magyar Szabványügyi Testület (MSZT)	http://www.mszt.hu/
Ireland	National Standards Authority of Ireland (NSAI)	http://www.nsai.ie/
Italy	Nazionale Italiano di Unificazione (UNI)	http://www.uni.com
Latvia	Latvian Standard (LVS)	http://www.lvs.lv
Lithuania	Lithuanian Standards Board (LST)	http://www.lsd.lt
Luxembourg	Service de l'Énergie de l'État (SEE)	http://www.see.lu
Malta	Malta Standards Authority (MSA)	http://www.msa.org.mt
Netherlands	Nederlands Normalisatie-instituut (NEN)	http://www.nen.nl
Poland	Polish Committee for Standardization (PKN)	http://www.pkn.pl
Portugal	Instituto Português da Qualidade (IPQ)	http://www.ipq.pt/
Slovakia	Slovak Standards Institute (SUTN)	http://www.sutn.gov.sk
Slovenia	Slovenian Institute for Standardization (SIST)	http://www.sist.si
Spain	Asociación Española de Normalización y Certificación (AENOR)	http://www.aenor.es/
Sweden	SIS, Swedish Standards Institute (SIS)	http://www.sis.se
UK	British Standards Institute (BSI)	http://www.bsi-global.com/