



GEPVP

Construction Products Directive



**Evaluation of conformity of
“Basic soda lime silicate glass products” to hEN 572-9**

(July 2005)

GEPVP, THE EUROPEAN ASSOCIATION OF FLAT GLASS MANUFACTURERS

members : GLAVERBEL, GUARDIAN, PILKINGTON, SAINT-GOBAIN GLASS





CONTENTS

A. Background.....	4
B. Audience	4
C. Scope	4
D. Methodology.....	4
Annex ZA.....	4
Attachment 1: hEN Clause 4 Requirements.....	11
Attachment 2: hEN Clause 5 Evaluation of conformity.....	13
Attachment 3: hEN Clause 6 Marking and labelling.....	14
Attachment 4: hEN Annex A Factory production control	14
Attachment 5: hEN (Annex B) Provisions for voluntary involvement of third party(ies).....	14
Attachment 6: hEN Annex ZA.....	15

A BACKGROUND

The first document prepared by GEPVP explained the background to compliance with the CPD¹ and the second explained the principles of evaluation of conformity².

This document will explain the system of “Evaluation of Conformity” applicable for “basic soda lime silicate glass products” as laid down in EN 572 – 9³, the appropriate harmonised European Standard (hEN).

B AUDIENCE

This part is applicable to any manufacturer of basic soda lime silicate glass products, i.e. float glass⁴, polished wired glass⁵, drawn sheet glass⁶, patterned glass⁷, wired patterned glass⁸, wired or unwired channel shaped glass⁹. It is also applicable to any merchant/supplier of these products, with the exception of wired or unwired channel shaped glass, in sizes other than those given in Parts 2 to 6, i.e. supplier of supplied or final cut sizes¹⁰.

C SCOPE

This is taken from EN 572-9.

“This European Standard covers the evaluation of conformity and the factory production control of basic soda lime silicate glass products for use in buildings.”

D METHODOLOGY (see also summary figure 1)

This document follows the methodology given in the second document. It also follows the same referencing with respect to “attachments”, etc.

This document includes explanatory information on Clause ZA.2.2 – EC Certificate and Declaration of Conformity (see Attachment 6).

Annex ZA

As detailed in the second document the starting point for undertaking the evaluation of conformity is Table ZA.1 (below). This table is colour coded and each essential characteristic is numbered to line up with the corresponding table in the second document.

The “System of Attestation of Conformity” for the claimed intended uses are given in Table ZA.2 of the hEN. Details of the tasks relating to “Assignment of Evaluation of Conformity” are given in Tables ZA.3.1 to ZA.3.3 of the hEN (see second document for explanation).

The relationship between the intended use, the applicable “Systems of Attestation of Conformity” and the roles of the manufacturer and Notified Body(ies) is given in Figure 2. This figure is specific to conformity with EN 572-9.

¹ GEPVP CONSTRUCTION PRODUCTS DIRECTIVE – A guide to CE marking for glass in building 2003 onwards

² GEPVP CONSTRUCTION PRODUCTS DIRECTIVE – Evaluation of conformity as laid down in the harmonised European Standards (hENs)

³ EN 572 –9 Glass in building – Basic soda lime silicate glass products – Part 9: Evaluation of conformity/Product standard

⁴ EN 572 –2 Glass in building – Basic soda lime silicate glass products – Part 2: Float glass

⁵ EN 572 –3 Glass in building – Basic soda lime silicate glass products – Part 3: Polished wired glass

⁶ EN 572 –4 Glass in building – Basic soda lime silicate glass products – Part 4: Drawn sheet glass

⁷ EN 572 –5 Glass in building – Basic soda lime silicate glass products – Part 5: Patterned glass

⁸ EN 572 –6 Glass in building – Basic soda lime silicate glass products – Part 6: Wired patterned glass

⁹ EN 572 –7 Glass in building – Basic soda lime silicate glass products – Part 7: Wired or unwired channel shaped glass

¹⁰ EN 572 –8 Glass in building – Basic soda lime silicate glass products – Part 8: Supplied or final cut sizes





Figure 1 – Summary of methodology

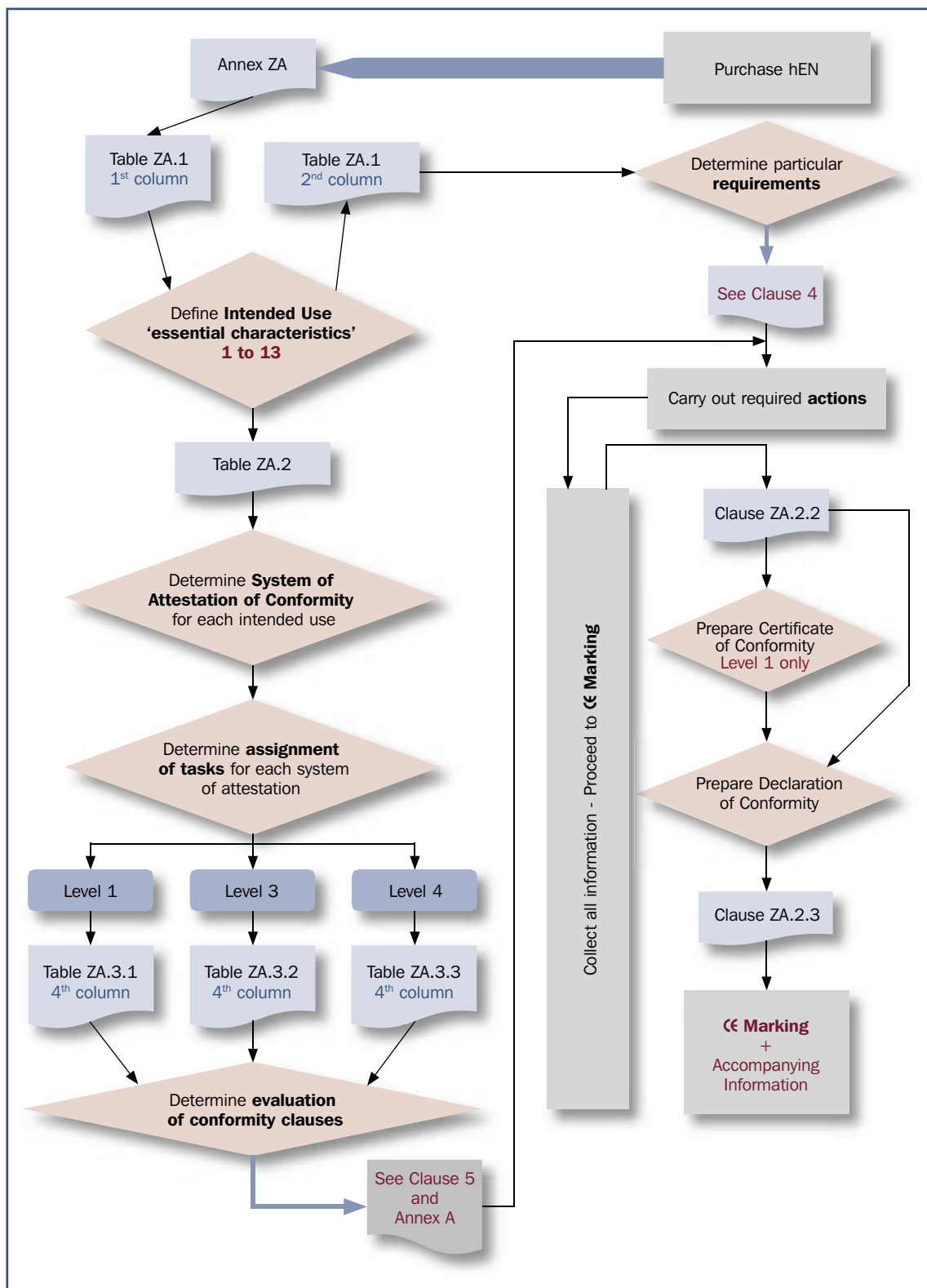


Table ZA1 - Specific to EN 572-9: Basic soda lime silicate glass products

Ref N°	Product: Basic soda lime silicate glass product as 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
	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	All	Minutes
(2)	Reaction to fire	4.1, 4.2.1 and 4.2.2.2	Any	Euroclasses
(3)	External fire performance (for roof coverings only)	4.1, 4.2.1 and 4.2.2.3	Any	Euroclasses
	Safety in Use –			
(4)	Bullet resistance: Shatter properties and resistance to attack	4.1, 4.2.1 and 4.2.2.4	-	Classes of convenience
(5)	Explosion resistance: Impact behaviour and resistance to attack	4.1, 4.2.1 and 4.2.2.5	-	Classes of convenience
(6)	Burglar resistance: Shatter properties and resistance to attack	4.1, 4.2.1 and 4.2.2.6	-	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	-	Classes of convenience
(8)	Mechanical resistance: Resistance against sudden temperature changes and temperature differentials	4.1, 4.2.1 and 4.2.2.8	-	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	-	mm
(10)	Protection against noise: Direct airborne sound reduction	4.1, 4.2.1 and 4.2.2.10	-	dB
	Energy conservation and heat retention: –			
(11)	Thermal properties	4.1, 4.2.1 and 4.2.2.11	-	W/(m ² .K)
(12)	Radiation properties: - light transmittance and reflectance	4.1, 4.2.1 and 4.2.2.12	-	Fractions or %
(13)	- solar energy characteristics	4.1, 4.2.1 and 4.2.2.13	-	Fractions or %






Figure 2 - Relationship between Intended Use, System of Attestation of Conformity and the Roles of Manufacturer and Notified Body – Specific to EN 572-9

Ref. No.	Intended Use	Applicable System of Attestation of Conformity	Initial Type Testing (IT)		Factory Production Control (FPC)			
			Producer/Manufacturer	Notified Testing Body	Producer/Manufacturer	Notified Certification Body		
						Inspection of FPC Documentation	Initial Inspection of Factory	Continuous Surveillance of FPC
(1)	Fire Resistance	1	NA	X	X	X	X	X
(4)	Bullet resistance							
(5)	Explosion Resistance							
(3)	External Fire Performance	3	NA	X	X	NA	NA	NA
(6),(7),(8),(9)	Safety in Use							
(10)	Noise Reduction							
(11),(12),(13)	Energy Conservation							
(2)	Reaction to Fire	4	X	NA	X	NA	NA	NA

Key: NA not applicable
X body responsible

Figure 3 – Example of a CE Marking label for System of Attestation of Conformity - 1

 01234 ¹	
AnyCo Ltd, PO Box 21, B-1050 05 01234-CPD-00234 ²	
6mm Polished wired glass EN 572-9	
Basic soda lime silicate glass product, intended to be used in buildings and construction works	
Characteristics	
Resistance to fire	E30³
Reaction to fire	A1*
External fire performance	NPD
Bullet resistance	NPD
Explosion resistance	NPD
Burglar resistance	NPD
Pendulum body impact resistance	NPD
Resistance against sudden temperature changes and temperature differentials	40K
Wind, snow, permanent and imposed load resistance	6mm
Direct airborne sound insulation	31(-2;-3)dB
Thermal properties	5,6W/(m².K)
Radiation properties:	
Light transmission and reflection	0,85/0,11
Solar energy characteristics	0,83/0,13

¹ Identification number of the certification body

² Certificate number

³ Reference to the certification report. Traceable from the certification report will be detail(s) of the “virtual kit(s)” used for the fire testing.





Figure 4 – Example of a CE Marking label for System of Attestation of Conformity - 3

CE	
AnyCo Ltd, PO Box 21, B-1050 05	
6mm Float glass EN 572-9	
Basic soda lime silicate glass product, intended to be used in buildings and construction works	
Characteristics	
Resistance to fire	NPD
Reaction to fire	A1*
External fire performance	NPD
Bullet resistance	NPD
Explosion resistance	NPD
Burglar resistance	NPD
Pendulum body impact resistance	NPD
Resistance against sudden temperature changes and temperature differentials	40K
Wind, snow, permanent and imposed load resistance	6mm
Direct airborne sound insulation	31(-2;-3)dB
Thermal properties	5,6W/(m².K)
Radiation properties:	
Light transmission and reflection	0,85/0,11
Solar energy characteristics	0,83/0,13

Figure 5 – Example of a CE Marking label for System of Attestation of Conformity - 4

CE	
AnyCo Ltd, PO Box 21, B-1050 05	
4mm Patterned glass EN 572-9	
Basic soda lime silicate glass product, intended to be used in buildings and construction works	
Characteristics	
Resistance to fire	NPD
Reaction to fire	A1*
External fire performance	NPD
Bullet resistance	NPD
Explosion resistance	NPD
Burglar resistance	NPD
Pendulum body impact resistance	NPD
Resistance against sudden temperature changes and temperature differentials	40K
Wind, snow, permanent and imposed load resistance	4mm
Direct airborne sound insulation	29(-2;-3)dB
Thermal properties	NPD
Radiation properties:	
Light transmission and reflection	NPD
Solar energy characteristics	NPD





Attachment 1: hEN Clause 4 Requirements

Clause No.	Content	Explanation
4.1	Conformity with the definition of basic soda lime silicate glass products Products shall conform to the definition and fulfil the requirements of basic soda lime silicate glass products as defined in EN 572-1.	EN 572-1: 2004 defines basic glass products in Clause 3, composition in Clause 5 and physical and mechanical properties in Clause 6.
4.2	Determination of the characteristic's performances	
4.2.1	Characteristics of basic soda lime silicate glass Basic soda lime silicate glass products are made in accordance with EN 572-1 and one of the other Parts: EN 572-2, EN 572-3, EN 572-4, EN 572-5, EN 572-6, or EN 572-7. The characteristics listed in table 1, concern general accepted values, calculated values or measured values.	The values given in Table 1 can be used without any further checking.
4.2.2.1	Safety in the case of fire – Resistance to fire (1) Fire resistance shall be determined and classified in accordance with EN 13501-2.	Glass CANNOT be tested for resistance to fire on its own. The tests have to be undertaken in a glazed assembly. The glazed assembly being regarded as a “virtual kit” ¹ and is detailed in the official classification report.
4.2.2.2	Safety in the case of fire – Reaction to fire (2) Reaction to fire shall be determined and classified in accordance with EN 13501-1.	Basic soda lime silicate glass products are 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).
4.2.2.3	Safety in the case of fire – External fire behaviour (3) Where the manufacturer wishes to declare external fire performance (e.g. when subject to regulatory requirements), the product shall be tested and classified in accordance with prEN 13501-5. Note: Compliance with this requirement is not possible until a version of prEN 13501-5 later than 2002 becomes available.	The present situation is that there are four different test methods in ENV 1187. The applicability of these tests to glass is not totally clear. However, before deciding to test it is paramount that the manufacturer checks if this particular glass product type is permitted, by national regulations, in this application.
4.2.2.4	Safety in use – Bullet resistance: Shatter properties and resistance to attack (4) Bullet resistance shall be determined and classified in accordance with EN 1063.	Basic soda lime silicate glass products would not be expected to pass this test method. NPD is the appropriate information for the CE marking label/accompanying information.

¹ Sectorial Group 09 – Glass in building: Testing protocol – Safety in case of fire – Fire resistance applicable for the CE marking of glass for building.

<p>4.2.2.5</p>	<p>Safety in use – Explosion resistance: Impact behaviour and resistance to impact (5)</p> <p>Explosion resistance shall be determined and classified in accordance with EN 13541.</p>	<p>Basic soda lime silicate glass products would not be expected to pass this test method.</p> <p>NPD is the appropriate information for the CE marking label/accompanying information.</p>
<p>4.2.2.6</p>	<p>Safety in use – Burglar resistance: Shatter properties and resistance to attack (6)</p> <p>Burglar resistance shall be determined and classified in accordance with EN 356.</p>	<p>Basic soda lime silicate glass products would not be expected to pass this test method.</p> <p>NPD is the appropriate information for the CE marking label/accompanying information.</p>
<p>4.2.2.7</p>	<p>Safety in use – Pendulum body impact resistance: Shatter properties (safe breakability) and resistance to impact (7)</p> <p>Pendulum body impact resistance shall be determined and classified in accordance with EN 12600.</p>	<p>Basic soda lime silicate glass products would not be expected to pass this test method.</p> <p>The exceptions being special types of polished wired glass and wired patterned glass.</p>
<p>4.2.2.8</p>	<p>Safety in use – Mechanical resistance: Resistance against sudden temperature changes and temperature differentials (8)</p> <p>The resistance against sudden temperature changes and temperature differentials is a generally accepted value that is given in EN 572-1 and shall be ensured by compliance with this standard.</p>	<p>EN 572-1 gives a generally accepted value of 40 K.</p> <p>Note 1: This value is influenced by edge quality and glass type.</p> <p>Note 2: This value may not be the design value adopted for use in, for example, thermal stress calculations.</p>
<p>4.2.2.9</p>	<p>Safety in use – Mechanical resistance: Resistance against wind, snow, permanent load and/or imposed loads of the glass unit (9)</p> <p>The mechanical strength of basic soda lime silicate glass is a characteristic value that is given in EN 572-1 and is ensured by compliance with this standard.</p> <p>As long as on the concerned construction or building site no part of prEN 13474 is applicable then the current method of determining mechanical resistance in the country of destination shall be applied.</p> <p>The manufactured or supplied thickness of soda lime silicate glass shall conform to the ordered thickness.</p>	<p>EN 572-1 gives a value for the characteristic bending strength ($f_{g,k}$) of 45×10^6 Pa.</p> <p>Note: The characteristic bending strength has to be used in conjunction with the design method given in prEN 13474¹.</p> <p>Supplying what was ordered, in terms of thickness, will cover this characteristic.</p>

¹ prEN 13474: This standard is being drafted. It will consist of the following three parts:

- determination by calculation of the resistance to load of glass used in fenestration;
- determination by calculation of the resistance to load of glass used in common non-structural applications other than fenestration;
- general basis of design.





<p>4.2.2.10</p>	<p>Protection against noise – Direct airborne sound reduction (10)</p> <p>The sound reduction indexes shall be determined in accordance with EN 12758.</p>	<p>EN 12758 gives generally accepted values that can be used in the absence of measured data. Hence there is no reason to test this characteristic.</p>
<p>4.2.2.11</p>	<p>Energy conservation and heat retention – Thermal properties (11)</p> <p>The thermal transmittance value (<i>U</i>-value) shall be determined by calculation in accordance with EN 673 with:</p> <ul style="list-style-type: none"> • emissivity ϵ using the value of emissivity as given in EN 572-1 • nominal thickness of the glass panes 	<p>EN 572-1 gives a value for the corrected emissivity of 0,837. Therefore no necessity to have this characteristic measured.</p>
<p>4.2.2.12</p>	<p>Energy conservation and heat retention – Radiation properties: Light transmittance and reflectance (12)</p> <p>The light transmittance and reflectance shall be determined in accordance with EN 410.</p>	<p>These values need to be determined in accordance with the standard EN 410.</p> <p>The manufacturer is responsible for ensuring, via the factory production control (see Tables A1 to 6), that the product continues to have the same values.</p>
<p>4.2.2.13</p>	<p>Energy conservation and heat retention – Radiation properties: Solar energy characteristics (13)</p> <p>The solar energy transmittance and reflectance shall be determined in accordance with EN 410.</p>	<p>These values need to be determined in accordance with the standard EN 410.</p> <p>The manufacturer is responsible for ensuring, via the factory production control (see Tables A1 to 6), that the product continues to have the same values.</p>

Attachment 2: hEN Clause 5 Evaluation of conformity

<p>5.2.2</p>	<p>Initial type testing if the product belongs to the group soda lime silicate glass, clear or tinted</p> <p>Initial type testing to establish if a product conforms to the definition of soda lime silicate glass, shall be economised as much as possible. For that purpose appropriate available test reports are equivalent to actual testing and may be used instead of actual testing. The initial type testing concerns the product aspects as listed in table 2.</p>	<p>The chemical composition and determination of whether or not the glass is clear need to be determined.</p> <p>Details of composition, method of determining whether glass is clear or tinted and acceptance levels are given in EN 572-1.</p> <p>Any glass called tinted, which could also include white (also known as low-iron glass), does not need to be checked to determine if it is clear.</p> <p>Thickness, including tolerances, is given in the relevant product standard, i.e. EN 572 Part 2 to 7.</p>
---------------------	---	--

Table 2: Product aspects to be checked if product belongs to the group soda lime silicate glass

Nr	Product aspect
1	Chemical composition
2	Thickness
3	Light transmittance (distinction clear glass from tinted glass)

Attachment 3: hEN Clause 6 Marking and labelling

6.2	Product marking There is no requirement to mark basic soda lime silicate glass products	No requirement for marking on these products.
------------	---	---

Attachment 4: hEN Annex A Factory production control

Annex A	Factory production control requirements	The generalities are covered in the GEPVP second document "Evaluation of conformity"
Tables A1 to A6	The Tables A1 to A6 are specific for different product types; i.e. float glass, polished wired glass, drawn sheet glass, patterned glass, wired patterned glass, wired and unwired channel shaped glass.	These cover: <ul style="list-style-type: none"> - Incoming raw materials - Process control - Product control; both the glass itself and the specific product
Table A7	Table A7 applies to "supplied and final cut sizes" of all products except channel shaped glass, see EN 572-8.	The essential characteristics are those that are supplied with the "stock sizes". Cutting down does not modify these characteristics. However, care should be taken to ensure that dimensional and quality criteria are met.

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

See Attachment 5 in the second document. There is nothing specific to this hEN.





Attachment 6: hEN Annex ZA

Clause ZA.2.2 EC Certificate and Declaration of conformity

Depending upon the intended use of the product and hence the applicable “System of Attestation of Conformity” will be the extent to which this clause applies.

1. Products with System of Attestation of Conformity – 1;

This System of Attestation of Conformity requires the involvement of a Notified Certification Body (NCB). It is the responsibility of the NCB, when they are satisfied that compliance with the conditions of the Annex ZA has been achieved, to produce a certificate of conformity (EC Certificate of Conformity). This certificate allows the manufacturer to affix the CE Marking (see Figure 3). The detail of what is to be included in the certificate is given in the hEN.

When the manufacturer has the certificate of conformity then a declaration of conformity (EC Declaration of Conformity) has to be produced. The detail of what is to be included in the declaration is given in the hEN.

2. Products with System of Attestation of Conformity – 3;

This System of Attestation of Conformity only requires the involvement of a Notified Body (NB) with the Initial Type Testing of the product. When the manufacturer is satisfied that compliance with this Annex has been achieved then a declaration of conformity (EC Declaration of Conformity) is prepared. This declaration allows the manufacturer to affix the CE Marking (see Figure 4). The detail of what is to be included in the declaration is given in the hEN.

3. Products with System of Attestation of Conformity – 4;

This System of Attestation of Conformity does not require the involvement of a Notified Body (NB). Therefore when the manufacturer is satisfied that compliance with this Annex has been achieved then a declaration of conformity (EC Declaration of Conformity) is prepared. This declaration allows the manufacturer to affix the CE Marking (see Figure 5). The detail of what is to be included in the declaration is given in the hEN.

Duplication of information between the certificate, where applicable, and the declaration should be avoided. This can be done by cross-referencing between documents if one contains more information than the other.

EC Declaration of Conformity and, if applicable, the EC Certificate of Conformity shall be presented in the official language or languages of the Member State in which the product is to be used.