BS EN 14388:2015

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Road traffic noise reducing devices — Specifications

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National foreword

This British Standard is the UK implementation of EN 14388:2015. It supersedes BS EN 14388:2005 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/509/6, Fences for the attenuation of noise.

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

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

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Lärmschutzvorrichtungen an Straßen - Vorschriften

This European Standard was approved by CEN on 12 December 2014.

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

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

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

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

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European foreword

This document (EN 14388:2015) has been prepared by Technical Committee CEN/TC 226 "Road equipment", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2016 and conflicting national standards shall be withdrawn at the latest by June 2017.

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

This document supersedes EN 14388:2005.

The main changes compared to the previous edition are:

- Two standards EN 1793-2 and EN 1793-6 are now specified for the measurement of airborne sound insulation, each with a specific field of application.

- Revision of Annex ZA according to Regulation EU 305/2011.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of the EU Construction Products Regulation.

For relationship with the EU Construction Products Regulation, see informative Annex ZA, which is an integral part of this document.

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

1 Scope

This European Standard specifies requirements for the following road traffic noise reducing devices (as defined in 3.1):

- noise barriers (as defined in 3.2);
- claddings (as defined in 3.5);
- road covers (as defined in 3.6); and
- added devices (as defined in 3.7).

These devices may include both acoustic and structural elements, where:

- an acoustic element is an element whose primary function is to provide a noise reducing device with sound insulation, diffraction and/or sound absorption, it is a part of noise reducing device to be used along roads, and
- a structural element is an element whose primary function is to support or hold in place acoustic elements, it is a part of noise reducing device to be used along roads. Depending upon the design of the noise reducing device, structural elements may potentially be tested separately from acoustic elements.

They may be made of different materials for which specific standards are to be applied in accordance with the specifications prescribed hereafter. Some of the materials may contain dangerous substances, the reason why all the materials are declared.

This European Standard identifies the relevant characteristics of road traffic noise reducing devices, the corresponding methods of evaluation and specifies the provisions on evaluation of conformity and marking.

This European Standard covers acoustic, non-acoustic and long term performance, but not aspects such as resistance to vandalism or requirements of visual appearance.

This European Standard does not cover road surfaces or the airborne sound insulation of houses.

2 Normative references

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

EN 1317-2, *Road restraint systems — Part 2: Performance classes, impact test acceptance criteria and test methods for safety barriers including vehicle parapets*

EN 1793-1, *Road traffic noise reducing devices — Test method for determining the acoustic performance — Part 1: Intrinsic characteristics of sound absorption*

EN 1793-2, *Road traffic noise reducing devices — Test method for determining the acoustic performance — Part 2: Intrinsic characteristics of airborne sound insulation under diffuse sound field conditions*

CEN/TS 1793-4, *Road traffic noise reducing devices — Test method for determining the acoustic performance — Part 4: Intrinsic characteristics — In situ values of sound diffraction*

EN 1793-6, *Road traffic noise reducing devices — Test method for determining the acoustic performance — Part 6: Intrinsic characteristics — In situ values of airborne sound insulation under direct sound field conditions*

EN 1794-1:2011, *Road traffic noise reducing devices — Non-acoustic performance — Part 1: Mechanical performance and stability requirements*

EN 1794-2:2011, *Road traffic noise reducing devices — Non-acoustic performance — Part 2: General safety and environmental requirements*

EN 14389-1, *Road traffic noise reducing devices — Procedures for assessing long term performance — Part 1: Acoustical characteristics*

EN 14389-2, *Road traffic noise reducing devices — Procedures for assessing long term performance — Part 2: Non-acoustical characteristics*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
noise reducing device (NRD)
device designed to reduce the propagation of traffic noise away from the road environment

Note 1 to entry: This may be a noise barrier, cladding, a road cover or an added device. These devices may include both acoustic and structural elements.

3.2
noise barrier
noise reducing device which obstructs the direct transmission of airborne sound emanating from road traffic

3.3
acoustic element
element whose primary function is to provide the acoustic performance of the device

3.4
structural element
element whose primary function is to support or hold in place acoustic elements

3.5
cladding
noise-reducing device which is attached to a wall or other structure and reduces the amount of sound reflected

3.6
cover
noise-reducing device which either spans or overhangs the highway

3.7
added device
added component that influences the acoustic performance of the original noise-reducing device (acting primarily on the diffracted energy)

4 Requirements

4.1 General

Products covered by the standard, when required, shall be tested in accordance with the supporting standards indicated in Table 1, Table 2, Table 3, Table 4 and Table 5.

The test methods or calculation methods referred to in Table 1, Table 2, Table 3, Table 4 and Table 5 generate declared performance only. On this basis, compliance criteria are not relevant.

Table 1 — Noise barriers: Required test methods and declared values

Characteristic	Test method or calculation	Declared value	Amount of samples
Sound absorption DL_α[a]	EN 1793–1 (test)	dB, on specified absorptive side(s) of the barrier	1
Airborne sound insulation			
DL_R in reverberant fields[b]	EN 1793–2 (test)	dB	1
$DL_{SI,E}$, $DL_{SI,P}$ and $DL_{SI,G}$ in non-reverberant fields[c]	EN 1793–6 (test)	dB	1
Resistance to loads			
Self weight of an acoustic element: wet, reduced wet or dry as defined in EN 1794–1:2011, B.2:	EN 1794–1:2011, Annex B (test or calculation)	kN/element for specified condition: wet, reduced wet or dry	1 if tested
Maximum vertical load an element can withstand in order to fulfil EN 1794–1:2011, B.3.2: (load from upper elements)	EN 1794–1:2011, Annex B (test or calculation)	kN/m along the acoustic element	1 if tested
Maximum normal (90°) load an acoustic element can withstand in order to fulfil EN 1794–1:2011, A.3.3: (wind and static load)	EN 1794–1:2011, Annex A (test or calculation)	kPa on the element	1 if tested
Maximum normal (90°) load a structural element can withstand in order to fulfil EN 1794–1:2011, A.3.2 and B.3.3: (wind, static load and self weight)	EN 1794–1:2011, Annex A and B (calculation)	kN/m along the structural element, for specified barrier heights (h)	Not applicable
Maximum bending moment a structural element can withstand in order to fulfil EN 1794–1:2011, E.2: (dynamic load from snow clearance)	EN 1794–1:2011, Annex E (test or calculation)	kNm at ground level	1 if tested
Maximum normal (90°) load an acoustic element can withstand in order to fulfil EN 1794–1:2011, E.2: (dynamic load from snow clearance)	EN 1794–1:2011, Annex E (test or calculation)	kN on a 2m x 2m reference surface on the acoustic element	1 if tested
Resistance to brush fire	EN 1794–2:2011, Annex A (test)	Class 1 to 3	1
Shatter properties	EN 1794–2:2011, Annex B (test)	Class 1 to 4	1
Light Reflectivity			
The value of reflectivity measured in accordance with EN 1794–2:2011, E.3:	EN 1794–2:2011, Annex E (test)	Class 1 to 3	1
Release of dangerous substances	4.2 of this standard and EN 1794–2:2011, Annex C	As relevant, in accordance with 4.2	As relevant, in accordance with 4.2

Characteristic	Test method or calculation	Declared value	Amount of samples
Durability			
Acoustic parameters, DL_α, DL_R and DL_{SI} (as appropriate)	EN 14389–1	dB after 5 years, 10 years, 15 years and 20 years	Not applicable
Non acoustic parameters (working life when subject to environmental conditions)	EN 14389–2	Declared lifetime (years)	Not applicable
Impact of stones[d]			
Damage caused by controlled impacts	EN 1794–1:2011, Annex C (test)	Succeed or fail	1
Safety in collision[e]			
Behaviour under impacts specified in EN 1317–2	EN 1794–1:2011, Annex D (test)	Succeed or fail	1
Environmental protection			
Identification of constituent materials and breakdown products	EN 1794–2:2011, Annex C	Material details	Not applicable
Transparency[f]			
Assessment in accordance with supporting standard	EN 1794–2:2011, Annex F (test and calculation)	Static and/or dynamic	1

[a] Only applicable if the device is described as sound absorptive

[b] Applicable if the device is intended to be used in reverberant fields

[c] Applicable if the device is intended to be used in non-reverberant fields

[d] Optional

[e] Optional except if combined safety and noise barrier

[f] Optional

Table 2 — Cladding: Required test methods and declared values

Characteristic	Test method or calculation	Declared value	Amount of samples
Sound absorption DL_α[a]	EN 1793–1 (test)	dB, on specified absorptive side(s) of the barrier	1
Resistance to loads			
Self weight of an acoustic element: wet, reduced wet or dry as defined in EN 1794–1:2011, B.2:	EN 1794–1:2011, Annex B (test or calculation)	kN/element for specified condition: wet, reduced wet or dry	1 if tested
Maximum vertical load an element can withstand in order to fulfil EN 1794–1:2011, B.3.2: (load from upper elements)	EN 1794–1:2011, Annex B (test or calculation)	kN/m along the acoustic element	1 if tested
Maximum normal (90°) load an acoustic element can withstand in order to fulfil EN 1794–1:2011, A.3.3 (wind and static load)	EN 1794–1:2011, Annex A (test or calculation)	kPa on the element	1 if tested
Maximum normal (90°) load an acoustic element can withstand in order to fulfil EN 1794–1:2011, E.2: (dynamic load from snow clearance)	EN 1794–1:2011, Annex E (test or calculation)	kN on a 2m x 2m reference surface on the acoustic element	1 if tested
Resistance to brush fire	EN 1794–2:2011, Annex A (test)	Class 1 to 3	1
Shatter properties	EN 1794–2:2011, Annex B (test)	Class 1 to 4	1
Light Reflectivity			
The value of reflectivity measured in accordance with EN 1794–2:2011, E.3:	EN 1794–2:2011, Annex E (test)	Class 1 to 3	1
Release of dangerous substances	4.2 of this standard and EN 1794–2:2011, Annex C	As relevant, in accordance with 4.2	As relevant, in accordance with 4.2
Durability			
Acoustic parameters, DL_α, DL_R and DL_{SI} (as appropriate)	EN 14389–1	dB after 5 years, 10 years, 15 years and 20 years	Not applicable
Non acoustic parameters (working life when subjected to environmental conditions)	EN 14389–2	Declared lifetime (years)	Not applicable
Impact of stones[b]			
Damage caused by controlled impacts	EN 1794–1:2011, Annex C (test)	Succeed or fail	1
Safety in collision[c]			
Behaviour under impacts specified in EN 1317–2	EN 1794–1:2011, Annex D (test)	Succeed or fail	1
Environmental protection			
Identification of constituent materials and breakdown products	EN 1794–2:2011, Annex C	Material details	Not applicable

a Only applicable if the device is described as sound absorptive

b Optional

c Optional except if combined safety and noise barrier

Table 3 — Covers: Required test methods and declared values

Characteristic	Test method or calculation	Declared value	Amount of samples
Sound absorption DL_α[a]	EN 1793–1 (test)	dB, on specified absorptive side(s) of the barrier	1
Airborne sound insulation			
DL_R in reverberant fields[b]	EN 1793–2 (test)	dB	1
$DL_{SI,E}$, $DL_{SI,P}$ and $DL_{SI,G}$ in non-reverberant fields[c]	EN 1793–6 (test)	dB	1
Resistance to loads			
Self weight of an acoustic element: wet, reduced wet or dry as defined in EN 1794–1:2011, B.2:	EN 1794–1:2011, Annex B (test or calculation)	kN/element for specified condition: wet, reduced wet or dry	1 if tested
Maximum vertical load an element can withstand in order to fulfil EN 1794–1:2011, B.3.2: (load from upper elements)	EN 1794–1:2011, Annex B (test or calculation)	kN/m along the acoustic element	1 if tested
Maximum normal (90°) load an acoustic element can withstand in order to fulfil EN 1794–1:2011, A.3.3: (wind and static load)	EN 1794–1:2011, Annex A (test or calculation)	kPa on the element	1 if tested
Maximum normal (90°) load a structural element can withstand in order to fulfil EN 1794–1:2011, A.3.2 and B.3.3: (wind, static load and self weight)	EN 1794–1:2011, Annex A and B (calculation)	kN/m along the structural element, for specified barrier heights (h)	Not applicable
Resistance to brush fire	EN 1794–2:2011, Annex A (test)	Class 1 to 3	1
Shatter properties	EN 1794–2:2011, Annex B (test)	Class 1 to 4	1
Light Reflectivity			
The value of reflectivity measured in accordance with EN 1794–2:2011, E.3:	EN 1794–2:2011, Annex E (test)	Class 1 to 3	1
Release of dangerous substances	4.2 of this standard and EN 1794–2:2011, Annex C	As relevant, in accordance with 4.2	As relevant, in accordance with 4.2
Durability			
Acoustic parameters, DL_α, DL_R and DL_{SI} (as appropriate)	EN 14389–1	dB after 5 years, 10 years, 15 years and 20 years	Not applicable
Non acoustic parameters (working life when subjected to environmental conditions)	EN 14389–2	Declared lifetime (years)	Not applicable
Impact of stones[d]			
Damage caused by controlled impacts	EN 1794–1:2011, Annex C (test)	Succeed or fail	1
Environmental protection			
Identification of constituent materials and breakdown products	EN 1794–2:2011, Annex C	Material details	Not applicable

Characteristic	Test method or calculation	Declared value	Amount of samples
Transparency[e] Assessment in accordance with supporting standard	EN 1794–2:2011, Annex F (test and calculation)	Static and/or dynamic	1

[a] Only applicable if the device is described as sound absorptive

[b] Applicable if the device is intended to be used in reverberant fields

[c] Applicable if the device is intended to be used in non-reverberant fields

[d] Optional

[e] Optional

Table 4 — Structural elements (if tested separately): Required test methods and declared values

Characteristic	Test method or calculation	Declared value	Amount of samples
Resistance to loads			
Maximum vertical load an element can withstand in order to fulfil EN 1794–1:2011, B.3.2: (load from upper elements)	EN 1794–1:2011, Annex B (test or calculation)	kN/m along the acoustic element	1 if tested
Maximum normal (90°) load a structural element can withstand in order to fulfil EN 1794–1:2011, A.3.2 and B.3.3: (wind, static load and self weight)	EN 1794–1:2011, Annex A and B (calculation)	kN/m along the structural element, for specified barrier heights (h)	Not applicable
Maximum bending moment a structural element can withstand in order to fulfil EN 1794–1:2011, E.2: (dynamic load from snow clearance)	EN 1794–1:2011, Annex E (test or calculation)	kNm at ground level	1 if tested
Resistance to brush fire	EN 1794–2:2011, Annex A (test)	Class 1 to 3	1
Shatter properties	EN 1794–2:2011, Annex B (test)	Class 1 to 4	1
Light Reflectivity			
The value of reflectivity measured in accordance with EN 1794–2:2011, E.3:	EN 1794–2:2011, Annex E (test)	Class 1 to 3	1
Release of dangerous substances	4.2 of this standard and EN 1794–2:2011, Annex C	As relevant, in accordance with 4.2	As relevant, in accordance with 4.2
Durability			
Non acoustic parameters (working life when subjected to environmental conditions)	EN 14389–2	Declared lifetime (years)	Not applicable
Impact of stones[a]			
Damage caused by controlled impacts	EN 1794–1:2011, Annex C (test)	Succeed or fail	1
Safety in collision[b]			
Behaviour under impacts specified in EN 1317–2	EN 1794–1:2011, Annex D (test)	Succeed or fail	1
Environmental protection			
Identification of constituent materials and breakdown products	EN 1794–2:2011, Annex C	Material details	Not applicable

[a] Optional

[b] Optional except if combined safety and noise barrier

Table 5 — Added devices: Required test methods and declared values

Characteristic	Test method or calculation	Declared value	Amount of samples
Resistance to loads			
Self weight of an acoustic element: wet, reduced wet or dry as defined in EN 1794–1:2011, B.2:	EN 1794–1:2011, Annex B (test or calculation)	kN/element for specified condition: wet, reduced wet or dry	1 if tested
Maximum vertical load an element can withstand in order to fulfil EN 1794–1:2011, B.3.2: (load from upper elements)	EN 1794–1:2011, Annex B (test or calculation)	kN/m along the acoustic element	1 if tested
Maximum normal (90°) load an acoustic element can withstand in order to fulfil EN 1794–1:2011, A.3.3: (wind and static load)	EN 1794–1:2011, Annex A (test or calculation)	kPa on the element	1 if tested
Maximum normal (90°) load an acoustic element can withstand in order to fulfil EN 1794–1:2011, E.2: (dynamic load from snow clearance)	EN 1794–1:2011, Annex E (test or calculation)	kN on a 2m x 2m reference surface on the acoustic element	1 if tested
Resistance to brush fire	EN 1794–2:2011, Annex A (test)	Class 1 to 3	1
Shatter properties	EN 1794–2:2011, Annex B (test)	Class 1 to 4	1
Light Reflectivity			
The value of reflectivity measured in accordance with EN 1794–2:2011, E.3:	EN 1794–2:2011, Annex E (test)	Class 1 to 3	1
Release of dangerous substances	4.2 of this standard and EN 1794–2:2011, Annex C	As relevant, in accordance with 4.2	As relevant, in accordance with 4.2
Durability			
Acoustic parameters, DL_α, DL_R and DL_{SI} (as appropriate)	EN 14389–1	dB after 5 years, 10 years, 15 years and 20 years	Not applicable
Non acoustic parameters (working life when subjected to environmental conditions)	EN 14389–2	Declared lifetime (years)	Not applicable
Impact of stones[a]			
Damages caused by controlled impacts	EN 1794–1:2011, Annex C (test)	Succeed or fail	1
Safety in collision[b]			
Behaviour under impacts specified in EN 1317–2	EN 1794–1:2011, Annex D (test)	Succeed or fail	1
Environmental protection			
Identification of constituent materials and breakdown products	EN 1794–2:2011, Annex C	Material details	Not applicable

Characteristic	Test method or calculation	Declared value	Amount of samples
Transparency[c] Assessment in accordance with supporting standard	EN 1794–2:2011, Annex F (test and calculation)	Static and/or dynamic	1
Sound diffraction	CEN/TS 1793–4 (test)	dB	1
[a] Optional [b] Optional except if combined safety and noise barrier [c] Optional			

Results of tests and/or calculations of the characteristics shall be declared in accordance with the appropriate supporting standard.

NOTE Although some are already complete, European Standards are under preparation for materials affecting the performance of road traffic noise reducing devices.

4.2 Dangerous substances

National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets.

In the absence of European harmonized test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

NOTE An informative database covering European and national provisions on dangerous substances is available at the Construction website on EUROPA accessed through http://ec.europa.eu/enterprise/construction/cpd-ds/.

4.3 Manuals

The following documentation shall be supplied by the manufacturer to the user or those parties responsible for installation and maintenance of the road traffic noise reducing device prior to the commencement of installation.

a) installation instructions shall describe how the product (acoustic element, full noise barrier, etc.) shall be installed in order to be able to achieve the performance measured in the initial type testing;

b) a maintenance manual shall specify measures which are necessary, or to be avoided, in order to maintain the durability of the acoustic performance, transparency, structural strength etc.

5 Testing and assessment methods

Products covered by the standard, when required, shall be tested in accordance with the supporting standards indicated in Table 1, Table 2, Table 3, Table 4 and Table 5.

Results of tests and/or calculations of the characteristics shall be declared in accordance with the appropriate supporting standard.

NOTE Although some are already complete, European Standards are under preparation for materials affecting the performance of road traffic noise reducing devices.

6 Assessment and verification of constancy of performance – AVCP

6.1 General

The compliance of road traffic noise reducing devices with the requirements of this standard and with the performances declared by the manufacturer in the DoP shall be demonstrated by:

— determination of the product type;

— factory production control by the manufacturer, including product assessment.

The manufacturer shall always retain the overall control and shall have the necessary means to take responsibility for the conformity of the product with its declared performance(s).

6.2 Type testing

6.2.1 General

All performances related to characteristics included in this standard shall be determined when the manufacturer intends to declare the respective performances unless the standard gives provisions for declaring them without performing tests. (e.g. use of previously existing data, CWFT and conventionally accepted performance).

Assessment previously performed in accordance with the provisions of this standard, may be taken into account provided that they were made to the same or a more rigorous test method, under the same AVCP system on the same product or products of similar design, construction and functionality, such that the results are applicable to the product in question.

NOTE 1 Same AVCP system means testing by an independent third party.

For the purposes of assessment, the manufacturer's products may be grouped into families, where it is considered that the results for one or more characteristics from any one product within the family are representative for that same characteristics for all products within that same family

NOTE 2 Products may be grouped in different families for different characteristics.

Reference to the assessment method standards should be made to allow the selection of a suitable representative sample.

In addition, the determination of the product type shall be performed for all characteristics included in the standard for which the manufacturer declares the performance:

— at the beginning of the production of a new or modified road traffic noise reducing device (unless a member of the same product range), or

— at the beginning of a new or modified method of production (where this may affect the stated properties), or

— they shall be repeated for the appropriate characteristic(s), whenever a change occurs in the road traffic noise reducing device design, in the raw material or in the supplier of the components, or in the method of production (subject to the definition of a family), which would affect significantly one or more of the characteristics.

Where components are used whose characteristics have already been determined, by the component manufacturer, on the basis of assessment methods of other product standards, these characteristics need not be re-assessed. The specifications of these components shall be documented.

Products bearing regulatory marking in accordance with appropriate harmonized European specifications may be presumed to have the performances declared in the DoP, although this does not replace the responsibility on the road traffic noise reducing device manufacturer to ensure that the road traffic noise reducing device as a whole is correctly manufactured and its component products have the declared performance values.

6.2.2 Test samples, testing and compliance criteria

The number of samples of road traffic noise reducing device to be tested/assessed shall be in accordance with Table 6.

Table 6 — Number of samples to be tested and compliance criteria

Characteristic	Requirement	Assessment method	No. of samples	Compliance criteria
Sound absorption	Clause 4	Clause 4	1	Clause 4
Airborne sound insulation	Clause 4	Clause 4	1	Clause 4
Resistance to loads	Clause 4	Clause 4	1	Clause 4
Self weight	Clause 4	Clause 4	1	Clause 4
Resistance to brush fire	Clause 4	Clause 4	1	Clause 4
Shatter properties	Clause 4	Clause 4	1	Clause 4
Light reflectivity	Clause 4	Clause 4	1	Clause 4
Release of dangerous substances	Clause 4	Clause 4	1	Clause 4
Durability	Clause 4	Clause 4	1	Clause 4
Impact of stones	Clause 4	Clause 4	1	Clause 4
Safety in collision	Clause 4	Clause 4	1	Clause 4
Environmental protection	Clause 4	Clause 4	1	Clause 4

6.2.3 Test reports

The results of the determination of the product type shall be documented in test reports. All test reports shall be retained by the manufacturer for at least 10 years after the last date of production of the road traffic noise reducing device to which they relate.

6.2.4 Shared other party results

A manufacturer may use the results of the product type determination obtained by someone else (e.g. by another manufacturer, as a common service to manufacturers, or by a product developer), to justify his own declaration of performance regarding a product that is manufactured according to the same design (e.g. dimensions) and with raw materials, constituents and manufacturing methods of the same kind, provided that:

— the results are known to be valid for products with the same essential characteristics relevant for the product performance;

— in addition to any information essential for confirming that the product has such same performances related to specific essential characteristics, the other party who has carried out the determination of the product type concerned or has had it carried out, has expressly accepted[1] to transmit to the manufacturer the results and the test report to be used for the latter's product type determination, as well as information regarding production facilities and the production control process that can be taken into account for FPC;

— the manufacturer using other party results accepts to remain responsible for the product having the declared performances and he also:

  — ensures that the product has the same characteristics relevant for performance as the one that has been subjected to the determination of the product type, and that there are no significant differences with regard to production facilities and the production control process compared to that used for the product that was subjected to the determination of the product type; and

  — keeps available a copy of the determination of the product type report that also contains the information needed for verifying that the product is manufactured according to the same design and with raw materials, constituents and manufacturing methods of the same kind.

6.2.5 Cascading determination of the product type results

For some construction products, there are companies (often called "system houses") which supply or ensure the supply of, on the basis of an agreement[2], some or all of the components (e.g. in case of windows: profiles, gaskets, weather strips)[3] to an assembler who then manufactures the finished product (referred to below as the "assembler") in his factory.

Provided that the activities for which such a system house is legally established include manufacturing/assembling of products as the assembled one, the system house may take the responsibility for the determination of the product type regarding one or several essential characteristics of an end product which is subsequently manufactured and/or assembled by other firms in their own factory.

When doing so, the system house shall submit an "assembled product" using components manufactured by it or by others, to the determination of the product type and then make the determination of the product type report available to the assemblers, i.e. the actual manufacturer of the product placed on the market.

To take into account such a situation, the concept of cascading determination of the product type might be taken into consideration in the technical specification, provided that this concerns characteristics for which either a notified product certification body or a notified test laboratory intervene, as presented below.

The determination of the product type report that the system house has obtained with regard to tests carried out by a notified body, and which is supplied to the assemblers, may be used for the regulatory marking purposes without the assembler having to involve again a notified body to undertake the determination of the product type of the essential characteristic(s) that were already tested, provided that:

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[1] The formulation of such an agreement can be done by licence, contract, or any other type of written consent.

[2] This can be, for instance, a contract, license or whatever kind of written agreement, which should also contain clear provisions with regard to responsibility and liability of the component producer (system house, on the one hand, and the assembler of the finished product, on the other hand.

[3] These companies may produce components but they are not required to do so.

— the assembler manufactures a product which uses the same combination of components (components with the same characteristics), and in the same way, as that for which the system house has obtained the determination of the product type report. If this report is based on a combination of components not representing the final product as to be placed on the market, and/or is not assembled in accordance with the system house's instruction for assembling the components, the assembler needs to submit his finished product to the determination of the product type;

— the system house has notified to the manufacturer the instructions for manufacturing/assembling the product and installation guidance;

— the assembler (manufacturer) assumes the responsibility for the correct assembly of the product in accordance with the instructions for manufacturing/assembling the product and installation guidance notified to him by the system house;

— the instructions for manufacturing/assembling the product and installation guidance notified to the assembler (manufacturer) by the system house are an integral part of the assembler's Factory Production Control system and are referred to in the determination of the product type report;

— the assembler is able to provide documented evidence that the combination of components he is using, and his way of manufacturing, correspond to the one for which the system house has obtained the determination of the product type report (he needs to keep a copy of the system house's determination of the product type report);

— regardless the possibility of referring, on the basis of the agreement signed with the system house, to the latter's responsibility and liability under private law, the assembler remains responsible for the product being in compliance with the declared performances, including both the design and the manufacture of the product, which is given when he affixes the regulatory marking on his product.

6.3 Factory production control (FPC)

6.3.1 General

The manufacturer shall establish, document and maintain an FPC system to ensure that the products placed on the market comply with the declared performance of the essential characteristics.

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

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

This factory production control system documentation shall ensure a common understanding of the evaluation of the constancy of performance and enable the achievement of the required product performances and the effective operation of the production control system to be checked. Factory production control therefore brings together operational techniques and all measures allowing maintenance and control of the compliance of the product with the declared performances of the essential characteristics.

In case the manufacturer has used shared or cascading product type results, the FPC shall also include the appropriate documentation as foreseen in 6.2.4 and 6.2.5.

6.3.2 Requirements

6.3.2.1 General

The manufacturer is responsible for organizing the effective implementation of the FPC system in line with the content of this product standard. Tasks and responsibilities in the production control organization shall be documented and this documentation shall be kept up-to-date.

The responsibility, authority and the relationship between personnel that manages, performs or verifies work affecting product constancy, shall be defined. This applies in particular to personnel that need to initiate actions preventing product non-constancies from occurring, actions in case of non-constancies and to identify and register product constancy problems.

Personnel performing work affecting the constancy of performance of the product shall be competent on the basis of appropriate education, training, skills and experience for which records shall be maintained.

In each factory the manufacturer may delegate the action to a person having the necessary authority to:

— identify procedures to demonstrate constancy of performance of the product at appropriate stages;

— identify and record any instance of non-constancy;

— identify procedures to correct instances of non-constancy.

The manufacturer shall draw up and keep up-to-date documents defining the factory production control. The manufacturer's documentation and procedures should be appropriate to the product and manufacturing process. The FPC system should achieve an appropriate level of confidence in the constancy of performance of the product. This involves:

a) the preparation of documented procedures and instructions relating to factory production control operations, in accordance with the requirements of the technical specification to which reference is made;

b) the effective implementation of these procedures and instructions;

c) the recording of these operations and their results;

d) the use of these results to correct any deviations, repair the effects of such deviations, treat any resulting instances of non-conformity and, if necessary, revise the FPC to rectify the cause of non-constancy of performance.

Where subcontracting takes place, the manufacturer shall retain the overall control of the product and ensure that he receives all the information that is necessary to fulfil his responsibilities according to this European Standard.

If the manufacturer has part of the product designed, manufactured, assembled, packed, processed and/or labelled by subcontracting, the FPC of the subcontractor may be taken into account, where appropriate for the product in question.

The manufacturer who subcontracts all of his activities may in no circumstances pass the above responsibilities on to a subcontractor.

NOTE Manufacturers having an FPC system, which complies with EN ISO 9001 and which addresses the provisions of the present European standard are considered as satisfying the FPC requirements of the Regulation (EU) No 305/2011.

6.3.2.2 Equipment

6.3.2.2.1 Testing

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

6.3.2.2.2 Manufacturing

All 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 manufacturer's written procedures and the records retained for the period defined in the manufacturer's FPC procedures.

6.3.2.3 Raw materials and components

The specifications of all incoming raw materials and components shall be documented, as shall the inspection scheme for ensuring their compliance. In case supplied kit components are used, the constancy of performance system of the component shall be that given in the appropriate harmonized technical specification for that component.

6.3.2.4 Controls during manufacturing process

The manufacturer shall plan and carry out production under controlled conditions.

6.3.2.5 Product testing and evaluation

The manufacturer shall establish procedures to ensure that the stated values of the characteristics he declares are maintained. The characteristics, and the means of control, are:

— sound absorption shall be subject to the tests indicated in Clause 4, at least when the materials used or the manufacturing processes are modified;

— airborne sound insulation shall be subject to the tests indicated in Clause 4, at least when the materials used or the manufacturing processes are modified;

— resistance to loads shall be subject to the tests indicated in Clause 4, at least when the materials used or the manufacturing processes are modified;

— self weight shall be subject to the tests indicated in Clause 4, at least when the materials used or the manufacturing processes are modified;

— resistance to brush fire shall be subject to the tests indicated in Clause 4, at least when the materials used or the manufacturing processes are modified;

— shatter properties shall be subject to the tests indicated in Clause 4, at least when the materials used or the manufacturing processes are modified;

— light reflectivity shall be subject to the tests indicated in Clause 4, at least when the materials used or the manufacturing processes are modified;

— release of dangerous substances shall be subject to the tests indicated in Clause 4, at least when the materials used or the manufacturing processes are modified;

— durability shall be subject to the tests indicated in Clause 4, at least when the materials used or the manufacturing processes are modified;

— impact of stones shall be subject to the tests indicated in Clause 4, at least when the materials used or the manufacturing processes are modified;

— safety in collision shall be subject to the tests indicated in Clause 4, at least when the materials used or the manufacturing processes are modified;

— environmental protection shall be subject to the tests indicated in Clause 4, at least when the materials used or the manufacturing processes are modified.

6.3.2.6 Non-complying products

The manufacturer shall have written procedures which specify how non-complying 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 manufacturer's written procedures.

Where the product fails to satisfy the acceptance criteria, the provisions for non-complying products shall apply, the necessary corrective action(s) shall immediately be taken and the products or batches not complying shall be isolated and properly identified.

Once the fault has been corrected, the test or verification in question shall be repeated.

The results of controls and tests shall be properly recorded. The product description, date of manufacture, test method adopted, test results and acceptance criteria shall be entered in the records under the signature of the person responsible for the control/test.

With regard to any control result not meeting the requirements of this European Standard, the corrective measures taken to rectify the situation (e.g. a further test carried out, modification of manufacturing process, throwing away or putting right of product) shall be indicated in the records.

6.3.2.7 Corrective action

The manufacturer shall have documented procedures that instigate action to eliminate the cause of non-conformities in order to prevent recurrence.

6.3.2.8 Handling, storage and packaging

The manufacturer shall have procedures providing methods of product handling and shall provide suitable storage areas preventing damage or deterioration.

6.3.3 Product specific requirements

The FPC system shall address this European Standard and ensure that the products placed on the market comply with the declaration of performance.

The FPC system shall include a product specific FPC, which identifies procedures to demonstrate compliance of the product at appropriate stages, i.e.:

a) the controls and tests to be carried out prior to and/or during manufacture according to a frequency laid down in the FPC test plan,

and/or

b) the verifications and tests to be carried out on finished products according to a frequency laid down in the FPC test plan.

If the manufacturer uses only finished products, the operations under b) shall lead to an equivalent level of compliance of the product as if FPC had been carried out during the production.

If the manufacturer carries out parts of the production himself, the operations under b) may be reduced and partly replaced by operations under a). Generally, the more parts of the production that are carried out by the manufacturer, the more operations under b) may be replaced by operations under a).

In any case the operation shall lead to an equivalent level of compliance of the product as if FPC had been carried out during the production.

NOTE Depending on the specific case, it can be necessary to carry out the operations referred to under a) and b), only the operations under a) or only those under b).

The operations under a) refer to the intermediate states of the product as on manufacturing machines and their adjustment, and measuring equipment etc. These controls and tests and their frequency shall be chosen based on product type and composition, the manufacturing process and its complexity, the sensitivity of product features to variations in manufacturing parameters etc.

The manufacturer shall establish and maintain records that provide evidence that the production has been sampled and tested. These records shall show clearly whether the production has satisfied the defined acceptance criteria and shall be available for at least three years.

6.3.4 Initial inspection of factory and of FPC

The factory and FPC documentation shall be assessed to verify that the requirements of 6.3.2 and 6.3.3 are fulfilled.

During the inspection it shall be verified:

a) that all resources necessary for the achievement of the product characteristics included in this European standard are in place and correctly implemented,

and

b) that the FPC-procedures in accordance with the FPC documentation are followed in practice,

and

c) that the product complies with the product type samples, for which compliance of the product performance to the DoP has been verified.

All locations where final assembly or at least final testing of the relevant product is performed, shall be assessed to verify that the above conditions a) to c) are in place and implemented. If the FPC system covers more than one product, production line or production process, and it is verified that the general requirements are fulfilled when assessing one product, production line or production process, then the assessment of the general requirements does not need to be repeated when assessing the FPC for another product, production line or production process.

All assessments and their results shall be documented in the initial inspection report.

6.3.5 Procedure for modifications

If modifications are made to the product, production process or FPC system that could affect any of the product characteristics declared according to this standard, then all the characteristics for which the manufacturer declares performance, which may be affected by the modification, shall be subject to the determination of the product type, as described in 6.2.1.

Where relevant, a re-assessment of the factory and of the FPC system shall be performed for those aspects, which may be affected by the modification.

All assessments and their results shall be documented in a report.

6.3.6 One-off products, pre-production products (e.g. prototypes) and products produced in very low quantity

The road traffic noise reducing device produced as a one-off, prototypes assessed before full production is established, and products produced in very low quantities (300m^2 for noise barriers, claddings, road covers; 100m length for added devices; 21 structural elements per year) shall be assessed as follows.

For type assessment, the provisions of 6.2.1, 3rd paragraph apply, together with the following additional provisions:

— in case of prototypes, the test samples shall be representative of the intended future production and shall be selected by the manufacturer;

— on request of the manufacturer, the results of the assessment of prototype samples may be included in a certificate or in test reports issued by the involved third party.

The FPC system of one-off products and products produced in very low quantities shall ensure that raw materials and/or components are sufficient for production of the product. The provisions on raw materials and/or components shall apply only where appropriate. The manufacturer shall maintain records allowing traceability of the product.

For prototypes, where the intention is to move to series production, the initial inspection of the factory and FPC shall be carried out before the production is already running and/or before the FPC is already in practice. The following shall be assessed:

— the FPC-documentation; and

— the factory.

In the initial assessment of the factory and FPC it shall be verified:

a) that all resources necessary for the achievement of the product characteristics included in this European standard will be available, and

b) that the FPC-procedures in accordance with the FPC-documentation will be implemented and followed in practice, and

c) that procedures are in place to demonstrate that the factory production processes can produce a product complying with the requirements of this European standard and that the product will be the same as the samples used for the determination of the product type, for which compliance with this European standard has been verified.

Once series production is fully established, the provisions of 6.3 shall apply.

Annex ZA
(informative)

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

ZA.1 Scope and relevant characteristics

This European Standard has been prepared under Mandate M/111 “Circulation Fixtures” given to CEN by the European Commission and the European Free Trade Association.

If this European standard is cited in the Official Journal of the European Union (OJEU), the clauses of this standard, shown in this annex, are considered to meet the provisions of the relevant mandate, under the Regulation (EU) No. 305/2011.

This annex deals with the CE marking of the road traffic noise reducing devices intended for the uses indicated in Table ZA.1.1, Table ZA.1.2, Table ZA.1.3, Table ZA.1.4 and Table ZA.1.5 and shows the relevant clauses applicable.

This annex has the same scope as in Clause 1 of this standard related to the aspects covered by the mandate and is defined by Table ZA.1.1, Table ZA.1.2, Table ZA.1.3, Table ZA.1.4 and Table ZA.1.5.

Table ZA.1.1 — Relevant clauses for noise barriers to be used alongside roads

Product: Noise barriers **Intended use:** Alongside roads for obstructing the direct transmission of airborne sound emanating from road traffic			
Essential Characteristics	**Clauses in this and other European Standard(s) related to essential characteristics**	**Regulatory classes**	**Notes**
Sound absorption	4.1		Test. For sound absorptive barriers only
Airborne sound insulation	4.1		Test. D_{LR} for devices to be tested in reverberant fields; $D_{LSI,P}$ and $D_{LSI,G}$ in non-reverberant fields
Resistance to load: Self weight	4.1		Test or calculation. For acoustic elements.
Resistance to load: Maximum vertical load	4.1		Test or calculation
Resistance to load: Maximum normal load	4.1		Test or calculation. For acoustic elements (wind and static load)
Resistance to load: Maximum normal load	4.1		Calculation. For structural elements (wind, static load and self-weight)
Resistance to load: Maximum bending moment	4.1		Test or calculation. For structural elements (dynamic load from snow clearance)
Resistance to load: Maximum normal load	4.1		Test or calculation. For acoustic elements (dynamic load from snow clearance)
Resistance to brush fire	4.1		Test
Shatter properties	4.1		Test
Light reflectivity	4.1		Test
Release of dangerous substances	4.2		As relevant, in accordance with 4.2
Acoustic durability	4.1		
Non-acoustic durability	4.1		

Table ZA.1.2 — Relevant clauses for claddings to be used alongside roads

Product: Claddings **Intended use:** Attached to walls or other structures alongside roads to reduce the amount of reflected sound			
Essential Characteristics	**Clauses in this and other European Standard(s) related to essential characteristics**	**Regulatory classes**	**Notes**
Sound absorption	4.1		Test. For sound absorptive barriers only
Resistance to load: Self weight	4.1		Test or calculation. For acoustic elements.
Resistance to load: Maximum vertical load	4.1		Test or calculation
Resistance to load: Maximum normal load	4.1		Test or calculation. For acoustic elements (wind and static load)
Resistance to load: Maximum normal load	4.1		Test or calculation. For acoustic elements (dynamic load from snow clearance)
Resistance to brush fire	4.1		Test
Shatter properties	4.1		Test
Light reflectivity	4.1		Test
Release of dangerous substances	4.2		As relevant, in accordance with 4.2
Acoustic durability	4.1		
Non-acoustic durability	4.1		
Environmental protection	4.1		

Table ZA.1.3 — Relevant clauses for covers to be used alongside roads

Product: Covers **Intended use:** Either spanning or overhanging roads			
Essential Characteristics	**Clauses in this and other European Standard(s) related to essential characteristics**	**Regulatory classes**	**Notes**
Sound absorption	4.1		Test. For sound absorptive covers only
Airborne sound insulation	4.1		Test. D_{LR} for devices to be tested in reverberant fields; $D_{LSI,P}$ and $D_{LSI,G}$ in non-reverberant fields
Resistance to load: Self weight	4.1		Test or calculation. For acoustic elements.
Resistance to load: Maximum vertical load	4.1		Test or calculation
Resistance to load: Maximum normal load	4.1		Test or calculation. For acoustic elements (wind and static load)
Resistance to load: Maximum normal load	4.1		Test or calculation. For acoustic elements (dynamic load from snow clearance)
Resistance to brush fire	4.1		Test
Shatter properties	4.1		Test
Light reflectivity	4.1		Test
Release of dangerous substances	4.2		As relevant, in accordance with 4.2
Acoustic durability	4.1		
Non-acoustic durability	4.1		

Table ZA.1.4 — Relevant clauses for structural elements to be used alongside roads

Product: Structural elements **Intended use:** To support or hold in place acoustic elements alongside roads			
Essential Characteristics	**Clauses in this and other European Standard(s) related to essential characteristics**	**Regulatory classes**	**Notes**
Resistance to load: Maximum vertical load	4.1		Test or calculation
Resistance to load: Maximum normal load	4.1		Calculation. For structural elements (wind, static load and self-weight)
Resistance to load: Maximum bending moment	4.1		Test or calculation. For structural elements (dynamic load from snow clearance)
Resistance to brush fire	4.1		Test
Shatter properties	4.1		Test
Light reflectivity	4.1		Test
Release of dangerous substances	4.2		As relevant, in accordance with 4.2
Non-acoustic durability	4.1		

Table ZA.1.5 — Relevant clauses for added devices to be used on noise barriers alongside roads

Product: Added devices **Intended use:** On noise barriers alongside roads to influence the acoustic performance of the original noise barrier			
Essential Characteristics	**Clauses in this and other European Standard(s) related to essential characteristics**	**Regulatory classes**	**Notes**
Resistance to load: Self weight	4.1		Test or calculation. For acoustic elements
Resistance to load: Maximum vertical load	4.1		Test or calculation
Resistance to load: Maximum normal load	4.1		Test or calculation. For acoustic elements (wind and static load)
Resistance to load: Maximum normal load	4.1		Calculation. For structural elements (wind, static load and self-weight)
Resistance to brush fire	4.1		Test
Shatter properties	4.1		Test
Light reflectivity	4.1		Test
Release of dangerous substances	4.2		As relevant, in accordance with 4.2
Acoustic durability	4.1		
Non-acoustic durability	4.1		
Sound diffraction	4.1		Test

The declaration of the product performance related to certain essential characteristics is not required in those Member States (MS) where there are no regulatory requirements on these essential characteristics for the intended use of the product.

In this case, manufacturers placing their products on the market of these MS are not obliged to determine nor declare the performance of their products with regard to these essential characteristics and the option “No performance determined” (NPD) in the information accompanying the CE marking and in the declaration of performance (see ZA.3) may be used for those essential characteristics.

ZA.2 Procedure for AVCP of road traffic noise reducing devices

ZA.2.1 System(s) of AVCP

The AVCP system(s) of road traffic noise reducing devices indicated in Table ZA.1.1, Table ZA.1.2, Table ZA.1.3, Table ZA.1.4 and Table ZA.1.5, established by EC Decision(s) 96/579/EC (OJEU L254 of 1996-10-08) is shown in Table ZA.2 for the indicated intended use(s) and relevant level(s) or class(es) of performance.

Table ZA.2 — System of AVCP

Product(s) [5]	**Intended use(s)** [6]	**Level(s) or class(es) of performance** [7]	**AVCP system(s)** [8]
Road traffic noise reducing devices	For circulation areas	---	3
System 3: See Regulation (EU) No. 305/2011 (CPR) Annex V, 1.4			

The AVCP of the noise barriers, claddings, road covers, structural elements and added devices in Table ZA.1.1, Table ZA.1.2, Table ZA.1.3, Table ZA.1.4 and Table ZA.1.5 shall be according to the AVCP procedures indicated in Table ZA.3.1, Table ZA.3.2, Table ZA.3.3, Table ZA.3.4 and Table ZA.3.5 resulting from application of the clauses of this or other European Standard indicated therein. The content of tasks of the notified body shall be limited to those essential characteristics as provided for, if any, in Annex III of the relevant mandate and to those that the manufacturer intends to declare.

Table ZA.3.1 — Assignment of AVCP tasks for noise barriers under system 3

Tasks		**Content of the task**	**AVCP clauses to apply**
Tasks for the manufacturer	Factory production control (FPC)	Parameters related to essential characteristics of Table ZA.1 relevant for the intended use which are declared	6.3
	Determination of the product-type on the basis of type testing (based on sampling carried out by the manufacturer), type calculation, tabulated values or descriptive documentation of the product	Durability	6.2
Tasks for a notified testing laboratory	Determination of the product-type on the basis of type testing (based on sampling carried out by the manufacturer), type calculation, tabulated values or descriptive documentation of the product	Resistance to loads Sound absorption Sound insulation Shatter properties Light reflectivity	6.2

Table ZA.3.2 — Assignment of AVCP tasks for claddings under system 3

Tasks		Content of the task	AVCP clauses to apply
Tasks for the manufacturer	Factory production control (FPC)	Parameters related to essential characteristics of Table ZA.1 relevant for the intended use which are declared	6.3
	Determination of the product-type on the basis of type testing (based on sampling carried out by the manufacturer), type calculation, tabulated values or descriptive documentation of the product	Durability	6.2
Tasks for a notified testing laboratory	Determination of the product-type on the basis of type testing (based on sampling carried out by the manufacturer), type calculation, tabulated values or descriptive documentation of the product	Resistance to loads Sound absorption Sound insulation Shatter properties Light reflectivity	6.2

Table ZA.3.3 — Assignment of AVCP tasks for covers under system 3

Tasks		Content of the task	AVCP clauses to apply
Tasks for the manufacturer	Factory production control (FPC)	Parameters related to essential characteristics of Table ZA.1 relevant for the intended use which are declared	6.3
	Determination of the product-type on the basis of type testing (based on sampling carried out by the manufacturer), type calculation, tabulated values or descriptive documentation of the product	Durability	6.2
Tasks for a notified testing laboratory	Determination of the product-type on the basis of type testing (based on sampling carried out by the manufacturer), type calculation, tabulated values or descriptive documentation of the product	Resistance to loads Sound absorption Sound insulation Shatter properties Light reflectivity	6.2

Table ZA.3.4 — Assignment of AVCP tasks for structural elements under system 3

Tasks		Content of the task	AVCP clauses to apply
Tasks for the manufacturer	Factory production control (FPC)	Parameters related to essential characteristics of Table ZA.1 relevant for the intended use which are declared	6.3
	Determination of the product-type on the basis of type testing (based on sampling carried out by the manufacturer), type calculation, tabulated values or descriptive documentation of the product	Non-acoustic durability	6.2
Tasks for a notified testing laboratory	Determination of the product-type on the basis of type testing (based on sampling carried out by the manufacturer), type calculation, tabulated values or descriptive documentation of the product	Resistance to loads Shatter properties Light reflectivity	6.2

Table ZA.3.5 — Assignment of AVCP tasks for added devices under system 3

Tasks		Content of the task	AVCP clauses to apply
Tasks for the manufacturer	Factory production control (FPC)	Parameters related to essential characteristics of Table ZA.1 relevant for the intended use which are declared	6.3
	Determination of the product-type on the basis of type testing (based on sampling carried out by the manufacturer), type calculation, tabulated values or descriptive documentation of the product	Durability	6.2
Tasks for a notified testing laboratory	Determination of the product-type on the basis of type testing (based on sampling carried out by the manufacturer), type calculation, tabulated values or descriptive documentation of the product	Resistance to loads Shatter properties Light reflectivity Sound diffraction	6.2

ZA.2.2 Declaration of performance (DoP)

ZA.2.2.1 General

The manufacturer draws up the DoP and affixes the CE marking on the basis of the different AVCP systems set out in Annex V of the Regulation (EU) No 305/2011:

— the factory production control carried out by the manufacturer; and

— the determination of the product-type on the basis of type testing (based on sampling carried out by the manufacturer), type calculation, tabulated values or descriptive documentation of the product, carried out by the notified testing laboratory.

ZA.2.2.2 Content

The model of the DoP is provided in Annex III of the Regulation (EU) No 305/2011.

According to this Regulation, the DoP shall contain, in particular, the following information:

— the reference of the product-type for which the declaration of performance has been drawn up;

— the AVCP system or systems of the construction product, as set out in Annex V of the CPR;

— the reference number and date of issue of the harmonized standard which has been used for the assessment of each essential characteristic;

— where applicable, the reference number of the Specific Technical Documentation used and the requirements with which the manufacturer claims the product complies.

The DoP shall in addition contain:

a) the intended use or uses for the construction product, in accordance with the applicable harmonized technical specification;

b) the list of essential characteristics, as determined in the harmonized technical specification for the declared intended use or uses;

c) the performance of at least one of the essential characteristics of the construction product, relevant for the declared intended use or uses;

d) where applicable, the performance of the construction product, by levels or classes, or in a description, if necessary based on a calculation in relation to its essential characteristics determined in accordance with the Commission determination regarding those essential characteristics for which the manufacturer shall declare the performance of the product when it is placed on the market or the Commission determination regarding threshold levels for the performance in relation to the essential characteristics to be declared.

e) the performance of those essential characteristics of the construction product which are related to the intended use or uses, taking into consideration the provisions in relation to the intended use or uses where the manufacturer intends the product to be made available on the market;

f) for the listed essential characteristics for which no performance is declared, the letters “NPD” (No Performance Determined);

Regarding the supply of the DoP, article 7 of the Regulation (EU) No 305/2011 applies.

The information referred to in Article 31 or, as the case may be, in Article 33 of Regulation (EC) No 1907/2006, (REACH) shall be provided together with the DoP.

ZA.2.2.3 Example of DoP

The following gives an example of a filled in DoP for a sound absorptive noise barrier

DECLARATION OF PERFORMANCE

No. 001CPR2014-07-14

1. Unique identification code of the product-type:

AnyNoise sound absorptive noise barrier Type ABC123

2. Type, batch or serial number or any other element allowing identification of the construction product as required under Article 11(4):

Acoustic elements: Type ABS123 3,0 m long x 0,5 m high x 0,14 m wide cartridge section

Structural elements (posts): Type ABC123 152 × 89 × 16 Universal column

3. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:

Noise mitigation alongside roads

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required under Article 11(5):

AnyCo SA,

PO Box 21

B-1050 Brussels, Belgium

Tel. +32987654321

Fax: +32123456789

Email: anyco.sa@provider.be

5. Where applicable, name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12(2):

Anyone Ltd

Flower Str. 24

West Hamfordshire

UK-589645 United Kingdom

Tel. +44987654321

Fax: +44123456789

E-mail: anyone.ltd@provider.uk

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in CPR, Annex V:

System 3

7. In case of the declaration of performance concerning a construction product covered by a harmonized standard:

The manufacturer, based on initial type testing undertaken by notified test laboratories, has determined the performances listed in Table ZA.3.1, Table ZA.3.2, Table ZA.3.3, Table ZA.3.4 and Table ZA.3.5 (as appropriate) under System 3 and affixed the CE marking.

8. Declared performance:

Essential characteristics	**Performance**												**Harmonized standard**
Sound absorption, DLα	11 dB												EN 1793-1
Airborne sound insulation													
DL_R in reverberant fields	NPD												EN 1793-2
$DL_{SI,E}$ in non-reverberant fields	32 dB												EN 1793-6
$DL_{SI,P}$ in non-reverberant fields	27 dB												EN 1793-6
$DL_{SI,G}$ in non-reverberant fields	29 dB												EN 1793-6
Resistance to load: Self weight of acoustic elements	0,70 kN												EN 1794-1
Dry weight	0,92 kN												EN 1794-1
Reduced wet weight													
Resistance to loads:													
Maximum vertical load	150 kN/m												EN 1794-1
Resistance to loads for acoustic elements:													
Maximum noise load (wind and static load)	1,2 kPa												EN 1794-1
Maximum noise load (dynamic load from snow clearance)	14 kN												EN 1794-1
Resistance to load for structural elements:													
Maximum normal load (Wind load, static and self weight)	5,2 kNm												EN 1794-1
Maximum bending moment (dynamic load from snow clearance	15 kNm												EN 1794-1
Resistance to brush fire	Class 2												EN 1794-2
Shatter properties	Class 3												EN 1794-2
Light reflectivity	NPD												EN 1794-2
Release of dangerous substances													
Arsenic	66 ppm												EN 1794-2
Mercury	69 ppm												EN 1794-2
Acoustic durability													
Sound absorption DLα													
Value at end of working life	12 dB												EN 14389-1
Declared working lifetime as a function of environmental class of exposure	4B1	4B2	4C2	4C3	4C4	4K2	4K3	4M3	4M4	4S2	4Z6	4Z7	EN 14389-1
	10	NPD	15	15	23	8	20	NPD	NPD	10	20	20	EN 14389-1
Airborne sound insulation DL_R													
Value at end of working life	20 dB												EN 14389-1
Declared working lifetime as a function of environmental class of exposure	4B1	4B2	4C2	4C3	4C4	4K2	4K3	4M3	4M4	4S2	4Z6	4Z7	EN 14389-1
	10	NPD	15	15	23	8	20	NPD	NPD	10	20	20	EN 14389-1

Essential characteristics	**Performance**												**Harmonized standard**
Airborne sound insulation DL_{SI}													
Value at end of working life	25 dB												EN 14389-1
Declared working lifetime as a function of environmental class of exposure	4B1	4B2	4C2	4C3	4C4	4K2	4K3	4M3	4M4	4S2	4Z6	4Z7	EN 14389-1
	10	NPD	15	15	23	8	20	NPD	NPD	10	20	20	EN 14389-1
Non-acoustic durability													
Declared working lifetime in years as a function of environmental classes of exposure	4B1	4B2	4C2	4C3	4C4	4K2	4K3	4M3	4M4	4S2	4Z6	4Z7	EN 14389-2
	10	NPD	15	15	23	8	20	NPD	NPD	10	20	20	EN 14389-2

9. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 8.

   This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

   Signed for and on behalf of the manufacturer by:

   ……

   (name and function)

   …… ……

   (place and date of issue) (signature)

ZA.3 CE marking and labelling

The CE marking symbol shall be in accordance with the general principles set out in Article 30 of Regulation (EC) No 765/2008 and shall be affixed visibly, legibly and indelibly [see Clause 1.1.2.1.3]:

— to the noise barrier, cladding, road cover or added device

or

— to a label attached to it.

Where this is not possible or not warranted on account of the nature of the product, it shall be affixed:

— to the packaging

or

— to the accompanying documents.

The CE marking shall be followed by:

— the last two digits of the year in which it was first affixed,

— the name and the registered address of the manufacturer, or the identifying mark allowing identification of the name and address of the manufacturer easily and without any ambiguity,

— the unique identification code of the product-type

— the reference number of the declaration of performance

— the level or class of the performance declared

— the dated reference to the harmonized technical specification applied

— the identification number of the notified body,

— the intended use as laid down in the harmonized technical specification applied.

The CE marking shall be affixed before the construction product is placed on the market. It may be followed by a pictogram or any other mark notably indicating a special risk or use.

Figure ZA.1 gives an example of the information related to products subject to AVCP under AVCP System 3 to be given on the noise barrier, cladding, road cover or added device, to a label attached to it or where this is not possible or not warranted on account of the nature of the product, affixed to the packaging or to the accompanying documents.

CE

8910

CE marking, consisting of the "CE"-symbol

Identification number of the notified test laboratory

AnyCo Ltd, PO Box 21, B-1050, Brussels, Belgium

name and registered address of the manufacturer, or identifying mark

14

Last two digits of the year in which the marking was first affixed

00001-CPR-2014/05/12

Reference number of the DoP

EN 14388

No. of European standard applied, as referenced in OJEU (see note 14)

Noise Barrier A

Unique identification code of the product-type

intended to be used for reducing road traffic noise

Intended use of the product as laid down in the European standard applied

Type:	Any Noise
Acoustic element type:	F (length 4 m)
Post type:	P
Drawings:	Ag1320 (12 May 2000) and 1322–1326 (17 May 2000)
Dry and reduced wet self weight of an acoustic element:	
Dry weight:	0,70 kN
Reduced wet weight:	0,92 kN
Resistance to loads	
Maximum vertical load:	150 kN/m
Acoustic elements	
Normal (90°) load due to wind and static:	1,2 kPa
Normal (90°) load due to snow clearance:	14 kN
Structural elements	
Normal (90°) load due to wind, static, external and self weight:	
Barrier height 3 m	5,2 kN/m
Barrier height 4 m	4,4 kN/m
Bending moment at ground level due to snow clearance:	15 kNm
Sound absorption: DL_α	11 dB
Airborne sound insulation:	
DL_R in reverberant fields	NPD
$DL_{SI,E}$ in non-reverberant fields	32 dB
$DL_{SI,P}$ in non-reverberant fields	27 dB
$DL_{SI,G}$ in non-reverberant fields	29 dB
Light reflectivity:	NPD
Shatter properties:	Class 3
Durability of acoustic characteristics:	
Sound Absorption DLα	
Value at end of working life	12 dB

Declared working lifetime in years as a function of environmental classes of exposure

4B1	4B2	4C2	4C3	4C4	4K2	4K3	4M3	4M4	4S2	4Z6	4Z7
10	NPD	15	15	23	8	20	NPD	NPD	10	20	20

Airborne sound insulation DL_R

Value at end of working life 20 dB

Declared working lifetime in years as a function of environmental classes of exposure

4B1	4B2	4C2	4C3	4C4	4K2	4K3	4M3	4M4	4S2	4Z6	4Z7
10	NPD	15	15	23	8	20	NPD	NPD	10	20	20

Level or class of the performance declared

Airborne sound insulation DL_{SI}

Value at end of working life 25 dB

Declared working lifetime in years as a function of environmental classes of exposure

4B1	4B2	4C2	4C3	4C4	4K2	4K3	4M3	4M4	4S2	4Z6	4Z7
10	NPD	15	15	23	8	20	NPD	NPD	10	20	20

Durability of non-acoustic characteristics:

Declared working lifetime in years as a function of environmental classes of exposure

4B1	4B2	4C2	4C3	4C4	4K2	4K3	4M3	4M4	4S2	4Z6	4Z7
10	NPD	15	15	23	8	20	NPD	NPD	10	20	20

Dangerous substances

Arsenic: 66 ppm

Mercury: 69 ppm

Figure ZA.1 — Example CE marking information of products under AVCP system 3

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