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Standards

Standard Recommendation  
S.R. CWA 16221:2010 (JAN 2011)

# Vehicle security barriers - Performance requirements, test methods and guidance on application

## S.R. CWA 16221:2010 (JAN 2011)

*Incorporating amendments/corrigenda issued since publication:*

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## Correction Notice

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Brussels, 2010-12-15

**With reference to the above, please include the following minor editorial correction(s) in the document related to:**

the following language version(s) :

- English
- French
- German

for the following procedure :

- PQ/UQ
- Enquiry
- 2nd Enquiry
- Parallel Enquiry ( ISO/  CEN Lead )
- 2<sup>nd</sup> Parallel Enquiry ( ISO/  CEN Lead )
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- UAP
- TC Approval
- 2<sup>nd</sup> TC Approval
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KAA

It has been brought to our attention that this document, issued on 2010-10-20 (CEN Standards Publications Weekly Output Reference 2010/10/III) requires modification.

*Table 2 – Footnotes to c and d have been deleted*  
*5.5.2.6 – Note numbering and Figure cross reference*  
*5.6.4.1 – Cross reference added and line m has been deleted*  
*5.6.6 and 6.2 – Update of cross reference*  
*C.9 – Deleted "shall be" and replaced with "should preferably"*  
*L.3.1 – Added operation and maintenance manual*  
*New Figure 2 and 7 correcting spelling errors*  
*Formatting of layout and spacing*

Please find enclosed the updated *English version*.

We apologise for any inconvenience this may cause.

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**CEN**

**CWA 16221**

**WORKSHOP**

October 2010

**AGREEMENT**

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ICS 93.080.30

English version

## Vehicle security barriers - Performance requirements, test methods and guidance on application

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties, the constitution of which is indicated in the foreword of this Workshop Agreement.

The formal process followed by the Workshop in the development of this Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN Management Centre can be held accountable for the technical content of this CEN Workshop Agreement or possible conflicts with standards or legislation.

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## **Foreword**

The production of this CWA (CEN Workshop Agreement) specifying *Vehicle security barriers — Performance requirements, test methods and guidance on application*, was formally accepted at the Workshop's kick-off meeting on 28 June 2008.

The document has been developed through the collaboration of a number of contributing partners in this Workshop, representing the interest of industry, academics, Standard bodies, Government bodies and research establishments.

This CWA has received the support of representatives of the following organizations:

- APT Security Systems (APT)
- Attorney General's Department Australian Government (AGDAG)
- BRE Global Limited (incorporating LPCB) (BRE)
- Bristorm (Bri)
- Centre for the Protection of National Infrastructure (CPNI)
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- Devon County Council (DCC)
- French Homeland Security Technical Centre (CTSI)
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- Newgate (Newark) Ltd (NEW)
- Norwegian Defence Estates Agency (NDEA)
- Perimeter Security Suppliers Association (PSSA)

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- Rodney Coate Security Adviser (RCSA)
- Technical and Test Institute for Construction Prague (TZUS Praha)
- Texas Transportation Institute (TAMU)
- Transport Research Laboratory (TRL)
- U.S. Department of State (DoS)

The formal process followed by the Workshop in the development of the CEN Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN–CENELEC Management Centre can be held accountable for the technical content of the CEN Workshop Agreement or possible conflict with standards or legislation. This CEN Workshop Agreement can in no way be held as being an official standard developed by CEN and its members.

The final review/endorsement round for this CWA was started on 2009-07-29 and was successfully closed on 2010-07-30. The final text of this CWA was submitted to CEN for publication on 2010-09-20.

This CEN Workshop Agreement is publicly available as a reference document from the National Members of CEN: AENOR, AFNOR, BSI, CSNI, CYS, DIN, DS, ELOT, EVS, IBN, IPQ, IST, HZN, LVS, LST, MSA, MSZT, NEN, NSAI, ON, PKN, SEE, SIS, SIST, SFS, SN, SNV, SUTN and UNI.

Comments or suggestions from the users of the CEN Workshop Agreement are welcome and should be addressed to the CEN-CENELEC Management Centre.

*Product testing.* Users of this CWA are advised to consider the desirability of third-party testing of product conformity with this CWA. Appropriate conformity attestation arrangements are described in EN ISO/IEC 17025, General requirements for the competence of testing and calibration laboratories. Users seeking assistance in identifying appropriate conformity assessment bodies or schemes may ask BSI or any National Standards Body in Europe to forward their enquiries to the relevant association. Products that have been tested to the requirements of BSI PAS 68 and have been approved are deemed to satisfy and be approved to the requirements of CWA 16221: 2010 (E) and will be classified accordingly.

## **Introduction**

This CEN Workshop Agreement (CWA) has been prepared to address the needs of organizations who wish to have assurance that vehicle security barriers (VSBs) will provide the level of impact resistance which is sought.

Many systems are available that are either promoted or considered suitable for use as VSBs. As their characteristics differ in both function and form, a comparative means of assessing their performance is required.

This CWA identifies impact test methods, test vehicle type and performance criteria that need to be met in order to conform to it.

This CWA also provides guidance on the selection, installation and use of VSBs to ensure that they are selected and placed as effectively as possible. This CWA is intended to be used by designers, planners, architects, security managers and facilities managers within the public and private sectors.

The guidance highlights the issues to be addressed when considering the use of traffic calming and VSBs as part of an overall security regime. The topics considered are by no means exhaustive, and the user is encouraged to consider additional questions and responses to cater for specific issues.

If changes are subsequently proposed for the security package that has been designed for a site, decisions based on this CWA should be used to confirm why the original security decisions were made and how they will be affected by any changes. Decisions should be recorded and records retained for audit purposes and periodic review.

VSBs, by virtue of their basic design, may not be intended to provide any blast resistance but may be affected by any explosives that detonate following the impact or arrest of a hostile vehicle. Despite providing valuable standoff distance to an asset, VSBs may add to secondary fragmentation created by an explosion and specifiers should identify acceptable levels of risk (see Annex D and N).

A VSB installation, particularly at a vehicle access control point (VACP), may need to be integrated with CCTV, security lighting, perimeter intruder detection systems, automatic access control systems, physical delay measures and security procedures including guarding regimes. In order to achieve an integrated security solution it is imperative from the outset to define the performance requirements and interfaces between these systems. This is where security operational requirements add significant value to the installation and commissioning process and life-cycle management.

Annex N describes in more detail the process of producing operational requirements.

## 1 Scope

This CWA specifies a classification system for the performance of a vehicle security barrier (VSB) when subjected to a single horizontal impact.

This CWA specifies two methods for determining the performance classification of a VSB:

- the vehicle impact method for all types of VSBs using a test vehicle classified in accordance with EC Directive 2007/46/EC [1] and registered for use in Europe;
- the design method for all types of VSBs.

This CWA refers to alternative test methods for determining the performance classification of a VSB (see Annex A).

This CWA also provides guidance for the selection, installation and use of VSBs (see Annexes D to M).

This CWA also describes the process of producing “operational requirements” (see Annex N).

This CWA does not cover the performance of a VSB or its control apparatus when subjected to:

- blast explosion;
- ballistic impact;
- manual attack, with the aid of tools (excluding vehicles).

NOTE For manual attack, attention is drawn to LPS 1175 which covers test methods for assessing burglary resistance of building components, such as doors, windows, shutters, grilles, strongpoints and security enclosures.

## 2 Normative references

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

EN 1317-1, Road restraint systems – *Part 1: Terminology and general criteria for test methods*

EN 1992-1-1, *Eurocode 2: Design of concrete structures – Part 1-1: General rules and rules for buildings*

EN 12390-2, *Testing hardened concrete – Part 2: Making and curing specimens for strength tests*

## 3 Terms and definitions

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

### 3.1

#### **ballast**

mass securely fixed to the vehicle

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