

BRITISH STANDARD

Pavements constructed with clay, natural stone or concrete pavers –

Part 12: Guide to the structural design of trafficked pavements constructed on a bound base using concrete paving flags and natural stone slabs

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Foreword

Publishing information

This part of BS 7533 was published by BSI and came into effect on 30 November 2006. It was prepared by Technical Committee B/507, *Paving units, kerbs, screeds and in-situ floorings*. A list of organizations represented on this committee can be obtained on request to its secretary.

Relationship with other publications

BS 7533 consists of the following parts:

- *Part 1: Guide for the structural design of heavy duty pavements constructed of clay pavers or precast concrete paving blocks;*
- *Part 2: Guide for the structural design of lightly trafficked pavements constructed of clay pavers or precast concrete paving blocks;*
- *Part 3: Code of practice for laying precast concrete paving blocks and clay pavers for flexible pavements;*
- *Part 4: Code of practice for the construction of pavements of precast concrete flags or natural stone slabs;*
- *Part 5: Guide for the design of pavements (other than structural aspects);*
- *Part 6: Code of practice for laying natural stone, precast concrete and clay kerb units;*
- *Part 7: Code of practice for the construction of pavements of natural stone setts and cobbles;*
- *Part 8: Guide for the structural design of lightly trafficked pavements of precast concrete flags and natural stone slabs;*
- *Part 9: Code of practice for the construction of rigid pavements of clay pavers;*
- *Part 10: Guide for the structural design of trafficked pavements constructed of natural stone setts;*
- *Part 11: Code of practice for the opening, maintenance and reinstatement of pavements of concrete, clay and natural stone;*
- *Part 12: Guide to the structural design of trafficked pavements constructed on a bound base using concrete paving flags and natural stone slabs.*

Use of this document

As a code of practice, this part of BS 7533 takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this part of BS 7533 is expected to be able to justify any course of action that deviates from its recommendations.

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions in this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

The word “should” is used to express recommendations of this standard. The word “may” is used in the text to express permissibility, e.g. as an alternative to the primary recommendation of the clause. The word “can” is used to express possibility, e.g. a consequence of an action or an event.

Notes and commentaries are provided throughout the text of this standard. Notes give references and additional information that are important but do not form part of the recommendations. Commentaries give background information.

Contractual and legal considerations

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

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This part of BS 7533 provides guidance on the design of bound pavements surfaced with concrete paving flags manufactured in accordance with BS EN 1339 and natural stone slabs manufactured in accordance with BS EN 1341, both laid in accordance with BS 7533-4. It applies to all pavements including those subjected to commercial vehicular traffic travelling at speeds less than 50 kph with a design life of 40 years.

NOTE Guidance on reinstatement is given in BS 7533-11.

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.

BS 6100-2, *Glossary of building and civil engineering terms – Part 2: Civil engineering*

BS 7533-1:2001, *Pavements constructed with clay, natural stone or concrete pavers – Part 1: Guide for the structural design of heavy duty pavements constructed of clay pavers or precast concrete paving blocks*

BS 7533-4, *Pavements constructed with clay, natural stone or concrete pavers – Part 4: Code of practice for the construction of pavements of precast concrete flags or natural stone slabs*

BS 7533-11, *Pavements constructed with clay, natural stone or concrete pavers – Part 11: Code of practice for the opening, maintenance and reinstatement of pavements of concrete, clay and natural stone*

BS EN 1339:2003, *Concrete paving flags – Requirements and test methods*

BS EN 1341:2001, *Slabs of natural stone for external paving – Requirements and test methods*

BS EN 1015-12, *Determination of adhesive strength of hardened rendering and plastering mortars on substrates*

3 Terms and definitions

For the purposes of this part of BS 7533, the terms and definitions given in BS 6100-2 and the following apply.

3.1 flag

precast concrete unit, used as a surfacing material, with an overall length that does not exceed 1 m and an overall length which when divided by its thickness is greater than four

[BS EN 1339:2003, definition 3.2]

- 3.2 slab**
unit of natural stone used as a paving material, in which the working width exceeds 150 mm and exceeds two times the thickness
[BS EN 1341:2001, definition **3.1**]
- 3.3 paving unit**
either a concrete paving flag or natural stone slab
- 3.4 surface course**
layer of paving units that acts as a wearing surface and forms part of the structure of the pavement
- 3.5 bound surface course**
surface course where the paving units are laid on a laying course of concrete with maximum aggregate size of 4 mm and the joints are filled with a cement mortar or grout
- 3.6 laying course**
layer of material on which paving units are bedded
[BS 7533-1:2001, definition **3.2**]
- 3.7 subgrade**
upper part of the soil, natural or constructed, that supports the loads transmitted by the overlying pavement
[BS 7533-1:2001, definition **3.3**]
- 3.8 pavement**
any paved area subject to pedestrian and/or vehicular traffic
- 3.9 sub-base**
one or more layers of material placed immediately above the subgrade
[BS 7533-1:2001, definition **3.5**]
- 3.10 capping layer**
layer of granular or stabilized material at the top of the subgrade to provide a working surface and an improved foundation for the pavement
NOTE The capping layer is an optional layer which may form part of the sub-base (see Table B.1 for the relative sub-base and capping layer thicknesses).
- 3.11 roadbase**
one or more layers of material placed above the sub-base that constitute the main structural elements of a pavement
[BS 7533-1:2001, definition **3.6**]
- 3.12 commercial vehicle**
vehicle with an unladen weight exceeding 1.5 t
[BS 7533-1:2001, definition **3.11**]
- 3.13 bound roadbase**
roadbase consisting of granular material bound with hydraulic binder