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Pavements constructed with clay, concrete or natural stone paving units

Part 101: Code of practice for the structural design of pavements using modular paving units

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Contents

		Page
	Foreword	**v**
1	Scope	1
2	Normative references	1
3	Terms, definitions and abbreviated terms	3
	Figure 1 — Pavement layers	8
	Figure 2 — Pavement layers over a structural slab	8
4	General design criteria	9
4.1	Design options	9
4.2	Evaluation of traffic	9
	Table 1 — Standard axles per commercial vehicle	10
	Table 2a — Traffic categories for unbound construction	10
	Table 2b — Traffic categories for bound construction	11
	Table 3 — Recommended maximum traffic categories for paving unit types	12
4.3	Slip/skid resistance for concrete, clay and stone paving units	12
	Table 4 — Recommended USRV and PPV/PSRV for concrete, clay and stone paving units	13
5	Materials	13
5.1	Foundation materials	13
5.2	Base materials	13
5.3	Laying course materials for unbound surface construction	14
	Table 5 — Grading of laying course for unbound laying material in all traffic categories	14
	Table 6 — Fines content of unbound laying course material	14
	Table 7 — Grading for unbound laying course material for natural stone slabs in all traffic categories and cropped natural stone setts in traffic categories 1 to 4	15
	Table 8 — Grading for unbound laying course material for cropped natural stone setts in traffic categories 5 to 9	15
5.4	Laying course materials for bound surface construction	15
	Table 9 — Bedding mortar characteristics	16
	Table 10 — Recommended aggregate properties for site-batched non-proprietary bedding mortar	17
5.5	Jointing materials for unbound surface construction	17
	Table 11 — Grading for jointing material for concrete, clay and sawn sided stone paving units	17
5.6	Jointing materials for bound surface construction	18
	Table 12 — Jointing mortar characteristics	18
5.7	Paving units	18
	Table 13 — Maximum recommended abrasion resistance [A)]	21
	Table 14 — Maximum recommended water absorption [A)]	22
5.8	Kerbs	22
6	Design	23
6.1	Subgrade assessment	23
	Table 15 — Estimated CBR values based on equilibrium suction-index	23
6.2	Foundation design	25
	Table 16 — Foundation design thickness – sub-base only design	25
	Table 17 — Foundation design thickness – Sub-base on capping design	26
6.3	Frost susceptibility	27
6.4	Types of construction	27
6.5	Concrete blocks, clay pavers and unbound sawn-sided stone setts	28
	Table 18 — Concrete block, clay paver and unbound sawn-sided sandstone sett design thicknesses	29
	Table 19 — Recommended maximum traffic categories for typical laying patterns	30
6.6	Concrete flags and stone slabs	30

Table 20 — Minimum flag thickness for Bound B installation only 31
Table 21 — Maximum recommended traffic categories for standard concrete flag designations 31
Table 22 — Stone slab and concrete flag design load 32
Table 23 — Surface construction factor for stone slab and non-standard concrete flag design 32
Table 24 — Base design thickness for flags and slabs 32
6.7 Natural stone setts 33
Table 25 — Minimum sett width 34
Table 26 — Pattern factor for laying patterns using natural stone setts 34
Table 27 — Unfactored module thickness (T) 35
Table 28 — Base design thickness for natural stone setts laid unbound and bound 35
Table 29 — Joint widths for cropped setts laid unbound 36
Table 30 — Minimum joint widths for setts laid bound 36
6.8 Kerbing and linear drainage 36
Table 31 — Concrete for kerb bases 37
Table 32 — Kerb bedding mortar 37
6.9 Construction over a structural deck 38
6.10 Management of moisture in the pavement structure 38
7 Pavement overlay design 38
7.1 Evaluation of existing pavement 38
7.2 Determination of overlay feasibility 39
Table 33 — Material conversion factors (MCF) for evaluating highway pavement materials 40
Table 34 — Condition factor CF1 40
Table 35 — Condition factor CF2 40
8 Construction details 40
8.1 Restraint 40
8.2 Surface falls and drainage 41
Table 36 — Recommended surface gradients 41
8.3 Detailing around curves and corners 41
8.4 Vehicular crossings 41
8.5 Detailing around features 41
8.6 Steps using modular paving units 42
8.7 Movement joints 43

Annex A (normative) **Conditions to be applied to the test procedure specified in BS EN 1097-1:2011 for determination of the resistance to wear (modified micro-Deval) of laying course material for unbound construction** **46**

Annex B (normative) **A simple permeameter test** **47**

Annex C (informative) **Factory production control test for proprietary bedding mortar** **48**

Annex D (informative) **Commentary on natural stone properties** **49**

Annex E (informative) **Examples of laying patterns** **52**
Figure E.1 — Concrete block, clay paver and sett laying patterns 52
Figure E.2 — Typical concrete block, clay paver and sawn sett edge details 53
Figure E.3 — Examples of laying patterns that incorporate complimentary fittings 53
Figure E.4 — Inboard cuts and half cuts adjacent to a single stretcher course 54
Figure E.5 — Examples of laying patterns for natural stone setts 55
Figure E.6 — Concrete flag and stone sett laying patterns for bound and unbound construction 56

Annex F (informative) **Examples of the minimum thickness of natural stone slabs laid bound or unbound in all appropriate traffic categories** **56**
Table F.1 — Stone slabs ≤600 mm (unbound) with flexural strength 8.0 MPa 56

Table F.2 — Stone slabs ≤600 mm (unbound) with flexural strength 12.0 MPa 57
Table F.3 — Stone slabs ≤600 mm (unbound) with flexural strength 15.0 MPa 57
Table F.4 — Stone slabs ≤600 mm (unbound) with flexural strength 25.0 MPa 57
Table F.5 — Stone slabs >600 mm (unbound) with flexural strength 8.0 MPa 57
Table F.6 — Stone slabs >600 mm (unbound) with flexural strength 12.0 MPa 57
Table F.7 — Stone slabs >600 mm (unbound) with flexural strength 15.0 MPa 58
Table F.8 — Stone slabs >600 mm (unbound) with flexural strength 25.0 MPa 58
Table F.9 — Stone slabs ≤600 mm (Bound system A) with flexural strength 8.0 MPa 58
Table F.10 — Stone slabs ≤600 mm (Bound system A) with flexural strength 12.0 MPa 58
Table F.11 — Stone slabs ≤600 mm (Bound system A) with flexural strength 15.0 MPa 59
Table F.12 — Stone slabs ≤600 mm (Bound system A) with flexural strength 25.0 MPa 59
Table F.13 — Stone slabs >600 mm (Bound system A) with flexural strength 8.0 MPa 59
Table F.14 — Stone slabs >600 mm (Bound system A) with flexural strength 12.0 MPa 59
Table F.15 — Stone slabs >600 mm (Bound system A) with flexural strength 15.0 MPa 59
Table F.16 — Stone slabs >600 mm (Bound system A) with flexural strength 25.0 MPa 59
Table F.17 — Stone slabs (Bound system B) with flexural strength 8.0 MPa 60
Table F.18 — Stone slabs (Bound system B) with flexural strength 12.0 MPa 60
Table F.19 — Stone slabs (Bound system B) with flexural strength 15.0 MPa 60
Table F.20 — Stone slabs (Bound system B) with flexural strength 25.0 MPa 60

Annex G (informative) **Typical sett thickness for various traffic categories** **61**
Table G.1 — Minimum design thickness for unbound surface construction using cropped setts 62
Table G.2 — Minimum design thickness for bound surface construction system A using natural stone setts 63
Table G.3 — Minimum design thickness for bound surface construction system B using natural stone setts 64

Annex H (informative) **Procedure for determining the design depth of setts with length greater than twice the width** **65**

Annex I (informative) **Typical edge restraint and linear drainage details** **66**
Figure I.1 — Example of intermediate restraint between areas of construction (light traffic) 66
Figure I.2 — Example of intermediate restraint between areas of construction (light traffic) 66
Figure I.3 — Example of transition restraint between modular construction and different construction 67
Figure I.4 — Example of visible concrete transition restraint between modular construction and different construction 67
Figure I.5 — Example of a hidden concrete transition between modular construction and different construction 68
Figure I.6 — Example of a deep channel transition restraint between modular construction and different construction 68
Figure I.7 — Example of a shallow channel transition restraint between modular construction and different construction 69
Figure I.8 — Example of a linear drainage channel interface with an unbound modular pavement 69
Figure I.9 — Typical details around types of drainage channels in unbound modular paving 70
Figure I.10 — Example of a linear drainage channel in bound construction modular paving, employing low modulus movement joints to protect drainage channel from thermal movement in adjacent paving (transverse joint) 71

Annex J (informative) **Pavement overlay worked examples** **71**
Table J.1 — Overlay example existing pavement layers 71
Table J.2 — Overlay example determination of existing equivalent asphalt thickness 72

Table J.3 — Overlay example determination of required equivalent asphalt thickness 72
Table J.4 — Inlay example existing pavement layers 72
Table J.5 — Inlay example determination of existing equivalent asphalt thickness 73
Table J.6 — Inlay example determination of required equivalent asphalt thickness 73

Annex K (informative) **Typical construction details** **74**
Figure K.1 — Trimming around obstructions – detail at ironwork 74
Figure K.2 — Example of a ramped crossing 75
Figure K.3 — Example of a dropped crossing 76
Figure K.4 — Example of a run-out corner 76
Figure K.5 — Example of a new town corner 77
Figure K.6 — Example of a bonded corner 77
Figure K.7 — Example of a splayed corner 78
Figure K.8 — Example of a profile of a step constructed using small paving units 78
Figure K.9 — Example of a monolithic step laid onto a profiled concrete foundation (step on step) 79
Figure K.10 — Example of a monolithic step laid onto a profiled concrete foundation (step behind step) 79
Figure K.11 — Example of a flag/slab tread and riser laid onto a profiled concrete foundation 80

Annex L (informative) **Typical movement joint details** **80**
Figure L.1 — Example of an induced contraction joint in bound surface construction 80
Figure L.2 — Example of a pavement expansion joint using shallow channels 81
Figure L.3 — Example of a pavement expansion joint using deep channels 81

Bibliography **82**

Summary of pages
This document comprises a front cover, an inside front cover, pages I to VI, pages 1 to 82, an inside back cover and a back cover.

Foreword

Publishing information

This part of BS 7533 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 August 2021. 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 committee manager.

Supersession

This part of BS 7533 supersedes BS 7533-1:2001, BS 7533-2:2001, BS 7533-8:2003, BS 7533-10:2010 and BS 7533-12:2006, which are withdrawn. This part of BS 7533 also partially supersedes BS 7533-6:1999 and BS 7533-7:2010.

Relationship with other publications

BS 7533 is published in the following parts:

- Part 101: *Code of practice for the structural design of pavements using modular paving units;*
- Part 102: *Code of practice for the construction and maintenance of pavements using modular paving units*[1)]; and
- Part 13: *Guide for the design of permeable pavements constructed with concrete paving blocks and flags, natural stone slabs and setts and clay pavers.*

Information about this document

This is a full revision of the BS 7533 series, in which the principal change is to reduce 12 parts of the series to 3 parts. The following principal changes have been made:

- the combination of information on the structural design of rigid and flexible pavements (now retitled "bound and unbound pavements"), using concrete, clay and stone paving units, from the following parts of the withdrawn series:
    - 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 8: *Guide for the structural design of lightly trafficked pavements of precast concrete flags and natural stone slabs;*
    - Part 10: *Guide for the structural design of trafficked pavements constructed of natural stone setts and bound construction with concrete paving blocks;*
    - Part 12: *Guide to the structural design of trafficked pavements constructed on a bound base using concrete paving flags and natural stone slabs;*
- the removal of repetition between the parts of BS 7533 listed above;
- updating of references and test methods; and,
- clarification and removal of ambiguity and anomalies.

1) In preparation

This publication can be withdrawn, revised, partially superseded or superseded. Information regarding the status of this publication can be found in the Standards Catalogue on the BSI website at bsigroup.com/standards, or by contacting the Customer Services team.

Where websites and webpages have been cited, they are provided for ease of reference and are correct at the time of publication. The location of a webpage or website, or its contents, cannot be guaranteed.

Use of this document

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Users may substitute any of the recommendations in this British Standard with practices of equivalent or better outcome. Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations.

Presentational conventions

The provisions of 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.

Where words have alternative spellings, the preferred spelling of the Shorter Oxford English Dictionary is used (e.g. "organization" rather than "organisation").

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1 Scope

This British Standard provides recommendations and guidance on the design of pavements surfaced with:

a) concrete paving blocks produced in accordance with BS EN 1338;

b) concrete paving flags produced in accordance with BS EN 1339;

c) natural stone slabs produced in accordance with BS EN 1341;

d) natural stone setts produced in accordance with BS EN 1342;

e) clay pavers produced in accordance with BS EN 1344;

constructed in accordance with BS 7533-3, BS 7533-4, BS 7533-7, BS 7533-9[2)].

It also provides guidance on the use of:

1) concrete kerbs produced in accordance with BS EN 1340; and

2) natural stone kerbs produced in accordance with BS EN 1343;

constructed in accordance with BS 7533-6[2].

It applies to areas subject to pedestrian and vehicular loading permissible under The Road Vehicles (Construction and Use) Regulations 1986 [1] with axle loads up to 11 000 kg and a cumulative design traffic of up to 30 million standard axles (msa).

It specifically excludes design traffic above the specified maximum and areas of higher vehicle loading such as aircraft pavements and those in ports and specialized industrial areas.

NOTE 1 Specialist engineering guidance is advised when considering the use of modular paving in applications not covered by this standard.

NOTE 2 Due to historic precedent, it might be preferred to use paving units which are outside the dimensions of the EN standards.

NOTE 3 This standard does not address the specific requirements for applications of tactile paving or other assistance devices. Pedestrian access paving needs to be designed to include appropriate tactile indicators as required by current standards and legislation.

The design of permeable pavements which collect, attenuate and provide a drainage feature are not within the scope of this standard. Refer to BS 7533-13.

Reused materials may be used provided they meet the recommendations of the appropriate clause(s).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions 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.

Standards publications

BS 1377-4, *Methods of test for soils for civil engineering purposes – Part 4: Compaction-related tests*

BS 7533-3, *Pavements constructed with clay, natural stone or concrete pavers – Part 3: Code of practice for laying precast concrete paving blocks and clay pavers for flexible pavements*

2) These parts of BS 7533 are expected to be merged into the new BS 7533-102, which is currently in preparation.

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 7533-6, *Pavements constructed with clay, natural stone or concrete pavers – Part 6: Code of practice for laying natural stone, precast concrete and clay kerb units*

BS 7533-7, *Pavements constructed with clay, natural stone or concrete pavers – Part 7: Code of practice for the construction of pavements of natural stone paving units and cobbles, and rigid construction with concrete paving blocks*

BS 7533-9, *Pavements constructed with clay, natural stone or concrete pavers – Part 9: Code of practice for the construction of rigid pavements of clay pavers*

BS 7533-13, *Pavements constructed with clay, natural stone or concrete pavers – Part 13: Guide for the design of permeable pavements constructed with concrete paving blocks and flags, natural stone slabs and setts and clay pavers*

BS 7932, *Determination of the unpolished and polished pendulum test value of surfacing units*

BS 8500 (all parts), *Concrete – Complementary British Standard to BS EN 206*

BS 8666:2020, *Scheduling, dimensioning, bending and cutting of steel reinforcement for concrete – Specification*

BS EN 206-1, *Concrete – Part 1: Specification, performance, production and conformity*

BS EN 932-2, *Tests for general properties of aggregates – Part 2: Methods for reducing laboratory samples*

BS EN 933-3, *Tests for geometrical properties of aggregates – Part 3: Determination of particle shape – Flakiness index*

BS EN 1097-1:2011, *Tests for mechanical and physical properties of aggregates – Part 1: Determination of the resistance to wear (micro-Deval)*

BS EN 1097-2, *Tests for mechanical and physical properties of aggregates – Part 2: Methods for the determination of resistance to fragmentation*

BS EN 1338:2003, *Concrete paving blocks – Requirements and test methods*

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

BS EN 1340:2003, *Concrete kerb unit – Requirements and test methods*

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

BS EN 1342, *Setts of natural stone for external paving – Requirements and test methods*

BS EN 1343, *Kerbs of natural stone for external paving – Requirements and test methods*

BS EN 1344:2013, *Clay pavers – Requirements and test methods*

BS EN 12371, *Natural stone test methods – Determination of frost resistance*

BS EN 12372, *Natural stone test methods – Determination of flexural strength under concentrated load*

BS EN 12617-4:2002, *Products and systems for the protection and repair of concrete structures – Test methods – Part 4: Determination of shrinkage and expansion*

BS EN 12620:2002+A1:2008, *Aggregates for concrete*

BS EN 12697-19, *Bituminous mixtures – Test methods – Permeability of specimen*

BS EN 13036-4, *Road and airfield surface characteristics – Test methods – Part 4: Method for measurement of slip/skid resistance of a surface: The Pendulum Test*

