

In-situ floorings —

Part 2: Code of practice for concrete wearing surfaces

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- British Aggregate Construction Materials Industries
- British Concrete Pumping Association
- British Plastics Federation
- Building Employers Confederation
- Cement and Concrete Association
- Chartered Institute of Building
- Concrete Society
- Contract Flooring Association
- Department of the Environment — Building Research Establishment
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- National Federation of Terrazzo-mosaic Specialists
- Plastics and Rubber Institute
- Royal Institute of British Architects
- Sand and Gravel Association
- Scottish Master Plasterers Association
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Foreword

This Part of BS 8204, which has been prepared under the direction of the Elements and Components (of Diverse Materials) for Buildings Standards Committee, gives recommendations for the laying of in-situ concrete wearing surfaces.

BS 8204 is published in separate Parts as follows:

- *Part 1: Code of practice for concrete bases and screeds to receive in-situ flooring;*
- *Part 2: Code of practice for concrete wearing surfaces.*

Parts dealing with terrazzo, mastic asphalt, polymer modified cement, magnesium oxychloride and cold setting resin in-situ floorings are to be prepared.

Part 2 of BS 8204 supersedes section two of CP 204-2 which is deleted by amendment. It covers direct finished concrete surfaces and high strength concrete toppings (including those previously known as granolithic). Particular attention has been paid to the bonding of toppings and the prevention of cracking and curling. Three grades of surface regularity and four classes of abrasion resistance have been introduced for selection by the designer.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 18, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 8204 gives recommendations for the installation of in-situ concrete wearing surfaces, including direct finished concrete slabs and high strength concrete toppings. It applies to both suspended floors and slabs supported by the ground.

Polymer/concrete toppings are not included and will be covered in another Part of BS 8204.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover. References to other publications are identified in the text by numbers in square brackets and are listed in appendix B.

2 Definitions

For the purposes of this Part of BS 8204, the following definitions apply. Definitions of terms given in BS 2787, BS 4049 and BS 6100-1 and BS 6100-6, other than the terms given below, also apply.

NOTE Layers in a concrete ground floor and a suspended concrete floor are illustrated in Figure 1 and Figure 2 respectively.

2.1 flooring

uppermost fixed layer of a floor that is designed to provide a wearing surface

2.2 direct finished base slab

concrete base slab that is suitably finished to serve directly as a wearing surface without the need for an additional topping

2.3 topping

layer of high strength concrete that serves as a flooring and provides a dense abrasion resistant wearing surface on a concrete base

3 Exchange of information and time schedule

3.1 General

Consultations and exchange of information between all parties concerned with the building operations should be arranged at an early date, so that each may have full knowledge of the particulars of the work and be able to cooperate in producing the conditions required by the others to complete a satisfactory job.

3.2 Exchange of information

The designer should provide in good time all relevant information to those responsible for laying the flooring and to others whose work may be affected including whichever of the following are applicable:

- a) description, situation and address of site and means of access;
- b) those conditions of contract which may practically affect this particular work;
- c) location and area of floors to be covered;
- d) age and nature of the base and any preparatory treatment required;
- e) finished floor level and maximum permissible departure from datum;
- f) class of surface regularity;
- g) type of damp-proofing and insulation;
- h) type and thickness of topping;
- i) any work consequent upon services passing through the flooring;
- j) treatment of joints;
- k) treatment of skirtings;
- l) treatment of junctions with adjacent floors and floorings;
- m) type of surface finish;
- n) any surface sealing or chemical surface hardening required;
- o) any special requirements related to underfloor heating;
- p) minimum time interval between stages of work and the application of heat in the building;
- q) date for the completion of preliminary work;
- r) dates for the start and completion of various sections of the floor;
- s) details of any compliance testing required.

3.3 Time schedule

In considering the time schedule, in addition to the usual intervals between commencement and completion of work by the various trades involved, additional allowances should be made for the following:

- a) laying underfloor services; this should preferably be completed before the base is formed, as there is a risk of subsequent cracking if services are embodied in the flooring;
- b) curing and drying of the base concrete before the flooring is laid, where appropriate;
- c) curing of the flooring;
- d) period of protection of the completed floor from damage by other trades, including restriction of access.

4 Materials

4.1 Cement

The cement should be one of the following:

- a) Portland cement complying with BS 12.
- b) Portland-blastfurnace cement complying with BS 146-2 (see note 1).
- c) High alumina cement complying with BS 915 (see note 2).
- d) Sulphate-resisting Portland cement complying with BS 4027.
- e) Portland pulverized-fuel ash cement complying with BS 6588 (see note 1).
- f) Combinations of Portland cement with granulated blastfurnace slag or pulverized fuel ash. The proportions of granulated blast furnace slag or pulverized fuel ash should be declared and should comply with BS 146 and BS 6588 respectively (see note 1).

NOTE 1 There is little practical experience of the abrasion resistance of concrete made with Portland pulverized-fuel ash cement and Portland-blastfurnace cement or with combinations of these materials, and evidence of suitability should be sought from the manufacturers or suppliers before specifying these types of cement for a concrete wearing surface. Moreover, when using either of these cement types, adequate curing is even more important than with ordinary Portland cement.

NOTE 2 High alumina cement should not be used in concrete for structural purposes.

4.2 Aggregates

4.2.1 Aggregates for direct finished concrete surfaces.

The aggregate should be one of the following as appropriate:

- a) aggregate complying with BS 882;
- b) coarse aggregates of blastfurnace slag complying with BS 1047;
- c) coarse and fine aggregates of other types for which there is no British Standard, provided that they are suitable having regard to strength, density, shrinkage and durability of the concrete.

“All-in” aggregate should not be used. A crushed rock fine aggregate is not recommended unless it is in accordance with the gradings specified in BS 882.

4.2.2 Aggregates for high strength concrete toppings

4.2.2.1 Coarse aggregates. Coarse aggregates for high strength concrete toppings should comply with BS 882.

4.2.2.2 Fine aggregates. The fine aggregate should be natural sand, (i.e. fine aggregate resulting from the natural disintegration of rock) complying with grading limit C or M of Table 5 of BS 882:1983.

NOTE The use of grading C fine aggregate will produce a less workable mix than that obtained with a grading M fine aggregate. Grading M is therefore preferred.

4.2.3 Deleterious materials. Aggregates should not contain any deleterious material in sufficient quantity to affect adversely the surface of a directly finished base or topping. For example, coal and iron pyrites in the aggregate can cause surface “pop-outs”.

4.3 Pigments

Pigments should comply with BS 1014.

4.4 Admixtures

Admixtures should comply with the appropriate Part of BS 5075 (see 5.5).

4.5 Surface treatments

There are no British Standards for surface treatments. Recommendations for the use of proprietary materials are given in 5.6.

4.6 Abrasives and sprinkle finish aggregates

There are no British Standards for these materials. Recommendations for the use of proprietary materials are given in 5.7.