

## European standards for In situ Flooring products

### **BS 8204: Screeds, bases and in situ floorings: Parts 1 to 7**

2002 saw the publication of this first ever performance standard in the UK for flooring products applied in situ. The suite of BS 8204 standards covers only the installation procedures and the inspection and testing of the installed floor. They do not attempt to specify in detail the performance properties of the products applied. The relevant European standards which address material performance are as follows:

### **BS EN 13318: Screed materials and floor screeds – Definitions**

To ensure that standards are unambiguous in interpretation and clearly understood across Europe, this standard provides agreed definitions for the technical terminology in French, German and English. The official definition of a screed given in BS EN 13318 is:

‘Layer or layers of screed material laid in situ, directly onto a base, bonded or unbonded, or onto an intermediate layer or insulating layer, to obtain one or more of the following purposes: to obtain a defined level; to carry the final flooring; to provide a wearing surface.’

This definition sets no limits on thickness or on the method of application. It therefore includes levelling screeds, smoothing compounds, wearing screeds and coatings whether these are applied by trowel, roller or pumped in place. The standard is intended to apply only to products manufactured in a factory and consequently does not strictly apply to products that are site-batched, even if the constituents are all of standard quality. However there is a footnote which states that "*the standard can be used in conjunction with codes of application and national specifications for site made material produced and laid by the same contractor*". However, the contractor must also be able to demonstrate a quality control system comparable to that which would apply in a factory.

### **BS EN 13813: Screed material and floor screeds. Screed material. Properties and requirements**

This standard specifies requirements for the screed materials as defined in EN 13318 covering cementitious screeds, calcium sulfate screeds, magnesite screeds, mastic asphalt screeds and synthetic resin screeds for use in floor construction internally. Different test requirements are set for each type. It defines for fresh screed material the performance related to setting time, consistency and pH value. For the hardened screed material it defines the performance related to compressive strength, flexural strength, wear resistance, surface hardness, resistance to indentation, resistance to rolling wheel, shrinkage and swelling, modulus of elasticity, bond strength, impact resistance, reaction to fire, acoustic performance, thermal resistance and chemical resistance. It provides for the evaluation of conformity of the product to this European Standard and therefore relates to CE marking.

Related to this product standard is a complementary suite of eight test method standards:

### **BS EN 13892: Methods of test for screed materials** composed of:

- Part 1 - Sampling, making and curing specimens for test
- Part 2 - Determination of flexural and compressive strength
- Part 3 - Determination of wear resistance – Böhme
- Part 4 - Determination of wear resistance – BCA
- Part 5 - Determination of wear resistance to rolling wheel
- Part 6 - Determination of surface hardness
- Part 7 - Determination of resistance to rolling wheel, with floor coverings
- Part 8 - Determination of bond strength

## Performance Requirements

The European standard specifies the essential performance characteristics for each type of screed material as summarised in Table 1.

**Table 1: Screed materials and tests that apply to each type**

Screed materials based on :	compressive strength	flexural strength	wear resistance "Böhme"	wear resistance "BCA"	wear resistance to rolling wheel	surface hardness	resistance to indentation	resistance to rolling wheel with floor covering	setting time	shrinkage and swelling	consistency	pH value	modulus of elasticity	Impact resistance	bond strength	
Cement	N	N	N (one of three)			O	-	O	O	O	O	O	O	O	O	O
Calcium sulfate	N	N	O	O	O	O	-	O	O	O	O	N	O	-	O	
Magnesite	N	N	O	O	O	N	-	O	-	O	O	O	O	-	O	
Mastic asphalt	-	-	O	O	O	-	N	O	-	-	-	-	-	-	-	
Synthetic resin	O	O	-	N (one of two)		O	-	O	-	O	O	-	O	N	N	

The letter 'N' signifies that the test is Normative (mandatory). The letter 'O' signifies Optional. The intention is that the manufacturer can choose whether to declare a value for that particular characteristic or not. Alternatively, a specifier may require a product with a minimum level of an 'optional' characteristic if it is regarded as important for a particular application. Standard test methods are specified for each of these characteristics and must be used if compliance with the standard is claimed.

### Special Characteristics

The following characteristics shall be declared when regulatory requirements demand them, or when the manufacturer chooses to state a performance even if not covered by regulations:

Electrical resistance (EN 1081), chemical resistance (EN 13529), reaction to fire (EN 13501-1), water vapour permeability where the intended use of the screed material is for moisture diffusion control (EN 12086), thermal resistance where the intended use of the screed material is to contribute to thermal resistance in building construction works (EN 12664), Water permeability where the intended use of the screed material is for resistance against water penetration (EN 1062-3), impact sound insulation (EN ISO 140-6), sound absorption (EN 12354-6).

BS EN 1504-2 Products and systems for the protection and repair of concrete structures — Definitions, requirements, quality control and evaluation of conformity —

Part 2: Surface protection systems for concrete

BS EN 13813 states 'Where flooring systems are used to protect or reinstate the integrity of a concrete structure, the requirements according to EN 1504-2 shall also be fulfilled in addition to the requirements of this standard. In a similar way to EN 13813, EN 1504 specifies requirements for the identification, performance (including durability aspects), safety and evaluation of conformity of products and systems to be used for surface protection of concrete, to increase the durability of concrete and reinforced concrete structures, as well as for new concrete and for maintenance and repair work. The surface protective methods covered by this document are hydrophobic impregnation, impregnation and coating. When products and systems complying with this standard are used in flooring applications that involve substantial mechanical loading, they should also satisfy the requirements of EN 13813. Car park decking coatings are an example of resin flooring which should comply with BS EN 1504.

### **CE Marking**

If a product meets all the relevant requirements of the standard (EN 13813 and/or EN 1504), the manufacturer is entitled to affix a CE mark to the packaging or label or delivery note for the screed material. This CE mark signifies that a product meets the technical requirements of the standard and that the specified system of attestation of conformity has been applied.

Under the Construction products Directive (CPD), CE marking has been implemented throughout the member states of the EU, but is not a legal requirement in the UK at present. However, the Construction Products Regulation (CPR) has been adopted by the European Commission and UK Government and replaces the Construction Products Directive. As a result of the change, CE marking will become mandatory in the UK. Manufacturers and importers have until July 2013 to ensure that their construction products meet the CE requirements of the new Regulation. According to the Regulation, the requirement for CE marking will apply to:

*"any product or kit which is produced and placed on the market for incorporation in a permanent manner in construction works or parts thereof and the performance of which has an effect on the performance of the construction works with respect to the basic requirements for construction works."*

So any products that fall under this definition that are placed on the market from July 2013 and are covered by a harmonised standard will have to be accompanied by a Declaration of Performance and will need to display the CE mark.

### **Why do we need such standards?**

Standards provide for the specifier a means whereby the quality of a screed material can be assessed before it is selected or used. They provide an opportunity for the screed material manufacturer to demonstrate the quality of their product or give them a benchmark for their development. Overall, standards provide a means whereby the quality of in situ floorings can be assured for the benefit of all.

### **References:**

All of the British or European standard documents referred to in the text can be purchased direct from the British Standards Institution, telephone 0208 996 9000.

### **FeRFA**

FeRFA, the Resin Flooring Association represents resin flooring product manufacturers and specialist contractors, and allied trades. Established in 1969, FeRFA currently represents over 100 U.K. based companies. The Association has established Codes of Practice for each of its categories of membership. It takes an active role in promoting resin flooring and in developing both national and international standards. All FeRFA publications are available to freely download from the website at [www.ferfa.org.uk](http://www.ferfa.org.uk). FeRFA may be contacted on 07484 075254.