Introduction

BS 4721: Specification for ready-mixed building mortars was withdrawn at the end of January 2005 and replaced by BS EN 998 (Parts 1 and 2) Specification for mortar for masonry and BS EN 13813: Screed material and floor screeds - Screed material - Properties and requirements which was published in November 2002, and is now the product Standard for the specification of screed material. BS EN 998 does not cover screed material (traditionally screed material has been specified in accordance with the requirements prescribed in Section 4 of BS 4721) therefore specifiers of screed material need to become familiar with the requirements of BS EN 13813.

A further change that occurred at the same time is that the testing Standard BS 4551: Methods of testing mortars, testing for masonry, has been republished as a single part Standard to cover a limited number of physical tests methods which have not been superseded by BS EN 1015 and chemical test methods currently contained within Part 2 of BS 4551, however all references to screed material have been deleted. A new series of test methods for screed material have been published as BS EN 13892. Therefore from February 2005 there has been a complete separation of both product and testing Standards for mortar and screed material.

A series of British Standards dealing with the subject of the design and installation (workmanships) of screeds will remain available. These have been revised to take account of changes in standardization and are published as Codes of practice.

The new Standards now applicable to screed material are:

- BS EN 13318 Screed material and floor screeds - Definitions.
- BS EN 13813 Screed material and floor screeds - Screed material - Properties and requirements
- BS EN 13892-1 Methods of test for screed materials - Part 1: Sampling, making and curing specimens for test
- BS EN 13892-2 Methods of test for screed materials - Part 2: Determination of flexural and compressive strength
- BS EN 13892-3 Methods of test for screed materials - Part 3: Determination of wear resistance - Bohme
- BS EN 13892-4 Methods of test for screed materials - Part 4: Determination of wear resistance - BCA
- BS EN 13892-5 Methods of test for screed materials - Part 5: Determination of wear resistance to rolling wheel of screed material for wearing layer
- BS EN 13892-6 Methods of test for screed materials - Part 6: Determination of surface hardness
- BS EN 13892-7 Methods of test for screed materials - Part 7: Determination of wear resistance to rolling wheel of screed material with floor coverings
- BS EN 13892-8 Methods of test for screed materials - Part 8: Determination of bond strength

Table 1: Standards for screed material

A series of British Standards dealing with the subject of the design and installation (workmanships) of screeds will remain available. These have been revised to take account of changes in standardization and are published as Codes of practice.

- BS 8204-1 Screeds, bases and in situ floorings - Part 1: Concrete bases and cement sand levelling screeds to receive floorings
- BS 8204-2 Screeds, bases and in situ floorings - Part 2: Concrete wearing surfaces
- BS 8204-3 Screeds, bases and in situ floorings - Part 3: Polymer modified cementitious wearing surfaces
- BS 8204-4 Screeds, bases and in situ floorings - Part 4: Terrazzo wearing surfaces
- BS 8204-5 Screeds, bases and in situ floorings - Part 5: Mastic asphalt wearing overlayers and wearing surfaces
- BS 8204-6 Screeds, bases and in situ floorings - Part 6: Synthetic resin floorings
- BS 8204-7 Screeds, bases and in situ floorings - Part 7: Pumpable self-smoothing screeds
- BS 8000-9 Workmanship on building sites - Part 9: Cementitious levelling screeds and wearing screeds
A screed suitably finished to obtain a defined level and to receive the final flooring.

A screed that serves as the flooring, historically in the UK this type of screed has been known as a granolithic or concrete topping.

**Application of the new standards**

The large number of Standards now available may cause some confusion to specifiers, over which Standard should be used, the Standards listed in Table 2 do not deal with screed as a material other than giving some advice on constituent materials. The statement is made in BS 8204-1 that “Ready-to-use screeding material should conform to the performance requirements of BS EN 13813”.

BS EN 13318 contains no requirements, it lists definitions for screed materials, construction techniques and practices related to the installation of screeds. The Standard is set out in tabular form in the three main languages of the European Union (English, German and French). A number of the Standards listed in Table 1 of this data sheet will not generally be applicable in the UK. Three test methods are listed for measuring the abrasion resistance of a cement based wearing screed (BS EN 1382: Parts 3, 4 and 5). There is no UK experience of Part 3 (a German test method) or Part 5 (a Scandinavian test method), future revisions of the Standards may lead to two of these methods being eliminated. Research work undertaken has to date not established a correlation between the three methods. Part 7 of BS EN 13892 uses the same test apparatus as Part 5 but in a different type of construction application. Where wearing screeds are being specified the BCA test method (Part 4) is the appropriate test to use in the UK.

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

This Standard is a product Standard and does not address workmanship or site practice (refer to the relevant part of BS 8204). The Standard covers screeding materials based on different binder types:

- Cement (CT)
- Calcium sulfate (CA)
- Magnesite (MA)
- Mastic asphalt (AS)
- Synthetic resin (SR)

For each of the binder types, tests are prescribed some of which the screed material producer is required to undertake (normative tests) others, which the screed material producer must undertake if he wishes to declare a particular characteristic. This data sheet only considers those types of screed materials produced by Tarmac.

**Compressive strength**

The producer of cementitious and calcium sulfate screed material is required (normative tests) to declare the compressive strength class of the hardened material. Compressive strength must be designated by a “C” followed by the compressive strength class in accordance with Table 2 of BS EN 13813 reproduced as Table 3 of this data sheet. Compressive strength is required to be determined in accordance with BS EN 13892-2.

**Flexural strength**

The producer of cementitious and calcium sulfate screed material is required to declare the flexural strength class of the hardened material. Flexural strength is designated by an “F” followed by the flexural strength class in accordance with Table 3 of BS EN 13813 as reproduced as Table 4 of this data sheet. Flexural strength is required to be determined in accordance with BS EN 13892-2.

**Wear resistance**

Where cementitious wearing screed material is specified the producer is required to declare the wear resistance class. The wear resistance (BCA) is designated by the letters “AR” followed by the maximum wear depth in mm divided by 100 in accordance with Table 5 (this corresponds to Table 5 of BS EN 13813).

**pH value**

There is a requirement for cement sulfate screed material that the pH value is ≥ 7.

**Setting time**

The producer of a cementitious or calcium sulfate screed material has the option if he wishes to declare the setting time.

**Reaction to fire**

Screed material, which contains less than 1.0 % homogeneously distributed organic material, is classified as reaction to fire Class A1 without the need for testing (Commission Directive 96/603/EC). Products covered by this classification are assumed to make no contribution to fire growth or to the fully developed fire. Where a screed material contains more than 1.0 % organic material it is required to be classified in accordance with BS EN 13501-1.

**Special characteristics**

The producer of a cementitious or calcium sulfate material has the option to declare special characteristics if applicable, e.g. water vapour permeability or impact sound insulation.

**Designation of screed materials**

Screed materials are required to be described by the binder type and the class of each of the normative requirements and if desired other characteristics.

**Equivalence with traditional screed designations**

The producer of the screed material will declare a material in a performance class that he is confident in achieving taking into account the variability of the production process and the precision of the test method.

<table>
<thead>
<tr>
<th>BS 4721</th>
<th>BS EN 13813</th>
<th>BS EN 13813</th>
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</thead>
<tbody>
<tr>
<td>Traditional designation</td>
<td>Minimum 28 day Compressive strength N/mm²</td>
<td>Compressive strength class</td>
</tr>
<tr>
<td>a</td>
<td>27.0</td>
<td>C25</td>
</tr>
<tr>
<td>b</td>
<td>18.0</td>
<td>C16</td>
</tr>
<tr>
<td>c</td>
<td>12.5</td>
<td>C12</td>
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</tbody>
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**CE marking**

BS EN 13813 is a harmonized Standard and products conforming to it may therefore be CE marked. CE marking is not a quality mark it signifies that the product conforms to the essential requirements of the Construction Products Directive. There are a number of systems of attestation that are applicable to CE marking not all of these require third party quality certification.

**Quality**

A quality system has been implemented throughout the company since 1975 and quality procedures are in conformity with BS EN ISO 9001: 2000. The majority of Tarmac factories hold third party certification from the British Standards Institution. Details of the certification status of individual factories may be obtained from your nearest Tarmac Sales Office.

**Health and safety**

There is a real danger of Contact Dermatitis or serious burns. If skin comes into contact with wet cement mixes such as fresh concrete, mortar or screed wear suitable protective clothing and eye protection. Where skin contact occurs either directly or through saturated clothing wash immediately with soap and water. For eye contact, immediately wash out eyes thoroughly with clean water. If swallowed wash out mouth and drink plenty of water.

For further information refer to Tarmac Safety Data Sheet No. 17.