

Code of practice for

Installation of textile floor coverings

ICS 91.180

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Committees responsible for this British Standard

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- Association of Consulting Scientists
- British Carpet Manufacturers' Association Ltd.
- British Polyolefin Textiles Association
- British Shops and Stores Association (BSSA)
- British Textile Confederation
- British Textile Technology Group
- Confederation of British Wool Textiles Limited
- Consumer Policy Committee of BSI
- Contract Flooring Association
- Fibre Bonded Carpet Manufacturers' Association
- Health Care Supplies South West
- Institute of Trading Standards Administration
- Wools of New Zealand

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Foreword

This British Standard has been prepared by Technical Committee TCI/3 as a revision of BS 5325:1983, which is withdrawn.

The main changes from the 1983 edition are that:

- the development of European Standards for the floor covering materials involved is recognized;
- greater attention is given to the importance of cooperation between the various parties involved prior to, during and after the installation of the floor coverings;
- Annex A on dampness testing has been revised in the light of current developments.

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 28, 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.

Section 1. General

1.1 Scope

This British Standard gives recommendations for the installation of textile floor coverings. It covers all products composed of textile material with a pile or non-pile use surface, and includes the laying of carpet tiles, either with the use of a permanent adhesive or a tackifier. It details suitable methods of installation and advises on the selection of the materials required for their implementation.

Section 2 briefly describes the textile floor covering materials and the associated materials which may be used in their installation. It gives cross references to other British Standards where full details of the materials and their use can be found.

Section 3 provides information on the matters which need to be considered prior to the actual installation of the textile floor covering. Some of the points raised may need attention and rectification by the installation contractor, others may need work by other contractors.

Section 4 deals with the installation of textile floor coverings in both domestic and commercial areas. The methods which should be used for the various types of textile floor coverings are detailed and are also related to the areas where they may be used. The completely unattached laying (loose-lay) of squares, rags, runners, tiles, etc. is not included.

1.2 References

1.2.1 Normative references

This British Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are made at the appropriate places in the text and the cited publications are listed on the inside back cover. For dated references, only the edition cited applies; any subsequent amendments to or revisions of the cited publication apply to this British Standard only when incorporated in the reference by amendment or revision. For undated references, the latest edition of the cited publication applies, together with any amendments.

1.2.2 Informative references

This British Standard refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this standard are listed on the inside back cover, but reference should be made to the latest editions.

1.3 Definitions

For the purposes of this standard, the following definitions apply.

1.3.1

carpet underlay

a coherent layer of textile or other material placed beneath an exposed floor covering

NOTE It may be fibrous, non-fibrous or combined. It provides underfoot comfort and energy absorbing properties (see BS 5808).

1.3.2

fabricated underlay

manufactured board made from wood, wood particles or wood fibres in sheet form, usually laid over solid timber floors, to provide a suitable surface to receive the specified textile floor covering

1.3.3

in situ underlay

a layer of compacted material, applied in situ to a sound base or screed where there is a need to raise the level of the floor surface, or to level a floor that is out of true

NOTE An in situ underlay is used where a conventional sand/cement screed is considered unsuitable due to thickness or other limitations.

1.3.4

interlay

a thin flexible sheet, approximately 0.5 mm to 1.0 mm thick, comprised of or manufactured from textile material which is placed below the carpet underlay or textile floor covering

1.3.5

screed

a layer of well compacted material, commonly a mixture of cement and aggregate, applied in situ to a concrete base at the appropriate thickness

NOTE The appropriate thicknesses are given in BS 8204. The screed should be suitably finished to receive the interlay, underlay, or textile floor coverings to be applied, and to enable the textile floor covering to be laid to the designated level.

1.3.6

smoothing underlayment

a thin layer of compacted material, applied in situ to a sound base, screed or underlay to provide a smooth finish prior to laying the interlay, carpet underlay or textile floor covering

**1.3.7
tackifier**

a peelable, pressure sensitive adhesive normally allowed to dry, i.e. become tacky, before the floor covering is installed

NOTE This definition, which is used by the textile floor covering industry, differs from that adopted by the adhesives industry and given in EN 923¹⁾

**1.3.8
textile floor covering**

a product having a use-surface composed of textile material and generally used for covering floors

NOTE In this British Standard the term “textile floor covering” is used throughout to denote a textile product that is partially adhered/fixed or fully adhered/fixed, either permanently or temporarily, to the floor.

¹⁾ In preparation.

Section 2. Materials

2.1 Fabricated underlays

Fabricated underlays should be selected from the following:

- a) plywood conforming to BS 6566-4 to BS 6566-6

NOTE A European Standard is under development together with a number of other standards on plywood and when these have been published BS 6566 will be withdrawn.

- b) particleboard conforming to BS 5669-2 (see 3.6.3). The board should not have any surface treatment which might affect adhesion;
- c) fibreboard conforming to BS 1142 (see 3.6.4).

2.2 In situ underlays

In situ underlays should be selected from the following:

- a) mastic asphalt conforming to grade 1 of BS 6925;
- b) cementitious underlay consisting of a specially formulated blend of cement and binder and both fine and coarse aggregates. The binder is commonly a natural rubber latex or synthetic polymer.

2.3 Underlayments

Underlayments should be selected from the following:

- a) cementitious underlayment consisting of a specially formulated blend of cement, binder and fine aggregate. The binder is commonly a natural rubber or synthetic polymer dispersion;
- b) powder/water mixes based on casein/cement or polymer/cement and fine aggregate;
- c) epoxy or other resin compounds.

2.4 Interlays

Interlays are supplied in the following types:

- a) dry felt paper, manufactured as a thin, flexible sheet, approximately 0.5 mm to 1 mm thick.
- b) sheet manufactured from lightweight melded textile material;
- c) sheet manufactured from spun-bonded fibres;
- d) release or delaminatable interlays.

2.5 Carpet underlays

Carpet underlays are defined, described and classified in BS 5808. They may be used with all textile floor coverings, except where a foam, solid polymeric or felt backing is an integral part of the floor covering.

2.6 Textile floor coverings

Textile floor coverings may be divided into the following two groups.

- a) woven;
- b) non-woven.

Either of these may be given one of a variety of backing treatments which require specific methods of installation.

For details of the types of construction which are available see BS 5557. For assistance on the selection of textile floor coverings for various use areas reference should be made to BS 7131-1.

NOTE European Standards which describe European classification systems are currently in preparation. If these standards are ratified by CEN they will be implemented in the UK, and BS 7131-1 will be withdrawn.

2.7 Adhesives

2.7.1 General

The types of adhesive suitable for laying textile floor coverings, with or without an underlay, when this method is indicated, are classified in BS 5442-1.

The choice of adhesive will be influenced by the nature of the textile floor covering being installed and by the subfloor. The recommendations of the textile floor covering manufacturer should be taken into account, and followed precisely if they are specific as to the type of adhesive which should be used. When the textile floor covering is being laid by a method involving total adhesion to the substrate, either alone or with a carpet underlay, the adhesives used should be compatible with both the materials used in the system and the substrate. None of the adhesives can be considered effective as a damp-proof membrane.

2.7.2 Use of adhesive

The suitability of laying various types of textile floor covering using different systems of adhesion are set out in 4.9 and Table 1.

Adhesives containing hydrocarbon solvents are not suitable for use with mastic asphalt substrates. In general, adhesives based on aqueous emulsions are not suitable for use on an impermeable substrate unless it has been first overlaid with a latex/cement screed. Reference should be made to 4.13, where the subject of plasticizer migration is covered in some detail.

The Health and Safety at Work etc. Act 1974 [1] requires that adhesive manufacturers should provide sufficient information to enable their products to be used safely and without risk to health. It also requires that users ensure that they have the relevant information and follow the recommendations given. In order to comply with the latter requirement it is essential that the product manufacturer's instructions and data sheets are consulted and the recommendations implemented when any form of adhesive is being used.

The Control of Substances Hazardous to Health (COSHH) Regulations [2] require that all work involving hazardous substances, which will include some types of adhesive, be examined to assess the risk to personnel, that the risk is eliminated or adequately controlled and that controls are monitored to ensure that they are effective.

Where hot water pipes are laid below the flooring for purposes other than heating they can raise the temperature of the subfloor. High temperatures may also be caused by direct sunlight falling on the textile floor covering when buildings have large windows with southerly aspects. In these circumstances any adhesives used should be capable of withstanding the temperature produced.

2.7.3 Forms of adhesive

Spreading of liquid adhesives is normally by applicator roller, spreader or notched trowel. In the last instance, reference should be made to the adhesive manufacturer's instructions regarding the size and number of notches in relation to the applied weight of adhesive appropriate to the installation.

In addition to fixing with liquid adhesives, textile floor coverings may be fixed by the use of double-sided tapes which are normally of the self adhesive type (see **4.9.2.6**).

2.8 Edging and dividing strips

Edging and dividing strips are available in wood, metal and plastics. These may be used between similar or dissimilar types, thicknesses, or colours of textile floor covering, at door openings, or to act as a finish to a floor edge.

Section 3. Design

3.1 Damp-proofing solid floors and eliminating construction moisture

3.1.1 Damp-proof solid floors

As the floor coverings included in this British Standard together with many adhesives and smoothing compounds used with them may be adversely affected by moisture, subfloors should be so constructed as to protect the floor covering installation from moisture or water vapour from the ground.

Materials and methods for damp-proofing solid floors are described in CP 102 and BS 8102. It should not be assumed that existing ground supported concrete floors are adequately damp-proofed. Where existing structures do not incorporate adequate moisture protection proprietary surface applied membranes or mastic asphalt should be used. Integral waterproofers incorporated in the concrete or screed will not provide adequate damp protection for the floor coverings and will retard the drying process. Beam and block construction floors whether finished with cement-sand, screed or particleboard should incorporate a vapour control layer.

3.1.2 Eliminating construction moisture

Before floor covering installation, it is necessary not only to ensure that the floor is constructed to prevent moisture reaching the floor coverings from the ground but also to ensure that sufficient of the water used in the construction is eliminated.

Usually the floor covering is fixed directly to the concrete base slab or on to a screed laid above this. In either case the amount of water used is more than that required for hydration of any cement used because extra water is normally required to give adequate workability to the mix. It is essential that the excess water be allowed to evaporate and the time for this to happen should be taken into account at the planning stage. Estimated drying times are necessarily only very approximate as drying is influenced by ambient conditions, the concrete used, thickness and surface finish. Thickness and surface finish are particularly important.

For cement-sand laid directly over a damp-proof membrane, one day should be allowed for each millimetre of thickness for the first 50 mm, followed by an increasing time for each millimetre above this thickness. It is thus reasonable to expect a screed 50 mm thick drying under good conditions, to be sufficiently dry in two months.

For thick concrete bases laid directly over a damp-proof membrane long drying times are required. The time/thickness relationship used to predict the drying time of cement-sand does not apply to concrete bases. In practice it has been found that even under good drying conditions concrete bases 150 mm thick often take more than one year to dry from one face only. Moderate and heavy use of power-float/power-trowel finishing methods further delays drying.

Suspended concrete bases laid on to permanent metal shuttering or other impermeable materials will have similar drying times to those laid over damp-proof membranes. For slabs which can dry from both sides, about half the thickness can be considered to dry downwards.

Where screeds are laid directly on to the concrete bases, without a damp-proof membrane between them, account should be taken of the time required to dry the total thickness of the construction.

Commonly, where floor coverings are to be laid, time schedules do not permit extended drying times for concrete bases. The use of sandwich damp-proof membranes between the base concrete and the screed significantly reduce the time that needs to be allowed for drying.

Proprietary systems either based on admixtures for normal screed and concrete mixes or special cements are available to produce early drying screeds and concrete.

3.1.3 Protection against construction moisture

Where time scales do not allow sufficient drying times and the use of a sandwich damp-proof membrane is inappropriate, the need for a surface damp-proof membrane to control the excess construction moisture in the subfloor should be taken into account at the design stage.

3.1.4 Testing

Cementitious subfloors should be tested by the method described in Annex A and the floor covering not laid until readings have been obtained which indicate a relative humidity of 75 % or less.

3.2 Concrete and screed bases

3.2.1 General

The appearance and performance of the floor coverings covered by this British Standard are determined to a large extent by the quality of the prepared base or screed on which the various floor coverings are laid. The subfloor should be constructed in accordance with the recommendations given in BS 8204-1.