Approved Document for regulation 7 (1999 Edition)

Contents

Main changes in the 1999 Edition

This edition of the Approved Document for regulation 7: Materials and workmanship replaces the 1992 edition. The main changes are:

a. **Regulation 7:** Regulation 7 has been redrafted to make it a functional requirement, which is in line with the functional requirements in the rest of the Building Regulations. The detail that was formerly in regulation 7(2) has been removed, as it is felt that such detailed guidance should be in the Approved Document and not in the regulation itself.

b. **Recycled and recyclable materials:** Specific mention is made of the environmental impact of building materials, and the use of recycled and recyclable materials.

c. **European Technical Approval Issuing Bodies:** References in the previous edition of this Approved Document to Agrément Certificates have been replaced by references to the above. A definition is given, together with a note of where a listing may be found.

d. **British Standards:** There is a new section, headed British Standards, which deals with the way that British Standards are being transposed into European standards, and how they should be treated during the transition period.

e. **Sampling:** The text under the heading of *Sampling* has been expanded to clarify the fact that the powers of regulation 17, by which local authorities can take samples of materials for testing, do not extend to approved inspectors.

f. **High alumina cement:** The paragraph in the last edition on high alumina cement has been replaced by a new paragraph entitled "Materials susceptible to changes in their properties". This is wider reaching, with examples of some materials which can undergo changes under certain environmental conditions. The new section reflects the fact that such materials are acceptable, provided that their residual properties can be estimated and can be shown to be adequate for the intended performance of the building.

g. **House longhorn beetle:** The section on the house longhorn beetle in the previous edition of this Approved Document has been deleted as it was not considered to be appropriate in this context of guidance on materials. This will be incorporated in the revised Approved Document for Part A which is being developed and should be published within the next two years. In the interim, the advice in the 1992 edition of this Approved Document with regard to the house longhorn beetle should still be considered as applicable.

h. **Testing:** The text under the heading of *Tests* has been expanded to reflect the fact that the powers to test sewers and drains that are conferred on local authorities by regulation 16 do not extend to approved inspectors.

Use of guidance

The Approved Documents

The Building Regulations 2000 (S.I. 2000/2531), which come into operation on 1st January 2001, replace the Building Regulations 1991 (S.I. 1991/2768) and consolidate all subsequent revisions to those regulations. This document is one of a series that has been approved and issued by the Secretary of State for the purpose of providing practical guidance with respect to the requirements of Schedule 1 to and regulation 7 of the Building Regulations 2000 for England and Wales.

At the back of this document is a list of all the documents that have been approved and issued by the Secretary of State for this purpose.

Approved Documents are intended to provide guidance for some of the more common building situations. However, there may well be alternative ways of achieving compliance with the requirements. **Thus there is no obligation to adopt any particular solution contained in an Approved Document if you prefer to meet the relevant requirement in some other way.**

Other requirements

The guidance contained in an Approved Document relates only to the particular requirements of the Regulations which the document addresses. The building work will also have to comply with the Requirements of any other relevant paragraphs in Schedule 1 to the Regulations.

There are Approved Documents which give guidance on each of the Parts of Schedule 1.

Technical specifications

Building Regulations are made for specific purposes: health and safety, energy conservation and the welfare and convenience of disabled people. Standards and technical approvals are relevant guidance to the extent that they relate to these considerations. However, they may also address other aspects of performance such as serviceability, or aspects which although they relate to health and safety are not covered by the Regulations.

When an Approved Document makes reference to a named standard, the relevant version of the standard is the one listed at the end of the publication. However, if this version has been revised or updated by the issuing standards body, the new version may be used as a source of guidance provided it continues to address the relevant requirements of the Regulations.

The appropriate use of a product which complies with a European Technical Approval as defined in the Construction Products Directive will meet the relevant requirements.

The Department intends to issue periodic amendments to its Approved Documents to reflect emerging harmonised European Standards. Where a national standard is to be replaced by a European harmonised standard, there will be a co-existence period during which either standard may be referred to. At the end of the co-existence period the national standard will be withdrawn.

The Requirement

This Approved Document deals with regulation 7 of the Building Regulations 2000.

Materials and workmanship

7. Building work shall be carried out -

(a) with adequate and proper materials which -

(i) are appropriate for the circumstances in which they are used;

(ii) are adequately mixed or prepared; and

(iii) which are applied, used or fixed so as adequately to perform the functions for which they are designed; and

(b) in a workmanlike manner.

Note: Attention is drawn to the requirements of regulation 8 (Limitation on requirements) of the Building Regulations 2000: "8. Parts A to K and N of Schedule 1 to these regulations shall not require anything to be done except for the purpose of securing reasonable standards of health and safety for persons in or about buildings (and any others who may be affected by buildings or matters connected with buildings)".

Guidance

Performance

0.1 In the Secretary of State's view the requirements of regulation 7 will be met where **materials** are:

a. of a suitable nature and quality in relation to the purposes and conditions of their use, and the **workmanship** is such that

b. where relevant, materials are adequately mixed or prepared, and

c. applied, used or fixed so as to perform adequately the functions for which they are intended.

Materials include products, components, fittings, naturally occurring materials e.g. stone, timber and thatch, items of equipment, and backfilling for excavations in connection with building work.

0.2 Environmental impact of building work

The environmental impact of building work can be minimised by careful choice of materials, and where appropriate the use of recycled and recyclable materials should be considered. The use of such materials must not have any adverse implications for the health and safety standards of the building work.

0.3 Limitations

For parts A to K and N of Schedule 1, the standards of materials and workmanship need be no more than are necessary to secure reasonable standards of health or safety for persons in or about the building.

For parts L and M of Schedule 1, the standards of materials and workmanship need be no more than are necessary to conserve fuel and power and to provide access and facilities for disabled people respectively.

0.4 Continuing control

There are no provisions under the Building Regulations for continuing control over the use of materials following the completion of building work. It should be noted that Section 19 of the Building Act 1984 enables local authorities to impose conditions with regard to prescribed materials where it is proposed to construct a building of short-lived materials, notwithstanding that the plans conform with the Regulations. However, this Section has no effect at present, as no materials are currently prescribed for its purpose.

Section 1: Materials

1.1 Approved Documents contain references to materials or products covered by British Standards, by certificates issued by European Technical Approvals issuing bodies, or by other technical specifications but the references are not exclusive and other materials or products may be suitable in the particular circumstances.

Ways of establishing the fitness of materials

1.2 There are a number of ways in which the suitability of a material for use for a specific purpose may be assessed. The following are aids which may be used for establishing this:

a. British Standards

The material conforms to the relevant provisions of an appropriate British Standard.

Note: Nearly all construction product British Standards will be revised to become the British "transposition" of the new European Standards (ENs) presently being drafted. Traditionally, where an EN has been transposed and has replaced a British Standard on more-or-less the same material (but possibly a radically changed technical content), it has taken the previous number. The BSI numbering policy now is to adopt the CEN numbering, prefaced with BS. Again, each title may contain different characteristics and requirements from the superseded British Standard. British Standards are normally withdrawn when their equivalent European Standards are published but, under certain circumstances, arrangements may be made for a deferred withdrawal of the British Standard.

Because it is impossible to change everything simultaneously, there will be a period during which the old British Standards will have to co-exist with the new. Some will be "withdrawn" but remain available for work which has already commenced; some will be retained as "obsolescent" where, for example, they are called up in Approved Documents not yet revised; some will co-exist for some years, fully maintained alongside the new transposed European originated standards (as with some of the structural codes).

Detailed enquiry will have to be made as to applicability in each context. Where the old standard retains applicability, it may reasonably be presumed that relevant products comply with regulation 7. Where there is a new standard, it may again be necessary to check applicability during the transitional period, following which compliance may reasonably also be presumed.

The European originated standards will have specifically identified clauses, those which relate to the "harmonised" requirements containing the (largely health and safety) requirements relevant to the Building Regulations, and "nonharmonised" requirements containing additional matters relating to trading requirements of concern to the construction industry, but not to regulation 7. The reference in this Approved Document only applies to the "harmonised" requirements.

b. Other national and international technical specifications

The material conforms to the national technical specifications of other Member States which are contracting parties to the European Economic Area, as long as such specifications provide in use at least an equivalent level of performance to the relevant British Standard. Where necessary, it is up to the person intending to carry out the work to provide translations and to demonstrate equivalence. It should be noted that the technical specifications of other member states will, for the same reason, be in a process of change parallelling that of British Standards.

c. Technical approvals

The material is covered by a national or European certificate issued by a European Technical Approvals issuing body, and the conditions of use are in accordance with the terms of the certificate. Where necessary it is up to the person intending to carry out the work to provide translations and to demonstrate equivalence.

d. CE marking

The material has CE marking (see Diagram 1). The CE marking gives a presumption of conformity with the stated minimum legal requirements when placed on the market as set out in the Construction Products Regulations 1991. These requirements include compliance with a harmonised European Standard as formally announced in the Official Journal of the European Communities (or with part of a European Standard) or with a European Technical Approval, coupled with the appropriate attestation procedure.

If used appropriately and in satisfactory conditions, a product bearing CE marking shall be presumed by the building control body to satisfy the relevant requirements unless there are reasonable grounds for suspecting otherwise. In this context relevant requirements are defined in relation to the essential requirements of the Construction Products Directive, and are:

- mechanical resistance and stability

- safety in case of fire
- hygiene, health and the environment
- safety in use
- protection against noise
- energy economy and heat retention

Depending on the intended use of the product and the particular regulatory requirements all, or some, of the essential requirements may be relevant.

A CE marked material can only be rejected if either its performance does not, in fact, conform to the particular technical specification against which the CE marking has been claimed or, in the case of a declared value or a class of performance, the resultant value does not meet the relevant requirements of the Building Regulations. If the building control body has reasonable grounds for suspecting that a CE marked material does not conform to the specification against which CE marking has been claimed, he would have to prove this. In such circumstances he should notify the relevant Trading Standards Officer. This will enable the UK Government, where necessary, to notify the Commission.

It should be noted that not all materials will necessarily be CE marked under the Construction Products Directive, and it will not, in any case, be possible for all products to be CE marked until all relevant technical specifications have become available. However, there are some products where CE marking is compulsory under other Directives (eg Gas Boilers, which should fully comply with all relevant Directives and should be installed in accordance with the appliance manufacturer's instructions).

Diagram 1 **CE Marking**

e. Independent certification schemes

There are many UK product certification schemes. Such schemes certify compliance with the requirements of a recognised document which is appropriate to the purpose for which the material is to be used. Materials which are not so certified may still conform to a relevant standard. Many certification bodies which approve such schemes are accredited by UKAS.

If a product has been tested and certified as complying with a British Standard by an approved body in another Member State of the European Community, in accordance with the special procedure under Article 16 of the Construction Products Directive, then, if it is used appropriately and in satisfactory conditions, it should normally be accepted by the building control body as complying with that standard. If it is not so accepted then the onus of proof in such a case is on the building control body, who must notify the Trading Standards Officer. This will enable the UK Government, where necessary, to notify the Commission.

f. Tests and calculations

It can be shown by tests, by calculation or by other means that the material will be capable of performing the function for which it is intended. The Accreditation Scheme for Testing Laboratories run by UKAS together with similar schemes run by equivalent certification bodies, including accreditation schemes operated by other Member States of the EU, and recognised by that State's government, provide a means of ensuring that such tests can be relied on.

g. Past experience

The material can be shown by experience, such as in a building in use, to be capable of performing the function for which it is intended.

h. Sampling

Local authorities have the power to take samples of materials to be used in building work. Regulation 17 allows the local authority (but not approved inspectors) to take such samples as they consider necessary to establish compliance with the provisions of the Regulations. Approved inspectors may wish to consider entering into arrangements with their clients that will allow sampling of materials where they, the approved inspector, consider it to be necessary. It should be noted that regulation 17 does not apply to any work that has been specified in an initial notice or to any work for which a final certificate has been given by an approved inspector and accepted by the local authority.

Short-lived materials

1.3 Some materials, in the absence of special care, may be considered unsuitable because of their rapid deterioration in relation to the expected life of the building. It is not possible to set down any specific criteria from which the length of life of a material can be considered against the requirements of the Regulations.

1.4 A short-lived material which is readily accessible for inspection, maintenance and replacement may meet the requirements of the Regulations provided that the consequences of failure are not likely to be serious to the health or safety of persons in and around the building.

1.5 Where a short-lived material is not readily accessible for inspection and maintenance or replacement and the consequences of failure are likely to be serious for health or safety, it is most unlikely that the material will be suitable.

1.6 It should be noted that Section 19 of the Building Act 1984 enables local authorities to impose conditions with regard to prescribed materials where it is proposed to construct a building of short-lived materials, notwithstanding that the plans conform with the Regulations.

However, this Section has no effect at present, as no materials are currently prescribed for its purpose.

Materials susceptible to changes in their properties

1.7 Some materials may undergo changes to their properties when they are exposed to certain environmental conditions which may affect their performance over time. Some examples are concrete made with cements containing a high proportion of calcium aluminates (HAC), certain stainless steels, structural silicone sealants and intumescent paints for enhancing fire resistance of building elements.

Such materials can be used in works where these changes do not adversely affect their performance. They will meet the requirements of the Regulations provided that their final residual properties, including their structural properties, can be estimated at the time of their incorporation in the work. It should also be shown that these residual properties will be adequate for the building to perform the function for which it is intended for the expected life of the building.

Resistance to moisture

1.8 Any material which is likely to be adversely affected by condensation, by moisture from the ground or by rain or snow will meet the requirements if

a. the construction will resist the passage of moisture to the material or

b. the material is treated or otherwise protected from moisture.

Resistance to substances in the subsoil

1.9 Any material in contact with the ground or in the foundations will meet the requirements if it is capable of resisting attacks by deleterious material in the subsoil such as sulphates (see Section 2 of Approved Document C: Site preparation and resistance to moisture)

Section 2: Workmanship

Ways of establishing the adequacy of workmanship

2.1 It may be useful to consider the following aids for establishing the adequacy of workmanship:

a. Standards

i The method of carrying out the work is included in the recommendations of a British Standard Code of Practice. Note that BS8000: Workmanship on Building Sites gathers together guidance from other BSI Codes and Standards; or

ii The method conforms to an equivalent technical specification which may include a national technical specification of other Member States which are contracting parties to the European Economic Area.

b. Technical approvals

The workmanship is specified for a material covered by a national or European certificate issued by a European Technical Approvals issuing body, and the conditions of use are in accordance with the terms of the certificate. Alternatively the workmanship may be covered by an equivalent technical approval (including a technical approval of any other member of the European Organisation for Technical Approvals, EOTA), which provides an equivalent level of performance, and the conditions of use are in accordance with the terms of the technical approval. It is up to the person who intends to carry out the work to show that the method of workmanship will provide the equivalent level of protection and performance.

c. Management systems

The workmanship is covered by a scheme which complies with the relevant recommendations of BS EN ISO 9000: Quality management and quality assurance standards. There are a number of such UKAS accredited schemes. These schemes relate to products and processes for which there may also be a suitable British or other technical standard.

There are also independent schemes for accreditation and registration of installers of materials, products and services that provide a means of ensuring that work has been carried out by knowledgable contractors to appropriate standards.

d. Past experience

It can be shown by experience, such as in a building in use, that the method of workmanship is capable of performing the function for which it is intended.

e. Tests

The local authority has the power to test sewers and drains in or in connection with buildings. Regulation 16 allows the local authority (but not an approved inspector) to make such tests as they consider necessary to establish compliance with the requirements of Part H of Schedule 1 to the Regulations.

Approved inspectors may wish to consider entering into arrangements with their clients that will allow testing of drains where they, the approved inspector, consider it to be necessary. The requirements of Part H of Schedule 1 to the Regulations cover:

i. foul water drainage

ii. cesspools, septic tanks and settlement tanks and

iii. rainwater drainage

The Approved Document for Part H (Drainage and waste disposal) contains guidance on testing drainage installations.

It should be noted that regulation 16 does not apply to any work that has been specified in an initial notice or to any work for which a final certificate has been given by an approved inspector and accepted by the local authority.

Appendix A: Abbreviations and glossary

British Board of Agrément (BBA)

PO Box 195
Bucknalls Lane,
Garston,
Watford
WD2 7NG

Tel: 01923 665300
Fax: 01923 665301

E-mail: bba@btinternet.com

Internet: Http://www.bbacerts.co.uk

See European Technical Approval issuing body

British Standards (BSs)

British Standards, issued by the British Standards Institution. To achieve British Standard status the draft document is submitted for public consultation and all comment received, considered and consensus reached.

BSI

British Standards Institution
389 Chiswick High Road,
London W4 4AL

Tel: 0181 996 9001
Fax: 0181 996 7001

E-mail: info@bsi.org.uk

Internet: www.bsi.org.uk

Building control body

This term is used to include both local authority building control and approved inspectors.

CE marking

The CE marking is more fully described in Annex III 'Attestation of conformity with technical specifications' of the Construction Products Directive. The marking may be on the product, a label, the packaging or accompanying commercial documentation. It will be accompanied by a reference to the technical specification to which it conforms, and, where appropriate, by indications to identify the characteristics of the product.

CEN

Comité Européen de Normalisation. The European standards body recognised by the Commission to prepare harmonised standards to support the Construction Products Directive. The members comprise the standards bodies of participating members of the EU and of EFTA (European Free Trade Association).

Construction Products Directive (CPD)

The Council Directive reference 89/106/EEC dated 21 December 1988 and published in the Official Journal of the European Communities No. L40/12 dated 11.2.89. The CE Marking Directive (93/68/EEC) amends the CPD.

Construction Products Regulations

The Construction Products Regulations 1991 (SI 1991 No 1620) came into force on 27 December 1991 and implement the Construction Products Directive.

The CE Marking Directive came into force on 1 January 1995, and was implemented in the UK by the Construction Products (Amendment) Regulations 1994 (SI 1994 No 3051).

European Economic Area (EEA)

The European Economic Area, which consists of those states which signed the Agreement at Oporto on 2 May 1992 together with the Protocol adjusting that Agreement signed at Brussels on 17 March 1993. The states are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Liechtenstein, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom.

EOTA

European Organisation for Technical Approvals. The umbrella organisation for bodies issuing European Technical Approvals for individual products. Operates over the same area as CEN. EOTA complements the work of CEN in that the guidelines it produces are for products for which standards do not exist as yet, possibly due to the innovative nature of the product.

General Secretary based in Brussels

Tel: 0032 2 502 6900
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European Commission

The executive organisation of the EU, based in Brussels. It ensures implementation and observance of Community rules, has the sole power to propose legislation based on the Treaties, and executes the decisions taken by the Council of Ministers.

EN

European standards are implemented as identical national standards in each of the Member States, and in the United Kingdom as BS ENs. The British Standard will include additional guidance about its relationship with other standards in the family and possibly about the use of the standard. An EN does not have a separate existence as a formally published document.

European Technical Approval

A favourable technical assessment of the fitness for use of a construction product for an intended use, issued for the purposes of the Construction Products Directive by a body authorised by a Member State to issue European Technical Approvals for those purposes and notified by that Member State to the European Commission.

European Technical Approval issuing body

A body notified under article 10 of the Construction Products Directive. The details of these institutions are published in the "C" series of the Official Journal of the European Communities.

At the present time the listing for the United Kingdom is the British Board of Agrément and WIMLAS Ltd. An up to date listing can be found on the Building Regulations pages of the ODPM Website.

EU

The 15 countries of the European Union, namely Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.

ISO

International Organisation for Standardisation. The worldwide standards organisation, some of whose standards may be adapted for use with the Construction Products Directive. Standards are identified by 'ISO' and a number. These may be transposed into the UK as BS ISO, or adopted as European standards and implemented as BS EN ISO. ISO standards are separately published standards (unlike ENs).

Technical specification

A standard or a European Technical Approval Guide. It is the document against which compliance can be shown in the case of a standard and against which an assessment is made to deliver the European Technical Approval.

UKAS

United Kingdom Accreditation Service
21-47 High Street
Feltham,
Middlesex
TW3 4UN

Tel: 0181-917-8400
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Standard

A BS EN etc.

WIMLAS

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See European Technical Approval issuing body

Appendix B: Standards referred to in this document

BS EN ISO 9000: Quality management and quality assurance standards

BS EN ISO 9001:1994 Quality Systems, Model for quality assurance in design, development, production, installation and servicing.

BS EN ISO 9002:1994 Quality Systems, Model for quality assurance in production, installation and servicing.

BS 8000: Workmanship on Building Sites

Part 1: 1989 Code of practice for excavation and filling

Part 2: Code of practice for concrete work
Section 2.1: 1990 Mixing and transporting concrete
Amendment AMD 9324, February 1997
Section 2.2: 1990 Sitework with in situ and precast concrete

Part 3: 1989 Code of practice for masonry
Amendment AMD 6195, May 1990

Part 4: 1989 Code of practice for waterproofing

Part 5: 1990 Code of practice for carpentry, joinery and general fixings

Part 6: 1990 Code of practice for slating and tiling of roofs and claddings

Part 7: 1990 Code of practice for glazing

Part 8: 1994 Code of practice for plasterboard partitions and dry linings

Part 9: 1989 Code of practice for cement/sand floor screeds and concrete floor toppings

Part 10: 1995 Code of practice for plastering and rendering
Amendment AMD 9271, November 1996

Part 11: Code of practice for wall and floor tiling
Section 11.1: 1989 Ceramic tiles, Terrazzo tiles and mosaics (Confirmed 1995)
Section 11.2: 1990 Natural stone tiles
Amendment AMD 8623, August 1995

Part 12: 1989 Code of practice for decorative wall coverings and painting

Part 13: 1989 Code of practice for above ground drainage and sanitary appliances

Part 14: 1989 Code of practice for below ground drainage

Part 15: 1990 Code of practice for hot and cold water services (domestic scale)

Part 16: 1997 Code of practice for sealing joints in buildings using sealants

The following documents have been approved and issued by the Secretary of State for the purpose of providing practical guidance with respect to the requirements of the Building Regulations 2000.

Approved Document A - Structure: 1992 Edition, fourth impression (with amendments) 1994, further amended 2000

Approved Document B - Fire safety: 2000 Edition, amended 2000

Approved Document C - Site preparation and resistance to moisture: 1992 Edition, second impression (with amendments) 1992, further amended 2000

Approved Document D - Toxic Substances: amended 1992, further amended 2000

Approved Document E - Resistance to the passage of sound: 1992 Edition, second impression (with amendments) 1992, further amended 2000

Approved Document F - Ventilation: 1995 Edition, amended 2000

Approved Document G - Hygiene: 1992 Edition, second impression (with amendments) 1992, further amended 2000

Approved Document H - Drainage and Waste Disposal: amended 1992, further amended 2000

Approved Document J - Heat Producing Appliances: amended 1992, further amended 2000

Approved Document K - Protection from falling, collision and impact: 1998 Edition, amended 2000

Approved Document L - Conservation of fuel and power: 1995 Edition, amended 2000

Approved Document M - Access and facilities for disabled people: 1999 Edition, amended 2000

Approved Document N - Glazing - safety in relation to impact, opening and cleaning: 1998 Edition, amended 2000

Approved Document to support regulation 7 - materials and workmanship: 1999 Edition, amended 2000