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Guidance on the preparation of codes of practice for building

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BSI British Standards

Committees responsible for this Published Document

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Construction Industry Research and Information Association

Construction Products Association

Consumer Policy Committee of BSI

Department of Trade and Industry (DTI)

HEVAC Association

Institution of Civil Engineers

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Foreword

This Published Document has been prepared by B/-/13. It supersedes PD 6612:1997 which is withdrawn.

The BSI report *A strategy for building codes*, commissioned by the Sector Committee for Building and Civil Engineering and reproduced in Annex A of this document, recommended that BSI give high priority to the preparation of a document to give guidance to committees on the preparation of codes of practice for building. Issues to be addressed would include the use of a common framework for presenting information, the relationship of British Standards with European Standards, the structure, content and arrangement of codes of practice, and the presentation of text and graphics.

This revision incorporates guidance on how codes of practice for building should address environmental issues.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

This Published Document is not to be regarded as a British Standard.

Compliance with a Published Document does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 25 and a back cover.

The BSI copyright notice displayed throughout this document indicates when the document was last issued.

1 Scope

This Published Document gives guidance to committees on the preparation of codes of practice for building covered by the Sector Committee for Building and Civil Engineering, B/-. It does not cover civil engineering and structural design codes, or fire standards.

This document builds on the guidance given in previous editions of PD 6501 and makes reference to the most recent edition of BS 0-3 for detailed information on BSI requirements for the drafting and preparation of British Standards.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 0-2:1997, *A standard for standards — Part 2: Recommendations for committee procedures*.

BS 0-3:1997, *A standard for standards — Part 3: Specification for structure, drafting and presentation*.

3 The purpose and use of codes of practice

3.1 General

Codes of practice are one type of British Standard. They have the following characteristics:

a) set out recommendations of accepted good practice;

b) can cover both performance (design) and execution (site practice) and are intended to be used by qualified readers;

c) may be called up in building contract documentation, if specific, carefully chosen clauses are quoted;

d) provide recommended options and the circumstances in which they should be used;

e) give recommendations on the application of products in construction;

f) give recommendations for addressing environmental aspects to be considered during design and execution (see Annex B);

g) can contain means of compliance with statutory regulations;

h) are expressed using the verbal form "should" in accordance with BS 0-3:1997, **10.3**, not "shall" which is used for requirements in a specification.

NOTE For information on the other types of British Standard (specifications, recommendations, methods, guides and vocabularies) see Annex C.

3.2 Accepted good practice

The main purpose of codes of practice is to:

— give recommendations of accepted good practice to achieve a standard of building, as followed by competent practitioners;

— set a series of good practice options or objectives for a range of circumstances and describe accepted ways of achieving them;

— enable the reader to make immediate use of the results of scientific investigation and practical experience.

They are not intended to:

— be a treatise or text book;

— cover every detail of the subject.

Codes of practice can provide information on the principles underlying a particular practice, the possible options for implementing the practice, the implications of adopting the recommendations and the circumstances in which they are applicable. In particular, with an increasing emphasis being placed on environmental aspects of construction, they should address the potential adverse environmental impacts of different options and offer practical guidance on reasonable measures to minimize them.

3.3 Different standards of practice

Codes of practice may include a range of standards of practice, each one being accepted good practice for different circumstances. For example, different standards of tolerance apply to brickwork for traditional masonry housing, timber frame housing and steel framed housing, with increasingly more onerous requirements for each method. For each constructional method, the different recommendations would represent accepted good practice.

3.4 Litigation

Codes of practice provide evidence of accepted good practice or a benchmark for good design and construction and are widely understood to establish criteria for judging performance. They are often used by the courts as evidence in determining disputes. For this reason, recommendations should be drafted so that their meaning is clear and acceptable circumstances are clearly defined; phrases such as "generally" and "in most instances" should be avoided.

3.5 Legislation

Increasingly, legislation is being written in the form of functional or goal orientated requirements. This is particularly true of the Building Regulations [1], [2], [3], which are increasingly drafted as performance specifications. For example, requirement L2 (Approved Document L2 [4]) relating to energy efficiency begins as follows:

"**L2**. Reasonable provision shall be made for the conservation of fuel and power in buildings or parts of buildings other than dwellings by:

a) limiting the heat losses and gains through the fabric of the building; … "

The method of compliance is not specified.

The Approved Documents (ADs) which support the Building Regulations give guidance on meeting the performance requirements. The ADs make frequent reference to standards, but this does not give the standards mandatory status. As the ADs are only guidance it is always possible for designers to meet the requirements in another way. However, where there is a standard and designers choose an alternative approach, they need to be able to demonstrate that the non-standard approach fully meets the requirements of the Regulations.

Other government departments also publish guidance, for example Approved Codes of Practice (ACOPs) published by the Health and Safety Executive[1)], but these do not make mandatory references to standards. One standard to be expressly called up in UK legislation is BS 6658:1985, which is cited in The Motor Cycles (Protective Helmets) Regulations 1998 [5]. Even in this case the legislation permits helmets that meet equivalent standards accepted in other EEA states.

3.6 Building contracts

Reference to codes of practice in building contracts (unlike reference to standard specifications) may not be sufficient to convert them into contractual requirements, since it may be necessary to specify which of a number of alternative options is required for a particular building project.

It remains the responsibility of the user to ensure that any reference to a code quoted in a building contract is appropriate. When a code of practice is called up in a building contract, it is usually necessary to refer to particular parts of the standard or specific clauses.

3.7 Users of codes of practice

Codes of practice should be drafted with the needs of potential users in mind. Users fall into six groups according to their needs during the construction process. In considering their needs, the detailed role of individual types of user within each user group should be considered. The full range of potential users and how they relate to the six user groups is given in Annex D.

[1)] For further information see http://www.hsebooks.co.uk/homepage.html.

The six user groups are as follows:

a) owner/occupier;

b) designer;

c) specifier/purchaser;

d) product supplier;

e) contractor/installer;

f) inspector/tester.

Examples of the types of content for codes of practice with which these user groups are concerned are given in Table 1 in relation to each of the building project stages. The types of content are considered in more detail in **5.1**. The make-up of the main user groups is considered in the checklist in Annex D.

4 Preparation and drafting process

4.1 Making the case for a code of practice

The scope of individual codes of practice should be as concise as possible (in accordance with BS 0-3:1997, **6.5.1**) and should concentrate on issues for which there are positive recommendations required by industry.

The proposer of a code of practice should be certain that sufficient recommendations exist to warrant publication. The following steps should be taken to help check whether a code of practice is justified.

a) Check whether technical guidance is available on the subject from other sources (see Annex A).

b) Liaise with legislative bodies to determine related or relevant legislation. Discuss what they require of a code (in terms of content and timescale for publication) for it to be acceptable as a means of compliance. The Buildings Division of[2)] the ODPM may also be consulted.

c) Ensure that the relevant committee has a clear concept of what they have to produce, i.e. there is consensus between members as to the objective.

d) Consult relevant Technical Committees for details of any conflicting/overlapping codes of practice, for example as a result of information obtained from application of the B/- *Framework for standards* in accordance with Annex A.

e) Prepare a business case and financial template (standard forms are available from BSI committee secretaries) for the proposed code of practice setting out its scope, justification, market need, target audience, etc. and submit to the relevant BSI acceptance team (via committee secretary).

4.2 Programming the work

The planned programme of work for a code of practice should be short and intensive. Long programmes lose impetus and suffer delays through changes in representatives on committees. They may also be overtaken by new research and technological development.

4.3 External funding

The use of external funding for the development of codes of practice should be encouraged. The Office of the Deputy Prime Minister (ODPM) funds the following two schemes.

— The ODPM Standards Support Scheme: assists in funding technical expertise to support the UK input to the development of priority European and international standards, and the development of priority British Standards for construction.

— The Experimental Data Scheme: designed to part fund specific tasks that are needed to underpin new or revised standards for construction, as well as development work required for the preparation of British, European and international standards.

BSI committee secretaries have details of these schemes, including a model brief for the Standards Support Scheme.

[2)] Contact the Buildings Division of the ODPM at Office of the Deputy Prime Minister, 26 Whitehall, London SW1A 2WH Tel: 020 7944 4400 www.odpm.gov.uk.

Table 1 — Type of content of codes of practice likely to be needed by users at each project stage

Project stages	Groups of users (contracting parties) with similar needs					
	Owner/ occupier	Designer	Specifier/ purchaser	Product supplier	Constructor/ installer	Inspector/ tester
General	Briefing	Briefing	—	—	—	—
Basic and building design	Design	Design	—	—	—	—
Construction design	—	Design selection	Design selection	—	Design selection	—
Work off site	—	—	—	Preservation	Preservation	—
Work on site	—	—	—	—	Installation Storage Quality control	Installation Storage Quality control
Operation/ Maintenance	Management maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance
Disposal	Decommissioning Demolition Recycling Disposal	Decommissioning Demolition	—	—	Decommissioning Demolition Recycling Disposal	Decommissioning Demolition Recycling Disposal

4.4 Collection and structuring of information

The following procedure should be adopted for collecting together the raw material for a code of practice.

a) List the recommendations (or subjects on which recommendations are required) to be included together with the potential users and work stages for each item of information.

b) Ensure that subjects for codes fit the *Framework for standards* in accordance with Annex A.

c) Sort the recommendations into categories according to Annex A in which there are distinct uses and types of information, e.g. building types. Arrange the information in the order it is most likely to be needed, i.e. in the order of the project stages of a project. This will indicate whether there is a case for splitting the code into several parts and on what basis.

d) Look up all relevant product specifications to which reference should be made in the code. Check the content of European Standards which have superseded British Standards.

4.5 Use of specialist expertise

Committees should consider making use of the following types of expertise to assist in the preparation of codes of practice.

— *Technical expertise* for specialist knowledge of the subject, e.g. a consultant might be responsible for an initial draft of the code, in consultation with the committee representatives.

— *Technical writing expertise* to take the raw material provided by the committee members and prepare text in a style which will be acceptable to a particular readership.

— *Graphics expertise* (combined with technical knowledge) to take the illustrations sourced or sketched by committee members, interpret the content in relation to the text and prepare suitable draft figures either as pieces of artwork or in a form that can be prepared for publication by BSI staff.

4.6 Co-ordination and liaison

It is vital that there is co-ordination between BSI committees and regulatory bodies outside BSI on the development of codes of practice. Committees whose interests may be the subject of recommendations in a number of codes of practice should co-ordinate texts across the various documents. Committees should maintain regular contact with these special interests committees to monitor technical developments. Committees responsible for codes of practice should liaise with committees dealing with products relevant to their codes, particularly in respect of the application or installation of the products. Overlaps with other British Standards should be checked and resolved.

The maintenance of lists of the contents of the *Framework* boxes provides a mechanism for enabling gaps and overlaps to be identified.

4.7 Consensus

Codes of practice should be drafted and developed on the basis of consensus. The need for standards to be based on consensus is written into the BSI Charter[3)], consensus being defined as "general agreement, characterized by the absence of sustained opposition to substantial issues" by the interested parties, having taken their views into account and tried to resolve any conflicting arguments. Consensus does not imply unanimity. Consensus is required on both the content and the decision to publish.

4.8 Disputes procedure

Experience suggests that the majority of disputes on the content of codes of practice originate in the early stages of committee work. Work should not start on a code of practice without there being a clear purpose, scope or structure. If there is a dispute, the committee should refer to the BSI standards dispute procedure in BS 0-2:1997, **8.10**.

4.9 Consultation and the recording of decisions

At key stages during the drafting and development of codes of practice, consultation with interested parties should take place in accordance with the guidelines in BS 0-2.

4.10 Preparation of a summary

When the drafting of a code of practice is completed, the committee responsible should draft a summary giving the list of contents, the stages in a project when it would be used, and a list of prospective users.

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3) For further information see http://www.bsi-global.com/Corporate/News+Room/royal-charter.pdf.

5 Structure and content

5.1 Titles and subjects for codes of practice

5.1.1 *Titles*

Titles of codes of practice should convey to intended users the type of information they contain. They should state the subject and main purpose of the document (see BS 0-3:1997, Annex A)

Examples of correctly drafted titles for codes of practice are as follows:

Design of … — Code of practice
Selection of ... — Code of practice
Installation of ... — Code of practice
Thermal insulation of … — Code of practice
Provision of … — Code of practice

Examples of incorrectly drafted titles for codes of practice are as follows:

Energy efficiency — Code of practice
Space requirements — Code of practice

These two incorrectly drafted titles should be changed as follows:

Design of energy efficient buildings — Code of practice
Design of activity spaces — Code of practice

5.1.2 *Subjects*

Since "practice" is a "doing" word, codes of practice should concern the task(s) involved in the design and construction process. They should include recommendations on the correct application or installation of a product, component or assembly, but not their specification as they cannot contain requirements.

It is possible for codes of practice to relate to an aspect of performance, such as thermal insulation or ventilation and heating, provided that they relate to the actions necessary to achieve a particular standard of performance.

The following are examples of acceptable project activities to which codes of practice should relate, listed under the appropriate project stages.

General
- the appointment of …
- the preparation of a brief for ...

Basic and building design
- the design of ...

Construction design
- the design of ...
- the selection of … (products/equipment)
- the procurement of …

Work off site
- the selection of … (products/equipment)
- the procurement of …

Work on site
- the storage of …
- the installation of …
- the commissioning of …

Operation/maintenance
- the management of …
- the procurement of …
- the maintenance of …

Disposal

the decommissioning of …

the demolition of …

the recycling of …

the disposal of …

5.2 Structure of codes of practice

5.2.1 *General*

Codes of practice are usually broken down into parts, clauses and subclauses. Guidance on the content of parts and clauses is given in **5.2.3** and **5.2.4** and guidance on format and presentation is given in Clause **6**. Parts are usually published separately, if they are written for a specific type of user.

5.2.2 *Common arrangement of information in codes of practice*

The use of a common arrangement of information in codes of practice:

a) promotes better drafting;

b) helps when searching for information;

c) in the long term, makes it possible to collect together and publish recommendations on issues that are covered in a number of standards (horizontal sorting).

NOTE These issues are often building performance issues.

The choice of titles for parts and clauses should always be taken from a recognized and agreed classification system (see Annex A) so that ultimately all recommendations in codes of practice can be coded for rapid access by computer or for the preparation of computer-derived documents on similar topics.

For codes of practice for building, the following headings should be used:

— project stages;
— building elements.

Where the subject matter requires, the following additional headings should be used:

— subdivision of building elements;
— performance issues;
— building types.

For further information see Annex A.

5.2.3 *Subdivision of codes of practice into parts*

British Standards are split into parts when there is a need for the publication of a number of different types of standard on the same subject (e.g. specifications, methods or codes of practice), to break the standard down into smaller publications relating to individual topics or to subdivide the standard for specific types of user.

The topics for parts may be:

— building types (residential, commercial etc.);
— activities relating to project stages (design, installation etc.);
— building elements.

If the potential for duplication across multi-part standards is high, a general part 0 should be produced to cover general policy issues and recommendations common to all the parts. If the potential duplication across parts is minimal, a part 0 may not be necessary.

Where a British Standard is subdivided into parts, a generic subject title should appear first, followed by the part number and title (for information on the drafting of titles see **5.1.1** and BS 0-3:1997, Annex A).

The following examples illustrate the sequence of titles in multi-part standards.

EXAMPLE 1: ***Multi-part standards, all parts being codes of practice***

Generic subject title —

Part 0: General policy and common recommendations — Code of practice

Part 1: Design of … — Code of practice

Part 2: Selection of … — Code of practice

Part 3: Installation of … — Code of practice

EXAMPLE 2: ***Multi-part standards, all parts not being codes of practice***

Generic subject title —

Part 1: Design of … — Code of practice

Part 2: … — Method of calculation

Part 3: … — Code of practice

As a code of practice could be for multiple purposes, i.e. "design and installation" or "selection and installation", each purpose should be a part, and published separately.

5.2.4 *Clauses and subclauses within codes of practice*

Codes of practice or their individual parts, are divided into clauses and subclauses which contain the main recommendations. Clauses should deal with one subject only and have titles which relate to a classification of building types in the *Framework for standards* (see Annex A).

Where a part of a code contains recommendations which relate to a number of stages in the construction process (project stages), the project activities relating to these stages should be used as the basis for clause titles (e.g. design, installation, maintenance).

Where a code relates to a specific element of building (e.g. stairs) and parts relate to project activities (e.g. design), clauses may be structured according to different materials (e.g. timber, concrete, steel).

5.2.5 *Elements of codes of practice*

The elements that make up codes of practice are classified as being normative or informative as follows.

— *Normative elements*: those which give the technical recommendations on good accepted practice.

— *Informative elements*: those which explain the content and background to the code and give additional information to aid understanding.

The following are the main elements of a code of practice in accordance with BS 0-3:1997, Table 1):

a) *Informative (preliminary)*:

1) title page;

2) contents;

3) foreword;

4) introduction (optional).

b) *Normative (general)*:

1) title;

2) scope;

3) normative references.

c) *Normative (technical):*

1) terms and definitions;

2) symbols and abbreviations;

3) recommendations (accepted good practice);

4) best practice recommendations (where relevant);

5) figures;

6) tables;

7) normative annexes.

d) *Informative (supplementary)*:

1) commentary (background/justification/reason for recommendation);

2) informative annexes;

3) bibliographies;

4) index.

5.2.6 ***Content of the elements of codes of practice***

The elements of codes of practice should contain the following content, in accordance with BS 0-3.

a) **The form of the material**

The content of the elements of codes of practice should include the following, as appropriate:

1) text;

2) figures;

3) tables;

4) notes;

5) footnotes.

b) **Contents**

The list of contents should give, in the following order:

1) committees responsible;

2) foreword;

3) introduction (if included);

4) clause titles;

5) subclause titles (if appropriate);

6) annexes (with their status, i.e. whether normative or informative);

7) bibliography;

8) index (if included);

9) figures;

10) tables.

c) **Foreword**

A foreword should contain the following information in accordance with BS 0-3:1997, **6.4.5.1**:

1) designation of the committee under whose authority the code was prepared;

2) bibliographic details of any relevant standards, including previous editions, now superseded and withdrawn;

3) for a revision, a statement of the code's relationship to and principal changes from the previous edition;

4) prescribed wording concerning contractual and legal considerations, followed by any information regarding relevant statutory regulations, i.e. a statement that compliance with the code of practice does not confer immunity from legal obligations;

The foreword should also include as many of the following as are appropriate in accordance with BS 0-3:1997, **6.4.5.4**:

i) short history of the development of the code;

ii) relationship (if any) with existing national, European or ISO standards;

iii) list of parts of the standard;

iv) statement of intended readership;

v) acknowledgement of copyright material and expert sources;

vi) statement that a code of practice should not be regarded as a specification;

vii) reference to where the code of practice (or part of it) is called up in legislation;

viii) explanation of the status and typographical presentation of clauses giving recommendations on accepted practice and commentary.

d) **Introduction (optional)**

An introduction to a code of practice may occasionally be necessary where specific information, discussion or commentary on the technical content is required.

e) **Scope (Clause 1)**

The scope is an essential element of a code and should be drafted as a self-contained definition of the function of the standard which can be used in the event of a dispute. It should give the objectives of the code and define the content, stating any limitations in its field of application. It should be phrased as statements and contain text as follows, in accordance with BS 0-3:1997, **6.5.2**:

"This British Standard (or "This part of BS 1234 …) gives recommendations for …"

f) **Normative references**

The normative references clause lists all references to other publications (usually British Standards) which are referred to normatively in the text, i.e. all documents which are essential for the application of the standard. The list of documents follows an introductory clause, in accordance with BS 0-3:1997, **6.5.2**.

g) **Terms and definitions**

The terms and definitions clause of codes of practice for building should refer to BS 6100 (*Glossary of building and civil engineering terms*). If necessary, definitions specific to the code of practice should be included. The terms and definitions clause should conform to BS 0-3:1997, **6.6.1**. For more detailed guidance on the drafting of terms and definitions see ISO/IEC Directives, Part 2:2001, Annex C.

h) **Recommendations**

Recommendations are the basic clauses in codes of practice giving accepted good practice. They should be drafted using the verbal form "should" in accordance with BS 0-3:1997, **10.3.2**.

i) **Commentary (optional)**

Commentary is a category of information in a code which (as in BS 8000) gives additional explanation or justification for the recommendation. It should be placed immediately beneath the relevant clause. Text for the commentary should be in the form of statements.

j) **Notes**

Notes integrated into the text of codes of practice are used for additional information that is essential to the understanding of the document. Notes should be drafted in accordance with BS 0-3:1997, **5.7.3** and **6.7.2**.

k) **Figures**

Figures may be used to reinforce the recommendations made in the text, or to give information that compliments or substitutes for text. Care is needed to ensure that the information shown is clear (see BS 0-3:1997, **5.9** and **6.10**).

l) **Tables**

Tables can often be used to summarize complicated text (see **6.5** for further guidance). Care is needed to ensure that the data shown is simple and direct (see BS 0-3:1997, **5.8** and **6.9**).

m) **Annexes**

Annexes follow the main text, arranged in the order in which they are first cited, and can be normative or informative (see BS 0-3:1997, **5.3.4**).

Normative annexes in codes of practice contain recommendations or guidance which form an integral part of the standard but which are more appropriately presented separately from the main text.

Informative annexes are used for significant additional data that can be removed from the main body of the recommendations, or for information that is only of interest to the specialist.

n) **Bibliographies**

All documents referred to informatively in the text of a code of practice are listed in a Bibliography (see BS 0-3:1997, **6.7.3**). The Bibliography appears at the end of the standard, after the last annex. The Bibliography is arranged according to the types of documents listed, e.g. "Standards publications", "Other documents", "Further reading". The Bibliography should be drafted in accordance with the recommendations of BS 1629.

o) **Index (optional)**

It is not usually necessary for most codes of practice to have an index. An index should only be used to add clarity to a long and complex document. An index should conform to BS ISO 999.

6 Format and presentation

6.1 Numbering systems

Complex clause numbering should be avoided when drafting codes of practice.

Clauses are subdivided into subclauses (and further subdivisions if necessary):

12 Clause title (heading level 1)

12.3 Subclause title (heading level 2)

12.3.5 *Sub-subclause title* (heading level 3)

Paragraph 1 …

Paragraph 2 …

Annexes are referenced alphabetically and appear in the order in which they are called up in the text (see BS 0-3:1997, **5.3.4**).

6.2 The use of language – readability

Whilst codes of practice are intended to be read by suitably qualified and experienced people, the content will be more easily understood if unnecessary jargon is avoided and sentences kept short and to the point.

NOTE This may be difficult to achieve where the subject requires the use of long, complicated words.

The "fog index" is a rule of thumb for estimating readability. It is calculated by counting the words in a paragraph or section of text, dividing by the number of sentences in the section and adding the number of words of three or more syllables. The lower the figure the more readable the text.

The previous paragraph has a "fog index" of 33. Quality newspapers aim for a value of 10 to 15. A value of 30 is realistic for technical publications. It should be noted that popular word processing software provides readability statistics within the grammar checking tool.

6.3 Figures (illustrations)

Information is increasingly being conveyed graphically, rather than in words. Graphic information can be legally enforceable in its own right, without explanatory text. However, great care is needed to ensure that graphical information is clear, unambiguous and capable of only one objective interpretation.

Whether they show details of construction (giving precise information) or are illustrative (conveying a principle), figures should be understandable without explanation. Figures should:

— illustrate one specific point;
— exclude irrelevant information;
— avoid ambiguity;
— illustrate the point in a way which allows wide application;
— include text to assist understanding if absolutely necessary;
— be close to the relevant text.

A graphics checklist is included as Annex E.

Technical drawings in British Standard codes of practice should be prepared in accordance with the requirements of BS 0-3:1997, **6.10.3**, as follows:

a) details of presentation conforming to BS 8888, which details the conventions in detail or refers to the appropriate BS adoption of an international or European standard;

b) for construction drawings, details of presentation conforming to BS EN ISO 3766, BS EN ISO 4157, BS EN ISO 6284, BS EN ISO 7518, BS EN ISO 8560, BS EN ISO 9431 and BS EN ISO 11091;

c) requirements particular to the subject, e.g. BS 4301 for optical elements and systems, BS EN ISO 6414 for laboratory glass apparatus.

6.4 Use of colour

If the use of colour is contemplated, the guidance given in BS 0-3:1997, **6.10.5** should be followed.

It should be noted that colour printing requires particular processes that add to the production time and cost. The colour rendering of subjects with a wide chromatic range is not uniformly successful. There is no assurance that the colour values of an agreed specimen printing can be repeated without fluctuation throughout a print run, even of moderate length. If colour has to be shown visually, and accuracy is vital, stringent and expensive control methods are required. The provision of comparison specimens can be a useful but expensive adjunct to a standard.

6.5 Tables

Tables may be used as follows in accordance with the requirements of BS 0-3:1997, **6.9.1**:

a) to supplement, clarify, summarize or substitute for text;

b) to avoid repetition;

c) to compare differences or similarities.

Tables should themselves be easy to understand, set out in a form that is simple and direct.

NOTE For further information on the drafting of tables see BS 7581.

Annex A (normative)
Framework for standards and other classifications

A.1 General

This *Framework for standards* enables codes of practice, guides and other documents of relevance to building and civil engineering to be listed in a simple, classified format.

The *Framework*:

— helps B/- and its technical committees to identify gaps in the available information and to avoid overlaps between technical documents from other sources;

— helps technical committees to define more precisely the scope of a proposed standard;

— enables users to check the existence of codes of practice on subjects of interest to them;

— allows the future production of computer-derived documents on similar subjects.

The *Framework* uses a classification system which incorporates two main facets and a number of other facets:

a) the **project stages** — the stages through which a building project passes:

A General to the project or more than one stage;

B Briefing, building design;

C Construction design (details of the construction);

D Work off site (product manufacture, product tests);

E Work on site (execution, commissioning, handover, building tests);

F Operation and maintenance;

G Demolition (decommissioning, disposal and recycling); and

b) the **primary elements** which go to make up the building:

0 Common to all building elements (including basic data);

1 Ground and substructure;

2 Superstructure — primary elements (e.g. walls, partitions, floors);

3 Superstructure — secondary elements (e.g. windows, doors, suspended ceilings);

4 Surface finishes;

5 Services — piped and ducted (e.g. drainage, water supply, heating);

6 Services — wired (e.g. lighting, communications, lifts);

7 Fixed fittings and equipment (e.g. kitchen, sanitary and storage);

8 Loose fittings and equipment (e.g. furniture);

9 External works.

c) **other facets**:

building types (see **A.3**);

performance issues (see **A.4**).

When structuring codes of practice the *Framework* in Table A.1 should be used as a checklist for parts and clauses (including subclauses).

Table A.1 — Framework for standards and other classifications

Project stages	Primary elements									
	0	1	2	3	4	5	6	7	8	9
A General										
B Basic and building design										
C Construction design										
D Work off site										
E Work on site										
F Operation/ maintenance										
G Disposal										

A.2 Subdivision of primary elements

Where the scope of a code does not correspond with a complete element, the subdivisions as shown in Table A.2 should be used as a checklist.

The elements in Table A.2 are based on CI/Sfb elements [6]. For convenience, the brackets and the 0 have been omitted, e.g. .9 *External works* has deviated by reclassifying (90.6) as 96. Element 00 *Basic data and whole buildings* has been further subdivided using tables 0, 2, 3 or 4 from the CI/Sfb 1976 revision, as considered most appropriate.

Table A.2 — Subdivision of primary elements

00 Basic data and whole buildings			
1	**Ground building and substructure**	**6**	**Wired services**
10	Substructure, general	60	Electrical services, general
11	Ground	62	Electrical supply and power
13	Floor beds	63	Lighting
16	Retaining walls and foundations	64	Communications (telephone, faxes, etc.)
17	Piles	66	Transport (lifts, escalators, etc.)
2	**Structure (principal construction)**	67	Security installations, fire alarms
20	Structure, general	**7**	**Fixed fittings and equipment**
21	Walls	71	Circulation, signage
22	Partitions	72	Furniture
23	Floors	73	Kitchen and servery equipment
24	Stairs	74	Sanitary fittings
27	Roofs	75	Cleaning and maintenance fittings
28	Building frames	76	Storage and screening fittings
3	**Secondary elements**	77	Storage and fire precaution fittings
31	Windows and external doors	78	Sport and play fittings
32	Internal doors	**8**	**Loose fittings and equipment**
33	Raised floors and trapped doors	81	Circulations, signage
34	Balustrades	82	Furniture
35	Suspended ceilings	83	Kitchen and servery equipment
37	Rooflights	84	Sanitary fittings
39	Ironmongery	85	Cleaning and maintenance fittings
4	**Finishes**	86	Storage and screening fittings
40	Finishes, general	87	Security and fire precaution fittings
41	External wall finishes	88	Sport and play fittings
42	Internal wall finishes	**9**	**External works**
43	Floor finishes	90	Landscape, general
44	Stair finishes	91	Roads, car parks, loading bays
45	Ceiling finishes	92	Retaining walls
47	Roof finishes	93	Walls and fences
5	**Services, piped and ducted**	94	Soft landscape and pedestrian hard landscape
50	Building services, general	95	Irrigation and drainage
52	Drainage and waste disposal	96	Lighting
53	Hot and cold water supply	97	Seating, bollards, signs
54	Supply of gases	98	Sports and play equipment
55	Refrigeration		
56	Space heating		
57	Ventilation and air conditioning		

A.3 Building types

Where the scope of a code does not apply to all building types, the following subdivisions should be used as a checklist.

Building type (based on CI/SfB Table 0) [6]

0 All building types

1 Public utilities (road, rail, water, power etc.)

2 Industrial and storage (factories, agricultural)

3 Commercial (shops, offices, administration, law courts)

4 Health (hospitals, welfare facilities)

5 Recreational (sports, entertainment)

6 Religious (churches, crematoria)

7 Educational and information (schools, universities, museums, research)

8 Residential (housing, multi-residential, special housing, hotels)

9 Other facilities (assembly, storage, warehouses, plant etc.)

A.4 Performance issues

Where the scope of a code applies to a performance issue, the following subdivisions should be used as a checklist.

Performance issues for building

Structural stability

Fire safety

Safety in use (including hygiene and resistance to hazards)

Security

Thermal performance

Air quality performance

Lighting performance

Acoustic performance

Electrical performance

Environmental issues

Energy efficiency

Accessibility (including access for disabled people)

Durability

Economic performance

NOTE This list is based on ISO 6241:1984, Table 1.

Annex B (normative)
Inclusion of environmental aspects in design codes

Table B.1 contains a checklist of environmental issues which should be addressed at the design stage of any construction project. Whilst some issues are most applicable to new works, they may also be relevant to refurbishment works, as indicated in the middle column of the table. The right hand column relates to non building structures, such as tunnels, bridges, including pedestrian structures and public transport facilities (e.g. shelters).

The checklist does not cover general issues relating to compliance with environmental or health related legislation, for example Legionnaires disease under "health and wellbeing", or water discharges under "water consumption". Part L2 of the Building Regulations (England and Wales) [4], Building Standards for Scotland [7] and Building Regulations Northern Ireland [8] and the Energy Performance of Buildings Directive [9] are listed in the table as these are measures that will be relevant throughout the life of this edition of PD 6612.

It is intended that the checklist serve as a prompt to standards committees to identify those environmental issues which should be addressed in a specific code. This may either be conducted as a formal paper exercise co-ordinated by the committee secretary, or addressed in a meeting. The checklist assists in identifying environmental issues to be addressed, but does not indicate how they should be addressed, since that requires the expertise of the committee. In addressing the issues, the committee may wish to incorporate statements at appropriate points, or to draft a specific clause addressing environmental issues. In drafting such a clause, care should be taken not to exclude future developments that may change what is considered to be accepted good practice.

It is important that British Standards do not act as a barrier to the reuse and recycling of construction materials. All design and execution standards should be carefully reviewed to ensure that they do not favour virgin material without a clearly substantiated technical case for such a policy.

Table A.2 gives guidance on responsibility for considering environmental issues, and the stages in the project at which they are most relevant. It is intended to assist standards writers by indicating the key stages in the process at which design codes need to address environmental aspects, to ensure that appropriate guidance is included in the design codes at the stage in the process where it is most likely to influence design decisions.

Table B.1 — Checklist of environmental issues to be considered during design of buildings and structures

Issue	New buildings	Refurbishment	Structures
General			
Consider submitting the building/structure for formal assessment under an appropriate scheme, e.g. BREEAM[4)]	✓✓✓	✓	✓✓
Use of renewable energy within the BREEAM scheme[4)]	✓✓✓	✓✓	✓
Energy conservation			
Compliance with Building Regulations Part L2 [4], [7], [8]	✓✓✓	✓✓✓	
Compliance with current best practice energy use targets	✓✓	✓✓	
Use of thermal mass of materials to reduce heating and cooling	✓✓	✓✓	
Energy efficient services to the structure (e.g. lighting, ventilation)			✓
Energy Performance of Buildings Directive [9] related requirements (new EU requirements)	✓✓✓	✓✓	
Use of on site storage of materials to be reused, e.g. in particular spoil and fill for civil engineering	✓✓	✓✓	✓✓✓
Pollution emissions			
Minimize greenhouse gas emissions relating to energy use	✓✓✓	✓✓✓	✓✓
Minimize outputs of potentially polluting materials, both internally and externally (e.g. water run-off, waste water, gaseous emissions)	✓✓✓	✓✓	✓✓
Apply "three R's" – reduce, reuse, recycle – to all wastes	✓✓✓	✓✓✓	✓✓✓
Consider issues such as noise and light pollution where relevant			
Health and wellbeing			
Compliance with minimum standards for air supply and indoor air quality, e.g. Approved Document F [10] and CIBSE Guide [11]	✓✓✓	✓✓	
Provision of adequate daylighting		✓✓✓	✓✓
Provision of appropriate artificial light with glare control	✓✓	✓✓✓	
Provision of user controls over internal environments	✓✓✓	✓✓✓	
Control of noise (internal and external)	✓✓	✓✓✓	✓✓
Impact of the building or structure on non-users (e.g. visual impacts, noise, impacts of access)	✓✓✓	✓✓	✓✓
Water conservation			
Minimize consumption	✓✓	✓✓	✓
Consider recycling and rainwater harvesting	✓✓	✓✓	
Materials specification			
Avoid regulated substances wherever possible	✓✓✓	✓✓✓	✓✓✓
Ensure that the standard supports reuse or recycling of products	✓✓✓	✓✓	✓✓✓
Consider requiring products with environmental labelling or environmental declarations or both	✓✓✓	✓✓✓	✓✓✓
Use of products with lower embodied energy (balanced against energy use in service)	✓✓✓	✓✓✓	✓✓✓
Consider use of ethical, certificated and renewable supplies	✓✓✓	✓✓✓	✓✓✓
Consider local sourcing[a] of materials	✓✓✓	✓✓	✓✓✓

NOTE ✓indicates that an issue should be addressed. The greater the number of ✓marks the more pressing that issue is for that type of construction.

[a] Local sourcing does not mean purchase from a local merchant, but means obtaining the material from a location close to the site of the works, such as a local quarry, brickworks or sandpit, or reuse of materials reclaimed locally.

[4)] BRE Environmental Assessment Method – a recognized methodology for assessing the environmental impact of buildings. For information details see www.bre.co.uk.

Table B.2 — Responsibility for environmental issues at key stages of the project

RIBA [12] **Plan of work**	**Project participants and their activity at various stages**					
	Owner/occupier	**Designer**	**Specifier/purchaser**	**Product supplier**	**Constructor/installer**	**Inspector/tester**
A-B (Briefing and feasibility)	Briefing: inclusion of environmental requirements or targets	Briefing: inclusion of environmental aspects or targets in brief and outline design	Compliance with environmental aspects of design or proposal of environmental actions	—	—	Ensure compliance with environmental aspects of design
C-D (Initial building design)	Approval or sign off of design	Design, taking account of environmental aspects agreed with client	Compliance with environmental aspects of design or proposal of environmental actions	Compliance with environmental aspects of design or proposal of environmental actions	—	
E-H (Detailed construction design and tender)	Approval or sign off of design	Design selection	Compliance with environmental aspects of design or proposal of environmental actions	Compliance with environmental aspects of design or proposal of environmental actions	Compliance with environmental aspects of design or proposal of environmental actions	
J (Work off-site)	—	—	—	Compliance with environmental aspects of design	Compliance with environmental aspects of design	
K-M and P (work on site and refurbishment)	—	—	—	Compliance with environmental aspects of design	Compliance with environmental aspects of design	
N-P (Operation and maintenance)	Implementation of environmental management systems to ensure that what was intended really happens	Ensure that the environmental aspects of the design are communicated to maintenance and facilities management personnel	Ensure that purchasing for maintenance applies environmental requirements	Needs to meet environmental requirements	Needs to meet environmental requirements	
Q-R (Disposal)	Decommissioning demolition recycling disposal	Decommissioning and demolition for reuse or recycling	Decommissioning and demolition for reuse or recycling	—	Decommissioning and demolition for reuse or recycling	

Annex C (informative)
Types of British Standard and their characteristics

C.1 Types of standard

The main types of British Standard are:

— code of practice;
— specification (for products and practices) (see **C.2**);
— method (of calculation, test) (see **C.3**);
— guide (see **C.4**);
— recommendations (see **C.5**);
— classification (see **C.6**);
— vocabulary (previously glossary) (see **C.7**).

As the purpose and use of codes of practice is discussed throughout this guide, this annex provides guidance on the other types of British Standard.

C.2 Specifications

Specifications can relate to both performance (design) and execution (site practice) and are intended to be used by qualified readers. They:

a) express requirements to be met in order to claim compliance;

b) can be called up without reference to individual clauses in building contract documentation;

c) are expressed using the verbal form "shall".

Specifications lay down prescriptive requirements to be met and they contain or call up methods of verifying conformity to the requirements. They should be aimed at one contractual interface (or more than one if essential). Specifications do not lay down quality assurance procedures for organizations carrying out tests. For further guidance and information see BS 0-3:1997, **10.1**.

Practices for design and execution (on site) can be covered by either:

— a specification (Do it this way), or;

— a code of practice which gives information and recommendations that allow a professional person to use their judgement to choose which method to use (Do it this way depending on the circumstance and these are the factors to take into account).

C.3 Methods

Methods may be included within specifications but, if they are called up by two or more specifications, they are usually published as a separate standard. A method should not be confused with a specification (see also BS 0-3:1997, **10.2**). Methods show how to determine values; specifications indicate which values are acceptable.

Methods may cover:

a) measurement;

b) calculation;

c) verification of conformity to a specification (test);

d) sampling and analysis;

e) evaluation of performance;

f) validation of specification requirements (method of specifying).

Methods of specifying can provide the basis for an agreement between contracting parties.

C.4 Recommendations

Recommendations generally provide a particular series of options or courses of action limited to a particular field. They may pave the way to the eventual formulation of a specification (see also BS 0-3:1997, **10.4**).

C.5 Guides

Guides are more discursive in content than a code of practice, giving broader and more general information on a subject. They establish principles that may in time lead to a code of practice. Where information is available, the decision as to whether there are sufficient firm recommendations to be made on a subject should be taken before work starts on a project (see also BS 0-3:1997, **10.5**).

C.6 Vocabularies

Vocabularies define the terms used in a particular industrial sector or technological field. Terms already defined in an existing vocabulary are preferred and should be identified as such. Where it is not possible to use a term as defined, the reader should be warned (see also BS 0-3:1997, **10.6**).

C.7 The CEN strategy for design and execution standards

C.7.1 *General*

The aim of the CEN (European Committee for Standardization) strategy for design and execution standards is to facilitate communication of the technical options between parties in building projects within Europe.

In BSI terms, these are specifications or methods but, since some members of CEN feel that such documents should be traditional codes of practice, it is proving difficult to achieve consensus on the approach.

To ensure unambiguous reference in contracts, the documents should be drafted so that the application is clearly stated and a clear distinction is made between normative and informative parts.

CEN design and execution standards should not include in a normative way clauses that could not be made contractual for the parties concerned. Care is needed if the standard is framed in performance terms, since proving compliance can be difficult.

C.7.2 *CEN design standards*

CEN design standards constitute a reference which can be recognized by all parties, e.g. a calculation or a dimensioning standard.

A design standard:

a) specifies the expected result in performance terms, or describe the characteristics required after completion (a specification);

b) includes the means of verification of performance or characteristics (a method);

c) is capable of contractual use between parties at the preparatory stage of a project (a specification).

It could include:

— model proven solutions for the design of works (or parts of them);
— dimensioning rules (e.g. structural design standards);
— calculation methods (e.g. thermal calculations for buildings).

C.7.3 *CEN execution standards*

A CEN execution standard:

— specifies the characteristics of the products used by reference to product specifications;
— specifies how to execute the building work in order to obtain the expected result;
— specifies methods for testing and quality control;
— specifies methods to avoid or minimize hazards;
— is capable of contractual use between parties at the execution stage of the work.

C.7.4 *Scope of design and execution standards*

Although this may change in the future, current CEN policy is that design and execution standards should exclude:

— items normally dealt with in national regulations;
— items normally subject to traditional training and education at national level;
— nature of contracts, legal obligations, etc.;
— quality assurance systems;
— items concerning qualifications of enterprises and personnel;
— aspects relating to health and safety of workers on site.

For details of how to obtain background information on CEN, ISO (International Organization for Standardization) and other European and International standards bodies see the Bibliography (**Useful links**).

C.7.5 *Application and acceptance of CEN projects*

When a new or extended standardization project falls within the field of application of the CEN strategy, a procedure is initiated to check whether the proposal conforms to the objectives of the strategy.

Annex D (informative)
Checklist of potential users of codes

The following checklist of potential users should be used to ensure that recommendations in codes of practice for building are made in relation to the needs of the following relevant users:

a) client:
   1) owner;
   2) party commissioning the building;
b) facilities manager/maintenance staff;
c) architect;
d) consultant/specialist;
e) legal adviser (expert witness);
f) civil engineer;
g) structural engineer;
h) mechanical and electrical engineer;
i) quantity surveyor;
j) building surveyor;
k) manufacturer:
   1) materials;
   2) components;
l) builder's merchant;
m) contractor/subcontractor;
n) test house:
   1) research laboratories;
   2) independent test houses;

o) certification body;

p) site control staff:

1) clerks of works;

2) resident engineers;

3) site agents;

q) building control officer;

r) regulatory authority;

s) insurer (e.g. NHBC);

t) teacher;

u) information provider:

1) bookshop;

2) computerized information services.

These potential users fall into groups according to their needs for information from codes of practice.

Annex E (informative)
Graphics checklist

The following checklist for graphics should be used by drafting committees in addition to the requirements and guidance given in BS 0-3:1997, **6.10.3**.

a) Figures should be used in an active role to replace the written word, not to duplicate it. To avoid ambiguity, information should be conveyed by text or by figures, not both.

b) Information may be shown formally, diagrammatically or pictorially.

c) It is usually better to separate one graphical statement from another, just as it is to separate one text statement from another.

d) Figure titles should clearly reflect the scope of each graphical statement.

e) As far as possible, figures and related texts should be displayed so that they can be read together.

f) Graphics can be more difficult to devise than text and call for a variety of techniques. Figures giving precise technical information need a different approach from those making points of principle which are usually diagrammatic or pictorial.

g) Symbols used in figures need to be explained in a key to the figure if they have not been explained in the text.

h) Provide only sufficient information (dimensions, relationships, materials, types of construction etc.) to inform each point being made.

i) If the same or similar information is to be repeated in different figures, it should be repeated in the same form.

Bibliography

Standards publications

BS 1629:1989, *Recommendation for references to published materials.*

BS 4301:1991, *Recommendations for preparation of drawings for optical elements and systems.*

BS 6100, *Glossary of building and civil engineering terms.*

BS 6658:1985, *Specification for protective helmets for vehicle users.*

BS 8000 (all parts), *Workmanship on building sites.*

BS 8888:2002, *Technical product documentation (TPD) — Specification for defining, specifying and graphically representing products.*

PD 6501 (all parts), *The preparation of British Standards for building and civil engineering.*

BS EN ISO 3766:1999, *Construction drawings — Simplified representation of concrete reinforcement.*

BS EN ISO 4157 (all parts), *Construction drawings — Designation systems.*

BS EN ISO 6284:1999, *Construction drawings — Indication of limit deviations.*

BS EN ISO 6414:1995, *Technical drawings for glassware.*

BS EN ISO 7518:1999, *Construction drawings — Simplified representation of demolition and rebuilding.*

BS EN ISO 8560:1999, *Construction drawings — Representation of modular sizes, lines and grids.*

BS EN ISO 9431:1999, *Construction drawings — Spaces for drawing and for text, and title blocks on drawing sheets.*

BS EN ISO 11091:1999, *Construction drawings — Landscape drawing practice.*

BS ISO 999:1996, *Information and documentation — Guidelines for the content, organization and presentation of indexes.*

ISO 6241:1984, *Performance standards in building — Principles for their preparation and factors to be considered.*

Other documents

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London: The Stationery Office.

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[4] GREAT BRITAIN. Building Regulations (England and Wales) Approved Document L2 — Conservation of fuel and power in buildings other than dwellings, 2002. London: The Stationery Office.

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[9] EUROPEAN COMMUNITIES. Energy Performance of Buildings Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings *Official Journal L 001, 04/01/2003 P. 0065 – 0071*. http://europa.eu.int/eur-lex/en.

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[11] CHARTERED INSTITUTION OF BUILDING SERVICES ENGINEERS. *CIBSE Guide B2 Ventilation and air conditioning*. GSB02: 2001. London: CIBSE. www.cibse.org.

[12] PHILLIPS, R. *The Architect's Plan of Work*. 2000 edition. RIBA Publications, 2000. http://www.ribabookshops.com.

Useful links

CEN — European Committee for Standardization website address: http://www.cenorm.be/cenorm.

CENELEC — European Committee for Electrotechnical Standardization website address: http://www.cenelec.org.

ISO — International Organization for Standardization website address: http://www.iso.ch.

IEC — International Electrotechnical Commission website address: http://www.iec.ch.

BSI — British Standards Institution

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