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EDITING BS 8233

N F Spring

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1. INTRODUCTION

British Standard Code of Practice CP3 : Chapter III : Part 2 : 1972, Code of Basic data for the design of buildings, Chapter III Sound insulation and noise reduction, unlike its cumbersome title, was a very well written publication which successfully resisted attempts to improve it until 1987. In fact, the 1972 edition itself was little more than a metrication of the 1960 edition, a transformation which, one assumes, was effected without too much controversy. This paper describes the special problems encountered in editing the 1987 edition, together with speculation on the role of the document, both now and in the future.

2. BACKGROUND

BS 8233 'British Standard Code of practice for sound insulation and noise reduction for buildings' appears to have originated in a document which was part of a code of practice called CP 3 'Code of functional requirements of buildings' published in 1948. Chapter III of this code was called 'Sound insulation and noise reduction'. The council for codes of practice later decided to change the title of CP 3 to 'Code of basic data for the design of buildings' and Chapter III was revised and published in October 1960 under the new title. The drafting committee for this code was as shown in Table 1.

It can be seen that the majority were members of government departments or professional bodies; Messrs Bagenal, Creighton and Humphreys were independent acoustic consultants; two committee members were representatives of manufacturers' associations.

In contrast Table 2 shows the credits for the current revision. Instead of 15 bodies represented, there are now 23, of which 7 represent manufacturers' interests. Note also that individuals are not now mentioned, only the bodies that they represent. Presumably, this reflects a present-day fear of individuals being pestered or even sued, and a more frequent change of representatives nowadays.

Table 1

CODE DRAFTING COMMITTEE BLCP/10 SOUND INSULATION

Mr. A.W. Cleeve Barr(Chairman)

Mr. A. Watson	Department of Health for Scotland
The Director, Building Research Station	D.S.I.R - Building Research Station
Councillor W.J.Clark	Incorporated Association of Architects and Surveyors.
Mr. D.M. O'Herlihy,O.B.E.	Institution of Municipal Engineers.
Mr. W.Bor	London County Council
Mr.W. Lee	Ministry of Education
Mr. D.J.Petty MBE	Ministry of Health
Mr. K.R. Lack	Ministry of Housing and Local Government
Mr. J.S. Balkwill	Ministry of Aviation
Mr. K.W. Barns	Ministry of Works
Mr. E.N. Bazley	National Physical Laboratory
Mr. John Musgrove	Nuffield Foundation
Secretary	R.I.B.A. Codes and Standards Committee
Mr. A.W.Cleeve Barr	Royal Institute of British Architects
Mr. A.H. Davis	Royal Institution of Chartered Surveyors.
Mr. R.R.Houston	Structural Insulation Association
Mr.Hope Bagenal OBE,DCM	Personal Capacity
Mr. Hugh Creighton	
Mr. H.R.Humphreys	
Mr. E. Levin	Timber Development Association

Table 2

Preparation of the Code was entrusted by the Basic Data and Performance Criteria for Civil Engineering and Building Structures Standards Committee (BDB/-) to Technical Committee BDB/51 upon which the following bodies were represented;

Aggregate Concrete Block Association
Autoclaved Aerated Concrete Products Association
British Airports Authority
British Precast Concrete Federation Ltd.
Calcium Silicate Brick Association Limited
Concrete Society
Consumer Standards Advisory Committee of BSI
Department of the Environment (Building Research Establishment)
Department of the Environment (Property Services Agency)
Department of Transport (Transport and Road Research Laboratory)
Incorporated Association of Architects and Surveyors
Institute of Acoustics
Institute of Physics
Institution of Civil Engineers
Institution of Environmental Health Officers
Institution of Structural Engineers
Motor Industry Research Association
Noise Abatement Society
Royal Institute of British Architects
Royal Institution of Chartered Surveyors
Scottish Development Department
Timber Research and Development Association
Wood Wool Slab Manufacturers' Association

3. CP 3 : CHAPTER III

CP 3 Chapter III was a document of A5 size and bound in linen, presumably for durability, as though the publishers expected it to be handled frequently over a long period of time. The chapter starts with a one-page introduction which explains how the document is structured. This is followed by a four-page section called 'Planning against noise'. The following six sections deal with particular building types, namely dwellings, educational buildings, hospital buildings, office buildings, industrial buildings and miscellaneous buildings. These sections formed this chapter of the code of practice itself and occupy some 43 pages; the remainder of the document, some 70 further pages, consists of appendices. The document is very well written, is easy to read, and appears to be accurate, considering the state of acoustical knowledge when it was written. It was written rather in the style of a textbook, but this was probably justified as there were not many good textbooks on building acoustics in 1960. Perhaps its greatest shortcoming was that it lacked an index; thus to use it as a reference book could be difficult unless the user was very familiar with its structure and layout.

4. THE REVISIONS

In 1972 CP 3 : Chapter III was revised and became CP 3 : Chapter III : Part 2. The main revisions were conversion of units from the Imperial to the Metric system, following a programme for change in the construction industry published in 1967. Little, if any, of the technical content was changed. In the late 1970s and early 1980s it must have become apparent that the code, good though it was, contained a number of anachronisms and that the content was in need of revision. The kind of statements that must have looked a little old-fashioned included:

- On planning against traffic noise. (Airborne traffic):

  'Consultations should be held between the Local Planning Authorities and the Airport Authorities, to ascertain what extensions of the aerodrome are anticipated in the future.'

- On underground railways:

  'Noise nuisance from this source is not serious as a rule and no recommendations are necessary.'

  'There is no simple practical method of isolating large buildings from ground vibrations of this sort, though some slight amelioration may be achieved by the choice of suitable structures.'

- On indoor noises in houses:

  'The poking of fires, mainly a structure-borne noise, ranks surprisingly high as a disturbance in view of its occasional nature and short duration.'

- Octave bands centred on 850 c/s rather than 1000 Hz

- Ill-defined sound levels (instead of L_{10}, L_{eq},etc.)

- Reference to grading curves

- Conversion of octave band sound pressure levels to phons or sones.

By modern standards the code is too informal. It uses the word 'must' which is disallowed nowadays in a code of practice.

The early attempts at revision of the document appear to have been done in different parts by different people, presumably members of the committee, at different times. The result of this was a draft document which had grown too large, lacked a coherent structure and was written in a variety of styles. The BSI then decided to appoint an outside consultant to edit the source material and make one or two minor additions to the text. The consultant appointed for this task in 1984 was required to complete the work within two months of appointment and it was expected that there would be three meetings with the committee. The edited document was produced in about the time required and the draft document was accepted by the committee with some apparently minor reservations. The editor agreed to carry out the minor changes requested in the expectation that the document would soon be accepted in its entirety. However a series of unforeseen events prolonged the completion of the document.

4.1 The Delays

First was the realisation that the Building Regulations were being revised and several people thought that their publication was imminent. It was thought wise to delay publication of the code of practice to make sure that it did not conflict with the new regulations. Secondly, a document [1], published by the BSI at about that time gave new guidance on the preparation of British Standards for building. In Part 2 of this guide on presentation of standards, the whole style of writing was to be changed. The whole emphasis was to be in making standards more readily understandable and easier to read. One of the principal changes was to abandon the passive voice in the text and use direct simple everyday imperative style wherever possible. For example, the following extract from a British Standard has a Fog index of 101:

'With the window closed, but with any closing or locking furniture released, a force not exceeding the greater of 120 N or 230 N per square metre of sash, applied without shock in a horizontal direction and in a plane parallel to that containing the sash, shall be capable of maintaining the sash in motion after the stile is clear of the outer frame.'

The suggested redraft has a Fog index of 29:

Close the window and release any catches or locks. Apply a horizontal continuous shock-free force to the sash in a plane parallel to it. The sash should start to move when the force is less than 120 N or 230 N per square metre of sash (whichever is the larger). Once the sash is moving and the stile is clear of the outer frame, it should continue to move when a force of 80 N or 80 N per square metre (whichever is the larger) is applied in the same way.

The new recommendations required considerable stylistic changes to the text of the draft code. What was worse, however, was the later abandonment of this new style of writing and a reversion to the traditional passive voice, apparently on the advice of BSI's legal advisers.

Thirdly, there was some disagreement among the trade representatives and other members of the committee regarding the proportion of emphasis applied to different types of products used as examples in the code. There was also some disagreement as to the accuracy of some of the test results presented by some members of the committee. There was also considerable difficulty in satisfying the large number of members of the committee, particularly as some bodies inevitably found it impossible to send the same representative to each meeting. Finally, a considerable time was spent in assessing the many comments received as a result of circulation of the draft for public comment. All these factors delayed the publication of the document until 1987.

4.2 The next revision

Many parts of the document could usefully be improved especially in view of the fact that the basic draft is really a lot older than its publication date would suggest. At the end of the work it seemed to the editor that a start should be made straight away in preparing for the next revision.

5. WHAT IS A CODE OF PRACTICE?

The requirements of a code of practice are now well codified in BSO Parts 1 to 3 : 1981 A standard for standards. In Part 1 it says 'British Standard codes of practice are written in the form of guidance only, and are not intended to provided objective criteria by which compliance may be judged......and are therefore inappropriate for simple reference in contracts.' According to Part 3, 'The main function of codes of practice is to recommend good accepted practice as followed by competent practitioners. Codes bring together the results of practical experience and scientific investigation in a form that enables those concerned to make immediate use of proven developments and practices in particular branches of industry......Codes should not become text-books......Specific recommendations for avoiding certain existing practices should be made only if tacit approval of these practices would otherwise be assumed by the reader.'

A modern code of practice has to be a more formally structured document than that required in 1960. Certain clauses are mandatory. There must be a scope clause which unambiguously defines the scope of the document; there must be a list of definitions of terms which are used in the document. This makes the new code of practice less like a text-book than the earlier version. This should not matter because several text-books are now readily available. The question then arises to whom is the code addressed, who actually uses it and what is it for nowadays.

5.1 For whom?

The foreword says that the code is intended for use by designers and constructors of buildings and those concerned with central and local government building control, planning and environmental health. This is a very wide range of users indeed, and this, no doubt, helps to explain why the document will not satisfy everyone. Many will find parts of the code obscure, for example, the necessarily precise but not necessarily illuminating 'Definitions' clause. Many experts will find parts of the code irritatingly over-simplified.

5.2 Who uses it?

Of building designers, one might expect architects to use the code, but personal experience and the results of a BRE survey on the way architects work [2] suggest that this is unlikely. Rather than this being a criticism of architects, it is more a reflection of the kinds of pressures under which architects work. The position may change with the growing emphasis on the use of accredited quality assurance techniques in design. Acoustical consultants certainly use the code, perhaps most usefully as a check-list for design. They will be pleased to see that the revised code identifies many design problems for which the advice of an expert is required.

The chief environmental health officer of a major city welcomed the decision to update the code, claiming that many of his staff frequently referred to the 1972 edition and found it a very useful document, so it may be assumed that local authorities are major users.

5.3 What is it for?

A cynic might say that the main purpose of the code is to increase the revenue of BSI, because it is known to sell well. Perhaps the real justification may lie in the fact that it is an authoritative document and makes references to other authoritative documents. In spite of the BSI warning that such a document is 'inappropriate for simple reference in contracts' it is known that the recommendations in the code have been referred to and taken into account in litigation.

6. CONCLUSIONS

The earlier editions of the code served their original purposes very well but became very unsuitable for modern needs. The current edition fulfils present needs much better but, in view of the time it took to produce it, it would be prudent to commence its revision without further delay.

7. REFERENCES

[1] PD 6501 : Part 2 : 1984. The preparation of British Standards for building and civil engineering. Part 2. Guide to presentation. British Standards Institution.

[2] Margaret Mackinder & Heather Marvin. Design decision-making in architectural practice. Information Paper IP 11/82. Building Research Establishment. 1982.