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BUILDING MAINTENANCE

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Second Edition

palgrave

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First edition 1976

Reprinted six times

Second edition 1987

Published by

PALGRAVE

Houndmills, Basingstoke, Hampshire RG21 6XS and

175 Fifth Avenue, New York, N. Y. 10010

Companies and representatives throughout the world

PALGRAVE is the new global academic imprint of

St. Martin's Press LLC Scholarly and Reference Division and

Palgrave Publishers Ltd (formerly Macmillan Press Ltd).

ISBN 978-0-333-45701-6

ISBN 978-1-349-18925-0 (eBook)

DOI 10.1007/978-1-349-18925-0

This book is printed on paper suitable for recycling and made from fully managed and sustained forest sources.

A catalogue record for this book is available from the British Library.

Transferred to digital printing 2003

This book is dedicated to my elder daughter

LINDA

**for her kind and sympathetic help and encouragement
with my book-writing activities over many years**

“Whosoever cometh to me, and heareth my sayings, and doeth them, I will shew to you whom he is like.

He is like a man which built an house, and digged deep, and laid the foundation on a rock; and when the flood arose, the stream beat vehemently upon that house, and could not shake it: for it was founded upon a rock.

But he that heareth, and doeth not, is like a man that without a foundation built an house upon the earth; against which the stream did beat vehemently, and immediately it fell; and the ruin of that house was great.”

Luke 6. 47–49

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PREFACE

Building Maintenance has too often been regarded as the 'Cinderella' of the building industry. Yet in the mid 1980s Britain was spending about £10 billion per annum on the maintenance of buildings and over 50 per cent of the building labour force was engaged on this class of work.

The maintenance of the built environment affects everyone continually, for it is on the state of our homes, offices and factories that we depend not only for our comfort, but for our economic survival. The building stock in the United Kingdom had a replacement value of about £250 billion in 1987 and this alone indicates the importance of effective upkeep. There is still a pressing need for the improvement of large numbers of older but substantial dwellings which lack some of the basic amenities.

Maintenance starts the day the builder leaves the site. Design, materials, workmanship, function, use and their interrelationships, will determine the amount of maintenance required during the lifetime of the building. Furthermore, the client's economic interests may work against the elimination of high maintenance costs in the building design. Case studies undertaken by the DOE showed that about one-third of the maintenance work on the buildings investigated could have been avoided if sufficient care had been taken at the design stage and during construction. The design faults resulted either from failure to appreciate how various constructional details would perform in use, or because certain parts of the building that failed through normal wear and tear could not be replaced without extensive repairs to adjacent parts. A spokesman for the Building Research Establishment has also commented on the frequent failure by designers to make use of authoritative design guides such as British Standards and Codes of Practice, and of the tendency to adopt a careless attitude to detail design.

The building fabric has to satisfy different user needs and occupational factors. The designer should identify what performance is required from the fabric in terms of weathertightness, noise reduction, durability, resistance to heat loss and other relevant criteria, in addition to comfort and visual requirements. Many of the design faults which result in high maintenance expenditure could conceivably be avoided if a maintenance manager, or someone with similar technical knowledge, joined the design team. Not many architects or builders revisit their jobs after the expiry of the defects

liability period and few have a continuing responsibility for maintenance.

There is rarely an obvious end-product in building maintenance, and the effect of neglected industrial buildings, for instance, will seldom be as serious for the owner as the disruption caused by a breakdown in production following neglect of plant maintenance. For this reason building maintenance is often considered as one of the first items for budget cuts when retrenchment becomes necessary. Indeed some building owners regard maintenance costs as part of the debit side of the balance sheet and an erosion of legitimate profits, because they fail to appreciate its true value. It is, however, only common sense to ensure that when a decision is made on maintenance work, account is taken of the aggravation of the defect which is likely to occur if work is delayed, with consequent increase in cost.

The satisfactory maintenance of a dwelling makes it fit to live in, but the occupant may have a very narrow view of what this entails. If the household equipment works, the internal decorations are cheerful and the external appearance respectable, he will probably be satisfied. The maintenance manager must take a deeper view—loose roof tiles, unsound timber, defective damp-proof courses or powdering mortar are symptoms of a state of disrepair which cannot be cured by superficial measures. Unless basic repairs are carried out in time, the property will become damp or its structure will deteriorate so that normal jobbing repairs and repainting are no longer sufficient to restore even an appearance of well-being.

Building maintenance is assuming increasing importance which is shown by the holding of several large national conferences on this subject, the mounting of diploma and postgraduate courses in maintenance management, and the considerable volume of maintenance research by government departments, universities and polytechnics, apart from the valuable work undertaken by the leading professional bodies connected with the building industry. Nevertheless, a DOE Committee on Building Maintenance drew attention to the need to give increased emphasis in appropriate degree and professional examination curricula to building maintenance. The Committee believed that the main subject areas that need to be covered are the relationship between the design and performance of buildings and services; the organisation and control of maintenance work; economics and finance; law and liability; and technology. These subject areas form the core of this book which it is hoped will be of value to students and practising surveyors, builders, architects, estate, housing and maintenance managers, and environmental control officers alike.

Effective building maintenance requires the correct diagnosis of defects, and implementation of the correct remedial measures, all based on sound technical knowledge, otherwise there can be additional waste of materials, labour and money since the work will in all probability have to be done again. We need more uniformity in the method of recording maintenance data and greater feedback of information on the performance of materials and running costs of buildings in particular. The increased use of maintenance manuals and more regular maintenance inspections and schemes of planned maintenance will assist in producing more efficient maintenance. Effective maintenance control requires the formulation of sound plans,

recording of performance, comparison of performance with the plan and the taking of corrective action where appropriate. Finally there is the need to make better use of available resources.

The second edition has been updated and extended to cover the latest techniques, procedures and research, both in the UK and overseas. In addition, 25 plates have been incorporated to illustrate a representative selection of major defects found in buildings.

Nottingham, Autumn 1987

IVOR H. SEELEY

ACKNOWLEDGEMENTS

The author acknowledges with gratitude the willing co-operation and assistance received from many organisations and individuals, so many that it is not possible to mention them all individually.

Crown copyright material is reproduced from BRE Digests and other publications by permission of the Director of the Building Research Establishment; in this connection it should be mentioned that copies of the digests quoted are obtainable from the Building Research Establishment, Bucknalls Lane, Garston, Watford, Herts WD2 7JR, and Building Centres.

Building Maintenance Information Ltd, (formerly BMCIS) kindly gave permission for the inclusion of the occupancy cost analyses (appendixes 2 and 3) and the energy cost analysis (appendix 4). Tables 13.1, 13.2 and 13.6 are based on forms prepared by Bath City Council, and tables 13.3 and 13.7 on forms prepared by Nottingham Community Housing Association Ltd.

Drawings of improvement schemes are based on the following published articles

J. H. Cheetham, *Building Trades Journal*, 9, 23 and 30 September 1966

J. A. Foreman, *Building Trades Journal*, 3 May 1968

The Louis de Soissons Partnership, *Architects' Journal*, 30 January 1974

The author is indebted to Cluttons, Chartered Surveyors, 5 Great College Street, London SW1P 3SD, and to Eric Stevens FRICS in particular, for supplying plates 1 to 6 inclusive, 8 to 19 inclusive and 22; and to the Paintmakers Association of Great Britain Ltd, Alembic House, 93 Albert Embankment, London SE1 7TY, for kind permission to use plates 7, 20, 21, 23, 24 and 25.

Grateful thanks are due to the publisher for consent to quote from *Building Technology* and *Building Surveys, Reports and Dilapidations*, to the Ellis School of Building, Worcester and NALGO Education Department to use some of the concepts contained in course material prepared by the author in years past, and to Nottingham City Council and Nottingham Community Housing Association Ltd for assistance with case studies.

Much friendly and helpful advice was received from Peter Murby, Editorial Director of Macmillan Education Ltd, during the preparation and production of the second edition, for which I am most grateful. I am also indebted to my wife for her ever-continuing support.