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ABSTRACT This bibliography has been produced as part of a research program attempting to develop a new approach to building environment and service systems design using computer-aided design techniques. As such it not only classifies available literature on the service systems themselves, but also contains sections on the application of computers and documentation of environmental research. There is also a selective list of computer applications to other related areas of building design and material intended to provide a background to the mathematical and analytical procedures involved. The literature is classified into the following categories: (1) mathematical methods and analytical techniques, (2) computer applications, (3) integrated models on building performance, (4) building environment and service systems, (5) thermal environment and air conditioning systems, (6) visual environment and lighting systems, (7) acoustic environment, and (8) vertical transportation. (Author/MLF)

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A Selective Bibliography of Computer-Aided Design and Analysis of Building Environment and Service Systems

B S Forward

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A SELECTIVE BIBLIOGRAPHY OF BUILDING ENVIRONMENT AND
SERVICE SYSTEMS WITH PARTICULAR REFERENCE TO COMPUTER
APPLICATIONS

by

BRUCE FORWOOD

COMPUTER REPORT CR20

1972

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The application of computer methods to architecture is no longer an infant art. Having established itself first in the more mathematically oriented domain of the structural engineer, the computer is now being applied to nearly every aspect of building design and production. One of the more recent applications has been in the field of building service systems design and the investigation of the quality of the internal environment. Development of applications in this field has taken place in two streams, sometimes parallel and often inter-related. In both the U. S. and the U. K., these streams have been the development of software systems for practical use by large architectural and engineering firms, and the development of environmental research programmes at universities and research institutions. The latter of these two streams has been fairly well documented as part of individual research programmes, whereas the tendency has been for the systems produced in practice to be poorly documented. However, at the present time, enough documentation exists to necessitate its classification into a bibliography.

This bibliography has been produced as part of a research programme attempting to develop a new approach to building environment and service systems design using computer-aided design techniques. As such it not only classifies available literature on the service systems themselves, but also contains sections on the application of computers and documentation of environmental research. As well, there is a selective list of computer applications to other related areas of building design and also material intended to provide a background to the mathematical and analytical procedures involved. The literature has been classified into the following categories.

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Of necessity, the bibliography must be selective owing to the enormous amount of available literature. In addition to the specific references given here, the reader is referred to the following list of journals and periodicals.

Australian Refrigeration Air Conditioning and Heating, official publication of the Australian Institute of Refrigeration, Air Conditioning and Heating, Inc. (A. I. R. A. H.) and associated bodies.

Building Science, an international journal of research in building science, published quarterly by Pergamon Press.

Building Science Abstracts, summaries of papers published in selected journals worldwide, published by the Building Research Station, Watford, England.

Heating Piping and Air Conditioning, mainly concerned with practical hardware systems design; published by the Reinhold Publishing Co. Ltd.

I. H. V. E., the Journal of the Institution of Heating and Ventilating Engineers, London.

Illuminating Engineering, Journal of the Illuminating Engineering Society, U. S. A.

Light and Lighting, published by the Illuminating Engineering Society, London.

Lighting Research and Technology, published by the Illuminating Engineering Society, London.

Lighting Review, published by the Illuminating Engineering Societies of Australia.

The Building Services Engineer, the Journal of the Institution of Heating and Ventilating Engineers, London.

Thermal Abstracts, abstracts of papers relating to thermal research, published by the Heating and Ventilating Research Association, Bracknell, England.

As well, further information can be obtained from research papers, working papers, etc., which are published periodically by research organisations involved in environmental studies of building design.

Finally, it should be noted that this bibliography is intended as a reference guide for those involved in building services design; those wishing to become involved in the application of computers to this field; and, of course, for students who wish to study the subject of building environment and services design and the subsequent application of computer methods.

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