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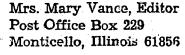# 384

ARCHITECTURAL/BUILDING PROGRAMMING:
An Annotated Bibliography

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AN ANNOTATED BIBLIOGRAPHY

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INTRODUCTION

Within the context of architecture, the increased need for
an environment which is responsive to individual and social be-
havior and a high level of operational efficiency has generated
a demand for a sophisticated analytically developed pre-design
information document "the architectural program".

The architectural program can be defined as: that body of
information which describes, in terms of the environmental quality
and equipment, an individual human, social and/or machine process
and establishes the objectives and criteria for evaluation, immed-
iately and during a projected future, of the qualitative relat-
ionship between the process and the building form in which it is
housed.

Since architectural programming is a relatively new service
being offered by architects, there is no overall inner-profession
agreement as to a methodology for the programming process. Be-
cause of the differences in philosophies and methodologies employ-
ed by the various architectural firms, no programming manuals or
texts which give clear principles or directions have emerged.

Until such time when there is a programming format which has ac-
ceptance by a majority of the built environmentalists (planners,
architects, interior designers), the varied and extensive collec-
tion of publications which are the result of environmental design
and behavioral research cannot be effectively ordered to provide
step-by-step methods for the programming process.

The purpose of this bibliography is to bring together the
random articles about programming, which appear in a variety of
publications, in order to establish a resource for architectural
students and practioners who have the need for a clearer under-
standing of the nature of architectural programming.

While some of the stages of the programming process are de-
rived from the methods employed by various disciplines (social
sciences, operations research, computer science, etc.), this bib-
liography in no way attempts to introduce interdisciplinary art-
icles but rather concentrates on those publications which address
the overall subject of architectural programming. Because of the
scale and diversity of the published material from other discip-
lines, the 'how to' of programming will, at this time, have to be
developed through individual research by those schools and offices
which deem it necessary to introduce a formal structure from
which to either teach or practice programming.

As more bibliographic entries are available, it will no
doubt be necessary to divide a programming bibliography into many
sections, however, because of the quantity and content of the
articles sited, this bibliography will be divided into two sect-
ions. The first is those entries which either serve as an

introduction to the content of or need for architectural program-

ming and the second is those entries which offer an outline format

for developing programs.

It is necessary to state that there are a few writings

which do not appear in this bibliography but may be found sited

in other publications. The reason for this is because some gov-

ernment publications which are no longer in print, copies of

speeches which are nearly impossible to obtain and publications

which exist in only one or two libraries were judged by the author

as more difficult to obtain than the value of the contents merit.

The author would appreciate, at any time, information con-

cerning published or non-published entries not appearing in this

bibliography which may be obtained with relative ease by a maj-

ority of the lay architects.

GENERAL INTRODUCTIONS

Agostini, Edward J. "Programming: Demand Specialty in a Complex
    World." Architectural Record, September 1968, pp. 93-94.

    An article written by the director of a firm which serves as
    programming consultants. By way of example projects, the
    article discusses the scope of and benefits contingent with
    an architectural program.

Agostini, Edward J. "The Value of Facilities Programming to the
    Client." Building Research, April 1969, pp. 28-32.

    An introductory article to the process of architectural pro-
    gramming which discusses in terms of dollars and cents the
    value of skillful programming.

Alexander, Christopher. "From a Set of Forces to a Form." The
    Man-Made Object. Edited by Gyorgy Kepes. New York: George
    Braziller, 1966.

    An introduction to programming is made by the presentation
    of three methods for determining the needs associated with
    a design problem. The author defines needs as forces which
    contribute to the final form of a design and presents numer-
    ical, analog, and relational methods for discovering these
    needs when they are a part of a complex man-made system.

Alexander, Christopher. Notes on the Synthesis of Form. Cambri-
    dge: Harvard University Press, 1971.

    An introduction to some of the initial thinking which gave
    rise to the specialty area of design methodology. The intro-
    duction argues the case for the kind of rationality of think-
    ing which must be the basis for any sound architectural pro-
    gram. For the reader who has the mathematical background,
    Appendix 2 is a good primer in the method of decomposition
    currently being used in conjunction with architectural pro-
    gram interaction matrix decomposition.

Alexander, Christopher. "The Theory and Invention of Form".
    Architectural Record, April 1965, pp. 177-86.

    This article serves as an introduction to the need for pro-
    gramming by discussing the assumption that a proper physical
    form cannot be achieved until there is some programmatic
    clarity in the designer's mind and actions.

Becker, Nathaniel. "Space Analysis in Architecture." American
    Insti ute of Architects Journal, April 1959, pp. 40-47.

    The author is a partner in a pioneer firm in the field of
    space analysis. The article uses one of his firm's pro-
    jects, a municipal services building for the city of Phila-
    delphia, as an instrument for illustrating both the value and
    need for space analysis as an analytical programming research
    method.

Clark, Jeffrey E. "Office Space Programming." The Office, June
    1971, pp. 27-36 and 125.

    A very well documented 'cooks tour' of the process of space
    programming. The basic process described in the article is
    a fine introduction to the process necessary for architec-
    tural programming.

Cogswell, Arthur R. "Programming and a Computer-Based Cost Ana-
    lysis System." Building Research, April 1969, pp. 33-35.

    The author discusses the value of using a computerized cost
    analysis system in conjunction with the architectural pro-
    gram in order to dissolve the barrier between programming
    and design and as a means of supplying program material in
    the form of performance criteria.

Davis, Gerald. "The Independent Building Program Consultant."
    Building Research, April 1969, pp. 16-21.

    A very interesting article written by the director of a
    programming firm. By using examples of various projects,
    the author explains the major activity areas which make up
    the programming procedure used by his firm.

Demoll, Louis. "Operations Programming and Planning." Compre-
    hensive Architectural Services-General Principles and Prac-
    tice. Edited by William Dudley Hunt Jr. New York: McGraw-
    Hill Book Co., 1965.

    An illustration of operations (functional processes) pro-
    gramming for industrial operations with a discussion of why
    and how the general architectural office should attempt to
    introduce its practice to the area of operations programming.

Evans, Benjamin H. and C. Herbert Wheeler, Jr. Emerging Techni-
    ques 2 Architectural Programming. Washington, D.C.: The
    American Institute of Architects, 1969.

    This book is a well researched and well written document
    which gives an introductory definition for architectural
    programming. The introduction is supplemented with a varied
    collection of programming techniques which are representative
    of the current 'in practice' state of the art.

Gutman, Robert. "The Sociological Implications of Programming
    Practices." Building Research, April 1969, pp. 26-27.

    The author regards or defines the architectural program as a
    sociological document. Based on his definition, he develops
    an argument for the introduction of a third party to serve as
    a mediator between the architect and client during the pro-
    gramming phase. He suggests that sociologist might perform
    the mediating role.

Juster, Howard H. "Introduction to Physical Programming and Plan-
    ning." Annals of the New York Academy of Sciences, 128,
    September 1965, pp. 629-32.

    A discussion of the knowledge and methods necessary for the
    evaluation of medical environments and a suggestion as to
    how more effective programming of medical environments can
    be fostered.

Leonard, William. "The Anatomy of Office Space Planning." The
    Office, June 1971, pp. 49-53.

    This article provides an overview of the entire process of
    office space planning. While it is directed more toward in-
    terior architecture, the process which is depicted serves as
    a guide to the planning of an architectural program.

Richardson, Stephen. "The Value of a Program to the Architect."
    Building Research, April 1969, pp. 40-42.

    An introduction to the need for architectural programming is
    given by a discussion of the quantity and quality of informa-
    tion needed to design current complex function buildings.

Rossetti, Louis. "Building Programming." Comprehensive Archi-
    tectural Services-General Principles and Practice. Edited
    by William Dudley Hunt Jr. New York: McGraw-Hill Book Co.,
    1965.

    The author discusses the need for building programming using
    a program and master plan for a college and a foundry as a
    means of illustration. The article further discusses the
    personnel and kinds of services which should be employed in
    the programming process.

Seaton, Richard. "Research for Building Programming." Building
    Research, April 1969, pp. 36-39.

    An article which discusses the need for research oriented
    architects to be involved in programming and the effects on
    programming which can be expected if research methods are
    applied.

Souder, James J. "Architectural Programming and Planning for Med-
    ical Centers." Annals of the New York Academy of Sciences,
    128, September 1965, pp. 690-703.

    An appeal for the use of a systems approach to structuring
    the information necessary for medical center programming.
    The structured approach would permit architects and planners
    the advantages of technology (computers) in the program for-
    mulation process.

Studer, Raymond G. "On Environmental Programming." Arena, May
    1966, pp. 290-96.

    This article should serve as the first piece of required
    reading for anyone interested in the specialty area of
    architectural programming. The author speaks of the sub-
    ject of overall environmental programming in the same terms
    which must necessarily be applied to architectural program-
    ming. Through a discussion of behavioral and physical sys-
    tems as a means of describing the context for environmental
    problem formulation, the author effectively defines both
    the complexities in attaining and the increasing need for
    sophisticated programs.

Studer, R.G. and D. Stea. "Architectural Programming, Environ-
    mental Design and Human Behavior." Journal of Social Issues,
    Vol. 22, No. 4, October 1966, pp. 127-36.

    A well written article which provides an introductory defin-
    ition of environmental design and discusses the need for
    environmental problem formulation (design programming) in
    terms of behavioral systems rather than building systems.

Swinburne, Herbert H. "Change is the Challenge." American In-
    stitute of Architects Journal, May 1967, pp. 83-90.

    This article discusses the forces which will shape the
    future of architecture. The author divides these forces
    into those generated outside the profession and those gener-
    ated from within. Architectural programming is classified
    as one of the forces generated from within the profession
    helping to foster change. The change is occurring because
    of the forces in the profession which are creating specific
    programming systems and the research which uses sophistica-
    ted programming methodologies.

Turner, George E. "Toward the Creation of a Format for Archi-
    tectural Programming." Paper distributed at AR/9 the Annual
    AIA Research Conference, Chicago, Illinois, November 17, 1972.

    An exploration of the existing techniques for architectural
    programming through a literature search concludes that there
    exists underlying unifying principles in the many diverse
    approaches. A proposal for a methodological system of dis-
    covery of these principles by the 'theory' of general system
    theory is presented along with the recommendation of a prac-
    ticable means for application.

Wheeler, Lawrence and Ewing H. Miller. "Human Factors Analysis."
    Comprehensive Architectural Services-General Principles and
    Practice. Edited by William Dudley Hunt Jr. New York:
    McGraw-Hill Book Co., 1965.

    Frequency and importance of interactions among job functions
    are generated by the method of human factors analysis des-
    cribed by the authors. A presentation of the human factors
    vector analysis process used in conjunction with the plan
    diagrams of a specific project illustrates the capability
    of this method of analysis in conjunction with architectural
    programming.

White, Edward T. Introduction to Architectural Programming.
    Tucson, Arizona: Architectural Media, 1972.

    As far as can be determined, this is the first publication
    to be directed toward use as a text for the formalized
    teaching of architectural programming. This book is a fine
    introduction to the subject without overloading the beginning
    reader with a rigorous presentation of social and physical
    science research techniques.

OUTLINE FORMATS

Briggs, William. "Pre-Programming and Programming for the Live
    Performaning Arts." American Institute of Architects Journal,
    December 1964, pp. 65-66.

    While the jargon and lack of in-depth thought place this
    article in the pre-programming specialty era, the argument
    of the need for programming in addition to the preliminary
    checklist are valid for various building types.

"Design Guide." The Architects Journal.

    The series of articles which follow are called design guides
    or design briefs. They are organized with respect to the
    English method of architectural practice, however, they serve
    as the most complete documentation of an architectural program
    format in existence. Each guide sited is specifically designed
    for a particular building type. They are excellent models for
    developing a programming format for both architectural firms
    and architectural schools.

    Administrative and Office Buildings
    Vol. 142, No. 24, December 15, 1965, pp. 1459-80.
    Vol. 142, No. 25, December 22, 1965, pp. 1529-53.

    Shop Spaces, Fixtures and Equipment
    Vol. 143, No. 5, February 2, 1966, pp. 357-78.
    Vol. 143, No. 6, February 9, 1966, pp. 429-42.

    Shop Buildings
    Vol. 143, No. 9, March 2, 1966, pp. 597-630.

    Garage and Service Station Buildings
    Vol. 143, No. 12, March 23, 1966, pp. 771-97.

"Design Guide." The Architects Journal. (continued)

Industrial Production Spaces
Vol. 143, No. 15, April 13, 1966, pp. 953-84.
Vol. 143, No. 16, April 20, 1966, pp. 1083-1107.

Car Parking Buildings
Vol. 143, No. 25, June 22, 1966, pp. 1551-72.

Industrial Storage Buildings
Vol. 144, No. 3, July 20, 1966, pp. 179-99.
Vol. 144, No. 4, July 27, 1966, pp. 247-64.

General Practice Surgery Spaces
Vol. 144, No. 7, August 17, 1966, pp. 421-37.
Vol. 144, No. 8, August 24, 1966, pp. 489-501.

Dental Practice Surgery Spaces
Vol. 144, No. 9, August 31, 1966, pp. 547-61.

Drainage Installations
Vol. 144, No. 15, October 12, 1966, pp. 923-27.

Roads and Paving
Vol. 144, No. 9, November 9, 1966, pp. 1171-76.

General Hospitals
Vol. 144, No. 21, November 23, 1966, pp. 1289-1314.
Vol. 144, No. 22, November 30, 1966, pp. 1359-92.

Theatre Buildings
Vol. 145, No. 5, February 1, 1967, pp. 325-35.

Cinema Buildings
Vol. 145, No. 9, March 1, 1967, pp. 567-79.

Public House Buildings
Vol. 145, No. 13, March 29, 1967, pp. 789-801.

Sports Hall Buildings
Vol. 145, No. 14, April 5, 1967, pp. 859-72.

Swimming Bath Buildings
Vol. 145, No. 24, June 14, 1967, pp. 1431-46.

Church Buildings
Vol. 146, No. 6, August 9, 1967, pp. 373-88.
Vol. 146, No. 7, August 16, 1967, pp. 431-39.

College and University Buildings
Vol. 147, No. 2, January 10, 1968, pp. 103-16.

Library Buildings
Vol. 147, No. 8, February 21, 1968, pp. 443-56.

Hostels and Halls of Residence
Vol. 147, No. 15, April 10, 1968, pp. 769-84.
Vol. 147, No. 16, April 17, 1968, pp. 837-45.

Environmental Criteria: MR Preschool Day Care Facilities.
    College Station, Texas: Research Center, College of Archi-
    tecture and Environmental Design, Texas A and M University,
    (no date).

    An extremely scholarly research project which establishes
    guidelines for the construction or renovation of day care
    centers. Parts 4 and 5 establish a basis for the develop-
    ment of a programming checklist which can be used for almost
    any type of building function.

Evans, Benjamin H. "Architectural Programming Practices." Build-
    ing Research, April 1969, pp. 12-15.

    This article offers an outline format for programming and
    discusses some of the major recurring problems integral with
    current programming procedures.

Horowitz, Harold. "The Programs the Thing." American Institute
    of Architects Journal, May 1967, pp. 94-100.

    A well written article by an architect who has had a great
    deal of experience in developing architectural programs.
    The article describes the scope of each of the divisions of
    an eleven division format for an architectural program and
    also discusses the means for the application of behavioral
    science techniques to the collection and organization of
    information.

Pena, William M. "Organizing for Programming." Building Research,
    April 1969, pp. 8-11.

    In a very organized way, the author discusses five steps for
    organizing programming and, as a means of further elabora-
    tion, five steps for the programming process.

Pena, William M. and William W. Caudill. "Architectural Analysis
    - Prelude to Design." Architectural Record, May 1959, pp.
    172-82.

    An excellent introduction to the need for architectural pro-
    gramming through an illustrative ten point outline of how
    one architectural firm (Caudill Rowlett Scott) approaches
    the process.

Pena, William M. and John W. Focke. Problem Seeking: New Direc-
    tions in Architectural Programming. Houston: Caudill Row-
    lett Scott, Architects, Planners, Engineers, 1969.

    A report/study outlining the simultaneous cooperative, ana-
    lytical and creative approach to architectural programming
    employed by the firm of Caudill Rowlett Scott. This publi-
    cation serves as a valuable model to any individual or firm
    interested in developing a programming format.

Pena, William and Leroy V. Good. "Architectural Programming."
    Junior College Journal, October 1967, pp. 34-37.

            resting article which argues for architectural pro-
            ng as part of a team effort in conjunction with edu-
            l planning when new educational facilities are to be
        ..t. The article also gives a   p-by-step outline of an
    analytical procedure for programming.

Sherman, Douglas R. "Building Programming at Wayne State Univer-
    sity." Building Research, April 1969, pp. 22-25.

    The Office of Capital Programs at Wayne State University in
    Detroit, Michigan is responsible for developing campus buil-
    ding programs. The author is the director of this office
    and he outlines the procedure used by Wayne State in devel-
    oping a program.

The Architects Handbook of Professional Practice. Edited by
    Robert J. Piper. Washington, D.C.: AIA Publications, 1964.

    An American Institute of Architects publication describing
    the procedures, forms and contracts necessary for the prac-
    tice of architecture. Chapter 11 gives a format and example
    data necessary for an architectural project program.

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