

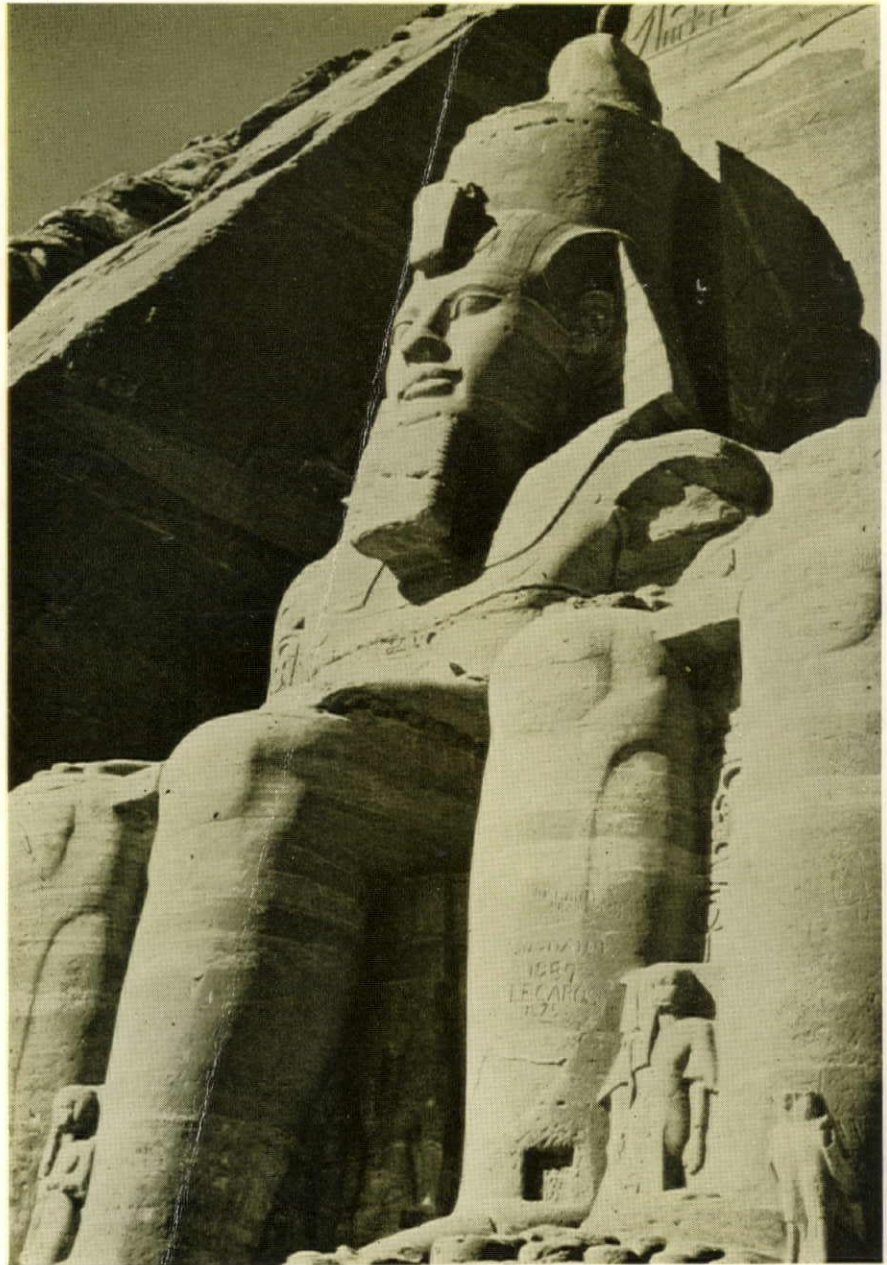


A · I · A

September 1962

Journal

OF THE AMERICAN INSTITUTE OF ARCHITECTS



ABU SIMBEL · ROME PRIZE WINNERS · ROLE OF ART IN RELIGIOUS BUILDINGS
MORTON HOPPENFELD · NEW SPACES FOR LEARNING · THOMAS K. FITZPATRICK




Colors: VM-461 Alabaster Gold with black feature strip

Vina-Lux® PREMIERE *Series*

elegant floor beauty that won't "walk off" . . .

. . . because the travertine patterning is distributed through the full thickness of the tile. Premiere Series in Vina-Lux vinyl asbestos tile is a unique combination of subtle styling and rugged resistance to maximum traffic loads . . . delivers so much more value and performance than surface patterns . . . yet costs no more. Specify Vina-Lux Premiere Series, for installation over concrete — above, on or below grade, or over wood or plywood subfloors. Consult Sweet's Catalog — or let us send you samples, color charts and detailed architectural specifications. Azrock Floor Products Division, Uvalde Rock Asphalt Company, 595A Frost Building, San Antonio, Texas.



Magnified view shows pattern distribution through full thickness of tile. Available in 1/8", 3/32", 1/16" gauges.

another fine floor by **AZROCK**®



Architects: Harrison & Abramovitz & Harris
General Contractors: George A. Fuller Company and John Lowry, Inc.
Marble Contractor: John F. McGowan Marble Co.



MARBLE...*here's how it saves money in commercial buildings*

Marble's beauty alone may be justification enough for its use in commercial buildings, but the economy it affords is considered equally important by many architects.

Such is the case with Rockefeller Center's new 48 story Time & Life Building. Here Vermarco statuary marble lends striking beauty to outstanding design at an initial cost only slightly greater than that for less attractive and less durable materials. And Vermarco marble will more than make up for its additional cost, because it will require remarkably little maintenance as it continues to endow this building with distinctive beauty.

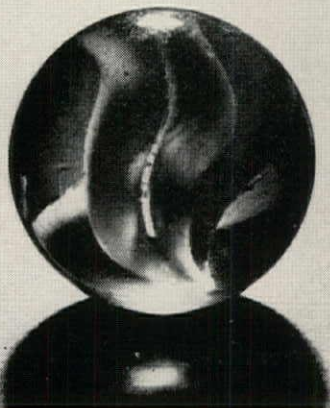
Vermarco marble offers you this same combination of lasting beauty and economy. Write today for illustrated literature.

VERMONT MARBLE CO.
PROCTOR • VERMONT

SALES OFFICES: BOSTON, CHICAGO, CLEVELAND, DALLAS, DETROIT: DETROIT MARBLE CO., HOUSTON, KNOXVILLE; GRAY KNOX MARBLE CO., PHILADELPHIA, LOS ANGELES, NEW YORK, SAN FRANCISCO, WASHINGTON, D. C. • **IN CANADA:** ONTARIO MARBLE COMPANY, LIMITED, TORONTO AND PETERBOROUGH, ONTARIO; CONTINENTAL MARBLE CO., LTD., VANCOUVER, B. C.



**Jimmy's
marbles
remind
us...**



... of a property of glass that can help you design better buildings

Glass comes in a rainbow of opaque colors—colors so right for spandrels. For vision areas, tinted glass reduces the sun's heat and glare. That's why glass in colors is being used more and more in buildings, large and small.

Is glass helping you in all the ways it can? Look through Sweet's Architectural File, sections 3e, 7a, 13e, 16a, 16e, 19e, 21. And talk to the local PPG Architectural Representative. He knows modern glass. Just get in touch with the PPG office nearest you.



Pittsburgh Plate Glass Company

Paints • Glass • Chemicals • Fiber Glass. In Canada: Canadian Pittsburgh Industries Limited



A · I · A

Journal

VOLUME XXXVIII, NO. 3

SEPTEMBER, 1962

EDITOR
Joseph Watterson FAIA

ASSOCIATE EDITOR
Robert E. Koehler

ASSISTANT EDITOR
James Bailey

TECHNICAL EDITOR
Eric Pawley AIA

ASSISTANT TO TECHNICAL EDITOR
Margaret H. Phillips

ADVERTISING MANAGER
Mary H. Ranta

ART DIRECTOR
Wolf Von Eckardt Hon AIA

ASSISTANT ART DIRECTOR
Marilyn S. Housell

SECRETARIES
Janet R. Williams
Barbara A. Harkinish

The Journal of the American Institute of Architects, official organ of the Institute, is published monthly at The Octagon, 1735 New York Avenue, N. W., Washington 6, D. C., Ex 3-7050. Editor: Joseph Watterson FAIA. Subscription in the United States, its possessions, and Canada, \$5 a year in advance; elsewhere \$6.50 a year. Chapter Associate members, \$2.50, Students, \$2.50, Members of Associations of allied professions, \$2.50 (by special group arrangement). Single copies 75¢. Copyright, 1962 by The American Institute of Architects. Second Class postage paid at Washington, D. C. Change of Address: Notify The Octagon, giving both old and new addresses. Allow four weeks. Official address of the Institute as a N. Y. Corporation: 115 E. 40th Street, New York, N.Y. Printed in Washington, D. C. by Judd & Detweiler, Inc.

- 8 Letters to the Editor
- 14 Urbanisms
- 12 News
- 110 *Wolf Von Eckardt* HON AIA: Allied Arts
- 33 The Temples of Abu Simbel
- 37 *Morton Hoppenfeld* AIA, ASSOC AIP: Towards a Consensus of Approach to Urban Design
- 43 *William Lescaze* FAIA: The Role of Art in Religious Buildings

THE PROFESSION

- 45 *Alan C. Green*: New Spaces for Learning
- 49 *Dudley Hunt, Jr* AIA: Comprehensive Architectural Practice for Small Offices or Large
- 55 The Two Rome Prize Winners for 1962

THE INSTITUTE

- 59 *Dean F. Hilfinger* AIA: The Single VS The Separate Construction Contract System
- 61 *George E. Kassabaum* AIA: Housing for the Elderly
- 66 *William H. Scheick* AIA: Is Competence Static?
- 67 NCARB Circular of Information 3-62
- 70 Library Notes
- 71 Book Reviews
- 72 Editor's Page

TECHNICAL

- 73 *Thomas K. FitzPatrick* FAIA: Architecture for Rehabilitation
- 83 *Robert Hyde Jacobs, Jr* AIA: Surgical Suite Locker Room Design and Procedure
- 86 *Eric Pawley* AIA: International Relations

THE COVER

The Great Temple of Aman-Rah at Abu Simbel. Photo courtesy of the Embassy of the United Arab Republic.

BPA

Opinions expressed by contributors are not necessarily those of AIA



THE AMERICAN INSTITUTE OF ARCHITECTS

Board of Directors

Officers

President
First Vice President
Second Vice President
Secretary
Treasurer
Executive Director

Henry L. Wright FAIA, 1125 W 6th Street, Los Angeles 17, Calif
 J. Roy Carroll, Jr FAIA, 6 Penn Center Plaza, Philadelphia 3, Pa
 Arthur Gould Odell, Jr FAIA, 102 West Trade, Charlotte, N C
 Clinton Gamble FAIA, PO Box 2465, Ft. Lauderdale, Fla
 Raymond S. Kastendieck FAIA, 128 Glen Park Ave, Gary, Ind
 William H. Scheick AIA

(Terms expire 1963)

Regional Directors

Central States
Florida
California
Texas

Oswald H. Thorson AIA, 219 Waterloo Bldg, Waterloo, Iowa
 Robert M. Little FAIA, 2180 Brickell Ave, Miami, Florida
 Malcolm D. Reynolds FAIA, 916 Kearny St, San Francisco, Calif
 Reginald Roberts AIA, 2600 N McCullough Ave,
 San Antonio, Tex

Illinois
Pennsylvania

William Bachman AIA, 7111 State Line Ave, Hammond, Ind
 William W. Eshbach AIA, 1519 Walnut St, Philadelphia, Pa

(Terms expire 1964)

East Central
New York
New England
Ohio
North Central
Western Mountain

James Allan Clark AIA, Henry Clay Sta, Box 57, Lexington, Ky
 Morris Ketchum, Jr FAIA, 227 E 44th St, New York, N Y
 James Lawrence, Jr FAIA, 711 Boylston St, Boston, Mass
 George B. Mayer FAIA, 616 The Arcade, Cleveland, Ohio
 Julius Sandstedt AIA, 135 Market St, Oshkosh, Wis
 R. Lloyd Snedaker AIA, 12 Post Office Pl, Salt Lake City, Utah

(Terms expire 1965)

Middle Atlantic
Michigan

Charles M. Nes, Jr FAIA, 2120 N Charles St, Baltimore 18, Md
 Adrian Nelson Langius FAIA, 131 Lewis Cass Bldg,
 Lansing 13, Mich

Gulf States
Northwest
South Atlantic

G. Scott Smitherman AIA, 961 Jordan St, Shreveport, La
 Robert L. Durham FAIA, 1100 Denny Way, Seattle 9, Wash
 William Ernest Freeman, Jr AIA, 226 W Washington St,
 Greenville, S C

Headquarters

1735 NEW YORK AVENUE, N W, WASHINGTON 6, D C

Executive Director

Secretary to the Executive Director
Legal Counsel

William H. Scheick AIA
 Mabel Day
 Samuel Spencer

Director, Administrative Services

Comptroller
Membership
Personnel
Convention Manager

J. Winfield Rankin, Hon AIA
 William G. Wolverton
 Florence H. Gervais
 Jane Dougherty
 Marvin Mayeux

Director, Public Services/Urban Programs

Editor of the Journal
Associate Editor
Assistant Editor
Advertising Manager of the Journal
Information Services
Institute Relations
Head, Urban Project
Assistant Art Director
Exhibit Services and Foreign Visitors
Awards Services

Matthew L. Rockwell AIA, AIP
 Joseph Watterson FAIA
 Robert E. Koehler
 James Bailey
 Mary H. Ranta
 James Bailey
 Kenneth C. Landry AIA
 Paul D. Spreiregen
 Marilyn S. Housell
 Alice Graeme Korff
 Faynetta W. Nealis

Director, Professional Services

Chapter and Student Affairs
Architectural-Building Information Services
Professional Practice
Research Secretary
Assistant to Research Secretary
Education
Historian
Librarian
Assistant Librarian
Technical Secretary
Consultant on Contract Procedures

Theodore W. Dominick AIA
 M. Elliott Carroll AIA
 Theodore W. Dominick AIA (Acting)
 Robert J. Piper AIA
 Eric Pawley AIA
 Margaret H. Phillips
 Maurice William Perreault AIA
 Henry H. Saylor FAIA
 George E. Pettengill, Hon AIA
 Mary E. Osman
 Robert J. Piper AIA (Acting)
 William Stanley Parker FAIA

WHY WOOD WINDOW UNITS?

Another in a series describing the advantages of wood window units equipped with Monarch Metal Weatherstrip.



THE COMFORT FACTOR IN SCHOOL BUILDING DESIGN



CULVER MILITARY ACADEMY ARCHITECT: WM. B. ITTNER, INC.

Comfort in the classroom means better performance and better health for both student and teacher. Wood window units equipped with Monarch Metal Weatherstrip provide insulation and weatherproofing to keep rooms warm in winter, cool in summer. They prevent the penetration of dust, dirt and moisture to a maximum degree. So for school rooms with a high comfort factor specify wood windows with Monarch Metalane[®] Weatherstrip.

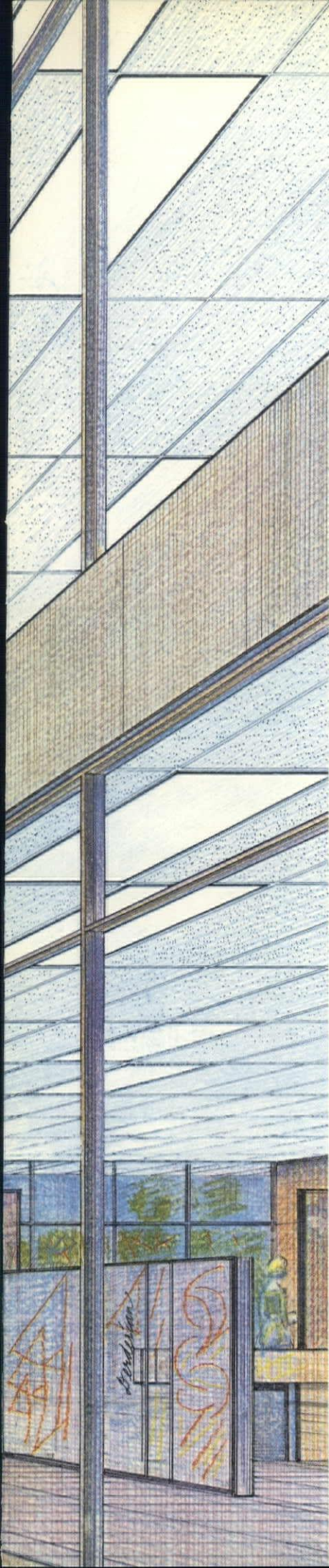
MONARCH METAL WEATHERSTRIP CORP.

6333 Etzel Avenue / St. Louis 33, Missouri



MONARCH PRODUCES WEATHERSTRIP SOLELY FOR LEADING DOOR AND WINDOW MANUFACTURERS AND JOBBERS





SACRAMENTO: ARMSTRONG VENTILATING FIRE GUARD CEILINGS DIFFUSE AIR, BLOCK FIRE, ABSORB SOUND -WITH LAY-IN UNIT FLEXIBILITY

These ceilings give this California office building complete flexibility of room layout—and do three other important jobs. Ventilating Fire Guard has eliminated almost all supply ductwork by using the plenum to feed conditioned air to the perforated ceiling, which diffuses it to the room below. And scientific plenum-engineering, based on Armstrong's exclusive calculations for Ventilating Ceilings, solved all problems of proper air distribution before the ceiling went up. The Ventilating Fire Guard Ceiling easily meets local fire code requirements for one-hour fire protection of steel joists. The ceiling provides excellent acoustical control, too. And because these Ventilating Fire Guard Ceilings are of large, movable lay-in units, arrangement of office spaces to suit tenants is highly flexible: lighting fixtures are easily rearranged; partitions go anywhere; the Ventilating and Fire Guard functions are unaffected. Moreover, these Ventilating Fire Guard Ceilings cost about \$8,000 less than the combination of a duct-and-diffuser system and intermediate fire protection of steel joists.

Driver and Hunt Office Building, Sacramento, Calif. ARCHITECTS: Rickey & Brooks, Sacramento, under the direction of Benedict Adams, Architect, Associate. MECHANICAL ENGINEER: Leonard Stecher, Sacramento. GENERAL CONTRACTOR: Guth & Schmidt, Sacramento. ACOUSTICAL CONTRACTOR: L. D. Reeder Company, Sacramento.

TECHNICAL INFORMATION: Armstrong Ventilating Ceilings have been thoroughly lab- and job-tested to assure proper performance; are available in five materials (both tile and lay-in units), including Fire Guard, with three different patterns; and are compatible with all conventional supply-air systems. They offer considerable savings by cutting supply ductwork and eliminating conventional diffusers. Ventilating Fire Guard offers up to four-hour-rated fire protection; saves up to 30¢ per sq. ft. by eliminating intermediate fire protection, up to two months' construction time through dry installation; often earns lower insurance rates. Special plenum-engineering data is available, giving all factors and formulae for the correct design of this ventilating system, ensuring that it delivers the required cfm of conditioned air in the manner and quantity designated by the ventilating engineer; contact your Armstrong Acoustical Contractor or Armstrong District Office. For general information, write Armstrong, 4209 Sage St., Lancaster, Pa.

Armstrong ACOUSTICAL CEILINGS

First in fire-retardant acoustical ceilings

RENDERINGS BY ARA DERDERIAN

Letters

Why Study Architecture?

EDITOR, *Journal of the AIA*:

I have just read Miss Close's letter in the May issue. The more I read, the more I wonder.

Throwing a few wires on a piece of cardboard must be an admirable way of designing a house. Chance is likely to land the bathroom in front of the fireplace and the furnace in the master bedroom. Fine, I would say, for sensitive persons who wouldn't mind the inconvenience.

We have been designing by chance for centuries. Every city we have is a monument to the system. Aren't we proud of them?

Naturally, there is a middle road for everything. Our beautiful landscapes are things of chance but every halfway decent landscape painter has moved parts of it around to attain good composition and even the successful photographer doesn't snap a picture cold. We don't have to design purely by chance in order to avoid "antiseptic" buildings. There is a big difference between symmetrical and asymmetrical balance yet both follow the fundamental laws of good design.

Actually, the appearance of many of our buildings is a matter of chance. The good architect first *plans* a building to meet the use it is being designed for. This sets the pattern for design. Then the good architect studies the design and adjusts elements to create a good composition. I know many buildings start with a preconceived idea as to the outward appearance. In my opinion this is the wrong approach.

The artists cited as good designers are open to debate and I doubt that they will stand the test of time. Accepting accidental droppings of paint as a principle of design is an insult to the intelligence that has evolved the principles which make us higher than the chimpanzee in the St Louis Zoo. Why study altogether? Why water our garden? Why take polio shots? Why send our children to school? Why not just take over the new ideas of art and leave everything to chance?

LEON ROSENTHAL AIA
Babylon, NY

Deflection of Hyperbolic Paraboloids

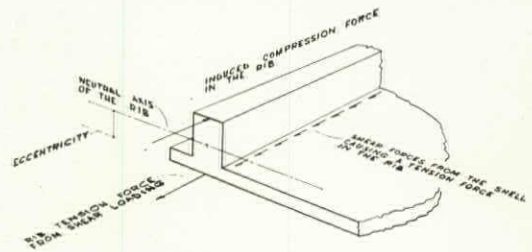
EDITOR, *Journal of the AIA*:

The use of precision photography for the instrumentation of structures will undoubtedly gain wide acceptance in the field of research as was indicated by Prof. Borchers in his article that appeared in the June issue of the *AIA Journal*. Prof. Borchers is to be congratulated for developing

such a great degree of precision in measuring the instantaneous deflections of the large hyperbolic paraboloid shells at Scioto Downs in Columbus, Ohio. Unfortunately the precision was not maintained in the interpretation of the data.

From the statements made, one might assume that the designers of the shells cambered the corners up by 4 inches to accommodate corner deflections, but were unaware that the middle of each side deflected downwards and the corners deflected upwards. Such an assumption is inaccurate.

Primarily, the Scioto Downs shells are hyperbolic paraboloids whose sides cantilever from a central supporting column. The corners also cantilever from the center of the edge members.



The primary action of cantilevered beams with a gravity load is to undergo a downward deflection, but a judicious eccentric placement of the rib with the shell slab will actually deflect the corners up as shown in the accompanying sketch. Thus, the camera corroborated the first phase of the design when it recorded an upward instantaneous deflection. What the camera did not record, however, was the slow downward deflection of the corners from secondary bending stresses. This later deflection takes place over a period of 3 to 6 months in thin shell concrete structures and is known as the creep effect. The engineers cambered the corners up by 4 inches to overcome approximately 3 inches of downward creep and still have approximately 1 inch on the plus side for entasis. Although it was realized that the sides or mid-lengths of the edge members would deflect more than the corners, the decision was not to camber the sides since camber does not eliminate deflection, and since a 3-inch deflection is completely unnoticed when it is 65 feet above the ground with nothing for comparison.

The proof of the design concept can be seen wherein the corners are $\frac{3}{4}$ to 1 inch higher than the mid-lengths of the edge members after 3 years of service. Perhaps this proves that there is more to the evaluation of complex structural analysis than meets the eye of the Galileo-Santoni photo-theodolite.

R. M. GENSERT
Consulting Engineer
Cleveland

(Continued on p. 10)



Blumcraft

ADJUSTABLE ANCHORING SYSTEMS

SOLVES PROBLEMS OF SECURING RAILINGS TO CONCRETE BY BECOMING AN INTEGRAL PART OF THE STAIR STRUCTURE

- INSURES EXTREME RIGIDITY
- REDUCES COSTLY FIELD LABOR
- ELIMINATES BREAKAGE IN MASONRY
- ADJUSTABLE FOR POST ALIGNMENT

 *Blumcraft* OF PITTSBURGH

GENERAL CATALOG OF COMPLETE BLUMCRAFT LINE AVAILABLE ON REQUEST
COPYRIGHT 1962 BY BLUMCRAFT OF PITTSBURGH • 460 MELWOOD STREET, PITTSBURGH 13, PENNSYLVANIA



Bettman Archive

“Quality is never an accident. It is always the result of intelligent effort. There must be the will to produce a superior thing.”

—John Ruskin

Quality in architecture is achieved only as the result of intelligent effort and sustaining will on the part of every supplier—as well as the architect himself. In order to meet this responsibility, the Quality Verification Council of the Porcelain Enamel Institute has undertaken a continuing program of quality research and certification.

The QV Council has established definitive standards for architectural porcelain enamel. The QV program provides for unannounced inspections by an independent consultant. These inspections verify the continuing capability of participating QV companies to meet the quality standards.

As a result, the architect may specify Quality Verified architectural porcelain enamel from any certified member of the QV Council. The QV label is his assurance of the capability and dedication of the supplier “to produce a superior thing.”

Certified members of the Quality Verification Council currently include: ATLAS ENAMELING CO., INC., St. Louis, Mo.; CALORIC CORPORATION, Architectural Porcelain Div., Tipton, Pa.; CHALLENGE STAMPING & PORCELAIN CO., Grand Haven, Mich.; DAVIDSON ENAMEL PRODUCTS, INC., Lima, Ohio; THE ERIE ENAMELING CO., Erie, Pa.; ERVITE CORPORATION, Erie, Pa.; INDUSTRIAL ENAMELING Div., Industrial Electric, Inc., Bay St. Louis, Miss.; INGRAM-RICHARDSON MFG. CO., Beaver Falls, Pennsylvania; McAX CORPORATION, McGregor, Texas; WOLVERINE PORCELAIN ENAMELING CO., Detroit, Mich.



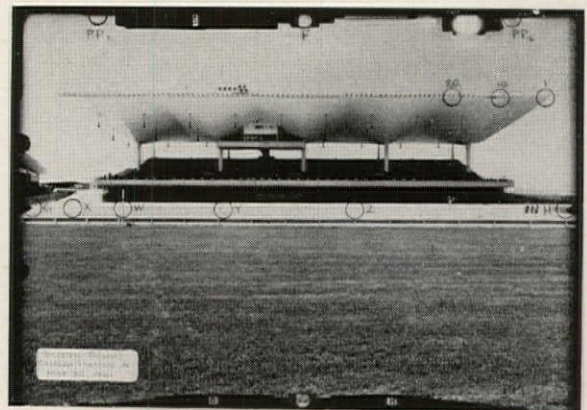
THE QUALITY VERIFICATION COUNCIL
A Service of the Porcelain Enamel Institute • 1145 Nineteenth Street, N.W., Washington 6, D. C.

EDITOR, *Journal of the AIA*:

The photogrammetric recording of the settlement of the final hyperbolic paraboloid at Scioto Downs was carried on during a thirty-day period. This would have been evident if the dates had not been omitted from the photographs and captions which were cut for publication in the June issue of the *AIA Journal*.

In my article I reported only one particular structural movement, cumulative over the thirty days, which seemed mildly surprising to the architects of the structure.

I request you publish at full scale the complete photograph, with fiducial markings, of Scioto Downs taken on May 30, 1961 from Camera Station A. The stereocomparator at the Ohio State University magnifies the photograph plate twelve times to an effective size optically of five feet by seven feet for detailed examination and measurement by the operator. However, even at original size of five inches by seven inches, scale 1:600 of the building, an examination of this photograph with a straight-edge will reveal the major irregularities which—together with the contemporary forms and continuity of structure entirely exposed to exterior thermal changes—make this building of interest for photogrammetric investigation. Viewing the photograph from six inches distance will reproduce the focal length of the camera and truly show the form of the completed structure seen from 300 feet actual distance.

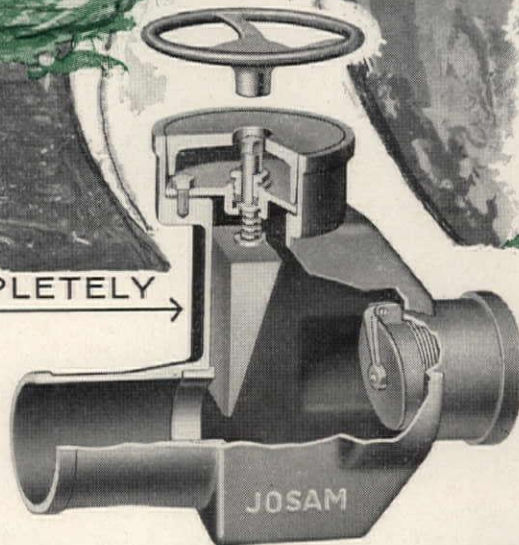


The primary purpose of our unsponsored project at Scioto Downs was to determine the accuracy of our own photogrammetric procedures and measurements.

PERRY E. BORCHERS, JR AIA
Professor of Architecture
The Ohio State University

STOP BACKWATER

COMPLETELY →



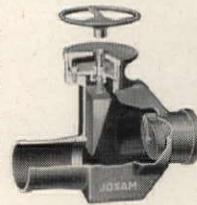
← INSTANTLY!



BACKWATER VALVES

Every year flooding rains hit widely different areas of the nation, causing heavy damage to homes and buildings unprotected against backwater from overtaxed sewer lines. Don't underestimate backwater... it is deadly... it is dangerous! It erupts into a building almost with explosive force... waterlogging equipment and covering every surface with filthy, sticky residues!

Josam Backwater Valves protect against backwater... eliminate fright, worry, expense. Valves are designed to permit drainage to sewer, but close instantly to the entry of backwater. Josam Backwater Valves belong in every building and every home — the cost is so little compared to the damage and disorder prevented. Get the complete story by writing for Backwater Manual BW today.



Series No. 1140
Backwater Sewer Valve
with flap valve which
closes instantly and
manual gate valve
for total shut-off
when required.



Series No. 1170-T
Backwater Sewer Valve
with flap valve
mechanism that closes
at slightest backflow.



JOSAM MANUFACTURING CO.

General Offices and Manufacturing Division • Michigan City, Ind.

REPRESENTATIVES IN ALL PRINCIPAL CITIES

West Coast Distributors

JOSAM PACIFIC CO.

765 Folsom Street San Francisco 7, Calif.

JOSAM PRODUCTS ARE SOLD THROUGH PLUMBING SUPPLY WHOLESALERS
Manufacturers and Representatives in Mexico—HELVEX, S.A., Mexico City



This Chemclad door will never need refinishing!

After this Chemclad door is installed—the building owner can practically forget it . . . permanently. Why? Because these doors have a high-impact resistant, smooth melamine laminate finish that stays beautiful for the life of your building. An occasional wiping off is all that's required. What's more, they're custom made in a wide choice of wood grains and decorator colors—pre-fitted and pre-mortised to save installation costs. These are reasons why we suggest you consider Chemclad, when you're remodeling or building. You'll have a sound investment in a door you'll never replace, refinish or regret! Send for your free copy of the new Chemclad brochure.

CHEMCLAD[®]
MELAMINE LAMINATE DOORS



1,256 custom made Chemclad doors have been installed in the Schumpert Memorial Hospital, in Shreveport, Louisiana. Architect: Neild and Somdal.

BOURNE MANUFACTURING COMPANY
7321 Gratiot Avenue • Detroit 13, Michigan

REPRESENTATIVES IN PRINCIPAL CITIES FROM COAST TO COAST

The Fitzpatrick Memorial Award

The F. Stewart Fitzpatrick Memorial Award for 1962 has been conferred upon Douglas Whitlock Hon AIA, attorney and Chairman of the Board and General Counsel of the Structural Clay Products Institute, which he founded in 1934. The presentation of the award was made by then-AIA President Philip Will, Jr, at the Building Research Institute's Spring Conference in Washington on April 25—BRAB owes its creation to the efforts of the late Mr Fitzpatrick and Mr Whitlock.

Known in Washington circles as "Mr Building Industry," AIA members will remember Doug Whitlock as the man responsible for the sponsoring by SCPI of the special concert by the National Symphony Orchestra during the AIA Centennial Convention in 1957. In his presentation, Mr Will said ". . . no one else has contributed so much to the unification of the construction industry. . . ."

The Brunner Scholarship

Architects and those in related fields are eligible to apply for the \$5000 Arnold W. Brunner Scholarship, offered annually by the New York Chapter AIA. Past awards have been made for a variety of projects, including a study of urban living, the development of a travelling architectural exhibit for highschool students and a study of visual perception as related to design and for the development of a more efficient means of visual communication.

Information and application blanks may be obtained from the New York Chapter AIA, 115 East 40th Street, New York. All applications must be in by January 15.

Necrology

According to notices received at the Octagon between June 1, 1962 and June 30, 1962

BOEHNING, ALBERT W., SR, Albuquerque, N Mex
GREENBERG, MORRIS, Philadelphia, Pa
HANNIKEN, GUSTAV J., Royal Oak, Mich
HASKELL, FITCH HARRISON, Palo Alto, Calif
JAEGER, LOUIS C., Orange, NJ
LICHTENSTEIN, WILLIAM P., New York, NY
MURPHY, DAVID JOSEPH, Atlanta, Ga
PETERMAN, RICHARD H., Westchester, Pa
VAN PELT, JOHN V. FAIA, Patchogue, NY
WARREN, WILLIAM T., Birmingham, Ala

Honorary Member:

EDWARD KEMPER, Chevy Chase, Md



URBANISMS

A regular column conducted by our specialist on Urban Affairs, Matthew Rockwell, Director of Urban Programs

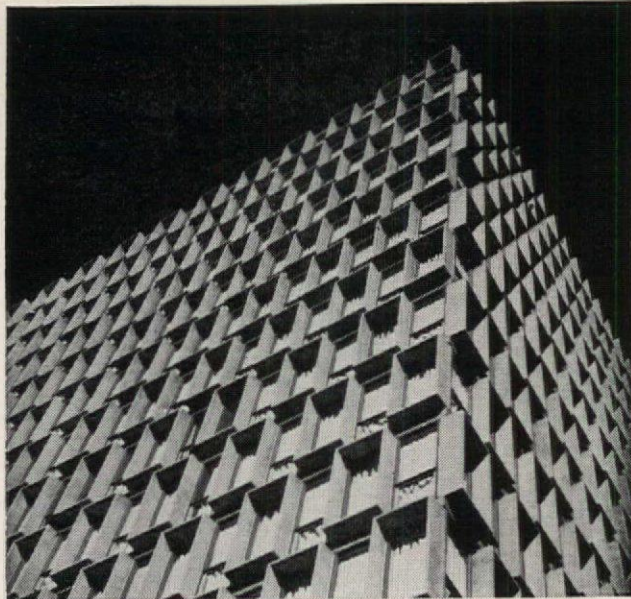


Photo: Hendrich-Blessing

*Water Tower Inn, Chicago

EXPOSED AGGREGATES for PRE-CAST SURFACES

Successful use of this finish requires aggregates on which architects may rely for color, for structural and bonding strength and for impermeability.

The cost of exposed aggregate is but a small percentage of the cost per square foot of the finished product. Still, it is just as important to specify clearly what aggregates the architect is entitled to have in the work, as it is to see that the work is done by reliable manufacturers.

Colonna and Company of Colorado has been crushing Suprema Aggregates in the heart of the Colorado Rockies for 27 years. For the past 9 years it has specialized in crushing the following:

- Suprema Flamingo Quartz
- Suprema Siskin Green
- Suprema Black Obsidian
- * Suprema Milky Quartz
- Suprema Blue Granite
- Suprema Pink Granite
- Suprema Light Gray Granite
- Suprema Garni Green
- Suprema Royal Spar
- Suprema Paxi Gray Granite

Recent installations in which Suprema Exposed Aggregates have been used are:

***WATER TOWER INN, Chicago**

Architects: Hausner & Macsai, Chicago

Mfg. by: Midwest Concrete Industries, Des Moines, Iowa

FLINT ADMINISTRATION BUILDING, Flint, Michigan

Architects-Engineers: Linn Smith & Associates, Birmingham, Michigan

Mfg. by : Pre-Cast Concrete Co., Marysville, Michigan
Panel Engineering Corp., Troy, Michigan

For further information and samples, write to:

COLONNA & COMPANY OF COLORADO, INC.
CANON CITY, COLORADO

Free Sketches

We are occasionally asked to help chapters originate programs of activity in the planning field. Chapter participation in this kind of activity is not new. Witness the experience of chapters in Kansas City, Salt Lake City (see our column in July) and Little Rock, to mention only three examples.

But there is a word of caution to be said: The standards of professional practice admonish that "an architect shall not render professional services without compensation." And further, in seeking a commission, he shall not use "donation as a device for obtaining competitive advantage."

It is clear that these standards were prepared for the typical architectural commission, but it is equally clear that they also should apply in cases where a chapter itself is undertaking work which might parallel the work of other professionals, whether architects, planners or others.

A case in point would be the preparation of a central business district plan in such detail that the work of another architect might be completely eliminated by the donated service of the chapter.

The architect has the ability to visualize and dramatize graphically the shortcomings in almost any field of interest. The complexities of city planning—their shortcomings—their complications—need such dramatization.

One chapter recently gave itself the task of describing in graphic form the nonsense that can exist when two parts of a city are separated by an international boundary. The interdependence of the two parts upon common facilities needs illustration, and the chapter, in performing this type of public service, can only reflect good upon the professionals involved.

In some of the chapter projects referred to here, other professionals were brought into play who would not have otherwise been involved. For example, in the study of a central business district, it is obviously not enough to diagram physically the proposed changes to the district without having basic data regarding economic aspects of the district's future.

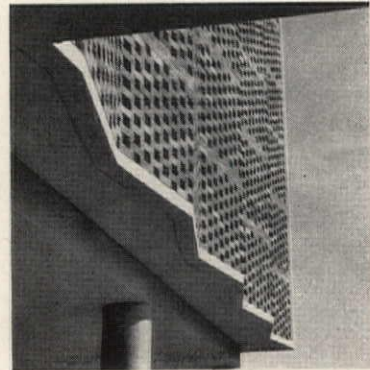
In the case of Little Rock, many thousands of dollars went into the preparation of such economic analysis by real estate experts before the architects developed the physical plan for the downtown area.



MEN AND MASONRY

With the return of the third dimension to design, the ranging mind of the architect finds new and varied use for the hands of the craftsman. Today's craftsman is proud to serve you. He is a younger man than the one you knew 15 years ago—41 instead of 53. To qualify for your service, he worked 3 years in formal apprenticeship, spent 144 hours in classroom study. He thinks the walls you design for his labors are more beautiful than those of the machine. He knows they are less costly. He is part of your building team.

**BRICKLAYERS, MASONS & PLASTERERS
INTERNATIONAL UNION OF AMERICA**



OFFICE BUILDING, FLORIDA
A. F. MCKIRAHAN, ARCHITECT



He
knows

**BUILDING
COMPONENT
TECHNIQUES!**

He's
your **GANG-NAIL[®]
FABRICATOR**

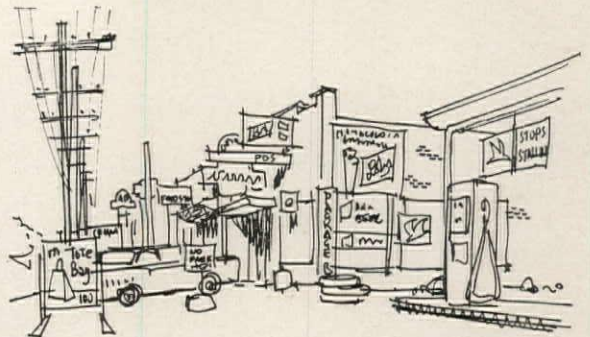
He can give you welcome information on time-saving, labor-saving, cost-saving components of ALL kinds. He's backed by the industry's most extensive design library. He has a greater variety of special purpose connector plates to use — to do your job right. His automated presses turn out superbly accurate, precision-made components. When you plan your next job, don't tie yourself to roof trusses alone. The more components you use, the greater your savings. And your GANG-NAIL FABRICATOR has the greatest variety of components, both residential and commercial, available in the industry today.



Automated Building Components, Inc.
Phone 696-0930 • Area Code 305
P.O. Box 47-836 • Miami, Florida

Urbanisms (Con't)

One of the most useful projects we have seen lately is that produced by the Georgia Chapter of the Institute, entitled "Visual Survey and Design Plan." This is a study of the visual aspects of a portion of the city of Atlanta, an experiment in a field popularized recently by the "Ugliness Conference" of the New York Chapter. We think this is a far more appropriate field for chapter activities than the central district reports.



sketched from "VISUAL SURVEY AND DESIGN PLAN" — GEORGIA CHAPTER, A.I.A.

Incidentally, we feel that this Atlanta report of forty-four pages is still only a "first-phase" study. The last three pages entitled "Implementation" would make good and fertile ground for another project. For example, one of the recommendations under this section is that "Billboards and signs would be more effectively controlled by good legislation." We would very much like to see a model sign ordinance prepared by, or with the assistance of architects.

I am wondering, for example, whether the average member of the Institute would endorse a provision like the following, which I quote from a contemporary ordinance of an Illinois suburb of approximately 25,000 persons:

"No ground sign should be erected or maintained in such a manner so that the uppermost part of such sign is more than 18 feet, six inches, above the lowest established grade of the portion of the street or highway nearest such sign and adjoining the lot or tract of land on which such sign is erected."

Another example states:

"The total area of a wall sign shall not exceed eight per cent (8%) of the building wall area to which the sign is attached or painted except that no wall sign need be less than fifty (50) square feet in size. Wall signs shall extend only over or on the portion of the building occupied by the business being advertised by such sign."

What I am saying is that as architects we must do more than highlight the problem; we must involve ourselves in the minutiae of the accomplishment. ◀



A · I · A

Journal

The Temples of ABU SIMBEL

How Modern Techniques Can Save One of

the Great Monuments of the Past

► Of all the historic monuments and ruins of ancient Nubia, now threatened by the building of the Aswan Dam on the Upper Nile, the two temples of Abu Simbel have most captured the popular imagination.

The magnificent facades of the Great Temple and the Little, or Queen's, Temple, both hewn out of solid rock some thirty-two centuries ago in the reign of King Rameses II, and erected in honour of Rameses and his Queen Nefertari, rise up majestically from the banks of the Nile.

These great temples, dedicated to three gods, Aman-Rah, Ptah and especially to Re-Harakhte, god of the Rising Sun, evoke admiration of the skill of those who fashioned and decorated these monuments, and wonder at the scientific knowledge of the architects who conceived and created such temples.

At that time, man's knowledge of geology and chemistry could have been only elementary. Yet—and this amazes present-day experts—these unknown Egyptian masters obviously knew

The following story, and the drawings, are reported verbatim from a press release from Unesco.

We believe the daring of the concept will arouse much admiration—and perhaps speculation?

enough about types of soil and the effects of water and wind erosion to build for an eternity on a site perfectly suited to the needs of worship.

The scope of these temples probably can be matched only by that of a proposed plan to save them from being swallowed up by the Nile once the new dam is built. This is the boldest aspect of the entire campaign to save the Nubian monuments, launched by Unesco in cooperation with the United Arab Republic and the Sudan.

The final choice made by the government of the UAR, and endorsed by Unesco, on the advice of a number of commissions of experts, is for a plan submitted by Italian specialists (Italconsult). This calls for raising bodily the two blocks of rock in which the temples are embedded to somewhat more than 180 feet above their present site, and then restoring their present setting.

It is estimated that the task will take more than six years. A small army of technicians and workmen will have to carry it out in a spot which is practically a desert. And, during this time, there will be the danger of rising flood waters.

Preliminary Work

First, a network of road must be built to spots selected for storing materials; an airstrip has to be prepared for planes and a floating dock, unaffected by changes in the level of the Nile, must be built; an electric power station must be constructed; and, of course, a temporary city created to house those working on the project and give them facilities needed by a community in the desert.

Meanwhile, actual construction work on the project will start with the building of a dike run-

ning the length of the facades of the two temples. This watertight earthwork is to protect the whole operation from the rising level of the new lake. Between this earthwork and the facade, a trench will be dug, fifty feet deep, from which underground galleries will burrow into the rock under the temples.

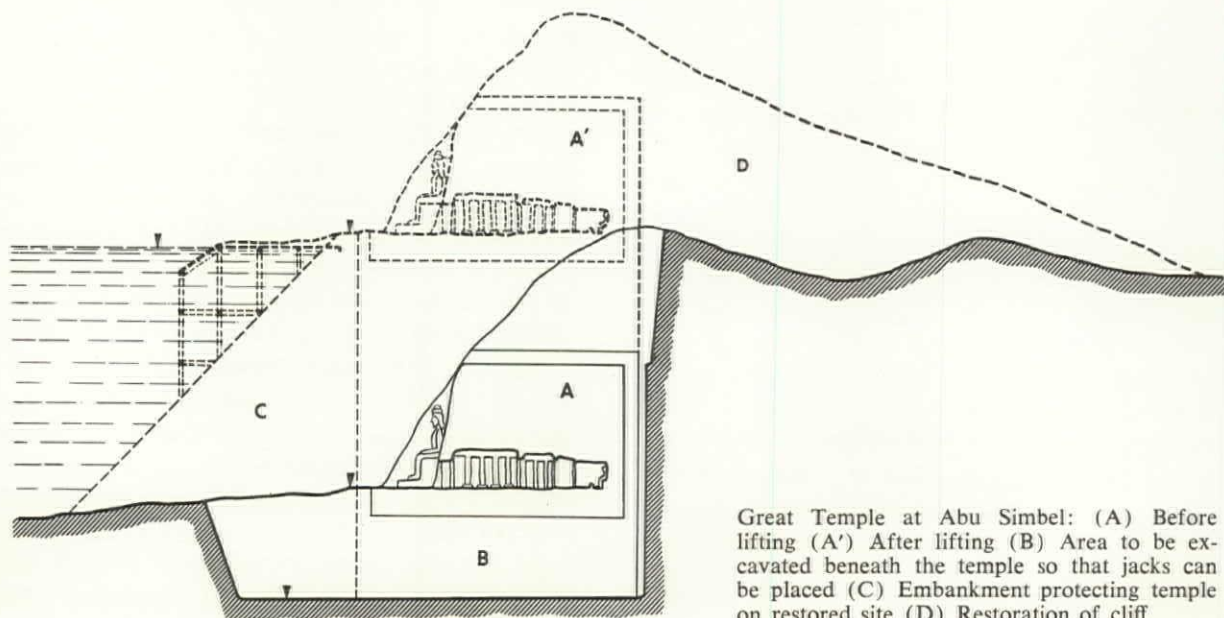
During this preliminary stage, an important task will be to reinforce the structures both inside and outside. This is an exceedingly delicate operation. The rock and the monuments carved in it have suffered from the ravages of time, and the rock itself still bears the same cracks and fissures that existed before the temples were built, and with which those early stoneworkers knew so well how to deal. Today, these weak points which might give way during the moving operation must be reinforced.

It is only after these preliminaries have been completed that the real work can begin of directly raising the temples.

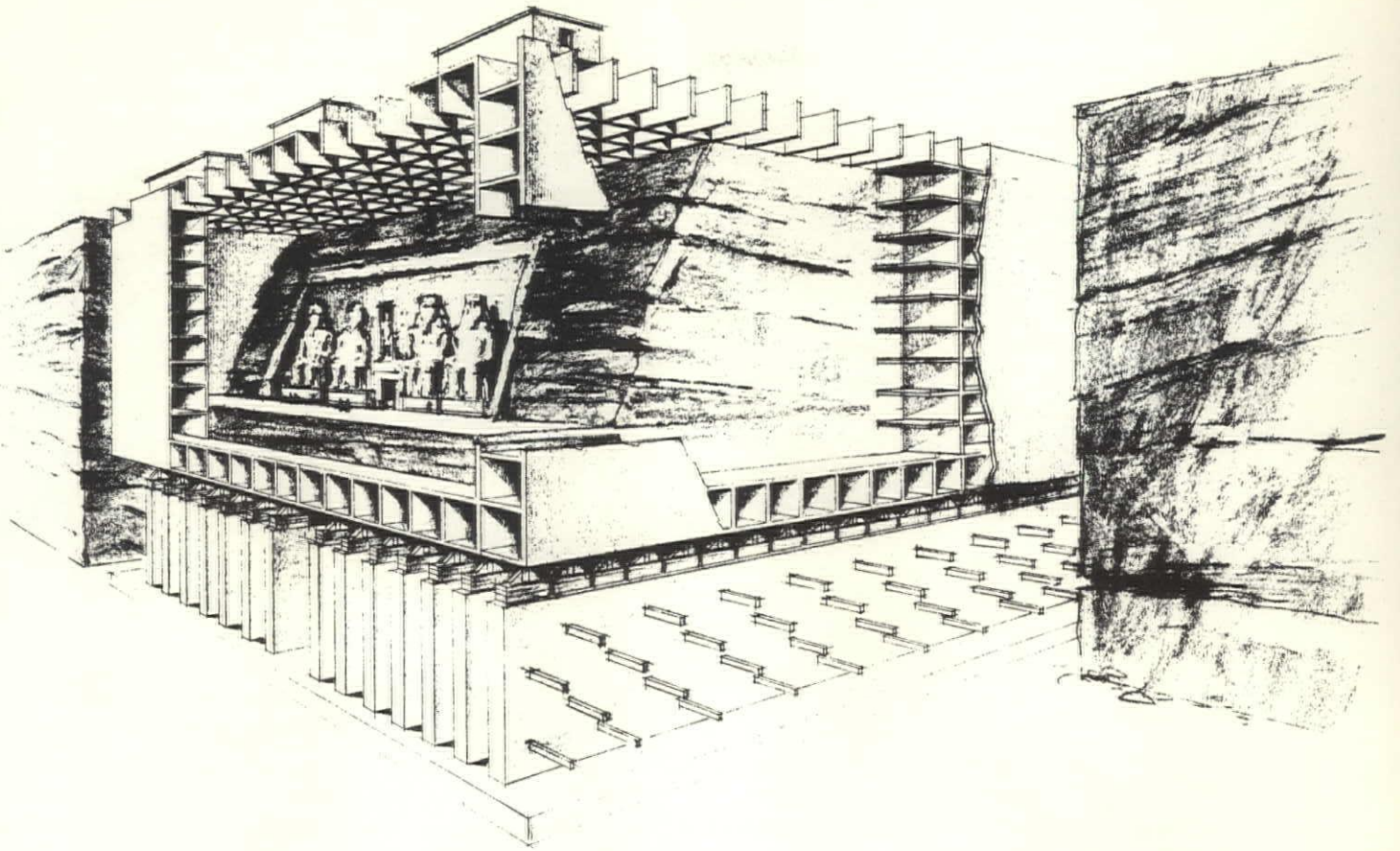
Two giant "boxes"

Three complicated operations are involved. First, the "scalping" of the temples by the removal of the mass of rock which covers them in order to lessen the over-all weight to be raised. The portion of the hill, thus taken off, will be replaced in its original position when it comes to the final landscaping.

Next, the huge block of rock containing the temples must be sliced free and an artificial casing built in front of their facades so that the space between the casing and each facade can be filled with a "padding" of sand. Finally, and most im-



Great Temple at Abu Simbel: (A) Before lifting (A') After lifting (B) Area to be excavated beneath the temple so that jacks can be placed (C) Embankment protecting temple on restored site (D) Restoration of cliff



Temples of Abu Simbel Monuments Rescue. Lifting of Temple, sketch showing general view

portant, three parallel groups of underground galleries must be driven under what will serve as the floor of the "boxes." It is this base, with the thickness of from twelve to fifteen feet, that will take the upward thrust of the lifting jacks.

This lengthy phase of operations is the one which calls for the most meticulous precision. It will be impossible to use explosives or machinery which could cause vibration. Experiments carried out in Norway with even more brittle rock than that at Abu Simbel show that only compressed air machinery can be used. At twenty to twenty-five feet inside the rock pneumatic hammers, weighing no more than seventy-five pounds and capable of 1,000 blows a minute, will be used, but electric saws and scissors will be employed at the most sensitive cutting points. During all these operations, a twenty-four-hour micro-seismic watch will be kept to detect the slightest danger.

With the two "boxes" of rock and sand hermetically sealed and finally sliced away from the rest of the mass of rock, jacks can be placed under the base, beneath which a metal grating is stretched to ensure uniform pressure from the jacks. Then follows the mighty task of lifting the

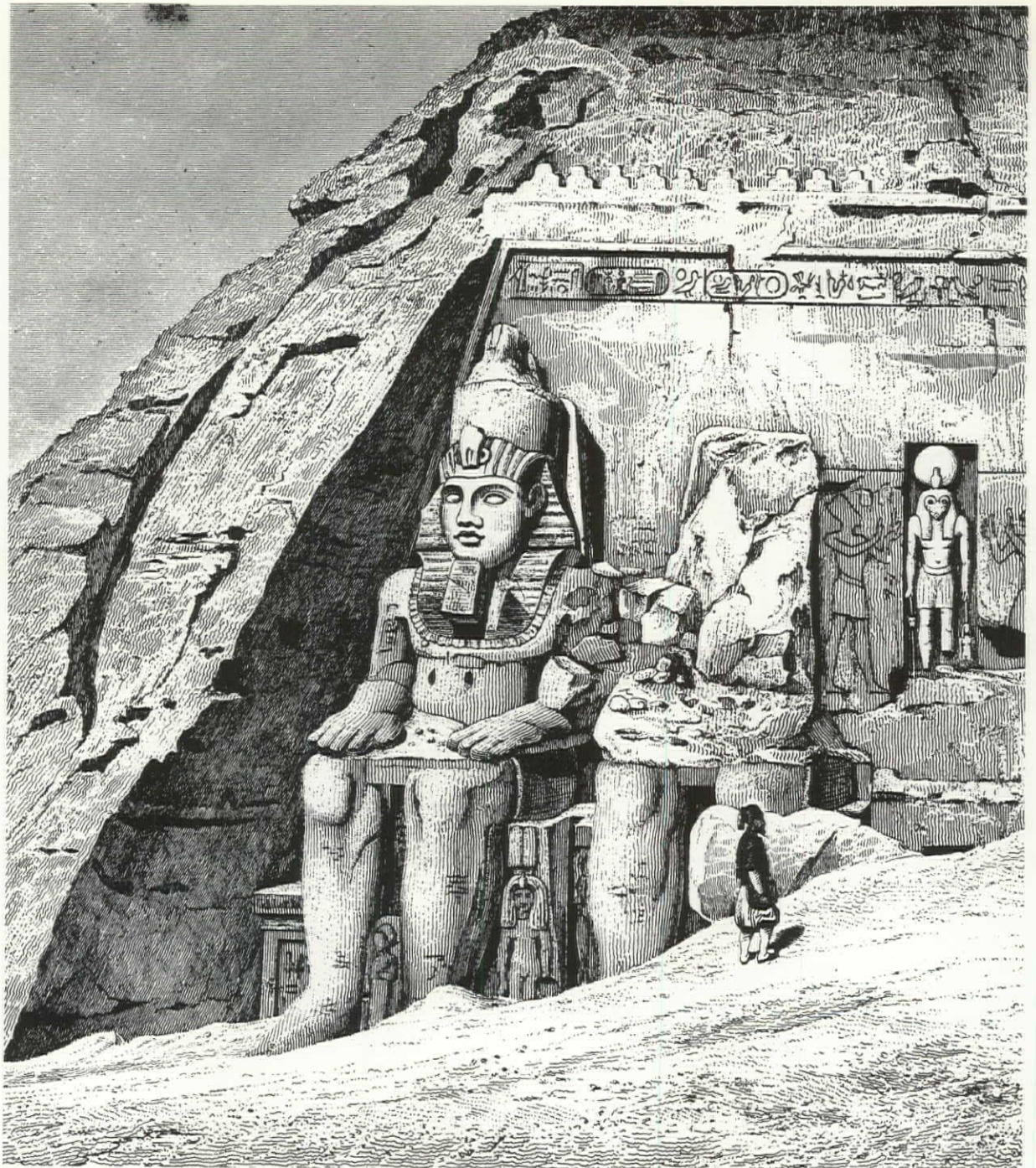
temples in synchronized movements, at the rate of two millimeters at a time. Each hydraulic jack is operated from a central control point where any break in the equilibrium will be immediately visible.

The jacks themselves, which may be either hydraulic or mechanical, will have an individual lifting power of either 2,000 or 1,000 tons each, working alternately in two groups. So far, however, the experts have reached no decision on this point.

Thus, little by little, four-square on the giant piles that are to serve as their permanent base, the temples will rise more than 180 feet.

Tribute to the Experts of the Past

After the major operation of lifting the base of the temples is completed, the final phase of the work begins: the restoring of the previously "scalped" summit on top of the hill, and of the original landscaping. This involves re-creating not only the actual scenery, but the same physical conditions—the facades will be at the same height above water as before—chosen by the original builders.



From "Monuments Anciens et Modernes," 1850

The preservation of Abu Simbel is not the only project being undertaken in the campaign to "Save the Monuments of Nubia." In the area of what will be a three hundred mile-long lake to be created between the First and the Second Cataract to hold the water behind the new dam, teams from many countries have answered the appeal sent out by Unesco at the request of the governments of the Sudan and the UAR. These teams are carrying out almost non-stop work, excavating, making photogrammetric pictures, drilling down into prehistoric times, and moving temples and works of art from the threatened area.

By the time the dam is completed, work to preserve another historic, and no less illustrious, monument, the Island of Philae, will have been completed, thanks again to international assistance.

But the saving of Abu Simbel, both in its scientific daring and the amount of financial help which the world is being asked to contribute, takes on a special symbolic value.

It will enable today's civilization to pay tribute to another, long since gone, which dared to create a monument that still startles us with its size and beauty. ◀

Towards a Consensus of Approach to Urban Design

by Morton Hoppenfeld AIA, Assoc AIP

► The last spurt of mass interest in the appearance of cities by the design professions was undoubtedly that inspired by the great white image of the Chicago World's Fair. The resultant "movement" was tagged the "City Beautiful." Some few bold and worthwhile projects remain the heritage of that time in many cities across the country, though, as an approach to city design, it left too much to be desired.

Between that day and this, professional interest waned until now, when few who live in cities would deny the general state of visual squalor and social conflict.

Over the years we have become dulled to the things we see about us and, probably, fortunately so. Our innate quest for a semblance of order and harmony in our environment would leave us ill were it not for the build-up of a protective, selective vision which allows us unconsciously to filter our impressions of the city. Our perception of the world depends not only on sheer optical stimulation, but also upon the interest of the individual observer. Thus, in time we tend to see only what we want to—only what we need in order to subsist in our man-made urban environment. How many of us really see or try to understand the city?

Can we assume that the urban environment is in part a conditioner of urban society? Must we not all see it in a more positive way?

One of the many reasons our cities are so visually and emotionally unsatisfying is the essential

The Chief of Design of the National Capital Planning Commission feels that a clear definition of Urban Design, and of Urban Designers, can be hammered out only by a thorough-going public discussion. This article is intended to spark such a debate

uniformity and lack of cognizant differentiation in the city pattern. The essence of urbanity lies in the breadth of choice available in all matters of fundamental concern. Inappropriate urban form results in a curtailment of range of choice. Every lack of differentiation in a city's physical pattern means a negation of choice, and thus a negation of true urbanity. In a city of quality, each element, as in a mosaic, contributes to the splendor of the whole without losing any of the luster of the individual tessera. In fact, the single piece can only assert its real significance within the context of the whole.*

How little of today's American city provokes positive response and rests at ease between the extreme conditions of chaos and utter boredom!

If we look for causes in today's plight, we find them numerous and complex. But let the buck stop here for the moment. Let me suggest that we architects, with few notable exceptions, have ignored the city. We have, as a profession, tended

* For a provocative discussion of this theme, see "The City and the Arts" by Edward Sekler, *Daedalus*, Winter 1960

to develop our concepts of architectonic form in an esthetic ether and applied them at random. Think hard, and list your favorite twenty architects ("form givers"?). What proportion of their work—real or theoretical—has been truly in the realm of urban environment in, and of, the city? Whatever the reasons, and there are many, the design leaders of our profession have not had, *nor sought*, the opportunity to build the city.

Think of your education, of the books and periodicals available. How many design problems have addressed themselves to aspects of the city? Even today, with the "new awareness," how much has it really changed?

I suggest that a part of the responsibility for the ugly American city rests here with us, the architects. I further suggest that if we are to rise to the challenge which lies before us, of building and rebuilding the city, we must foster a new breed of designers who are willing to address themselves humbly to the problems of urbanism. This is not an easy task since the problems are extremely complex in reality and require continued thought and research, but *only with the recognition of this complexity will progress begin*.

The recently increased pace of organized urban renewal has given new opportunity to large-scale design and development. The design professions have been pushed into a reawakening of their awareness of the quality of our urban environment. Thus, a new "movement" termed "Urban Design" has become fashionable. We are growing in our concern, and this is the *time for public debate* of our design approach and working values. While it may be difficult, I think it necessary that we seek a working concept of urban design which will ultimately be the consensus of all involved. Toward this are these remarks directed.

The design process is a continual interplay between synthesis and analysis. There is no firm order within which aspects of the problem are brought to bear. The circumstances and the individual will continually adjust the ideas and thought processes involved.

Omitted, intentionally, from this discussion are perhaps the most significant elements, those basic to the creative process—talent, intuition, imagination, etc. While putting forth the following ideas on urban design, let the above remain as constants.

Traditionally, any discussion on questions of urban design tends to avoid contextural issues since emphasis is ordinarily given by professional "de-

signers" to the elements of "pure design"—the abstract qualities of good or bad spaces, relationship of heights, quality of architecture and materials, and the like (provided, of course, the maximum floor space is available). This is not unusual since it is in this realm that "designers" are typically trained and it is in this realm that the lay public is educated by mass and professional journals.

This almost singular concern for "pure design" (ie, forms abstracted, to a large extent, from total urban context and, therefore, with minimum logic and symbolic value**), if left to dominate the urban design process will result, as it has in the past, in a product of questionable worth relative to the great effort made.

I do not contend that a poor design, in the abstract sense, need or should be tolerated. Nor do I suggest that formal imperatives and "intuitive" approaches be reduced in value as design considerations. The purpose of this exploration is not to diminish the quality of the end-product; on the contrary, it is to improve quality by extending the basis from which it is conceived and by which it is judged.

Eight ideas will be discussed, with emphasis on the first two.

1 The Idea of Process—Design Development and Production

Urban design is a part of the larger process of city building, urban planning, or whatever an appropriate title might be. The process is a never-ending, constantly changing one. The process reflects the continued change in our social institutions and technological state; the way in which we behave in, and react to, our environment; and in our relationships to one another. In order to be truly effective in any design situation, a designer must be a part of this changing process since the product of his works represents only a phase in this process and, in fact, effects it.

A basic criterion of good urban design is the "likelihood of accomplishment." Is the design such that it has in it the seeds of fulfillment? A good urban design must be consistent with the urban forces at work—the forces of social and political action and urban land economics. In short, a good solution demands a clear, precise and profound statement of the problem itself, and from that the ideas will emerge. This is not to suggest that such

** See Gyorgy Kepes, "Notes on Expression and Communication in the Cityscape," *Daedalus*, Winter 1961

designs are therefore manifest for easy completion; often it is quite the opposite, and a good design requires a good fight for its acceptance or dominance among competitors. But I do suggest that its "natural" situation will win out once it has been given the chance. It is here that the process by which the design was created and is promulgated comes into play.

If the problems have been clearly defined, needs and desires realistically and clearly appraised, and a hierarchy of value established, then the design will have some chance of widespread acceptance. Nothing is more discouraging than the performance of a designer who expects his sensitive "arrangements of masses in space" and his exquisite arrangement of window mullions to carry the day against the hard facts of human needs and city function.

Acceptance of the criteria of naturalness and harmony in the hierarchy of urban requirements and forces, necessitates a process for developing designs which puts the designer in a position to understand and translate these forces. This requires that the designers seek the means and processes to put themselves in a position to understand the complex requirements of an urban design situation. Only few designs are prepared by a team of urban planners of varied backgrounds, working together with entrepreneurs and designers exposed to the problems and potentials of the total city. Consequently, only few designs are effectively used and, of those few, only a part represents a net gain in terms of the basic problem. The process of design formulation has a profound effect on the kind and quality of end-product as well as on likelihood or desirability of accomplishment.

The usual approach to many of today's typical urban design problems (regardless of size or complexity) has its roots in the theories and process of architectural education, abetted by the visiting jury system of judgment. Where there is lacking a true understanding of the problem or a really adequate guide program, most designs are focused toward a quick response—a single bold statement, often symmetrical or at least two-dimensionally balanced, susceptible to rapid visual cognition, and generally photogenic. These are the criteria which govern in the one-shot design venture.

How different this common approach is to one which would attempt to recognize organic growth patterns and systems which have an order which may not be readily perceptible in the architects'

traditional concept of purely visual order. This proposed design attitude would consider the numerous aspects which impinge on each situation such as total social and physical context; the infinite nature of urban pattern (as opposed to the finite nature of a building); the man's-eye-level views from every point in preference to the bird's; the processes of fragmentary but continuous city building; the necessity for staged development and occasional (sometimes even desirable) compromise from grand design idea and the means of expression of true community values (symbolism). It is true that these two approaches do not always conflict, but usually they do.

In summary, it is the processes by which designs are evolved, as well as the individual skills of talented designers, which determine their ultimate values, the latter of which, it goes without saying, is indispensable. The extent to which the design process reflects real community objectives; the extent to which the designers attempt to clarify and state these objectives, both in verbal and design terms; the extent to which the designers and the design are tough, yet flexible enough to withstand inevitable adjustment and program change; and the extent to which the design promulgated can *live* with the natural democratic forces of conflicting interests and still *be a work of urban vitality*—these are the measures of successful urban design.

2 The Concept of Appropriateness

Much has been written lately by a few sensitive urbanites who decry the lackluster of recent urban buildings and renewal efforts. In many cases, "life" was in effect "designed" out of the city. Those very elements of vitality, activity and variety, which constitute the essence of the city, were the least considered. In the strenuous quest for "architectonic form" (compositional), the content tends generally to diminish in importance and in the end, meaningless (out of context) form becomes hollow.

In earlier times, and often in the natural "undesigned" city building process, the shape of the container evolved slowly to reflect and satisfy the organic content of the city. The nature of urban content (life) and resulting urban form in kind and quality, was an expression of the values of the people involved; whereas, in the case of "abstract urban design," values are either consciously or unconsciously imposed upon a public not yet

on the scene. This is not always a conscious case of architectural purity vs social requisites. Often social goals are masked in architectural terms. It is not unusual to find, upon putting a given plan into its larger social and physical context, that elements which seem logical unto themselves take on a different meaning in the larger relationship. When design reflects a clear social attitude and objective, it is on this same basis that the design should be resolved before a complete qualitative judgment can be made on the dimensional aspects of urban design. Urban designs express important social and cultural values, but "design" discussion usually revolves about "function" (scale of the street, traffic noise, open space, etc) or "formalism" (proportions, symmetry or asymmetry, "interesting shapes," etc). Thus, confused or conflicting values result as a by-product of misplaced or undefined emphasis.

It is extremely important that urban design be recognized as an important, though often obscured, expression of the values with which men regard their city and, as such, it will take on a greater significance in city building. In this age of complex social order, community values can become the shaper of the container only by conscious effort.

3 The Urge to Correlate

It can reasonably be said that nothing in the city is absolute but that all elements are related with a degree of significance to all other elements. If we accept the city as a natural, constantly changing, constantly growing organism, then all individual acts of creation, either as additions to or changes of the organism, must correlate to the immediate environs and to the organism as a whole.

4 Incompletion as a Constant State

Analogous to the concept of the relationship between elements is the fact that no single element, be it building or place, is complete within itself. If this idea is recognized and understood, it would be reflected in the approach to design and the finished product. There are so very few occasions in the city where either a building, a place, or a system can be perceived as an entity and, therefore, it should be logically designed as such. A building within a block becomes complete only within the context of the rest of the block; a place

is complete only in use; and a system is complete only at an instant in time. We are dealing with fragments. A fragment implies a larger unity. All urban design is a fragment of still a larger one.

Consistent with the idea of incompleteness is open-endedness as a requisite for growth. If we accept the idea of open-endedness, of continual change, growth and incompleteness at all points in time, we must add a further requirement, however apparently inconsistent with the former, and that is *a sense of completion at all times*. In other words, one of the key values of a truly good design will be its apparent completion, its apparent unity within itself but still its ability to grow, change and mesh with the rest. A design would ideally be "complete" at all stages or phases of development, not losing qualities in growth, merely changing.

5 Symbolism

Man has always lived with symbols as an essential part of his relationship to the world and to his systems of communication; the city has been a symbol of the state of civilization in its totality and as a conglomeration. Few contemporary designers recognize the symbolic significance of their work and the kinds of statements they are thereby making. The consciousness of our symbol-making is important to the urban designer. At the lowest level his symbols are sources of basic intelligence about the city ("this is a business street—this is an important place, etc"); at the highest level his symbols are poetry. A dilemma is obvious—when the society is mean it should be so expressed; for a false symbol, once recognized as such, is worse than a statement of fact, regardless of the unpleasantness of the fact. To work in symbols is a high order of abstraction, so the designer must know his media. He must know his society and what it wants to say about its way of life or its aspirations. The personal symbols of the "detached artist" have little or no place in the urban design process.

6 Programming

One of the most distinguishing aspects of urban design, as compared with other design practices (ie, architecture, industrial design, etc), is the fact that the urban designer seldom has a program given but, instead, usually designs toward the *evolution of a program*.

Even when given a program, it generally is lim-

ited to the internal aspects of the problem, the private or client interests; ie, so much floor space, so many units at such a price range, etc. To complete this kind of program, the urban designer must add the civic program—the unstated, but significant interests of the community in all its manifestations as a balance to the special interest of a given situation.

To many, a program is simply a statement of physical and functional objectives or limitations—often described in terms of land uses, building coverage, number of units, building types, etc. When so seen, they describe to the average architect a range of architectonic forms permissible, but in reality and more significantly a program does, in fact, describe a *life style*.

Whether explicit or implicit, the program is a description in the broader sense of the way people will live in and use the particular fragment of the city under design.

It must be emphasized that programming is the first and often the most important act of urban design. Programs are derived by many means from expressed social or economic demand, from felt human need, from political and economic opportunism or idealism, etc. They should, in fact, evolve through the interaction of the minds of many of the specialists involved in urban planning—building, such as the sociologist who can describe reasonable population structures for a given community; the economist who can relate the land uses to economic productivity; the politician who can judge the feasibility; to the administrator who can establish the strategy and timing. In among these must come the designer who will inject his own *formal objectives*, the formal implications of what others suggest, and the human implications of what might be a formal solution or a formal imperative to a given site and symbolic situation. *The designer must be part and parcel of the program-making process*—sometimes to dominate, other times only to mitigate—but always in at the formulative stages of the program, lest his design be, in fact, created by those with no concept of the end-product.

Without the coordinative and imaginative role of the urban designer, the various interests in competition with one another would likely result in a product unwanted by each. Program formulation must be a feedback process based largely on empirical knowledge and only partially on assumption, surmise or fancy theory.

7 Urban Design as a Function of Local Government

If we accept urban design as an aspect of urban planning-building, then the most significant part of urban design practice should logically be done as a function of local government. The reasons are many. The most essential elements of the urban scene, which are the essence of the urban designer's media, are such things as circulation systems ranging from the freeway to the greenway, sewers, curb-cuts, zoning ordinances, etc. These are all public responsibilities paid for with public funds and are the responsibility of public officials and ultimately the electorate. Only when the designer is in touch with these elements of the city and the institutions where all of these are brought together, and where the various interests involved can sit at one table, can he begin to be effective at the scale which will really count in the long run.

A part of the concept of local government is the issue of *community goals and aspirations* which the electorate expresses in one way or another. It is the designer's responsibility to work toward them, at times to stimulate and try to influence them, but never to be out of touch with them. This is not to suggest that urban design cannot or should not take place outside the aegis of local government. *Many aspects of the total problem are best solved independently*, particularly at the lesser scales. Also different interests, greater freedom of thought range and less responsibility will result in different, sometimes new and sometimes better ideas. However, for the positive aspects of this non-public sector of design ideas to be accomplished, they must, usually and ultimately, be incorporated into some aspects of local governmental process.

8 Relationship of Quantity and Quality

Size does, indeed, change things in kind. To suggest, as some poetic designers have, that the "city is a house and the house a city" is a pleasant euphemism but dangerous as an idea. The idea of a group of houses, in fact, differs in kind from the idea of one house. The additional complications and factors involved require a wider range of knowledge, sophistication and collaboration, which require a different kind of designer at work. Again, not to suggest that the designer of a house is incapable of designing the city sector or community, but that in his latter role he is dealing with

a basically different kind of problem. The oversimplification of urban design process by the analogy to the house can only lead to bad design.

We have generally come to think of urban design primarily in terms of relatively small and defined project areas. (The jump from one to two buildings establishing the "new art.") It must be recognized that urban design is not a function of project scale but is in the most real sense an attitude of mind. The range of urban design concern extends through no less a spectrum than from city tree to city sector to metropolitan area. We must continually appreciate that as the project changes in size, from the neighborhood to the urban region, the design elements change in kind, from the tree to the watershed, from the width of street to the mode of travel and, with these changes in design elements, there must come a corresponding change in the designer's knowledge and abilities—no small requirement, indeed. This is not to suggest that the specie selection and placement of a tree is as significant an act of urban design as the selection and placement of an employment center, nor that we can or should attempt to fix a "design" for areas or systems which by their very scale and complex nature defy a formalistic or architectonic approach. The designer is, by training and nature, a "visualizer," one who can "see" the product and its interrelationships before it is consummated; this quality must be utilized at all levels of urban planning-building. Our cities have reached an order so complex that few decisions can be made without far-reaching effect. In each decision to build or tear down, the question should be asked, "How does this affect the total quality of the city?" The *urban design team* is a critical link in the feedback process between physical elements of the city and the city's basic civilizing function—quality and meaning are the guide sticks.

Who is an urban designer? Every act of city building is an act of urban design, though indeed most such acts are done without this consciousness. But for those who act in good conscience, which designers deserve or should seek such a title?

The basic requirement is to be committed to the prospect that the city is a positive expression of civilized man and, as such, should be among his greatest achievements. To be an urban designer, he must have a clear understanding of, and a positive philosophical attitude toward, the values of urban life and, most important, the relationship between urban form and these values.

Good urban design results from a constant search for "meaningful form" and comes only through continuous involvement and study of the highly complex organism we call "city." Through

a concert of "urban studies" we are rapidly learning more about the city, but no amount of formal training alone will suffice. Qualification is the reward of continual commitment and concern.

How do we distinguish an authentic urban designer from one self-proclaimed? In many ways:

- He is learned and sophisticated but still retains an open mind and an empirical attitude
- He is equally at home with the problems of traffic and real estate as with those of group living patterns and children's play habits
- He is sympathetic to all human needs, however mundane they seem, and relies on available scientific knowledge and techniques as well as a keen common sense
- He recognizes the necessity of team effort, cooperation and perseverance
- He knows the historic nature of cities and their lessons; he respects the values of previous generations without being servile to antiquity
- With each assignment, he intellectually and emotionally extends his given site to seek out and comprehend the vital interrelationship between his site and all it affects
- He understands the kinesthetic nature of experiencing a city and its parts
- He will reach for that delicate balance between internal programmatic needs and the needs of a larger environment. This designer recognizes that the city is not made of buildings alone, but that they are an integral part of generally more important open spaces whose value often long outlives the structures about them. He can sense the many systems of open spaces, the kinds and hierarchies of streets, squares, circles, and parks
- The urban designer has the sense of humility to design appropriate buildings that will blend to become background to one more deserving of the foreground. He does not shoot his cannon to kill a fly
- This designer understands that buildings only seldom appear in a space—but more often, join with others to create a street, a place
- Finally, the truly great urban designer can rise to that wonderfully rare opportunity of building on the special site, that special building which demands all his creative resources to make significant architectural and urban form

When we, as a culture, produce more such designers and can, as a group, come to some reasonable consensus of basic urban and design values, then we will have more beautiful and livable cities. Not all designers will choose this path, but for those who do, let them do so with the same desire to learn that distinguished their youthful approach to their basic design discipline. The city is an ever-changing organism; the design process must change with it. ◀

The Role of Art in Religious Buildings

The Harmonious Integration of the Visual Arts

by William Lescaze FAIA

► For many, many years I have realized that all the visual arts belong together—crafts, paintings or murals or mosaic, stained glass, sculpture and architecture—*within* the frame of architecture.

They are valid by themselves of course, but as an architect, I am thinking of them within and in relation to the forms which I try to create.

Thirty years ago one might have hesitated to call an architect an artist. The writer, the composer, the painter, the sculptor, yes, they were called artists; but the architect, no. Yet, unless the architect is an artist by which I mean unless he longs to and is able to create, how can we expect any worthwhile architecture from him?

By their very nature the media which architects, painters and sculptors choose to express their emotions are quite different. The painter, when he has seen or has thought of a thing that moved him, paints it—he himself without any outside help. No one stands as an intermediary between the painter and his canvas, between the sculptor and his sculpture. But the architect makes demands on many others. He has to create, there is no doubt about that, but he also has to learn how to tell others in great detail what he means to create in order to have them execute it properly. By others I mean the structural engineer, the mechanical engineer, the acoustical expert, and many others.

The drawings the architect prepares, the specifications he writes, are not end-products. They have meaning only because they make the construction of a building possible. The architect is not alone without intermediary as is the painter with his canvas. The architect's drawings and specifications are the necessary tools in the hands of an artist called architect.

Today the painters and the sculptors look to the architect as their Big Brother. They really shouldn't. It's pleasant to be a big brother; it's also risky. A wide, high and unbroken piece of wall is to painters and sculptors often like red

There is great need today for a re-integration of the arts. It has existed before—and not only during the Renaissance; it can exist again. This article is adapted from an address given by the author at the Interchurch Center in New York City

cloth to a bull. That's the place for a mural. That's the place for a relief. Maybe that mural will *make* the room. Maybe the room will be all right, neither better nor worse, with a mural on that wall—but it is also possible that that flat, naked surface has really been planned to remain there flat and naked and that a mural would kill it.

And now to particularize on "The Role of Art in Religious Buildings." William Rudin in his interesting book "Modern Sacred Art and the Church of Assy" makes a distinction between "religious art" and "sacred art." He writes: "While 'religious art' is subject to conflicting interpretations, 'sacred art' (ie, art ancillary to the celebration of the liturgy) can be clearly defined, for it falls exclusively within the province of the Catholic Church itself." I know what he means and yet to me "religious" art is always "sacred" art. Many artists did wonderful work for this church (dedicated 1950).* I might add probably *too* many artists—Rouault, Léger, Matisse, Lipshitz, Bonnard, Chagall. Alas the building as architecture is not especially distinguished. Here clearly the architect did not lead as he should. In the ensuing debate about this church and its art work it was clearly stated that sacred art is "*Living Art*" and that it must correspond to the *spirit* of its times in "*techniques as well as materials*." That at least was a great step forward.

No one who has visited the Chapel in Venice can fail to experience there "The Role of Art in Religious Buildings." Here again the architecture is unfortunately non-existent, but everything Matisse has touched, in turn touches you, moves you. And fortunately Matisse has touched almost

* Editor's Note: See *AIA Journal*, Nov 1961, p 66

everything—the stained glass windows, the figure incorporated in the tiles of the wall, the altar, the vestments, even the door.

Although written about another and earlier work of his, the mural for the Barnes Foundation, it is revealing to read that Matisse wrote to a friend, “Perhaps it would be important to make clear that my mural is the result of a physical encounter between the artist and some fifty-two square meters of surface of which the spirit of the artist has had to take possession—it is not the result of the usual modern procedure of blowing up a composition more or less mechanically.”

We probably have all been touched recently at the Museum of Modern Art by the stained glass windows of Chagall created for the Hadasah-Hebrew University Medical Center near Jerusalem. Although the setting in New York couldn't be what it's going to be in Israel, this too was a memorable experience of what “The Role of Art in Religious Buildings” can be. Here—let us rejoice—is distinctive architecture created by architect Neufeld and the art by Chagall going so well with the architecture, the two belonging together, making a whole and singing a strong invigorating song!

Early last year I publicly made two recommendations to public authorities, as well as to private builders. I suggested that for the guidance of the authorities, the taxpayers and the architect, there should be an agreement right from the start on the amount of money allocated for art work in ratio to the total cost of construction of the building. Late in 1959 an ordinance was passed in Philadelphia by which one per cent of the cost of “any building, gate, bridge, arch or other structure financed in whole or in part with City funds shall be devoted to fine arts on or appurtenant thereto.”

Then I recommended that the architect be recognized as head of the team. By this I mean

that just as the architect selects his structural and his mechanical engineer, he likewise should be charged with the responsibility of selecting his sculptor and his painter.

Thus, and thus only, can a work of art be created which will be harmonious, where sculpture and painting can be really integral parts of architecture.

A few days later the *NY Times* endorsed these comments on its editorial page and added: “Architecture, traditionally the mother of sculpture and painting, has social responsibilities today on a scale not even approached in the past.”

To get the kind of integration, which Newfield and Chagall did, the architect must be given the opportunity of consulting with a sculptor, with a painter, in the same manner as he does with a structural or a mechanical engineer, at the *very beginning*, at the time he begins to draw and dream his work—not when the building is almost completed. Haphazard methods will only give us more of what we already have, statues and murals around and on our buildings, not belonging together, not belonging to the buildings.

Can we look at the Parthenon sculptures or at Cimabue mosaics and fail to see why and how two entirely different examples of perfect integration with architecture were at two different times achieved, and how beautiful they have remained to this day?

Architecture, sculpture and painting, if properly brought together, constitute a civilizing force. Isn't civilization itself the true aim of the human spirit?

I, for one, feel strongly, and I know that many of my colleagues here share this faith, that the time has come: Architects, sculptors and painters can work again together, dream again together and thereby make that wonderful and *simultaneous* creation happen again, as it should, and as it did happen in the Renaissance. ◀

COMING IN THE OCTOBER JOURNAL

Mind, Body and Stimuli

Gyo Obata AIA

A “School Plant Study” and a portfolio of photographs of outstanding schools present an appeal for more concern with the visual and psychological impact of school design

Housing for the Elderly

George E. Kassabaum AIA

Final article by the Chairman of the AIA Committee on Housing for the Elderly

A Guide for Planning Christian Church Buildings (Disciples of Christ)

Harold R. Watkins BD, Charles J. Betts AIA

Another in the series prepared by the AIA Committee on Religious Buildings

Budget Estimating and Cost Control

Charles Luckman AIA

Continuing the series “The New Role of the Architect,” Mr Luckman describes a system to predict and control the cost of a project before it reaches the final working drawing stage.

The Journal of Architectural Education

Vol XVII, No 1, will appear in full in this issue, containing “Fifty Years of the ACSA,” by Harlan E. McClure and “Unique Profession, Unique Preparation,” by Philip Thiel

New Spaces for Learning

Architectural Research and the New Facilities for Education

by Alan C. Green

The author is an assistant professor in the School of Architecture at Rensselaer Polytechnic Institute, and served as Project Manager on the development of the facility described. Since Professor Green is presently serving in the Army, the illustrative material was furnished by Assistant Professor M. C. Gassman.

► We like to think of the "Experimental Classroom Project" as the third of four logical, sequential steps in the development of a new facility type. Even though dealing with a particular type of educational facility, the same four steps are followed to some degree with any new facility type. Admittedly they do not always follow such a logical sequence, and often one or more steps are combined, but particularly through academic architectural research the steps can be defined.

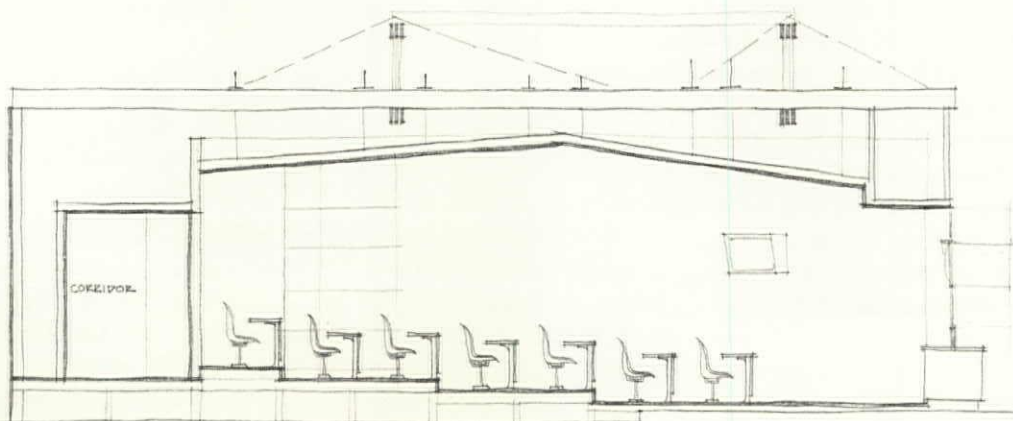
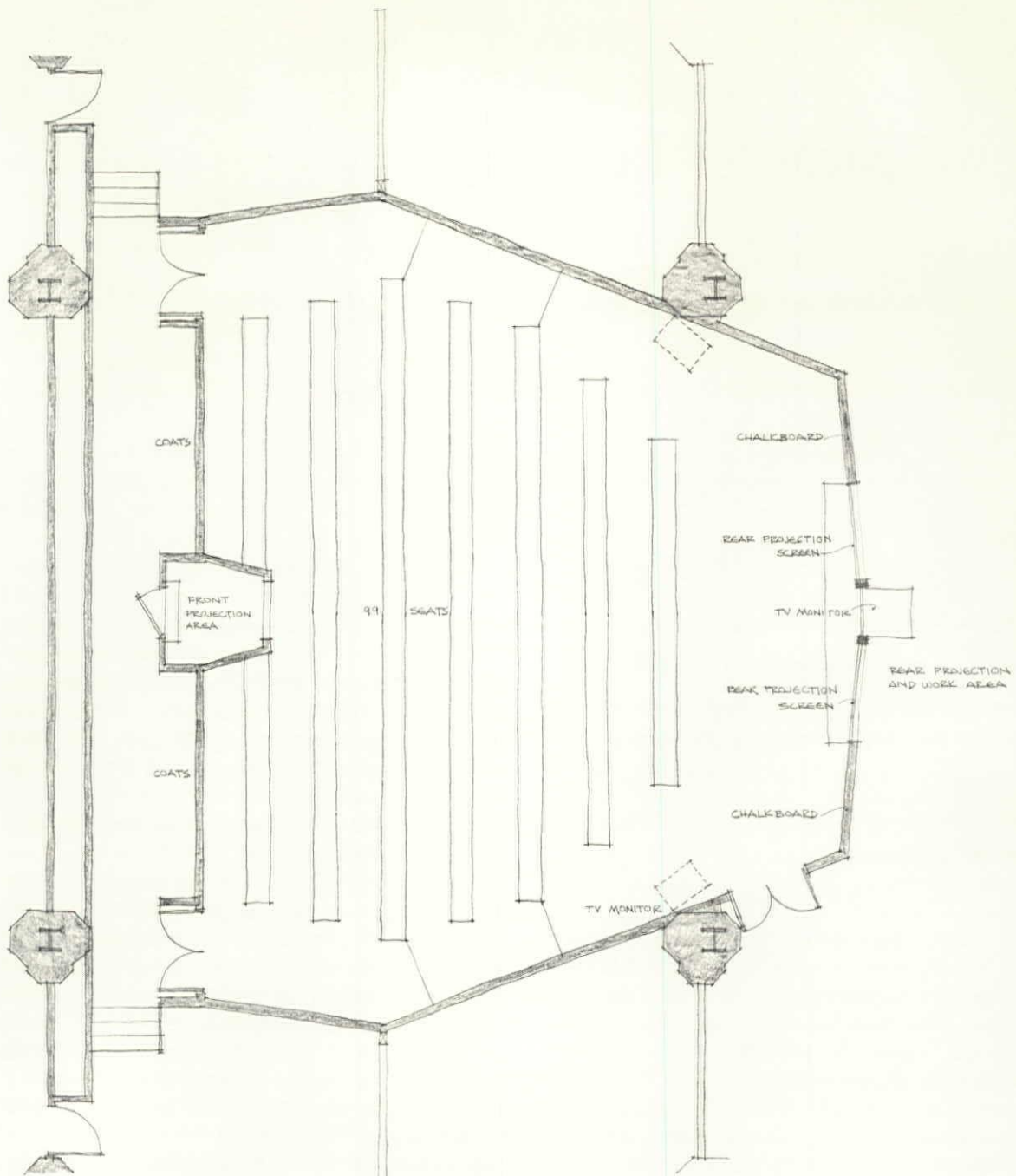
The first is the *definition of a need* for a particular facility to meet certain functional changes or advances; the second is the *development of basic planning and design criteria* for such facilities; third, *experimentation* through actual in-use study of a mock-up or test structure; and fourth, *the design of a prototype* where the first three steps result in the incorporation of such a facility in a permanent building form. In the architectural research program at Rensselaer, it has been possible to follow through the first three of these steps in the development of a facility type which can be called "instructional facilities for utilization of the aids and media." The employment of instructional aids and media in all phases of American

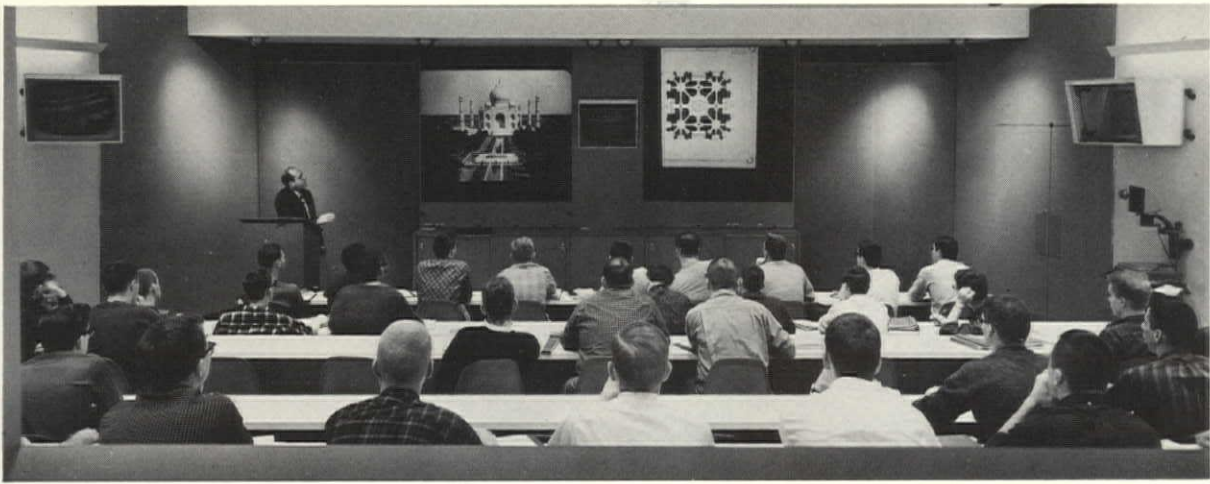
education is now recognized to be part of the dynamics of our age. Film and tape materials, projection devices, television, demonstration apparatus, and others are part of today's instructional fabric and are continually being more and more effectively used. Their ultimate worth has yet to be fully realized.

Recently the design professions and the aids and media crossed paths. Finally it has been realized that to achieve the full benefit of such devices they must be used in spaces specifically designed for that purpose. As an example, consider the action of showing a film to a group of students. The film contains pictorial material, possibly graphs and charts, that must be readily seen, comprehended and assimilated as well as sound that must be clearly audible to each student. Lowering a screen, closing some blinds, bringing in and setting up a projector, moving some seats around, and turning off the lights has usually been the procedure for creating an environment for such a learning situation. This may be satisfactory, but

The Profession

it is not providing an environment to permit *optimum learning*. Lighting, image size, viewing distances and sight lines, climate equipment location and controls, acoustics, seating type and arrangement, and space character are all important considerations in any space where a film is shown. But education wants more than the use of a film in a space; they must be multi-media spaces to





permit use of one or more aids interchangeably, so that particular aid best suited for a segment of learning can be readily employed. The conventional classroom or auditorium does not provide satisfactory environment to accomplish such a goal.

By December 1959, Rensselaer Architecture had entered the picture by receiving a grant from the Educational Facilities Laboratories, Inc, for an architectural research project on "auditorium-studio facilities for engineering education." This became the Project DASFEE (design of auditorium-studio facilities for engineering education). Based on the need for the facility type previously discussed, a basic premise was developed that stated that "optimum use of instructional aids and media requires new concepts of space types and their design." From that premise, the second step in the development of a new facility type, the design and planning criteria step, was undertaken.

A year and a half later this step culminated in the issuance of a report entitled "New Spaces for Learning—Designing College Facilities to Utilize Instructional Aids and Media." The report sets forward certain planning considerations and design criteria for creating facilities in which aids and media may be used with maximum results.

To illustrate the criteria, a series of design studios are included in the report. Based on extensive research and study, "New Spaces for Learning" has a very real reason for being; it is to provide direction and guidance to the college administrators involved in the planning of facilities and the architects responsible for their design.

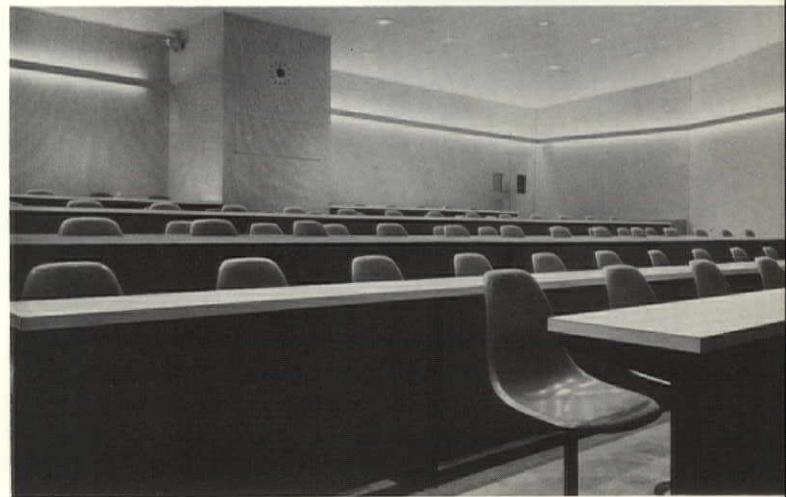
A Model Facility

At this point step three began to emerge. It was early realized that many of the DASFEE criteria were so new and the resulting spaces so unique, that it would be most helpful at some point to build a mock-up of one of the spaces to enable trying it out under real instructional conditions.

To be effective, the mock-up should be truly experimental in concept; a non-permanent structure permitting change and modification and located within an enclosing weather-proof structure. A former chapel building, the main floor of which was unused, appeared the logical spot on the campus. Based on the design criteria, a scheme was developed for an instructional facility that would occupy the space available at the crossing of the chapel. The Trustees approved the use of the chapel for a period of three to four years, and the project was named "An Experimental Facility for College Teaching."

Working drawings were completed and with RPI providing funds for the shell, construction was begun in August 1961. Three months later the facility was ready for its first demonstration and it is presently being utilized and evaluated for both architectural and educational research. A number of companies provided equipment and fixtures for the facility; without their assistance the project would not have been realized.

The facility has a capacity of 100 students. The unusual plan shape is dictated by the maximum viewing angles for the two six-by-six foot projection screens, and the corresponding minimum and





maximum viewing distances. Within the viewing area thus defined, every student has a clear, unobstructed view of both screens and the other less critical display surfaces. The seating consists of fixed, pedestal, molded plastic chairs arranged in seven rows of varying lengths behind continuous table tops. Back to back row spacing permits an aisle behind all seats. The rows of seats are arranged on four levels and alternate rows of seats are staggered.

Lighting Systems

The lighting is composed of three basic systems. One is a system of dimmer-controlled downlights that illuminate the student writing surfaces; the intensity of these lights is adjusted to suit the brightness of the aid being utilized, but enough light is always available to permit note-taking. The second system is a continuous band of fixtures located near the top of side and rear walls and designed to wash wall and ceiling surfaces with light. These are also dimmed and are utilized to increase the over-all room intensity. Finally accent lights, individually controlled and sometimes dimmed, illuminate specific chalkboards, tackboards, demonstration areas, or the instructor himself. A series of these fixtures provides over-all illumination across the entire room front.

The cross-section indicates the ceiling configuration dictated by acoustical considerations. The space is designed to permit the unaided voice of the instructor to reach all students, while amplified sounds are distributed from a single high-quality source located at the center of the front wall. Reverberation control in the form of rock-wool panels covers the rear and part of the side walls.

The windowless room is completely airconditioned and the color scheme and textures of neutral tones were selected so that all attention is directed to the display surfaces, demonstration or instructor. All display surfaces are designed and their colors selected to provide an integrated, continuous display wall unbroken by glaring metal trim. Functionally the space supports the use of 2x2 slides, 16mm films, the overhead projector, audio tapes, television, demonstration apparatus and

models. The double screen permits the simultaneous showing of two images when such is required for comparative analysis. Images may be projected either from front or rear screen positions; in either case the projectors are enclosed to prevent distracting noises.

Television may be received via monitors, or may be projected on one of the screens. The television system will eventually permit remote reception, as well as origination from the experimental classroom to other locations on the campus. Demonstration apparatus and models are assembled in an adjacent preparation room and then are rolled onto the stage area at the front of the room. Utilities may be self-contained in the roll-on table or connected through an access panel in the floor.

Finally the control system allows the instructor to choose and operate the aid he wishes with a minimum of controls. The lectern contains on-off buttons which are keyed in with the lighting system. For example, if the instructor wishes to use the 2x2 slide projector he need only press the designated on-off button and this automatically dims the lights to a preset level (about 40 footcandles) and projects the image on the screen. Forward and reverse buttons allow flexibility of choice. At the conclusion of use of this projector, the professor presses the control button again which:

- a turns off the projector bulb
- b raises the lighting to 60 footcandles and
- c after a two-minute delay, turns off the projector fan.

One additional feature is significant. As an experimental structure, changes and modifications, based on experimentation and evaluation, are expected to be made to the structure during the three or four years it is operated. To permit this, the ceiling is panelized and hung from a truss and stringer system. The walls are non-bearing and capable of change and relocation; the floor system is framed and panelized to permit changes in level and arrangement. Essentially a laboratory structure, it has the potential of changing shape, equipment, seating arrangement, ceiling configuration, lighting, display surfaces, colors and materials.

Eventually RPI will incorporate features of this facility in its Science Center complex, part of which was recently completed. Thus the fourth step will be realized on the Rensselaer campus. In the meantime, architectural research is providing data and information on the design of facilities which will house the dynamic new trends in American education; trends which are being felt at every level and in every corner of the country. ◀

Comprehensive Architectural Practice for Small Offices or Large

by **Dudley Hunt, Jr AIA**

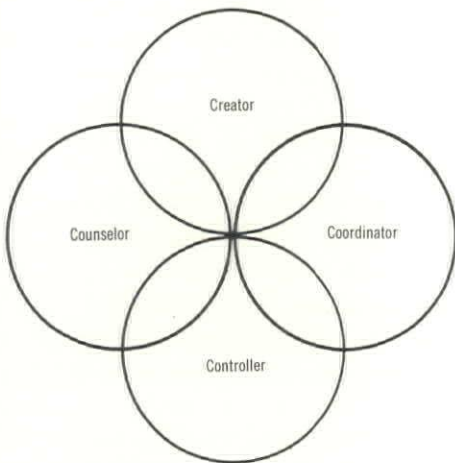
The concept of comprehensive services describes the role of the entire architectural profession and its collaborators in building and environmental design and construction. Within the concept, architectural firms of all sizes can practice effectively and creatively in any of a great number of ways

So vast is the scope of complete comprehensive architectural practice that only the architectural profession as a whole, with the help of talented and able consultants and collaborators, can hope to perform the entire range of services.

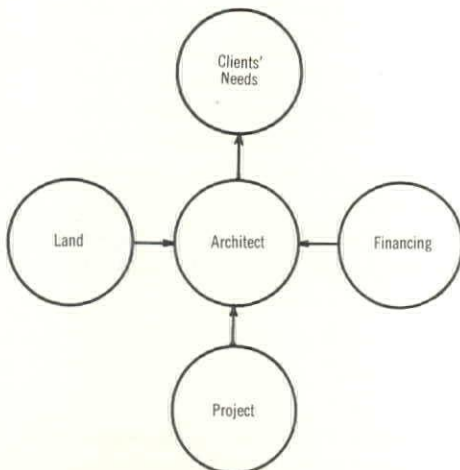
On the other hand, it is entirely possible for individual architectural firms, large or small, to provide their clients with the comprehensive services required for particular projects.

Architectural firms of any size can practice effectively and creatively under the comprehensive practice concept if—to put it bluntly—they are competent and organized for it. The fact is that a number of firms presently are performing many services for their clients in addition to those of the standard design, production and construction supervision phases. Some offices now offer their clients professional services in such areas as building programming, master planning, feasibility and financial analysis, location analysis and site selection, space planning, or operational programming and design. Many larger offices are now prepared to perform these services and others according to the requirements of the particular types of work they handle. This fact is well-known. Not so common knowledge is the fact that a number of much smaller firms, having somehow acquired a degree of competence in such areas as finance and costs or real estate and land assembly, are regularly serving the interests of their clients in these or other areas not formerly thought of as architectural.

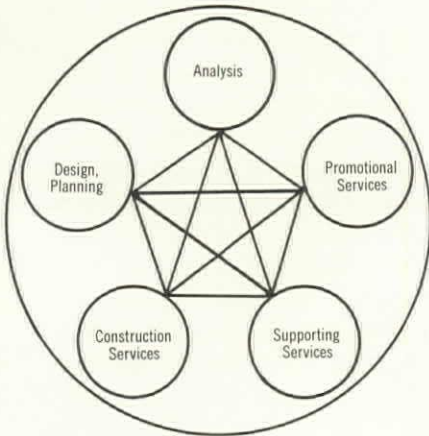
Whatever the size of the firm, the decision to go into areas in addition to those of the basic architectural services has usually come primarily as the result of recognition of the needs of the



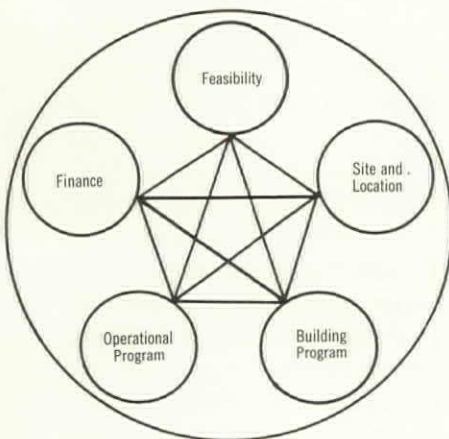
Role of the Architect



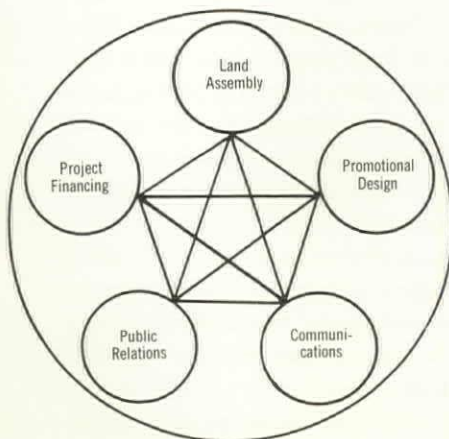
Architectural Practice Today



Comprehensive Practice



Architectural Analysis Services



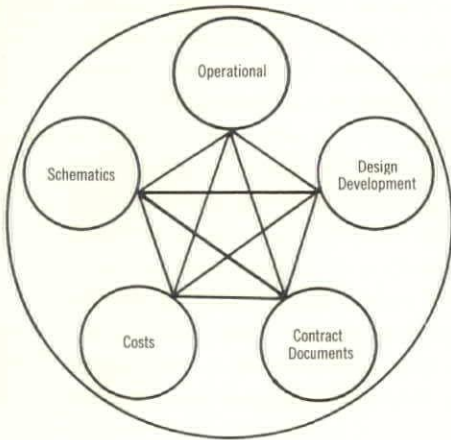
Promotional Services

firm's own clients. Perhaps equally important has been the realization that, in many cases, if it does not participate in the early real estate and financial operation, and similar decisions, the architectural firm will be prevented, by decisions over which it had no control or influence, from applying its best skills and talents to the solution of the more strictly architectural problems. Of course, the individual inclinations and desires of the firm's members also bear heavily on the question of whether or not a firm will offer some degree of comprehensive services. If a firm is to grow, it will inevitably face a long series of such questions during its life. If the decision at any point is for the firm to expand its present services, it then must follow that the firm will have to broaden its knowledge and attain an acceptable degree of competence in the newly added services.

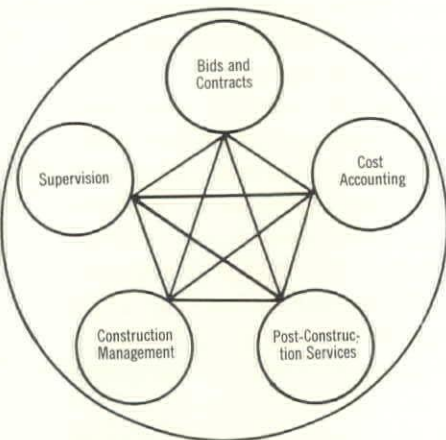
The basic questions that must be answered by a firm considering the expansion of its services toward some form of comprehensive practice would seem to be these: What are the major goals of the firm and the individuals that comprise it? What types of work does it wish to perform? What size of work? Work of what degree of complexity? What volume? What are the characteristics of the clients who commission this work? What requirements are peculiar to this work? What must be the scope and characteristics of services required for such work and for such clients? What kinds of people are needed to perform these services? How many? Where can they be obtained? How are they to be trained? How to organize them for efficient, effective, creative performance? Only with the help of realistic answers to questions such as these can the individual architectural firm plot its own course through the unruly waters faced by the profession. And the answer to the first question, and perhaps those to the succeeding three or four, provide the chart necessary if the firm is to avoid the dangers inherent in the other questions.

A given firm might decide, for example, that it will limit the types of work it accepts, the size of its work, its complexity, its volume, or any combination of these because the major goal of the firm is selectivity of projects with a view toward excellence of performance within the limitations of the services it elects to perform on the projects it accepts. Another firm might gear its operation to growth and to the performance of expanding types of services on a growing number of projects of increasing size and complexity. A third firm might have a completely different view of itself. In any case, the individual firm will find it necessary to assess its position and its goals, if it expects to prosper and progress in today's world. Each firm must then prepare itself to perform the services required to reach the goals it sets for itself, with its own staff, with the help of outside consultants or collaborators, or by some combination of these methods. It goes without saying that the firm must somehow sell its potential for service to an adequate number of clients, and then perform the services commissioned by the clients, creatively and effectively.

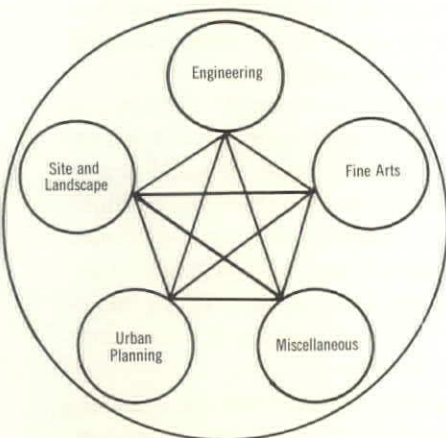
All of this is undoubtedly easier to affirm than to perform. Further clouding of the picture is caused by the existing need for vast improvement in the current average levels of performance of the basic services of design, production, and construction adminis-



Design and Planning Services



Construction Services



Supporting Services

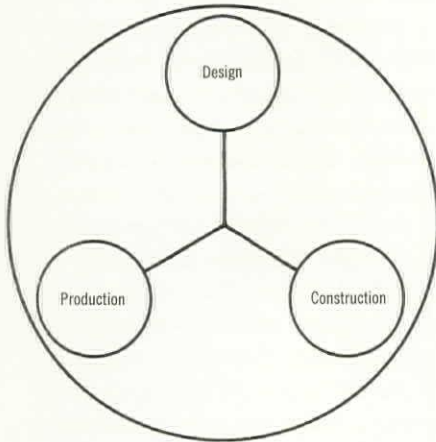
tration. Greater competence in the areas of cost estimating and control of construction costs is sorely needed. And it is not easy to justify the current widespread practice of offering building programming only as an extra architectural service or performing it haphazardly, hurriedly and often for no fee primarily because the owner cannot or will not handle it himself. Without increasingly-improved levels of performance throughout the profession in these basic areas of practice, it is extremely doubtful that firms can perform effectively in such additional fields as land assembly or financial analysis. And it is even more doubtful that any large numbers of today's clients will allow such firms to advise them or act for them in these areas. The corporate client, the entrepreneur, the governmental client, the institutional board—the major clients of today—cannot reasonably be expected to entrust the analysis of the financing or feasibility of their important projects to architects other than those who have demonstrated their ability to perform efficiently the standard architectural services, including the preparation of realistic and reliable cost estimates and the exercise of cost controls to insure construction within budgets. None of these clients can be expected to commission an architect for services in programming or layout of production lines in an industrial building or in the market analysis of a shopping center, unless that architect is demonstrably competent in the performance of the standard architectural services, within reasonable and previously estimated limits of time. These are the sort of considerations that clients understand and have the right to expect.

Certainly a client is more likely to utilize the services of an architect in such areas, if it is apparent that the architect's own functions are handled in an efficient and productive manner. And today's clients are looking for single authority over their complete building projects, something the knowledgeable and competent architect can deliver better than any other.

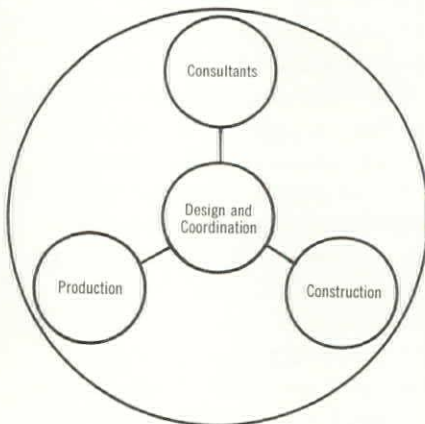
This is not to say that each firm or individual architect must provide all of the comprehensive services or even all of the standard services with his own staff. Growing trends toward consultation between individual architects and firms, associations, and joint ventures of various kinds are discernible. And the list of the architect's consultants and collaborators is growing.

It is within the realm of possibility, certainly, that an architectural project might be handled in some way such as this: An architectural firm with a reputation for original and enlightened design might acquire a commission for which they intend to handle only schematics, preliminaries, and over-all coordination. The aid of knowledgeable real estate and financial consultants is enlisted for assembly of the necessary land for the site, analysis of financial requirements, and obtaining of financing.

A specialized consultant is called in to prepare an analysis of the operational and building requirements and eventually to prepare the program under the direction of the architects. An association is formed with an efficient and business-like firm of architects who are given the task of production of working drawings and specifications. Since the building is to be constructed in a location away from the home offices of either firm, still a third architectural firm of demonstrated ability in the area of construc-



Former Organizational Pattern



A New Organizational Pattern

tion is engaged to manage and administer the construction of the building. A hypothetical case this—but the fact remains that nearly every architectural firm in existence has, at one time or another, been involved in some project that was handled in a manner similar to that described.

The next step, perhaps, might be that the design-oriented firm might decide that the success of this project indicates that they should handle more of their future work in this manner. Next might come a decision to concentrate the firm's efforts entirely in this one area of practice. How to get the working drawings done? Possibly with the aid of some other firm that has decided to concentrate in the production area. Possibly by a permanent association between the two firms. The combinations are virtually without limit.

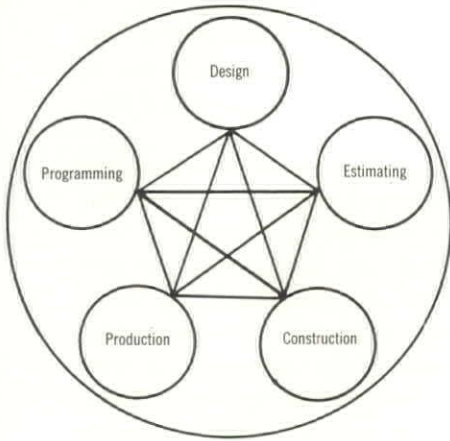
Another architectural firm finds itself capable of obtaining commissions ever farther from home base. Inevitably, that firm must decide to limit itself geographically, refusing jobs that are too far away, or it may decide to create branch offices, or work out some other method of handling the work. Might not a more or less permanent association between a number of firms, removed from each other geographically but possessed of either similar or complementary interests, be an answer to this problem?

The hypothetical cases discussed can only serve to point out, in a very limited way, that the architectural profession has available to it a great number of organizational patterns that might be utilized for meeting the complex requirements of comprehensive practice for the client of today. It is obviously impossible to describe definitively the types of architectural practice possible under the comprehensive practice concept. However, a brief discussion of a few of the major possibilities may be of some help.

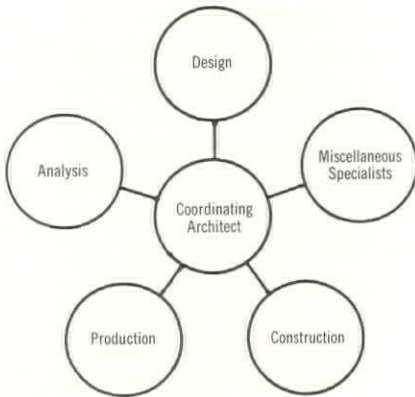
In the recent past, and to a large degree at present, the two most prevalent methods of organization for architectural practice have been general and specialized practice. For the most part, general practitioners have limited themselves to the offering of the basic services: design-production-construction administration. Such firms have usually offered their services for all, or almost all, building types. On the other hand, specialized firms have mostly confined themselves to services on a limited number of building types, offering the basic services, but increasingly finding they must perform additional services for their clients if they would maintain their positions of leadership in the specialized fields.

Today, general firms are finding it increasingly difficult to obtain commissions or to perform them well when they do obtain them, unless they equip themselves to do more than the basic services. For the most part, firms that specialize by building type learned this lesson earlier. At the same time, many of the specialized firms have begun seeking commissions in fields other than their specialties, and in so doing have had to prepare themselves for handling all aspects of the work necessary for success in the new fields.

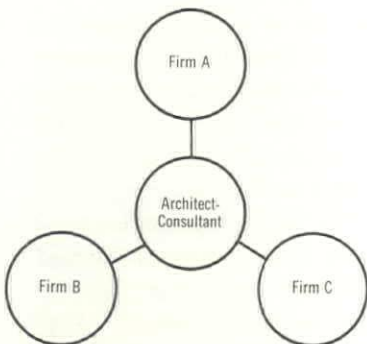
In other words, both general and specialized firms have inevitably found themselves expanding toward comprehensive services either from choice or as a result of the demands and needs of their clients. Of course, there have always been out-of-the-ordinary



Limited Firm (Basic Services)



Specialization by Function



Architectural Consultant

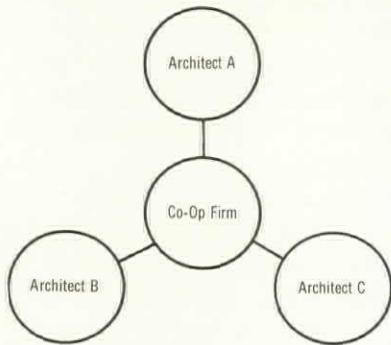
methods of practice in addition to the two main types. Together with the general and specialized practices these have been evolving toward newer ways of organization for practice, all of them within the concept of comprehensive practices.

At the present time, it is possible to segregate and classify no fewer than five major types of firms now in existence, all operating within the comprehensive services concept: 1, Limited Firm; 2, Specialist Firm; 3, Architectural Consulting Firm; 4, Co-operative Firm; 5, Comprehensive Firm. Theoretically at least, it is possible to add to the list a sixth type, which might be called the Core Firm. While the activities of many—perhaps most—of today's firms cannot be said to fall strictly within the limits of any one of these groups, perhaps such classifications can be helpful in the establishment of guidelines for an examination of some of the growing organizational and functional tendencies in present-day architectural practice.

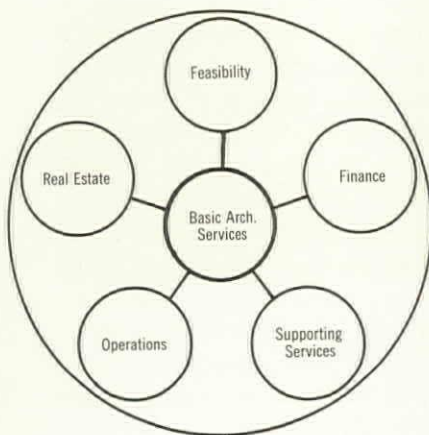
Many firms today limit themselves, by choice or because of their particular circumstances, to a type of practice that is closely akin to the old concept of general practice. Such firms are currently finding that they must seek out special consultants to aid them in serving their client whenever their clients' problems escape from the accepted range of basic architectural services. It would seem inevitable that most such firms will eventually have to work out some sort of standing arrangements with special consultants or bring some of them into their staffs, if the firms are to continue to do large and complex work. In other words, this type of firm now seems to be approaching some degree of comprehensive practice.

Firms that specialize by building types still exist, but it would appear that such specialization is not so narrow as it once was. Other ways of specialization are now beginning to make their appearance, perhaps in answer to the growing complexities of present-day practice. For example, some firms today perform few or no services in the production and construction administration areas, relying almost entirely on associated firms to accomplish this work. Such firms tend more and more to become specialists in some combination of programming, design and architectural coordination. Other firms have split themselves into two parts, a production-construction division and an architectural division that does everything else. There are numerous organizations that specialize in analysis and programming. Though most of these do not call themselves architectural firms, architects are the owners of, and prime movers behind, many of them. There are, of course, a number of further possibilities.

In order to perform any degree of comprehensive services, architectural firms are finding they must provide themselves with increasing numbers of consultants in specialized, non-architectural phases of the work. Perhaps not so apparent is the growing tendency of architects to engage the services of other architects for consultation. For example, a top-flight, efficient firm might retain the services of a top-flight consulting designer-architect if it has no one of that caliber on its own staff. This sort of thing is being done rather often these days, and with satisfactory results. Many firms could benefit greatly from similar consultation with other



Cooperative Firm



Comprehensive Firm



Core Firm

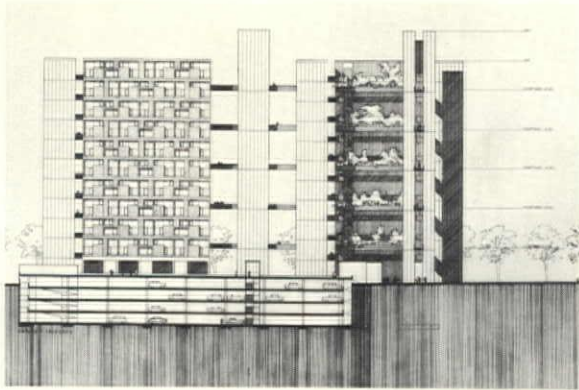
architects who have earned good reputations for such things as their organizational abilities, their talents in programming and analysis, their efficient procedures in the production of working drawings and specifications, or their ability to control construction costs.

One of the methods of cooperative practice is that in which individual practitioners band together to share their overhead, certain facilities, and possibly the services of personnel. This method of organization is well established among doctors and lawyers. There would seem to be no insurmountable reason why architects cannot also benefit from the advantages of sharing such things as can be usefully shared while at the same time retaining the rights of each individual to practice in his own way. A further advantage is that greater opportunity exists in such organizations for constructive criticism among the co-op members.

It would seem equally possible to set up cooperatives among firms rather than individuals, if there are important advantages to be gained through the actions of the larger groups, actions that might be ineffective if performed by single firms. As has been previously pointed out, such advantages might accrue to a group of firms, widely separated from each other geographically, if they made an agreement to cooperate with each other on certain types of work. Then too, there might be some advantages in a cooperative firm composed of divisions, each of which was devoted to a major sector of comprehensive services.

Firms that have decided to organize for comprehensive services, in the fullest sense, must provide themselves with the capabilities necessary for performing all of the services needed by their clients. This can be accomplished either with people on the firm's own staff, or with outside consultants. In practice, the usual arrangement is a combination of the two. For the most part, specialized consultants whose services are required almost continuously by such firms are usually to be found on their staffs. Other experts, needed less frequently or those who are more extremely specialized, are usually brought in from outside when their services are needed.

What about the small or medium-sized firm that wishes to offer comprehensive services to its clients? Such firms may find themselves unable to perform more than the basic architectural services with their own staffs. Assuming that such firms are well-prepared to offer these services, it would seem entirely possible for them to make working agreements with outside specialist consultants who would remain on call until needed. As the number of projects handled by the firms together with their consultants increased, it should be possible to work out smoothly-operating and efficient procedures that would lead to quite satisfactory results. Such a firm would consist of a hard core of creative and productive people who would perform all or most of the purely architectural functions. This core would be surrounded by equally creative and productive consultants, selected by the members of the firm for their talent, ability, and compatibility. A firm organized along these lines might be hard to hold back in the years stretching ahead of the profession. Such a firm should be able to handle work of any size or complexity.



Duane Thorbeck, Minneapolis

As a thesis for his Bachelor's Degree at the University of Minnesota, Mr Thorbeck chose a study in high-density urban living on a site in downtown Minneapolis. Being dissatisfied with his undergraduate thesis, he re-approached the problem for his Master's thesis at Yale. Of this design he says:

"There were two major problems that determined the final design: one, the sociological im-

plication of an architectural environment; and second, the relationship of tall buildings to the city landscape.

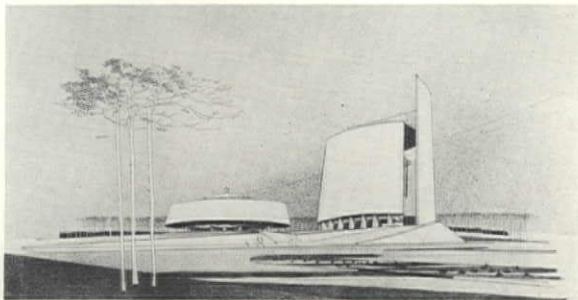
"After talking with sociologists, real estate men and city planners, it seemed that the basic reason why people like to live in certain areas is based upon their opportunity to meet and get to know their neighbors.

"This led to the scheme of providing courtyards in the sky, through which tenants would have to pass to get anywhere. They would also serve as outdoor recreation areas and social gathering places.

"By connecting the tower clusters with bridges to the elevator towers, people could move horizontally from one courtyard to the next. This linking would cause the towers to form walls in the city landscape, identifying certain areas of the city on the skyline."

Selections from the Portfolios of

THE TWO ROME PRIZE WINNERS FOR 1962



Thomas N. Larson, Cambridge, Mass

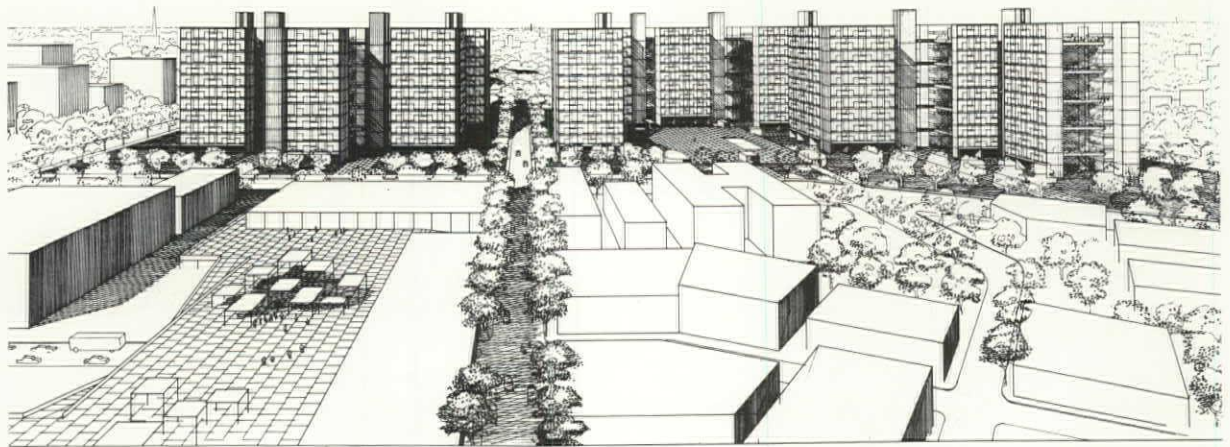
A graduate of the University of Minnesota, Mr Larson received his Master's degree from Harvard. With Don Hansen, Tom Van Housen, and Peter Woytuk, he was one of the eight finalists in the Boston City Hall Competition.

The project chosen for illustration here is the Lutheran Church of the Apostles, designed as a member of the firm of Progressive Design Associ-

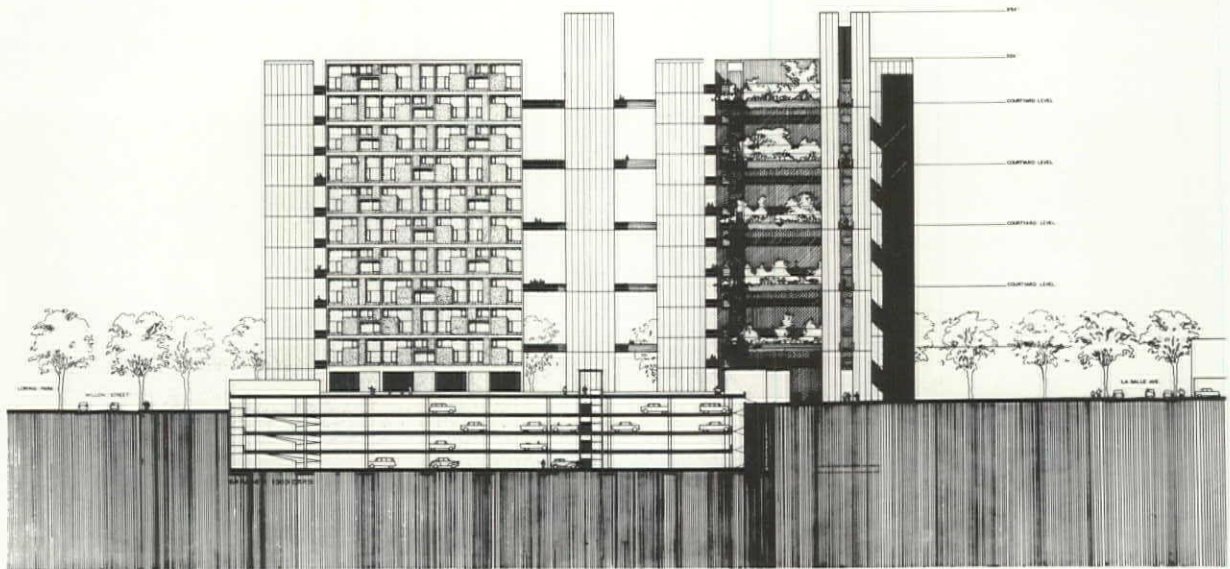
ates, St Paul. Mr Larson gives credit for "collaboration on refinement" to Mr Woytuk and Mr Van Housen. He says of this design:

"The approach from the highway is strong, coaxial and impressive. The automotive circulation moves freely around the church, but the pedestrian is contained within the building complex, except for access to the parking lot, which is depressed.

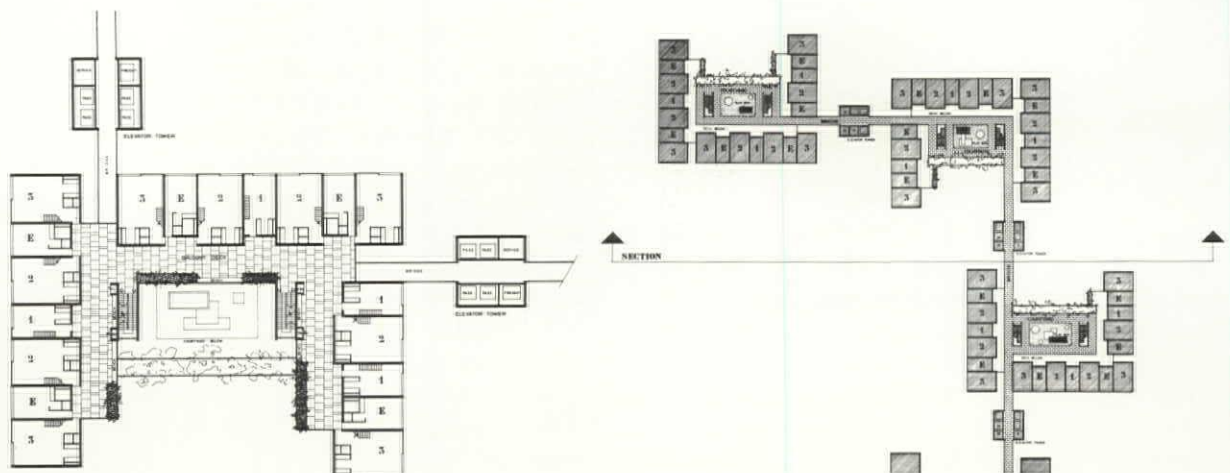
"The church is on the north side of the site to shelter the other buildings, plus reflecting the south light. We added a Wayfarer's Chapel for brief meditations; it could also be used for small weddings, prayer meetings and, most important, for a closer awareness of God by daily individual meditation."

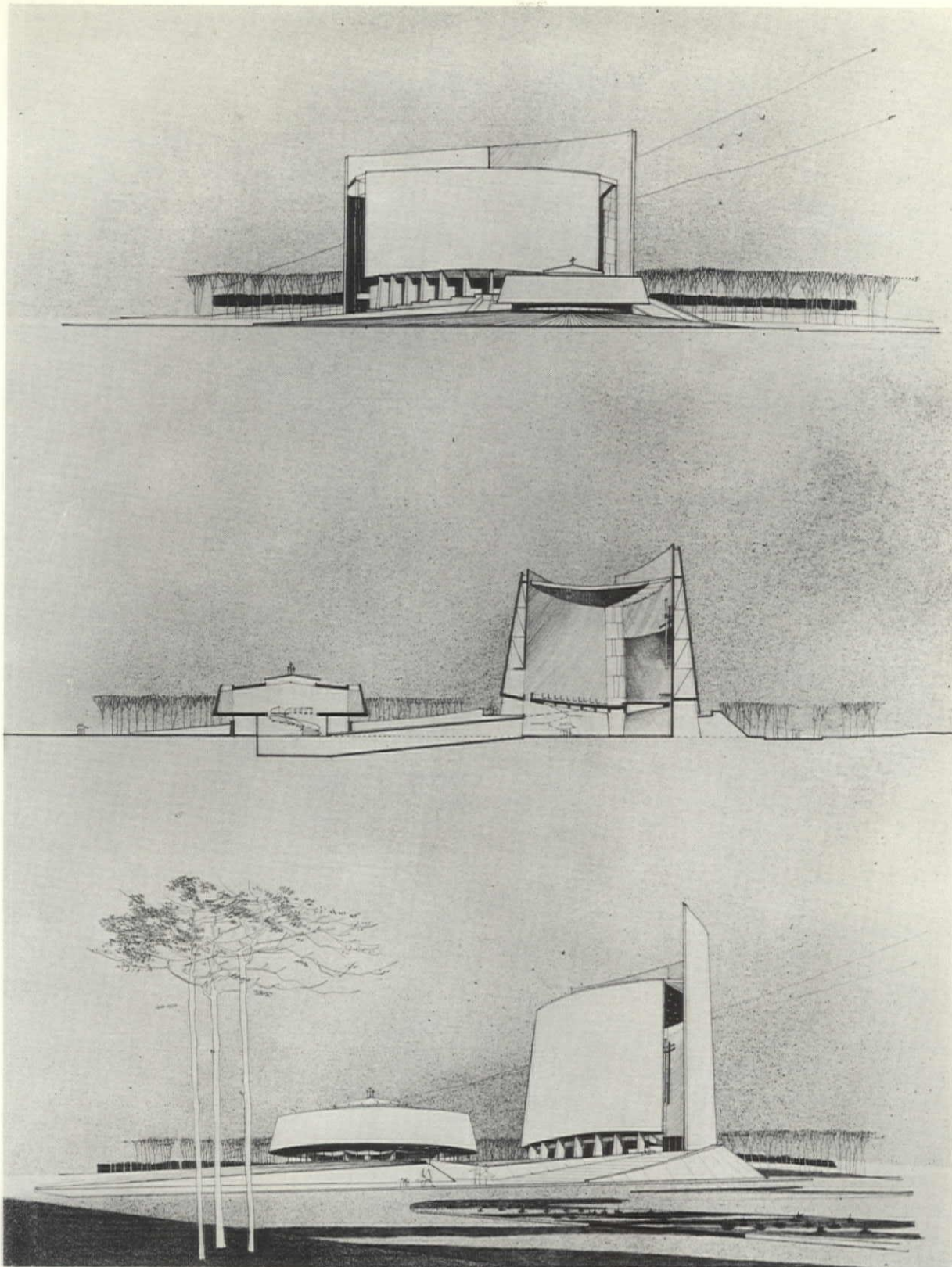


Duane Thorbeck



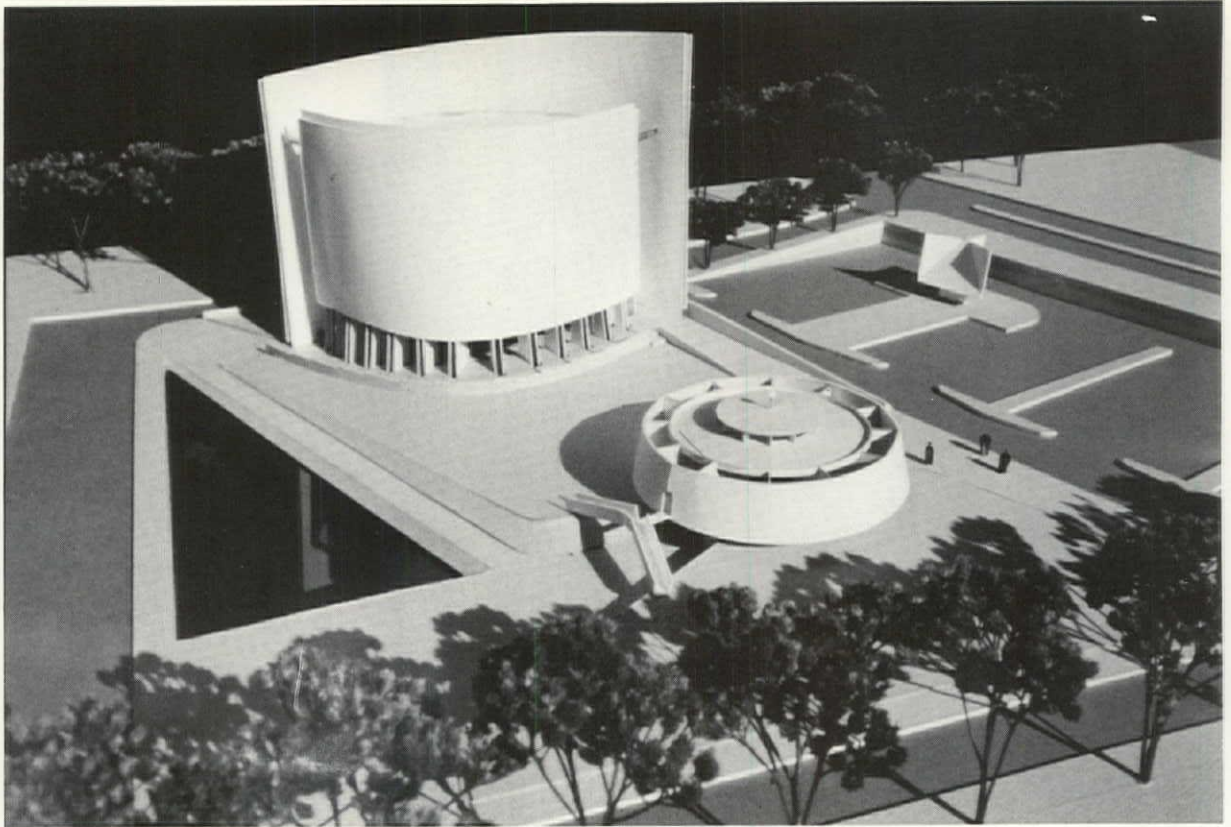
A Study in High-density Urban Living





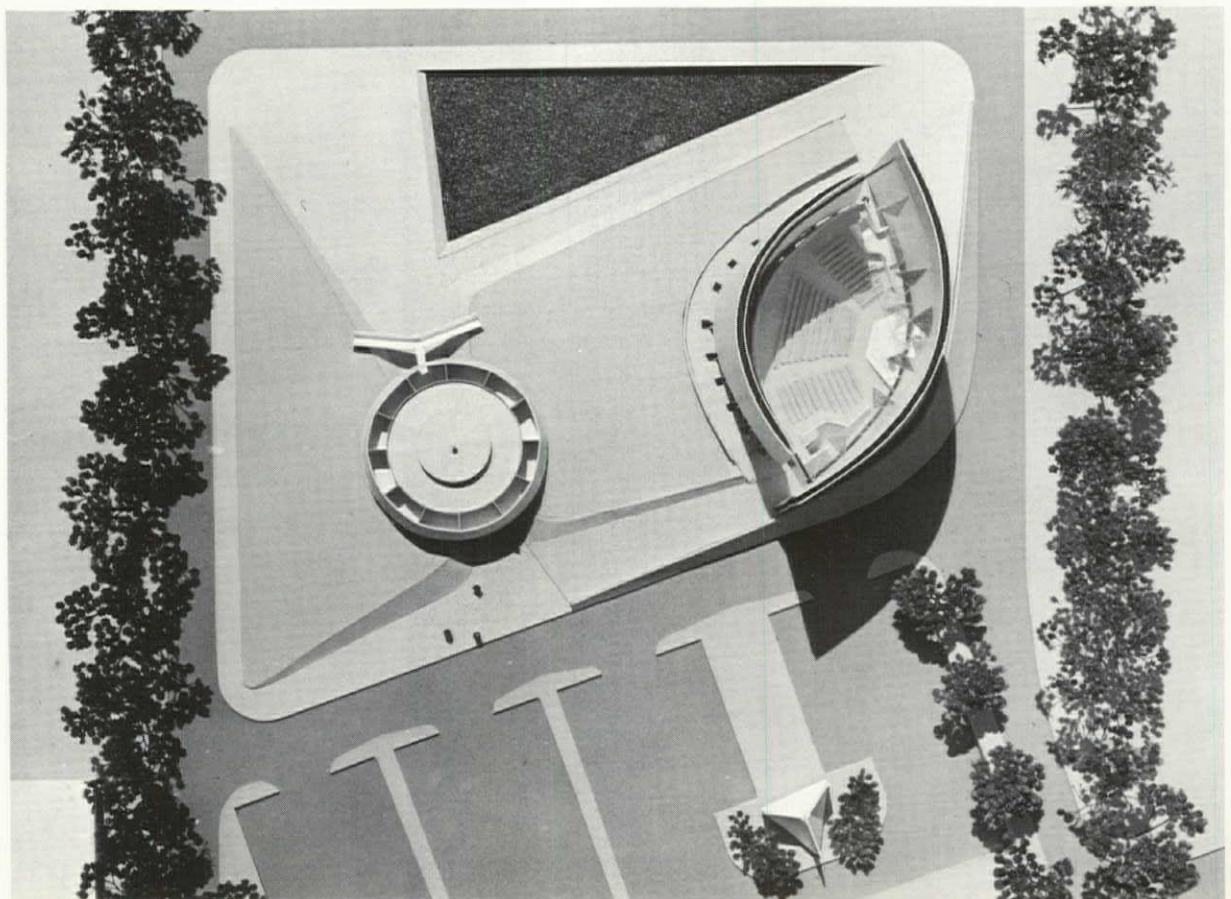
Thomas N. Larson

The Lutheran Church of the Apostles



Thomas N. Larson

The Lutheran Church of the Apostles





Committee on Professional Practice
Daniel Schwartzman FAIA, Chairman

The Single vs The Separate Construction Contract System

by **Dean F. Hilfinger AIA**

NOTE: This article attempts only to examine the general aspects of current contract bidding procedures and to discuss certain trends and developments related thereto. There is no attempt to recommend any system or method as being preferred for all conditions and areas. It is felt, however, that each individual practitioner should be fully conversant with the more important methods proposed and practiced in various parts of the country so he will be able judiciously to recommend and to explain his selection for any given project.

► Since the architect must administer the construction phase of his projects, the manner in which the contracts are awarded is of considerable importance to him. Many architects are probably aware of the positions represented by the Associated General Contractors of America on the one hand and various associations of mechanical specialty contractors on the other as to the advantages and disadvantages of the single contract system versus the separate contract system.

Although individual architects may have preferences for either system, based on local custom or their own experience, it is presently inadvisable for the profession as a whole to endorse one method or the other. The architect's prime responsibility is to the owner, and his course of action should always be, in the absence of contrary statutory requirements, to recommend the system which he believes for the specific project at hand will be to the owner's best interest, initially as well as ultimately.

Seven states have enacted laws requiring that separate contracts be awarded for mechanical and electrical work on projects constructed with state,

and in some instances also with county and municipal, tax funds. An eighth state has a law permitting separate contracts. Some large municipalities have, by resolution or administrative order, also set up requirements for separate contracts. On the other hand, a number of Federal, state and municipal agencies and governmental units have adopted the practice of using single contracts for all construction work. Large industries and corporations engaging in extension building construction follow varying practices, some using the single contract system and others using the separate contract system. The proponents of each method point to impressive examples and produce compelling statements favoring their respective choices.

The Institute

Architects working for a variety of clients both public and private, large and small, frequently find themselves administering construction under both systems at some time or another. Few firms will not have had experience with both systems.

Potential Advantages of the Single Contract System

The principal advantages claimed by proponents of the single contract system include:

- 1 Centralization of responsibility
- 2 Better assurance of completion on schedule
- 3 Increased efficiency through a larger coordinated organization
- 4 Lower cost

Potential Advantages of the Separate Contract System

The principal advantages claimed by proponents of the separate contract system include:

- 1 The owner retains the choice of selection of the contractors for the important divisions of mechanical and electrical work
- 2 Responsibility for installation and operation of the mechanical and electrical systems is direct rather than remote
- 3 Service arrangements on those portions of a building usually requiring the greatest maintenance—the mechanical and electrical systems—are more satisfactory where there is no “middle man”
- 4 Lower cost

It is noted that lower construction costs are claimed for each system, and there may be instances which seem to document each claim under given local conditions. However, such claims are often based on premises and assumptions that are subject to different interpretations. From the standpoint of initial dollar costs, the system of separate contracts will usually show a saving.

The Position of the Architect

From the standpoint of simplicity of administration, the single contract system is the most convenient for the architect. The separate contract system will result in more work and responsibility for the architect. However, many firms recommend and endorse the separate system as being in the best interests of the owner for the savings it will effect.

Under the system of separate contracts, the additional services the architect is required to perform will include, among others, the following:

- 1 He must assume the role of coordinator of all of the prime contractors
- 2 He frequently must also become the expediter if satisfactory construction progress is to be maintained
- 3 His plans and specifications must be meticulously drawn to indicate the complete division of the interrelating work, without leaving any items in the “no-man’s-land” from which disputes as to responsibility and payment will inevitably arise.
- 4 The administration of multiple contracts is obviously more time-consuming than is a single contract
- 5 Where construction progress is unsatisfactory, and especially where liquidated damages may be involved, it becomes the architect’s onerous task to sift through the array of charges and counter-charges to determine where the responsibility reposes
- 6 He must be cautious about the effects changes in one contract will have on other contracts, since

one contractor cannot be expected to accept responsibility for coordinating such changes with the work of others

Modified or Compromise Systems

There are also open to the practitioner certain modified “systems” which stand somewhere between the two basic methods. Most of these combine certain advantageous features of each system, and they have usually been developed to circumvent certain legal requirements or to eliminate undesirable bid-shopping practices. These in-between systems involve a variety of practices such as prebidding of mechanical and electrical work, assignment of specialty contracts to the general contractor on a predetermined basis, and similar devices. In some areas, a system of taking separate bids leading to a single general contract award has proved very successful. Another variation is the “New Chicago Plan for Separate Bids,” published last year, which as the title implies, basically endorses the separate bid system.

General Observations

Nationally, there is reason to believe that the separate contract system is making some gains. These are being contested by the general contractors’ organizations even though not all general contracting firms individually endorse the single contract system. However, it is the general contractors themselves who must accept the principal responsibility for the trend toward the separate contract system because of the record of imprudent, if not unethical, practices of bid-shopping and peddling by some firms. The mechanical and electrical contractors have justification, where such conditions exist, for striving for their independent status. Price concessions obtained through the bidding and re-bidding, by general contractors, of the proposals of reputable mechanical, electrical and other subcontractors never benefit the owner and are detrimental to the stature of the construction industry.

Without endorsing any system—for there are advantages in each—it can be recorded unequivocally that the architect should have increased compensation for the additional services he is required to perform where separate contracts are involved. Traditionally, AIA documents have called for increased fees where work is let under more than one contract, but in practice where such separation is limited to the mechanical and electrical work many firms receive no additional payment. As a matter of upgrading professional practice, and of bringing compensation in line with the services performed, a unanimity should be reached with regard to payment for these additional services. ◀



Committee on Housing for the Elderly
George E. Kassabaum AIA, Chairman

Housing for the Elderly

—TECHNICAL STANDARDS OF DESIGN

by **George E. Kassabaum AIA**

► As a person ages, more time is spent in his living accommodations. Therefore, it is more important that consideration be given to the little things that can make living in that space more pleasant and more convenient. Even though it is not true that illness necessarily accompanies the process of aging, there are certain things that do happen that must be recognized in the establishment of any guide or standard:

- 1 A diminishing in the field of vision so that what is seen is that which is immediately in front of the eyes
- 2 An increase in the sensitivity to heat and cold
- 3 A loss in sensitivity to high-pitched sounds
- 4 A decline in the sense of smell
- 5 An increase in tremor and slower reaction to a stumble or fall

This general decline in sensory acuity produces strain and tension on the part of the occupant with its inevitable effect on the physical, emotional, mental and spiritual happiness. It should be the aim of the designer to help compensate for these factors in the spaces that he is asked to create for the older person.

Most of what follows is a tabulation and condensation of the work of others, and is presented here to save the time of the architect so that his research can be better spent in providing the in-

tangible factors that will bring beauty, pleasure, joy and happiness. If an architect concentrates only on meeting the physical needs, he will undoubtedly fail to meet the larger challenge of making his spaces intellectually stimulating, emotionally satisfying and possibly even spiritual. Therefore, in order to direct the architect's energies into areas not already thoroughly researched, the following is representative of the suggestions for satisfying the physical needs that have resulted from studies already completed.

A General

1 Since the use of the wheelchair must be contemplated in the design of group housing facilities, special attention is directed to publication No A117.1—1961, "Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped," which is available from the President's Committee on Employment of the Physically Handicapped, Washington 25, DC

2 Any housing should be fire-resistant, and housing over two stories should be "fireproof"

3 Possibly the convenient arrangement of spaces is no more important than in any functional planning problem, but it is important that the unit be planned for a minimum of fatigue and accidents, that there be a minimum of walking in work areas, and that access from bedroom to bathroom, kitchen to dining area, etc, be as simple, spacious, direct and uncluttered as possible since there is the strong possibility that, at least occasionally, a wheelchair will be used

4 The living area should be planned on one level. However, here again the desirability of such an arrangement is not unique to the aged, for when there is a small child, when the sick are to be cared for, when there is a cardiac, invalid or arthritic—any of these conditions makes a one-floor layout desirable

5 Because one's vision may not be so good and because it may be more difficult to bend and scrub, it is important that potential dirt-catchers be avoided, so there should be a minimum of interior corners

6 Wall surfaces should be smooth, for a rough texture can cause abrasion should an older person lose his balance and brush against it

7 Although it is more expensive, carpeting is the safest and most satisfactory floor covering available, providing it has the qualities of some of the new synthetics, and is not susceptible to mold or moths, is non-allergic, color-fast, stain-resistant and durable. The only disadvantage is that it does make the use of a wheelchair more difficult

8 The unit should be planned so that it is possible for one member of the family to withdraw, both visually and psychologically, and thereby at least temporarily escape the irritations which arise in any group relationship. The independence and feeling of control over at least some of one's domain is most important

9 In addition to the need for privacy, any unit for the aging should be able to accommodate an ill person without disrupting the household

10 With the diminishing of vision, numbers, names and signs often become blurred, but as the ability to determine color is retained, the use of color offers a valuable means of orientation in addition to improving the decorative quality of the space

B Specific considerations in the design of BATHROOMS:

1 Economic considerations have usually resulted in the squeezing of the bath and toilet fixtures into the smallest dimension possible. This tendency needs reversing so that there is enough space to maneuver a wheelchair or enough space between fixtures to permit a person's aid in bathing and toilet activities

2 Interior baths are usually preferable providing a mechanical ventilation system is set in action when the light is turned on. Windows often result in loss of privacy, drafts and difficulty in opening

3 Fixtures should be so located and of such a height that they can conveniently be used from a wheel chair

4 Accessories should be chrome-plated metal and should be recessed to minimize injury from a fall

5 Handles on the tub and lavatory should be of

the unbreakable lever type and all faucets should have pressure and temperature (115 degrees maximum) control valves to avoid scalding

6 Although there is by no means unanimity on the preference for tub or shower, surveys show that more preferred showers than tubs, especially if seats could be provided. This is presumably because they are cleaner, more invigorating and safer (no high sides to cause falls and no danger of dozing). If possible, more than one shower head should be installed—one high (7'3"), one low, and even side sprays may be used. In group housing, the units might have showers with some tubs for soaking being providing off of the public corridor. If this is done, the tub should be perpendicular to the wall with free access on three sides

7 If tubs are provided, the toilet should be located next to the tub so that one can conveniently sit down and wait for the tub to fill

8 If tubs are provided, they should be wide and flat-bottomed, and with wide enough rims to provide a seating space

C Specific considerations in the design of CIRCULATION SPACES:

1 Since the elderly are inclined to fall easily when changing direction or bumping into an object, maximum significance should be attached to the ability to move in an uncluttered, straight line, minimizing the number of right-angle turns. Necessary corners should permit a turning radius of at least 2'11" to accommodate a normal wheelchair maneuver

2 Corridors in residential units should have a minimum width of 6'0" and preferably 7'0" with handrails on both sides. Handrails should be continuous around corners, and some highly satisfactory experience has resulted from the use of recessed handrails

3 In walking, the aged lift their feet only one half as high as when they were younger, so that there should ideally be no change in level between adjacent areas, thresholds should be eliminated, and all joints, changes in floor finishes, etc, should be minimized

4 a The type of door remains a difficult problem. From a wheelchair, swinging doors are awkward to open and close, and sliding doors, while easily opened, are also awkward to close. The bi-fold door presently seems to offer the best solution although the quality of hardware on most bi-fold doors available today needs improving for longer life and less maintenance. Where the person does not pass through the door, such as on a closet, a sliding door is preferable

b All doors should be at least 3'0" wide to accommodate a wheelchair

c. Where hinged doors are used, they should be operated with lever-handled hardware instead of a slippery, round knob that is difficult to grasp

d Doors into small or crowded spaces such as bathrooms, dressing rooms, storage rooms, etc, should open out so that there is no danger of someone's falling against the door and thereby preventing its being opened

5 Ample clearance should be provided in front of hazardous equipment such as stoves, space heaters, radiators, etc

D Specific considerations in the design of a COMMUNICATIONS SYSTEM:

1 Since there is a loss in sensitivity to high-pitched sounds, buzzer or alarm systems should be lower-pitched than normal, and should be supplemented with a flashing light

2 In managed units, a call system with buttons near the bed and in the bathroom should be installed. However, if a two-way communication system is used, a signal light should burn in the dwelling unit when the system is on if the tenant's feeling of privacy is to be maintained

3 Telephone outlets should be near the bed

4 In group housing, an automatic fire alarm system should be installed

E Specific considerations in the design of ELECTRIC AND LIGHTING SYSTEMS:

1 The artificial lighting system should be such that an intensity of from 6 to 10 foot-candles is provided at a plane 30" from the floor in all areas, and at least higher than the recommended minimums for reading and other work, keeping in mind that the elderly need approximately twice as much light as younger people

2 Generally, switches should be plentiful to avoid unnecessary steps and should be located outside the door of such rooms as the stairs, halls, bathroom, kitchen, etc, so that one can light his way ahead. Three-way switches should be used when a room has two commonly used doors, in long halls and on stairways and ramps. A master switch at the bed is most desirable

3 Light switches should be quiet, springless, easily thrown and back-lighted. The mounting height is best at door-knob height

4 Convenience outlets should be plentiful to avoid the hazard of tripping over cords and should be located so as to minimize stooping, bending or interference with furniture placement

5 Heavily-travelled routes such as from bedroom to bath, ramps, corridors, etc, should have night-lights along the floor

6 Special consideration should be given to the elimination of glare since the aged are blinded for

a longer period by a bright or unshielded light. Flashing signs, highway lights, etc, are much more objectionable and dangerous to the elderly than they are to younger people

F Specific considerations in the design of EQUIPMENT:

1 Keeping in mind that much of the equipment in units for the elderly will be used from a wheelchair, the equipment should be lower (2'11"), and some parts should permit sliding the chair under the top

2 Maximum use should be made of the labor-saving devices that have been developed in order that housekeeping can be minimized. Automatic dishwashers with at least 130 degree water, disposals, etc, should be installed

3 Control valves, fuse boxes, etc, should be grouped for easy and convenient access

4 The building-in of as much furniture as possible has one disadvantage that must be carefully considered. Surrounding oneself with old, familiar furniture can do much to offset the emotional strains that can result from moving into a place where everything else is new. There is no doubt that built-ins allow for more compact planning and, therefore, lower costs; free circulation spaces from clutter and eliminate dirt-collecting areas, but, in this case, the advantages do not seem to outweigh the loss of emotional satisfaction

5 Movable equipment such as storm sash, screens, etc, should be light in weight, of a size that can be easily handled and attached in a manner that will permit their removal without climbing on a stool or ladder

6 In high-rise housing, disposals or conveniently-located incinerators should be provided

7 Since there is a loss of the sense of smell and a tendency to be forgetful, electric ranges that clearly show the burner to be hot or gas ranges that prevent an extinguished pilot or burner should be provided

G Specific considerations in the design of FURNITURE:

1 Too many of today's pieces for seating are difficult to get out of for an older person. Where such furniture is designed or purchased, it should have arms, higher cushioned seats, be light for easy moving, solidly constructed, and, above all, be comfortable for a long period of time

H Specific considerations in the design of GLASS AREAS:

1 The elderly need twice as much light as a young person, but they are most sensitive to glare

2 Because there is a danger of the occupant's being housebound for prolonged periods of time,

each room should get plenty of sunlight at least part of the day

3 The window area should be at least 50% greater than what might be considered normal for other types of tenants so that the disadvantages of gradual impairment of vision can be minimized

4 However, it is important that some means of minimizing undesirable quantities of glare and brightness be provided. Where cleaning can be performed by the occupant or where there is a housecleaning service available, venetian blinds provide the most flexible and, therefore, the most desirable solution

5 Sill heights should be low enough to permit a bed-ridden person to look out, but where such sills are lower than 30", the opening should be protected by cross bars approximately 48" high or by having the glass in the lower part of the opening fixed

6 Sill widths should be wide enough and finished with a material that would permit the growing of flowers within the dwelling unit

7 The portions of the windows that open should be easily operated by mechanical means, or maybe even automatically, but each venting section should be small enough so that the occupant cannot accidentally fall through the window

I Specific considerations in the design of

HEATING AND VENTILATING SYSTEMS:

1 There can be no universally satisfactory temperature since the body produces heat at rates which vary with age, sex and muscular activity. However, most older people will be much more sensitive to drafts and temperature variations due to their poorer circulation and impairment of the body's heat regulating mechanism. The system should be such that it is automatic, quick-acting, individually controlled, is able to maintain a temperature of at least 75 degrees with the temperature 6" above the floor being not more than three degrees different than at the 18" level

2 Just as it is impossible to establish a precise temperature that will be comfortable for all people under all conditions, so is it difficult to set the proper humidity, but the system should at least be capable of maintaining a relative humidity of 25% for year-round comfort

3 Heat pipes and radiators must be shielded

4 Orientation to the breeze should be given a high priority, since cool, moving air is most desirable, but again, drafts must be avoided

5 Spaces should be designed so that there is at least 800 cu ft of air per person

6 Part of the drapery or blind problem is due to the tendency to consider the window as also the means of ventilation. Perhaps a separate ventilating source that could be easily regulated should

be investigated, for it would be safer and permit light control without interfering with air movement

J Specific considerations in the control of NOISE:

1 As the elderly are less able to adjust to external stress, the awareness of the neighbor's noise involves an intrusion on their sense of privacy, and careful consideration should be given to the problems of sounds transmitted through the air or through the structure

2 As the hearing of the elderly is often impaired, the radio, television, etc, is usually turned louder than normal. Therefore, to avoid bothering others, transmitted noise should be reduced to a level of 40-50 decibels in all areas, and preferably to 30 decibels in sleeping areas. Party walls should reduce transmitted sound by at least 50 decibels and ceilings and floors by at least 40

3 In mixed-age occupancies special consideration should be given to the protection of younger people from the older person's loud radios, coughing at night, etc

4 In group housing, corridors should have acoustical treatment on the ceilings

5 Since the transmission of the sound of a neighbor's radio results in a loss of privacy, the placing of medicine cabinets, convenience outlets, etc, back-to-back should be avoided

K Specific considerations in the designing for SAFETY:

1 Only those safety devices which can be justified for the increased convenience of any occupant regardless of age can be justified. If the devices are obtrusive and objectionable, they will often be rejected since no one likes to be continually reminded that he is getting older and more feeble

2 However, home accidents continue to rank as the ninth leading cause of deaths, with 75% of such deaths among those 65 and over being due to falls. The tragedy of this is that with proper planning, finishes and equipment, most of such accidents could have been prevented. Therefore, the judicious use of railings and grab bars should be considered, and as a falling person will grab anything available, all projections such as rails, grab bars, towel bars, soap dishes, etc, should be mounted in such a manner as to be capable of supporting 300 pounds

3 Slippery materials and finishes should be avoided, especially in areas such as stairs, corridors and ramps where traffic is heavy and where the occupant would be inclined to hurry in case of emergency

4 Because of a decline in the sense of balance, all protective railings should be at least 42" high, 2" from wall and of a shape that can be grabbed

5 Automatic sprinklers or other suitable means of providing fire protection are important since the elderly can neither see nor smell as well as younger people. Therefore, a fire can burn longer without being detected. Also, the loss of mobility and possible mental deterioration may prevent the proper action being taken. However, such precautions must not be allowed to result in a sterile, institutional environment, for this is most undesirable in any housing for the elderly

6 There should be at least one hand-operated fire extinguisher for every 2500 square feet of gross floor area

7 The distance along the line of travel of a dead-end corridor should not exceed 25'

8 Signalling and alarm devices should be lower pitched and louder than normal and should be accompanied by a flashing light

9 Doors that are not intended for normal use, and that might prove dangerous if a person with failing eyesight were to use them, should be made quickly identifiable to the touch by knurling the knob or handle or by using a special design

L Specific considerations in the designing of STAIRS, RAMPS AND ELEVATORS:

1 Basically, any change in level should be avoided wherever possible. However, where necessary, they should be gradual and well-lighted to a level of approximately 10 foot-candles. Any condition requiring less than three steps should be avoided since the lack of perception may not detect less severe changes

2 Stairs should be designed with straight, short runs (not over ten risers in any one run) and generous landings. They should have a gentle slope of between 30 degrees and 36 degrees with uniform tread and riser (not over 6") dimensions and provided with non-slip surfaces over the entire tread. Preferably, the risers should be light in color with the treads being dark

3 All ramps and stairs should be provided with sturdy handrails on each side, 32" in height, and if substantially over 4' wide, intermediate rails should be provided. The rails should be continuous around all corners

4 Stairs should have only rounded nosings with riser surface sloping inward by not more than 1½"

5 At least one handrail on each stair should extend 18" beyond the top and bottom steps

6 Ramps should have a slope of approximately 1' in 12' (8.33% or 4°50'), lighted to a level of 10 foot-candles, and covered with carborundum or other non-slip materials over the entire surface

7 Ramps should have level platforms at the top which are at least 5' x 5' if the door swings out onto the platform or toward the ramp, and the

platform should extend at least 12" beyond each side of the doorway. If the door does not swing onto the platform or toward the ramp, the level platform should be at least 3' x 5'

8 Each ramp should have at least 6' of straight clearance at the bottom

9 Ramps should have level platforms at 30' intervals, and whenever they turn

10 Any building more than two floors in height should have at least one self-levelling elevator serving each floor. Where the occupancy is greater than 50 per floor, two elevators to each floor should be provided, and where the occupancy might exceed 100 per floor, the possibility of a freight elevator should be carefully considered. The cab size should be at least 7' x 5' with a handrail on three sides and with one or two folding seats. The level of illumination should be 15 foot-candles with the controls being low enough to be conveniently reached from a wheelchair and with all signs, symbols and indicators being larger than usual. It is preferable to have a telephone in each cab for emergencies, and the doors should be automatic, slow, quiet, smooth and with the re-opening device being sensitive to a very light touch

11 Large flights of outside steps were in vogue when the life expectancy at birth was only 23 years, and entrance to the building should be at grade

M Specific considerations in the designing of STORAGE AREAS:

1 Approximately three times the normal storage space, with a minimum of 16 sq ft per person, is required since items being stored are often a lifetime's most precious possessions. Such space should be well-planned to reduce the amount of bending and easily accessible from a wheelchair

2 Sliding doors should be provided on all closets and cabinets

3 Shelves should be concentrated in a zone from 27" above the floor to a little above eye level or not over 60" since access from a wheelchair may be necessary

4 Provide a larger medicine cabinet than usual

5 Provide open shelves in the living room for the display of mementos, pictures, and small sentimental objects

6 In minimum-sized units, a walk-in closet can also provide a private dressing area, and should, therefore, be encouraged

The analysis of experience and the lessons to be learned from future projects will undoubtedly revise and add to the recommendations set forth above. *The pooling and distribution of such experience by all architects* should be encouraged in order that all future projects can become increasingly pleasant as places for our elderly to live. ◀



Is Competence Static?

► Bramante excelled in his time and probably would today—if he were educated to the needs of the civilization of the twentieth century.

At twelve AIA regional conventions this fall the competence of architects will be a lively subject in the seminars on comprehensive architectural services and proposed revisions to the Mandatory Standards. In several such seminars last spring, panels and audiences boldly dug into the subject. A member in Michigan reflected the general enthusiasm for this approach when he said, "Now we are coming to grips with problems that really matter!"

Occasionally a member challenges the propriety of public discussion of competence. "When you say we must *increase* our competence," he argues, "you admit we are incompetent now." This reasoning baffles me, sounds like a face-saving, defensive philosophy.

In 1960 the Committee on the Profession issued its soul-searching appraisal of architects, architecture and the AIA. Its report used no weasel words. It charged that architectural practice and education were lagging behind the times—times which are producing stupendous environmental problems with frightening speed. The Committee report stands as a classic bench-mark for professional progress by the AIA through the action programs now gaining headway.

Everyone concerned with implementation of the Committee's report agrees that architects must be better educated, must do a better job in their "traditional" services, must learn to perform some new services—in short must increase their competence.

The tempo of change for the profession was slow for centuries. Then in the last century came sweeping changes in structural concepts. Within our lifetime buildings became complex combinations of frames, skins and service systems. The profession took this technical revolution in stride, expanding its knowledge and its ability to use consulting specialists. New standards of competence were formed automatically.

But already we are talking about other spheres of architectural responsibility. One is urban de-

sign. Another is the business and economics of building. Are we going to holler "uncle"? Won't they please go away and quit asking for more?

I'm told the railroads thought they were just running railroads. They didn't see that they were selling transportation. What *is* our product—a design service? Or the components of a beautiful and economically healthy city? The broader concept holds the clues to what modern society expects of us.

We cannot be urban designers by assertion, but only through knowledge and competence to execute urban design. On this premise the AIA has begun its project to produce an urban design manual for architects—a first step in a long-range educational effort.

The problems of business and economics in building are realistic to most practicing architects, but irritating to the temperament of many. The phrase "comprehensive architectural services" has been coined to describe a practice including services, essentially of a business nature, which the architect may offer his client *in addition* to his traditional performance as an architect. Here again, he must be educated and gain competence in new fields; must learn to use new consultants; must decide what fees to charge. To this end the series of *Journal* articles and the regional seminars are conceived as the start of an educational project of magnitude on architectural practice.

One elementary phase of competence in the business of creating buildings is the architect's ability to estimate costs—as a part of *regular* architectural services. There the far too many stories of black eyes for the profession, inflicted by architects whose clients got very bad news when bids were opened. A proposed new Mandatory Standard would hold AIA members ethically responsible for reliable cost estimates. This is another lively subject for the seminars as well as for a future article in the *Journal* based on a fine study by Charles Luckman, AIA.

Our goals for greater competence are specific. No apologies necessary for Bramante, for ourselves, nor for our next generation, if we move ahead.

W.H.S.

Chandler C. Cohagen, President; Paul W. Drake, 1st Vice President; Ralph O. Mott, 2nd Vice President; C. J. Paderewski, Secretary; Earl L. Mathes, Treasurer; John E. Ramsay, George F. Schatz, Louis C. Page, Directors; A. Reinhold Melander, Past President

NCARB Circular of Information 3-62

Introductory Remarks by

Ralph O. Mott AIA, Second Vice-
President and Chairman, NCARB

Committee on Documents

At its annual meeting in Dallas, preceding the AIA convention, the NCARB adopted a new Circular of Information describing its services, requirements and procedures.

This document restates the long-established basic requirements for NCARB Certification, which is the generally accepted means of accomplishing interstate registration. It also accepts, for the first time, some teaching and some pre-graduation employment in the office of a registered architect practicing as a principal, as equivalent to post-graduation training.

Other items new to this document are a clear definition of the allowable credit for experience under government agencies, captive architects, engineers and contractors. For the purpose of this document it also classifies organizations engaged in both the design and construction of buildings as contractors.

Heretofore, only the NCARB Board of Review has been authorized to determine the acceptability of training and experience other than in the office of a registered architect as being equivalent to that called for by the basic requirements. While it is not possible to anticipate all of the situations which may arise, the more prevalent situations have been codified so that prospective applicants for an NCARB Certificate may know when they have attained the required training and experience, and so that the Council Offices may process a far greater percentage of the applications without referral to the Board of Review. This is one of several steps being taken to speed up the Certification procedures of the NCARB.

Space requirements necessitate the division of this document into two parts for the purpose of publication in the Journal. The sections

devoted to definition of acceptable equivalents of the basic training and experience requirements, the syllabus of examinations, and the Council fees will be published in the October Journal as Part II of this article.

► Regarding NCARB services, Council Records, Certifications and Examinations. This document supersedes former Circulars of Advice 3-53, 7-57, and 3-59.

Section A—Purpose and Organization of the NCARB

The object of the NCARB is to promote high standards of preparation for architectural practice; to foster the enactment of laws pertaining to the practice of architecture; to equalize and improve the standards for the examination of applicants for state registration or license; and to compile and transfer records to facilitate architectural registration and/or licensing between states.

The legally constituted state architectural registration boards are eligible to become members of the NCARB and the registration boards of the fifty states, the District of Columbia, the Canal Zone and Puerto Rico utilize the services of the Council.

The Member Boards of the NCARB formulate the policies, rules and regulations of the Council and elect its officers and directors, all of whom serve without pay, as do the members of the state Registration Boards.

The examination, registration and licensing of architects is a function reserved to the states. The NCARB has no licensing or registration authority.

Section B—Services of NCARB

The NCARB provides the mechanism and procedure by which registration is facilitated and provides for its accomplishment on a sound basis.

It establishes a standard of qualifications by which a State Board may judge the qualifications of an applicant for registration in relation to its own legal requirements.

It compiles, verifies and maintains a record of an applicant's edu-

cation, training, experience, examinations and registrations, known as a Council Record.

It provides a syllabus of standard examinations, both for registered architects and for those seeking registration. It also provides standard examinations in some subjects.

It examines an applicant's qualifications in relation to the NCARB standard of qualifications and examination and if the applicant qualifies it recommends his registration in additional states without further examination. This is accomplished by means of a Council Certificate. The Council does not guarantee that registration will be granted.

It provides for continued acceptability of its Records and Certifications by keeping them up to date thru periodic review of its Records and thru annual renewal and periodic review of its Certificates.

Section C—Explanation of Terms

1 *The Council Record* is a detailed, authenticated record of an applicant's education, training, practice and character. The Council Record is a prerequisite to a Council Certificate and is used by the Council to determine whether an applicant has complied with the Council standards for admission to examination for Council Certification. It is required by some State Boards as a means of determining an applicant's eligibility for admission to examination for license in that state. In some instances it is also accepted by State Boards as a means to determining an applicant's eligibility for reciprocal license in that state.

The Council Record remains in effect for a period of five years from the date of application for the Record.

2 *Periodic Review of Records.* At five-year intervals a Council Record may be renewed by a Periodic Review by the Council. The information resulting from the review is added to the Record, after which it remains in effect for a period of five years from date of application for the review.

A Council Record which is not current to within five years does not meet the usual legal requirements

for registration or license. In some instances State Boards may be obliged to require records which are current to within less than five years. Periodic Reviews will therefore be made at shorter intervals upon request.

3 *Transmittal of Record.* So long as a Council Record is in effect a certified copy will be sent to any State Board upon request of the applicant and payment of a transmittal fee.

Council Records contain privileged communications from employers, clients, and other architects, which are obtained with the assurance that they will be made available to no one other than State Boards to whom the holder may apply for registration. In no event can the Record be made available to the holder thereof.

4 *The Council Certificate* is a Council Record which is supplemented by a record of the NCARB examinations which have been passed, and by Council certification of the effect that:

(a) The applicant has complied with the Council requirements for admission to examination for Council certification.

(b) The applicant has successfully passed an examination which conformed to the Council standards of content, extent and length of time, as were in effect at the time the examination was given.

(c) The applicant is recommended to all registration authorities for registration or license as an architect without further written examination.

As evidence that he is eligible for Council certification the applicant is given an announcement, suitable for framing, which incorporates a copy of the above recommendation. Council Certificates remain in effect until December 31st following the date of issuance.

5 *Renewal and Periodic Review of Certificates.* Council Certificates may be continued in effect by submission of an annual renewal fee and an annual affidavit concerning the applicant's professional experience and practice during the preceding year, and by maintaining registration in the state of basic registration.

At intervals of not greater than five years the Council makes a periodic review of the Records of Certificate holders whose Certificates have been continued in effect, using the information contained in the annual affidavits as the basis for review. The information resulting

from the review is then added to the Record.

6 *Transmittal of Council Certification.* So long as the Certificate is in effect a certified copy will be sent to any State Board upon request of the applicant and payment of a transmittal fee. State Boards are obliged to examine and maintain a record of the qualifications of each licensee and they must, therefore, have a copy of the complete record upon which the certification is based. Their requirements cannot be satisfied by a reproduction of the announcement which is furnished to the holder of a certificate.

NCARB requirements are comparable to those of the State registration boards. However, some States do have special requirements in addition to those of the Council. When application is made for transmittal of a Certificate to one of those States the Council will apprise the applicant of the special requirements.

7 *The State of Basic Registration* is the State in which the applicant was examined and licensed as a prerequisite to Council Certification.

8 *Transfer of State of Basic Registration.* A Certificate holder who does not wish to maintain registration in the State of his basic registration may transfer his State of basic registration for certification purposes to the State of which he is a resident and/or in which he practices, provided he is licensed in the State to which transfer is requested and provided his license in the original State has not expired or lapsed for reasons other than non-payment of the required renewal fee. Such transfer may be made upon application to the Council and payment of a transfer fee.

9 *Reinstatement of Council Certificates.* Certificates which have lapsed because of failure to pay the annual renewal fee may be reinstated upon submission of the affidavits which are in arrears, payment of the renewal fees which are in arrears and payment of a reinstatement fee.

10 *Cancellation of Council Certificates.* Whenever a State revokes the license or registration of an architect who has been accorded Council certification, other than for lapse for non-payment of renewal fees, such revocation is cause for denial of further Council certification. Reissuance of license by the State which revoked the original license is the basis for reapplication for Council certification.

Whenever an architect who has been accorded Council Certification is found to be ineligible to receive certification, such ineligibility is cause for denial of further Council certification. Removal of the cause of ineligibility is the basis for reapplication for Council certification.

Section D—Procedures

The following procedures are followed in preparing Council Records and Certificates, in transferring the State of basic registration, in reinstating lapsed Certificates and in cancelling Certificates:

1 *Preparation of Council Records.* Upon request to the Executive Director of the NCARB the applicant will be supplied with a form on which he can record his education, training, experience and professional practice. When this form is returned to the NCARB with the application fee, the Council verifies the information by correspondence from the reference sources indicated in the application, and compiles the Record, which consists of the application and the verification information.

Completion of the Record depends upon receipt of replies from the reference sources. The time required for preparation of a Record is determined by the degree of promptness with which these replies are received. The Executive Director will notify the applicant in event of delay in receipt of replies, and will also notify him upon completion of the Record.

2 *Preparation of Council Certificate.* Upon request to the Executive Director of the NCARB for a Council Certificate the Executive Director will examine the applicant's Council Record, and if he finds that it establishes eligibility for admission to the NCARB examinations he will supply the applicant with a form on which he can apply for admittance to the examinations. When this form is returned to the NCARB with the application fee it will be incorporated into a certified copy of the Council Record and forwarded to the State Board which is to conduct the examinations.

Requests based on Council Records which do not clearly indicate eligibility for admission to the NCARB examinations will be denied by the Executive Director. Applicants may appeal to the Board of Review from the decision of the Executive Director.

Two types of examination are given, a *Senior Examination* and a *Written Examination* (formerly called *Junior Examination*). Those eligible to be given the Senior Examination may, if they wish, apply for the Written Examination. The eligibility requirements for admission to the examinations are given in *Section E*, and a syllabus of the examinations is given in *Section H*.

The NCARB examinations are given by the applicant's State Board, or by the Board in the State in which the applicant was originally licensed, except that under unusual circumstances the Executive Director may, at the applicant's request, arrange for the examinations to be given by another State Board. Taking of NCARB examinations must be voluntary on the part of the applicant.

Applicants who have previously passed State Board written examinations need take only such parts of the NCARB examination as exceed the requirements of the original examination. Notification as to the required examinations will be received from the State Board after its evaluation of the NCARB application and the applicant's earlier examination.

When the State Board notifies the NCARB that the applicant has successfully passed the required examinations, and has been licensed by that Board, the NCARB Certificate will be granted.

3 Concurrent Preparation of Council Record and Council Certificate. When the Council Record information form submitted by the applicant indicates his probable eligibility for a Council Certificate, if he so requests and submits the applicable forms and fees, his applications for Council Record and Council Certificate will be processed concurrently.

This procedure will reduce the time required for initial certification if all of the applicant's references reply without delay. It does not eliminate the need for the Council Record inasmuch as the Record is a part of the Certificate.

4 Renewal of Council Certificates. During November or December of each year the NCARB will send to each Certificate holder a statement for the renewal fee for the ensuing year, and an annual affidavit form on which to submit information concerning his professional record for the current year, both of which will become due on January 1 of the ensuing year. In

the event the annual affidavit is not submitted and/or the renewal fee not paid on or before the due date the Certificate will be deemed to have lapsed.

5 Periodic Review of Council Certificates. The NCARB will make a periodic review of Council Certificates which have been continued in effect without further action on the part of the holder of the Certificate.

6 Periodic Review of Records. The holder of a Council Record, who does not hold a Council Certificate, upon request to the Executive Director of the NCARB will be supplied with forms on which to submit information concerning his professional record subsequent to his application for the Council Record, or in the event of a previous Periodic Review, subsequent to the application for previous Periodic Review. When the information and fee are returned to the NCARB the Council verifies the information in the same manner as for the original Record, and adds it to the Record.

7 Transmittal of Records and Certificates. Holders of Council Records and Council Certificates, upon request to the Executive Director of the NCARB, will be supplied with the following:

Forms on which they may apply for transmittal of the Record or Certification to another State Board.

Forms for application for license in that State.

Information concerning the State fees and procedures.

When the required forms and fees are returned to the NCARB a certified copy of the Council Record or Certification will be forwarded to the State Board, together with the required State forms and fees.

8 Transfer of State of Basic Registration. Upon request to the Executive Director of the NCARB the applicant will be supplied with a form on which he may apply for transfer of his state of basic registration. The transfer will be made when the application and fees are returned to the NCARB and the pertinent registrations are verified as meeting the requirements of the council.

Section E—Eligibility Requirements for Admission to the NCARB Examinations

Applicants for both the Written and Senior Examinations must meet

requirements 1, 2, and 3 as follows:

1 US citizenship.

2 Good character.

The following acts are sufficient individually to prevent an applicant from being considered to be of "good character." If not committed recently, evidence of reform may be considered.

(a) Practicing architecture without registration in a state, territory, district, or zone in violation of the registration law governing such practice. Determination of such violation rests with the Registration Board involved.

(b) Signing or sealing drawings, specifications or other documents as a registered or licensed architect, when the documents so signed or sealed were not prepared by him or prepared under his direct supervision or control.

(c) Conviction of a felony.

(d) Misstatement or misrepresentation of fact in the application or supplementary information submitted to the NCARB.

3 Graduation from a school of architecture which was accredited by the National Architectural Accrediting Board at the time of graduation, and during the last two semesters of attendance.

Other educational qualifications and/or practical training may be substituted for this requirement in accordance with the provisions of Table F-1*, in which event a total allowable credit of five (5) years is required.

Applicants for the Written Examination must meet requirements 4 and 5, as follows:

4 Be at least 25 years of age.

5 Have at least three years of diversified practical training in the offices of registered architects who are practicing as principals. This practical training to be had after termination of the required academic training.

Other practical training may be substituted for this requirement in accordance with the provisions of Tables F-2 and F-3,* in which event a total allowable credit of three (3) years is required.

Applicants for the Senior Examination must meet requirement 6, as follows:

6 At least ten years of full-time legal architectural practice as a principal, of a grade and character satisfactory to the Council. ◀

* Tables F-1, F-2 and F-3 will appear in Section F in the October issue.

Library Notes

Japanese Architecture

In an essay on Japanese architecture, Gropius has asked how architects, planners and artists can contribute to a new cultural unity. "How can they overcome that piecemeal development of our physical surroundings which so often offends?" Every architect, contends Gropius, should consider first the whole into which he blends his individual design, for only in this way can a common denominator of form be found that gives expression to our modern life. To Gropius and many others concerned with architecture, Japan is an excellent example of an integrated culture, with beauty a basic necessity of life, still evident despite Western influences and seeming chaos in dynamically changing social values. In Japanese architecture can be found, "sublime, mature solutions of the intricate, ever-new problems of space and human scale, the very media for the art of architectural creation."

No study of Japanese architecture can omit reference to dwellings and gardens. The Japanese house and garden are virtually one, there being no boundary between them and the wall or fence of the garden being considered as the true exterior of the house. Thus, the house is built in relation to nature and to its immediate surroundings so that when closely adjacent to another dwelling there remains "some mystery, some charm" and some assurance of privacy, so dear to the heart of the Japanese. The traditional Japanese house is strikingly modern "because it contains," writes Gropius, "perfect solutions, already centuries old, for problems which the contemporary Western architect is still wrestling with today: complete flexibility of movable exterior and interior walls, changeability and multi-use of spaces, modular coordination of all the building parts, and prefabrication."

The Japanese house, says C. Geoffrey Holme, in its avoidance of the ostentatious and the gaudy is a "form of good manners, and how many of our Western houses pass this test? . . . Failure to so is the trouble with our hasty and pretentious schemes for 'housing the masses,' and for 'improvement,'

which adds to existing ugliness. Japanese architecture is not to be considered as an exotic or eccentric importation, but a reminder of good manners when such is badly wanted."

The books listed below are available to corporate members of the Institute on the Library Loan Service, at the usual rates, fifty cents for the first volume and twenty-five cents for each additional book requested at the same time. M.E.O.

ARCHITECTURAL INSTITUTE OF JAPAN

Japanese architectural techniques. Tokyo, 1957. 67p.

BLASER, WERNER

Japanese temples and teahouses. New York, Dodge, 1957. 156p.

BROWN, GLENN, ed

European and Japanese gardens. Philadelphia, Coates, 1902. 162p.

CARVER, NORMAN F.

Form and space of Japanese architecture. Tokyo, Shokodusha, 1955. 200p.

CONDER, JOSIAH

Landscape gardening in Japan. Tokyo, Kelly & Walsh, 1893. 161p. Supplement, 40 plates.

CRAM, RALPH ADAMS

Impressions of Japanese architecture and the allied arts. Boston, Marshall Jones Co, 1930. 242p.

DRESSER, CHRISTOPHER

Japan: its architecture, art, and art manufactures. London, Longmans, 1882. 467p.

DU CANE, FLORENCE

The flowers and gardens of Japan. London, Black, 1908. 249p.

GOTHEIN, MARIE

A history of garden art. London, Dent [n.d.] 2v. [v. 2, chapter 14]

HARADA, JIRO

The lesson of Japanese architecture. Boston, C. T. Branford Co., 1954. 192p.

ISHIMOTO, YASUHIRO

Katsura; tradition and creation in Japanese architecture. [essays by Gropius, Tange, and Ishimoto] New Haven, Yale Univ Press, 1960. 36p.

JAPAN BUILDING DOCUMENTATION CENTER

Building techniques of Japan. Tokyo, 1958. 133p.

JAPAN TIMES AND MAIL

Architectural Japan, old and new. Tokyo, 1936. 293p.

KISHIDA, HIDETO

Japanese architecture. Tokyo, Japan Travel Bureau, 1954. 139p.

KISHIDA, HIDETO

Kako no koshi. Tokyo, Sagami Shobo, 1951. 70p.

KITAO, HARUMICHI

Formation of stone. Tokyo, Shokokusha, 1958, 138p.

KITAO, HARUMICHI

Shoin architecture in detailed illustrations. Tokyo, The Shokokusha, 1956. 192p.

KOIKE, SHINJI

Contemporary architecture of Japan. Tokyo, Shokokusha Pub Co, 1954. 119p.

KOKUSAI BUNKA SHINKOKAI, TOKYO

Architectural beauty in Japan. Tokyo, 1955. 162p.

KULTERMANN, UDO

New Japanese architecture. New York, Praeger, 1961. 180p.

MIYAJI, YONEZO AND YASUBE, ITO

Traditional style houses Japan today. Tokyo, Shokokusha, 1958. 215p.

MORSE, EDWARD SYLVESTER

Japanese homes and their surroundings. Boston, Ticknor, 1886. 372p.

NEW YORK, MUSEUM OF MODERN ART

The architecture of Japan, New York, 1955. 286p.

PAINÉ, ROBERT T.

The art and architecture of Japan. Baltimore, Penguin Books, 1955. 316p.

RAYMOND, ANTONIN & NOEMI P.

Architectural details. New York, Architectural Book Pub Co, 1947. 119p.

SHIMIZU CONSTRUCTION CO

Record of major constructions, 1945-1955. Tokyo, 1955. 116p.

TAUT, BRUNO

Fundamentals of Japanese architecture. Tokyo, Kokusai Bunka Shinkokai, 1936. 36p.

YOSHIDA, TETSURO

The Japanese house and garden. New York, Praeger, 1955. 204p.

Book Reviews

New Buildings in the Commonwealth. J. M. Richards, ed. New York, Praeger, 240 pp illus \$14.50

The first part presents the new architecture of Australia, New Zealand and Canada; the second with that of emerging tropical countries. Both are depressingly similar. A marriage of modern form and climatic requirements is seen only dimly. And the architects in the underdeveloped countries are mostly European or American. Only in Hong Kong, Singapore and India is native talent already on the job. The introductory essays on each of the 16 countries covered are concise and informative. Anyone involved with building abroad will be interested in this handsome volume. So will be students of the trend of world architecture. For all architecture collections. WVE

Old Houses on 'Sconset Bank.

Edward F. Underhill (Henry Chandler Forman, editor). Nantucket, Myacommet Press, 1961. 37 pp illus 6" x 9¼" paper \$1.50

A bit of literary detective work adds to our knowledge of an area of choice cottage architecture beloved by several generations.

Dr Forman is well-known for his architectural studies of Tidewater Virginia and Maryland.

Theatre Language. Walter P. Bowman and Robert H. Ball. New York, Theatre Arts, 1961. 428 pp illus 5½" x 8¼" \$6.95

Defines over 3000 terms and phrases and cross-references many more. One of the peculiarities of theatre-talk is the number of words and expressions which mean something else to the layman—*apron, teaser, tormentor, angel*, etc. Many British usages are included and a number of quite obvious words for some reason rate a dead pan definition: *applaud, love-interest, college theatre*. EP

A Book of Curves. E. H. Lockwood. New York, Cambridge University Press, 1961. 199 pp illus 7½" x 10" \$4.95

A quite fine British text on the advanced plane geometry of curves, well-illustrated, with construction data and formulas. It goes deep for this reviewer when it states that

“. . . the caustic of a rectangular hyperbola with radiant point at its centre is the evolute of the lemniscate . . .” but there is a glossary for those who want to hold their breath and swim under water. Part I deals with fourteen special curves and Part II develops methods of construction and invention of new curves. EP

Roofing. James McCawley. Chicago, Shelter Publications, 1959. 426 pp illus 5½" x 8¾"

A practical handbook on estimating, applying and repairing roof coverings of many kinds. Although prepared primarily for the roofing and sheet metal trades this is a useful guide for architect and builder. In some parts it ventures controversial opinions and gives alternate methods. A section of the foreword gives the recommendations developed by the Federal Construction Council Task Force with the cooperation of the Building Research Institute.

Welded Wire Fabric Building Design Handbook. Washington, Wire Reinforcement Institute, 1960. 168 pp illus 6¼" x 9¼" \$3.00

Some sixty pages give general information, code data, applications—Part II in the final hundred pages consist of design tables and procedures for slabs, walls and footings.

The Drawings of Frank Lloyd Wright. Arthur Drexler, editor. New York, Museum of Modern Art (by Horizon Press), 1962. 320 pp, 9½" x 11¾" \$15.00

The 303 drawings collected in this handsome volume were originally part of an exhibition at the Museum of Modern Art in spring 1962, and were selected from Wright's 8000 drawings at the Frank Lloyd Wright Foundation in Taliesin, Wisconsin. They were wisely chosen for their beauty as well as their information, and provide distraction for the browser as well as facts for a student.

The drawings are reproduced in black and white—this provides all necessary information about his architecture though perhaps not his drawing techniques. They are readable but some will need to be examined closely to find where building ends and landscape begins. The order is chronological and emphasizes

progression of style from “old fashioned” to “modern” to “bizarre.”

The most fascinating aspect of most of these drawings is the amount of detail and the time it takes to understand Wright's conception of a building—the proposed Crystal Heights in Washington, for instance. The eye could wander for an hour around terraces and gardens, parking levels, apartment balconies, and then view it from four different angles. His houses, too, seem wonderful to live in—especially those never built—they have fantastically-shaped rooms, unexpected changes of direction and level, and lots of balconies and terraces.

The introduction is both a defense of Wright's architecture and a study of his drawing technique. Drexler feels that most architects today are overly concerned with function—if the floor plan is good the building is—they don't bother with originality or decoration. The implied defense is that it was fine for Wright to lean too far toward artful unconventionality without regard for function and comfort. He feels that architects today do not draw enough (except to sell the final design to a customer and the public), instead they rely mainly on models which though they have some virtues, result in lifeless exteriors. Thus recent buildings lack scale and interest—they might as well be seen from a mile as a hundred feet.

He continues with details of technique—media, indication of scale, depth and environment. At the back of the book are comprehensive notes about each drawing—name, date, type, size, medium, FLW Foundation catalog number, and further explanations of the more interesting designs.

The quality of reproductions, typography, and completeness of documentary, esthetic and incidental information is excellent.

MARGARET PHILLIPS

Mechanical-Electrical Equipment Handbook for School Buildings.

Harry Terry. New York, John Wiley, 1960. 412 pp illus 6" x 9¼" \$9.60

Installation, care and use of equipment for: heating and ventilating—plumbing—sewage disposal—kitchen and cafeteria—illumination and wiring. Notes on fire prevention and first aid. Appendix discusses architect-engineer cooperation, general conditions and a contractor's administrative manual.

Editor's Page

The Ordeal of Being the Capital City

Washington has all the problems and headaches of every American city, but they are incredibly complicated by a set of circumstances that the citizens of no other city would put up with for a week.

Every schoolboy knows that the residents of the District of Columbia have no vote—at least until recently when legislation was passed permitting them to vote in presidential elections. But few grown-up schoolboys have followed the thought through to the realization that the citizens of the District do not even elect their own city officials nor their school board. There is no mayor, no city council—in fact, the city council is the Congress, represented by a District Committee in each house. This District Committee is the lowest committee on the Congressional Committee totem pole, where the freshman senators and congressmen are placed to wait out their time for appointment to more important committees. Well-intentioned men though they invariably are, they come from many parts of the country and know little about the needs of the District of Columbia. There is of course an executive group at the head of the city government, the Board of Commissioners, but they are appointed by the President. The city's budget, in detail, has to be approved by the Congress. Can you imagine the Congress of the United States actively interesting itself in the governing of, say, Spokane? True, Washington is the "Capital City," and as such belongs to all Americans; but how many Americans interest themselves in its governing, whether they are congressmen or farmers?

The District of Columbia now contains about sixty-nine square miles, of which one-tenth is water, and 54% of which is tax-exempt, representing \$1.9 billion in current assessed valuations. If this property were not tax-exempt it would yield about \$49 million a year in taxes. The Federal government, of course, makes an annual payment to the District to compensate for the lost taxes—for the District must provide all municipal services for government-owned land, as well as for land owned by foreign governments and all sorts of tax-exempt associations and foundations. But this payment is not based upon the proportion of Federally-owned property. It is a lump-sum payment, for which a ceiling of \$32 million was established in 1958, but the full amount has never been appropriated by the Congress. If it were, the full \$32 million would come to less than 13% of the

General Fund Budget estimates submitted to the Congress for 1963!

Because it *is* the Capital City, Washington must build and maintain wider streets than most cities, more parks and trees, bigger and more costly public buildings; it must accommodate more tourists and show a better face to the world. Is it any wonder that the city's services to its citizens are shabby, that its schools are antiquated and equipment woefully inadequate, that its welfare funds for an inordinately large indigent population are hopelessly unrealistic?

Although the Constitution provided that local powers over the District of Columbia be vested in the Congress, the defect was obvious and protests were heard immediately in 1800, when the city first became the actual seat of the government. In December of that year, Augustus Woodward, a Virginia-born lawyer recently moved into the new city, wrote in a series of articles in the *National Intelligencer*, "No policy can be worse than to mingle *great* and *small concerns*. The latter become absorbed in the former; are neglected and forgotten. It will impair the dignity of the national legislative, executive and judicial authorities to be occupied with all the local concerns of the Territory of Columbia." History has proven him right. The defect has never been corrected.

What has all this to do with architecture? I hope it's obvious. Here is a city trying to solve its problems, trying to correct the errors resulting from its sprawling growth and to plan for its future—like every other American city. Yet here is a city beset with dozens of overlapping and uncoordinated Federally-appointed commissions and authorities with their fingers in planning, esthetics, highways and traffic, mass transportation, zoning, cultural matters, and so on and on. Even a capable group like the National Capital Planning Commission does not have authority over the very heart of the nation's capital city—the Capitol and its surrounding area. This is the preserve of the Architect of the Capitol (and he is at present trying to extend his domain), and he has his own plans for its future development, which may or may not show regard for the plans of the NCPC. And once a project is planned and apparently agreed upon by all concerned, it can be upset, or indefinitely delayed, by any Congressman who thinks of something different and introduces a bill that it be built somewhere else. Or it can be lost forever because the House Appropriations Committee refused to appropriate the money, even after both houses of the Congress had approved the project!

It's a mess. But somehow it's still a beautiful city and everything will probably turn out all right some day.



Architecture for Rehabilitation

by **Thomas K. FitzPatrick FAIA**

Dean, School of Architecture, University of Virginia

This article is, in essence, abstracted from a report on rehabilitation programs and facilities currently existing in twelve countries in Western Europe. The survey was carried out by the author from June 1960 to September 1961 during which virtually every significant rehabilitation center in Europe was visited for evaluation. The study was financed in part by a research grant from the US Department of Health, Education and Welfare to implement the proposal to which the AIA Research Department gave helpful advice and endorsement.

Since his return from Europe Dean FitzPatrick has continued his research in this field and is currently acting as consultant to the Woodrow Wilson Rehabilitation Center and to the University of Virginia in the further development of its Rehabilitation Center which he originally designed.

► In ancient Greece, the art of healing (with its appropriate god Asklepios) and the development of medical care and treatment, became part of the fabric of its civilization. This is evident in the literature and history of the growth and development of Greece during its classical period. In the Iliad a handicapped person is defined

as "he, whose body is partially damaged." In Plato's "Republic," a disabled person is defined more broadly as "he who is crippled and enfeebled in body, mind and soul." Today, in many parts of the world, the accepted definition of the disabled embraces all persons whose physical and mental capacities are impaired either through illness, injury or congenital disease.

Technical

The Problem of Rehabilitation as an Economic Necessity

Throughout most of Western Europe the scars that blackened the landscape after World War II have been covered, hidden or erased during the last fifteen years. Craters have been filled, rubble removed, streets resurfaced, and new glistening shapes rise out of the ground like gentians probing through the winter crust as spring begins. In this brief period after the holocaust, only a few isolated areas such as Aachen, East Berlin, Belgrade and Bristol expose



wounds, still visible. Here and there are fractured forms, welded and blackened with fire and left by choice as a constant reminder of the tragedy of war, periodically performed on an ever-enlarged stage and with obvious audience participation. Yet it is generally true that the searing of battle has been healed or hidden.

Much has been done also to heal and hide the human scars. The war-damaged soldier and civilian alike have been given enormous assistance in the healing process. Amputees have been fitted with the best prostheses available and made almost whole again. The blind, the tubercular, the brain-damaged, all have had expert attention of medical men. Even the paraplegic can now look forward to a normal life-span and a chance to exist in a productive way and not as a decaying vegetable form which was his lot before the war.

Everywhere war-damaged children have been given special care as though a conscience-stricken world could atone for its sins by such an obvious gesture. Over 200,000 displaced and damaged children were returned to Greece after its recent revolution and were resettled with only a small residue still to be placed in village care. Yet, even today in Greece, there are more than 2000 seriously handicapped deaf and mute children of whom only about 300 receive any type of education and medical care. There is also a vast geographical area stretching from southern Italy through Greece, Yugoslavia, Hungary, Czechoslovakia, Germany and Poland where congenital hip dislocation has for years been a vast unconquered problem, increasing year by year in some mysterious manner yet unsolved.

Out of this total tragedy of war have come certain benefits which are becoming increasingly important. Because of the vast problem of war-damaged populations, this time both soldier and civilian, each nation has had to focus its attention not only on rebuilding its physical environment but also on rehabilitating its people and renewing its human resources. Generally, for the first time in history, each nation has had to carefully appraise the physical and mental characteristics of its handicapped people of all ages, since the task of rebuilding has demanded extreme conservation of

all human resources. In spite of this need, few nations in Europe have completed comprehensive evaluations of the incidence of disabilities as they currently exist on a factual basis. In many areas the handicapped person is hidden away as an object of shame much as he was during the Middle Ages.

Surveys of disabilities have been hit-or-miss and have usually resulted from evidence collected by private or voluntary organizations supplemented by figures from various state agencies involved in welfare programs. In general the statistics are incomplete and untrustworthy. Certain generalizations can be made however. It is estimated that on a conservative basis more than 10% of the population of most nations suffers from some form of severe disability, either physical or mental. As the statistical count improves in accuracy these figures will probably increase.

Traditionally, in the nineteenth century, those suffering from a particular handicap such as the blind or deaf and mute were cared for by voluntary agencies either religious or secular in character. In Sweden, centers for care and training of the disabled began early in the nineteenth century and a national pension program for the handicapped was organized in 1914. In Denmark the Society and Home for Cripples was begun in 1872 and has since become the directing instrument of the national program for rehabilitation throughout the country. The first home for care and training of handicapped children in Germany was started in Munich as early as 1859. It was not until after World War I that particular attention was directed to the problem of the disabled on a national basis throughout Europe. The immediate problem of caring for the disabled veteran gave great stimulus to these programs as did the formation of war veteran organizations after 1918. Results were, in general, shortlived and once again the task became the burden of private or voluntary societies.

With the rise of national social welfare programs, particularly in Scandinavian countries between the two World Wars, attention was sharply focused on the problem of disability and rehabilitation as a national problem since it was so directly connected with concepts of social welfare systems. Probably the greatest impetus was given to

national programs for care and training of the disabled following World War II during the period from 1947 to 1960. At the same time national programs for social welfare spread rapidly throughout virtually all of Western Europe, with varying characteristics from country to country. It has been generally agreed that the problem is an economic one rather than a political phenomenon since continuing growth of any country, economically, is closely bound to conservation and improvement of its human resources for productive purposes. To realize these goals demands giving continued attention to the eighteen to fifty-five-year age group which is essentially the productive segment of any nation's population. Rehabilitation of the disabled and retraining of the less skilled able-bodied groups in new and emerging vocations becomes an essential task if high standards of living are to be maintained or expanded. In the current conflict between western and eastern political and economical ideologies, the arithmetical characteristics of population differences should be only too obvious. Thus the statement of the problem appears to be clear.

Emerging National Philosophies on Rehabilitation

Throughout Europe national programs for rehabilitation are normally directed by the Ministry of Social Affairs, the Ministry of Health, the Ministry of Labor, the Ministry of Education, or a combination of these Ministries acting cooperatively. In most instances the experience of private agencies has been used as a guide by the state and indeed in certain countries voluntary agencies act as directing authorities for the national program. It is significant in this regard that generally the private societies, which for years have been involved with the problems of care and training of the handicapped, have maintained their important role and even enlarged their programs under strong national social welfare developments. The competitive position of the private agencies with those of purely state sponsorship has actually improved and enriched the over-all national program in many countries.

In more progressive countries the guiding philosophy appears to be one which aims toward development of county or regional centers for rehabilitation. Normally these

centers are grouped around important and significant large general hospitals where cooperation can be realized between extremely competent medical staffs and similar staffs in social, vocational, and psychological areas of rehabilitation. With few exceptions these are resident "comprehensive" rehabilitation centers. Geographic, climatic, and population characteristics are given careful consideration in selection of appropriate locations for such national centers. Problems of transportation and travel distances are of vital importance. The function of existing medical facilities versus creation of new facilities must be carefully weighed in all cases. Availability of competent staff is usually critical. The following notes on such national centers are typical:

Norway

State Rehabilitation Center, Oslo
 State Rehabilitation Center, Bergen
 State Rehabilitation Center, Trondheim

Sweden

Karolniska Medical Center, Solna, Stockholm
 State Rehabilitation Center, Jönköping
 County Rehabilitation Center, Mörby

Finland

The Invalid Foundation, Helsinki
 Institute of Occupational Health, Helsinki

Denmark

National Testing and Observation Institute, Gammel Hellerup, Copenhagen
 State Vocational Rehabilitation Center, Odense

The Netherlands

Ziekenhuis Dijkzicht, Rotterdam

Belgium

Center of Traumatology and Rehabilitation, Montignies-sur-Sambre nr Charleroi
 Center of Traumatology and Rehabilitation, Brugmann Hospital, Brussels

Germany

The Medical and Rehabilitation Center of the University of Heidelberg, Schlierbach
 Oskar-Helene-Heim and Rehabilitation Center of the Free University of Berlin

France

Le Centre de Rééducation Motrice, Fontainebleau

The Regional Institute of Physical, Vocational and Social Rehabilitation, Nancy

Italy

"Centro Vigorelli", Vocational Rehabilitation Center, Milan
 Traumatology and Rehabilitation Center of INAIL, Rome

Greece

St. Paul's Traumatology and Rehabilitation Hospital, Kifissia

Yugoslavia

Institute for Rehabilitation of Disabled Persons of the Republic of Slovenia, Ljubljana
 Federal Rehabilitation Institute, Belgrade

England

Queen Elizabeth's Training College for the Disabled, Leatherhead, Surrey
 Royal Hampshire County Hospital Rehabilitation Center, Winchester

Because of social, economic and geographical differences between nations, actual characteristics of programs and facilities for rehabilitation in the several countries of Western Europe vary a great deal within the framework of similar general philosophies of approach. From an over-all standpoint, the Scandinavian countries tend to have developed more complete programs and in many instances the newest and most progressive types of facilities. Norway, with its difficult problems of transportation due to its particular geography, has concentrated its efforts in three national centers. Having tested programs and facilities in Oslo and Bergen it has recently completed its newest comprehensive center in Trondheim. With considerable experience in social welfare and rehabilitation, Sweden has made the most progress in many respects. It has concentrated on twelve regional centers, many of which have been built during the last four years. The County Hospital and Rehabilitation Center at Mörby, completed in 1962, represents the most current development and is a prototype for future developments. Its comprehensive center at Jönköping in southern Sweden, completed in 1961, demonstrates an almost ideal solution. Similarly, Denmark has developed major centers on the principal islands of Zealand, Jutland, and Funen. The Orthopedic Hospital and Rehabilitation Center at Copenhagen is its principal facility and the Testing and Obser-

vation Institute is one of the most significant in Europe. Its most recently completed center at Odense represents its best prototype for future expansion.

Finland also has had to face a difficult problem in transportation and as a result its major centers for rehabilitation have been concentrated in the area surrounding Helsinki. The Invalid Foundation and the Institute for Occupational Health in Helsinki are well known. The Westend National Rehabilitation Center in a suburb of Helsinki is a remarkably good solution of specific needs for rehabilitation in Finland as is the newest center at Jarvenpää, north of Helsinki. In the Netherlands great attention has been directed toward development of its vocational rehabilitation centers and in particular its sheltered workshop program. Currently there are over ninety sheltered workshops and retraining centers in operation. The center at Beetssterwaag (De Schakel), a rural community, is one of its newest and most significant developments. The rehabilitation center at the Ziekenhuis Dijkzicht, completed in 1961, demonstrates progress being made in the Netherlands.

Belgium has been going through a difficult political and economic period since its loss of the Congo but recent efforts to improve its social welfare program under the newly established "Fonds de Formation, de Réadaptation et de Reclassement Social des Handicapés" is beginning to take shape. The rehabilitation center at the Brugmann Hospital in Brussels represents a pioneering effort in Belgium. Two major centers recently have been completed in the coal and industrial section near Charleroi. These are very large modern structures which include total facilities for rehabilitation even to vocational training workshops and sheltered employment facilities. The first was completed in 1960 and is known as the Medical Institute of Traumatology and Rehabilitation at Les Haies. The Center of Traumatology and Rehabilitation at Montignies-sur-Sambre will begin its operation in 1962.

Germany has been noted for years for its advances in the field of orthopedics and this discipline of medicine dominates development of rehabilitation throughout the country. In reorganization of West Germany from 1950 to 1955 the vast problem of rehabilitating its veteran and civilian population

began. Many medical centers had to be completely rebuilt. In recent years great strides have been made with modern facilities for rehabilitation emerging in strong orthopedic centers at Heidelberg, Berlin, and Cologne. Industrial and road accidents constitute a major problem in its rapidly expanding industrial economy and the new Industrial Accident Hospital at Hamburg-Lohbrugge, built through combined efforts of seventeen insurance companies, represents one of the most superbly built and equipped centers in Germany. For its new vocational training program two centers have been completed recently in Berlin and in Heidelberg.

France is now developing its national program around regional rehabilitation centers. The first was established in Lyon and in 1960 the Regional Institute of Physical, Vocational, and Social Rehabilitation was opened in Nancy. The latter is a large medical complex related to a major teaching hospital, with special centers for vocational rehabilitation and children's rehabilitation in nearby Gondreville and Flavigny. Much emphasis has been given in France to vocational retraining, and facilities for programs such as that in Montpellier are outstanding.

The medical phase of rehabilitation has been given great attention in Italy. Under its National Industrial Accident Insurance program new rehabilitation hospitals have been completed in nine major centers. The great industrial center of Milan has several new rehabilitation facilities grouped around it as does Florence and Rome. The "Centro Vigorelli" in Milan has recently completed a resident dormitory which would do credit to any major American university. The new Research and Orthopedic Rehabilitation Hospital in Florence is one of the most progressive of modern hospitals in Italy and the Traumatology Center in Rome is of similar character. A new national paraplegic center will soon be under construction in Ostia-Lido.

Civil war in Greece continued for five years after World War II had ended. The country is going through a most difficult period of change, moving from a village economy to an industrial economy. Its recovery has been tragically slow and yet it has managed, with some assistance, to develop a modest program of rehabilitation. On a national basis Greece has

concentrated on building up much-needed hospital facilities which include rehabilitation divisions. One of the most significant is the St. Paul's Traumatology and Rehabilitation Hospital at Kifissia, completed in 1962. Great attention has been directed toward care and rehabilitation of children and the Rehabilitation Center at Voula operated by PIPKA is perhaps the most outstanding in Greece.

In Yugoslavia each of the six Republics and Belgrade eventually will develop central rehabilitation facilities of a comprehensive nature. One of the earliest to develop after World War II was the Institute for Rehabilitation of the Disabled in Ljubljana, Slovenia. This is directly related to the medical school of the University of Ljubljana and is a completely comprehensive facility. The Federal Rehabilitation Institute in Belgrade is the national center for research and development in the field of rehabilitation.

For ten years after World War II England made great strides in its national program for rehabilitation. Government training centers and industrial rehabilitation units were developed in principal centers throughout the country. Unfortunately most of these facilities were specific for training the disabled in trades related to the building industry. Converting them to rehabilitation and training centers for modern industrial and technical skills is somewhat difficult and little progress has been made in England in developing new structures for comprehensive rehabilitation programs. Voluntary organizations have taken the lead in developing new facilities and the Queen Elizabeth Training College for the Disabled in Surrey represents one of the newest centers. The Disabled Living Research Unit at Oxford is also a privately supported center and was completed in 1961. The Duchess of Gloucester House in Middlesex is a special hostel for paraplegics and is perhaps the finest of its kind in Europe.

The Rehabilitation Center as an Architectural Problem

In the United States relatively little has been done from an architectural standpoint in research and development of rehabilitation centers and related facilities. The number of new centers which have been built is pitifully small and in some instances does not seem

to reflect more than a superficial knowledge of the problem. The philosophy underlying the "comprehensive rehabilitation center" where the medical, social, vocational, psychological, and educational phases of rehabilitation may be properly related in a continuous process of treatment has not as yet been widely accepted. Many medical people traditionally resist this concept of treatment and the solution appears to be that of developing a center directly adjacent to major general hospitals where the program can be related to the medical rehabilitation department through cooperative action.

The architectural problem concerns the design of facilities through which patients may move on a daily schedule of treatment and evaluation with least confusion. Some patients will be ambulatory, some in wheelchairs, and some may be on rolling stretchers. Generous ease of movement is mandatory and ramp systems, as well as elevators, must be designed with particular care. Various departments of physiotherapy, hydrotherapy, remedial gymnastics, pre-vocational training, and testing and evaluation must all be carefully studied as to function and interrelation before an adequate design concept can be developed. Great flexibility is needed since the entire concept of the rehabilitation process is undergoing constant change. Appropriate selection of doors, windows, toilet fixtures and finishes of all types as well as movable furniture creates special problems.

A comprehensive rehabilitation center is not just a medical facility with some added features. It embraces the complete problem of rebuilding, renewing, and retraining disabled individuals for a productive normal life and design of such facilities demands extreme skill and imagination on the part of the architect. As a nation we have not faced up to the problem of rehabilitation in the United States. Social and economic conditions will inevitably force us to develop a nationwide program. Architectural problems inherent in design of needed facilities have not been solved in an adequate manner. The challenge to the profession is an obvious one and the fundamental purpose of previous statements is primarily to acquaint our profession very briefly with this problem and to create interest in a search for solutions. ◀

ARCHITECTURE FOR REHABILITATION



A Portfolio of Photographs by Thomas K. FitzPatrick FAIA

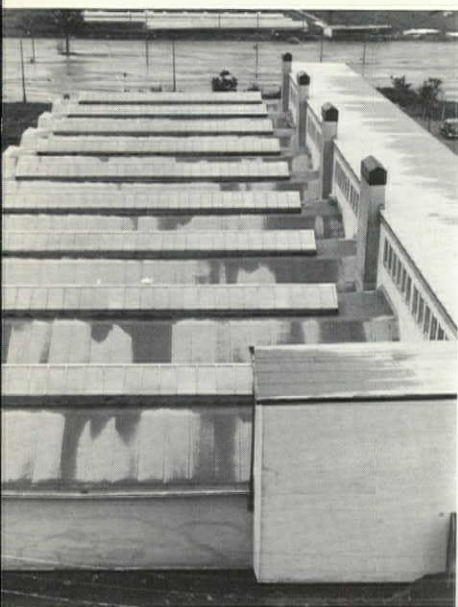


Photo on p. 77: New Comprehensive Rehabilitation Center and Sheltered Workshop, Zagreb, Yugoslavia

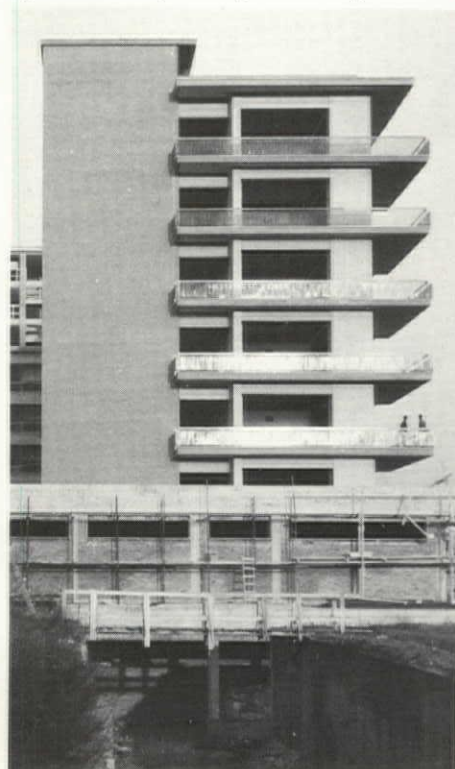


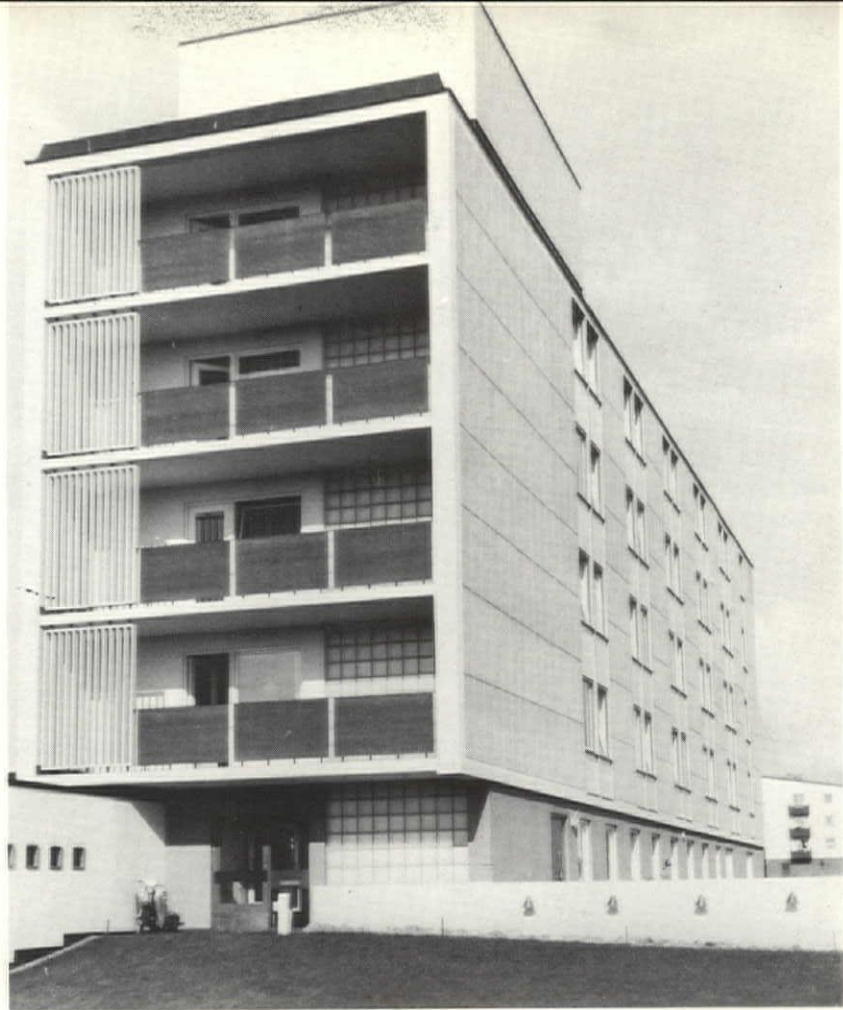
Bird's-eye view and interior, Municipal Sheltered Workshop and Dormitory, Oslo, Norway

New Traumatology Hospital and Rehabilitation Center, Rome, Italy



New Orthopedic Hospital and Rehabilitation Research Center, Florence, Italy, Photo at left: Out-patient wing



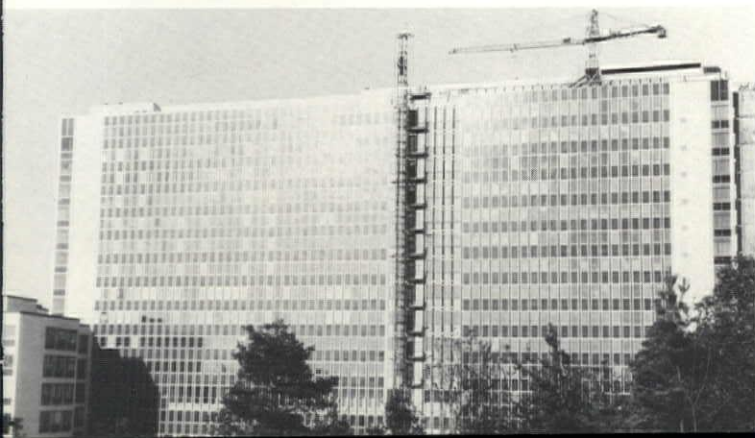


*Comprehensive
Rehabilitation Center,
Dormitory,
Jönköping, Sweden*



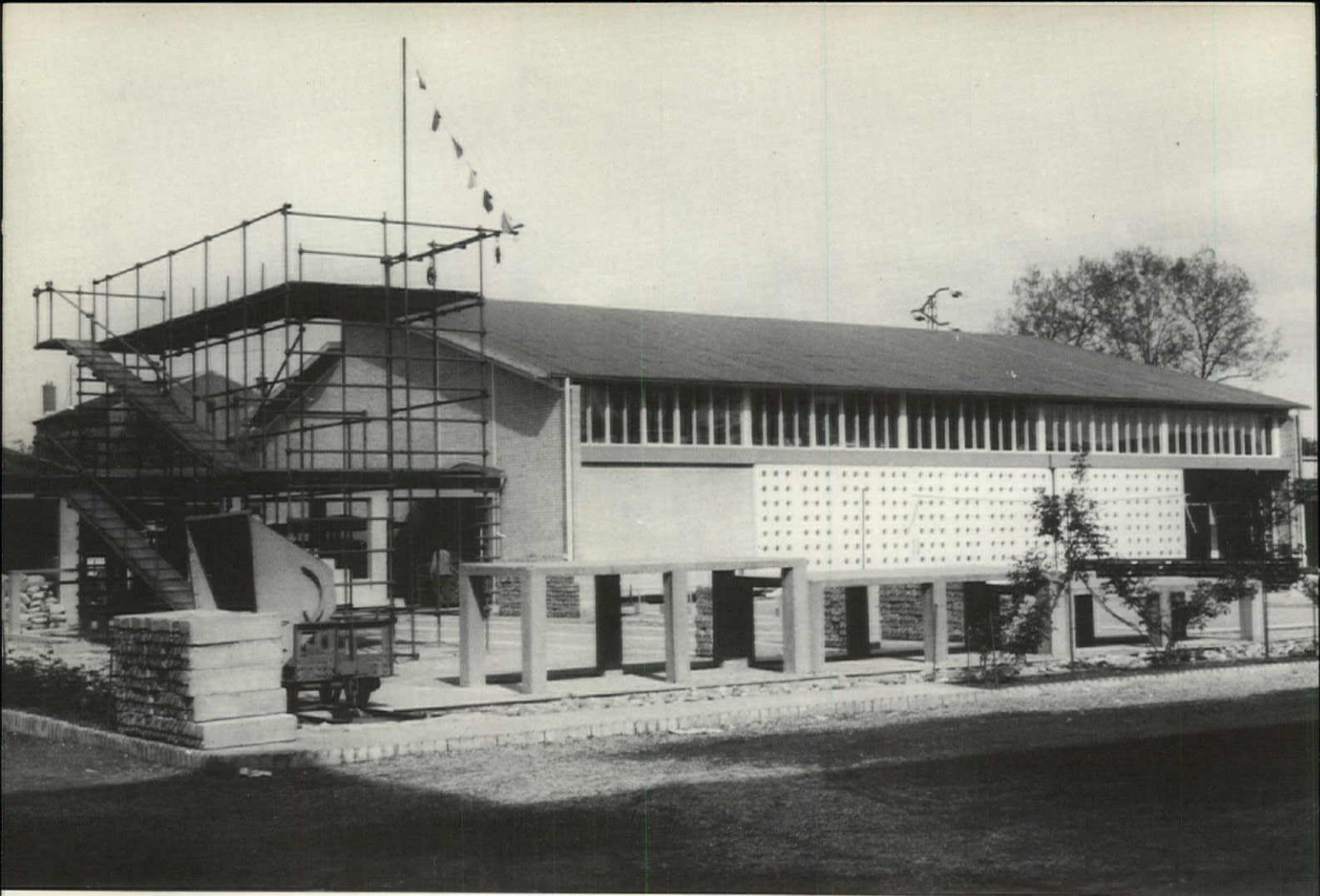
*Comprehensive Rehabilitation Center, Treatment Section,
Jönköping, Sweden*

*County Rehabilitation and Traumatology Hospital Center,
Mörby (Stockholm), Sweden*

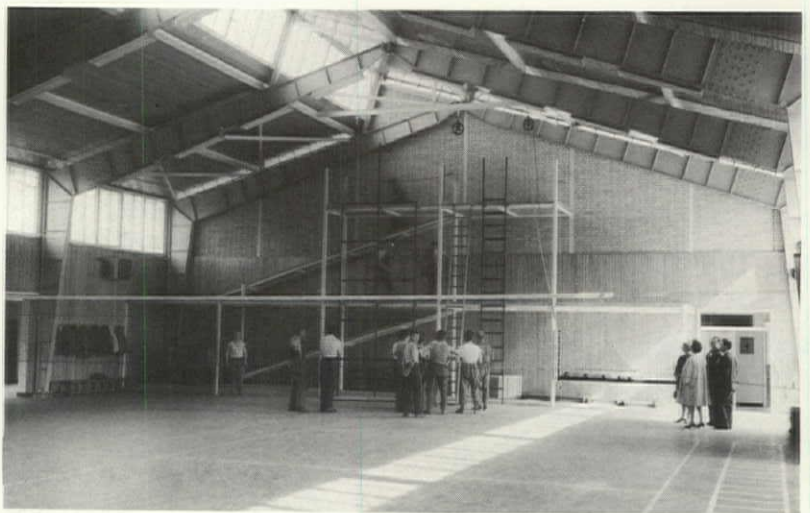


*"De Schakel," Community Sheltered Workshop
and Training Center, Beetsterwaag, The Neth-
erlands*





Remedial gym, outdoor training section in foreground, Vocational Rehabilitation Center, Gondreville, France



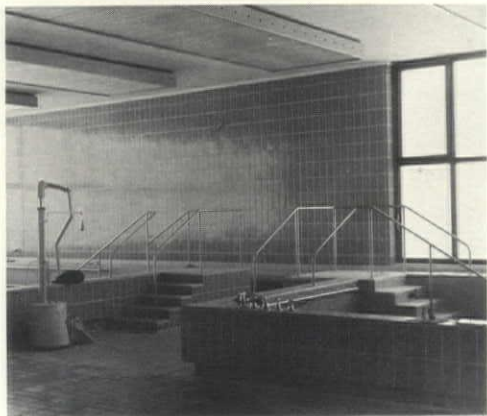
*Remedial gym for training miners, Vocation Rehabilitation Center, Gondreville
National Research Center for Rehabilitation, Belgrade, Yugoslavia*



Interior of remedial gym, Rehabilitation Center for Industrial and Agricultural Workers, Legnano, Italy



Hydro-therapy Department of Oskar-Helene-Heim Orthopedic Hospital, West Berlin, Germany



Children's Rehabilitation Section, Oskar-Helene-Heim Orthopedic Hospital, West Berlin

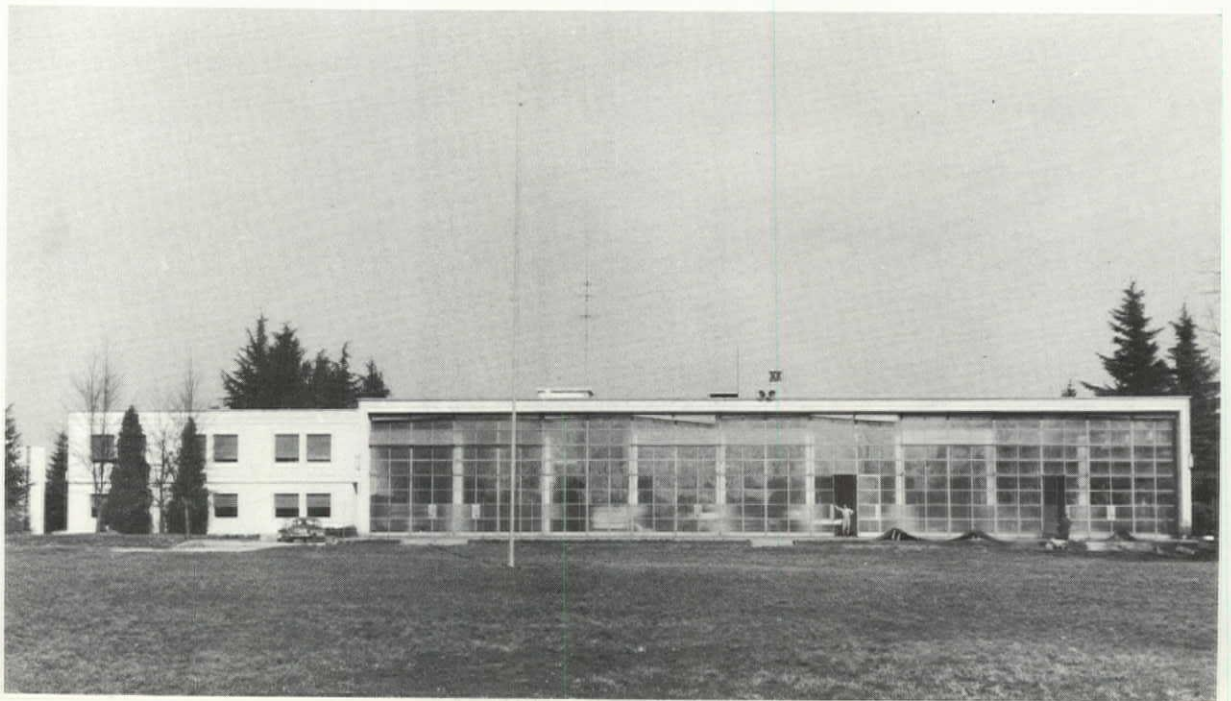
St Paul's Rehabilitation and Traumatology Hospital, Kifissia, Athens, Greece





Dormitory, Rehabilitation Center of Queen Elizabeth's Training College for the Disabled, Banstead Place, Surrey, England

Remedial gym, Rehabilitation Center for Industrial and Agricultural Workers, Legnano, Italy (interior view on p. 80)



Surgical Suite Locker Room Design and Procedure

by Robert Hyde Jacobs, Jr AIA

Second in a series of three reports by the director of the Office of Hospital Research of the New York Chapter, AIA. The office was created two years ago when the chapter was awarded funds by the US Public Health Service. Mr Jacobs' third report—a proposal for reduction in contamination in operating rooms by introduction of a special unit for preoperative nursing—will follow in November

► The essential purpose of the surgical locker room is to render the personnel safe to the patient. This need is not being met.

Everyone carries in his nose and mouth, on his skin, on his shoes and in his clothing, large quantities of bacteria. Some of these bacteria may be harmless, some may be pathogenic. But transportation of these microorganisms into the operating room where they may infect the patient's open wound must be avoided.

Current practices vary in detail but they all require the removal of at least the outer clothing and the donning of some kind of freshly laundered operating suite costume. While this does reduce the numbers of microorganisms there can be little doubt that surgeons, nurses, anesthesiologists and other operating suite personnel commonly enter the operating rooms in a highly contaminated state. We cannot expect perfection. Personnel cannot be sterilized. But there is little point in the whole undressing, scrub suit, booting ritual, if the final product is contaminated.

Under present circumstances contamination is unavoidable because the locker room in which the clean costumes are put on is in itself a highly contaminated area. Not only does the floor receive the soil tracked in on shoes from the street and the rest of the hospital

but blood and pieces of sutures find their way here from the operating rooms on shoe covers and scrub suits. In addition, the air is laden with bacteria thrown off by the street clothes. There are probably few activities that release more bacteria to the atmosphere than the common acts of dressing and undressing. All exposed surfaces receive their share of the fallout from this air contamination. To this must be added the contribution received from the rest of the suite; to prevent air from the locker room reaching other parts of the surgical suite, the ventilation is commonly arranged to provide a slight negative pressure in the locker rooms. This results in adding still more contamination to the locker room.

Our observational studies in nurses' and doctors' surgical locker rooms indicate that no definite procedure for dressing and undressing exists. Doctors, for instance, may do the process in piecemeal fashion, removing coat, necktie, shirt and undershirt, then donning the scrub shirt, going back to the locker, removing trousers, and finally putting on scrub pants over underwear. They may then go to the toilet, return for a scrub cap, sit down on a chair recently occupied by another doctor in his street clothes, select a pair of booties of the proper size, put them on over shoes, lie down on a sofa, go to

a locker for cigarettes, lie down on the sofa again until the cigarette is finished, put out the butt on the floor with a bootied foot, and proceed out of the locker room, brushing against a rack of white coats recently used for ward rounds.

The point we draw from these observations is not that the personnel should improve their habits but that current locker room design does not permit any meaningful procedure to be developed. As long as OR personnel are required to put on their scrub suits in a contaminated area, even compelled to use the same bench from which they removed their street clothing, effective decontamination is not possible.

A clean dressing room, separated from the locker room, is clearly needed. As no undressing would be performed in this dressing area, maintenance of a high degree of sanitation would be possible. Here the scrub suits, caps and booties would be stored in protected containers. After dressing, personnel would leave this space and enter the surgical suite *directly*, not passing through any contaminated area. Upon leaving the suite, all personnel would re-enter the undressing locker area, where hampers would be available to receive the used caps, suits, booties and masks. Here they would dress in their street clothes and depart.

Carriers

Attempts to exclude carriers from the surgical suite have not been very successful. Doctors or nurses who have an infection manifesting itself in some outward sign, such as an elevated temperature, a respiratory condition, or a skin eruption, are expected to excuse themselves from OR duty. Whether or not they do this depends largely on their sense of personal responsibility but this can be bolstered by a liberal sick leave policy for the hospital-employed personnel. As the symptoms may be very minor, some provision for self-diagnosis, such as mirrors for inspecting the skin, might prove helpful.

Attempts to track down the symptomless carrier are much more difficult. Cultures taken from the skin or naso-pharynx may show as many as half of the OR personnel to be positive for staphylococcus. Exclusion of so many from the suite is hardly practical if the surgical service is to remain in operation. Attempts to trace a

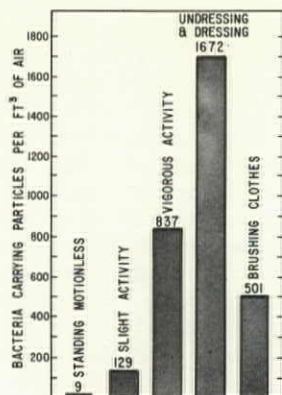


Fig. 1. Average air infection in occupied chamber *

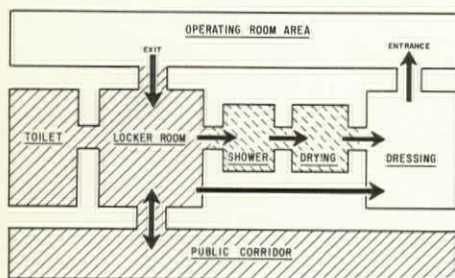


Fig. 2

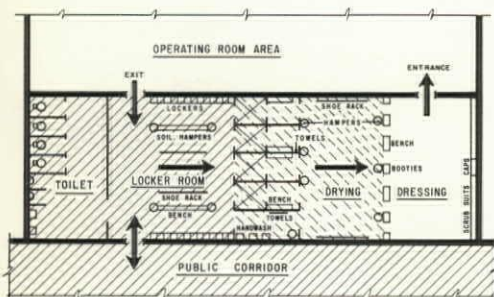


Fig. 3

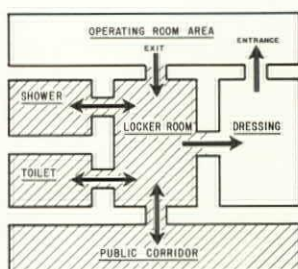


Fig. 4

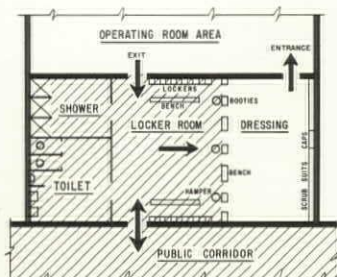


Fig. 5

wound infection to one specific carrier require the most refined epidemiological studies, beyond the capacity of many hospitals. Where such studies have been conducted they have often been unsuccessful. A practical way of routinely distinguishing the more dangerous carriers, sometimes known as *shedders*, has not yet been developed.

Showers

At least for some time to come, we must assume carriers will be present in the operating room. Continued improvements in masking and costuming will help confine their microorganisms but we should not ignore the possibilities of bathing. Wherever we have visited, we find that showers are always provided but seldom used. Many hospitals find them excellent places to hang raincoats, umbrellas and overshoes, or just fill them up with supplies. In some hospitals personnel do use them as a convenience but not as a part of a decontamination process. Simple washing (not surgical scrub) has only the effect of removing transient flora on the surface of the skin. This is quite worthwhile, however, as these may be highly pathogenic bacteria picked up in contaminated areas or in attending infected patients. To undergo the rigorous scrubbing and the use of powerful antiseptics necessary to remove the superficial epithelium (scurf) and decontaminate the deeper layers of the skin would be, of course, intolerable. Great success, however, has been achieved in reducing the level of resident skin bacteria by the use of the hexachlorophene soaps. These soaps are generally nontoxic to the skin and their effectiveness depends upon continued use over a period of several days.

We may assume that all operating room personnel are willing to bathe or shower at least once every day. If sufficient showers were provided it would be reasonable to expect personnel to take this daily bath just prior to dressing in scrub suits. There can be little doubt of the value such a procedure would have, particularly if a disinfectant soap were used.

If the showers are located between the locker room area and the dressing area their routine use would be encouraged and an effective personnel decontamination process would become possible.

Figures 2 and 3 only illustrate these principles and represent neither a standard nor a design for any particular hospital. The sketches show only one of many possible decontamination procedures. Figures 4 and 5 show a second possibility. It is not our intent to prescribe such procedures but merely to provide the kinds of spaces and facilities in which a meaningful personnel decontamination program can be instituted if the hospital so desires.

Lounges

Surgical locker rooms provide a place for resting, for consulting and socializing, for smoking and refreshment, for instruction and communication. All of these functions may be needed and have considerable value in the general operation of the suite but the use of the locker rooms for these purposes is unfortunate. If surgeons or nurses wish to relax between operations, drink a cup of coffee, smoke a cigarette, they should not be compelled to do it in the highly contaminated area of the locker rooms. A separate lounge in the clean area of the suite should be provided.

Except for the very smallest surgical suites it is customary to provide separate locker room facilities for the surgeons. The reason usually advanced for this practice is that doctors like to talk freely with one another without risk of their conversation being overheard by orderlies, students, or other less highly trained hospital personnel. In larger hospitals, further distinctions may be made and separate locker rooms are often provided for surgeons, students and house officers, male aides, female surgeons, nurses, and nurses' aides. As each of these areas must be completely equipped with lockers and lounge, toilets and showers, the space and equipment consumed is considerable. Supplying each of these separate areas with a full range of OR costumes, removing the soiled linens and providing adequate housekeeping can also be quite a problem. Furthermore, it becomes exceedingly difficult to arrange so many separate facilities in such a way that the traffic flows through them from the hospital corridors directly into the clean area of the suite. We propose simplifying this situation by providing just two locker room-decontamination areas; one for men and one for women, plus a separate lounge area for all personnel.

* "Air Infection with Dust Liberated from Clothing," J. P. Duguid, MD, BSc Edin. and A. T. Wallace, MD Edin, DPH. *The Lancet*, Nov. 27, 1948 pp. 845-849.

The lounge might best be located near the OR secretary and supervisor's offices and, if possible, should provide a pleasant outdoor view to help relieve the sense of confinement so frequently felt by OR personnel. It could contain the doctors' dictating booths, a bulletin board, a schedule board and a refreshment center.

As urine is customarily aseptic, consideration should be given to locating male and female urinals and lavatories adjacent to the lounge. This would aid in preventing traffic to the locker room toilets during

the course of the work shift. Separation within the lounge of the different occupational groups could be provided as desired but it is interesting to note that arbitrary segregation by sex would no longer be necessary. Male and female surgeons and anesthesiologists for example would no longer need to be separated. The added flexibility of this arrangement also opens up the exciting possibility of complete surgical teams getting together on occasion to plan new operations or to discuss their past performances. ◀



References

1 Personal communication from Frances Ginsberg, RN, Consultant in Aseptic Practice, Bingham Associates Fund, Boston, Mass, March 15, 1962: "There is no question but that locker rooms, as designed today are contaminated areas. . . . I agree with you wholeheartedly in the issue of the need for showering, the advantages of wearing scrub suits for all personnel, and the desirability of a distinct separation between dressing and undressing areas"

2 Personal communication from William J. Martin, MD, Mayo Clinic, Rochester, Minn, January 30, 1962: "I would favor, except where medical reason such as certain dermatologic conditions would indicate otherwise, the daily showering at the hospital for surgical personnel" See also "The Problem of Management of Nasal Carriers of Staphylococci," William J. Martin, MD, Proceedings of the Staff Meetings of the Mayo Clinic, May 25, 1960

3 Personal communication from David Gale, PhD, Bacteriologist, Veterans Administration Hospital, Albuquerque, NM, February 8, 1962: "I think the proposed decontamination suite of the locker room is an excellent idea in controlling staphylococcal infections particularly, and many other infections of interest to surgeons in hospitals in general. Concerning the matter of showering preliminary to scrub suiting and scrubbing techniques, I think this is an excellent idea. For the surgeon involved in a procedure lasting many hours, perspiration undoubtedly must play a role in his discomfort, and may carry staphylococcus into the wound area. I do not believe it is asking too much of surgical personnel to require them to shower prior to the complete change of clothing for work in the operating suite"

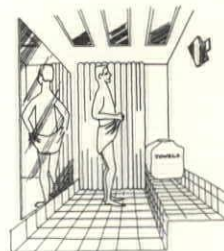
See also "Reevaluation of Scrub Technique for Preoperative Disinfection of Surgeon's Hands," David Gale, PhD, *Annals of Surgery*, Vol 155 p. 107, Jan, 1962

4 Personal communication from Robert Blowers, MD, Director, Public Health Laboratory Service, Middlesbrough, England, September 21, 1961: "Pre-operation bathing by operating room staff. There is circumstantial evidence that this may be of value, but proof of this is still lacking. I would therefore advise surgeons and nurses to take a shower or a bath before each operating session, but would not, at present, feel justified in insisting on it" See also "Hospital Infection Causes and Prevention," R.E.O. Williams, MD, MRCP, R. Blowers, MD, L. P. Garrod, MD, FRCP, and R. A. Shooter, MD, Year Book Publishers, Inc, Chicago, 1960:

From page 178 "A few prolific dispersers of staphylococci begin shedding organisms very soon after a change of clothing. This may be delayed for a few hours after the skin is washed and it therefore seems reasonable that at least those surgeons and theatre staff known to carry epidemic strains of Staph. aureus should use a shower-bath immediately before each operating session" (See page 180)

5 "A Three-Year Study of Staphylococcal Disease with Observations on Control," H. Taylor Caswell, MD, FACS, et al, *Surgery, Gynecology and Obstetrics*, May 1960, pp 527-539: "The importance of personal hygiene should be emphasized to all personnel and everyone working in the operating room should have a shower at the beginning of the operating day"

6 "Maintaining Standards and Quality Care in the Operating Room," Kenneth B. Babcock, MD, *OR Nursing*, Nov-Dec, 1961, page 45: "There was a New York hospital in which repeated infections occurred. No matter how many times they washed the operating-room walls, or cultured the catgut, the infections continued. Finally, a decree was issued that every nurse and every member of the house staff must take a shower bath every morning and every night. That hospital infection rate did a nosedive, just like that!"



International Relations

by Eric Pawley AIA, AIA Research Secretary

► *What's it all about and why? How do you get to go?*

When some of our members hear of AIA participation in a meeting in another country—not the commercial foreign architectural “treks” which are travel agency promotions led by name-architects* but international conferences or meetings of architectural or technical organizations—inevitably there is proper curiosity about selections and objectives.

These notes are offered toward understanding of some of the complicated machinery, history, routine and values of such participation. They cannot compete with the monumental 1953 report of the AIA Committee on International Relations but neither can the Institute publish an inch-and-a-half-thick book of data which need constant revision. These notes also cannot be complete but we'll try to answer questions if you'll write.

To begin with the obvious—of course it is fun for an architect to travel, but few who have not been on one of these technical congress jaunts have any idea of the tension, labor, fatigue and general wear-and-tear inevitably involved. Let's face it—food and drink, perhaps altitude, water and sanitation, hours, transportation, physical exertion, schedules, personalities, social customs and languages (note plural) are just *different*. Any one of these can be a challenge to anyone who is the least bit sot in his ways. There are over 500 steps to the top of the spire of the Kölner Dom. The rise and tread of the steps up a Mayan pyramid may be 18" and 6" respectively (no, not the reverse!) and you better not look down. But this is garden variety sight-seeing. At least we no

longer have to worry much about laundry en route thanks to synthetic fabrics and portable detergents—but do you know the formidable protocol of a formal dinner in Sweden? How about late-hour skull sessions of your delegation to be ready with strategy in conformity with the US “position” for the Russians' next series of embarrassing or harassing questions the next morning—no, *this* morning? How about inspecting six schools or four hospitals a day? If any of them happens to be psychiatric you may be eligible to stay.

Of course it is fun, too, to meet architects and other professionals in other countries. It is a wonderfully rewarding experience to discuss architecture with them, to find that they confirm most of your own cherished ideas, are behind us here, ahead there, facile with the pencil and gesture. Delightful, generous people, charming wives, perhaps permanent friendships. But you earn it all and isn't it nice and old shoe-y to have a few moments' conversation with a fellow American and to find that a sentence *can* begin and end in the same language—your own language? International meetings are the worst practice for language because no one will speak one language.

Well, enough cautionary chatter—UIA—CIAM—FPA—IHF—USIA—OIC* What *are* they all about?

UIA: International Union of Architects

In 1948, two European groups of architects which had held meetings over the years (CPIA: International Committee of Architects 1867 and RIA: International Reunion of Architects 1932) were merged and revitalized as the In-

NOTES FOR AN ARCHITECT'S PRIMER

ternational Union of Architects (UIA) with headquarters in Paris. Delegates from twenty-three countries participated in the formation of this new organization. Its presidents have included the following noted architects:

Sir Patrick Abercrombie
United Kingdom

Auguste Perret
France

Jean Tschumi
Switzerland

Hector Mardones-Restat
Chile

Sir Robert Matthew
United Kingdom

Assemblies and congresses have been held every two years (odd years) and formal meetings of the several “working commissions” on building types and other subjects in the years between congresses (even years). *Congresses* attract several hundred architects, on an open registration fee basis, the *Working Commissions* vary in membership with one member from each interested country, appointed for six years.

Membership in the UIA is not individual but is by national sections (usually the architectural societies of the various countries—now 35) and official delegations to the *Assemblies* are pro-rated in accordance with the number of architects in each country. AIA has the maximum of five delegates to the UIA Assembly for the USA. Certain other offices pertain to liaison between the UIA and other international organizations—for many years, for instance, Henry Churchill FAIA, of Philadelphia, has been UIA representative to the UN in New York.

Until recently the AIA has been relatively inactive in the working commissions. At this time we have

*Certainly not in scorn—delightful experiences for some.

*If the order of letters or the letters in abbreviations change it is because the title in the original language is different.

the following appointment situation:

Education	representative being sought
Housing	Neil Connor
Practice	no AIA member
Public health	Rex W. Allen
Research	Walter E. Campbell FAIA (resigned recently)
Schools	Eric Pawley
Sport buildings	no AIA member
Urbanism	Carl Feiss FAIA Arch Winter, alternate

There are other working commissions, most of them perhaps more appropriate for European members (competitions, exhibitions, etc.). Meetings are held in different countries each year, include some ten days of rugged sessions and tours. This year, Winter went to Athens (urbanism), Pawley to Mexico (schools) with Donald Hardison as observer, Connor to Spain (housing) and we expect to publish reports on these meetings in the *AIA Journal*. Public Health met in Tel Aviv—too distant.

AIA members were active in the foundation of UIA and it is official AIA policy to continue this close and rewarding cooperation.

CIAM: International Congresses for Modern Architecture

Has held eleven meetings (1928-1959) with highly variable membership due to explosive nature of discussions and centrifugal personalities. Concerned not only with advanced concepts of contemporary architecture but with social aspects of housing and urbanism.

The famous "Charter of Athens" promulgated in 1933 in which the city was anatomized into: *dwelling — work — recreation — circulation* was anathemized at the last meeting as "four keys that did not fit any lock!"

CIAM exists now only as a post office box in Holland, the 1959 meeting seemingly blew it apart in an expression of New Brutalism at the interface of personalities.

FPA: Pan-American Federation of Associations of Architects

Since 1920, the AIA has participated in the Pan-American Congresses of Architects by sending exhibits and delegates—as follows:

I	Montevideo	1920
II	Santiago, Chile	1923
III	Buenos Aires	1927
IV	Rio de Janeiro	1930
V	Montevideo	1940
VI	Lima	1947
VII	Havana	1950
VIII	Mexico City	1952
IX	Caracas	1954
X	Buenos Aires	1960

Participation was nominal until 1950 when an exhibition of 600 large panels was prepared with the help of the State Department which paid half of the \$11,000 cost. In 1952, a smaller exhibition (134 panels) cost slightly more. It has not been possible for AIA to keep up this kind of "total-push" program but reference to the *AIA Journal* (Jan 61 p 49-54) story of our participation in the 1960 Congress will recall President Will's invitation that the next Congress be held in Washington in 1965 at the time of the next AIA convention in Washington. A special committee is planning this occasion.

US Department of State

Several official US programs are well-known (Fulbright, National Science Foundation) but others are of interest.

USIA: *US Information Agency*

AIA has collaborated regularly with the Exhibits division which has several times taken AIA shows from the Octagon for use overseas. Architectural exhibitions of schools and hospitals have been shown in Poland, Uruguay and England with USIA help and from our government's point of view, have been the best of propaganda.

OIC: *Office of International Conferences*

Administrative arm for the Bureau of International Organization Affairs. Concerned with accrediting of delegates, invitations to participants, travel support, development of US "position" in international meetings. Annual budget about \$2 million to take care of some 400 conferences.

Cultural Exchange

Provides for exchange of educators and other professionals as exchange professors and special lecturers.

Cultural exchange can be two-way. The famous series of team visits to West Germany beginning in 1952 and lasting several years was a generous response to German team visits to America.

AID: *Agency for International Development*

Has taken over functions of ICA: International Cooperation Agency. ICA had several arrangements for architectural and engineering consultation abroad as part of the aid program in developing countries. AID is still too new for a clear pattern of activity.

UNESCO: United Nations Educational, Scientific, Cultural Organization

BIE: International Bureau of Education

These agencies collaborate in International Conferences on Public Education held in Geneva, Switzerland. Official delegations are appointed by member-states of the UN. From time to time these conferences concern educational buildings.

In 1956, the AIA Committee on School Buildings learned that this would be the case in the 20th Conference (1957) and recommended to the AIA Board that an appointment as delegate be sought for its current chairman, John W. McLeod, backing this request with an offer of travel funds from the committee budget.

The Board appropriated partial reimbursement and, after considerable negotiation with the State Department, Mr. McLeod was appointed the only architect member of the official five-man US delegation—the others educators and administrators. This status required security clearance and briefings in Washington and in Geneva on the official US "position" on matters to come before the conference. Without this official status participants become "observers" with no possibility of an active part in the conference or real assistance to the delegation. Furthermore, because of multiple meetings, the five persons were able to maintain coverage in plenary and committee meetings.

Country-by-country reports of progress in educational construction were presented and discussed. Nineteen countries raised questions concerning the US report, on which the delegation replied.

An exhibition of US schools (not prepared by AIA) was supplemented by spur-of-the-moment slide-shows which others followed.

An important final recommendation related to information: ". . . it would be advisable to set up, with the assistance of UNESCO,

BIE and other international institutions, an international school building center with appropriate technicians and educators on the staff. Such a center should stimulate and assist the development of similar regional centers. . . ."

(UNESCO subsequently set up regional centers for school building information in Bandung for SE Asia and in Khartoum, Africa. Other national centers exist or are being established and one international center has been set up, in Switzerland, under UIA/BIE auspices and in response to this UNESCO/BIE recommendation).

Mr McLeod's report to the AIA Board recommended:

- an effort by the AIA to improve US architectural exhibitions abroad:

"It was a matter of deep regret to me that, in a field where US architects have contributed so much, our nation's exhibit should fare so badly, particularly by comparison with those of other nations, some with much less in the way of financial resources, but, apparently, with much more regard for national prestige . . ."

- need for technical sessions for architects attending such conferences—as a part of the program

- need for interchange of school building information:

"I firmly believe that great benefit could accrue to this country in terms of international goodwill, if a program of exchange and technical assistance could be carried on in the school building field, certainly an area which is about as non-controversial as one could find in international relations. I would suggest that AIA might take a leading role in this matter, since it would not, necessarily, have to wait for government action. . . ."

NCU/S: US National Commission for UNESCO

Operates as a part of US Department of State with several functions including some aspects of international conferences and cultural exchange programs.

About 60 organizations nominate members to this commission. About 15 are rotated each year and some 500 are in line. AIA has had two appointees, the last being Walter Rolfe FAIA, of Texas, who held the post with considerable distinction until 1955.

It is an official AIA policy to "support and endorse the objectives" of UNESCO and eventually the Institute should again be appointed to this commission.

Congresses on School Construction

During the 12th Milan Triennale in 1960 (the great trade and art fair held every three years in Milan) a definite part of the theme included schools as a so-called *First International Congress on School Construction*. There were addresses by important education officials, presentations by architects, and the Fair exhibits themselves included award-winning component-prefabricated schools from the United Kingdom and from Mexico.

A Second Congress was planned for London for the time of the UIA Congress in 1961 but was postponed and subsequently has become the *UNESCO International Educational Building Conference (London 1962)*.

It is of interest perhaps to note that the AIA Committee on School Buildings in February 1961 made a recommendation to the AIA Board, which was subsequently approved, that the AIA call an international conference on school buildings. Two weeks after the announcement was issued we learned of the UNESCO conference in London and our meeting was cancelled.

IHF: International Hospital Federation

Conducts congresses every two years (odd years) and hospital study tours in different countries in even years. Maintains information service and permanent research committees. Several AIA members belong and have participated in congresses and tours.

1960 USA: hospital study tour (about 200 including forty architects)

1961 Venice: Congress (AIA represented by Rex Allen (CHH) and others)

1962 Belgium: tour

1963 Paris: congress

This is a membership organization including architects and all branches of hospital service. For information write:

International Hospital Federation
24-26 London Bridge Street
London SE 1 England

ITI: International Theatre Institute

Set up in relation to UNESCO, collaborates with UIA and the International Association of Theatre Technicians (IATT) and other interested groups in holding international colloquies:

Berlin 1960
London 1961
Athens 1962 (theatres for large audiences/spectacles)

IATT, with headquarters in Paris, has several national sections in other countries, including the US Center IATT which is related to the American National Theatre and Academy (ANTA) and the US Institute for Theatre Technology (USITT) which latter membership organization based in NYC has some 15% AIA members. For information write:

US Institute for Theatre Technology
Box 291 Cathedral Station
New York 25, New York

IFHP: International Federation for Housing and Planning

Founded 1913, headquarters in The Hague, non-governmental but consultative status with UN Economic and Social Council. Holds international meetings even years. Individual and organizational membership available. Robert Piper, AIA staff, (also AIP associate member) will attend 1962 meeting in Paris as an observer for the AIA.

CIE: International Commission for Illumination

A non-governmental professional commission with representatives from the national committees of about thirty countries. Consultative status with UN. Holds Congresses every four years (1963: XV Vienna—1967: XVI possibly USA). About 125 Americans will attend the Vienna Congress.

Congresses consider reports on about 35 areas of interest which are developed between congresses by research, correspondence and meetings of expert committees. Many of these committees concern lighting practice in different building types of great importance to architects, but few architects are active in this organization. AIA has representation through Eric Pawley of AIA staff as member-at-large of the US National Committee for CIE, also as a member of the committee on hospital lighting. ◀

Technical Abstracts

The following abstracts of four papers given at the seventh annual convention of Prestressed Concrete Institute, 1961, can be found in their entirety, with diagrams, tables and photographs in December 1961, April and June 1962 issues of the Journal of the Prestressed Concrete Institute.

The Alweg-Monorail System—Seattle

Johann F. Enderlein, Structural engineer, Alweg Rapid Transit Systems of Washington State, Inc. (PCI Journal June 62)

The Alweg train runs on concrete beams which, at their ends, are supported by either single or T-shaped concrete columns, or by portal-like frames. These are spaced up to 90' apart, depending on local conditions and whether single or double track is installed.

Cars straddle the concrete rail beam with dual pneumatic drive wheels on top of the beam, while horizontal guide wheels, also pneumatic, bear against its side to stabilize and guide the car.



Supporting concrete columns of the Alweg monorail

Car body is made of lightweight metal and drapes over the track beam, thus providing ample space underneath the floor for installation of all necessary equipment, such as motors, main and auxiliary electrical equipment, brake mechanism. Soundproofing effectively insulates motor compartments and wheel casings.

Trains are powered by electric motors or diesel engines. At the Seattle Alweg installation, electric motors and their control equipment receive 600 volt dc current from a contact rail running along the side-center of the concrete rail beam. Both axles of each individual car are powered and also equipped with dynamic and mechanical brakes. A fully automatic speed control system not only adjusts train speed but also controls braking process.

Among other safety devices fire extinguishers are included, and gangways for transferring passengers from one train to another in case of power failure. And in event of tire deflation, solid rubber wheels of somewhat smaller diameter will engage the beam before the tire has deflated to any extent.

Construction contract was given to Howard S. Wright Construction Company of Seattle; contract for precast and prestressed concrete beams to Concrete Technology Corporation, Tacoma, Washington.

The paper continues with very detailed descriptions, with diagrams and photographs, of:

- rail beams: design stresses, loads, design features, beam fabrication
- beam bearings
- supporting concrete columns
- foundations

Beverly Hilton Garage, Los Angeles—The Largest Hotel Parking Facility in the World

S. Galezewski, Vice President & Chief Engineer, Rockwin Engineers & Rockwin Prestressed Concrete Corporation, (PCI Journal Dec 61)

The 500-automobile parking structure, with four new levels was added atop existing two-level parking structure, allowing parking space for 1500 cars.

Job site was well hemmed-in, virtually inaccessible on three sides to construction equipment—thus wide use of precast units and erection from within was almost mandatory. Existing deck was shored with heavy timber to permit erection cranes and loaded pull-dollies to operate on the deck. The new addition rests on a completely independent foundation which was designed as a continuous beam on elastic foundation and is located next to and somewhat below the old footings. Main supports of the three-bay, 160' x 266' garage addition are 54' long precast columns. All four additional parking levels and part of the existing second level were wrapped around with continuous rows of precast prestressed spandrels, which function as structural members supporting outside bays and also are purposely deepened to conform to architects' appearance requirements.

Utilization of continuity through the mild steel reinforcing, as well as designing for composite action, resulted in a very accurate framing system. The search for the most economical section for this garage created a new section—already very popular on the West Coast—the 8' wide double-T.

(Continued on p. 94)

ELECTRIC HOT WATER HEAT

TO **2,500,000 B.T.U.**
OUTPUT



PRECISION ELECTRIC HOT WATER HEATING BOILER

COMPLETE UNIT READY FOR INSTALLATION

with circulation hot water system and water chiller for year-round air conditioning.

CONVERSION EASILY ACCOMPLISHED

where other type fuels now used. Suited for home, churches, motels, apartments, hotels, hospitals, commercial buildings, swimming pools, snow melting and domestic hot water for large users. Temperature range — 60 to 250 degrees. Equipped with Sequence and Proportional Controls when desired.

- Every unit tested and inspected 40,948 to 2,500,000 B.T.U. Output.

- All Boilers meet the requirements of the ASME Boiler and Pressure Vessel Code. Natl. Board approved.

No chimney! No odors! No flame! No ducts! No noise!

Write for complete specifications and prices

 **PRECISION parts
corporation**
400-AIA NORTH FIRST STREET
NASHVILLE 7, TENNESSEE

Technical Abstracts (con't)

Design and Construction of Evergreen Plaza Shopping Center

E. A. Picardi, Chief Structural Engineer, Skidmore, Owings & Merrill, Architects & Engineers, (PCI Journal Dec 61)

The \$8.3 million Evergreen Plaza Shopping Center, Evergreen Park, Illinois, is probably one of the largest totally precast and prestressed concrete shopping centers built to date. Approximately 900 precast T-bents and 1700 precast, prestressed core slabs are being manufactured and erected to form the 500,000 sq ft of supported floor and 500,000 sq ft of elevated parking deck.

The project is an addition to an existing shopping center. The addition will consist of a new three-story department store, multiple smaller two-story shops, ground-level and elevated malls, and ground-level and elevated parking areas.

Basic bay of 22' x 49'6" was an adequate and economical solution for stores and parking structure. Structural elements forming the bay consisted of poured-in-place footings and piers supporting precast concrete bents at 22' centers with precast prestressed concrete slabs spanning 49'6" between bents. Only four basic bent forms and a single basic spandrel beam form were used.

A design live load 100 psf was used for all floors in stores and for the outside mall areas. The parking deck was designed for a live load of 75 psf. Provision in design was made for additional floor over all shop areas but department store. Thus there are essentially three basic slab units—garage, mall, and roof of department store—all having same concrete core slab section and dimensions. Variation in load carrying capacity is accomplished by variation in number and location of prestressing strands and in mild steel for shear reinforcing.

The 8' x 20" core slab spanning 49'6" has a flange thickness of 1". Exterior webs are 2 $\frac{7}{8}$ " thick and interior webs are 2 $\frac{1}{2}$ " thick. Section is constructed of 5000 psi lightweight concrete using "Materialite" aggregate. Core has a cross-sectional area of 462 in² and a moment of inertia of 26,130 in⁴. Slab weighs 44.2 psf. This section design produces a high moment of inertia for the amount of concrete area used in comparison to other long span slabs.

The 11' composite floor section consisting of one core slab with a 2" stone concrete topping and 3 $\frac{1}{2}$ " thickened side slabs weighs 69 psf. It has a moment of inertia of 43,000 in⁴.

Three official load tests to destruction were made to confirm design computations and prove workmanship and materials.

This project is of interest because it is one of the first attempts in the US to produce a pre-stressed concrete slab with very thin flanges and webs. Such sections are extremely sensitive and require precise equipment for their manufacture, careful attention to accurate placing of all steel and optimum quality control and inspection. New sections of this type must be carefully designed and fully tested prior to acceptance. We believe this can be done, and this and similar types of slab can be economically produced in fully mechanized plants.

Composite Precast Concrete Connections

Alfred A. Yee, of Alfred A. Yee & Assoc, Inc, Structural Engineers (PCI Journal Apr 62)

Concrete is a heterogeneous material and its physical properties can be affected by a great number of variables such as type of aggregate, cement content, curing methods. It is not unusual then that precast, prestressed members may suffer dimensional twist. Misplacement of metal inserts can seriously compound the problem. This paper discusses a type of connection whereby poured-in-place composite concrete fills the gaps between and ties precast members together.

Poured-in-place concrete can easily absorb dimensional inconsistencies of precast members, and thus allow greater manufacturing tolerance without sacrificing structural strength of connections. Continuity and interaction between framing members can easily be developed and connecting steel tendons are completely enveloped by poured-in-place concrete.

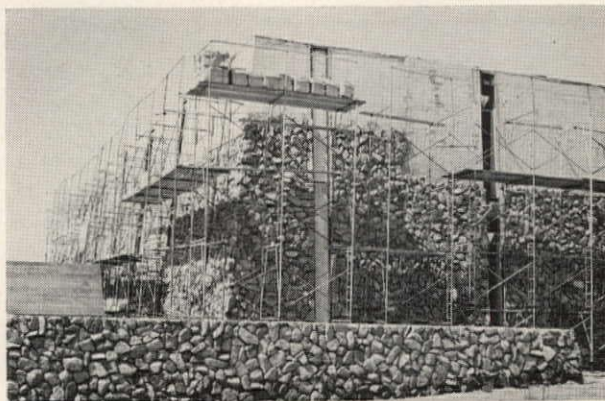
Joists are connected to a poured-in-place beam by simply having the ends extended into poured concrete which is usually placed in the same operation as the deck slab. The carrying beam can also be constructed in a composite manner whereby a precast, prestressed soffit is used. Ends of precast, prestressed joist are completely enveloped with poured concrete so that uniform bearing about entire end of joist can be developed. Tapered ends of joist increase its bearing on poured concrete, and extended strands develop additional shear resistance and tie-together.

This article further discusses added continuity reinforcement in composite concrete deck slab and end rotations of precast joist due to mid-span deflection in long span or heavy load. Several diagrams, photos and descriptions of specific examples are included.

AIA TECHNICAL ABSTRACTS SEPT/62

Specify featherock®

The lightweight natural stone veneer for economy, beauty and speed of erection.



BEAUTY

Blends easily with modern materials, giving impressive dignity to institutional, commercial and residential construction.

In colors of Silver Grey, Charcoal and Sierra Tan.

ECONOMY

- ★ Covers 5 times more per ton.
- ★ Weighs 6 to 10 lbs. per sq. ft.
- ★ Low "in the wall" cost.

Refer to 1962 AIA Building Products Register Page 90—4.01. Write for brochure. Nationally distributed.



featherock INC.

Dept. 9J

6331 Hollywood Boulevard,
Los Angeles, California

New Corporate Members

Elected June 15, 1962

Allen, Ralph Gerald
Orange County Chapter

Allison, Donald Lex
Seattle Chapter

Ames, Robert Webb
Virginia Chapter

Auldridge, Robert L.
New York Chapter

Basile, Paul Frank
New York Chapter

Bass, Robinson Neil
Middle Tennessee Chapter

Beddow, Earl F.
St. Paul Chapter

Berlow, Martin Warren
Coast Valleys Chapter

Butler, David Thomas
Rhode Island Chapter

Cabrera, Robert
New York Chapter

Calcagni, Alfred Adolfo
Vermont Chapter

Carleton, Charles Samuel, Jr.
Central Texas Chapter

Casner, Henry Lawrence
West Kentucky Chapter

Chamlee, William Post
Central Texas Chapter

Chu, Morgan Y.
Eastern New York Chapter

Copeland, Eugene Herman, Jr.
North Carolina Chapter

Cox, Frederic Hamilton, Jr.
Virginia Chapter

Crandall, J. Sterling
South Dakota Chapter

Culver, Robert Harold
Long Island Chapter

Denis, Donald Alan
Long Island Chapter

Dooley, Tevis Ernest, Jr.
Coast Valleys Chapter

Evans, Richard Stanton
Houston Chapter

Fournier, Henry M.
New York Chapter

Franklin, James Rodman
Chattanooga Chapter

Fry, Joseph Kerr
Virginia Chapter

Gilchrist, John Robert
New Jersey Chapter

Goss, William Andrew
Coast Valleys Chapter

Haynes, Irving Bogle
Rhode Island Chapter

Heyward, John Tabb, Jr.
Virginia Chapter

Hull, William Roy
East Bay Chapter

Johannes, Allan Ronald
East Bay Chapter

Johnson, Charles Marland
Orange County Chapter

Kemner, B. T.
Central Illinois Chapter

Koran, Arley Joseph
Cleveland Chapter

LaBau, David N.
Connecticut Chapter

Lund, Ralph Orlow
Seattle Chapter

Manheimer, Emanuel
New York Chapter

McClurg, William Edward
Virginia Chapter

McConnell, Robert Eastwood
Seattle Chapter

Mitchell, Richard Dillard
North Carolina Chapter

Normandin, Aram Francis
Washington-Metropolitan Chapter

Raemsch, Henry Arthur
New York Chapter

Rankin, Carroll Sears*
Coast Valleys Chapter

Reeves, Roscoe, Jr.
Washington-Metropolitan Chapter

Rubin, Jerome
New York Chapter

Salditt, Paul Ferdinand
Washington-Metropolitan Chapter

Schmerl, Robert H.
New York Chapter

Scott, Floyd R., Jr.
New Jersey Chapter

Shwabe, Igor
Long Island Chapter

Soler, Enrique Rafael, Jr.
New York Chapter

Sprague, Robert Brennecke
Coast Valleys Chapter

Stancioff, Peter Paul
Washington-Metropolitan Chapter

Tan, Hai Chuen
Orange County Chapter

Van der Clute, Dean Sandison
New Jersey Chapter

Vann, Charles Henry
Florida South Chapter

Visbaras, Jonas
New York Chapter

Wasserman, Joseph
New York Chapter

Wiggins, James Bradford
North Carolina Chapter

Wilkins, Raoul Wheeler
Virginia Chapter

Woodward, Ronald Edwin
New York Chapter

Elected July 2, 1962

Albert, Frants
Northern California Chapter

Anderson, Earl Alden
Colorado Chapter

Arnold, Charles Treat
Philadelphia Chapter

Braun, Gustav
Chicago Chapter

Bray, Harold Thompson
Georgia Chapter

Bergeson, Edwin B., Jr.
Northern California Chapter

Burris, John H.
Philadelphia Chapter

Chaney, Verne Clifford
Spokane Chapter

Crone, Wesley James
Tulsa Chapter

De Nike, John G.
Northern California Chapter

Doell, Walter George, Jr.
New Orleans Chapter

Dorian, Garo N.
Northern California Chapter

Egan, Robert Michael
Chicago Chapter

Evantash, Leonard
Philadelphia Chapter

Fabrin, George Wayne
Northern California Chapter

Fargotstein, Fred M.*
Pittsburgh Chapter

* Readmission

Double-duty walls constructed in one operation with Natco Uniwall



The American Sugar Company's new Bunker Hill Refinery in Charlestown, Mass., constructed of Natco Uniwall, was chosen as one of the country's "top 10" industrial plants of 1961. Engineer-Contractor: Bechtel Corp.

Natco Uniwall is a single load-bearing, structural clay tile unit with two finished faces. Its *exterior* face has an unglazed rugg-tex finish with the texture and appearance of high-quality face brick. Its *interior* face has a permanent, durable ceramic glazed finish available in a variety of attractive colors.

"Laying up" both inside and outside walls in a single operation with only one building trade involved not only saves time, but also saves on labor costs . . . when compared to other building methods.

Uniwall is completely fireproof, vermin proof, chemical resistant, and is easily maintained at minimum cost. Consider attractive, functional Natco Uniwall when planning your new building.

Write for technical handbook UW-100-5.



Two Natco Uniwall units showing the interior ceramic glazed face and the exterior unglazed rugg-tex face.

Today's idea becomes tomorrow's showplace . . . when Natco structural clay products are in the picture

natco corporation

GENERAL OFFICES: 327 Fifth Avenue, Pittsburgh 22, Pennsylvania . . . Branch Offices: Boston • Chicago • Detroit • Houston • New York • Philadelphia • Pittsburgh • Syracuse
Birmingham, Ala. • Brazil, Ind. . . . IN CANADA: Natco Clay Products Limited, Toronto

New Corporate Members

Elected July 16, 1962

Adams, Benedict
Central Valley Chapter

Anderson, Robert Waldo
North Dakota Chapter

Berman, Bernhardt T.
Long Island Chapter

Bosholm, Paul Wilson
Northern California Chapter

Brickert, John Taylor
Jacksonville Chapter

Brown, Kenneth Verne
Kansas Chapter

Cohon, Edward M.
Chicago Chapter

Connor, Alton James
Coast Valleys Chapter

Childers, Carl J., Jr
Lubbock Chapter

Crawford, Gerald Alvin
Colorado Chapter

De Nicola, Henry Joseph
Colorado Chapter

Downing, Howard Stanley, Jr
Baltimore Chapter

Gray, Warren, Jr
Washington-Metropolitan Chapter

Horst, Glenn A.
Kansas Chapter

Hutchins, Ray Willard
Kansas Chapter

Irwin, Robert Grandy
Colorado Chapter

Layton, Louis Henry, III
Washington-Metropolitan Chapter

Liston, Lawrence Leon
Northern Illinois Chapter

Marchbanks, Glenn H., Jr
Santa Barbara Chapter

Marshall, James Omer
Oklahoma Chapter

Moore, John Boyer
East Kentucky Chapter

Moore, Thomas Edgar*

Nedved, Elizabeth Kimball*

Nedved, Rudolph James*

Norwicz, Frank James
Baltimore Chapter

Prather, James Edward
Central Valley Chapter

Pratt, Harlan Albert
Chicago Chapter

Rasmussen, Charles Ray
Utah Chapter

Remmele, Paul F.
Kansas Chapter

Row, Alvin A., Jr
Kansas Chapter

Sajbel, Robert James
Wisconsin Chapter

Sather, Roy Alan
North Dakota Chapter

Sholar, Willard Covington, Jr
Shreveport Chapter

Terrill, Joseph W.
Kansas Chapter

Thomas, William Allen
Memphis Chapter

Williams, David Lloyd
Colorado Chapter

Zucconi, William Ray
Montana Chapter

Friedman, Stanley Martin
Philadelphia Chapter

Gelwicks, Louis Edwin
Northern California Chapter

Glass, Gordon Harvin
Orange County Chapter

Herzer, Milton L., Jr
San Diego Chapter

Johnston, Jes R., Jr
Georgia Chapter

Kahn, Hans
Colorado Chapter

Kessler, Sheldon Theodore
Northern California Chapter

Langworthy, James Lamont
Orange County Chapter

Le Vine, Newton Nathan
Philadelphia Chapter

Logan, William
Spokane Chapter

Looms, Peter
Colorado Chapter

Lorenzen, Kyle Leslie
Colorado Chapter

Lower, James Alan
Oklahoma Chapter

Macauley, William Henry, Jr
Philadelphia Chapter

Mangione, Andrew John
Georgia Chapter

Milan, John Francis
Colorado Chapter

Miller, Edward Charles
Georgia Chapter

Miller, John Graham
Wisconsin Chapter

Nixon, Robert James
Spokane Chapter

Parachek, Ralph Edward
Central Arizona Chapter

Pelfini, Vincent L.
Northern California Chapter

Peterson, Richard Vincent
Seattle Chapter

Rinaldi, Arnold Stanley
New York Chapter

Sauer, Louis
Philadelphia Chapter

Scarbro, William Bryan
Central Arizona Chapter

Schell, William Jack
Texas Panhandle Chapter

Simpson, Arthur Lee
San Diego Chapter

Smith, Barry Goodman
Northern California Chapter

Smith, Rodney L. B.
San Diego Chapter

Sokoloff, Hyman David
Northern California Chapter

Tatarian, Zaven
Northern California Chapter

Tobermann, Charles Woodruff
Central Illinois Chapter

Tough, Coulson
Orange County Chapter

Vetter, Gale K.
Colorado Chapter

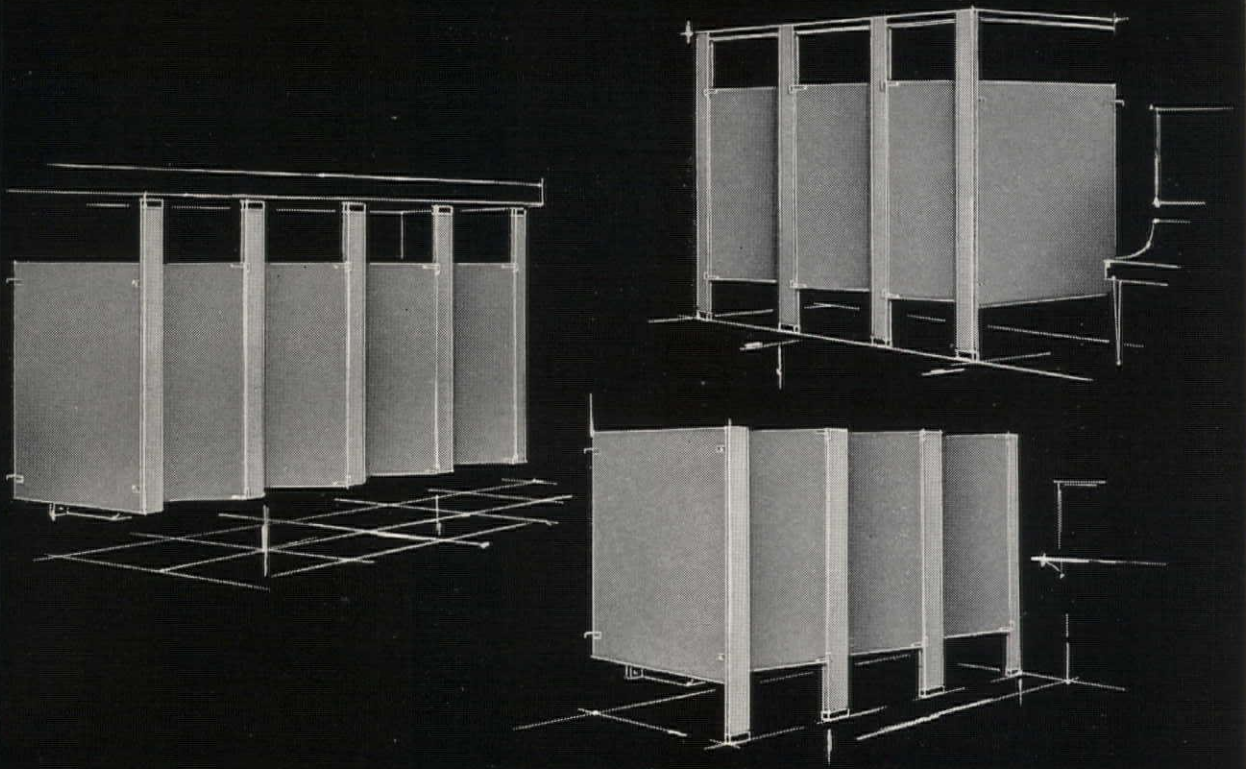
Wicker, June Wood (Miss)*
Georgia Chapter

Wiggins, Richard Eugene
Western Michigan Chapter

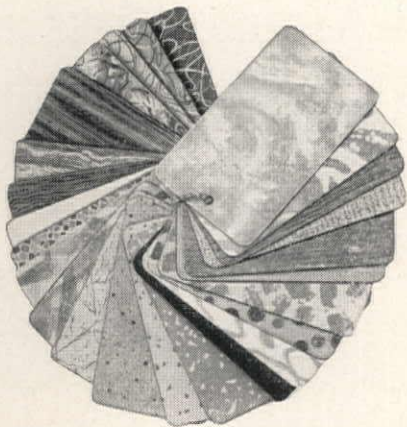
Weissman, Walter
Philadelphia Chapter

Weston, Eugene, III
San Diego Chapter

* Readmission



LAMINATED PLASTIC TOILET COMPARTMENTS



IN AN ARRAY OF COLORS, PATTERNS

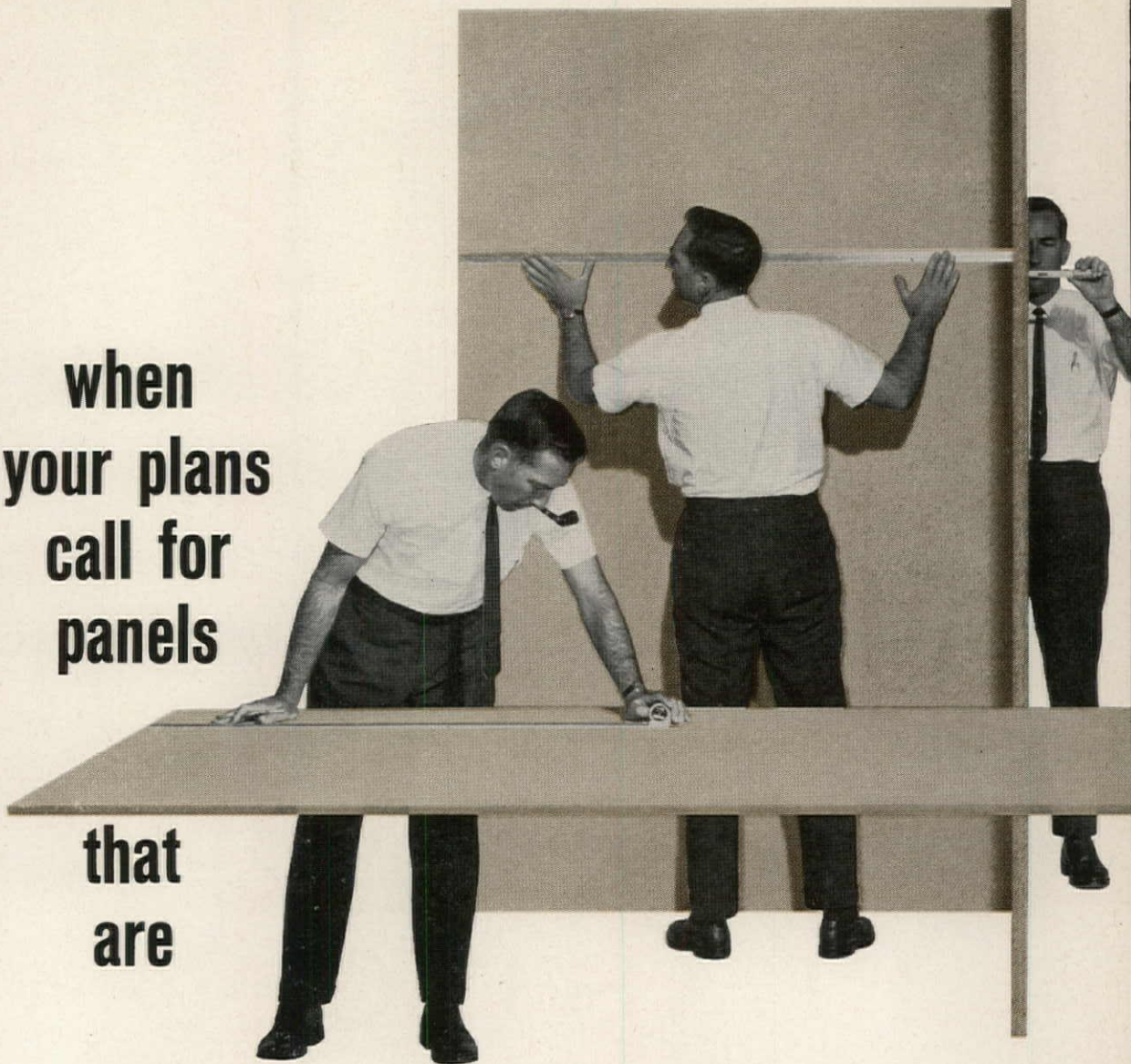
Skin deep beauty! Skin deep protection against acids, alkalis, detergents, solvents, rubbing, scratching, moisture, RUST! Specify PRICE-CAPRI, Pricemetal Plastic Laminated Toilet Compartments.

Pricemetal
COMPANY

P. O. Box 413, Elkhart, Indiana

when
your plans
call for
panels

that
are



LONG AND STRONG

Timblend is available in stock lengths up to 16 ft. Outstanding edge-gluing strength enables assembly of longer or wider sizes.

WIDE AND WARP-RESISTANT

Timblend is stocked in 2 to 4 ft. widths, available in custom widths to 51-3/16" or edge-glued for wider requirements. The multi-ply, interwoven construction resists warping.

THICK OR THIN

Timblend thicknesses range from 3/8" to 1-1/8". Panels can be laminated to meet custom requirements. Edges can be filled and finished in a variety of treatments.

 **Weyerhaeuser** **TIMBLEND**[®]

Here is wood put to work in a new form that surpasses both lumber and plywood in many design and construction applications. In the exclusive Timblend manufacturing process, precision-cut wood flakes are coated with modern resins and bonded together under heat and pressure into a balanced, interwoven sandwich panel. Remarkably strong, smooth and

warp-resistant, Timblend is being specified for paneling, sliding and bi-fold doors, cabinets, shelving, soffits, cores for counter and table tops, furniture and fixtures. A wide range of stock and custom sizes is available from Weyerhaeuser Distribution Centers located throughout the nation... listed under Lumber Wholesale and Plywood in the Yellow Pages.



VENEERED OR PLASTIC FACED

Timblend provides a solid and warp-resistant core for decorative plastic laminates or wood veneers. Smooth panel surfaces eliminate telegraphing through modern, thin face laminates.

PAINTABLE AND WORKABLE

Timblend machines beautifully with ordinary woodworking tools. Panels are available factory filled, sealed and sanded to provide a perfect surface for paint finishes.

SMOOTH AND FLAWLESS

Timblend is completely free from knots, grain, core voids, and surface imperfections; uniformly thick ($\pm .005''$), smooth and hard.

engineered panels meet your design requirements

CHOOSE FROM SEVEN TIMBLEND PANEL TYPES

REGULAR—A high quality flake type panel used basically as a dependable core material for decorative plastics and fine wood veneers.

FILLED—A paint grade panel, prefilled and sealed, ready for top coat finishing . . . one coat will often cover.

VENEERED—Smooth, stable Timblend cores are precision laminated with a wide variety of choice hardwood veneers.

FIRE RETARDANT—Panels are UL listed and labeled. They meet building code flame-spread requirements and Federal specifications.

PHENOLIC—Panels are bonded with waterproof phenolic resin to withstand exposure to extreme moisture and humidity.

PLASTIC FACED—Phenolic Timblend panels are faced with decorative acrylic or tough weather-resistant phenolic sheets.

TOXIC TREATED—Panels are chemically treated to provide effective resistance to attack by termites and fungus.

SEND FOR NEW TIMBLEND ARCHITECTURAL GUIDE

Weyerhaeuser Company
Wood Products Division
Box B-940, Tacoma 1, Wash.

Name _____

Firm _____

Address _____

City _____ Zone _____ State _____

PRESENTING
the first book-length treatment

MODULAR PRACTICE

Prepared by the Modular Building Standards
Association

This book presents the application of modular principles to the design and construction of buildings in general and educational facilities in particular—and shows how these principles can help the building industry cope with the current construction boom. Increased productivity is the basic theme and primary aim.

Why coordinated sizes?

The book stresses the idea that if materials and components are manufactured in coordinated sizes, the architect's and builder's jobs are simplified; there is less loss of time, less waste of material through cutting, fitting, and patching on the job site.

All three aspects of modular practice—modular design, coordination and dimensioning—are defined and applied to architectural design and working drawings. Moreover, the book indicates precisely how each aspect can contribute to substantial savings of time and money in all phases of the building process—design, bidding, and construction.

COVERING:

Elements of modular practice. Design. Development of working drawings. Plans. Elevations and sections. Details. Structural, mechanical and electrical. Modular practice and the contractor. Manufacturing. The future. 1962. 198 pages. \$8.95.

SEND NOW FOR ON-APPROVAL COPIES

JOHN WILEY & SONS, Inc.

440 PARK AVENUE SOUTH NEW YORK 16, N. Y.

Calendar

September 16-October 5: Atlanta Chapter South American Tour. Write Mrs Rose Cunningham, 516 Decatur Federal Bldg, Decatur, Georgia

September 23: 14-day Seminar Tour of Mexican Architecture and Interior Design. Write: T. H. Hewitt, 2413 Driscoll, Houston 19

October 1-4: World Conference on Shell Structures, University of California, Sheraton-Palace Hotel, San Francisco

October 4-7: National Trust for Historic Preservation, 16th Annual Meeting, San Francisco

October 6: Eighth Annual Architecture & Gardens Tour of Japan, 25 days. Write Kenneth M. Nishimoto, AIA, 263 South Los Robles Avenue, Pasadena, Calif.

AIA State and Regional Conventions

September 8-9: Ohio Region, aboard SS *North America*, Great Lakes cruise

September 15: North Central Region, Council meeting, Minneapolis

September 27-29: Western Mountain Region, Sun Valley, Idaho

October 3-7: California Region, Monterey

October 10-13: New York Region, Whiteface Inn, Lake Placid

October 11-13: Central States Region, Omaha

October 11-14: NW Region, Ocean Lake, Oregon

October 12-13: Illinois Region, Springfield

October 18-20: Pennsylvania Region, Hotel Hershey, Hershey

October 24-26: Texas Region, Houston

October 25-27: South Atlantic Region, Atlanta

November 9-11: Florida Association of Architects, Hotel Soreno, St Petersburg

November 10-14: Gulf States Region, Nassau, Bahamas

International Meetings

August 30-September 16: NAHRO sponsored European tour, including 26th World Congress for Housing and Planning

September 2-9: 26th World Congress for Housing and Planning, UNESCO Building, Paris

September 5-15: UIA Research Comm, USSR

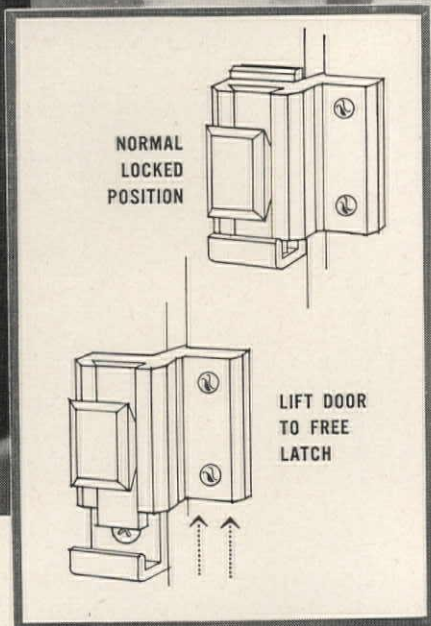
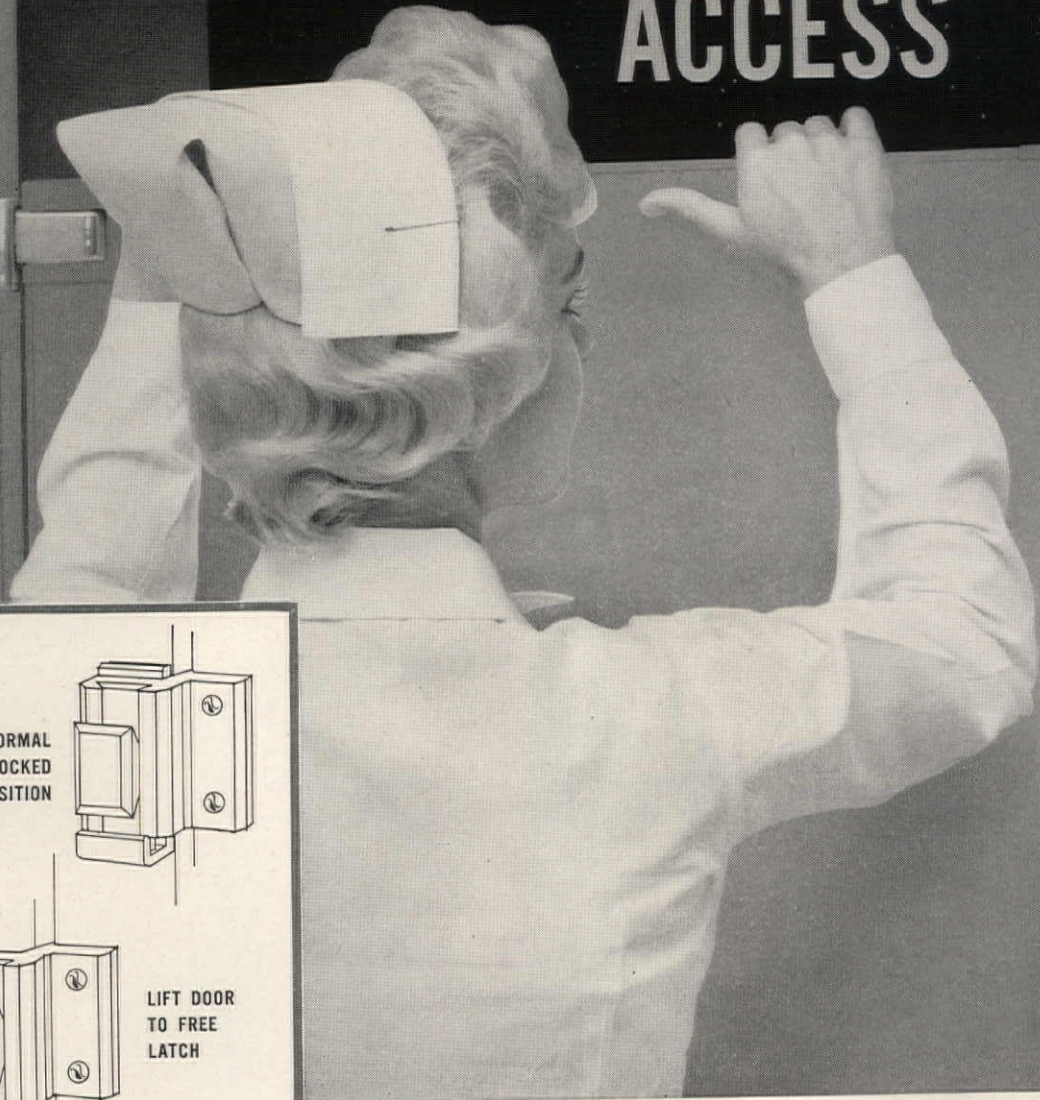
September 16-25: UIA, Training of the Architect, Czechoslovakia

October: UIA Housing Committee, Spain

November: UIA, Sport Constructions, Sao Paulo, Brazil

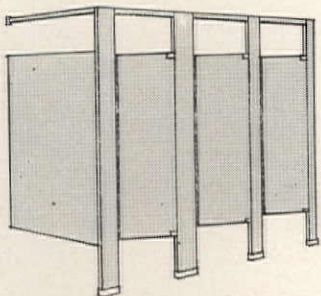
December 16-17: UIA Organization, Paris

EMERGENCY ACCESS



(Pat. Pending)

Weis Lift-Free Latch unlocks
by merely lifting door upward



Lift the door... the latch is free... the door unlocked. No delay in reaching an emergency situation—*fast!* This exclusive Weis feature is especially important in hospital, nursing home, school and other institutional locations. It's a handsome, simple, cleanly designed latch, described in the new Weis Toilet Compartment catalog—write for copy.



*Prefabricated,
Prefinished
Products for the
Building Industry*

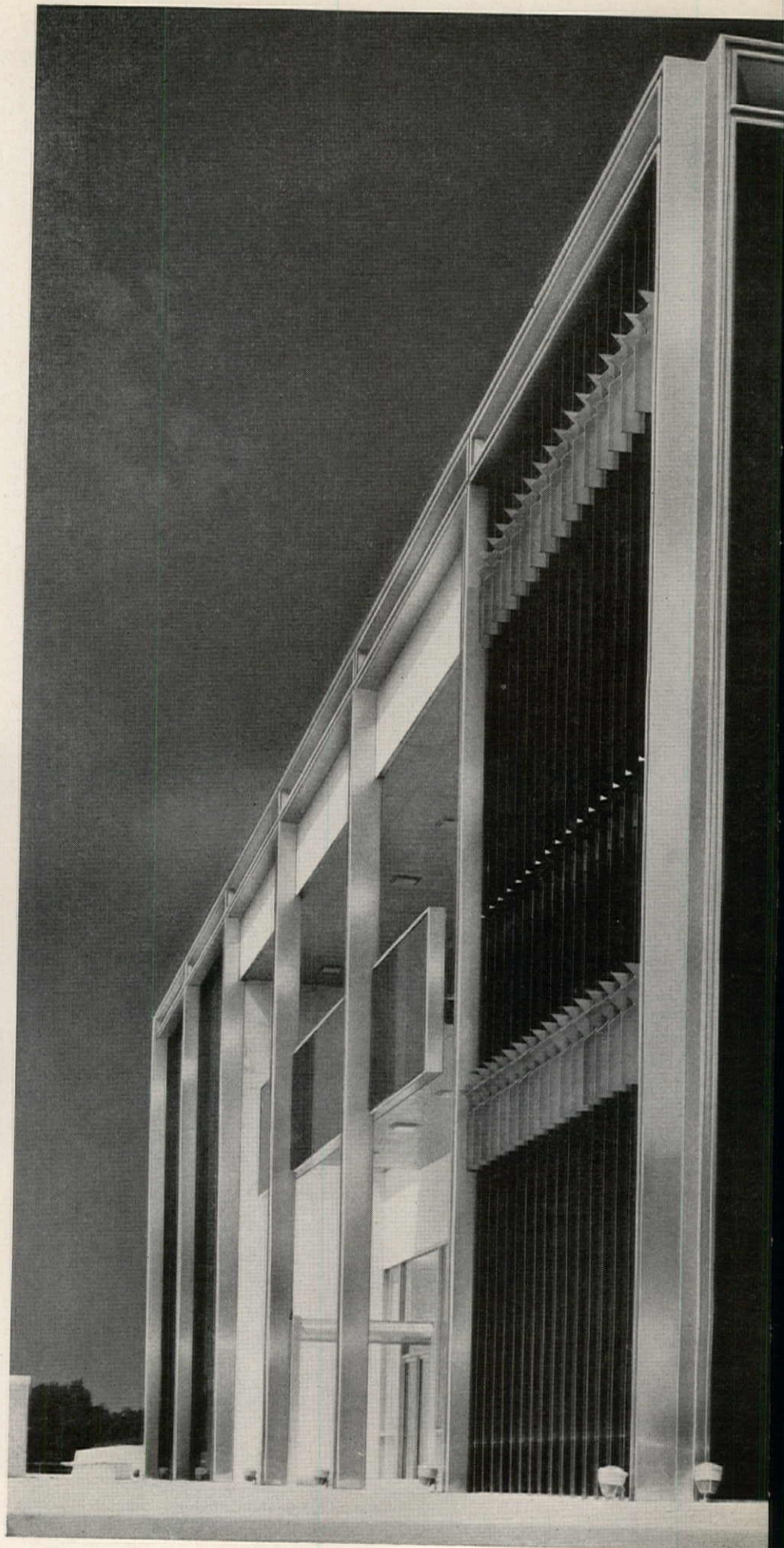
***Weis belongs where toilet
compartments really take a beating***

HENRY WEIS MFG. CO., ELKHART, INDIANA



**Decatur Federal Savings and
Loan Association Building,
Decatur, Georgia**

**Architect: Pope H. Fuller
Contractor: Pattillo Construction Co.**



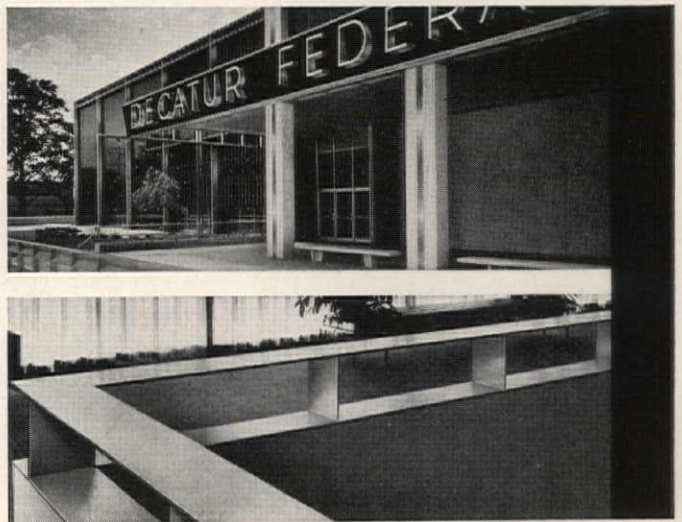
Architect Pope H. Fuller's new and distinctive structure reflects creative modern design. And as he puts it, "Stainless steel is a handsome, elegant material. This is the image it helps impart to architecture." ■ But its



For Beauty,
Durability
and Economy

beauty was not the only reason stainless steel was used so extensively for Decatur's newest and tallest building. Its high structural strength, excellent corrosion resistance, and the fact that it requires little or no maintenance were also paramount reasons for the selection of stainless steel. ■ In your designs, for both custom and standard products, specify Armco Stainless Steel to combine the advantages of timeless beauty, structural efficiency and over-all economy. Ask for a copy of "Armco Stainless Steels for Architecture," a design and specification manual that describes how

*Stainless Steel
imparts a
distinctive image
to Modern
Architecture*



stainless steel can be used most effectively at least cost. Write to **Armco Division, Armco Steel Corporation, 2432 Curtis Street, Middletown, Ohio.**



Armco Division

From THE AMERICAN INSTITUTE OF ARCHITECTS
1735 New York Avenue, N. W., Washington 6, D. C.

An Accounting System designed for your office . . .

Four years of intensive research by a Committee of the Institute has resulted in the completion of a Cost Accounting System which is adapted to the special needs of architectural offices.

Heart of the System is the Book of Instructions, available with each of the Offers; or sold separately at \$5.00 per copy. In it are all the necessary instructions, along with samples of most of the forms, filled out as examples.

The System can be purchased in three separate Offers. Each contains a year's supply of forms. Full information on the contents of each Offer, and prices of individual forms, may be obtained upon request.

● OFFER NUMBER ONE

Includes Instructions, Accounting Forms, Owner-Contractor Forms, Binders.

\$47.50

● OFFER NUMBER TWO

Includes Instructions, Accounting Forms, Owner-Contractor Forms.

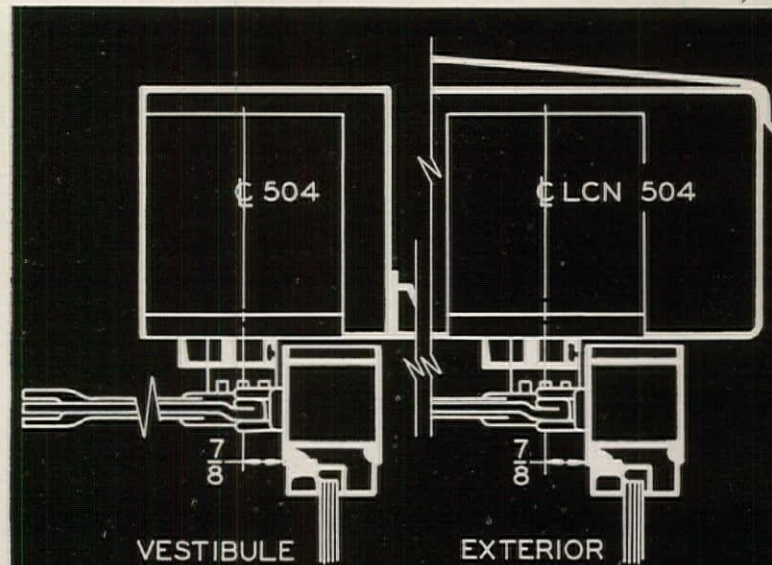
\$31.50

● OFFER NUMBER THREE

Includes Instructions, Accounting Forms.

\$22.50

Direct inquiries to:
The American Institute of Architects
1735 New York Avenue, N. W.,
Washington 6, D. C.



HEAD SECTIONS AT CLOSER

CONSTRUCTION DETAILS

for LCN Overhead Concealed Door Closer Shown on Opposite Page

The LCN Series 500 Closer's Main Points:

1. Efficient, full rack-and-pinion, two-speed control of the door
2. Mechanism entirely concealed; arm visible on inside of an out-swinging door
3. Hydraulic back-check prevents door's being thrown open violently to damage door, walls, etc.
4. Double lever arm provides maximum power to overcome wind and drafts
5. Arm may be regular, hold-open 90°-140°, h. o. 140°-180° or fusible link h. o. 90°-140°.

*Complete Catalog on Request—No Obligation
or See Sweet's 1962, Sec. 19e/Lc*

LCN CLOSERS, PRINCETON, ILLINOIS

A Division of Schlage Lock Company

Canada: LCN Closers of Canada, Ltd., P.O. Box 100, Port Credit, Ontario

Modern Door Control by *LCN* • Closers Concealed in Head Frame

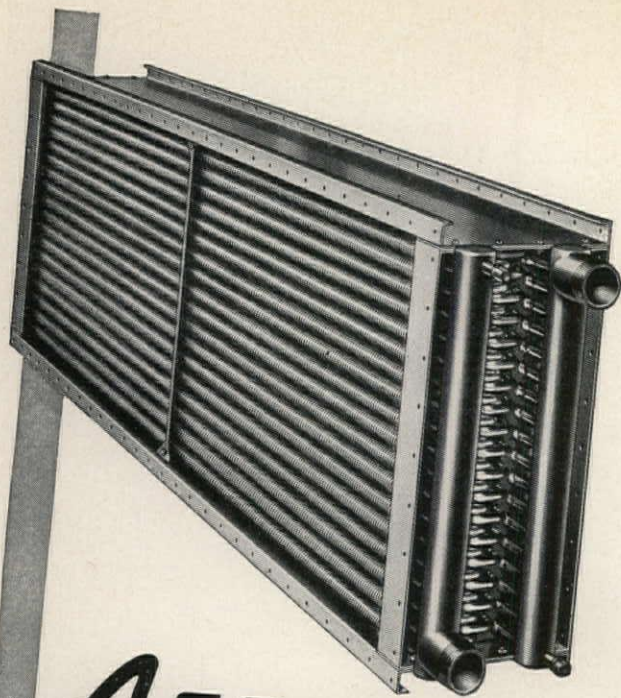
THE CLEVELAND INSTITUTE OF MUSIC, CLEVELAND, OHIO

LCN CLOSERS, PRINCETON, ILLINOIS

Construction Details on Opposite Page



Schafer, Flynn & Williams, Architects



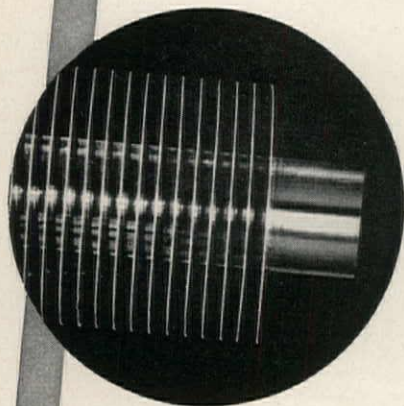
AEROFIN

Smooth-Fin Coils offer you:

Greater Heat Transfer
per sq. ft. of face area

Lower Airway Resistance
— less power per c. f. m.

Aerofin smooth fins can be spaced as closely as 14 per inch with low air friction. Consequently, the heat-exchange capacity per square foot of face area is extremely high, and the use of high air velocities entirely practical. Tapered fin construction provides ample tube-contact surface so that the entire fin becomes effective transfer surface. Standardized encased units arranged for simple, quick, economical installation.

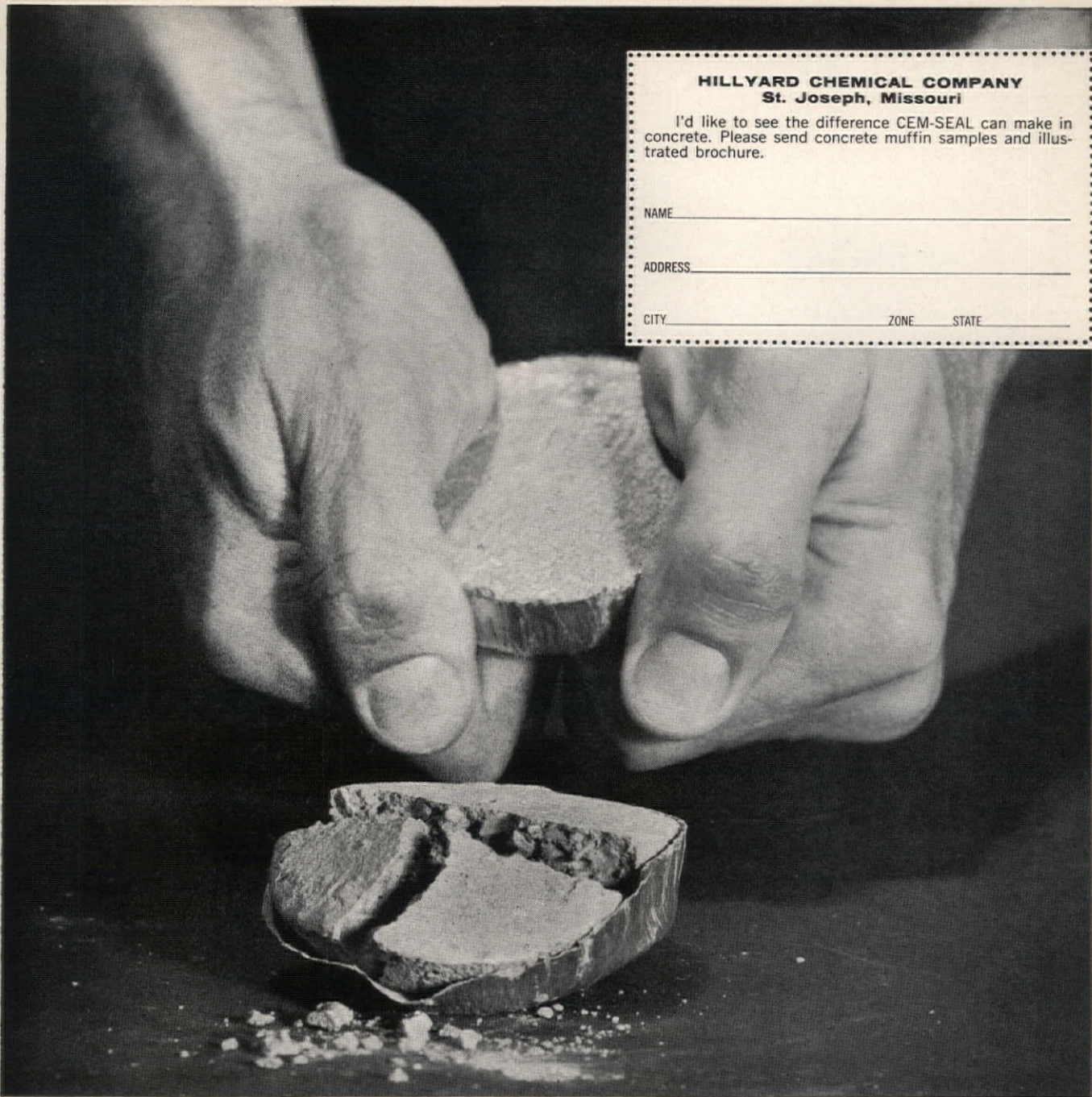


Aerofin is sold only by manufacturers of fan system apparatus. List on request.

AEROFIN CORPORATION
101 Greenway Ave., Syracuse 3, N. Y.
ENGINEERING OFFICES IN PRINCIPAL CITIES

INDEX TO ADVERTISERS

Aerofin Corporation <i>Richards & Weiss, Inc</i>	108
American Art Metals <i>Lowe & Stevens</i>	89
American Gas Association <i>Ketchum, MacLeod & Grove, Inc</i>	13
Armco Steel Corporation <i>Marsteller, Rickard, Gebhardt & Reed, Inc</i>	104 & 105
Armstrong Cork Company Acoustical Division <i>Batten, Barton, Durstine & Osborn, Inc</i>	6 & 7
Automated Building Components, Inc <i>Le Jeune Advertising</i>	16
Azrock Floor Products Division Uvalde Rock Asphalt Co <i>Glenn Advertising, Inc</i>	2nd Cover
Blumcraft of Pittsburgh	9
Bourne Manufacturing Company <i>Watkins and Rogers, Inc</i>	12
Bradley Washfountain Company <i>Hoffman, York, Paulson & Gerlach, Inc</i>	25
Bricklayers, Masons & Plasterers International Union of America <i>Henry J. Kaufman & Associates</i>	15
Caterpillar Tractor Company <i>Ketchum, MacLeod & Grove, Inc</i>	13
Colonna and Company of Colorado <i>Taube-Violante, Inc</i>	14
Featherrock, Inc <i>Sierra Advertisers</i>	95
Hillyard Chemical Company <i>Bozell & Jacobs, Inc</i>	109
Hope's Windows, Inc <i>The Moss-Chase Company</i>	32
Josam Manufacturing Co <i>Allied Advertising Agency, Inc</i>	11
LCN Closers, Inc <i>Harris, Wilson and Walt, Inc</i>	106 & 107
The R. C. Mahon Company <i>Dudgeon, Taylor & Bruske, Inc</i>	28
Monarch Metal Weatherstrip Corporation <i>Wm. John Upjohn Associates</i>	5
Natco Corporation <i>Ketchum, MacLeod & Grove, Inc</i>	97
Otis Elevator Company <i>G. M. Basford Company</i>	27
Pittsburgh Plate Glass Company <i>J. Walter Thompson Company</i>	2
Porcelain Enamel Institute <i>T. N. Palmer & Company, Inc</i>	10
Precision Parts Corporation <i>Culbertson-King-Smith Advertising, Inc</i>	94
Pricemetal Company <i>Ash Advertising</i>	99
Robinson Brick & Tile Co <i>Tallant/Yates Advertising, Inc</i>	29
The Ruberoid Company <i>Kastor Hilton Chesley Clifford & Atherton, Inc</i>	3rd Cover
Schlegel Manufacturing Company <i>The Rumrill Company, Inc</i>	26
United States Gypsum Co <i>Fulton, Morrissey Co</i>	17-24
Vermont Marble Company <i>Chambers Wiswell & Moore, Inc</i>	1
Henry Weis Manufacturing Co <i>Ash Advertising</i>	103
West Coast Lumbermen's Association <i>Cole & Weber, Inc</i>	90-91
Weyerhaeuser Company Wood Products Division <i>Cole & Weber, Inc</i>	100-101
John Wiley & Sons, Inc <i>Needham & Grohmann, Inc</i>	102
Wood Conversion Company <i>Knox Reeves Advertising, Inc</i>	30-31



HILLYARD CHEMICAL COMPANY
St. Joseph, Missouri

I'd like to see the difference CEM-SEAL can make in concrete. Please send concrete muffin samples and illustrated brochure.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

try our concrete muffin test . . .

HILLYARD CEM-SEAL makes concrete denser, stronger. CEM-SEAL works three ways: Retards evaporation of moisture to prolong curing time... prevents dusting which occurs when moisture evaporates too rapidly... protects against staining during construction.

To assure greater density for the concrete in structures you design, specify CEM-SEAL, the *one-step* curative agent which prolongs natural chemical action.

CEM-SEAL makes fresh concrete ready for traffic hours earlier without cumbersome, costly, inconvenient covering . . . simply spray it on at a fraction of a cent per foot. CEM-SEAL adds years to the life of old concrete, too . . . a one-coat application resists the natural dusting of age and renews the surface for easier maintenance.

Test CEM-SEAL yourself. We'll send you concrete muffin samples for comparison, plus our CEM-SEAL brochure with technical data. Write, wire or call collect today.



HILLYARD
FLOOR
TREATMENTS
St. Joseph,
Missouri,
U.S.A.

Passaic, New Jersey
San Jose, California

"On your staff, not your payroll" / PROPRIETARY CHEMISTS SINCE 1907

Good Lettering

by Wolf Von Eckardt

► Good hand-lettering for semi-formal purposes, such as titles and annotations for architectural drawings, is really quite simple. All you need is the right tool and the right spirit. The tool is relatively easy to obtain: a broad or chisel-shaped pen, a pencil sharpened that way, or a flat brush. The spirit is harder to come by. It requires that you chuck out of your mind some hundreds of years of distortion of our basic letter form and much deeply ingrained prejudice about "simplicity," "modernity" and other verbiage which hasn't gained truth by repetition or fashion.

For the most beautiful, as well as the most functional, rendition of our letters happens to be one thousand eight-hundred and forty-eight years old. It is one of the few manmade things in this world which simply cannot be improved upon: The classic Roman letters carved in the pedestal of the column erected AD 114 in honor of Emperor Marcus Ulpius Trajanus. They remain the prototype for the entire Roman alphabet.

Lettering and handwriting since the days of Trajan have merely speeded up the rendering of these letters and adapted them to the esthetics, or, if you will, the *Zeitgeist*, of each subsequent period. There is a distinct Romanesque version of it, called Uncial. There is a Gothic version, now generally known and misused as "black letter." And there is the Renaissance version which resulted in most so-called Roman typefaces (such as the one this is printed in) as well as the lovely, slanted or cursive *Italic*. Somewhere along this genealogy, someone decided to use the more simplified or streamlined forms of the letters for the staple (printers now call them "lower case"), reserving the more formal and involved capitals for emphasis. All these letter styles, up to and including the Renaissance, flow quite naturally, or, if you want to be Frank Lloyd Wright-ish about it, organically, from the chisel pen. That makes it quite easy to simply *write*, rather than draw or, Heaven forbid, construct them. All you need is knowledge of their basic shapes and a sense of spacing and rhythm.

Yes, there is evidence that even the carved letters on Trajan's column were first written on with a flat brush. This, or any similarly shaped tool, held at the proper angle, automatically creates thick and thin strokes and a marvellously gradual transition between them. The thin and thick strokes keep the letters from getting so monotonous that they blur into each other. The transition helps adjust the eye to the incongruence between straight-lined, angular letters, such as A, E, etc, the round ones, like G and O and those that are both such as B and P. When the Roman stone-cutters got through, they finished the still open ends of their letters off by bringing the chisel in at a right angle and extending the cut somewhat to keep the incised stone from breaking off at the corners. This created the serifs which, we now find, keep the letters nicely aligned horizontally and tell you that their form is complete. Without the serifs, which, according to all scientific tests contribute to better legibility, you couldn't be sure—for instance, if a C is not simply a broken off or badly printed O.

Our history lesson can stop right here. There is no need to go into Baroque and its copper engravers with their burin or its writing masters with their quill pens. The extreme thicks and thins without transition and the flourishes and curlicues with which they adorned their lettering is often very beautiful. But it is impossible to imitate well without years of dedicated practice. Yet, oddly enough, that is what Messrs Spencer, Palmer and the rest still essentially force six-year-old school children to do. No wonder they never learn to write legibly. Nor is there any point in discussing the Victorian letters, including the now again fashionable sans-serifs. These were invented for display and advertising which are useful in their place but have nothing to do with straightforward communication.

We can take it, rather, from the Renaissance and the handsome, simple and legible cursive it evolved directly from the classic Roman letters. Since it was developed in Italy, this letterstyle is often called "Italic." Another name is "Cancellaresca," because it was mainly used in the Vatican chancery. The British have slightly simplified this style and introduced it in their school system. It is legible and attractive and so easy to learn that Lord Cholmondeley adopted it for his personal handwriting at the age of sixty-two. Italic writing, or lettering, or calligraphy—call it what you will—soon becomes as individual and varied as fingerprints. As a basic style it would look nifty, yes, and quite up-to-date, on architectural blueprints as all too few architects know. ◀

Italic Lettering is easy, quick, handsome and legible