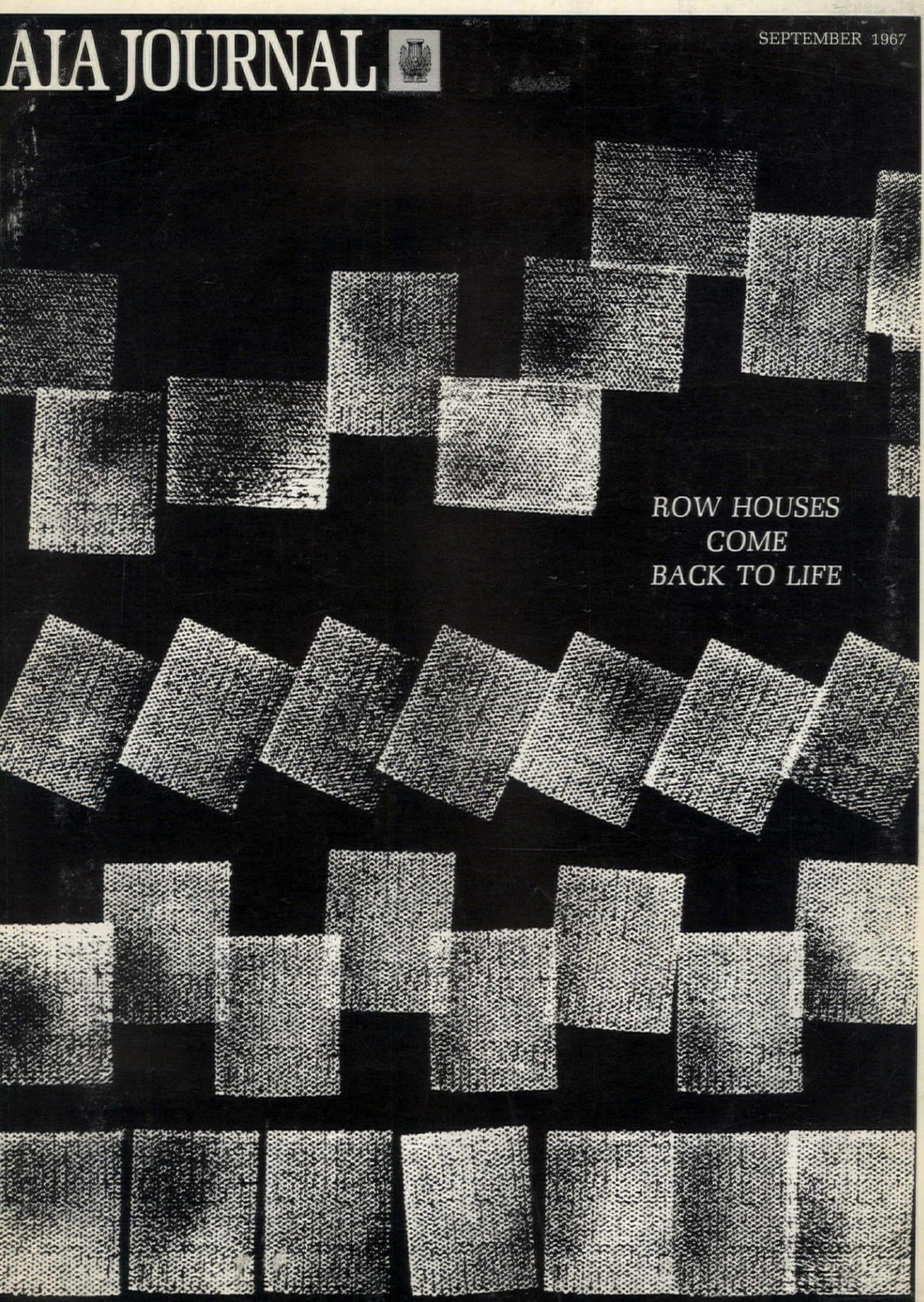
AIA JOURNAL

SEPTEMBER 1967



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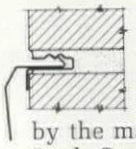

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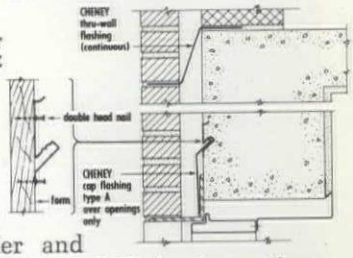

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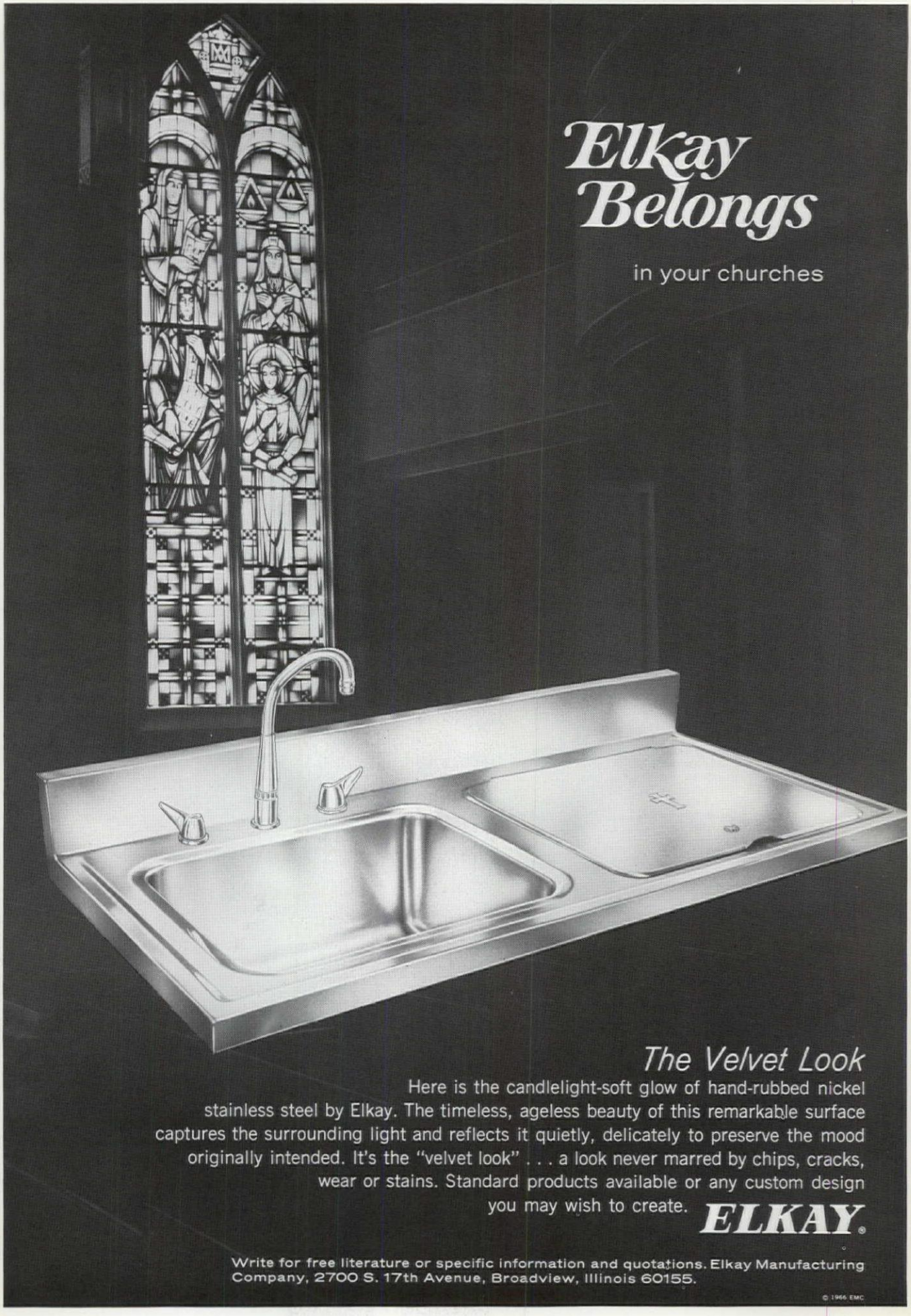

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BPA

VOL. XLVIII, NO. 3

Comment & Opinion

Our Girl Fridays: The lovely young ladies who have made their presence known at national AIA conventions since 1963 by assisting Institute staffers at the Service Center, by selling tickets and by performing sundry other tasks are none other than members of the Architectural Secretaries Association. And we think it is time you know more about them and their organization.

They are indeed unique, having to possess specialized skills and knowledge as do their counterparts in the legal, medical and dental fields. As the role of "the new architect" is ever-changing, so also is that of his secretary.

Who Will Do What?: This very concept was brought sharply into focus by Leonard Mayer, AIA, the Institute's director of Professional Practice, when he addressed the ASA members at one of their sessions during the recent AIA convention in New York City.

"New tools are being developed to aid the architect in producing the contract documents more accurately and rapidly," the secretaries were told. "We see in use today electrostatic copiers, automatic typewriters, microfilm units, various computers, and accounting and keypunch machines, plus a host of others too numerous to mention.

"Who will operate these aids? Who will be responsible for their direction in the office? Will it be the secretary or a specially trained technician? I think it will be both, depending upon the size of the office," Mayer predicted.

"Thus the traditional role of the secretary is changing, and the change will continue at a rapid pace during the next five years and beyond."

Consequently, the educational process must change, and Mayer suggested that the ASA might be instrumental in developing a curriculum oriented toward meeting that objective. Picking up the cue, the secretaries have mapped out the formation of an educational program as their primary project—a project seen as involving high schools, junior colleges and secretarial schools themselves.

Six Years, Six Chapters: Although the ASA received its charter in 1961, the group really got off the ground five years later when the

Institute invited several representatives to attend a meeting at the Octagon. Today it boasts a half-dozen chapters and members-at-large in areas of the nation where no chapter exists.

Any secretary or other clerical personnel employed by an architect, an architectural-engineering firm or a firm performing architectural services is eligible for membership. Executive secretaries of such AIA organizations as state societies may become dues-exempt members.

Meanwhile, in Florida: ASA's grassroots really reach back to 1959 when nine secretaries met in Miami to discuss the possibilities of forming a group that would benefit the architectural profession. As the charter members themselves admit, they encountered an enthusiastic start but were soon "confronted with opposition from many bosses who feared they might be the start of a union or that confidential matters would be discussed." The secretaries would not be denied, however, and went to work to prove their worth.

They began by undertaking an annual project wherein money would be raised for a charitable organization; and for their initial effort—a contribution to the Variety Children's Hospital—they won a Community Service Award from the *Miami News* in 1964. Aiming to give better service to their employers, they provided temporary secretarial help and assisted in the placement of draftsmen in other architectural offices.

Spreading out from Miami, the ASA today is represented from coast to coast with chapters in Baltimore, Los Angeles, Minneapolis-St. Paul, New York and Pittsburgh. Interest is evident in other cities, including Chicago where more than 70 secretaries have joined to sponsor an unusually fine program, working closely with the local AIA chapter.

Now the Commercial: Having earned the blessing of the Institute, the ASA is moving ahead with more vigor than ever. For the benefit of architects who want to have their Girl Fridays profit by the association, or just in case some of the secretaries might be reading this column, more information can be obtained by writing the newly elected president, Patricia Younkins (of Hoffman, Loeffler & Wolfe), Box 1411, Pittsburgh, Pa.

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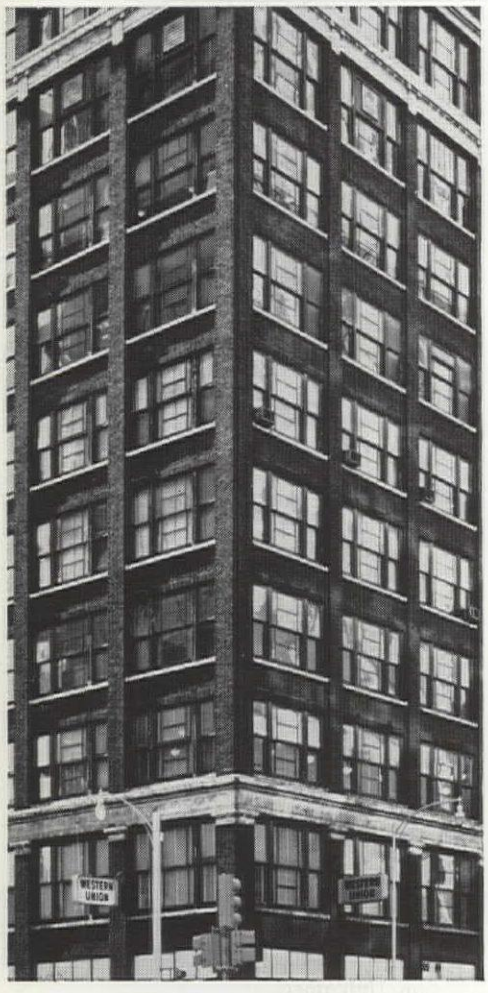
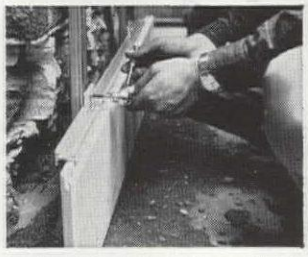


Vertical struts are anchored to existing facade.



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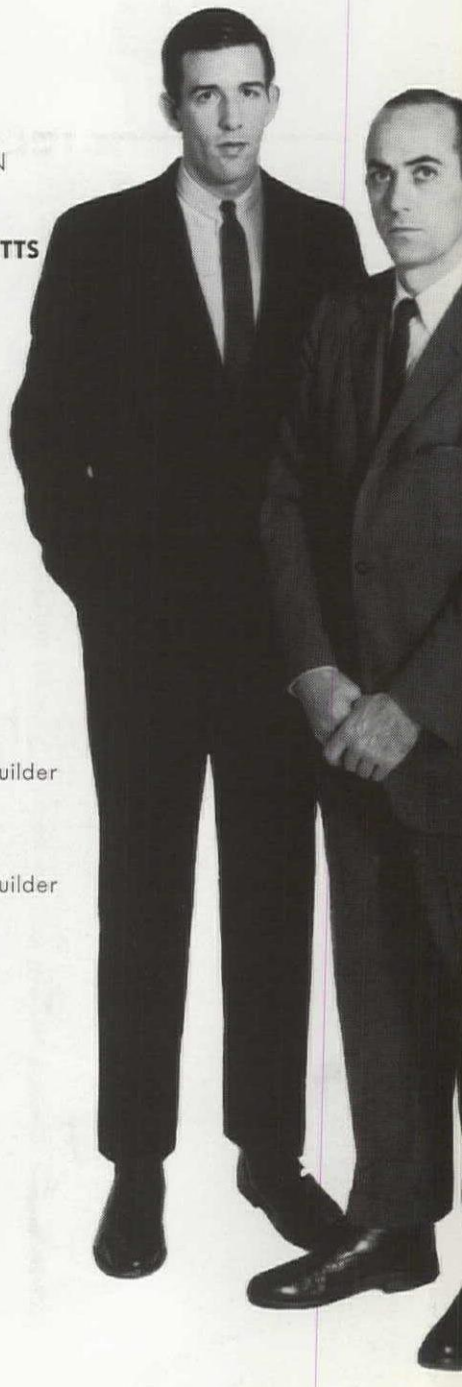

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Newslines

AIA Urges Design Teams To Fit Roads to Cities

The use of multidisciplinary teams that would weave into the urban fabric that which so often leaves it in tatters, the highway, has been recommended by the AIA before the Senate Public Works Committee.

"Design concept teams" should, in fact, be made a required part of the federal government's interstate roads program, testified Institute First Vice President George E. Kassabaum, FAIA.

Such teams, made up of engineers, economists, sociologists, planners and architects, would focus on the "complete social, economic and physical impact" of the highway on the community, Kassabaum said.

What remains of the interstate highway program deeply involves urban areas. Something can and should be done to rid the nation of proliferating highway-city conflicts, the Institute spokesman contended.

He urged that a major change be made in procedures used in locating and designing highways to avoid the social, esthetic and economic upheavals resulting under present methods.

He cited the work of a design concept team in Baltimore. Archibald C. Rogers, FAIA, chairman of the Institute's Urban Design Committee, a Baltimorean and proponent of the team approach, accompanied Kassabaum to the hearing.

The hearing was one of a series on the Highway Beautification Act for which the AIA reaffirmed its support. The Institute, however, recommended that mandatory just compensation features of the 1965 law be amended to permit states to provide effective billboard and junkyard control by either compensation or police power.

Besides stumping for the design concept team, Kassabaum asserted that design opportunities in highway safety have not been fully exploited. Nor are highway engineers making use of significant developments in lighting, breakaway stanchions and other innovations, he charged.

"If the federal and state highway departments would only utilize the design skills that are now available, we are convinced the highways would be safer and less disruptive," Kassabaum declared.

Institute to Have Session With Fine Arts Panel

Representatives of the Institute and Washington's Fine Arts Commission, now somewhat reconstituted, have agreed to meet soon on the design of the AIA's proposed new headquarters.

The commission by a 6-to-1 vote turned down the design the Institute presented last June. No date for the next session, to explore "other directions and alternatives," was set, but it appeared likely to take place this month.

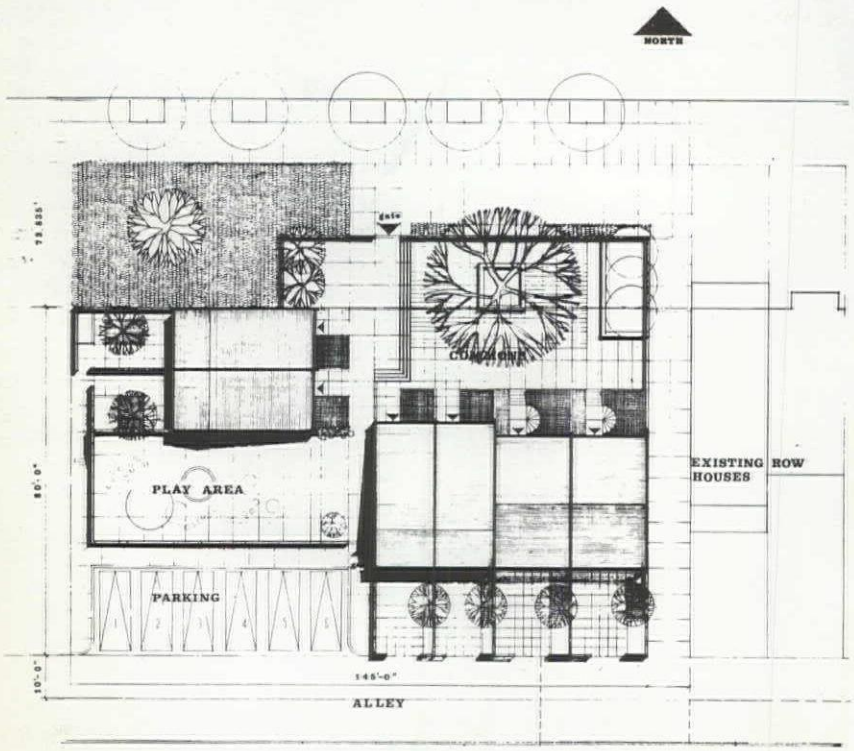
The commission will have two new members when it reconvenes: Chloethiel Woodard Smith, FAIA, who replaces John Carl Warnecke, FAIA, and John Walker, who succeeds Burnham Kelly, AIA.

Six of the seven commission terms expired, but President Johnson, seeking to put the group back on a staggered term basis, filled only three. He asked the occupants of the other three to stay on for another year.

Besides the new appointees, the President renamed William Walton to another four-year term.

Mrs. Smith is a well-known Washington architect and Walker is director of the National Gallery of Art.

Half of a quarter-acre plot is designed for the private use of six families; the rest is communal space in the NAHB research project to begin soon.



NAHB Plans Townhouses For Low-Income Families

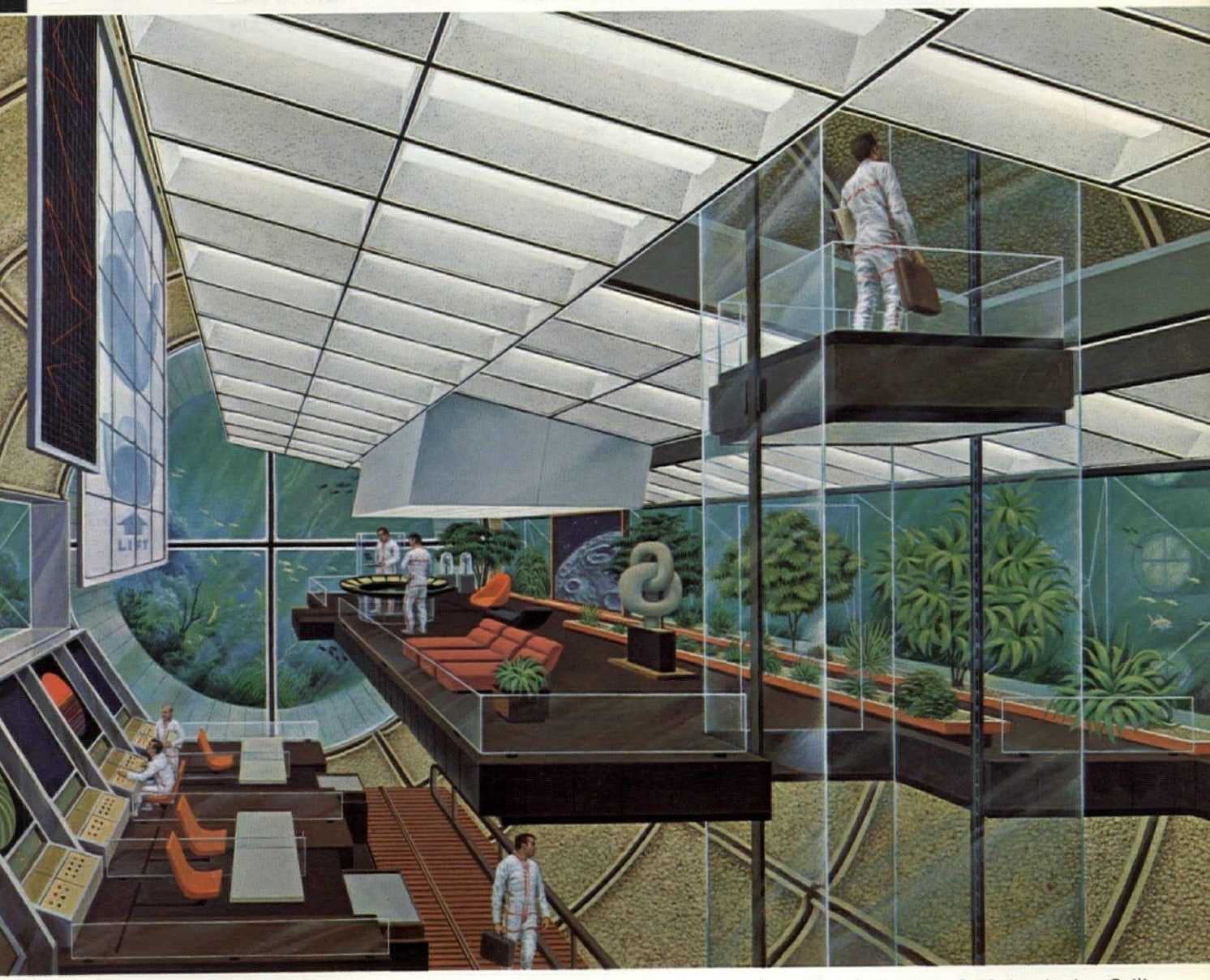
Six townhouses, situated on a quarter-acre lot that will also hold as many patios, as many front flower gardens and as many parking spaces along with a play area and a little park, constitute the seventh research house project of the National Association of Home Builders.

The houses are planned for sale to families with limited incomes. NAHB President Leon N. Weiner said the primary objective "is to develop a building system suitable for industrialization that will enable home builders to contribute to housing lower-income families in the redevelopment market."

Four of the houses are 14 feet wide and will contain three bedrooms. The other two, 18 feet wide, will have three and an optional fourth bedroom.

Continued on page 12

provocative



Within an undersea complex, nestled on a continental shelf, take an imaginative glimpse into what a corporate headquarters might look like in years to come.

When will we see such an area? Certainly not tomorrow. But that distinctly individual Armstrong Luminaire Ceiling System can be installed today. As many installations have already proved, this ceiling system gives you unique advantages in solving current problems, plus the flexibility to meet future ones.

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The Armstrong C-60 Luminaire Ceiling System gives you the future's performance standards today, frequently at substantially lower costs than more conventional methods. A packet including application-engineering data, installation instructions, and guideline specifications will show you how. Write Armstrong, 4209 Sage Street, Lancaster, Pa. 17604. Or for more technical data, Circle 211 on information card.

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REFRESHMENT IN CONCRETE

Here's a lifetime of refreshment indoors or out... and you can tailor it to suit your specs! It's precast reinforced concrete as Haws pedestal Model 30, or as Model 50-C, a wall-mounted fountain. Order either in exposed aggregate or light sandblast finish ... and in a wide color choice, too! In the pedestal version, Haws gives you three column heights (30", 36" and 42"). A freeze-proof valve system is also available in both models for cold-climate outdoor installations. When you specify modern refreshment, specify a Haws fountain of stone... exactly to your specs. For further information, write the **HAWS DRINKING FAUCET COMPANY, 1441 Fourth Street, Berkeley, California 94710.**

Wall-mounted Model 50-C also comes in polished aggregate, in color of your choice.

HAWS®

Since 1909

Circle 235 on information card

Newslines *from page 10*

Construction is expected to be underway by fall's end. The site is in an urban renewal area of Washington, D. C.

Land and architectural plans were prepared by Collins & Kronstadt-Leahy, Hogan, Collins, architects of Silver Spring, Md.

Prestressed lightweight aggregate concrete panels will make up the walls, floors and roofs of the houses.

Adler & Sullivan's Hall To Serve Chicago Anew

Chicago's Auditorium Theater Council has raised the $350,000 required to merit three challenge offers and thus will be able to reopen the renowned Adler & Sullivan performance hall (AIA JOURNAL, June).

The challenge offers, totaling $150,000, bring the sum recently acquired to a half million dollars. The latter amount, in turn, brings to about $2.25 million the sum raised since 1960 when the Auditorium Theater Council was charged with responsibility for collecting funds, restoring the theater and directing its operation.

The challenge offers came from the Chicago Community Trust, $100,000; the Woods Charitable Funds, $25,000; and the W. Clement and Jessie V. Stone Foundation, $25,000.

"During the seven years of this restoration phase," said Mrs. John V. Spachner, council chairman, "we have been impressed with the international concern to bring back to life this magnificent structure which has influenced so significantly the development of modern art and architecture, and whose history is so intimately connected with the cultural heritage of our country."

She said the council hopes to reopen the auditorium this fall "with a gala festival."

The auditorium will be a "fully functioning theater, substantially as designed by Adler & Sullivan," said Harold W. Norman, council co-chairman. Added Norman:

"We have initiated, and will maintain, an improvement program of theatrical facilities which will bring to the auditorium the latest innovations in theatrical equipment. With this plan for improvement and total restoration, the auditorium will again be the world's greatest theater.

Continued on page 14

Circle 237 on information card ▶

Inspiration for new design freedom: ACACIA

As a wall paneling idea, Acacia offers a creative response to the architect whose imagination takes wing to the realms of originality. Acacia's natural luster has such depth it seems to radiate from behind itself, suspending the exquisite grain patterns in a dimensional sheen of poetic beauty. Seen from any angle, Acacia stimulates inspiration for new design freedom.

STEM
EMINENCE IN WOOD

CHESTER B. STEM, INCORPORATED
GRANT LINE ROAD, NEW ALBANY, INDIANA

Newslines *from page 12*

"Additional funds still will be required for these purposes and for building up a revolving fund for operations and maintenance."

Prestressed Program Cites Five in Canada, Six in US

Eleven structures, five of them in Canada, have been cited in the fifth annual Awards Program of the Prestressed Concrete Institute.

The winning designs range from a small bank and a footbridge to a community center complex and a 22-mile elevated rapid transit support. The winners:

The San Pedro, Calif., YMCA's Community Center by Joncich, Lusby & Associates, architects; Ohio Savings Association's Parma Heights bank by Don M. Hisaka & Associates, architects; Toronto City Hall, Viljo Revell-John B. Parkin Associates, architects; warehouse for Pleasantdale Corp., Atlanta, Martin & Bainbridge, architects; Habitat '67, Moshe Safdie and David, Barott, Boulva, architects; water tower/communications center near Simon Fraser University, British Columbia, Erickson/Massey, Architects; central heating and cooling plant, University of Saskatchewan, Clifford Wiens, architect; elevated system for BART in San Francisco by Tudor Engineering Co. for Parsons-Brinckerhoff-Tudor-Bechtel, general engineering consultants, Donn Emmons, FAIA, consulting architect (who since has resigned), Sasaki, Walker, Lackey Associates, landscape architects, and Lawrence Halprin, consulting landscape architect; industrial bridge for General Mills Inc., West Chicago, Ill., A. Epstein & Sons, Inc., architects-engineers; Highway 16 grade separation, Edmonton, Canada, McBride-Ragan Consulting Engineers, Ltd.; and the University of Tennessee pedestrian bridge, Bruce McCarty & Associates, architects.

The 11 projects received equal plaudits from these jurors: Charles M. Nes Jr., FAIA, immediate past president of the AIA; Earle T. Andrews, president of the American Society of Civil Engineers; Thomas M. Linville, president of the National Society of Professional Engineers; Guy Desbarats, Canadian architect; and MacDonald Becket, AIA, vice president of Welton Becket & Associates.

Some Prestressed winners, clockwise starting upper left: elevated structure for BART, two consultants for which—Donn Emmons, FAIA, and Lawrence Halprin—since resigned in protest over BART's design policies; heating/cooling plant in Saskatchewan; water tower/communications center in British Columbia; branch bank in Parma Heights, Ohio; and San Pedro, Calif., YMCA community center.

Schools Make Changes; Wisconsin Plans Ahead

Clemson University's School of Architecture has been reorganized, Cornell University has changed the name of its College of Architecture, the University of Michigan has stretched its study program, the University of Wisconsin is finally getting a school of architecture and Pratt Institute has begun a new program open to architectural graduates.

The Clemson school has established departments in design studies, planning studies, building science, visual studies and architectural history and theory.

Dean of Architecture Harlan E. McClure says the creation of separate units was made necessary by the school's steady enrollment growth and by the establishment of six-year architecture curricula already begun.

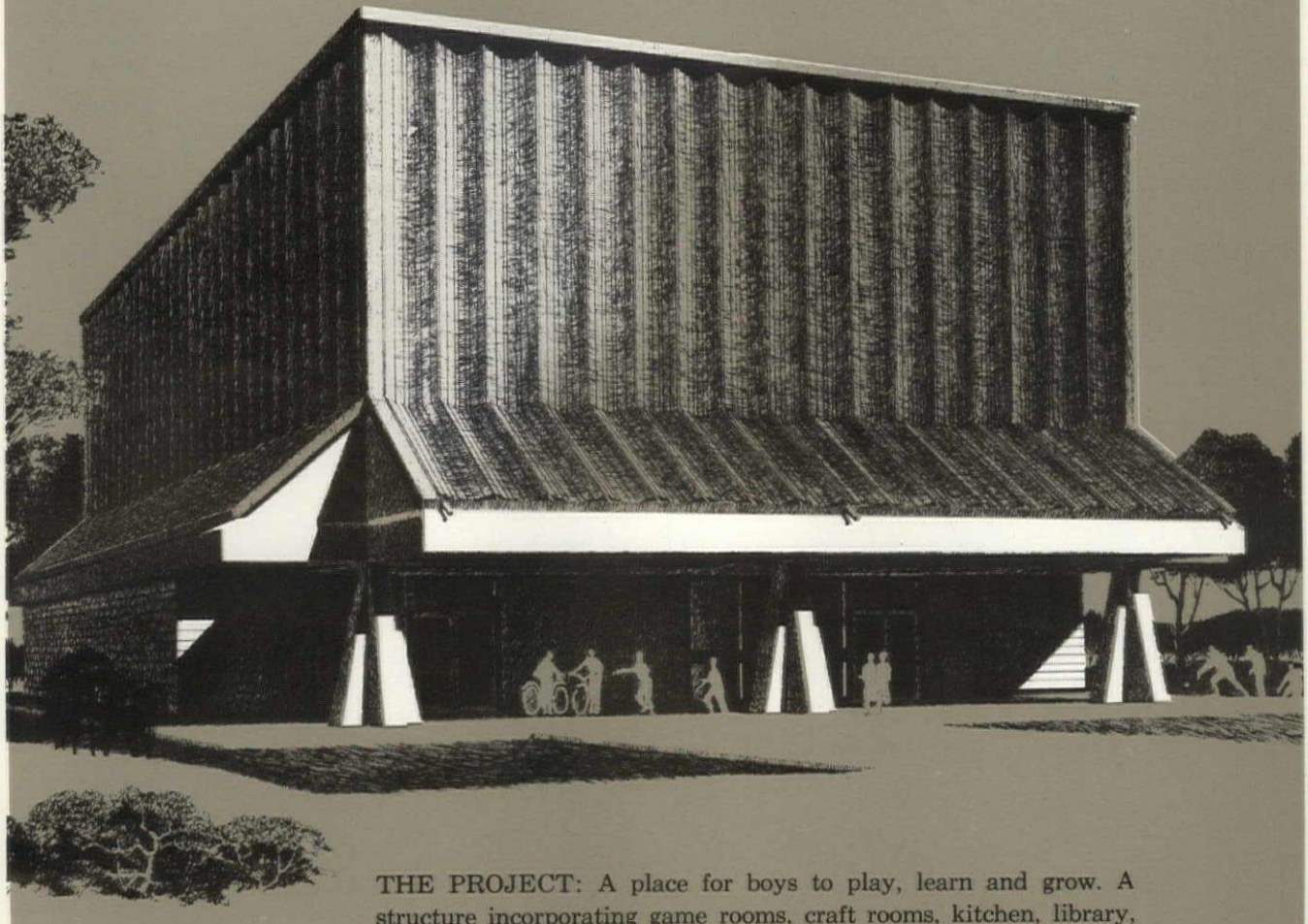
To reflect all three of its activities in its name, the College of Architecture at Cornell University is now called the College of Architecture, Art and Planning.

The architectural program was started at Cornell in 1871. The de-

Continued on page 21

KIWANIS-FELT BOYS CLUB

Architects: Young and Fowler Assoc., A.I.A.
Salt Lake City, Utah



THE PROJECT: A place for boys to play, learn and grow. A structure incorporating game rooms, craft rooms, kitchen, library, administrative office, and gymnasium.

THE PROBLEM: Limited land area in a residential section, large space requirements, and a restricting budget.

THE SOLUTION: The combination of conventional block construction with prefabricated steel components in a practical and aesthetically satisfying design.

Versatile Behlen stressed-skin construction was used to enclose the second story gymnasium. Fluted steel wall and roof panels assemble to form a completely frameless interior — imposing a lighter load on the sub-structure. Diagonally projecting paneling shades floor level windows on two sides of the gymnasium. For the complete story on this interesting and unusual application of a stressed-skin structural system, write to:

BEHLEN MANUFACTURING CO.
Dept. AI-9, Columbus, Nebraska 68601

Circle 358 on information card

Ca bin Crafts Carpet of Acrilan® Gets
ACRYLIC

Studies show that carpeting is no more conducive to bacterial growth than traditional hard-surface floors. In fact, one hospital discovered that its carpeted areas averaged significantly *lower* staph colony counts than its uncarpeted areas!

Donald Welch, Administrator of the impressive Florida Sanitarium and Hospital in Orlando says, "We spent quite a lot of time in research before making the decision to use Cabin Crafts to carpet patient rooms. And every report that I've ever seen anywhere indicates that carpeting is equally as safe as any hard surface flooring *. . . if not safer!*"

Mr. Welch goes on to say, "Carpeting makes patients feel more at home. Too, it's physically safer; patients are less likely to slip and fall on carpeting."

More and more, hospitals across the country are becoming aware of the health advantages of carpeting; the acoustical and aesthetic reasons for carpeting are obvious.

Architects: Powell, Edge & Willson, Palm Beach, Florida/ Interior Designers: Rablen-Shelton Commercial Interiors, Inc., Ft. Lauderdale, Florida

Above, a patient room; one of forty in the new South Wing which features CABIN CRAFTS Cimarron carpeting of Acrilan® for wall-to-wall quiet. Comfortable? "Like home," say patients. Safe? Absolutely! Studies show that a well-maintained carpet is as clean and as staph-free as a well-maintained hard-surface floor! The room also features such conveniences as a telephone, a TV set, plus a panel which allows the patient to operate each control from bed.

The Florida Sanitarium and Hospital was founded in Orlando in 1908 by the Florida Conference of Seventh-day Adventists.

ACRILAN®
acrylic fiber by
Monsanto

Clean Bill of Health at Florida Hospita

Why Cabin Crafts? According to Mr. Welch, it was simply "more beautiful." The evidence: CIMARRON of Acrilan® acrylic shown here as it's found in 40 patient rooms in the new South Wing. Also, he added, the hospital was able to get the carpet at a price that was "well within the budget."

Cabin Crafts has a complete line of contract/commercial carpet; details are as close as your telephone. When *you* specify, make it Cabin Crafts.

The patient admitting area is shielded from the general lobby by a colorful partition. Patients awaiting admission appreciate the privacy.

For immediate information, telephone CABIN CRAFTS' Contract Information Services, collect, at any of the following numbers: Dalton: 404-278-1100/New York: 212-684-5200/Chicago: 312-644-2136/San Francisco: 415-861-3144/Los Angeles: 213-627-5888/Dallas: 214-741-6378. Be sure to ask for the Contract Information Services Manager. If you'd like material sent, just clip the coupon below.

CABIN CRAFTS will be happy to supply you with more information on carpet of Acrilan® acrylic. Mail this coupon to CONTRACT ADV. DEPT. FS.

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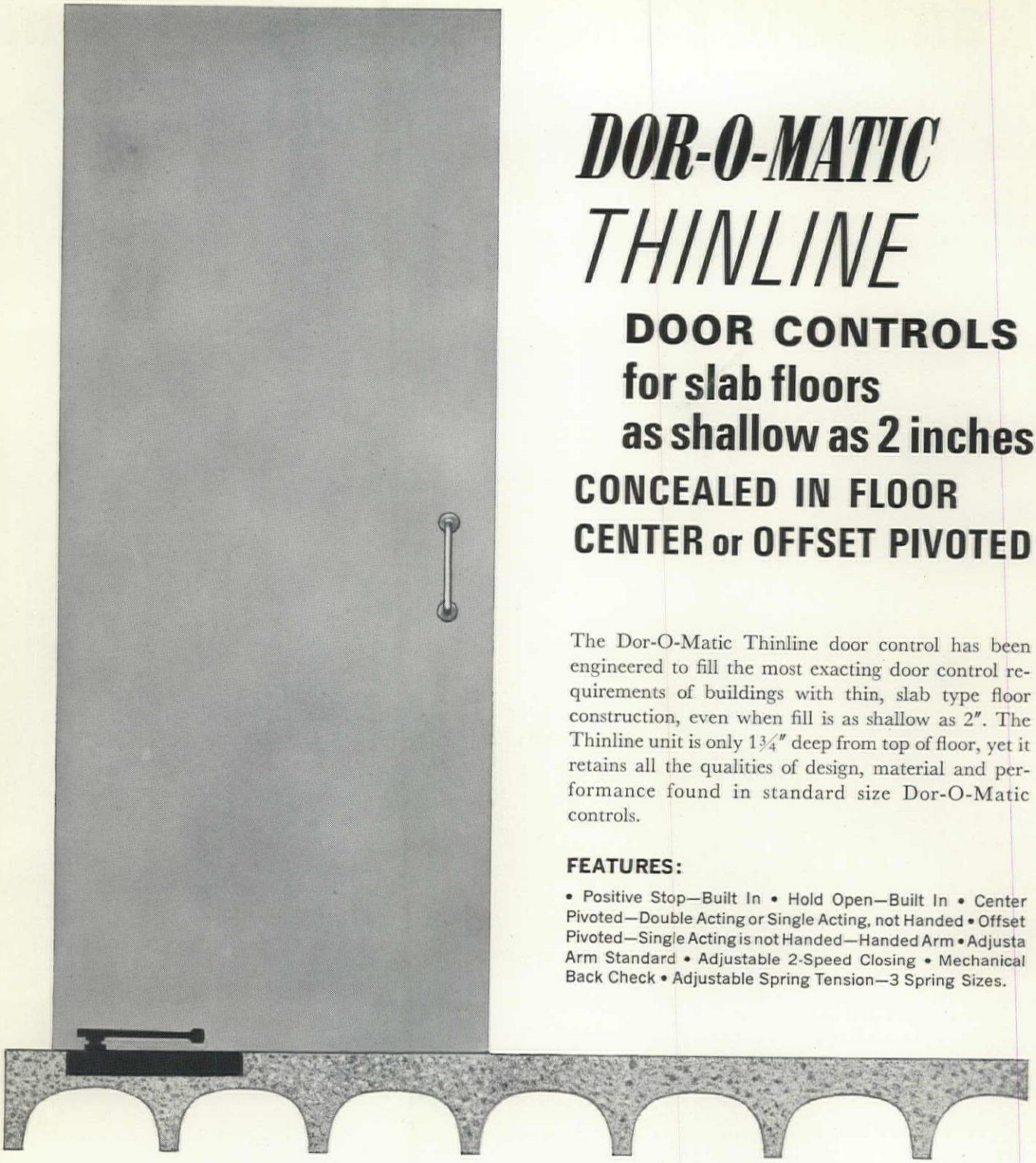
An administrative atmosphere of pleasant contemporary dignity and elegance fills the Board Room. The carpet: CABIN CRAFTS Cimarron.

Noise that used to accompany the dinner carts is no longer a problem in this beautifully carpeted corridor in the new South Wing..



DOR-O-MATIC THINLINE

DOOR CONTROLS for slab floors as shallow as 2 inches

CONCEALED IN FLOOR CENTER or OFFSET PIVOTED

The Dor-O-Matic Thinline door control has been engineered to fill the most exacting door control requirements of buildings with thin, slab type floor construction, even when fill is as shallow as 2″. The Thinline unit is only 1¾″ deep from top of floor, yet it retains all the qualities of design, material and performance found in standard size Dor-O-Matic controls.

FEATURES:

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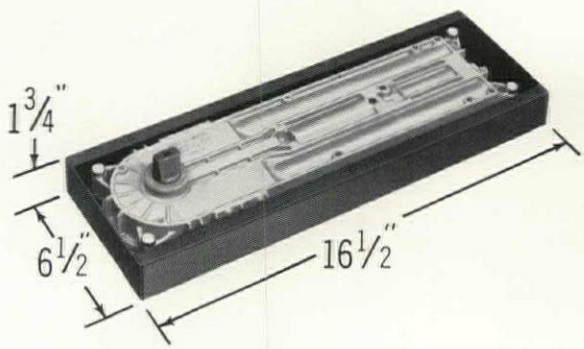
Thinline Model 3200—Center Pivoted
Thinline Model 3250—Offset Pivoted



Write for complete specifications and prices.

DOR-O-MATIC *division of REPUBLIC INDUSTRIES, INC.* **7352 W. Wilson Ave., Chicago, Illinois 60656**
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Swirl by Robert Pierron—a sculptured wood relief from the private collection of
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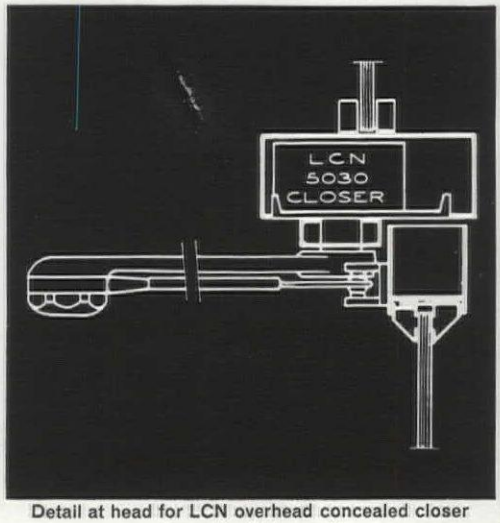

Detail at head for LCN overhead concealed closer shown in photograph

Main points of the LCN 5030 door closer:

1 Principal mechanism is hidden in the head frame; fits inside a 1¾″ x 4½″ aluminum tube

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Full description on request
or see Sweet's 1967, Sec. 16e/Lc

LCN

LCN CLOSERS, PRINCETON, ILLINOIS
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P. O. Box 100, Port Credit, Ontario

PHOTO: Entrance, Kenwood Mall, Cincinnati, Ohio; Baxter, Hodell, Donnelley & Preston, Architects

967

Newslines *from page 14*

partment of art was organized in 1921 and a department of city and regional planning was established in 1935, both within the College of Architecture.

Dean Burnham Kelly said activities concerned with architecture have been combined to form a department of architecture.

Michigan has extended the study period for the first professional degree in architecture from five to six years.

The new program consists of a two-year preprofessional architectural program and a four-year professional program (Clemson's is split four years' pre-architecture—including some professional study—and two years' professional concentration).

Michigan's pre-architectural program involves both required and elective course work in general studies and may be taken at the university's College of Literature, Science and the Arts, at junior colleges or other accredited institutions. Students completing the first two years and deciding not to go into architecture can continue their education without a loss of credits, Dean Reginald F. Malcolmson of the College of Architecture and Design explained.

Wisconsin's new school of architecture will be located on the university's Milwaukee campus. A faculty search committee has begun its work and a dean is to be hired by next July.

Pratt's department of interior design is this month inaugurating a graduate program leading to the degree of Master of Science in Interior Design, open to, among others, architectural school graduates.

Steel Awards Jury Gives Special Salute to Arch

Twelve projects have been honored in the 1967 awards program of the American Institute of Steel Construction. In addition, the St. Louis Gateway Arch was singled out for special commendation.

The arch of Eero Saarinen & Associates was praised by the jury as "an outstanding achievement in technology and esthetics."

Other winners in the program which drew 160 entries were:

An auditorium-gymnasium for Colorado State University, by Bunts & Kelsey; Washington & Lee High School, Montross, Va., by

◀Circle 301 on information card

Stevenson Flemer, Eason Cross, Harry Adreon Associates; Forest Home Branch Library, Milwaukee, by von Grossmann, Burroughs & Van Lanen Architects, Inc.; and Loutit Hall of Science, Grand Valley State College, Michigan, Meathe, Kessler & Associates.

Whitesboro, N. Y., Senior High School, the Perkins & Will Partnership and Frank C. Delle Cese; University of California, San Francisco Medical Center Health Sciences Instruction and Research Building, Reid, Rockwell, Banwell & Tarics; Stone Mountain, Ga., carillon, Robert & Co., Associates; Westchester Tuberculosis and Public Health Association Office, White Plains, N. Y., Joseph Roth, AIA; and Ford Motor Credit Co. Office, Dearborn, Mich., Skidmore, Owings & Merrill, New York.

Ford Motor parts depot, Richmond, Calif., Volkmann & Stockwell; Charles F. Read Zone Center Building, Chicago, E. Todd Wheeler and the Perkins & Will Partnership, Chicago; and an office building for the ESCO Corp., Portland, Ore., Wolff Zimmer Gunsul Frasca.

Jurors were AIA President Robert L. Durham, AIA Director David N. Yerkes and AIA Vice President Robert F. Hastings, all Institute Fellows; Henry J. Degenkolb, San Francisco engineer; and Walter Sharp, director of the Tennessee Fine Arts Center in Nashville.

UD Fellowship Created; Travel Programs Open

Eaton Yale & Towne, Inc. has established an urban design fellowship for architectural graduates. The fellowship provides for one year of study in a graduate urban design program and a minimum of six weeks in the tour and study of urban developments abroad.

The fellowship program, sponsored by the corporation's Lock and Hardware Group, will be administered by the AIA. A selection board will be appointed annually to choose the winning applicant.

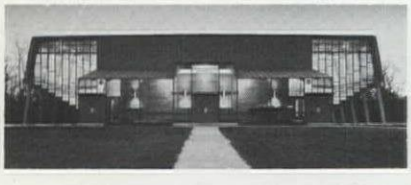
Leo J. Pantas, group vice president of Eaton Yale & Towne, said the fellowship was created because "increasingly, our society will rely more upon the urban design process, and it is therefore of significant importance that there should be available a strong and effective urban design profession."

Serving on the selection board are Archibald C. Rogers, FAIA; Charles A. Blessing, FAIA; Burnham Kelly, AIA; Charles W. Moore, AIA; and Ben H. Evans, AIA, director of Education and Research Programs for the Institute.

Meanwhile, the Institute of International Education has set an Oct. 15 deadline for application forms in its competitive program under which more than 850 American

Continued on page 24

Among AISC winners, clockwise from upper left: Montross, Va., gymnasium; health association offices, White Plains, N. Y.; health sciences building, San Francisco; Milwaukee library; and auditorium-gymnasium, Fort Collins, Colo.



For more information, write or call any of the Institute members listed below:

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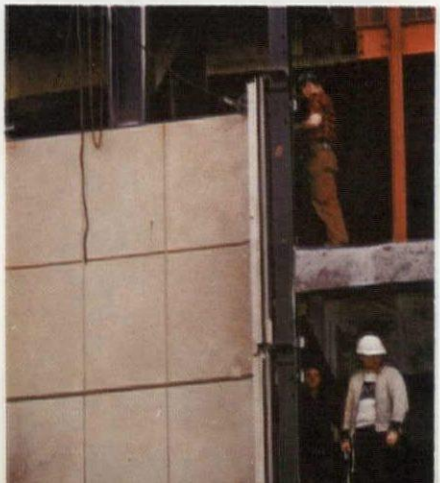
Mo-Sai wins this round on the new Madison Square Garden

Mo-Sai was chosen to completely encompass the new drum-shaped home of Madison Square Garden. To create a warm color and emphasize the 13-story height of the building, Mo-Sai with exposed chocolate-colored pebbles and light beige ribs was cast in one unit 22 feet wide and 8 feet high. When bolted into position the ribs run vertically the height of the building.

To further accent the height, vertical coves in a light beige Mo-Sai were placed every 22 feet (see inset). The coved units were joined to the back of the flat panels with tongue and grooves cast in the Mo-Sai.

The textured Mo-Sai surface of hard, natural aggregate will maintain its color indefinitely, winning maintenance "rounds" for many years to come.

Architects: Charles Luckman Associates / Structural Engineers: Severud, Perrone, Fischer, Sturm, Conlin and Bandel / General Contractors: Turner-Del Webb, a joint venture



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PRECAST, PRESTRESSED CONCRETE
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And you can't tell the difference! A properly installed Vulcathene® Corrosion-Resistant Drainline System never fails, never needs maintenance, and never shows sign of change.

Vulcathene has been proven time and time again in 15 years of grueling service—handling alkalies, salts, organic compounds, mineral acids, radioactive wastes, and laboratory and production wastes of all kinds.

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Over 25,000 installations and 545 code approvals show the wide acceptance of Vulcathene. Completely integrated polyolefin systems—sinks, pipe, traps, fittings, couplers, adapters, and dilution tanks—are available in stock from 1½ to 6 inches. See our catalog in Sweet's Architectural or Industrial Construction Files or write Dept. 4609, Nalgene Piping Systems Division, 75 Panorama Creek Dr., Rochester, N.Y. 14602.

NALGENE PIPING SYSTEMS / NALGE COMPANY

a division of Ritter Pfaudler Corporation

Circle 271 on information card

Newslines *from page 22*

graduate students will have an opportunity for academic study or research abroad and for professional training in the creative and performing arts.

IIE, located at 809 United Nations Plaza, New York, N. Y., conducts competitions for US government scholarships provided by the Fulbright-Hays Act as part of the educational and cultural exchange program of the State Department.

Applications and submission of work for 1968-69 Rome Prize Fellowships in architecture, landscape architecture and environmental design are due by Dec. 31 at the American Academy in Rome office, 101 Park Ave., New York, N. Y. Requests for details on the submission of work, etc., should specify the applicant's particular field of interest and be addressed to the executive secretary.

There are no age limits in either the IIE or Rome programs, but preference to young candidates is given under both—to applicants under 35 in the case of IIE.

Mall Competition Winner Is Sasaki, Dawson, DeMay

Winner of the national competition for the design of the St. Louis Gateway Mall was the Watertown, Mass., firm of Sasaki, Dawson, DeMay, Associates, Inc.

Second prize was awarded to the St. Louis firm of Murphy & Mackey Architects, Inc. The team consisted of Joseph D. Murphy, FAIA, president; Theodore Wofford, AIA; Paul Kupferberg, Farhad Razi, Thomas Rogers and Henry Rhetta.

The third award went to Robert Frank LaRocca, landscape architect, along with Willie Lang and Joseph Yee, landscape designers, of San Francisco.

Fourth place was awarded to Paul C. K. Lu, architect and landscape architect, and William Page, architect, of Cambridge, Mass, and honorable mentions went to James A. Ham, St. Louis architect, and the New York team of J. M. Williamson, T. P. Byrnes and T. K. Liu.

The first place award was accepted by Richard H. Rogers, associate in charge of the design team which included Hideo Sasaki, Mark Battaglia, Tom Johnson, Vincent Nauseda, Charles Smith and Charles Turofsky.

The first prize was $15,000, the second $4,000, the third $3,000 and the fourth $2,000. More than 350

Continued on page 26

amerada / CASE HISTORY No. 401

PHOTO BY LENS-ART

Q: How did this hotel, located 1000 feet from an airport runway, silence the noise of the jets.

A: With Amerada ACOUSTA-PANE® 40

This rendering shows how close jets come to the Metropolitan Hotel at the Detroit airport. 500 windows of glare reducing Acousta-Pane 40 (1/2 inch), provide peace and quiet for hotel guests. Owner: Wayne County Road Commission. Architects: Smith, Hinchman & Grylls Associates, Inc. Glazing by West Detroit Glass Company.

For additional information on Acousta-Pane 40 write for Case History No. 401.

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amerada Glass Corporation
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Elk Grove Village, Ill. 60007
(312) 439-5200

Please send me Case History No. 401

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Company_____

Address_____

City_____ State_____ Zip_____

Circle 349 on information card

Newslines *from page 24*

architects, landscape architects and planners registered for the competition. The downtown mall extends for 18 blocks.

Education, Research Units Now Headed by Ben Evans

Benjamin H. Evans, AIA, has been named to fill a newly created Institute position of director of education and research programs.

Education and research activities have been combined under one director within the Department of Professional Services in order to more closely coordinate the two functions and to achieve a greater unity of purpose, according to Frank L. Codella, AIA, department administrator.

Evans, director of research programs since 1963 and before that an associate professor and research architect at Texas A & M University, assumed the new position when Richard R. Whitaker Jr., previous director of education programs, joined the faculty of the University of Colorado's school of architecture.

Two positions were created in the education/research program—an associate director and the combined position of executive secretary to the Associated Collegiate Schools of Architecture and assistant director of AIA education programs. Applicants were being interviewed.

Top Education Positions Filled as Term Begins

The design programs at a number of universities around the nation will be under the wing of new helmsmen as the 1967-68 academic year opens.

William L. C. Wheaton has been named dean of the College of Environmental Design at the University of California at Berkeley.

Harvard University's Graduate School of Design has named Jerzy W. Soltan as chairman of its department of architecture.

The new school of architecture at the University of Maryland opens with 53 students and a young (37) dean. He is John W. Hill, AIA.

James R. Jarrett has been named head of the department of art and architecture at the University of Idaho.

James D. Gough Jr., after serving as acting director of the School of Architecture at Montana State University, has been appointed director.

Joseph N. Bosserman, after serving as acting dean of the University of Virginia's school of architecture, starts the new term as dean, having been promoted to the post earlier this year.

One university, however—North Dakota State—was still looking for a replacement for Knute A. Henning, AIA, as head of its school of architecture. Henning retired but will remain on the school staff.

Dr. Wheaton, 53, a leading educator and consultant in housing and city planning, has served since 1963 as director of the Institute of Urban and Regional Development and professor of city planning at Berkeley.

John E. Burchard, Hon. AIA, served as acting dean during the past academic year and will continue next year in a post-retirement teaching capacity on the architecture faculty. Martin Meyerson was dean of the college from 1963 until he resigned last summer to become president of the State University of New York at Buffalo.

Soltan, an associate of Le Corbusier in Europe and since 1961 a professor in Harvard's Graduate School of Design, only last spring was elected to the Nelson Robinson Jr. Professorship of Architecture and Urban Design at Harvard.

His advancement to the chairmanship was on the unanimous recommendation of Dean José Luis Sert, FAIA, and the departmental faculty, it was reported.

Thompson requested the year's leave to more actively continue research on the use of visual media in teaching and to carry out his professional commitments, which include new buildings on the Harvard campus.

Hill had been with the University of Kentucky since 1961 and was recently made a full professor. He is a partner in Graves-Hill & Associates.

Jarrett was formerly with the University of New Mexico.

Stanford Architect Tyson Heads Campus Architects

Royal H. Tyson, architect and principal planner for the Stanford University Planning Office, has been elected president of the Association of University Architects.

Also elected were Harry Harman, vice chancellor for college facilities planning of the California

Continued on page 28

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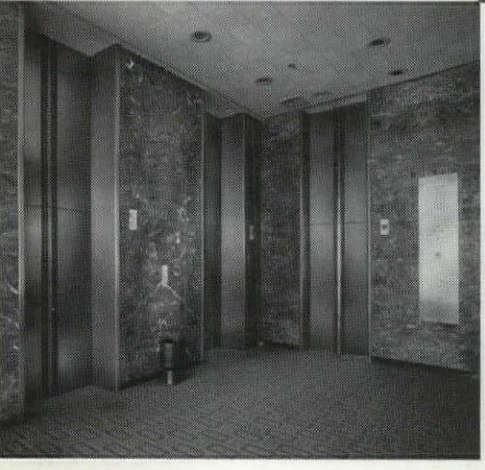

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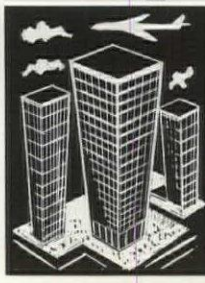

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Newslines *from page 28*

first public building to be built at Columbia, the "rational" city being developed for a population of 110,000 by the Rouse Co. It was named after Mrs. Merriweather Post, vice president of the National Symphony.

Brazilian Author Receives Aspen Humanities Award

Gilberto De Mello Freyre, whose books are widely regarded as master interpretations of Brazilian civilization, is the fourth recipient of the $30,000 Aspen Award in the Humanities.

He was chosen by the Aspen Institute for Humanistic Studies from more than a hundred artists, scholars, writers, poets, philosophers and statesmen nominated by leaders in intellectual and professional fields.

Freyre's books have been translated from Portuguese into some six other languages including English. The Brazilian's masterpiece, *The Masters and the Slaves,* was published first in 1946 and revised in 1956.

Rotch, Paris Prize Among Grants for Study, Travel

The winner of the 1967 Rotch Travelling Scholarship is William Edward Roesner, who at present is working in Boston and who will leave soon for Europe.

Roesner in 1965 received a Bachelor of Architecture degree from the University of Minnesota and last year received a Master of Architecture degree from MIT. With a scholarship grant of $6,500, Roesner will study and travel in Europe.

Also going abroad, stopping first at the Ecole des Beaux-Arts and then traveling through the continent, is University of Illinois graduate student Michael Plautz, winner of the $5,000 Paris Prize.

Plautz' selection in the National Institute for Architectural Education competition marks the third year in a row an Illinois student has won the prize.

In addition, Illinois took second and third place honors and received four merit awards. The problem for the 54th annual prize was to design an architectural center for New York City.

Charles E. Gathers of Denver and Terrence Roy Gent of College Station, Tex., have been named re-

Continued on page 40

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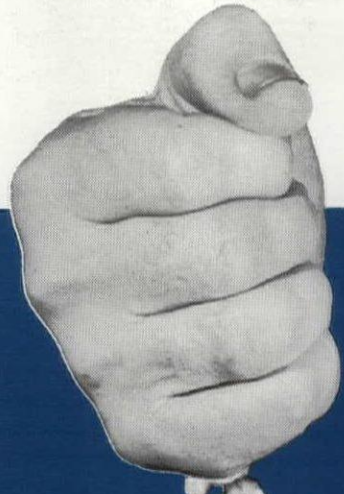

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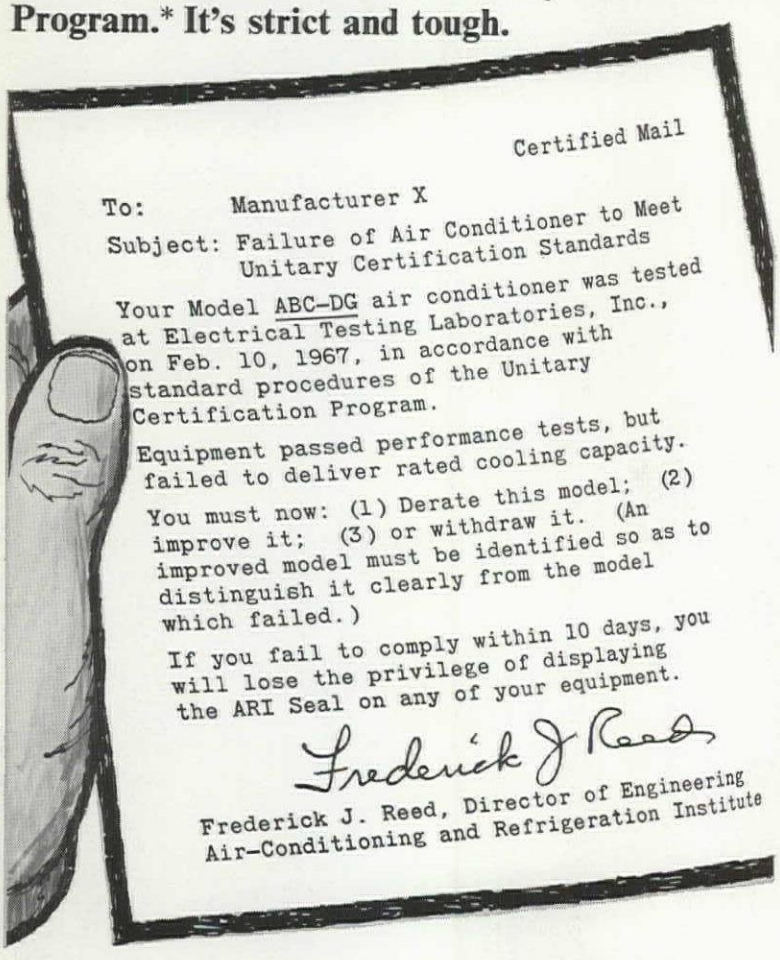

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Frederick J. Reed, Director of Engineering
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◀ *Circle 233 on information card*

Newslines *from page 33*

cipients of awards of $3,000 each through the joint fellowship program sponsored annually by the American Hospital Association and the AIA.

Gathers will conduct a one-year research program in computerized hospital analysis. He is with the Denver firm of Gathers-DeVilbiss.

Gent, a student at Texas A&M University, will take a 15-month graduate program that will include courses in public health and hospital administration, and research in planning, programming and designing hospitals and other care facilities.

Six winners were selected in the Portland Cement Association's fifth annual US-Canadian Architectural Scholarship Awards program.

All fourth-year students of architecture, they are attending the summer session at Fontainebleau Fine Arts and Music Schools near Paris. The scholarships include transportation, tuition, board and lodging up to $1,500.

The winners: Robert Henderson, University of Illinois; John Cameron, University of Nebraska; John Paul Ahrende, University of California at Berkeley; Roger Wayne Drummond, Louisiana State University; Herbert Bassler, University of Manitoba; and James R. Hobbs, California State Polytechnic Institute.

The 33rd annual Francis J. Plym Fellowship in Architectural Engineering, enabling a six-month study of architecture in Europe, has been won by Donald R. Sunshine of Park Ridge, Ill. The fellowship is awarded by Lawrence J. Plym of the Kawneer Co., Niles, Mich., to a University of Illinois architectural graduate who has demonstrated professional development.

San Francisco Architect To Study World's Transit

William H. Liskamm, AIA, as recipient of the Arthur W. Wheelwright Fellowship in Architecture, an award of the Harvard University Graduate School of Design, will conduct a study of mass transit facilities throughout the world.

Liskamm is taking a one-year leave of absence from his firm, Okamoto/Liskamm of San Francisco, and from the University of California's College of Environmental Design, where he is vice chairman of the department of architecture. *Continued on page 44*

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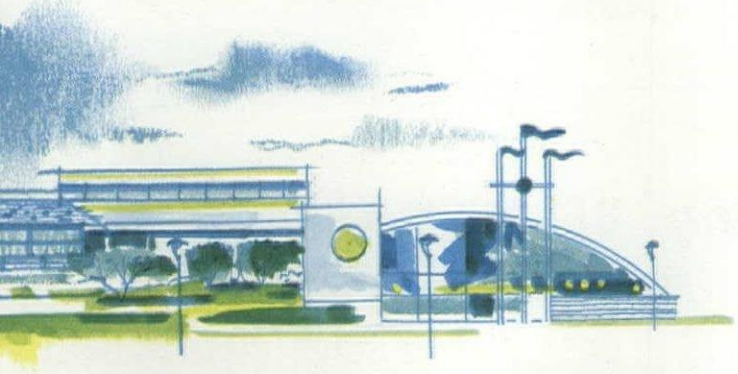

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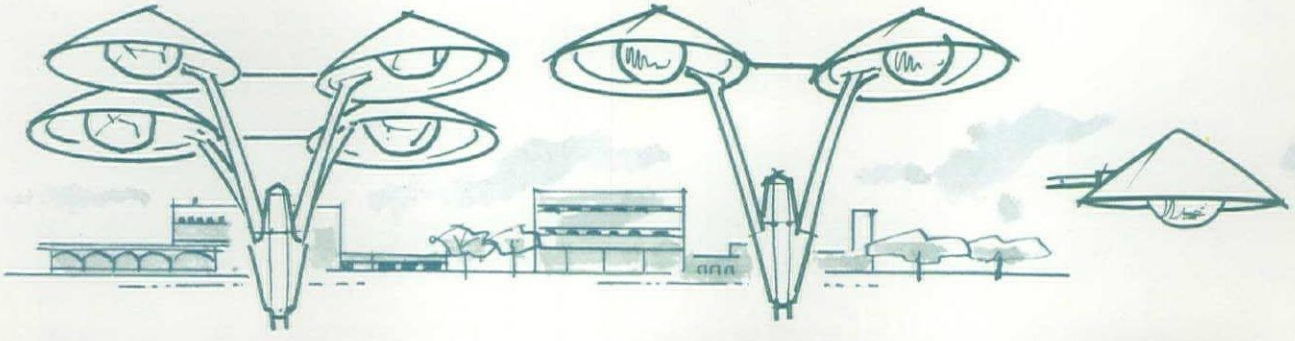

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Newslines *from page 40*

Conducting his studies from London where he is serving as visiting senior lecturer at the Bartlett School of Architecture, University College, Liskamm is to prepare an inventory of the design and development potentials of selected mass transit facilities throughout the world and to evaluate their implications for the US.

Journal's First Editor, Henry Saylor, Is Dead

Henry Hodgman Saylor, who served as editor of the AIA JOURNAL from 1944 to 1957 and who was known as "the dean of architectural editors," is dead at 87.

Mr. Saylor died Aug. 22 in Long Island, N.Y., where he made his home in recent years.

He was associated with leading professional magazines for half a century and he wrote or edited a dozen books including a *Dictionary of Architecture*, first issued in 1952 and two years ago published in paperback form. He wrote *The AIA's First Hundred Years* in 1957.

A native of Baltimore, Mr. Saylor studied architecture at MIT where he became editor of *The Tech*. After serving his internship in Philadelphia, he returned to the world of print as editor of *The Architectural Review*, Boston. Other editorial positions with various professional and popular publications followed. During World War II Mr. Saylor supervised war plant construction for Albert Kahn.

Toward the war's end the Institute asked him to establish a successor to *The Octagon* and Mr. Saylor responded with the AIA JOURNAL, the first issue appearing in January 1944.

Mr. Saylor during his JOURNAL years could often be found weekends in the Octagon gardens, assuming a gardener's role.

Death Claims Clair Ditchy; Was Institute President

Clair W. Ditchy, two-term president of the Institute in the 1950s, is dead at the age of 76.

Mr. Ditchy's July 31 death came during his hospitalization in Royal Oak, Mich., where he resided at 1630 W. Houstonia St. Among survivors is his wife, Mrs. Bernice Bookmyer Ditchy.

Mr. Ditchy served as AIA secretary before his election as president in 1953. He was chosen for a second one-year term in 1954.

Mr. Ditchy was born on Kelley's Island, Ohio, and received Bachelor of Arts and Bachelor of Architecture degrees from the University of Michigan.

Necrology

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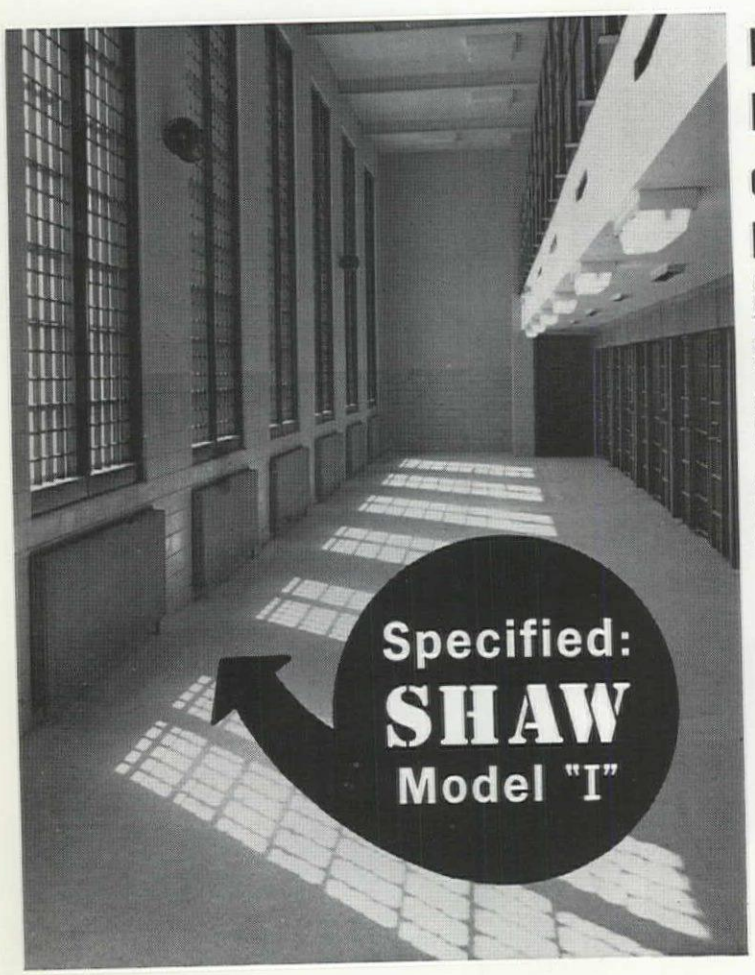

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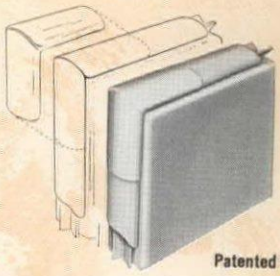

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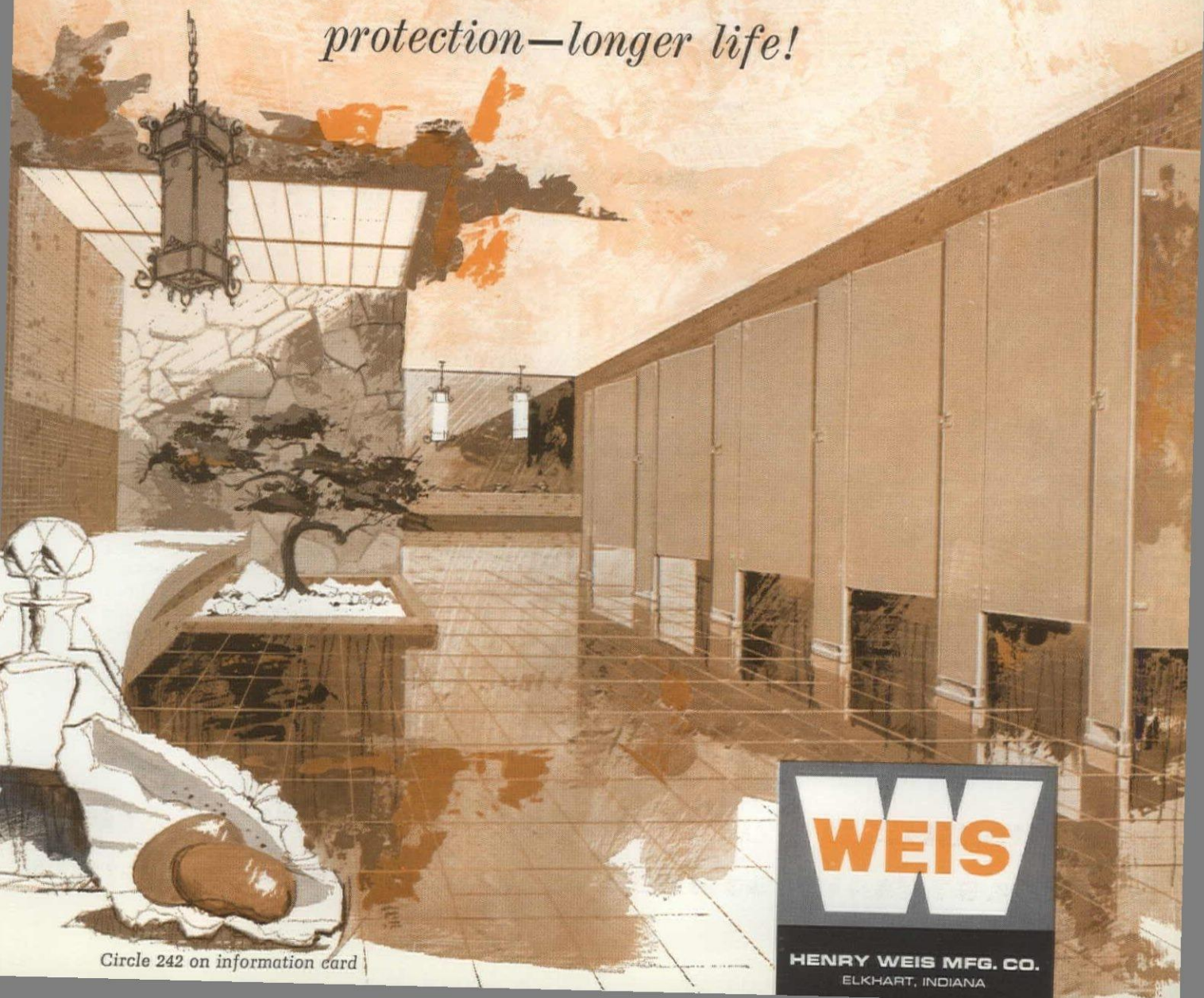

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UNFINISHED BUSINESS

BY ANDREW F. EUSTON JR., AIA
Director, Urban Design Programs

The New Architect?

How may we architects contribute our skills to the needs of *The Other America*? When and if a "Marshall Plan" comes for urban America, can the design professions be mobilized? There are indications, but they imply a shift in methodology and in values.

Social priorities have clearly changed, and building processes are changing. If our design processes fail to change, they may one day join the ranks of blacksmithing. Consider the present situation. We design perhaps 5 percent of single detached housing, which represents the middle third of the potential market, and even less of the lowest third.

Consider further the recent testimony of Mayor Jerome P. Cavanagh following the Detroit rebellion, "I don't know of any government in America—local or national —or any institution for that matter, that is communicating in any way or carrying on any kind of dialog with the so-called have-nots."

It may be limited, but I submit that environmental designers have in fact been "carrying on a dialog" that may prove to be decisive.

In San Francisco, Claude Stoller, AIA, has turned several dozen architectural and planning students to helping the poor. Under inspired direction from some seasoned practitioners associated with Berkeley, the results have been somewhat spectacular. Their plan to rehabilitate a house or to change a neighborhood costs $1. The Department of Health, Education and Welfare carries the real expenses.

Elsewhere, the Architect's Renewal Committee for Harlem has demonstrated its seriousness so well that ARCH Director Richard Hatch, AIA, and landscape architect Paul Friedberg have been rushed by the Department of Housing and Urban Development, the Office of Economic Opportunity and other agencies to St. Louis to engage the poor in replanning one of their more mismanaged and unnatural "projects." (Our poor may live in "projects" whereas others may live in apartment houses.)

This was made possible at HUD through Ralph Warburton, AIA, on leave from Skidmore, Owings & Merrill. Warburton entered the federal fray to serve as Rockrise's full-time assistant. And so it goes —Saul Klibanow, AIA, of Perkins & Will performed as the volunteer "advocate urban designer" of the Southwest Chicago Community Council; involvement is being tested at Hampton Institute, at Howard University, etc., engaging even architectural "hero" Charles Moore, AIA, whose bearers from Yale designed and installed a community center in Appalachia.

Meanwhile, more and more of the talented among us are becoming "Feds"—the better to enable the design process as a whole to perform.

Design may yet become the matrix for the rehabilitation of communities. If we examine our own enthusiasms, we find they stem in no small part from the anticipation of a result that gets built. This is infectious.

If a result-oriented comprehensive process of design were overlayed upon the passions of our slums, some now believe, it would act as a profoundly integrating (i.e., organizing) vehicle of reform within these disintegrating urban communities.

Concern for a truly comprehensive design process in urban problem solving was set forth unequivocally this spring in Senate hearings. Speaking for the profession of architecture, Archibald Rogers, FAIA, chairman of the AIA Committee on Urban Design, asserted that "the term design has become bastardized in our time. The designer is someone to be called in after the practical decisions are made without recognizing that the practical decisions—budget, program, site, funding, these sorts of things—in fact carry within them an embryonic form which is . . . design."

George Rockrise, FAIA, adviser on design to HUD Secretary Weaver, has said, "Monument building and the aping of the form makers must cease to be the sole objective of student and practitioner." If we want to elevate the design process, therefore, we must adapt ourselves first.

Roger Montgomery, AIA, leading design consultant to the federal programs for urban renewal, suggests where we have failed to adapt thus far. "The dissociation of an architect's professional status from the functional success of his buildings will continue to block a socially responsible environmental art. . . . Even if architects were to rebel . . . they could remove few of the threats of disorganized ghetto life by simply changing the physical design of dwellings or site plans. They would have to fight out battles over density, location and segregation through political action, not architecture."

Even if we work to make the physical environment responsive to social needs, if we become both scientific and political, we in the environmental design professions have still to confront the "systems approach." The industry that builds spaceships is already branching into housing, where the markets which it requires await it. Last summer Litton Industries, Lockheed and General Dynamics were each awarded $5.7 million for proposals to mass produce floating warehouses. A Litton official said, "This is not merely a construction job; it is a systems development job." With one stroke the Navy bypassed shipyards and naval architects alike.

After America builds all the floating warehouses it requires, perhaps human storage facilities shall be built but what may not be delivered are social awareness, rational land use or enrichment of the socio-physical environment.

We recognize these needs but our methodologies and perhaps our attitudes fall short. Furthermore, the rationalization of the design process is a new thing.

If the central task of our professionalism is to secure the humanist values of architecture, then we must do it by adaptation. □

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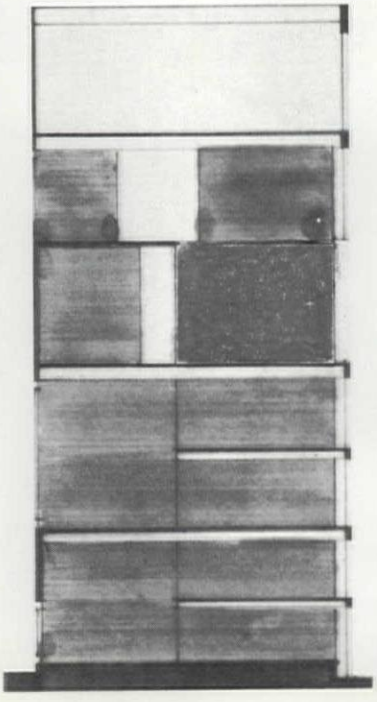
AIA JOURNAL



ROW HOUSES COME BACK

Historically a corollary of economics, town planning and custom, this residential type with its combination of urban efficiency and suburban freedom is enjoying new popularity.

BY JACQUELINE DAVIDSON

The early development of the row house (or townhouse as it is now euphemistically, and usually erroneously, called) closely paralleled the origins of town planning. The earliest known example of town planning, Kahun, built about 2670 B.C. in Egypt, included a type of row house for workmen engaged in construction of the Illahun pyramid for Usertesen II. Other early examples, including a 14th century B.C. Egyptian village and a sixth century B.C. settlement in the Paluki region of Poland, contained houses of the row type.

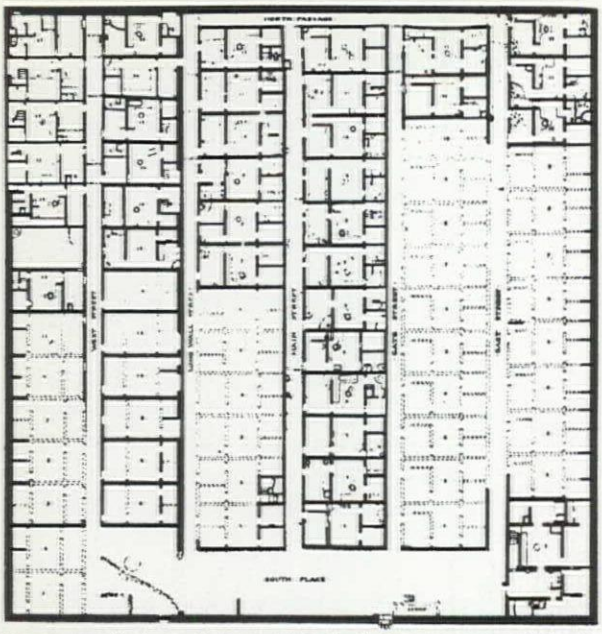
Lewis Mumford in *The City in History* suggested that with few exceptions detached houses probably did not exist in early towns. Detachment and openness were originally attributes of the palace, reserved only for nobles and officials.

Attached houses were not necessarily row houses, however, since each unit, although joining its neighbors, may have been built in a different style and at a different time. The term "row houses" implies that a series of houses of the same or closely related design were constructed at the same time, each unit sharing party walls with the adjoining units and often with all of them covered by a single roof. As used by the British, a "terrace" means a row of houses built above grade, though this term has come to be used interchangeably with row house.

The author: Mrs. Davidson is a New Yorker whose thesis research has served as the basis for her article. She comments: "To the best of my knowledge, this is the only historical survey of row houses ever compiled."

"Townhouse," of course, strictly means any house built within a town, usually on a long narrow lot. Builders have adopted this term in preference to "row house" to avoid the unsavory implications of certain 19th century housing. The early examples cited here show characteristics of layout and construction that prove them to be related to the row-type house as it was to develop later.

The Greeks developed the chessboard town plan. Though this regularized planning of streets did not necessarily change house design, in the Thracian town of Olynthus the residential lay-



Square-walled enclosure of Tel-el-Amarna, "model village" of Egyptian workmen of the 14th century B.C.

out was similar to a row system. These houses, of the mid-fifth to early four centuries B.C., were built around courtyards which eliminated reliance on exterior windows. House blocks consisted of two sets of five houses in each, every double block measuring about 300 x 120 feet. The house rows were separated by narrow alleyways, probably used for drainage.

The houses, averaging about 60 feet square, were constructed of bricks with tiled roofing and wooden columns and supports. Despite strict conformity to the block plan, no two houses had the same interior arrangement of rooms. In at least one case, two houses belong to one family. Sometimes one unit was divided into two dwellings. Often shops opened onto the street but were independent of the houses behind.

In medieval European cities, beginning in the 11th century, two- and three-story houses were built in continuous rows around the perimeter of rear gardens or inner courts reached through a single gateway on the street. These rows served as domestic walls and offered protection against felonious entry. Free-standing houses were relatively scarce; they were exposed to the elements, were difficult to heat and wasted land on both sides.

In Great Britain the townhouse plan, as it is generally called, developed in the Gothic period. This type of plan, which John Summerson named the "unit house," was dominant in all towns where space was an important consideration. The narrow end of the house faced the street, rooms were placed back and front on each floor, and a long court or garden filled the lot at the rear.

As the disorder and clutter of the late medieval city became intolerable, 15th and 16th century Renaissance planners and builders replaced old houses and crooked streets with straight streets and open squares. Symbols of the new movement were the straight street, an unbroken roof line, the round arch and repetition of uniform elements—cornice, lintel, window and column on facades. This new architecture was employed primarily for the design of palaces and public buildings.

The uniform or symmetrical facade was first used in small dwellings in England. The earliest record of houses built in a block goes back to about 1500 when Thomas Wood, sheriff of London, erected for the Company Goldsmiths Row in Cheap "10 fair dwelling houses and 14 shops all in one frame uniformally builded four stories high." [1] Mumford selected the establishment of Gray's Inn in London in 1600 as the transitional form between the medieval walled enclosure with inner garden and the new square walled in by its own houses conceived as part of the street pattern. For the first time a space or square was formed solely by houses without shops or public buildings, except perhaps a church.

The London fire of 1666, tragic though it was, resulted in legislation that encouraged the construction of row houses and squares and influenced later town planning.

By the time of the fire, the townhouse plan, still commonly called the "London plan," had been well established. It was the "old inevitable one of a front room and a back room on each floor with a staircase at the side, and, frequently, a small projection at the back providing each floor with a small room or closet." [2] Rising urban land values had forced the end of streets with gabled facades. These were replaced by houses between party walls. The kitchens were located in the basements, coal was stored under the sidewalk, and the servants' bedrooms were in the attics. This house design used space efficiently and has existed with little variation for two centuries.

At the end of the 17th century a number of

One of the numerous London "squares" which take a variety of forms but are regular and uniform on all sides.

squares were begun. More than 24 were erected in Central London between the construction of Covent Garden in 1630 and Belgrave Square in 1825. The development of the residential square extended over 2½ centuries, but the treatment of the houses and of the open areas remained consistent in London. Eventually "squares" were developed in the forms of circles, semicircles, ellipses and oblongs. Examples set in London were imitated in other cities.

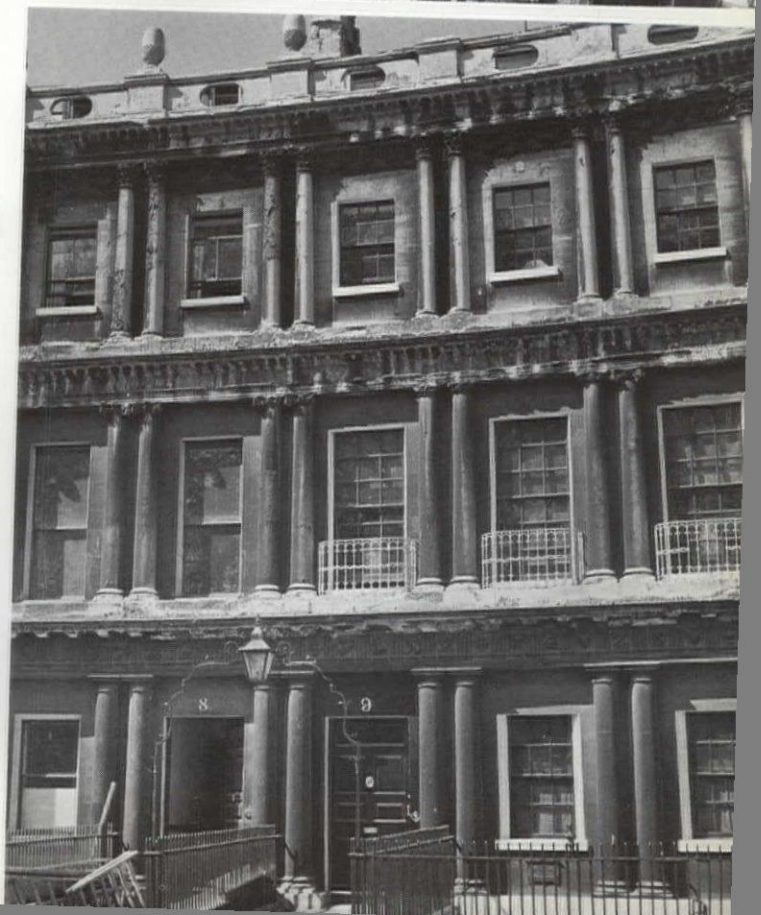
The London square differed from the continental square of the Baroque period. The layout of the latter, which rarely included private houses, generally had an architectural climax such as a monument, and the spectator's vision was led from place to place. The English square, regardless of shape, on the other hand, was a restricted whole, regular and uniform on all sides.

The ultimate achievement in row house design as such and as related to town planning was the design of Bath by the Woods elder and younger. In the early 18th century, Bath was a small town, but royalty was attached to the health-restoring waters. Soon London society journeyed to the town for summers, and in 1725 a period of expansion began. In that year John Wood, a builder as well as an architect, drew up the first plans for the city.

Wood's idea for planning the expansion of the town derived from its Roman background. He wished to give the town some character of ancient Rome by providing a Forum, a Circus and an "Imperial Gymnasium." The Circus was first conceived of as an arena for sports. When this idea was merged with the treatment of townhouses as a single scheme, the result was the successful Circus as it now exists. The conception was based on an inside-out Colosseum, the design simplified and adjusted to fit the facades of 33 houses facing toward a garden in the center. Begun in 1754, it was completed after Wood's death by his son John Wood II.

In 1766 the younger Wood acquired land east

Semi-elliptical Royal Crescent (above) at Bath and its predecessor, the Circus (below), an "inside-out Colosseum." Note the unusual lamppost and acorns on the parapet.



Typical suburban houses near Croydon, Surrey, consisting of squatty two-story cottages and offering no privacy.

of the Circus and constructed the Royal Crescent. The semielliptical block contained 30 houses overlooking a sweeping lawn. Here Wood designed the facades of Ionic columns, 114 in all, on a high base. The scale was greater than that of the Circus, and the monumentality was more effective.

Other streets built later in Bath, by Wood as well as by other architects, were constructed of row houses, but none compared with the Circus and the Royal Crescent, either in layout or in facade design. The crescent was imitated with variations many times throughout England, as was the circus. These two ideas, plus the square, formed basic elements in English town planning until 1830.

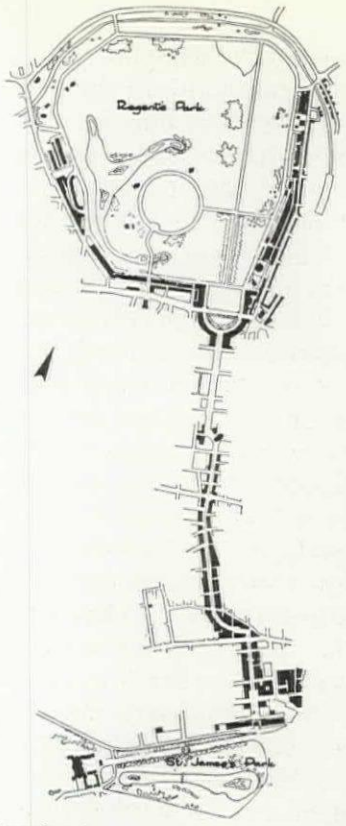
John Nash borrowed from the designs for Bath in his scheme for Regent's Park and Regent Street in London. The 29 houses of Park Crescent, built in 1812, form an entrance to Regent's Park from the south. The Quadrant, constructed in 1818 and demolished only 30 years later, was the largest single composition in Regent Street. Its quarter-circle facade consisted of massive Doric colonnades. To ensure that the composition would be developed as one unit rather than allowing individual buildings to destroy the curve, Nash built the Quadrant as a personal speculation.

Cumberland Terrace (1826) was Nash's most spectacular single composition. These houses on the east side of Regent's Park are endowed with a central pediment supported by 10 Ionic columns. The terrace consists of five main blocks of houses divided by arches behind which were erected pairs of smaller houses.

By the early 19th century, row houses and terraces were the popular form of house construction in England. The popularity of this type spread from London to the smaller cities and to the seaside resorts. Styles followed the latest London fashions, from Georgian to Regency to Victorian.

The British brought the row house tradition to the American colonies. As could be expected, row houses were built earliest in Philadelphia and Boston. New York, first settled by the Dutch, had no row house construction until much later.

Philadelphia appears to have had the earliest row houses, introduced in the first years of English colonization. As early as 1700, brick houses with double-hung windows, similar to London houses built after the great fire, predominated in the city. The frequency of row house construction developed out of William Penn's plan for the settlement. To prevent congestion like that of London, Thomas Holme, the surveyor, created a gridiron plan of superblocks with green areas interspersed. With the growth of the town and the increase of land values, these superblocks were divided into smaller narrow lots



John Nash's plan for Regent Street and Regent's Park.

which were suitable for row houses but not for detached homes. Brick row houses still are the outstanding feature of the Philadelphia area.

The first group of row houses in Philadelphia was Budd's Long Row, erected about 1691 between Walnut and Dock Streets. It contained 10 two-story houses, each two rooms deep. The construction was based on medieval half-timbering: The houses were framed by heavy timbers filled in with bricks.

Architectural historian William J. Murtagh states that four types of house plans were apparent in Philadelphia: the Bandbox house, London house, City house and Town house.[3] The first type was small and economical, rarely measuring more than 16 feet in any dimension. The houses were two or three stories tall with one room per floor. They were usually built on a court in two opposing rows or on secondary streets in single rows. These houses may have been built for speculative purposes or as housing for servants.

The London house plan was a more developed row house type. This plan was a rectangle two rooms deep with a hallway along one party wall. As in later London houses, the stairway was placed between the front and back rooms. The back room was the width of the building; the front parlor was smaller because of the hallway and could be closed off. The fireplace was usually on the party wall opposite the entrance and shared a chimney with the neighboring house.

This type, unlike the Bandbox, utilized the typ-

ical long narrow Philadelphia plot. The houses were built the full width of the lot, and access to the rear was by passageway under the houses. Enlarged living quarters were created by adding a narrow extension to the rear of the house along one side of the lot. Murtagh has named the resulting types the City house (enlarged Bandbox) and the Town house (extended London House).

The first row houses in Boston were designed and erected by Charles Bulfinch in 1793-94. He had returned in 1787 from a trip abroad where he had seen the terraces and squares of London and Bath. He was inspired by these to construct Tontine Crescent in the new residential district on the south side of Boston. With his associates, Bulfinch developed the Crescent on what is now Franklin Street and built, as part of this venture, the First Boston Theatre. He left a grass plot 300 feet long for a park in the center of Franklin Place and provided sidewalks and paved streets at a time when these were rare. The Crescent row, 480 feet long and containing 16 houses, was not immediately successful.

The expansion of the South End started around 1820 with a development of modest two- and three-story row houses. Within 20 years, more imposing rows of four- and five-story dwellings were erected. Most of the construction in this section of Boston was done by builders who put up rows of from 6 to 12 dwellings alike in plan and facade.

Unfortunately, almost nothing is recorded of early row housing in New York City. Many single houses were constructed in the Federal style, prevalent from 1820 to 1835, and examples of rows of three to five houses still exist in the older sections of Greenwich Village. However, information on architects or builders and dates of construction is not available.

Though not the earliest example, the best known row houses in New York are those on the north side of Washington Square Park. They were built about 1830 in the Greek Revival style, architect unknown.

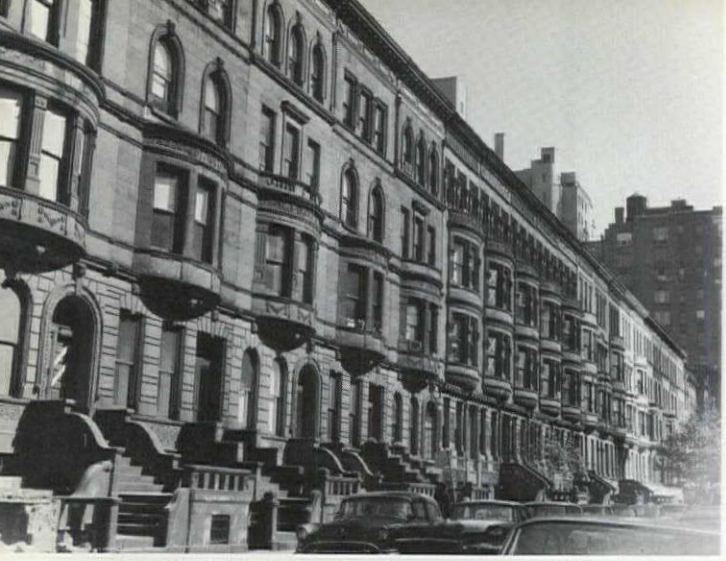
New York houses of 1830 and later, regardless of dimensions or details, borrowed the London house plan with some variations. In London, the house was entered on the dining-room floor, with the living rooms above. In New York, the main entrance was on the parlor floor which was actually a half to full story above the ground level, a carry-over of the Dutch "stoop." The kitchen was in the rear room of the basement, and the front room was either the dining room or a nursery for the children. In earlier houses the backyard was reached by several steps up from the kitchen. Later, the garden was dug out to the level of the basement floor with a wooden or iron staircase leading down from the parlor floor.

The second floor consisted of a large bedroom in front and one in the rear separated by closets. Two smaller rooms, one at each end of the house, were formed by closing off the ends of the hallway. With the operation of the city water supply system, the smaller rear room was converted to a bath. A cellar below the basement ran the length of the house. The top floor duplicated the room arrangement of the second floor.

The New York house had the simplest layout. Other cities evolved their own variations and characteristics. In Baltimore and cities to the south, where larger lots were available at lower cost, the front building was three stories high with a long, lower back extension, similar to that developed in Philadelphia. The "swell front" became a feature of later Boston rows. Chicago houses prior to the fire of 1871 were like New York houses. Later, bay windows were commonly used on facades, sometimes of an octagonal, square or segmented design. A round bay window was sometimes placed on the corner of a house at the end of a row.

The townhouse idea and plan were carried with the westward expansion of the country as a re-

From London to Philadelphia: Cumberland Terrace (left) on Regent's Park east side and restored Washington Square.



New York City's familiar brownstones, whose popularity spread to private homes and to Boston and Chicago.

sult of the use of the gridiron system of town planning. By the time the establishment of cities reached the plains of the Ohio Valley at Cincinnati, townhouses became separated from their neighbors by narrow sideyards or passageways, sometimes with windows cut into the side walls. The repetition of design was retained, however.

The Gothic Revival style which followed the classic revivals in the 1840s suggested the use of stone instead of brick. At the same time, it was discovered that brownstone, actually a sandstone colored by the presence of hematite iron ore, could be cut with the newly invented steam channeling machine. The stone was found in a wide band extending through Connecticut from New Haven north to the center of Massachusetts. The cut blocks were floated on barges to New York and Boston for a price comparable to that of brick.

It was first used by Richard Upjohn in Trinity Church in New York in 1839 as an alternative to more costly limestone and established the fashion for brownstone. Because it was soft and easily worked, and despite its tendency to chip and flake as a result of weathering, the popularity of the material spread. It was used in New York City, with which it is most commonly associated, in rows of speculator building as the city expanded northward. In Boston, it appeared on mansions on Commonwealth and Huntington Avenues; in Chicago, on houses along the lakefront. In Philadelphia, with quarries and clay pits nearby, brownstone did not replace the traditional brick.

Though the use of brownstone as a veneer was an architectural pretension, it did have the advantage of conformity or virtual conformity. Each block had unity, and though this was not the first instance of such, it was not achieved by successive styles for some time. Around 1875 it became fashionable for architects to design private houses for clients. The resulting designs were usually contrasted with, and at the expense of, the neighboring houses.

By the start of the Industrial Revolution in Britain and America, row houses had been shown to be an economical system of construction. Early New England textile mills, of necessity in isolated locations near waterfalls for power, had to provide dwellings for employees. As a result, the textile industry produced a type of manufacturing settlement with model housing for employees. Each settlement, in addition to schools and churches, had a variety of house types ranging from large luxurious homes for the owners to barracks for the mill hands. In several instances, row houses provided homes for families of workers. In a few cases, rows were composed of attached boardinghouses.

In England, housing was also provided by companies to attract workers. It was considered a necessary expenditure which did not return a profit, so only mere shelters with low standards of hygiene were offered. Back-to-back row houses, sharing three party walls, were the cheapest form of housing and were built as early as 1825 in Leeds. During the 19th century, England changed from an agricultural to an industrial nation and tripled its population, half of which lived in just the few large cities close to the supplies of coal. The laboring masses were housed in unsanitary, overcrowded "by-law" rows with high mortality rates.

Early in the 20th century, the problem of providing housing on a large scale for low-income families was partially solved in Philadelphia by the mass construction of row houses. Because of the tradition of rows in that city, this type of housing was readily accepted. Other factors encouraged the construction of small attached houses rather than tenements: comparatively low cost of land, city regulations favoring small house construction, willingness of financial institutions to lend money and desire of inhabitants to live in their own homes.

In most American cities, however, multiple dwellings were the rule. Tenements, with long dark narrow flats, housed the working classes. Apartment houses, for those who could afford the higher rents, became popular. The minimization of domestic duties and the conveniences of living in apartments were soon evident, and developers in the suburbs were easily convinced to construct experimental groups. It was not the row house idea that was used extensively, however, but that of the garden apartment.

For the next four decades, from 1910 to 1950, row house construction was commonly employed only for low-income housing, or for employees in defense industries or returning veterans and their families. Row houses were frequently included in projects sponsored by the federal gov-

ernment. In most cases, rows were used in combination with taller apartment buildings.

The government generally limited building heights to three stories or less in projects outside of New York City. As a result of the federal projects, row houses were accepted in communities which were previously antagonistic to the unfamiliar building type.

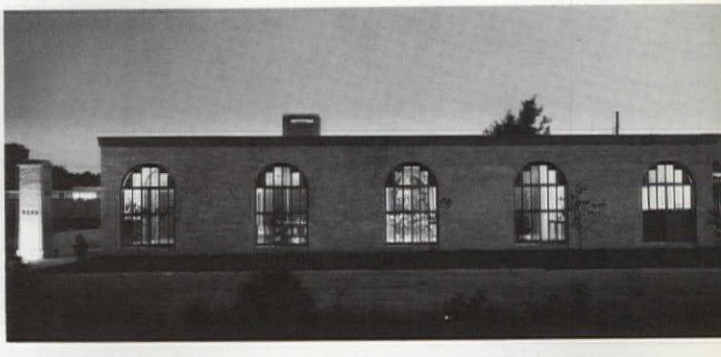
The building boom that followed World War II almost forced a return to row house construction. Large-scale developments of small identical houses covered vast acres of suburban land, extending commuting distances and inflating land values. In the past few years, developers have discovered the advantages of row houses.

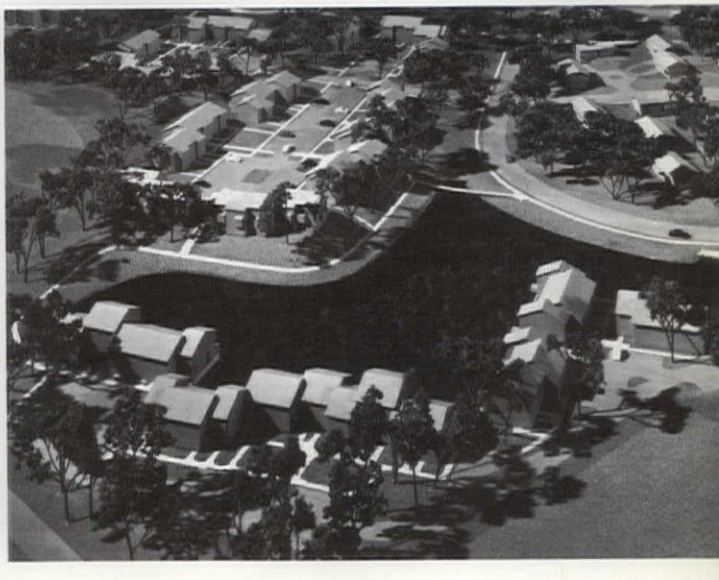
Urban developments combining row houses with high-rise apartments are not limited to federal projects. In 1956 the University of Chicago invited Webb & Knapp to take over the redevelopment of a tract in the 900-acre Hyde Park-Kenwood urban renewal program. This area had been a slum for 20 years. The Webb & Knapp complex of 45 acres centered on twin 10-story apartment buildings, residential squares and a shopping center. Townhouses of 2 and $2^1/_2$ stories were arranged in groups of 3 to 18 facing on small squares or built in fingers extending into rehabilitated or soon-to-be-rehabilitated areas. The cost per square foot of these townhouses was less than that for construction of individual houses of lesser quality on larger suburban lots. The associated architects were I. M. Pei & Associates, Harry Weese & Associates and Lowenberg & Lowenberg.

A Pei-designed development in the Society Hill section of Philadelphia reflects the architectural heritage of that city. The street facades of the three-story row houses are of brick with arched entrances, a characteristic of the 18th century houses still standing in the neighborhood. The new rows have bedroom windows across the width of each unit. A large window extends from the middle of the first story to the ceiling of the second-floor living room. The houses are centrally air-conditioned, and each house has a small walled garden. Tall apartment blocks, also the work of Pei, are in the same neighborhood.

Local architectural traditions are evident in several other new row house designs. In the Capital Park in Washington, D.C., by Chloethial Woodward Smith & Associates, short rows are clustered around small courts, sometimes approached by an archway through the units. The houses are of differing heights with variations in window design and color of the brick walls and flat graveled roofs. Louvered shutters create an

Row houses from coast to coast: climbing the hills in San Francisco; facing on squares (bottom left) in Chicago; wrapping around interior patios (top right) in Houston; zigzagging in New Mark Commons near Washington.





effect of Colonial architecture further enhanced by the informal grouping of units.

In Diamond Heights in San Francisco, Galli Townhouses by Hayes & Smith are contemporized versions of the wood houses built there in the Victorian style. Both the earlier and modern versions have peaked roofs and bay windows.

Distinctive contemporary row projects are being erected with increasing frequency. In 1951 Mies van der Rohe designed a row house scheme based on a concept similar to the practice of renting open office space in a new building. The builder would erect concrete slabs with central service cores (baths, kitchens, utilities) which the buyers would divide into room plans of their own choosing. The units would be framed in steel with brick party walls and glass exterior walls, and could be combined in a variety of arrangements. A prototype of the construction system was built near Chicago for Robert H. McCormick Jr. which contained two row house units overlapped in plan to create a one-family house and was erected at a cost of $45,000. It was then estimated that built in quantity, each 1,000-square-foot unit could be sold for $12,000.

River Park Town Houses in Washington, D.C., designed by Charles M. Goodman Associates, include two- and three-story rows of units, some with flat roofs and others with barrel vaults. Window walls face the fenced-in gardens. Landscaping is provided on the paved sidewalks and plazas by potted trees and shrubs.

Each unit of a 16-house project in Houston is built around three interior patios. The one-story homes, designed by P. M. Bolton Associates, measure 45x78 feet with the exception of two units which are each 67x78 feet. A private street separates the two rows, and a pool is placed in the center lot of one of the rows. One-way alleys behind the houses lead to carports. Arches form the main entrances and exterior windows while serving as roof supports and dividers for the patio areas. The champagne-colored brick of which the arches and exterior walls are constructed is left exposed. The open-air patios provide sunlight for interior rooms and allow flexibility in the room arrangements. Row houses as large in dimension as these must make some provision for air and light in the interior of the floor plan.

A complex underway is New Mark Commons Townhouses, also in the Washington area. In order to develop groups which could be organized to enclose service and parking clusters at the entrances, Keyes, Lethbridge & Condon have devised narrow, deep houses. The number per group varies from as few as two to as many as nine, depending upon the specific situation. On the entrance side, where parking bays are located, there are small, fenced yards to solve such utility problems as trash and meters. Garden courts are on the opposite side, and every effort is made in layout to avoid situations in which one garden comprises the privacy of another.

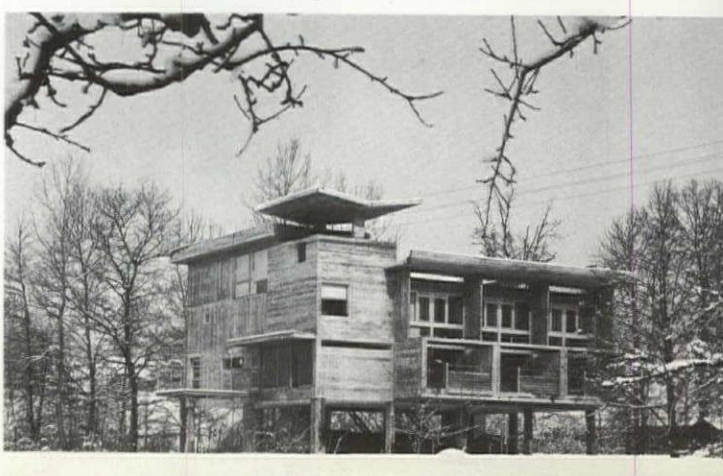
Row house designs erected in the 1950s and '60s in countries other than Great Britain and the United States were generally more imaginative and employed modern materials more successfully. This was probably in part due to the lack of an older row house tradition: Architects and builders did not feel compelled to imitate or adapt earlier, popular designs.

A row of five units in Flamatt, Switzerland, designed by Atelier 5 of Bern, used concrete for exterior details as well as for construction. The sides and rear of the block of houses show the impressions, in a checkerboard pattern, of the boards used for the concrete forms. The block rests on concrete pillars, with entrances to each unit and storage rooms placed under the first floor. Four of the units contain four rooms on two floors; the fifth, the width of two units, has four rooms plus a two-story studio with balcony. All the units have roof gardens. Windows are recessed in the concrete walls to form balconies.

A small development on the Sound several miles north of Copenhagen was designed by Arne Jacobsen. Two models of houses were built in three terraces. A row of five single-family houses faces southwest. The exterior walls are soft yellow brick which will weather to gray and will blend with the granite walls and woven willow fences which separate the yards. Balcony railings are yellow, and other exterior woodwork is white. These units are all L-shaped; the short arm is attached to the long arm of the neighboring unit and is stepped back to create a staggered line. The front facade is narrow, providing a window wall and balcony for the second-floor living room. The rear has a sloping roof with clerestory windows for the living room. Each house has a walled-in courtyard which can be enclosed to form an extension of the dining room.

Oscar Niemeyer designed row housing for the Aeronautical Training Center at Sao José dos Campos, Brazil. Twenty houses to each row form blocks 590 feet long and 60 feet wide. The facade

Five units, each with a roof garden, in Switzerland.



pattern incorporates two units to give the effect of 10 dwellings per block. Concrete screens separating the front terraces alternate solid and perforated designs. The patterns of light formed by concrete louvers partly covering the terraces and by frontyard plantings defy monotony.

On the island of Crete, Aris Konstantinidis designed rows of concrete for laborers and their families. The first floor in each unit is recessed under the second story on both ends to create shade. Stairways are in the center of each unit. The small windows on the second floor facades are of adjustable louvered wood strips. In groups of five or seven units, the houses are alternated so every other dwelling has its front entrance on one side of the row.

Even in Japan the row house idea has been used with architecturally interesting results. In a project by Tsotomu Ikuta, Tanero Oki and Haraki Miyajima, rows of six units in three mirrored pairs are constructed of concrete roofs and walls. The roof of each two-story unit consists of two shallow barrel vaults across the depth of the row. Two designs are used in the development: rows with balconies and rows without. A minimum of windows are located on the north side of the rows, but window walls and balconies face the south. Living and cooking areas are downstairs; sleeping rooms divided by sliding screens, upstairs. Where two rows face each other, one window wall is placed opposite a closed wall.

When a small development of row houses was erected in the town of Dons Mills, Ontario, Canada, in 1956, the residents of the established neighborhood complained. Later, they were embarrased to discover that the inhabitants of the rows had an annual income averaging $1,000 higher than their own. This incident emphasizes the tenacity of the unfavorable reputation of row housing. It also illustrates the new character of row housing: better homes for above-average incomes. Row houses are no longer associated primarily with slum housing or defense housing or low-rent projects. They are offering homes for wealthy urban residents and middle-class suburban families.

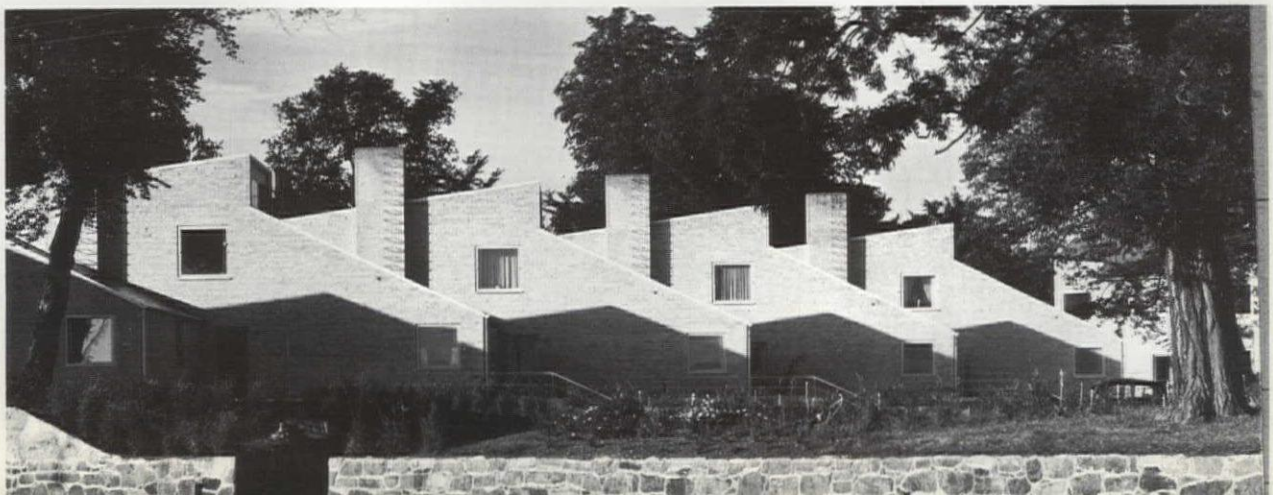
Criticism against row housing is rare, largely because construction is not yet widespread enough to warrant it. Past observations about overcrowding, lack of sunlight and ventilation, lack of outdoor spaces and privacy were certainly justified but not often applicable to contemporary projects. The major criticism of row houses today is the excessive passage of sound through party walls. That this problem exists is a reflection on the building industry. Proper construction of party walls should include soundproofing which, by arrangement of rooms within units, can be reinforced where such is provided or be created where it is not. The advantage of the row house over the detached suburban house is the efficient utilization of land. Its advantage over the apartment building is the provision of land for private use. Availability of protected outdoor spaces close to the house is important to families with children.

Architect Henry Whitney stated that the row house "has been the classic house for people living in groups because it contains more essentials and fewer extravagances and superficialities than any other type." [4] With so many more people to be housed on less available and always more expensive land at continually rising costs for labor and materials, society can now less afford extravagance and superficiality in housing design and construction. Row house design has kept pace with recent social and technical advances. Row houses can continue to provide satisfying and even superior homes for an increasingly populated world. □

Notes

1. Quoted by H. J. Hitch in "The Rise and Decline of the Terrace House in England," *Journal of the Royal Institute of British Architects,* Third Series, Vol. 46, No. 15, p. 758.
2. John Summerson, *Architecture in Britain, 1530 to 1830,* Penguin, London, 1953, p. 230.
3. William J. Murtagh, "The Philadelphia Row House," *Journal of The Society of Architectural Historians,* Dec. 1957, Vol. 16, No. 4, pp. 8-13.
4. Quoted in "Row Houses for Cities," *Architectural Forum,* May 1957, Vol. 106, No. 5, p. 149.

Five L-shaped, single-family houses with walled-in courtyards and a sloping roof at the rear near Copenhagen.



Architectural Reflections

BY JOSEPH AMESTOY, AIA

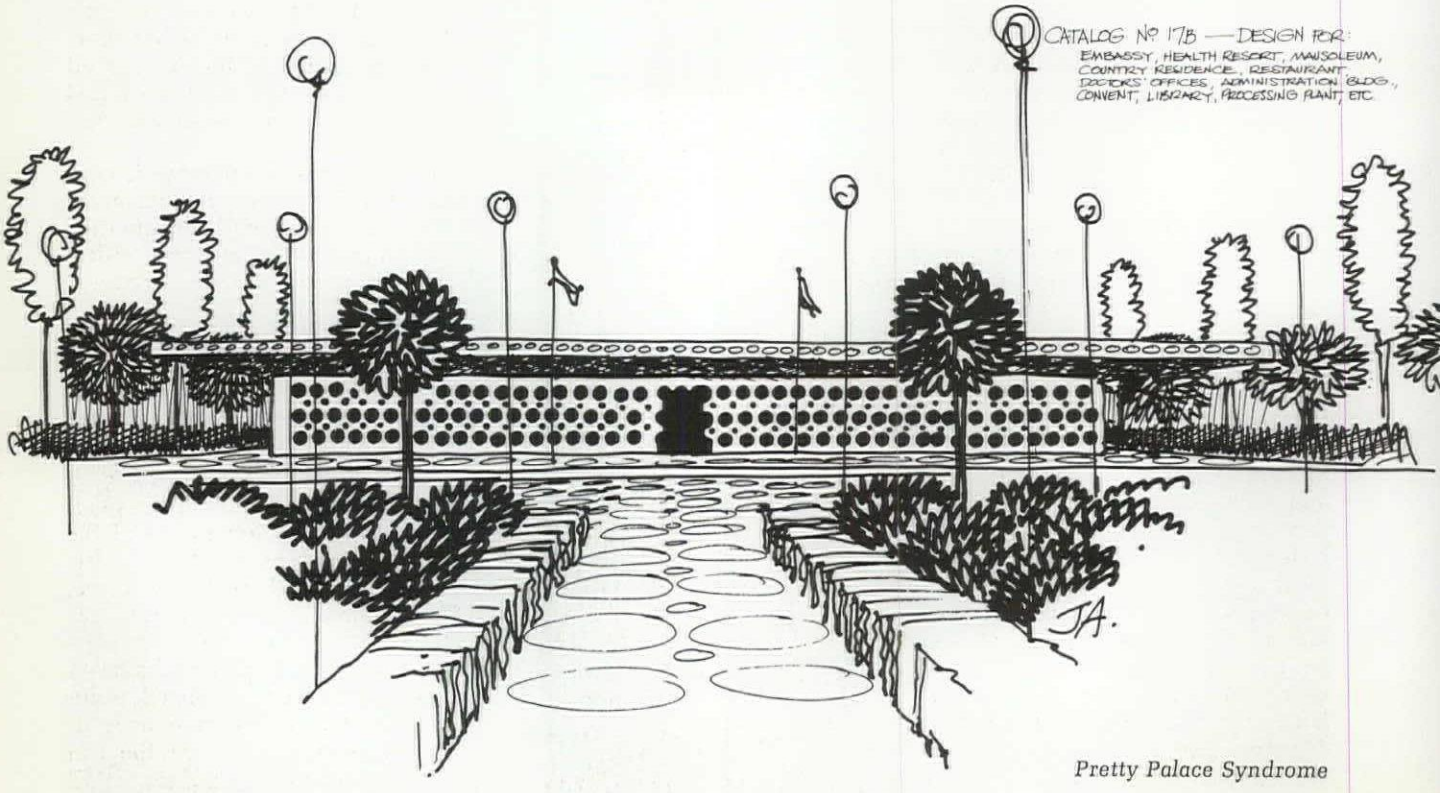
Architecture is on the move in a society already moving at an accelerating rate of change.

The contradictory impulses of this dynamic society are reflected in contemporary building: We can see the precision of the geometric contrasted with the romance of the organic, the brutal alongside the precious and the novel set against time-worn clichés. The confusion generated by the illimitable and the counterreactions to it form the soul of the conflict—a conflict which has led to the development of different schools of design.

The Organic School, championed by Frank Lloyd Wright, started as a reaction to the eclecticism (motif-borrowing) of the 19th century. It has digressed into a school of exterior decoration with organic motifs applied and reapplied until the bold ideas have been overwhelmed with ticky-tacky. Early Wright buildings, such as the Robie House in Chicago, contributed greatly to modern architecture, particularly with the open plan.

The Precision School, led by Ludwig Mies van der Rohe, is characterized by the universal rectangle. Here, all functions and consequently all esthetics are reduced to the exacting proportional relationships between right-angle, ma-

The author: Mr. Amestoy is a Pasadena architect, and this article is reprinted with permission from the March 1966 issue of *On the Move*, published by Immaculate Heart College in Los Angeles, where his wife received her MA degree.



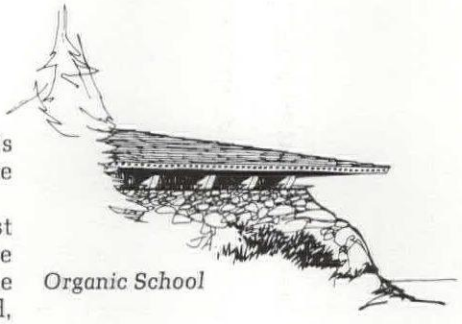
Pretty Palace Syndrome

chine-made objects. New York's Seagram tower is the all-bronze triumph of this school.

The Brutal School, which first blossomed in western Europe under the strong leadership of Le Corbuiser, breaks forth with bold, sometimes clashing, fortresses of raw concrete. A no-compromise response to new problems, such as the chapel at Ronchamp, relies heavily for its success on the intuitive genius of its sculptor-architects. Although it has provided an excuse for some monstrosities, this school has inspired many talented architects to create beautiful and significant buildings.

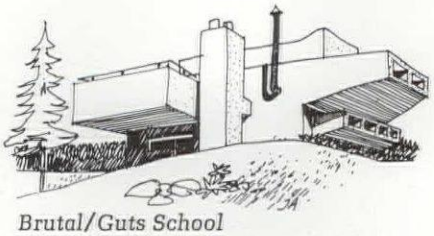
As these schools became diluted or combined, other schools, such as the Pretty Palace Syndrome, developed. This followed the advent of precast concrete and a desire to break away from the austerity of form follows function. Would-be imitators of Stone's US Pavilion in Brussels have taken refuge in Yamasaki's dictum, "delight in architecture," and have used concrete pretties over, around and through their buildings. Symmetry is their first principle, and for them there is no human function that cannot be packaged with rhythmic formulas.

In direct contrast, the Guts School follows the utterly honest approach. Exposed smoke stacks, jarring planes, sudden angles and protrusions reaching out for light, view or air give outward evidence of inner functions. While this has led some to daring innovations which break away from the preconceived patterns of construction, it has given others license to ramble without order, or worse, to practice self-conscious trickery.



Organic School

Precision School



Brutal/Guts School

Architectural Memorabilia School

Amid these new trends is a most pathetic old one: the School of Architectural Memorabilia. Perhaps as a reaction to novelty, but more likely a naive attempt to establish some constancy, this school confuses convention with tradition, the object with the spirit. New churches which reuse forms and motifs of another age fail to reflect Christian tradition simply by conveying the image that the church is incapable of adjusting to the modern age. In the same way, pseudo-Spanish or corny Mediterranian crawling up and down miles of new subdivisions belies our California heritage of progress. Instead of dripping the walls with grills and tiles fashioned to look like those made in an earlier time, tradition might better be served by a tasteful combination of real antiques with sincere contemporary standards.

Architecture on the move is concerned with the many serious problems which demand imaginative new solutions. Conjested cities, fantastic urban growth, changing economic patterns and the swift pace of our lives require of architecture more than the lessons of history; they require an ever-increasing involvement in all facets of our culture.

Beyond experimentation with new materials and techniques, there must be an awareness of the changing patterns of life and—beyond all else—a hope in the future. The statement of our times that will eventually be articulated in architecture will, hopefully, be freed from chaotic or simplistic solutions; it will be the statement of how we sought to reach the full development of our culture. □

The Tragedy That Was Florence

BY MICHAEL C. CUNNINGHAM

Her people, as they have always done in past disasters, have come back; her treasures, for the most part, are ready for the world to see. Yet the nightmare of last November, vividly recorded in this firsthand account, will long be remembered.

Florence, like many great cities, is divided by a river. The valley setting, surrounded by mountains from which springs the River Arno, was responsible for attracting people to the site as early as 200 B.C. The hills surrounding Florence have witnessed her growth from a tiny Etruscan colony to a walled Roman city; from a warring Middle Age city to a thriving Renaissance capital; from the capital of Italy to the present status of a world cultural center.

These cultural resources have drawn me the same way that they have other students. I live here with my wife in an apartment located on a hill in the old section of the city. Up the hill the Costa San Giorgio continues past Galileo's home to a fort designed by Michelangelo, which overlooks all of Florence. Across the street is an old convent whose lawn adjoins the Boboli Gardens behind the Palazzo Pitti. Descending the hill, one sees the Ponte Vecchio, clustered with tiny shops vaulting the Arno, as it has since the time of the Medici.

In the late evening of a rainy November 3, I walked across this bridge on my way home from teaching. From beneath my umbrella I saw the many displays—all of which were covered with tarpaulins to protect them from the torrents of rain—for the following Italian Armed Forces Day celebration. As I crossed the Ponte Vecchio, the roar of the normally docile river attracted my attention to its rising waters. But at that time I did not heed it as a warning.

We slept very late the next morning, taking full advantage of the national holiday, but were finally awakened by activity in the street—more than the neighboring carpenter usually made. Finding ourselves without light, we supposed it to be the result of a neglected electric bill and opened the shutters instead, only to discover that the street was swarming with people. There was, however, no alternative when we found ourselves without water. We dressed quickly and hurried to see if our neighbor were experiencing similar disconvenience. We encountered him standing in the hall in baggy pants and high boots, with bucket in hand. And so it was that we learned of the catastrophe—the River Arno had overflowed its banks.

In disbelief we descended the hill to the tiny Piazza dei Rossi and stood aghast as we saw muddy water lapping at the tires of cars parked there and the rising water carrying trees, oil drums and furniture through nearby streets. From here it was impossible to judge the height of the water in relation to the bridges, but concern for the Ponte Vecchio was unanimous among the Florentines. "Il Ponte Vecchio?" they asked. But no one was certain if the oldest bridge still survived.

The next thought of most people was to get to higher ground and a vantage point from which the old bridge could be seen. So along with others, we turned up the hill past our apartment and continued to the Forte Belvedere.

At this height the air was dense and foggy, nearly obscuring Brunelleschi's dome on the cathedral and the tower of the Palazzo Vecchio where we had recently been married. We looked down on all of Florence and saw water surging over several bridges, into second stories of hotels and through narrow streets. But from here the Arno was almost silent. The mist muted the catastrophe, and rather than participants we felt like spectators viewing a poorly filmed newsclip. But we could discern the Ponte Vecchio, still standing.

The author: Mr. Cunningham is a 1966 graduate of the Pennsylvania State University School of Arts and Architecture and is now doing further work under the direction of Leonardo Ricci at the University of Florence.

By now our street below was lined with people collecting rainwater in buckets, tubs, pans and jars. Others crowded into the neighborhood *negozio* to buy food, candles, matches and bottled water. Still others huddled at a vantage point just beyond our apartment where a long row of steps connects our street with a street adjacent to the river. From here it was possible to see the water rise inch by inch—muddy, full of debris, coated with stinking oil and moving with a tremendous roar at ever-increasing speeds. Funneled and velocitated by narrow streets, the water came in great waves, as if spasmatically coughed up by the saturated hillsides.

Even the Florentines who know and love their river could not fully comprehend the scale of the catastrophe. They had read about the preceding

floods of 1333 and of 1844 and how each time the water had come on November 3 or 4. Some spoke of religious significance, others of superstition, most of chance. But they are intelligent people and, sensing the urgency of the situation, remedied what they could. We watched a car on the Via dei Bardi in imminent danger of being swallowed up by the river. After a brief discussion a window was broken, a door opened, and the car was pushed to higher ground. One man even thought to stuff a pillow in the broken window to keep out the falling rain.

Tired and wet, we returned to our apartment to find friends from the piazza below. Concerned by the water rising around the 1,000-year-old foundations of their apartment building, they had fled to higher ground. Together we listened to news reports on the portable radio, and only then were we made aware of the enormous extent of the disaster. Not only was Florence under water but thousands of farm communities dotting the 60 miles of valley between the city and the sea were also submerged. We heard reports of rooftop rescues by helicopter, tragedies of persons trapped in the *sottopassagio* under the train station, forecasts of continuing rain.

By night our hill was completely cut off by the water. After a cold supper eaten by candlelight, we found places for our friends to stay and made one last round to check the level of the water. Our sleep was brief and troubled with concern for those less fortunate who were unable to rest their minds or bodies.

Sunday dawned revealing the Arno once again contained within its banks. We ate dry bread as we walked the block to the Ponte Vecchio and were struck by the enormous devastation. The stone paving of the Via dei Bardi was torn apart, the pieces strewn about like those of a huge puzzle. The iron gates in front of shops were brutally contorted. Alfredo's famous restaurant, whose windows once overlooked the river, was reduced to a desolate shell coated with thick mud. The movie theater lobby across the street was muddied to the ceiling, seemingly irreparable. A toy store on the same street was nearly unrecognizable, its dolls and trucks hideously covered with mud. Threading our way around deep pits in the street, we finally reached the Ponte Vecchio. The silver and jewelry shops which had lined both sides of the bridge and hid the river from view now served as empty frames for the muddy picture below.

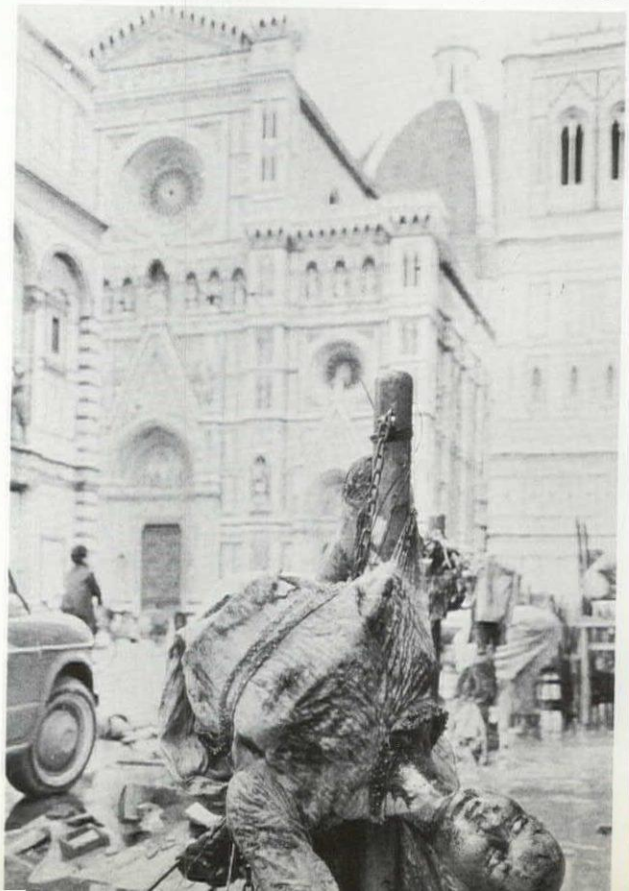
Shop owners were already evaluating their losses. Some were sifting the mud in disbelief. One girl, a friend whom we hardly recognized at first, clad in faded trousers and a mud-covered army surplus jacket, was helping an owner gather his scattered merchandise. Brushing a strand of hair from her eyes with a muddy hand, she told us of confronting two girls looting her friend's shop just after dawn. "*Via, via,*" she had screamed. "Get out of here or I'll break every bone in your body!" Such a violent threat from so small a girl! She remained on guard awaiting the *polizia* who were not to arrive that day.

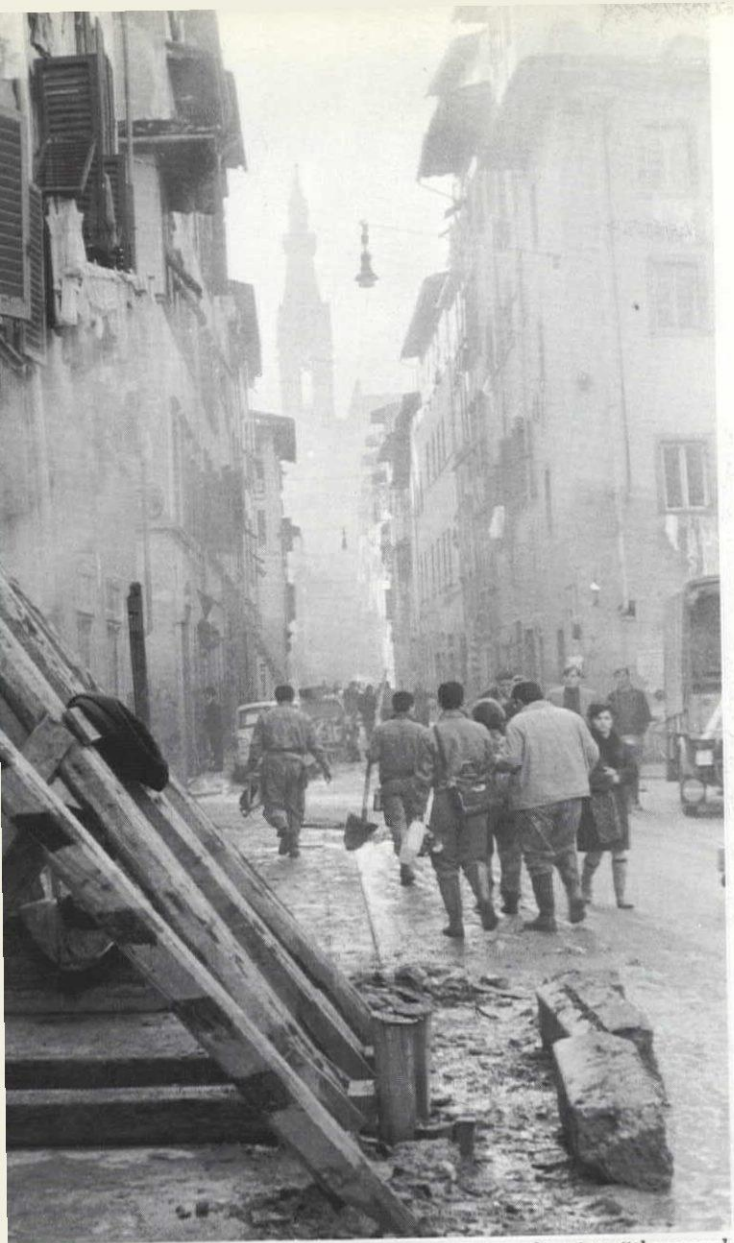
When we reached the opposite bank, our eyes were powerless to transmit the dimension of destruction or our minds to record it. Sloshing footsteps in the ugly brown *fango* added an ominous beat to the harsh chant of the Arno. The earth sucked at boots, making progress painstakingly slow and tedious.

The smell of broken sewers, fuel oil and dead anmials permeated the air and clung in our nostrils. It seemed impossible to wash away. Sometimes today as I pass a narrow street in a badly stricken area, I can still smell that stench and see the ever-present waterline marked in thick black oil. We followed this line down a main shopping street, Por Santa Maria, past a bookstore we often visited. Through stained windows we could see books still standing on shelves, pages muddy and swollen. This seemed a greater loss than all the jewels of the Ponte Vecchio.

Continuing toward the Duomo we passed through the piazza where I work, happy to see the waterline leveling off. Here the black line was waist high; only the floors of hotel lobbies or store basements suffered penetration. We turned onto a side street, making our way around to the Via Calzaiuoli, a major shopping area ter-

November 5 at the Piazza del Duomo: "the raging force of the Arno that shattered , drowned much of her beauty."





Three weeks later in the Santa Croce district: "thousands of basements were first pumped, then shoveled."

minating at the cathedral. As the street sloped gently downhill away from the Arno, the ever-present naptha line rose correspondingly, and the degree of damage rocketed higher. Fine leather goods wallowed pitifully in the remaining mud, and bolts of silk sat dejectedly on dripping shelves. By the time we reached the Piazza del Duomo, the waterline was once again above our heads.

Here at the heart of the city stands the second largest church in the world. Stretching high above the crowded plaza, at the confluence of 10 busy streets, the ancient pink, green and white marble edifice is more than a testiment to the Florentines' religious fervor. It is a symbol of the city of Florence, past and present—of its people.

But gone was the busy activity on the morning of November 5, as the soft ochre-colored city submitted to the raging force of the Arno that shattered her, drowned much of her beauty and dumped tons of mud in horrible asphixiation.

As the thick water receded, it took with it a bloated cow it had brought and stacked scores of wrecked cars on top of one another, filling the space between the cathedral and Giotto's splendid *campinale*. Refuse of every description clung to buildings or was grotesquely piled about in the street. The delicate mosaic floors of the Duomo were buried beneath 2 feet of garbage-strewn mud, and the pews they once supported lay splintered on the steps outside. The octagonal baptistry across the way was also filled with mud and subjected to terrible punishment as the river washed through, first one way and then the other. The amorphous monster slammed Ghiberti's beautiful bronze doors open and shut, beat them against the walls and finally shook to the ground five of the priceless panels that Michelangelo had so loved.

We continued to the Piazza San Marco, 10 blocks from the Arno, and finally saw the black oil line disappear into the pavement at our feet. We boarded one of the few functioning buses and rode to San Domenico, halfway up the long hill to Fiesole, to find Ted and Eleanor Waddell, American friends who live in a villa there.

Not to our surprise, the Waddells were in the city inquiring about our safety and that of other friends. We were joined in our wait by a family of three who had been forced from their home and, along with six others, had spent the night at the Waddell's. After lunch the women wrote letters to friends, relatives and organizations who could help, while Ted and I returned to the city with badly needed supplies.

We packed several cartons with milk and foodstuffs for the Borginis, some friends of ours in a particularly devastated area, loaded them into the stationwagon and drove the short distance to the city, parking on the periphery of the flooded area. We each shouldered a box and plunged through knee-deep mud toward the friend's ground-floor apartment on a tiny, desolate street beside the ancient cathedral of Santa Croce. After climbing over a large tree that blocked the entrance to the building, we mounted the slippery stairs to the second floor where a warm welcome greeted us. Signora Borgini thanked us for the food and took us upstairs, past muddied walls and ceilings, to see the children. They told of being awakened at 3:45 the previous morning to the sound of raging waters and had raced, pajama-clad, upstairs to their grandmother's. In the midst of such tragedy the family had taken in an American student who was confused, lost and frightened, having arrived in Florence only a week before. Although she spoke no Italian and they no English, they had offered to share their small refuge.

Afterward, Ted and I returned to the street where we found Italian army tanks and half-tracks plying slowly, distributing milk and help-

ing with evacuation. Our attempts at assistance seemed impossibly meager. Nonetheless we hurried back up the hill to San Domenico to fulfill the requests for drinking water.

Having loaded the car high with huge demijohns of precious water, we set out for Santa Croce with an Italian friend. On the way Francesco explained how his family's leather goods store had been demolished, and he expressed concern for a newly purchased farmhouse in the country. He seemed even more concerned for a friend's need for water than for his own economic loss. The disaster destroyed many financial, social and economic differences and united men in a common effort for survival. It brought out the best in most and the worst in very few.

By the time we neared Santa Croce, it was dark; the day's haze had caused night to fall early. The journey seemed even more awesome in the darkness as we skidded along to the sound of the gurgling *fango* and the occasional cry of a child. Often we passed the shadowy forms of other concerned *citadini*. Street corners were guarded by silent figures clutching rifles and staring blankly from under helmets. I took those ghostly memories home to bed that night, and now they are a part of me.

Sunday morning we met an Italian friend and set out across the Ponte Vecchio, along the road, now a mud path, to the Biblioteca Nazionale. Here soldiers cleared the street of cars, furniture, trees, stones and mud which oozed over the steps from the ground floor of the library. Inside, soldiers pushed mud and water with makeshift wooden plows. Students carried books from basement storages to upper floors. A book brigade was formed in the basement and went up a narrow staircase into the main lobby. A complete

Brunelleschi's Ospedale degli Innocenti: "the waters came in great waves, as if spasmatically coughed up by the saturated hillsides. Even the Florentines who know and love their river could not fully comprehend the catastrophe."

Ponte Santa Trinita: "muddy, full of debris, coated with stinking oil and moving with a tremendous roar."

collection of soggy newspapers was passed from hand to muddy hand in an attempt to salvage the world's most thorough record of Italian history since Italy became a republic in 1861.

We joined the human chain and passed along stack after stack of unrecognizable papers which came from a never-ending source somewhere in the darkness below. And so we worked, paper to book, line to line, hour by hour. The rhythm continued until we became soggy—our clothes wet and our hands slippery with mud, our arms heavy with the weight of it.

Dusk called a halt to the operation, as without electricity, work was impossible. The thought of a warm supper and a hot bath quickened our tired feet. Again we boarded the bus to San Domenico, helped ourselves to a hot bath our friends had offered and returned to the city. The bus left us on the waterline and we began the walk home; within a few minutes the strange sursoundings began to have their effect.

The few flickering candles from distant windows added to the ghostly night. Shadowy figures appeared and disappeared. Muffled voices rose and fell. Picking our way between huge piles of trash, we traveled first where the sidewalk had been, then into the street. We circled the Por Santa Maria and came home under the arcades of the Signoria, across the Ponte Vecchio and up the hill to our apartment which was still without light and water.

The city of Florence worked tirelessly those first few weeks after the flood. We watched as thousands of basements were first pumped, then shoveled, then washed and rewashed. Store owners hauled their ruined stock into the street and then held *alluvionati* sales of damaged goods. Water and electricity returned after a month, children returned to school and we wore shoes again instead of boots.

Bags and boxes of warm clothing arrived from the US in answer to our pleas. The little old flower vender at the bottom of our hill made a list of the children in a ruined family in his neighborhood, noticeably deleting the names and sizes of their parents. We packed two large boxes with the clothes they might need and took them to his stand. He accepted them with a grateful smile and handed me a tiny bunch of brightly colored flowers. *"Per la Signora,"* he said. □

WHERE FLORENCE STANDS TODAY

In bringing the situation up to date, author Cunningham offers these observations:

"My only impression of Florence's rehabilitation is that it happened incredibly fast but is only superficially complete. Main shopping streets bustle with tourists who don't notice the tiny plaques indicating the recently removed waterline or don't comprehend the heavy debts behind the polished exterior. Fewer still wander into the Piazza Gavinana or near Santa Croce where block after block of abandoned buildings are crudely trussed by huge timbers.

"In short, the complete restoration of Florence is at best an impossibility. One only hopes that appropriate measures will be taken to safeguard against still another tragedy in the future."

BEARING WALLS THAT EXPRESS

BY EDWARD W. ANGERER, AIA

Fresh and varied uses of the brick bearing wall—applications that logically express, logically exploit the concept—can be anticipated now that the initial timidity toward the system has waned.

Examples testifying to the merits of the concept are too numerous to sustain apprehension. But while their number is significant, the breadth of applications to date is not. Most of the recent work has involved projects calling for relatively small and repetitious space modules. Apartments, for example.

It is reasonable to believe that we are now at a point where we can expect to see the system used in circumstances with more varied space requirements. The possibilities?

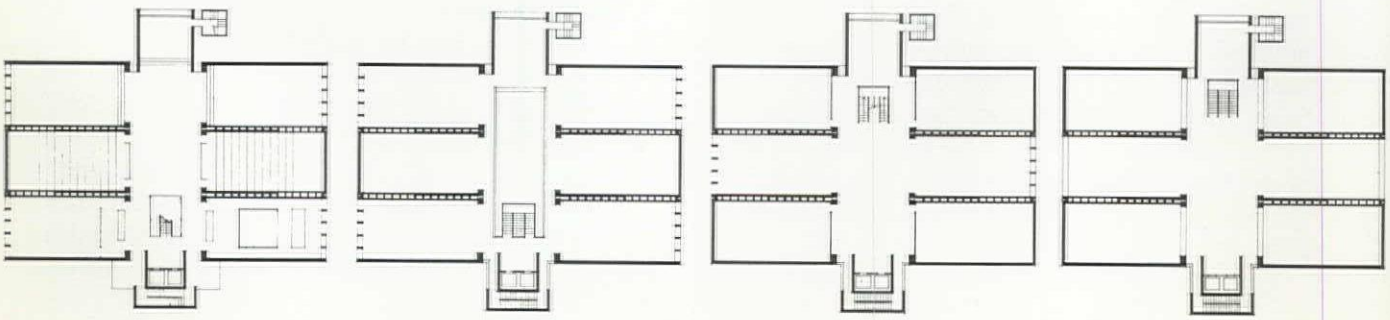
Consider two hypothetical examples. Both buildings differ in kind; both differ in their response to the fact that gravity loads increase from top to bottom.

The first example, a high-rise athletic club, gives visual expression to the fact that there is a need to increase the bulk of the structural material from top to bottom.

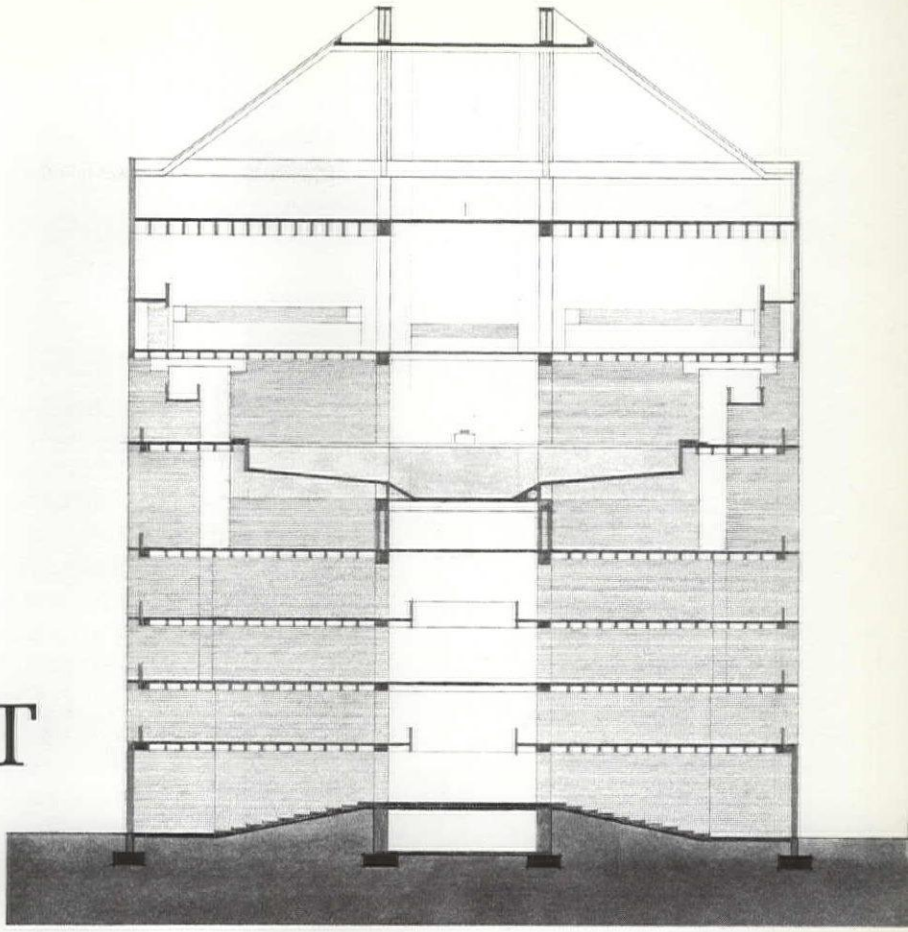
The downward accumulation of the gravity load is expressed by placing the smaller permanent rooms at the lower levels, with other facilities housed in spaces that become progressively larger as the need to resist the load diminishes. Thus in moving toward the top we find a gymnasium and, at the uppermost level, a roof-garden tennis court.

The other example, an office building, exploits rather than expresses the need for less gravity load resistance nearer the top and is a feasible application for structures requiring large expanses of space to accommodate flexible subdivisions.

The author: Mr. Angerer is a practitioner in Rock Island, Illinois. He is currently preparing a paper for the International Conference on Masonry Structural Systems in November.



AND EXPLOIT



Two parallel walls of a cellular nature achieve stability and provide space for the increasingly sophisticated mechanical requirements in this type of project. With the bulk of the masonry increasing top to bottom, it is possible to integrate the ductwork with this structural circumstance.

By locating the mechanical machinery at the top, ducts become progressively smaller top to bottom. Structural and mechanical elements thus merge in a cell of constant exterior dimension.

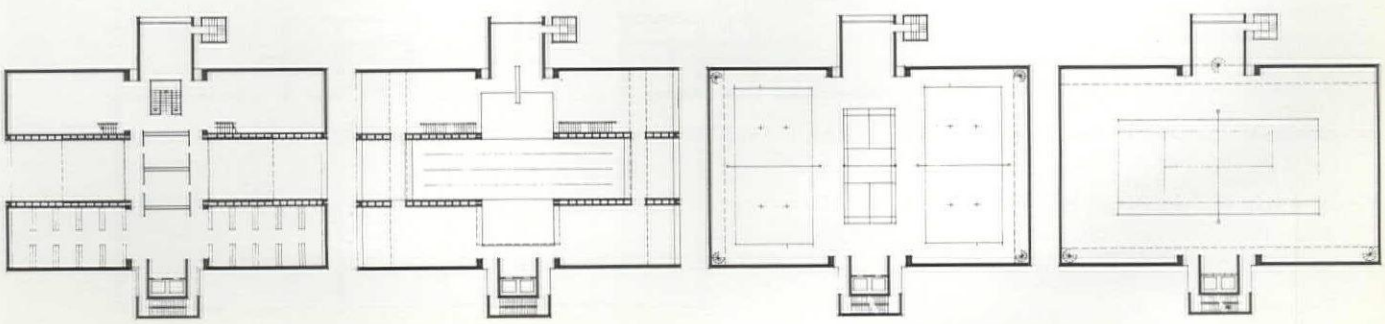
These are but two suggested variations that can be anticipated in a bearing wall trend which over the past five years seems to have advanced steadily in this country.

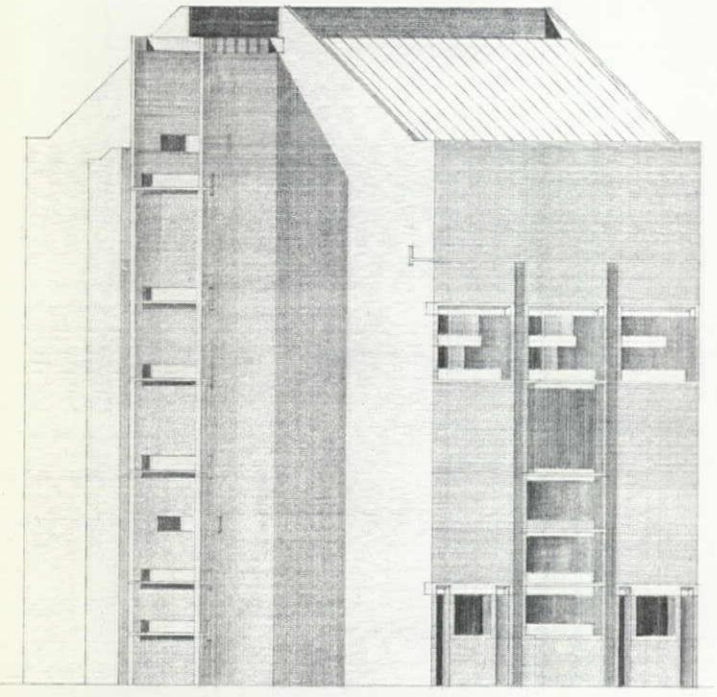
Trends, as they become apparent from a sequence of events, consistently attract speculation over their origin and relevance. The use of brick itself is hardly a trend, having enjoyed uninterrupted popularity ever since that genius many years ago discovered that rectilinear lumps of clay fit together more neatly than the random-shaped objects he found in nature. Even after technological advancements made possible daring structures of concrete, stone, steel and wood, brick still was used for its cladding qualities if not always as a structural material.

Preoccupied with research into factory-spawned "building systems" and distracted by other technological ephemera, we momentarily lost sight of the structural potential of brick.

True, testing and engineering data on brickwork was sparse. Today, however, with the Structural Clay Products Institute and other agencies conducting research and supplying us with useful tools,* and with refinement of the ingredi-

* A recently published "Recommended Building Code Requirements for Engineered Brick Masonry" is available from SCPI, 1520 18th St. N.W., Washington, D. C. 20036.





High-rise athletic club above (and previous pages) gives visual expression to the accumulation of gravity loads. Smaller rooms are at lower levels; toward top, rooms become larger, climaxed by a gymnasium, tennis court.

ents themselves, brickwork can now reliably respond to engineering analysis.

We call it "engineered brickmasonry" and the English call it "calculated brickwork." No matter the name, what is important to remember is that structural brickwork is as different from ordinary brickwork, though the ingredients may be the same, as, say, structural concrete is different from a sidewalk. With this new capability, brick can be called upon to perform structural as well as traditional roles.

But to me, the availability of reliable engineering data and the consequent acceptance by the building codes is not solely responsible for the resurgent interest in brickwork. There is something else underlying this resurgence.

I think it is a reaction: We have grown weary of trying to show someone how to put together all those mismatched catalog products, and we have become disenchanted with the prophesied economies and flexibility of industrialized "systems."

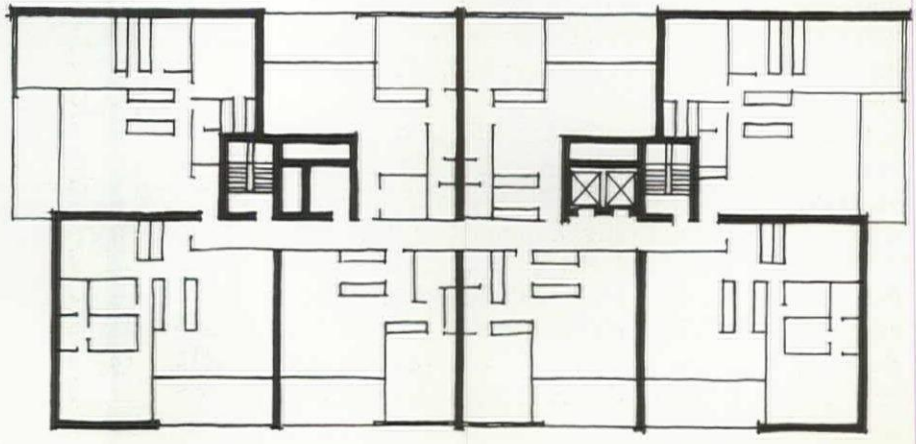
By turning to what Sir Basil Spence termed the "best prefabricated building component ever invented by man," we are greeted by a unit that has flexibility, modularity and economy.

We discover in brick a module large enough to form a reference texture against which all other objects in the environment can be measured, yet small enough so that it does not take charge. Brick graciously assumes the role of an aggregate in forming a larger element, freeing the new element to register still another cadence.

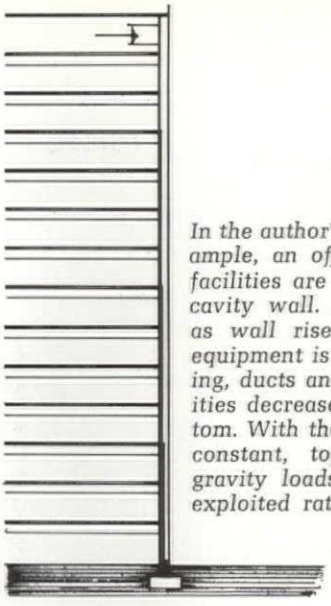
Flexibility, versatility and economy may be offered as *reasons* for the renewed interest in brick, but there are also compelling *intuitive* forces—the striving for simplicity and the designer's urge to intuitively grasp the solution.

With structural brickwork the architect has a polyfunctional medium which enables him to satisfy many construction needs with a single material. He can achieve "oneness" in the project. He can with carefully placed channels, shafts and voids synthesize the structural shell with mechanical devices and create a harmonious whole.

He can find in this technique a characteristic which elicits an almost universal response, one common to all great architecture: the suggestion of how a thing was put together.



Denver's Park Mayfair East has clear spans ranging from 30 to 35 feet. The 11-inch brick bearing and shear walls are arranged to provide natural resistance to lateral as well as vertical forces. The apartment building's reinforced masonry structural system is seen as illustrating the adaptibility of structural brickwork to local code needs. The system satisfied not only the Uniform Building Code but also Denver's requirement for Seismic Zone One earthquake design. The 17-story structure is the work of Anderson & Looms.



In the author's second hypothetical example, an office building, mechanical facilities are integrated with masonry cavity wall. Masonry bulk decreases as wall rises and since mechanical equipment is mounted at top of building, ducts and other conveyance facilities decrease in size from top to bottom. With the dimensions of the walls constant, top-to-bottom increase in gravity loads is, through integration, exploited rather than expressed.

Contemporary uses of the technique in both this country and in Europe, as noted earlier, for the most part involve apartments and similar structures, and while it is likely that a more varied use of the brick structural system will soon emerge, the technique is no less peculiarly applicable to this building type. It is an applicability that results not only from the limited need for interior planning flexibility but from the stringent demand for acoustical insulation between dwelling units.

Two American projects typify the current status of engineered brickwork for apartments. One is in Rock Island, Illinois, the other in Denver, and except for vernacular differences, their predecessors can be recognized in Switzerland, England and Denmark, where much research and experimentation in the technique has been carried on.

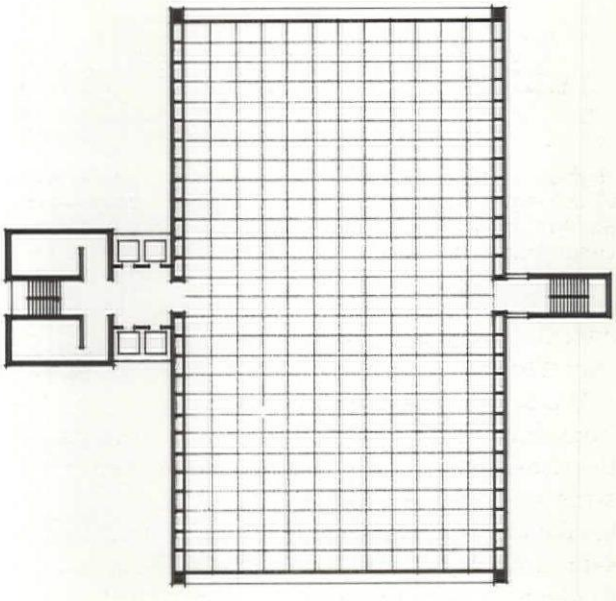
Now occupied, the 17-story apartment building in Denver was designed by Anderson & Looms and has a structural system of 11-inch reinforced bearing and shear walls and precast concrete floor slabs. Spans between bearing walls range from 30 to 35 feet. The 11-story, unreinforced masonry building nearing completion in Rock Island is a joint venture project by Italo J. Milani, AIA, and myself.

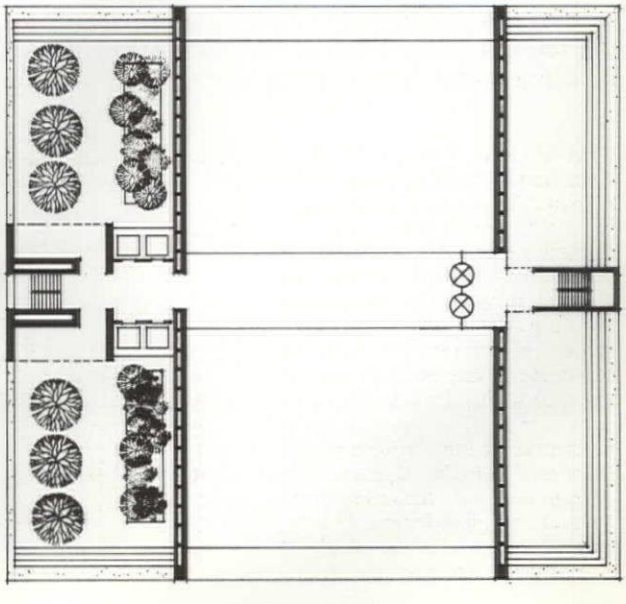
Let's look at the practicality of working with a comparatively unfamiliar system in a climate of rising building costs.

Since the presence of erratic rock lenses in our project made it economically unfeasible to run concentrated loads through to bedrock, it was decided to place relatively light loads on uniformly distributed friction piles. A small, 12-foot bay was chosen to avoid the necessity of distributing high concentrated loads laterally beneath the first floor.

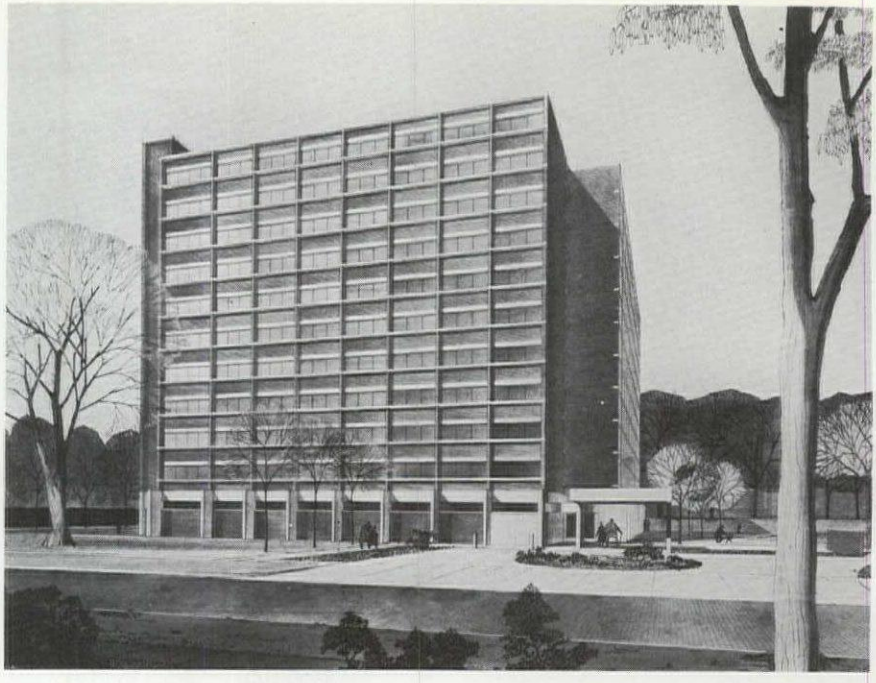
By using concrete on the first lift we were able to get enough openness to accommodate the necessarily larger spaces needed for community activities while maintaining the same bay size.

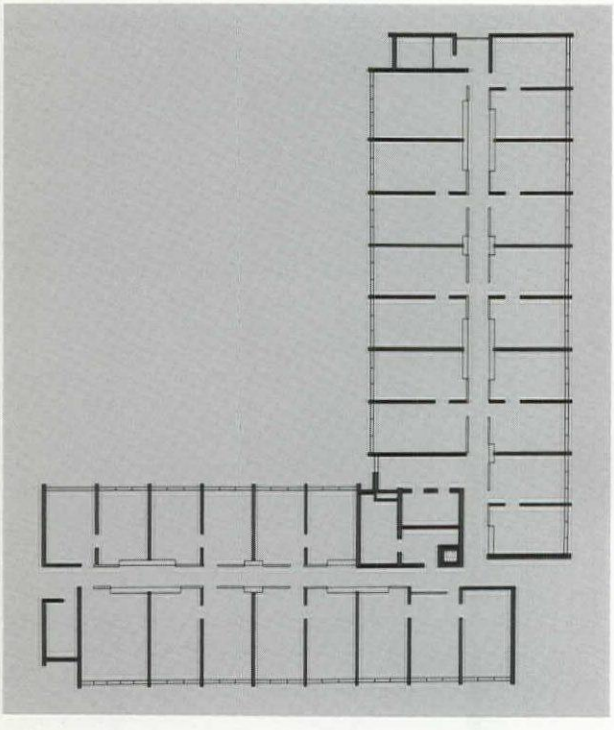
The basic structural elements above the first floor consist of 8-inch brick walls and 6-inch precast hollow-core floor slabs with 2 inches of concrete topping. The bricks, nominal 4x4x12s, are dark brown and the sills and lintels are precast concrete.





A housing-for-the-elderly building in Rock Island, Illinois, a work of the author's firm, is now approaching completion. Typical floor plan of the project shows brick bearing walls in solid heavy lines. Spaces between corridor walls and rooms are vertical shafts which house all plumbing and ventilating facilities. Lateral stability is accomplished by the perpendicular positioning of the two wings. The bearing walls for one wing become the shear walls for the other, and vice versa. The author experienced advantages such as the economies of simplified logistics and, through good detailing, a condition in which the masons were permitted to work uninterruptedly in isolation from other tradesmen. "Correspondingly," he relates, "mechanical work, one floor down, can be carried on in the same atmosphere of independence."





Lateral stability is achieved by the perpendicular positioning of the two wings. The bearing walls of one wing become the shear walls for the other, and vice versa.

Simplified logistics effect economy: With fewer materials serving more functions, material handling schedules are made easier. One team of craftsmen can accomplish what might otherwise require the coordinated efforts of several different trades—coordination that can be a substantial problem in the context of subtle division-of-work ramifications under present labor policies.

Through proper detailing an architect can enable the masons to work uninterruptedly in isolation from other tradesmen. Correspondingly, the mechanical work, one floor down, can be carried on in the same atmosphere of independence.

To get the weathertight shell of the building up as quickly as possible, we avoided putting anything in the brickwork or the floor slabs with the exception of a sleeve to accommodate the continuous horizontal loop of the hot water heating element. To create a continuous vertical shaft which houses all plumbing and ventilating facilities we left a gap between the floor planks on either side of the corridor.

Electrical service is delivered from a vertical riser through the cored slab to each apartment. A continuous surface raceway leading from a panel box in a kitchen closet doubles as a chair rail and contains convenience outlets and all circuit wiring within the dwelling unit. All permanent light fixtures and some other electrical devices are installed in the gypsum board partitions.

Upgrading the electrical facilities during the life of the building seems to be an inevitable and a most unpredictable need. The generous raceway and the location of as many electrical devices as possible in the more expendable gypsum board walls are aimed at making these future alterations less painful.

The future of engineered brickwork, having given it study and thought and having firsthand experience with the technique, seems to me a promising one. To be sure, it is not the sole route to future architectural glories.

But it is a highly significant route and its potential becomes all the more compelling when we consider its prospects for more varied, expressive and exploitative applications. □

CREATIVE COST CONTROL

The Nuts and Bolts of Value Engineering

BY ALLEN E. COX

Here's a technique that can identify unnecessary costs, as described by a professional engineer who is president of the Read-Cox Corporation of Worcester, Massachusetts. This article is adapted from "Creative Control of Building Costs," the McGraw-Hill book.

Architecture was cognizant of value engineering long before industry was even aware that a need for it existed. In 1756, the Italian Carlo Lodali said, "In architecture only that shall show that has a definite function and which derives from the strictest necessity." Louis Sullivan, writing in *Lippincott's Magazine* in 1896 said, "Over all the coursing sun, form ever follows function, and this is the law." Both statements are particularly apropos, since the foundation of value engineering is functional analysis.

"Value" is defined as "the least cost to accomplish the function." From this, "value engineering" then becomes "the identification of unnecessary cost." The terms value engineering and value analysis are used by many almost interchangeably. Strictly speaking, however, value analysis usually refers to identification of unnecessary cost in products already in production, a term somewhat meaningless in our field.

Industrially speaking, the need for value engineering came about because products were designed to work and because many shop practices were based solely on good engineering, neither of these taking much account of costs. For example, the safety pins in German land mines during World War II were turned brass pins about one-eighth inch in diameter with turned heads. When the mine was armed, this pin was extracted and thrown away. "Good German engineering" perhaps, but a piece of soft wire accomplished the function in US mines at much less cost.

At the end of World War II, Lawrence D. Miles at General Electric discovered that often substitutions, dictated by shortages, resulted in products that accomplished their function at reduced cost. He set out to formalize this process, with the emphasis on costs, and thus value engineering was born.

Although born in industry, the techniques of value engineering are pertinent to any field where unnecessary costs exist. By definition this would then include construction which utilizes practices and procedures contributing to unnecessary costs; value engineering can ferret them out.

To go back and amplify our original definition, we might say that value engineering, by means of an organized group approach and following a formalized job plan, identifies unnecessary costs. The group approach is basic for two reasons. In industry, bringing in someone from another department results in a new and different look at the problem. Also, the more departments represented, the easier it will be to "sell" the proposed changes to appropriate authority. Ideally, the VE team is made up of people from purchasing, engineering and production, headed by a VE specialist.

In the case of an architect's office, a team might be made up of people with different specialties including, additionally, field men, specification writers, administrative people, perhaps representatives of specialty vendors and subcontractors and, ideally, construction management. The broadest possible base, regardless of technical competence in the specific field of the problem, is the objective.

The Five "Whats"

The team proceeds with the job plan. Miles of GE prefers a seven-phase plan; however, many practitioners prefer a somewhat simpler and more descriptive plan which we shall refer to as the five "whats": What is it? What does it do? What does it cost? What else will do it? What will that cost?

This, in essence, is what value engineering is all about. However, unless dealing with exceptionally creative people, considerable training is required to utilize satisfactorily even as simple a plan as that above. The job plan proceeds as follows:

Under the first step, all pertinent data is accumulated. Included are such things as all specifications governing the construction or fabrication of the item being analyzed, all performance requirements, all costs, all drawings and anything else having a bearing on the item in question. Here, *all* means exactly that—nothing less. For example, such things as standard specs and general contract provisions must be included if they could in any way affect the cost of the item in question.

In the second step, a functional analysis is performed. This is essential. The function of each component must be defined in two words, a verb and a noun, as much the function of the whole. The accompanying table shows how this might be accomplished for an object with which we are all familiar; the incandescent light bulb. It will be noted that the basic function of the bulb is to provide light, and only one component, the filament, fulfills this function; all other components fulfill secondary functions. The analyst making up this particular example apparently felt that he had a good chance for reducing the filament cost. Since that time, one of the photoflash manufacturers has made even bigger savings by removing the base and conducting current through two wires extending from the glass.

Once the functional analysis is performed, costs must be assigned to each and every function as in the light bulb example. Included with these functions will very often be "sell" functions or "esthetic" functions. For example, the chrome

plating on an automobile door handle fulfills the basic function—it prevents rusting—but, its secondary function is that it improves appearance. The cost of the basic function would be the cost of painting the door handle. The cost of the secondary function would be the difference between the cost of painting and chroming. It is often surprising to discover how much of the cost of anything is devoted to sell functions. For example, in residential construction, the built-in appliances are not much more efficient than separate appliances; and, in fact, they create some difficulties in servicing and replacement. The big reason for their popularity is that they fulfill a sell function for the house.

At this point, although it is not a separate step, the question should be asked, "What is it (the function) worth?" For example, in the analysis of an apartment building, we might find several hundred coat hooks in the closets. The basic function of these hooks is to support clothing. The worth of the function would be the cost of driving a large nail in place of each hook. This would fulfill the basic function at a fraction of the cost. It would also provide a target as to maximum possible savings. Ridiculous? Perhaps, but this act of determining worth is important from another aspect. It breaks away from the usual solution and gets the team warmed up for the creative process.

"What else will do it?" is the creative phase of the job plan. During this phase, all of the known tools of creative problem solving are used. Brainstorming, talking to specialty vendors and specialty contractors, and anything else that will inject fresh thinking and a fresh approach are used. At this stage, if not before, every specification and every method must be questioned. It is also at this stage that the value of team members from outside the pertinent discipline becomes apparent. When one team member says, "We can't do that," perhaps another says, "Why not?" Sometimes it develops that there is no reason except custom.

The whole value engineering concept hinges on the creative phase, and a good share of VE training time is devoted to it. Actually, we are not too certain that people can be trained to be creative, in spite of many tests and published results. We are, however, certain that most people use only a small amount of their inherent creative potential. This potential can be realized through training, which usually takes the form of trying to break people out of their behavioral ruts. An example might be, "How many uses can you think of for the common, yellow, rubber-tipped wooden pencil?" A group of six people one evening came up with well over 200 in approximately the time needed by one person to write them down.

Once alternatives are developed, it only remains to get costs on them and select the one desired—ideally, the one costing the least. Circumstances, of course, sometimes dictate otherwise.

FUNCTIONAL ANALYSIS FORM

Product: Light Bulb **Basic Function:** Provide Light

PART DESCRIPTION	QUANTITY	FUNCTION		DEGREE		COSTS	
		Verb	Noun	Basic	Sec.	Target	Present
Glass Bulb	1	Excludes	Air		X		3¢
Base	1	Supports Conducts	Lamp Current		X		8¢
Stem	1	Supports	Leads		X		1¢
Filament	1	Provides	Light	X		3¢	5¢
Supports (filament)	3	Support	Filament		X		½¢
Contact	1	Conducts	Current		X		1¢
Lead Wires	2	Conduct	Current		X		2¢
Cement		Excludes	Air		X		½¢
Insulator (base)	1	Blocks	Current		X		¼¢
Gas (inert)		Prevents	Oxidation		X		1¢
Ink (trademark)		Provides	Identification		X		½¢
Solder		Provides	Contact		X		¼¢
Exhaust Tube		Conducts	Air		X		1¢
						TOTAL	24¢

Not-So-Tender Traps

Perhaps a word of warning is in order here. There are traps in the value engineering field of which one should beware.

The first of these is that, unfortunately, value engineering is always a threat to someone. Because designs originate with someone else, the value engineer is always second-guessing. Often his proposed changes look ridiculously simple—after they are proposed.

Another trap is the temptation among some practitioners in the field to reduce the whole thing to a formula with charts and nomographs—a paradox in itself, inasmuch as one of the prime targets of value engineering is the repeated use of the same formulas.

A third trap is the fact that one man's standard may be another's special. It is common in value analysis work to substitute a standard component in one field for a special in another. For example, plastic caps and plugs which were used originally to plug openings in hydraulic components against dirt are now used as a substitute for a variety of special-order caps and plugs in the electronic, missile and aircraft industries. On the other hand, in construction, the standards are often a trap. To take a simple example, does the standard manhole cover and ring or the standard catch basin grating represent the lowest cost to accomplish the function? Perhaps, but has anyone ever checked?

In the industrial or hardware field, savings have been realized in the most astounding places. Lockheed-Georgia, for example, required four standard foam fire trucks for C-141 aircraft fire suppression capability at a cost of $703,000. A VE effort led them to develop a single giant truck at $238,000—a saving of $465,000 in labor and equipment. At the other end of the scale, the Boeing Company reduced the number of standard fastener, hole, drill, reamer and bushing sizes by 50 percent for a resulting saving of $410,000 per year.

Savings in commercial industry are harder to document for competitive reasons. However, one of the major manufacturers of mining machinery turned a money-losing conveyor, which it was only manufacturing to provide a complete line, into its best money-

maker. The Hoover Company credits its value engineering with cutting $20 off the retail price of their vacuum cleaners over the last four years.

Does this hardware approach have anything to do with construction? Certainly. Unnecessary costs need identification in construction just as much as anywhere else. Once one begins to examine the function, one finds myriad examples of unnecessary costs.

As an example of what is being done, the Navy's Bureau of Yards and Docks realized savings averaging $1,000 per unit in one of their housing projects by value engineering their standard plans. They substituted paint grade plywood or metal for prefinished birch kitchen cabinets; they substituted pit-run gravel for crushed stone under the concrete floor slabs; they removed the vapor barrier under the floor slab, since water was no problem at the particular location analyzed; they eliminated soil poisoning and preservation of first floor studs when they found termites were no problem locally; they eliminated reinforcing bars in the foundation wall; they redesigned the roof truss to employ less material; they substituted prefab stairs for site-built stairs, etc.

At the other end of the scale, the Corps of Engineers reports savings of over $3 million by changing the design of a lock wall from a gravity section to a massive head buttress. This design not only saved concrete costs but reduced hydraulic uplift which was a problem in that particular location.

Reducing Future Costs

We've looked at the techniques and we've looked at what is being done. What can be done in the future to reduce construction costs? Without knowing the specific project, it is hard to say, but there certainly are general areas at which the VE team should take a long, hard look.

In the area of substructures, cleaning and preparation should be examined carefully to determine if they fulfill a basic function. Mass concrete should be looked at carefully to avoid unnecessary costs that will not contribute to function. Overdesign because of inspection difficulty can be reduced. Cameras and closed circuit television can inspect where a man cannot, at less cost than overdesign due to unknown factors.

When it comes to superstructures, more welding should be used where it will reduce costs. Many architects avoid welding because of unfamiliarity and difficulty of inspection; yet missiles, aircraft, automobiles and ships are all welded with a great deal of success. A modern quality control program with statistical sampling could decrease the cost of weld inspection tremendously and at no more risk than the program used in jet aircraft. The triangle, as opposed to the rectangle, should be examined as a structural system. Utilization of various grades of steel in the same structure should be increased so that the minimum amount of cost is devoted to carrying the weight of the structure itself. Functions should be combined where money can be saved, an example being T slab construction which combines the floor slab and beam in one unit. Composite construction is another step in this direction. To carry this a step further, a recent composite bridge deck had beams spaced so that standard plywood sheets would fit between the webs without cutting. Simple blocking on the bottom flanges supported these plywood deck forms. To go back to our functional analysis, the basic function of the bottom flange is that it resists tension. However, in this case it fulfills a secondary function: It supports forms.

The subject of structural exteriors raises some particularly thorny problems when it comes to value engineering a project. If the function of the exterior treatment is that it improves appearance, provides texture, provides color, etc., then properly speaking it fulfills a sell or esthetic function. It then becomes a matter of how much an owner is willing to pay for this. On the other hand, if the exterior treatment fulfills some function such as preventing corrosion or decay, then some progress can be made toward improving value. One example would be using the type of alloy steel which has been used on several bridges and buildings and which forms its own protective oxide coating, thereby needing no paint. Another example is a recently developed sulfur and glass fiber coating for concrete block that bonds the blocks together after they have been stacked dry and also provides a hard, impervious surface.

Unfortunately, all of the case examples and suggestions in the world will not make a VE program. Value engineering is as much a state of mind as it is an art or skill. One must constantly be aware of the five whats of the job plan in every aspect of one's work. It is amazing how many useless things and activities one discovers if constantly asking oneself, "What is the function?" As a simple example, consider acoustical tile:

What is it? It is the visible surface of a ceiling, often made of wood fibers, usually with a decorative pattern of holes in it, probably in one foot squares stapled to furring strips or glued to the ceiling.

What does it do? Its basic function is that it deadens sound. Its secondary functions are providing surface and decoration.

What does it cost? The material costs approximately 20 cents per square foot plus 2 cents per square foot for flameproofing.

What else will do it? Here there are lots of answers, depending on the creativity and ingenuity of the VE team, although 90 percent of the list will probably seem ridiculous at first glance. The one finally selected, in one case: papier-mâché layer dividers from eggcrates.

What will that cost? Two and a half cents per square foot for materials plus 2 cents for flameproofing. The savings would be $175 per thousand square feet of ceiling or approximately 40 percent of the installed price. Worth going after? Forty percent savings are always worth going after.

So far we've discussed all the benefits of value engineering. Are these benefits obtainable at no cost? No, they are not. Everything of value costs something.

To begin with, the hardware-oriented defense industries which have value engineering programs find that the ratio of savings realized to program cost is about 7 to 1. Unfortunately, since the technique is new in the construction field, there are no reliable statistics as yet at which to shoot.

In regard to program costs, two things ought to be mentioned. First is that trained VE people are currently in short supply. The total membership of the Society of American Value Engineers is approximately 2,500. The second thing to keep in mind is that there are training costs involved for you and your people.

Let us examine three possible ways to get started on a VE program. These are listed in decreasing order of cost.

The first is to hire an outside consultant to train your people and

head up your program. The customary form of VE training is the workshop seminar of 35 to 40 hours' duration. This can train from 30 to 50 people simultaneously. Since these usually involve teams of from three to six people, and each team works on a project from their own firm or department, these seminars customarily return savings that more than equal the cost of the training. The cost of such a seminar would be approximately $7,500. The fee for consultation on a regular basis varies, as do all consulting fees, but $150 per day plus expenses would probably be a fair average. A variation of this approach is to hire a full-time value engineer from industry to head up a permanent program. A competent man could be obtained at a cost of $15,000 to $20,000 per year. He would start by holding training sessions and then would head up the program.

The next way to start is to train a smaller group of your own people in a public or semipublic seminar and then rely on them to conduct a program without further aid. This might not be quite as effective as the first method, but it would cost considerably less. These seminars can be obtained in a variety of ways. In New England, for example, Northeastern University holds regular evening VE seminars. Several of the technical societies sponsor evening seminars. The Worcester Area Chamber of Commerce holds an annual evening seminar every spring. Certainly these same activities go on in other regions. Additionally, institutions such as the University of Wisconsin offer a summer course in value engineering; not to be overlooked are the University of Buffalo's summer creativity seminars which are popular with value engineers.

To get back to evening seminars, their cost is nominal inasmuch as the instructor is usually a practicing local value engineer instructing on a part-time basis. A cost of $75 to $100 per man should cover this type of training. Once your people are trained, the only cost for the program is the cost of the time they spend devoted to value engineering. Should you not know of any training being given in your area, the nearest chapter or national headquarters of SAVE should be able to put you in touch with competent instructors who will instruct a sponsored course for a nominal fee.

The last approach is the individual program. It would probably be necessary to travel to some location where a public seminar was being held. Once trained, one could then conduct one's own program. This is admittedly the least effective because of the absence of a team but nonetheless it should not be overlooked. In the first place, the training is of value to any creative person. Second, if handled properly, savings can result. For an individual program, it is suggested that designs be made as usual. Then the designer's hat is removed, the value engineer's hat donned and a value analysis performed. From actual experience, this technique has been found surprisingly effective.

We have examined the subject of value engineering as thoroughly as space will permit. The attitude of the architect may now be, "This is very interesting but. . . ." The author is quite aware of the obligations already shouldered by architects and engineers to provide the best, most economical design they know how. However, you will find that with the new slant given you by VE training, you will come up with savings you never thought possible. This is particularly true if you will let it make you look at your work from a different vantage point, or outside yourself as it were. After all, much of the architecture that we consider great today resulted from the architect's stepping outside himself and taking a new approach to his problem.

How will value engineering enable you to save money for your client? The easiest way is to establish a program to review designs in housing. You will find that savings will be made constantly. The only cautionary note is to make sure that the principals in your firm are behind the program all the way because it is going to threaten some of your people personally.

The second way is to put a VE incentive clause in contracts between owner and contractor. This would be similar to the clauses used by the Department of Defense wherein the contractor shares savings, developed through value engineering, with the owner, usually on a 50-50 basis. This approach is really sticking your neck out and asking to have it chopped. It means, in essence, that the contractors are always going to be sniping at your designs and second-guessing you. All you have to gain is the reputation of being able to bring a project in at less cost than anyone else.

A Simple Case Study

In order to make the VE processes, as applied to architecture, as clear as possible in a limited space, it might be well to end with a considerably simplified set of notes on the application of VE to a basic, very simple building.

To begin with, let us keep in mind our five basic questions of value engineering which should be asked regarding every component of the structure.

Suppose we start with a simple, small industrial warehouse to store bagged chemicals on pallets stacked 12 feet high. Let's say it is 50 feet wide by 100 feet long. The floor is concrete. There are doors at each end and windows at regular intervals along the side walls. To keep the problem simple, we'll further specify that climate control is not required.

Let's start with a functional analysis. (What does it do?) The basic function of the building is to enclose space. The functions of the parts are described in the chart.

Part	Basic Function	Secondary Function
Footings	Support walls	Resist thrust
Floor	Supports contents	Supports vehicles
Walls	Enclose space	Resist wind
Columns	Support roof	Support walls
Doors	Permit entrance	Provide ventilation
Windows	Provide light	Provides ventilation
Roof	Encloses space	Support snow
Lights	Provide illumination	

The first impulse might be to design the building with a column and truss skeleton, with either a pitched roof and light roofing or a flat roof with built-up roofing. Walls could then be steel sheet or

Continued on page 102

The Consultant's Role in Elevator Engineering

"What is of greater importance to the success of a tall building than its vertical and horizontal arteries"?

BY CHARLES W. LERCH

Today, the term "consultant" is a familiar one in the business world and in all branches of engineering except vertical transportation. There is, therefore, a need for explanation of the elevator consultant's value and role.

The elevator engineer, like the structural, lighting and electrical engineer, contributes in a vital way to the design and construction of multistory structures. What is of greater importance to the success of a tall building than its vertical and horizontal arteries?

The increased complexity and cost of the modern elevator plant warrant a careful examination by a skilled experienced engineer of all the factors related to planning, design, operation and maintenance. The combined skills required to make a worthwhile judgment give new and urgent emphasis to the value of a truly impartial consultant in this field.

The modern elevator plant is the result of a compound of architectural, engineering and economic judgments that vary with the type, needs and uses of a particular building. The following are but some of the factors which the architect and the elevator engineer must consider and evaluate:

- the wide range of available equipment and control systems
- location, arrangement and function
- space required
- performance and suitability
- cost of physical installation
- cost of maintenance
- overall cost of the total elevator plant related to the purposes and costs of the building.

The author: Mr. Lerch, whose entire professional career has been devoted to vertical transportation, is president of Charles W. Lerch & Associates, a firm of consulting engineers he founded in 1947. It has offices in Chicago, Denver and San Francisco.

Working closely with the architect, the impartial elevator consultant, *with no patented control system or equipment to sell,* seeks only to collaborate with the architect and to assist in arriving at recommendations based on informed and sound judgment to achieve an economical and efficient solution. In this way, the elevator consultant can assist the architect in the discharge of his professional responsibility to the client.

The architect should expect the elevator consultant to be thoroughly familiar with all available types of vertical and horizontal transportation. In addition, the architect can call on the consultant for advice on all questions affecting the elevator plant or other forms of vertical and horizontal transportation.

The consultant must determine what the elevator service needs are to satisfy the building tenants and building services and to meet present and future competitions from other buildings, both new and old. The consultant can then specify the amount and kind of equipment that will best provide the quality and quantity of service needed, no more and no less. He advises where the equipment should be located and how it should be arranged in the building to permit efficient access for its use and to provide a maximum of net rentable floor area, especially in the high-income areas of the building.

A problem of this type is illustrated on the next page. Examples show high- and low-rise division schemes for a new 24-story building and garage service. The drawings predict the number of people handled by each bank of elevators under various building population conditions.

Opposite from these, related tabular data is shown, one table for the high-rise elevator bank and the other for the low-rise bank. From the figures in the tables, the optimum elevator speed and capacity may readily be seen. Further data would show the cost of each arrangement for each elevator duty, the building floor space required and the monthly maintenance cost. From this type of data, the elevator engineer is able to make sound decisions.

The elevator consultant defines performance, specifies the standards of performance required for the particular job and provides for adequate performance guarantees. Necessarily, he must know the cost and the relative advantages of different systems and types of elevators, as well as their efficiency, in order to recommend and specify the equipment most suitable for a hotel, apartment building, multipurpose and single-purpose building are different. The elevator plant must be designed to meet these requirements satisfactorily, and to do this the consultant must understand the differences between the equipment and operational systems used by each company and the comparative effect each system has upon performance.

To determine the performance efficiency of completed installations, a variety of data is compiled; the accompanying graphs show the type of information used. Graph 1 relates the total elevator traffic to the time required to answer hall

POPULATION DATA

Below, population data based on a 50/50 mix of single-purpose and multipurpose occupancy. Dots show probable "up" peak stops. Five-minute handling capacity, the standard, is based on 12 percent of building population, figured at one person per 135 sq. ft.

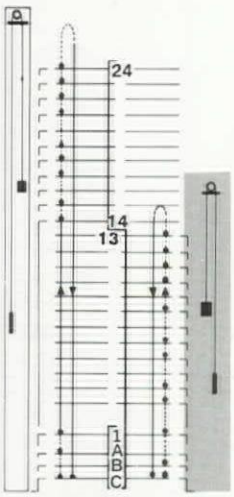
High-rise (C to 1, 14 to 24)
net area, 191,911 sq. ft.

Population based on
100 sq. ft. per person, 1,919
125 " " " " 1,534
150 " " " " 1,280
135 " " " " 1,420

Low-rise (C to 13)
net area, 205,674 sq. ft.

Population based on
100 sq. ft. per perosn, 2,057
125 " " " " 1,640
150 " " " " 1,370
135 " " " " 1,520

Five-minute handling capacity:
High-rise, 170; low-rise, 182



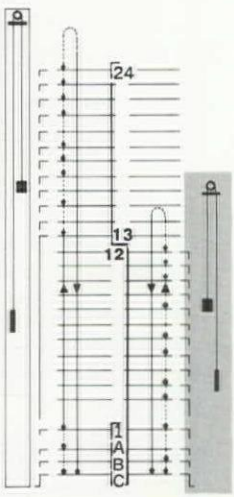
High-rise (C to 1, 13 to 24)
net area, 210,142 sq. ft.

Population based on
100 sq. ft. per person, 2,101
125 " " " " 1,680
150 " " " " 1,400
135 " " " " 1,555

Low-rise (C to 12)
net area, 187,828 sq. ft.

Population based on
100 sq. ft. per person, 1,878
125 " " " " 1,500
150 " " " " 1,252
135 " " " " 1,390

Five-minute handling capacity:
High-rise, 186; low-rise, 153



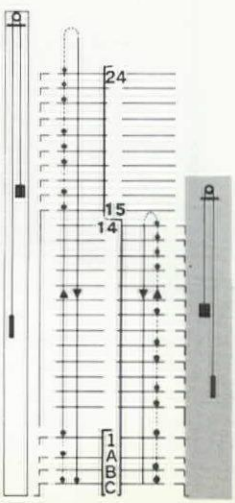
High-rise (C to 1, 15 to 24)
net area, 173,680 sq. ft.

Population based on
100 sq. ft. per person, 1,737
125 " " " " 1,388
150 " " " " 1,156
135 " " " " 1,285

Low-rise (C to 14)
net area, 223,520 sq. ft.

Population based on
100 sq. ft. per person, 2,235
125 " " " " 1,788
150 " " " " 1,490
135 " " " " 1,655

Five-minute handling capacity:
High-rise, 154; low-rise, 198



HIGH AND LOW RISE CALCULATIONS

Duty	Round Trip Time per Elevator (Seconds)	Number of Elevators	Average Interval 5 Minutes—A.M. Peak (Seconds)	Handling Capacity 5 Minutes—A.M. Peak (Persons)
3,000 lb. at 500 fpm.*	198	6	33.0	145
3,000 lb. at 600 fpm.*	188	6	31.4	153
3,000 lb. at 700 fpm.	182	5	36.4	131
		6	30.4	158
3,000 lb. at 800 fpm.	178	5	35.6	135
		6	29.7	162
3,000 lb. at 1,000 fpm.*	172	5	34.4	139
		6	28.6	167
3,500 lb. at 700 fpm.	190	5	38.0	142
		6	31.7	170
3,500 lb. at 800 fpm.	186	5	37.2	145
		6	31.0	174
4,000 lb. at 700 fpm.	204	6	34.0	194
4,000 lb. at 800 fpm.	200	5	40.0	165
		6	33.3	198
3,000 lb. at 500 fpm.	168	5	33.6	142
		6	28.0	171
3,000 lb. at 600 fpm.	166*	—	—	—
3,500 lb. at 500 fpm.	177	5	35.4	152
		6	29.5	183
4,000 lb. at 500 fpm.	192	5	38.4	172
		6	32.0	207
3,000 lb. at 700 fpm.	188	5	37.6	127
		6	31.4	153
3,000 lb. at 800 fpm.	182	5	36.4	131
		6	30.4	158
3,500 lb. at 700 fpm.	196	5	39.2	138
		6	32.7	165
3,500 lb. at 800 fpm.	191	5	38.2	141
		6	31.8	170
4,000 lb. at 700 fpm.	208	6	34.6	191
4,000 lb. at 800 fpm.	204	6	34.0	194
3,000 lb. at 500 fpm.	162	5	32.4	148
		6	27.0	178
3,500 lb. at 500 fpm.	170	5	34.0	159
		6	28.4	190
4,000 lb. at 500 fpm.	187	5	37.4	176
		6	31.2	212
3,000 lb. at 700 fpm.	176	5	35.2	136
		6	29.4	163
3,000 lb. at 800 fpm.	172	5	34.4	140
		6	28.7	167
3,500 lb. at 700 fpm.	185	5	37.0	145
		6	30.8	175
3,500 lb. at 800 fpm.	181	5	36.2	149
		6	30.2	179
4,000 lb. at 700 fpm.	199	6	33.2	199
4,000 lb. at 800 fpm.	194	6	32.4	204
3,000 lb. at 500 fpm.	174	5	34.8	138
		6	29.0	166
3,500 lb. at 500 fpm.	182	5	36.4	148
		6	31.4	172
4,000 lb. at 500 fpm.	198	5	39.6	167
		6	33.0	200

*Speed comparison shown for 3,000 lb. similar for other capacities

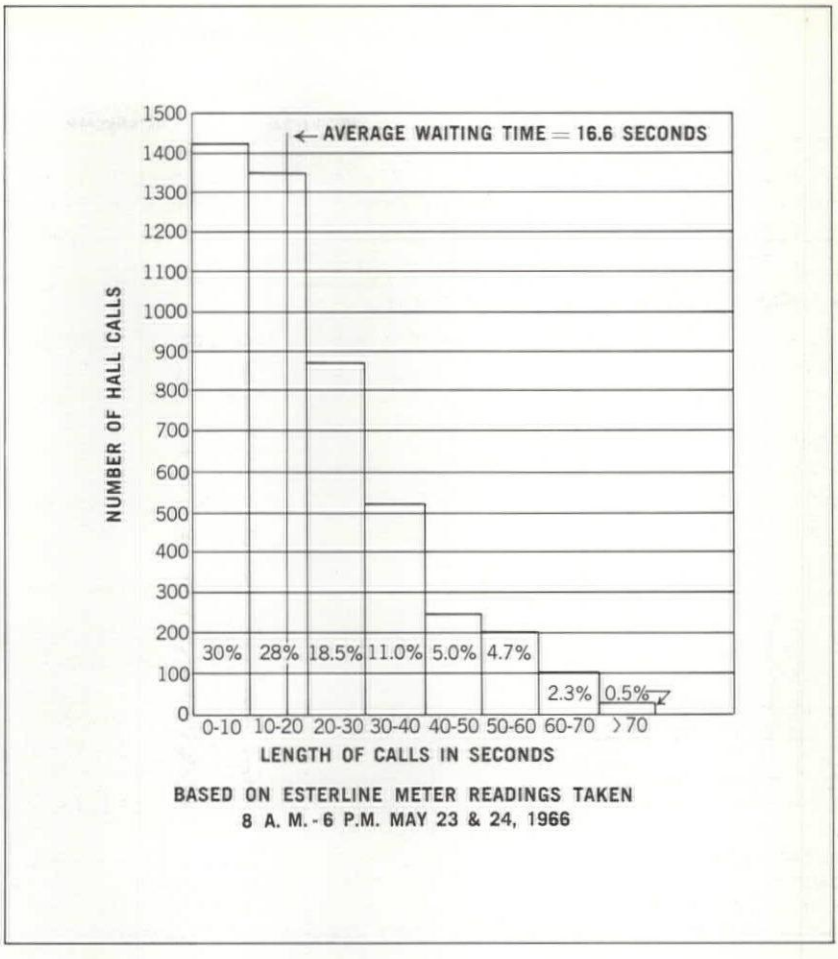
*Speeds in excess of 500 fpm. of no value in local service; average speed attained during busy periods will not exceed 500 fpm.

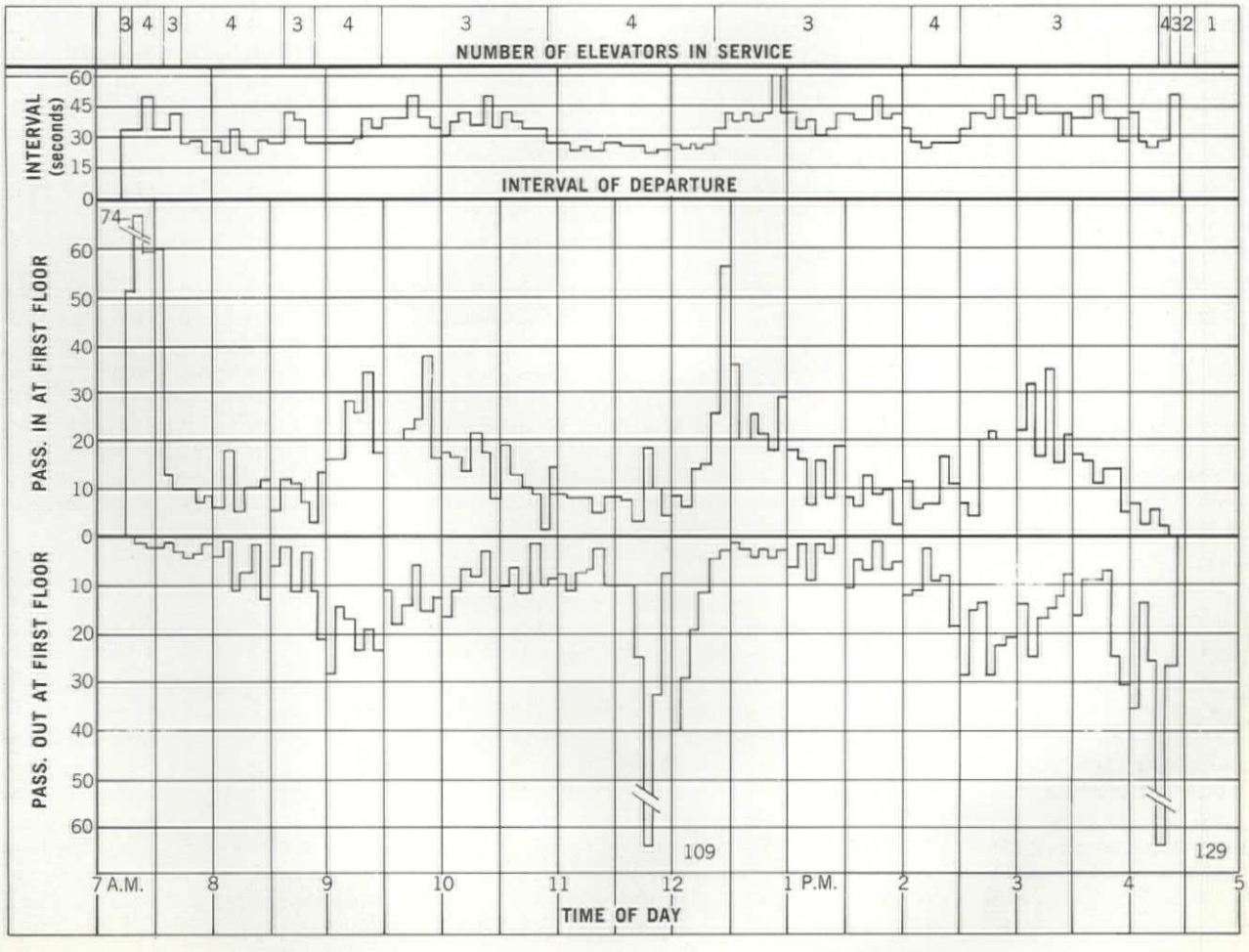
——Meets standard -----Approaches standard

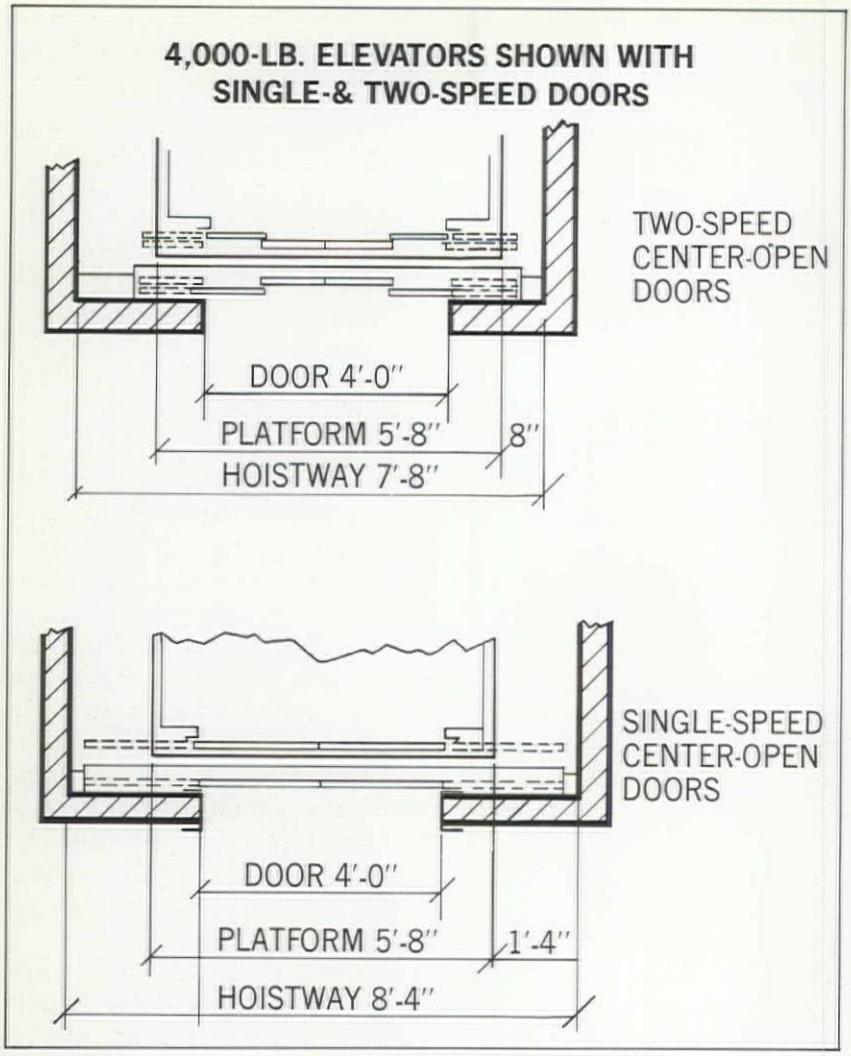
calls. Graph 2 relates the total traffic to the interval of elevator departures at the main floor.

To answer the question "What is available?" the consultant must know industry standards. He must know what equipment is available from each qualified bidder, the differences in each manufacturer's line and cost variations in these differences. The consultant must know the significant differences between and evaluate the proper use of many types of equipment such as geared and gearless elevators and their associated control systems, single and two-speed AC elevators, oil hydraulic elevators, escalators versus elevators, moving sidewalks, mechanical parking elevators, exterior power scaffolds, conveyors, pneumatic tubes and dumbwaiters. He must know these things to draw clear specifications that will make competitive bidding meaningful and possible.

An example of the effect of a simple change is seen in the drawings (next page). Two types of center-opening doors are illustrated. Note the difference in hoistway width required by the two door types even though the platform width is the same. Not long ago the narrow panels required for two-







speed center-opening doors made their use unacceptable because of inherent pendulum action. Today, new hanger design gives very satisfactory operation even with these narrow panels.

The consultant must know the cost of maintenance and how dependable, safe and trouble-free different controls and machine equipment are. In smaller cities and outlying communities, he must determine what service facilities are available and consider this factor in making his analysis and recommendations. The cost of maintenance not only affects the continuing cost of operation and the installation but the ultimate success of the building itself.

A good example of equipment selection occurred recently in a proposed small bank building. An existing bank occupied a portion of the site, and it was decided to retain and reuse the existing vault from this building in the new structure. The elevator shaft was ideally located with the rear of the shaft against the old vault. Initially the new building was to be only three levels, but structurally it was designed for several more floors to be added in the future when bank growth required the added space (estimated at about 10 years minimum).

Five different approaches, affecting the pit and overhead, structural requirements and shaft size were developed and considered with regard to construction requirements, initial and future costs for elevator equipment, costs for maintenance, operating characteristics and performance.

The final recommendation included an initial shaft for two elevators arranged structurally for eventual overhead traction machines. The initial elevator is to be one moderate speed, hydraulic elevator serving the initial three floors. At an indeterminate future date when the building is expanded to its ultimate height, two new electric traction elevators will be installed and the hydraulic unit discarded.

This unusual recommendation resulted in minimum expenditure and maintenance for elevator equipment in the initial structure which did not require special elevator service. In the future, when building efficiency will be dependent upon good elevator service, the ultimate building will be provided with the latest equipment available.

To organize the work, the consultant develops a schedule of completion. He checks the contractor's submittal (shop drawings and equipment lists) for conformance with specification requirements. These services of the consultant help to avoid construction delays and usually result in a substantial savings of building income. The checking and approval of "change orders" that arise, the question of liability, who should pay and how much, are other important aspects of the consultant's role.

All installed work is inspected by an experienced elevator engineer who is thoroughly familiar with field and construction work. Checklists are used to make certain that the job meets specifications and code requirements. Tests of performance at different loads are made to determine if the installation satisfies the guaranteed performance of the specifications. In addition, all operations including signals, noise, ventilation and alarms are separately tested and an overall operations test is made to assure that the entire elevator plant is operating correctly and efficiently.

In summary, the consulting engineer's work is generally divided into six phases:

1. Surveying and reporting the problems to determine what service is needed, what it will cost if done on two or more different ways, how long it will take and the relative benefits with his recommendations.

2. Writing specifications to provide equipment that will perform and give the service needed—and offer a sound base for meaningful competitive bidding.

3. Making bid analysis; advising in regard to purchase agreements.

4. Scheduling completion; checking shop drawings and equipment lists.

5. Inspecting and testing finished installation.

6. Approving all bills and making final acceptance of the job.

The architect and the elevator consulting engineer, working together, can better achieve the objective of their respective. professions: to serve and protect the best interest of the owner and the convenience, safety and interest of the public. □

Editor: *Donlyn Lyndon, AIA, School of Architecture and Planning, Massachusetts Institute of Technology, Cambridge.* **Contents:** *Environmental Design Umbrella by Lawrence B. Anderson; Psychology and the Architectural Student by M. L. J. Abercrombie; Man's Response to His Physical Environment (a review).*

The Environmental Design Umbrella

BY LAWRENCE B. ANDERSON, FAIA

Ever since *The Architect at Mid-Century* there has been a ferment of self-examination in the profession of architecture, as shown by the Committee on the Profession and still later by the Special Committee on Education (known also as the Three-Man Commission) whose report dated April 1963 has been the subject of continuation studies by a new Committee on Academic Training.

The general trend of thinking within these AIA groups may be summarized as follows: 1) Architecture in our time must assume leadership for the full range of activities leading to a more humane physical environment. 2) Professional education must be redesigned so that all contributors to these activities will receive a common or similar basic education setting the goals and describing the methods to be used, followed by opportunities for specialization toward the many different disciplines that contribute to environmental design. To quote from the Special Committee: "A single group of professionals must be educated and qualified to assume central responsibility for the increasing present and future needs of the expanded urban planning concept."

The author: Mr. Anderson is dean of the School of Architecture and Planning, MIT.

It will be my thesis to suggest that part 2 of this consensus is undesirable, unrealistic and unrealizable, that it is out of step with the accelerating development of professional expertise in the United States and inconsistent with the structure of organized knowledge.

That the profession itself should devote so much effort toward re-examination of its role in our culture is healthy indeed. We may well believe that this sustained concern is not entirely self-interested and that it reflects a real commitment to confront the very troublesome environmental problems which increasingly present themselves in a world of exploding population, incredible productivity, technological revolution and depletion of many of our most valued resources.

In its assessment of the challenges and its proposals of reorientation to meet them, the profession needs to study the situation not only from the perspective of its own thought patterns but also in the broader context of the total knowledge available, the organization of professional disciplines that has developed over the years, and priorities of achievement that are likely to be set by society generally and by its most responsible leadership.

Universities are good places to study these forces; they are becoming increasingly important not only as general purveyors of knowledge but as forcing-beds for the growth of new specializations and as arenas where specializations interact and form new groupings.

Let me now summarize my argument. I believe that the design of the physical environment is an interdisciplinary problem; the disciplines required are too diverse to emerge from a common basic professional or preprofessional education. What is needed is exactly the reverse—each expert is first formed in his own discipline and afterward orients this discipline toward the task.

Let us distinguish between the terms *discipline* and *task*. A man who wishes to exploit knowledge (i.e., to apply it rather than discover it) first needs a discipline, a body of knowledge so organized that it can be applied. Examples: statistics, biochemistry, acoustics, structures. Second, he selects a task (or several tasks) where he can make the application of his discipline yield valuable results, say, in diplomacy, medicine, industrial development or environmental design.

To acquire the discipline he must invest several years of hard work, during which time most of his studies are slanted toward mastery of the knowledge within his chosen field. For example, the modern engineer must seriously study physics and mathematics, then proceed to basic

engineering sciences such as solid and particulate mechanics, fluid dynamics, materials, thermodynamics, geophysics, circuit theory and heat transfer before he really begins to specialize.

Similarily, the modern doctor of medicine has to study the basic sciences applicable to curing the sick: anatomy, bacteriology, biochemistry, histology, physiology, pathology, immunology and pharmacology. Until he has been oriented in these fields, he is not in a position to begin clinical activity.

And so it is in all the professions, especially those most influenced by the growth of scientific knowledge. Unfortunately, the human cortex is limited in extent, and once its patterns have been preempted by one system of knowledge, empty paths are no longer available for new systems ad infinitum. To put it colloquially, you can't teach an old dog new tricks.

One may also note that under present conditions the major professions each require three or four years of special-track academic programs plus internship or job training before licensure, and this is in addition to any general education the candidate may indulge in at the college level to make himself a better citizen of the culture in which he finds himself.

It is true that in spite of the great diversification of specialized professions, by and large the great traditional areas—law, medicine, engineering—have held together; especially the latter two are now great clusters of specialties with a shared common base of scientific discipline and much interchange and transfer among the subfields.

Why then should not environmental design broaden its scope while still remaining under a single educational umbrella, its handle firmly in the grip of architecture?

To a certain extent it can, but only to a certain extent. The design professions, as we ought to understand the term, are those whose three-four year discipline revolves around the design studio. Here the mind of the designer is formed by a planned sequence of experiences that enable him to develop a synthesizing approach to the solution of complex problems, wherein the design which results must withstand scrutiny at many levels, not least that of being visually coherent.

This educational formation is unique; it confers insights and powers for dealing with the environment that are not shared by other professions or groups of professions. So long as we are talking about architects, urban designers, landscape architects or even industrial designers and graphic artists, we can see how these somewhat different tasks would be amendable to the same disciplines (allowing for some differences in tools and materials). They could all depart from the same basic preparation. Indeed, schools like the Graduate School of Design at Harvard show the value of a common basis for architecture, landscape and urban design.

However, you will not produce a social scientist by this curriculum, and you cannot exclude social science from city planning. Neither will you produce an engineer, yet engineering is a necessary part of building.

These distinctions are what the Special Committee considers to be "attitudes" that must be transformed to fit a new concept. On the contrary, they are facts of life with which any proposed policies must reckon.

The fact is that making a suitable physical environment is interdisciplinary in a far broader way than either medicine or engineering.

Medicine is, after all, straight applied science. It is humane, it is noble, it calls forth the highest qualities of intellect and character, yet its goal is rather easily defined: to promote health. This clarity of objective makes it possible to mobilize disparate elements and hold them in a common academic and professional discipline. (Only the problems of mental health, not so readily subject to scientific diagnosis and treatment, now threaten the unity of the medical grouping.)

Engineering is applied science par excellence. Its goals are more diffuse, but they center on the benefits that can accrue from increasing control over energy and materials. Its products are meant to do their job efficiently and to be sociologically acceptable. At their best they open great new vistas of experience.

The realm of design introduces another dimension. Besides being convenient, efficient, economical, salubrious, socially suitable and extensive of man's power and control, we are asked to speak to his mind through his vision, appealing to his sense of order and conveying emotionally charged messages comparable to those we expect to find in the best books, music and painting. The man-made environment, besides, is more than a symbolic communication: It is reality itself and impinges on everyone. It is to emphasize this dimension that we have design education.

Social science and engineering, each a broad area in itself, are the two principal disciplines that must be joined to the design team in order to man the task of making the urban environment. It is my belief that we need true and good social scientists and engineers for this task and that we can produce only inferior ones through a design education.

The real problem, then, is not to educate them in their own discipline but to recruit them, to make them feel the same dedication to the task that we do.

Whether this is possible depends on the priori-

ties society sets for itself. It has been objected that "the trend of the engineering profession's attitudes, interests and education is being influenced more by the challenge of technology than the needs of the building field." But the building field is a challenge of technology; it has never ceased to be, though many other tasks have been added. The head of the department of mechanical engineering of the Technical University of Berlin designed the airconditioning system of the new Opera House. We may look forward to a time when similar events will occur in the US. In any case, we should spend our efforts attracting gifted engineers in preference to producing inferior captive technicians and labeling them engineers. □

Psychology and the Student

BY M. L. J. ABERCROMBIE

The need for architects to have some understanding of human behavior is now well recognized. Psychology is as prolific as any subject that has contributed to the information explosion. The problem is one of selection: Of all the great range of information in psychology that is available, what are the essentials that an architectural student should get a hold of, keeping in mind that he also has to learn about the more technical aspects of designing the built environment and that these have not been any more clever at practicing birth control than psychology has?

The author: Mrs. Abercrombie is a member of the faculty of the Bartlett School of Architecture, University College, London.

At the Bartlett School of Architecture, we made three decisions about the teaching of psychology. First, we decided to focus on two main areas of behavior: space perception and small group behavior. I hardly need to spell out the importance of both of these for architects, but I do sometimes feel uneasy about our choice, because these two areas happen to be those I was most interested in before I came into architectural education. There may be others just as crucially important to architects.

The second decision was that we should not treat these subjects in the accepted academic way, as though for psychology students, but should integrate them thoroughly with the main job of learning to design, hoping to avoid the well-known difficulties of the transfer of training.

Third, we decided to treat the subjects in a personal way, making deliberate attempts to help the student to become aware of how his habits of thinking and doing, his unconscious attitudes and assumptions, affect his behavior in matters relating to architecture and in learning to become an architect. The hope is that this insight into the factors that affect his own behavior will help him to work more effectively because alternative modes of reacting become available that otherwise are denied to him.

This is an ambitious program and it will take a long time to grow. As yet we have nothing concrete to report in the way of clearly defined and well-established research findings, but I will attempt to give an idea of the way we are working.

Space Perception. As to the substance of what we expect students to learn about space perception, we rely heavily on American work, especially that of the Ames School (Ittelson, 1952), the Gibsons (1950, 1960) and Sommer (1959). We emphasize the importance of bodily movement for the perception of architectural space, which tends to get neglected if teaching is based on what is so important for painters—the veridical representation of three-dimensional space in two dimensions, as seen from a fixed viewpoint. We emphasize the importance of social space, of the perception of personal proximity and distance. We emphasize the symbolic significance of spatial relationships. I was delighted to hear about Hermann Field's notion of spanning part of his hospital across a main highway in Boston, thus symbolizing a safer relationship of medicine with the arteries of an urban organism, of the sick with the community, than when they are separated by space or high walls.

As to the integration with studio work of this knowledge of the way people behave in their perceptions of space, the sort of thing we try to do is to remind students of it whenever their design would improve if they took note of it. Thus, when designing a school for young children, the students will consider questions of siting, distance from home and the placing of cloakrooms and restrooms, with reference to the infant's need for

perception of proximity to its mother—which they will have understood from Harlow's (1959) experiments on the reactions of baby monkeys to wire or terry-cloth mother-surrogates, and from Lee's (1957) observations on children's behavior in relation to the journey to school. In designing the classrooms, they will recall what they have learned about the symbolic meaning of a teacher's mobility in the classroom, contrasting this with the symbolic meaning of the rigid layout and fixed furniture arrangements of courts of justice (Hazard, 1962).

This kind of information will be recalled again when the student is designing an outpatients' department of a hospital, when he must consider how to relate the waiting rooms to the clinical rooms. In moving from one to the other, the patient may have to leave the friend or relative who has accompanied him and face the mysteries and fears of the clinical rooms alone. Again, when designing a residential center for management studies in the country, he will recognize how the users' perceptions of the relations between town and country, home and away from home, will form the background to their studies, profoundly affecting how and what they learn about the management of men.

And as to the personal message of all this to the student—how it will alert him to his own space perceptions, helping him to use and enlarge upon his own spatial experience—this we hope to facilitate by our choice of the time at which he will receive this information about space perception; it occurs during his first term, and is recalled repeatedly at relevant points. Ames' transactional view of one's relation to and perception of the environment, Harlow's emphasis on the importance of cutaneous contact (the ultimate in proximity), Sommer's spelling out of unconscious reactions to personal spatial relationships—all this hits the student when he has just come up to the university. Often it is his first experience of being separated from his family for any length of time by physical distance. Almost invariably, even if he continues to live at home, he becomes separated from it by experiential distance; indeed, the very thing he came to the university to do will not be done if this is not so.

In order to help the student to come to terms with this experience and to relate it to the job of being an architect, the first project he does is called "Living in London." In recording his experiences with sketches or photographs, he will be applying what he has learned about the representation of three dimensions in two dimensions —of overlap, linear, textural and aerial perspective, etc. He is also encouraged, by discussion and reporting, to become more conscious of his own reactions to the spaces of his bedsitter and studio, of streets, squares, tunnels and towers in a way which will help him to understand how the behavior of people in their millions is influenced by the subtle and complex impact of the man-made environment.

We encourage the development of sensitivity to comings and goings, entrances and exits. In their second term, the first-year students are asked to help with our selection procedure by looking after the candidates who come up for interviews. They meet them first thing in the morning on arrival, have coffee, lunch and tea with them and show them round the school. They are asked to remember their own reactions when they had gone through the ordeal a year ago.

In the second year, a project on a health center brought up again the question of entrances: Should there be a separate door for patients and staff? Around this problem, feelings about status and role differences, the wish for, or avoidance of, familiarity between authority figures and dependents came up. The efficacy of a doctor (and of a teacher) who dispenses with the institutionalized symbols of a role was debated. We were soon discussing new orientations in medical care and education, away from the notion that medicine in a bottle is all a patient needs to cure his ills, or information in a textbook all a student needs to cure his ignorance.

In the fourth year, exits and entrances came up in relation to the students' reactions to pain, disease, chronic sickness or accident. They were designing an outpatient clinic, and the specific question raised was: Should there be a single large waiting room for patients and their friends, from which the patients alone would be filtered off to the various specialty clinics, or should there be provision for the patient's friends to accompany him to the specialty clinic, each of which would have a small waiting room for this purpose? One student scoffed at the notion that people might be frightened of going to a hospital. He agreed that a child might, but not an adult; he wouldn't, of course, be frightened himself. But he could see the point when another student said that he had not been able to remember what the doctor had said to him, and others recalled having been confused at an interview and unable even to listen to what was said. It was agreed that whether a patient needed emotional support, it might be better for a friend to remain with him for as long as possible, simply in order to facilitate communication. The doctor might find it a help, too, to have quick and easy access to a less confused source of information than the patient himself.

This sporadic recalling of relevant psychological principles is facilitated by my being around in the studio at key times, as when the studio teachers are introducing a program, or at a jury. I want to emphasize that this sort of learning is

economical of students' time. It is not a matter of grinding away at a textbook of psychology but part of taking action in the studio. Time and place are important for the making of associations; children tend to classify objects by spatial and temporal contiguity before they can handle concepts and generalizations. As adults, we all have hangovers of such primitive ways of behaving, and we might as well get them to work in our favor rather than against us.

Along with this teaching, we are exploring the relation of spatial abilities, as measured in psychological tests, to the design process. As part of our research program, students take several tests of spatial ability. These are discussed with them afterwards so that they can learn how psychologists are analyzing these aspects of mental functioning. Recently, increased interest has been shown in the importance of spatial abilities for scientists, technologists and technicians. Attention has been drawn to the possible disadvantageous effects of school examinations, which are of a verbal-intelligence nature, on the recruitment of students to these specialties (Macfarlane Smith, 1964). There is a little evidence that architectural students who do badly on certain space tests tend to do badly in studio work (Harding, 1943).

I would not suggest using space tests to help to eliminate students but rather to help those we already have. It may be possible to improve studio training by introducing specific exercises based on some of the kinds of behavior tapped by such tests. This suggestion is supported by the work of Blade and Watson (1955), who found that engineering students improved in scores on a test of spatial visualization during their freshman year, and that post-freshman scores had greater predictive value than pre-freshman scores for success in graduation. This suggests that at the freshman stage, students have not fully developed their powers of spatial visualization due to lack of experience. We hope to help quicken this learning by designing exercises for this purpose and by making students aware of the intellectual processes involved.

Group Behavior. As with space perception, the substance of the study of group behavior which our students get is quite slight. (An indication of the area covered is given in Abercrombie, 1960, 1965.) Actually, the study of the two areas is very closely linked; indeed, as I have already indicated, Harlow's or Sommer's work is an introduction to both. Integration with studio work, since spaces are designed for various groupings of people, is fairly straightforward.

It is in the field of personal development that knowledge about group behavior, and experience of it, is most intensively used. Teamwork is becoming increasingly important in architectural practice because of the increasing scale and complexity of design requirements, but the "image" of the architect with which the student enters school is still very much that of the "prima donna," and this needs to be modified. We are introducing various kinds of group work into the course which will act as models of the kinds of work situations the young architect will meet. They also help him to develop a more general self-awareness and skill in dealing with human relationships.

The film "Twelve Angry Men," about a jury discussing a murder, is used as an introduction to group behavior. It is shown to the whole school and discussed in "vertical" groups, i.e., groups containing students from each year. This is a useful occasion for the different ages to mix on an equal footing in relation to the topic of discussion. The film clearly brings out how each individual interprets evidence differently according to his basic assumptions about human nature. It raises problems of leadership, and how the role of the leader (if there is one) and of the participants can be varied effectively to meet the aims of a group.

We are experimenting with different kinds of groups—different sizes, some self-selected, some staff-selected, some for information-seeking, some for designing. We have tried to tackle the problem of criticizing and assessing studio work by organizing "self-critting" groups. In these, the class is divided into groups; in each group the students examine each other's designs and present a report on them to a plenary session. They are encouraged to try to understand rather than to criticize in the adverse sense. This stimulates students to be analytically interested in other solutions than their own, gives them practice in sorting out main principles and reporting on them, and puts them in a more mature relationship to work than when they are themselves criticized by a teacher. Because the students have already worked at understanding the designs, they can much better understand the teachers' comments. The teachers do not need to deal with details but can restrict their remarks to generalizations.

The most ambitious piece of group teaching that we have undertaken so far was with a fifth-year class of 13 students, half of whom had been in the school for four years. The others had joined us a year before, having taken their first degree at another school, which has a differently oriented course. It had been decided that in the final year the class should be given experience of tackling a planning problem that was of such a size and complexity that an individual approach would be inadequate—a team was necessary. This work was to take place in the spring and summer terms. Two kinds of work-

ing experience with other people were planned in preparation for this teamwork.

During the autumn term, the students worked individually, designing a school which was to be built with an industrialized system, and for this they made use of experts, as they would need to do in practice. On Monday afternoons the class met with three experts (a quantity surveyor, a structural engineer and a services engineer) who ordinarily function as members of a design team. The class met beforehand to discuss the questions which they would put to the experts. The emphasis was on information-seeking; although difficulties of interpersonal relations would undoubtedly impede the communication process, just as in real life, they were not discussed at these meetings any more than they would be in real life. On Thursday afternoons, meetings of quite a different kind took place. The class met with me and one or two tutors for informal discussion to explore the design process and the difficulties which interpersonal reactions might put in the way—both of each individual working individually and of a group attempting to work together. This series of meetings was introduced with some general principles of group behavior, i.e., the supportive nature of groups based on early mother-child and family relationships, the tendency for supportive groups to become exclusive (this had special relevance to the dual origin of this group); conformity in groups, noncomformity as in synectic-type groups; undifferentiated groups; differentiated groups or true teams; group experience for encouraging a flexible attitude. The class saw and discussed "Twelve Angry Men." We discussed also a group project that the class had engaged in during the previous year (designing an exhibition) which had failed because of interpersonal differences, and we examined the reasons for this.

The project for the spring and summer terms was the design of a new town. The students were divided into four groups, and we took some trouble to make each group as balanced as possible, taking into account the strengths and weaknesses of the students in analysis and design, their backgrounds, personalities and attitudes. The groups as we constituted them would not have been self-selected, as student groups often are but professional groups often are not. It was made clear to the students that the aim of this experience was to teach them to design for team working. It was not expected that the resulting designs of the town would be as good as might have been achieved if the students had worked in self-selected groups (although as it turned out, the designs were, in fact, very good).

The idea was to use the design project as a vehicle for learning to work in teams. Some of the stumbling blocks to this which had to be overcome were very common habits such as unpunctuality. One team broke down because half of it preferred working in the early part of the day, and the other half in the later part. The students' reactions to this group work were, as one might expect, various and variable. Although some were puzzled and frustrated by the unconventional and self-conscious setup, several of them have since said that they learned a great deal about group work. One student, toward the end of the period, said that for the first time in his life he had not felt possessive about an idea. Another said he had learned to listen, and another realized that other people can have very good ideas—if one can learn to understand them.

The students whose education we are planning now will not even begin to practice until five years have passed; they can expect to be still at work in 40 years' time. As to the kinds of work they will be doing, their aspirations, their techniques, the environment that will affect them and that they will influence, the only thing that we can say about these is that they will be different from ours. We are therefore trying to educate for change, to help our students to learn how to learn. We believe that this can be done by the application of psychology to their education in such a way that each can learn not only about how other people behave, but about the factors that affect his own individual behavior, so that he can get better control over those factors and thus do more effectively what he chooses to do. □

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Man's Response to the Physical Environment

A reading of the articles in the October 1966 *Journal of Social Issues*[1] will quickly indicate that architecture represents only one of the disciplines making a contribution to the formulation of a theory of man's response to the physical environment. The collaboration of architects, geographers, psychologists and sociologists is essential for the development of a comprehensive theoretical position—the presumed purpose of this issue of the *Journal*. Comment on the success of this collaborative venture will be reserved until later in this review.

The articles can be classified into three categories: 1) those concerned with the extent to which the physical environment contributes to the human being's presumed need for complexity, novelty and variety; 2) those questioning the role of adaptation and adjustment in man's response to the inevitable dislocations and discontinuities encountered in the physical environment (whether they be the stresses encountered in freeway driving or in living in the Arctic wilderness); 3) those dealing with man's utilization and conceptualization of space.

In "The Physical Environment: A Problem for a Psychology of Stimulation," Wohlwill considers the problem of the physical environment as a source of stimulation. As a psychologist he chastises his colleagues for their lack of understanding of the role which the physical environment can play in influencing behavior. Quite appropriately, he inquires about the apparent reluctance of psychologists to be concerned with the characteristics of the natural and man-made environment. Such criticism is particularly apt given the repeated assertions in psychology texts that stimulus factors are the major determinants of behavior. Are the only important "stimuli" influencing human behavior those which the psychologist is able to capture in the admittedly artificial confines of the laboratory?

On the contrary, work done by Donald Hebb[2] and others points to the apparently critical role which sensory stimulation plays in the normal development of man's perceptual and cognitive functions. These studies also suggest that sensory stimulation (often of a pedestrian variety) can activate or energize behavior. Deprived of such stimulation the human being shows marked decrements in intellectual and perceptual performance.[3] The "cultural enrichment" programs of the War on Poverty are designed in part to overcome the early sensory deprivations experienced by slum children. Wohlwill, however, questions whether it is wise to generalize laboratory findings too far. He suggests instead several questions that psychologists should investigate: those levels of stimulation from the physical environment which are conducive to optimal development in the child; the role which "patterned" stimulation plays compared to "unpatterned" stimulation (the old question of "order" and "chaos" in the designed environment); the role of meaning in modulating the effects of stimulation (the problem of symbolism in design); those conditions which promote the sifting out of meaningful from meaningless stimuli by the child. How much attention has been given by the architectural profession to precisely the same questions?

Wohlwill contends that such research should proceed in real-life settings. He admits that nonlaboratory research presents some unique problems but does not feel that these are insuperable. Rather they call for the development of techniques which can be used in the field. Until laboratory hypotheses have been field tested, Wohlwill cautions against premature generalization.

In "Psychological Aspects of Urbanology," Albert Parr makes the leap out of the laboratory conceptually and argues that one of the major tasks of the urban designer is to provide stimulating and complex environments containing a variety of opportunities for city dwellers. Along with Wohlwill, Parr argues that the maintenance of man's psychological well-being is importantly linked to the stimulus properties of his environment. Interestingly, Parr suggests that the city is now characterized by a depressing *lack* of stimulation. In expressing this opinion, he runs against a considerable body of belief which indicates that the city is a place of stress resulting from *over*stimulation. For example, Julian Wolpert's article, "Migration as an Adjustment to Environmental Stress," develops the theme that the environment in general and the city in particular is a source of stress which is related to migatory behavior designed to counteract the stress.

Parr is much less cautious than Wohlwill when he suggests that socially deviant behaviors (i.e., juvenile delinquency) may be the "product of adventurous spirits placed in unadventurous surroundings." Needless to say, such environmental determinism must be tempered by the

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1 Entitled *Man's Response to the Physical Environment*, Ralph W. Kates and Joachim Wohlwill, eds., XXII, No. 4, 140 pp.

2 *The Organization of Behavior* (New York: John Wiley, 1949).

3 Phillip Solomon *et al.*, eds., *Sensory Deprivation* (Cambridge: Harvard University Press, 1961).

obvious social learning factors which are also components of socially deviant responses.

Given the concentration on the stimulus properties of the physical environment, both papers are singularly unsuccessful in being able to suggest how the stimuli in the environment might be arranged to bring about the desirable results of "complexity" and "variety." Even more difficult is the problem of determining the kinds of human behavior to which the physical environment is or can be linked.

The paper by Robert Gutman, "Site Planning and Social Behavior," deals with the range of behaviors which might be linked to the physical environment. In particular, he considers the possible effects which differing spatial arrangements of living units have upon patterns of socialization and "neighboring."

In reviewing the evidence, Gutman concludes that site plans do have relevance for human behavior. Unfortunately, however, human behavior often does not match that which is called for in the site plan. Gutman argues that the use of labels to describe the physical components of the plan is often premature (i.e., a "park," a "play area" or a "sidewalk"). As a remedy he suggests that areas in the site plan should be defined according to their physical or spatial properties alone. These properties can be associated with behavioral characteristics later.

Turning to the types of behavior which might be affected by the site plan, Gutman points out that we have progressed beyond a concern for provision of adequate amenities such as fresh air, heat, illumination and sanitation. We are now concerned with the effects of the site plan upon social communication among the residents of an area, the symbolic associations with which certain physical features are invested and man's ability to be able to organize perceptually the physical forms which define a particular area. Unfortunately, one still finds a concern for the effects of the site plan upon family structure and mental health. What data exists in these latter two areas would indicate that nonphysical factors are more important than physical factors. Gutman suggests that inadequate attention has been given to the impact of the site plan upon land availability, circulation problems, the adoption of urban technologies and, finally, the overall integration of regional social systems. It is in these areas that more fruitful research on site plans will occur.

Provision of an adequate description of a site plan, however, is a special case of a more general problem—architectural programming. In their article on "Architectural Programming and Human Behavior," Raymond Studer and David Stea investigate the role of man as he designs the physical environment. In this area, man, not the environment, is the "stimulus" which brings about change. They argue that environmental design is concerned with problem formulation as well as problem solution. Unfortunately, too little time has been spent on the former. As Gutman suggested, problem clarification will not be achieved by simple rearrangements of words. Studer and Stea re-emphasize the point and argue that what is needed is an entirely new taxonomy of problem formulation.

Turning to the problem of design synthesis, Studer and Stea pose some deceptively simple questions concerning the function of various design elements. At first glance a question like "Why is a wall?" seems ridiculously simple minded. Yet it is far from being so. Answers to such a question have many far-reaching implications for design *and* social theory. For example, to say that a wall allows for privacy is not an explanation or answer to the question. Such a statement merely describes the effects resulting from the existence of the wall. The explanation of the wall's existence must be sought in those conditions which make privacy something which is desired by human beings. The conditions themselves may be social in nature and hence may be better considered at the level of social theory rather than at the level of form manipulation. A realization of this possibility on the designer's part can obviate many difficulties and frustrations when the time comes to assess the effects of the designed environment on human behavior.

This warning by Studer and Stea points to one of the major weaknesses in the various papers. There has been an inadequate consideration of the problem of developing a truly interdisciplinary design vocabulary. Comment has already been made on the difficulty of environmental generalization based on purely psychological theories elaborated in laboratory settings. Neither Wohlwill nor Parr was able to show how complexity and variety can be programmed into the physical environment. Even if we were able to achieve such a translation, we would still have to develop technologies for real-world experimentation which would be equivalent to those used in the laboratory. Fortunately this work is now progressing to the point where decisions can be made concerning some kinds of design problems but a great deal of work remains to be done. The contributors to the October issue of the *Journal of Social Issues* have made important strides in that they have not only considered theoretical problems but have suggested many hypotheses for further research. It is in this latter area, I believe, that the real worth of their contribution will make itself felt.

GARY H. WINKEL
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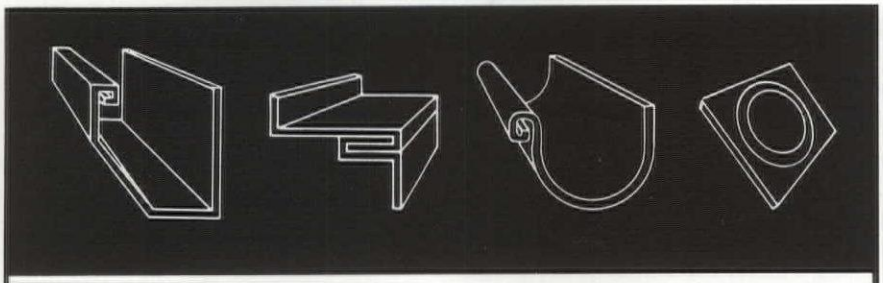

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Mega Macro Matrices

Some suggest the petrified viscera of King Kong. Others are boney, big boney. They are all challengingly big by prefixial fiat: They are megastructures, macrostructures.

The ideas that motivate the conceptualizing and designing of these structures differ, however. Stanley Tigerman, AIA, wants to give outward-spreading cities an inward (or upward) direction in which to grow.

The ubiquitous bays, rivers, etc., found in the urban context have forced cities to grow away from the central core, he says. He would reverse this by building a huge aluminum mother structure on pontoons over the water near the core.

His City Shape/21—which he calls an urban matrix—provides more space, by some 21 million square feet, than a conventional city core, such as the greater Chicago Loop, and the Chicago architect says his matrix would occupy a Loop-sized area of 1½ square miles.

"There is 7.6 million square feet more open land than the Loop," he adds, "but unlike Chicago, none of the land is reserved for vehicular movement. More than 21 million square feet of open water is preserved. The maximum line-of-sight distance between facing buildings in the matrix is about 1,000 feet, or 10 times the maximum distance found in conventional cores."

The matrix's basic unit, shaped like a truncated tetrahedral pyramid, or pentahedron, is repeated 326 times in a pinwheel arrangement. Each unit is connected by a system of hollow trusses which serve as an integral transportation system and distribution network for utilities.

Each unit is 600 feet on a side and 100 feet thick. Divided into 46 floors of varying height, the units are segmented into residential, commercial and communal uses.

The pontoons, some of them up to 17.6 million square feet, are cable-stabilized and could accommodate plazas, recreation areas, light industry, etc. They and the matrix they hold would be located a sufficient distance from the shore to preserve esthetic and recreational values along the water's edge, Tigerman points out.

"The basic pentahedral unit serves as a zoning envelope which can be modified by the individual architect," Tigerman says. "For example, a combination of the three functions of residential, commercial and communal activities in a single envelope insures a 24-hour use cycle for each basic unit, resulting in near optimum land-use efficiency.

"The basic shape also insures access to sunlight and open air for each unit, high-density utilization of land space with a high ratio of open space to enclosed space and a functional structure responsive to human requirements."

Aimed squarely at the satisfaction of human requirements is an interdisciplinary research project led by Leonardo Ricci of the University of Florence.

The project seeks a methodology, a concept of town planning that would, in the words of a Ricci associate, Maria Grazia Dallerba, "accept, rather than ignore, the totality and continuity of human existence."

"At the basis of our obsolete concepts of environmental planning, according to Ricci, is a deeply fragmented territorial configuration," Miss Dallerba writes. Ricci speaks of "disintegrative approaches in space and time, disintegration of human activities" and laments "an urban planning at once alienated and alienating," she says.

Miss Dallerba declares that "instead of utilizing the enormous potential of our scientific culture to unify environmental experience, we have become compartmentalized, immobilized by these alienating approaches.

"Man, user of the land, inhabitant of the city, is no more than a consumer of facilities. He reflects more an external net of traditions than the reality of his internal thoughts and feelings. Artificial values, springing from socio-economic pressures, actually distort the needs of man. This is a universal phenomenon.

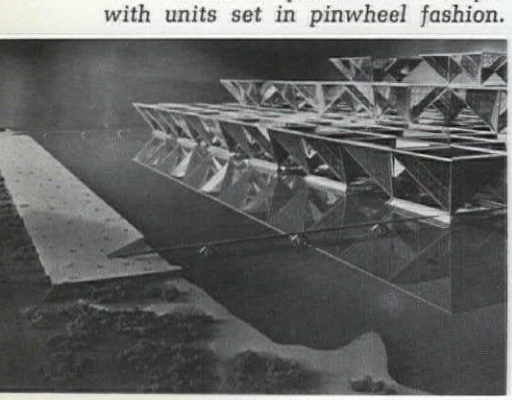
"Man's environment is organized as an aggregate of specialized solutions . . . (and) he is alienated by a process of environmental change in which he himself cannot participate. If we accept the idea that our society is fragmented, that our urban structures both reflect and reinforce this fragmentation, that our environment is now shaped strictly according to economic criteria, then the possibility of a new method of environmental planning must imply the formulation of a 'research model' which is the result of analysis of interactions within the society, interactions between the society and its territory, and the reality of the territory itself."

What is perhaps Ricci's most important idea, Miss Dallerba says, is his concept of a macrostructure as a "total permanent transformation of the human environment in a natural, continuous pattern of growth."

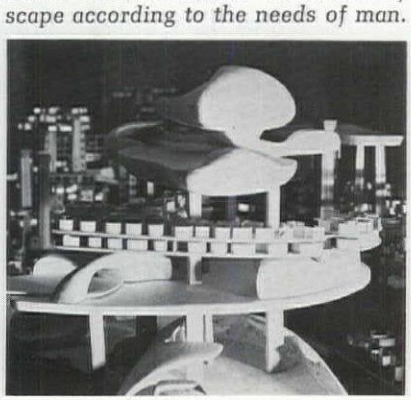
It is not to be regarded as a formal rationalization of the territory, a continuous physical "cage" for future urban growths. This, Miss Dallerba says, "would constitute representation of scape instead of creation of scape."

Ricci along with fifth-year students at the Pennsylvania State University, where he was a visiting professor, developed an "integral city" model. The concrete configuration that begins with modeling of the land would house 20,000 people and include all services and facilities. □

The matrix in pentahedron shape, with units set in pinwheel fashion.



The Penn State model—a creation of scape according to the needs of man.



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Gleanings From Aspen

A paradox is inherent in a planned conference—which by definition implies a sense of order—on the concepts of order and disorder.

Disorder necessarily arises because, for one thing, the participants' connotations of order are destined to be unique, not universally held. The discussions, therefore, cannot be launched from even ground. Such was a discovery at the 17th International Design Conference in Aspen.

To some, order is desirable. It is a meaningful framework for the chaos and confusion which inhibit progress. It may be a traditional order, a foundation, the departure from which is a progression toward chaos.

Or, the order, as an element of nature, may itself evolve in concurrence with progress, as Dr. Jacob Bronowski of the Salk Institute of Biological Studies believes:

"Nature works by a series of hierarchies; every step of evolution rests on some previous level. Integrate innovation into something that seems like order and it raises it to the next level."

Order can be based, too, on the premise that the only certainty is change itself. In this case, order of another nature would exist. The physicist W.H. Thomas stated:

"We as Americans have another heritage (besides the enduring edifice). It is a new order born out of the land and the people. It is a direction that promises to lead mankind away from his further indulgence in chaos and war. This is the order of the impermanent. It is . . . the positive creation of things so beautiful, so functional, so well-conceived that the user finds that he must acquire it—and that it is convenient and enjoyable to soon replace it."

The opinion was also ventured that order cannot exist at all except in direct relativity to disorder. The concept was defined by Max Bill, professor at Hamburg's Hochschule für Bildene Künste, as "a barrier against the physical world of disorder. The disorder of the physical world is brought about by the constant fight going on between different closed systems, each presenting a limited natural order."

Moreover, said Dr. Paul A. Weiss, a biological scientist, "It is not a question of order vs. disorder, but of how much of each will save us."

In support of Weiss' statement was the observation by Alfred Caldwell, professor of architecture, University of Southern California, that to some individuals "order is an ingredient, as in a concoction, and it is possible to have too much or not enough order."

In an equally intense controversy was the concept of disorder. Those in praise of order thought of disorder as undesirable, the essence of destruction, a regression to evolution. But others equated disorder with freedom.

Among them was building designer Craig Ellwood, who feels that societies have forever tried to reconcile the polarities of order and freedom.

"The test is incessant," he said, "between the rights of the individual and the demands of the organized community, the needs of minorities and the powers of the majorities, the values of dissent and the dictates of authority."

If freedom is the element believed to perpetuate progress, order then becomes the inhibitor, the gestapo that suppresses uprisings of the imaginative spirit.

Art Seidenbaum, columnist for the *Los Angeles Times*, spoke in defiance of order and emphasized the cultural need to be sustained on its own strength.

"The need for anti-order is intense and it is being increased by technology and standardization," said Seidenbaum. He concluded:

"For every established aboveground echo of the cultural explosion, there is an underground counter-force ready to show the power structure how timid and stultified—and orderly—it is."

One of the reasons given as to why the discussion concerned itself with polarities of order/disorder and their effects on that basis was noted by Ellwood. "Order and disorder are the forces that shape societies," he stated.

He explained further that because today's civilization is so complex, the natural tendency to simplify drives men to consider only opposites instead of the more difficult consideration of opposites as well as the intermediate gamut of implications. In his words, this need to simplify tends to "influence false 'either-or' choices between opposites." Thus the roles of order and disorder are often oversimplified, and the truth gleaned is only from the top of the head.

Given the dissentions, with the resignation to semantic and experiential differences, the participants' attention at the conference was turned to the problem of design.

Not surprisingly, most of the discussion centered around urban design and the order and disorder of cities. In this respect an interesting point was made by Indian architect Charles Correa who spoke of the designer's reticence to utilize chaos to his advantage.

Impressive advances could be made, he upheld, if the designer would recognize that the path of chaos is "a difficult and far path that can only be navigated, or even perceived, with a great heightening of our senses, of our perceptions, of our faculties. The frontiers of design advance slowly because the designer seldom makes this effort, this effort far over and above the call of duty."

In explaining why cities are unsavory, Alfred Caldwell defined them as "places where the population is exploited through land speculation expressed in rent. The city as a wholesome environment for living was never the question. That is why the cities are so ugly. The notion of the city beautiful, that incredible platitude, comes to little more than a beauty parlor mask for plunder."

He concluded with the following incisive statement—a stark conclusion concerning the present state of architecture as it reflects the order (or disorder) of our world:

"Nothing is related to anything. Unrelatedness is disintegration. Our architecture is a symbol of a world being taken apart." □

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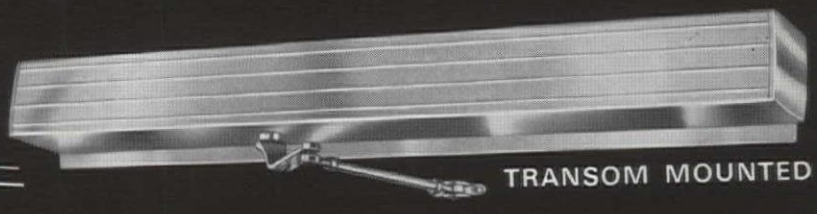

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Thinking Mobile

Ensconced in Colonial Williamsburg and thus thoroughly steeped in the trudging mobility of the 18th century, architects, planners and economists grappled earnestly some time ago with transportation problems facing an increasingly urbanized America in the 20th—what's left of it—and 21st centuries.

Participants in the AIA Mid-Atlantic regional conference (theme —"Design for a Mobile Society") submitted to a mild scolding from *Harper's* Managing Editor Russell Lynes who told them: "Architects have been concerned with the static, which is the antithesis of mobility, both literally and socially."

Pointing out that the words "static" and "status" come from the same etymological root, and hinting that architecture is a "status-giving" profession, Lynes suggested that "this is why the profession of architecture has come so late to face the problems of a society in which movement is a great deal more important than the virtues ascribed to the homestead, to the building built for the ages."

Any reading of today's society as hearth-bound is far from realistic, he said. Americans consider mobility not a privilege but a right.

Mass transit, however, seems to have come to concentrate on denying every instinct of the traveler, Lynes said. "It has despised him and he has come to despise it. There now exists a state of warfare between the public conveyance and the passenger, where once a love affair existed."

He spared no means of public transport, from subways ("at once as ingenious and barbaric a device as a civilized society could invent") to jets ("they try to make it up to people for jamming them into little stalls . . . with color movies").

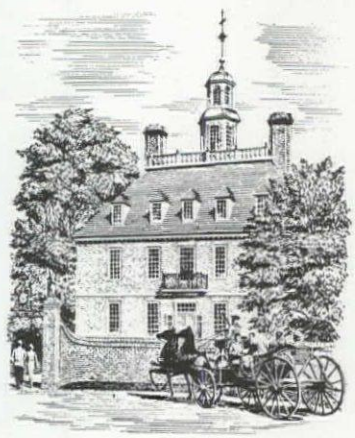
The admitted discomforts of mass transit, plus what Lynes termed the "natural cussedness" of mankind ("even the mildest of men will use their cars as instruments to create personal danger"), must be taken into account by those who will plan tomorrow's transportation, he said. "It is the planner's problem to find patterns to fit men, and not force men into patterns."

Another speaker at the February conference, Malcolm D. Rivkin, director of Urban and Regional Development for Washington's Robert R. Nathan Associates, was concerned with the impact of transport on tomorrow's work and leisure habits.

He placed part of the blame for current Negro unrest—the "long hot summer" syndrome of racial violence—at the door of transit deficiencies which make it virtually impossible for Negroes, living in the central city, to reach jobs in the suburbs.

As the trend toward decentralization on the part of industry accelerates, he said, many jobs will be closed to the poor Negro because without an automobile, he cannot get to them.

Discussing the impact of transportation on leisure, Rivkin cited the ease with which residents of



the East Coast megalopolis can now reach mountain and seashore playgrounds.

He referred particularly to the foothills of the Appalachians, in citing the development of homesites, motels, gas stations and other commercial facilities in the area. Most of this development, he said, is "taking place in communities which lack development plans, standards and controls.

"These communities are unaccustomed to providing public services or levying more than token taxes; they are unaccustomed to accommodating to a broad regional perspective."

What will happen to these areas sociologically and esthetically? Who will be in charge?

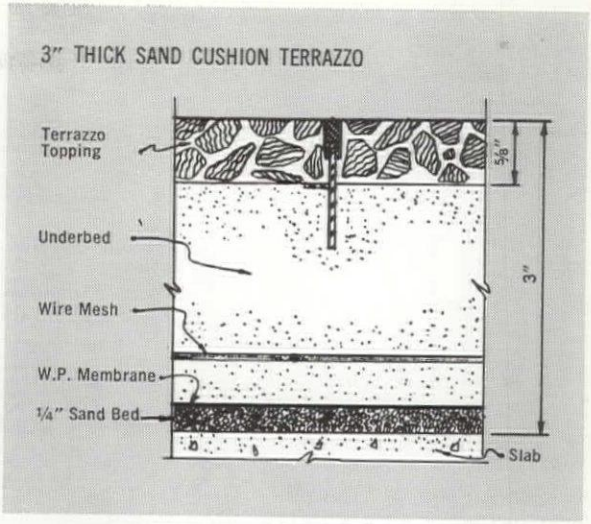
Hopefully, professionals who will take a responsible attitude toward the results of their decisions. As Rivkin concluded, "The redesign of the ghetto and the predesign of the mountain recreation areas represent a new order of professional challenge. But it is in this dimension of challenge that a truly creative future must lie."

Urging that architects and planners "think mobile" rather than static, Robert J. Piper, AIA (formerly administrator of AIA's Department of Professional Services and now with the Perkins & Will Partnership in Chicago), recommended to them a thorough reading of *The View from the Road*, by Donald Appleyard, Kevin Lynch and John R. Meyer, which explores the mobile experience as a sequence of experiences.

A system of notation should be developed, he suggested, which would enable the planner to "compose" sequential roadside sensations that would be both visual and psychological.

Summing up the ideas expressed at the conference, critic George McCue of the *St. Louis Post-Dispatch* said, "To think of design as a function that applies only within cities, without abundant attention to what happens between cities and more particularly in the betwixt-and-between zones of suburbia and heavily developed recreation centers, is sheerest folly. . . .

"What can architects do to make themselves effective as individuals or in their organized group capacity? The sense of this meeting seems to be that the focus of energy is at the chapter level, where the local conditions are well understood and from which constructive proposals can emanate." □



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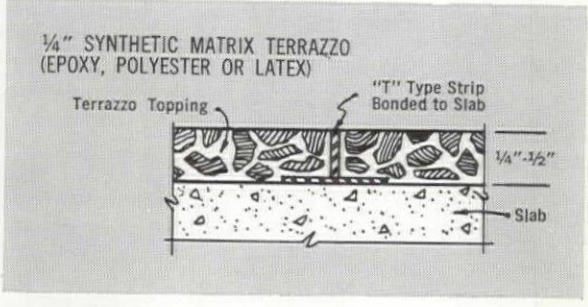

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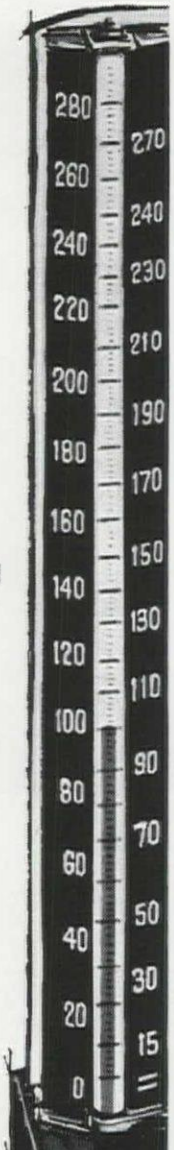

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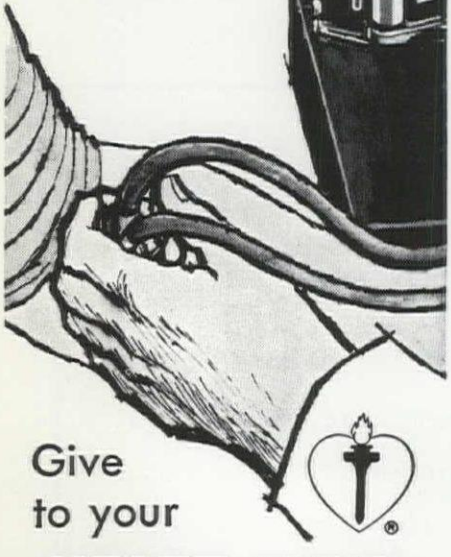

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Value Engineering *from page 86*

precast concrete panels. But there are some fallacies in this decision.

The basic function of the truss is to support the roof; the secondary function is to connect columns. But what is the point of the truss supporting the roof all by itself? There will be racks for pallets all through the interior, so why not have small columns among the racks? A column-free interior in this case fulfills no function; providing columns greatly simplifies roof framing and results in decreased cost.

Now, let us carry this thought one step further. The basic function of the original exterior columns was to support the roof. Suppose we support the roof on the pallet racks we are going to install anyway. This will save the cost of exterior columns.

Let's take a look at the substructure. Are concrete footings really necessary? Unless a local code requires them, probably the whole structure could be floated on the floor slab. We'll assume that the floor is a 6-in. slab of reinforced concrete. Its basic function is to support the contents. But what about the area where there are no contents to support? At these locations, all that is necessary is a dirt seal. Several approaches should be investigated here. One might be precast footings for the racks, with sand and gravel filled part way up in the no-load areas and then the no-load areas and the aisles filled with poured-in-place concrete. Another approach might be a complete poured-in-place slab with cardboard tubes or even boxes providing voids in the no-load areas. A couple of other items to watch here are the strengths of the concrete (no reason for 3,500 psi. in no-load areas) and anchor bolts. The latter should be value-analyzed to make sure they fulfill their function.

The problems mentioned in the preceding paragraph should be brainstormed by a group under the "What else will do it?" heading. For example, why do we have to stick to concrete? Maybe a sheet of plywood in the no-load areas would provide a satisfactory solution. Parenthetically, this should also be applied to the pallet racks. For example, maybe the uprights could be precast, prestressed concrete columns.

To go on, let us look at the walls. These should be made of whatever material will provide the required durability to resist the elements over the required period of time and should be of sufficient strength to resist the wind load. Here again, the VE teams should examine all possible alternatives. I can visualize alternatives ranging from plastic sheets, through paper, cardboard and plywood to precast concrete. It must be kept in mind that the basic function of the walls is to enclose space with the secondary function of resisting wind; they have no other functions. For example, insulation value is of no importance, structural strength is of very little importance, etc.

The roof is pretty cut and dried. Some savings have already been made by having the racks support the roof. This involves multiple support and therefore requires less structural strength in the roof. From here on, whatever will provide the functions of the roof at the least cost is the thing to pick.

Remaining we have doors, windows and lights. A few remarks are in order here. The first impulse is to have a door at each end big enough for a truck or a forklift, depending on requirements. But does the second door fulfill a function? Possibly not. Secondly, there are many varieties of door on the market at a wide range of prices. Perhaps a plain "barn door" on a track might fulfill the function at the lowest cost. Do the windows fulfill a necessary function? Doubtful, since they will be blocked to a large extent by racks. Since lighting is provided anyway, I would omit the windows. Under the heading of lighting, I can only see two things to watch: Keep the runs of wire and number of units to a minimum, and avoid the temptation to light the warehouse up like a precision assembly area.

To carry the whole thing a step further, although perhaps not usually within the realm of most architects, we should question the necessity for bags, pallets, pallet racks and forklift. Depending on the owner's situation, it would be less costly to handle this material in bulk. We could then go to a modified A-frame of steel or plywood, storing the material on the floor and sloping the walls to match the angle of repose. □

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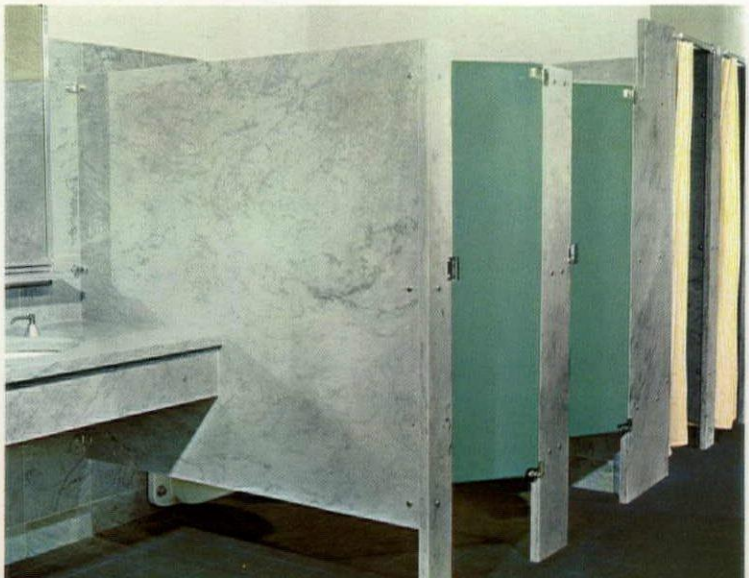
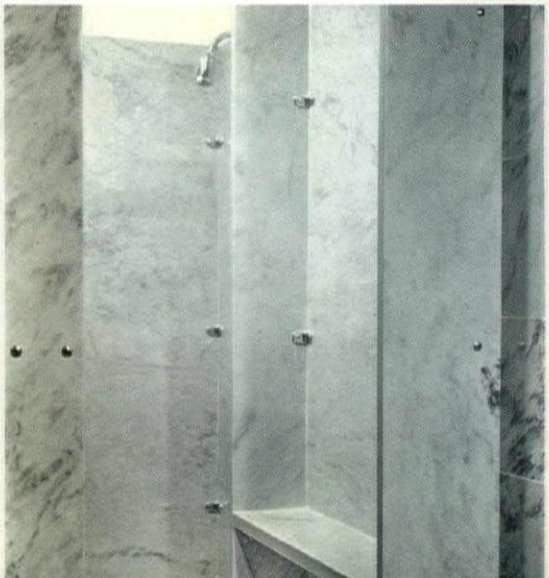
Above, left: Republic National Bank, New York City
Interior Design: Ernest Bonnamy / Kahn and Jacobs, Architects

Below: Woodstock (Vt.) Golf and Tennis Club
Architects: Charles Hood Helmer & Associates





Books

Adolf Loos: A Pioneer of Modern Architecture. Ludwig Münz and Gustav Künstler. New York: Praeger, 1966. 234 pp. $20.

Published 33 years after Loos's death, this is the first comprehensive account of his work in English. As such it comes 33 years too late. One has to realize that until quite recently this work was almost totally unknown in both America and Britain where through the years architectural historians have either ignored it completely or played down its significance to the point of virtually denying it, architecturally and historically.

Thus the book at last should fill a most serious gap in modern architectural literature and essentially help in creating a picture of nature and development of 20th century architecture that corresponds more to historical reality than the one commonly accepted until now. How successful it will be in this respect remains to be seen, considering how many widespread and deep-seated prejudices it will have to overcome.

Yet there are definite signs of a change in the general attitude: a growing awareness of Loos's importance and a genuine desire to know more about him. (I trace this, partly, to Professor Hitchcock's efforts, for years the only English-writing historian to give Loos his proper due.) One minor sign of such a change: During the last two years this writer has been invited to speak on Loos at 20 American schools of architecture. Much more significant is the appearance of the book itself. Even five years ago no British or American publisher would have thought of—let alone dared—coming out with a book on Loos.

In reviewing it, one first ought to state that one is dealing with a translation—a rather poor one, for that matter. The German original was strictly intended for the central European market, evidently with a view to supplement, at least partially, Heinrich Kulka's excellent Loos-monograph of 1931, the knowledge of which it somehow presupposes. This might explain why the individual works have not been discussed in chronological order the way they were by Kulka. However, they haven't been grouped under any other unifying aspect either but, instead, according either to building types or to architectural concepts. This, in itself, is rather confusing. And the attempt to coordinate single works and single ideas constitutes a distinct methodological error, particularly with reference to Loos.

A reviewer of the book in the Viennese cultural-political magazine *Die Furche* has correctly pointed out that each of his works contains all his ideas, and each of his ideas is exemplified in all his works. On the other hand, the absence of any attempt at a chronological approach is a definite shortcoming regarding the English-speaking reader, not familiar with Kulka's earlier publication; inasmuch as the evolution of Loos's *oeuvre* in its totality—the progress and maturing of his ideas as well as the genetic interrelation of the individual works—remains in the dark. That in the appended catalog—the "actual scholarly achievement of the book," as the Viennese critic calls it—the works are listed chronologically cannot make up for this.

The most conspicuous weakness of the book is the failure to examine Loos's historic position. This

Adolf Loos · Drawing by Oskar Kokoschka, 1910

for the English edition—at least with a view to "placing him in his Viennese and European setting"—Professor Pevsner's introductory essay was supposed to do. But it has not. Indeed, one has to state regretfully that, Pevsner's eminent scholarliness and enviable penmanship notwithstanding, his contribution can only be considered a distinct disservice to the very cause which the book has been meant to promote.

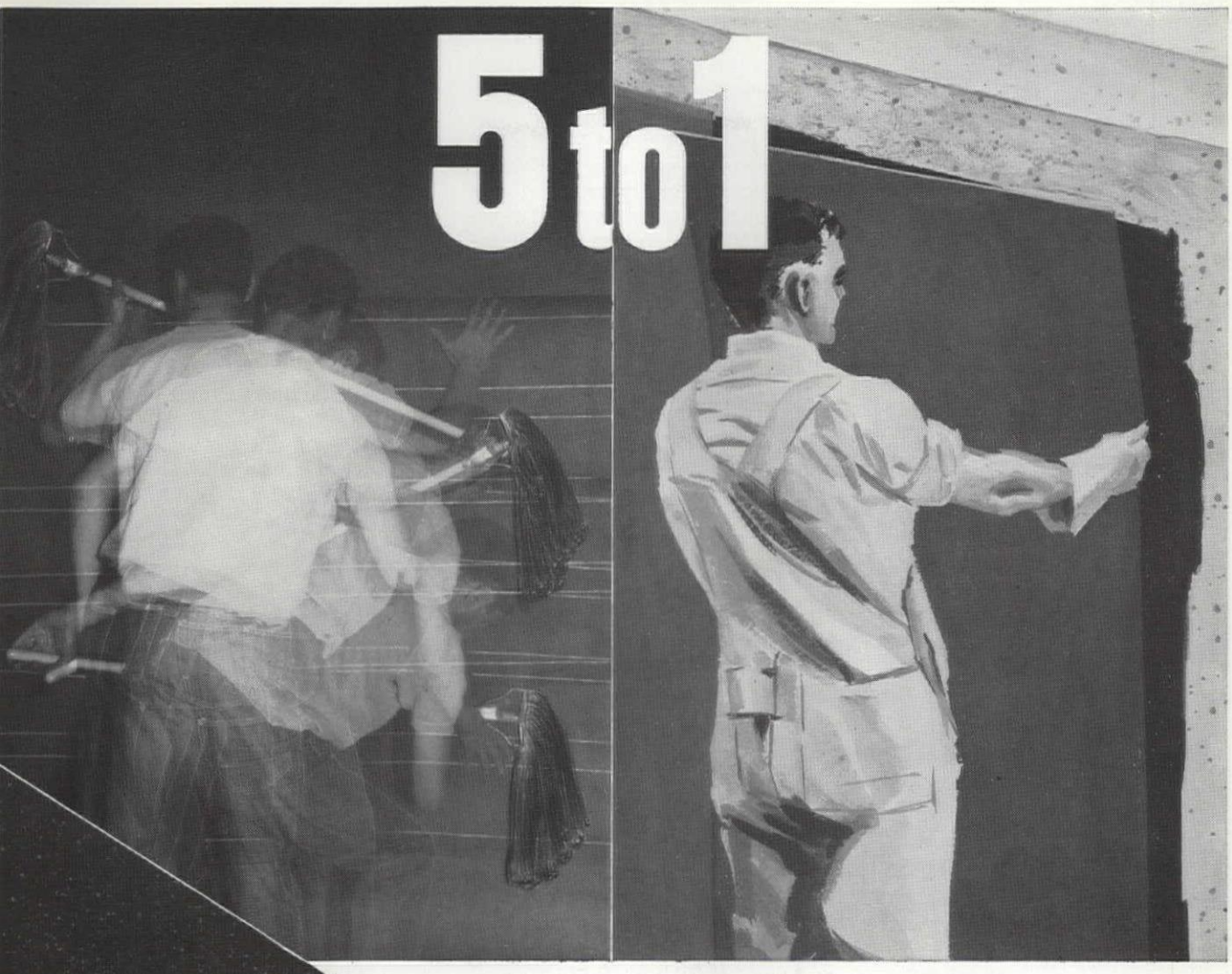
It is, of course, inconceivable that Pevsner should not be familiar with Loos's work as well as teaching; yet the fact remains that he restricts his essay almost entirely to a rather elaborate analysis of Loos's theories as expressed in the latter's early writings—up to 1910. The tendency to depict Loos primarily as a theorist is obvious. His architecture is hardly mentioned, the works of his late period—the years of his highest maturity and supreme achievements—are completely ignored, with the single exception of the much maligned project for the Chicago Tribune Building of 1922, of which Pevsner thoroughly disapproves; here he is in full accord with all those architectural historians who, in all seriousness, would judge an architectural work by its motif: in this case a Greek Doric column, set, incidentally, on top of an "unrelieved" cube. (The juxtaposition of contrasting elements is a highly characteristic feature of Loos's architecture.) The use of classical forms in our day is, to Pevsner, *a priori* indicative of an "anti-modern and anti-20th century trend," and even the mere defense of their use "incomprehensible in so radical a thinker."

A "radical thinker" Loos certainly was; at the same time he was a truly civilized man to whom adherence to tradition was absolutely compatible with modern thinking. The evidence of his own work certainly vindicates him in this respect. Dr. Münz has pointed out that "even when he employed elements of classical architecture, he nonetheless created decidedly modern buildings in terms of form and function." This is an immensely significant fact, yet it eludes Pevsner completely. Consequently, to him, "Loos remains an enigma," a statement with which his essay both opens and closes.

This surely is an amazing and rather sad admission of helplessness in the face of one of the most outstanding phenomena in modern architecture, coming as it does, from one of the most renowned and respected authorities in the field, and all the more regrettable since it not only offers an easy way out for anyone less competent than Pevsner but is bound to help preserving that distorted image of Loos which it really would be highest time to get rid of. As things are, we certainly can expect to be saddled, for quite some time to come, with references to "enigmatic Loos." Weighed down, as the book is, by such an introduction, its unfriendly and partially outright hostile reception in a substantial seg-

Continued on page 110

5 to 1



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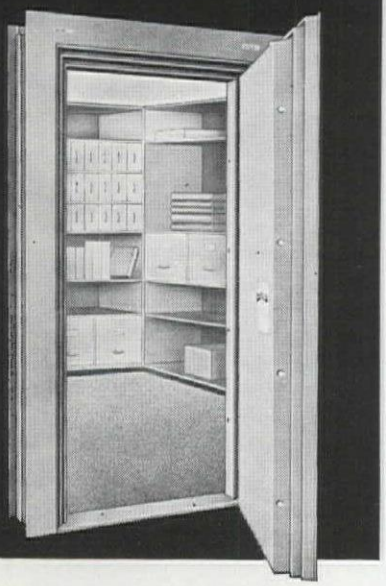

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ment of the press should be all the less surprising, in view of the notorious antagonism against Loos among certain influential architectural critics, especially in Britain, who almost literally seem to have taken up where an outraged reactionary Viennese press left off before World War I.

In delivering its message, in showing what Loos, the man, the architect, the reformer was really like, and in answering the query, "How does it concern us today?" the book by Münz and Künstler, therefore, is left entirely on its own, except for Oskar Kokoschka's brief but profound appreciation "In Memory of Adolf Loos" at the beginning. How does it fulfill its task?

We have already stated what we feel to be its basic and rather serious shortcomings. One should add, specifically, that no attempt has been made to trace Loos's decisive influence on 20th century architecture, and also, as the Viennese critic has observed, to distantiate him properly from the International Style movement. The imperative task of establishing his historic function still remains.

On the other hand, we have here a clear, comprehensive and authoritative presentation of Loos's work itself. Therein lies the undisputable and particular value of the book. It is gratifying to know that the reader here and in Britain finally has been given his chance of becoming thoroughly acquainted with the achievement of this truly great master who was anything but an "enigma"; he was instead a great clarifier of issues whose creative ingenuity was matched only by his social conscientiousness and stupendous insight into human needs.

Kokoschka has reminded us that Loos "spoke of himself as a mason whose business it was to make the world habitable in the way a bird builds its nest." What this means in terms of architecture—whether as actual buildings or unexecuted projects—is revealed in these pages, as is the enormous range of Loos's thinking and inventiveness, from the concept of a psychologically determined architecture to the principle of three-dimensional planning.

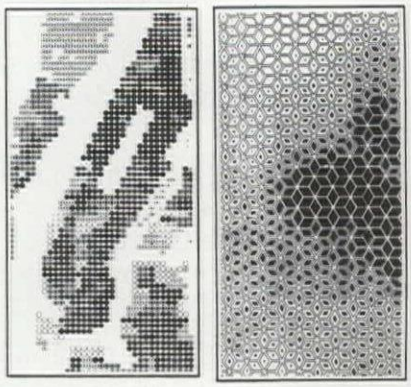
The book, printed in Austria like the original edition, is visually and technically of top quality. There are 272 illustrations: photographs and drawings, many of the latter never published before. The printing is perfect; the title page a typographic delight. Three of Loos's essays—historic documents of the first order—are included.

Oskar Kokoschka, whose incomparable portrait of Loos precedes the text pages, has in his foreword expressed the hope that the book will be more effective than Loos himself was permitted to be in his lifetime. It certainly should be an eye-opener to all intelligent and unprejudiced people who want to be given the facts "as they really are." ERNEST H. BRANDL

Urban Atlas: 20 American Cities; A Communication Study Notating Selected Urban Data at a Scale of 1:48,000. Joseph R. Passonneau and Richard Saul Wurman. Cambridge: MIT Press, 1967. 127 plates (63 double-spread foldout pages.) $100.

Not long ago *The New Yorker* claimed not to like the word *unique* because it is similar to "those arch nouns" *critique* and *physique*, and it is "rickety from too much handling." There seem to be occasions, however, when no other word will do, and this is one of them. This is a unique book.

The word *book* seems too limited somehow for such a huge volume—17½ x 20 inches. Supported by seven institutions and foundations, the atlas' preparation has been in progress since 1962, and authors Passonneau (dean and professor of architecture, School of Architecture, Washington University) and Wurman (partner in the Philadelphia architectural firm of Murphy Levy Wurman and member of the architectural faculty of Princeton University) have been assisted by



a wide variety of persons and institutions, including 55 students of Washington University's School of Architecture.

But all this is not the reason for the work's uniqueness: That quality is afforded by its interrelating of knowledge and data and by the potential significance of its use in other computer programs as a new method of communications.

Continued on page 112

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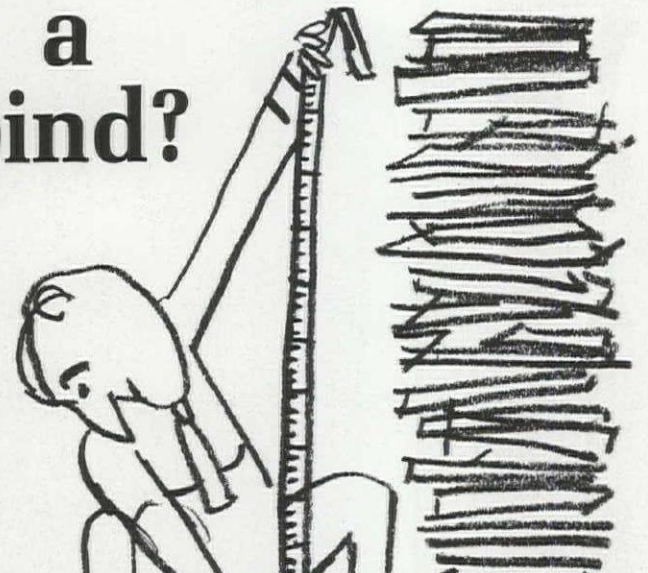

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Books *from page 110*

Everyone agrees that there is an unbelievable amount of data pertaining to the economic and social patterns of cities. What is lacking is a systematic and comprehensible organization of the massive materials for ready access to the information. This atlas aims at displaying a great deal of information visually. It is a collection of United States Geological Survey maps of 20 American cities. A pattern of overprinted colored geometrical symbols is used on these maps, and by their different sizes, shapes and colors the "symbolic language" tells one of a wide range of urban variables and their magnitudes. Twelve different colors are used, sometimes as many as five on one map. Included in the data provided are such variables as residential population density, land use data and total income data. Moreover, there is a visual correlation among the variables to create new items of information.

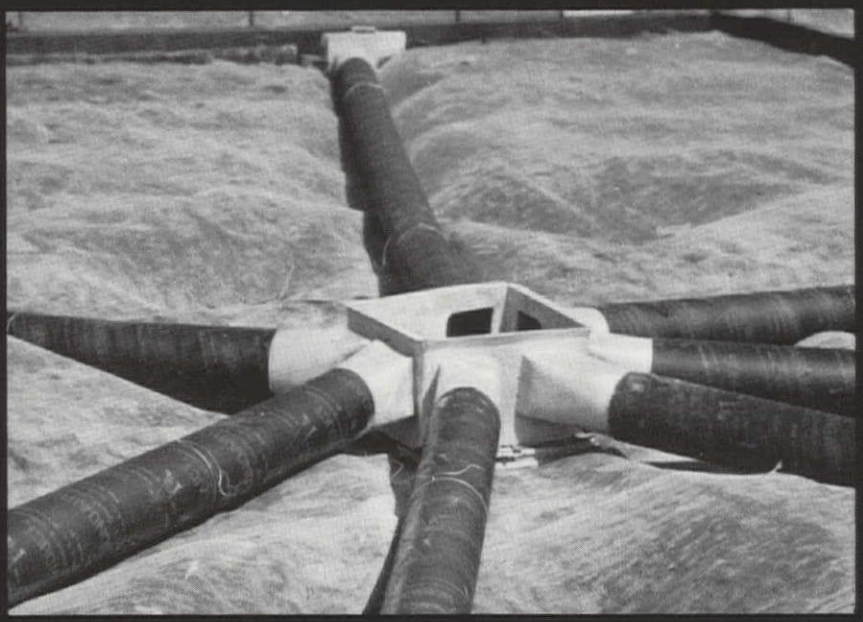
Ten plates each are provided for New York, Chicago, Detroit, San Francisco and Los Angeles where the maps cover about 12½ x 25 miles. Five plates each (depicting areas about 12½ miles square) are for Atlanta, Boston, Cincinnati, Cleveland, Denver, Houston, Miami, Milwaukee, Minneapolis-St. Paul, New Orleans, Philadelphia, Pittsburgh, St. Louis, Seattle and Washington, D. C.

St. Louis is given intensive treatment, and additional maps are provided for such data as population changes since 1910, nonwhite population percentages, types of industry, employment, etc. and distribution and type of religious structures since 1910.

The authors state that "there exist three major categories of urban information: 1) the nature of the people, 2) the nature of the land and its uses, 3) movement of people, goods and information. These maps all describe 1) classification (or type) of things or events, 2) their magnitude, 3) their location in space and time." It will be interesting to see what people who actually use the atlas have to say about its value as a tool. Certainly, it would seem to hold promise of opening up important interdisciplinary studies of the city. One of the tests will be whether the work inspires new urban sociological and economic studies. Perhaps the truly perceptive review of this book awaits its utilization by sev-

Continued on page 114

HIDDEN QUALITY



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SO 187

Books *from page 112*

eral disciplines for which its data has usefulness.

A note from the authors and the Western Printing and Lithographing Co. has been tipped in. They frankly state that "the Photon Model 713 process by which these maps are made finally proved less reliable in controlling register of large size negatives and plates than had been anticipated" and that "the photo paper that was available . . . was not sufficiently stable for the precise register this mapping ultimately requires." They point out that because of the fine line symbols the combined income and population density maps suffer most. Also, they conclude that the symbol design "would be perhaps better to have a different progression."

Nonetheless, the atlas should prove indispensible for those who make decisions based on great masses of urban data that vary by location and time. Its comprehensible data and its pioneering method of presentation make the atlas a genuinely unique information system about 20 American cities and provides a methodology for any others.

MARY OSMAN

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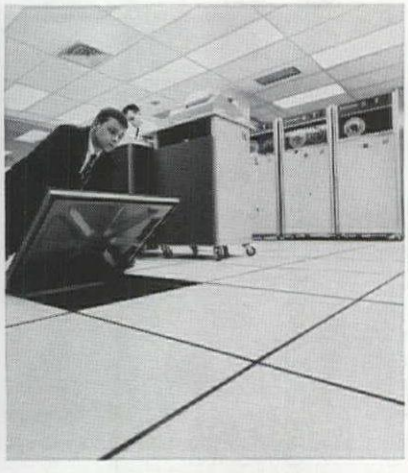

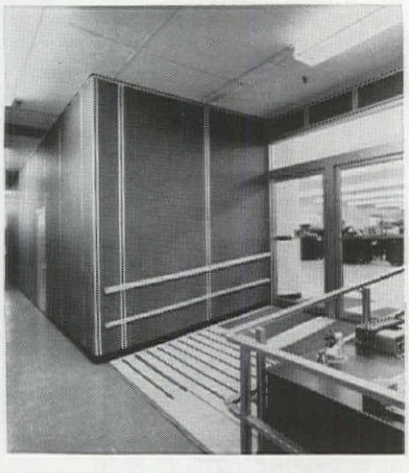

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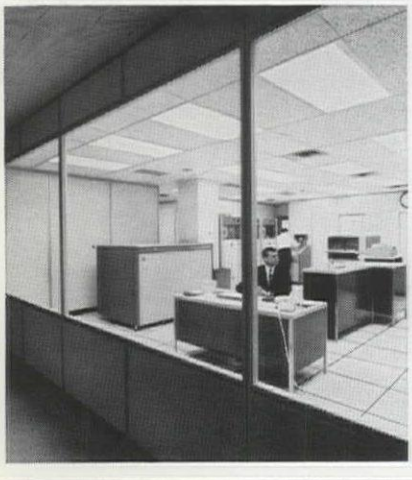

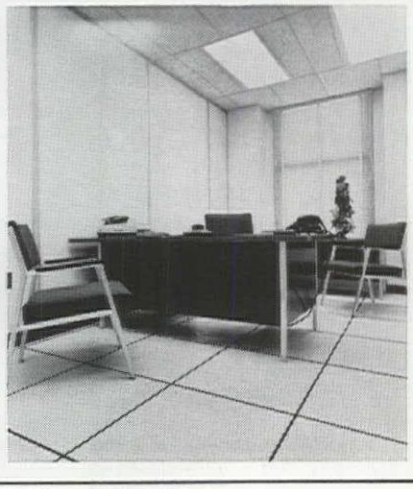

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A System of Architectural Ornament, According with a Philosophy of Man's Powers by Louis H. Sullivan. New York: Eakins Press, 1967. $7.50 hardbound, $3.95 paperbound.

For many years Sullivan's final statement of faith as shown in his "A System of Architectural Ornament" was unavailable except for copies which could be found on the second-hand market. A few years ago the Prairie School Press issued a large size facsimile. Now the Eakins Press with the desire to make it even more readily available is offering a smaller sized edition, more suitable to the library shelf and the pocketbook.

The plates, somewhat reduced from the original but not markedly, have been well fitted to the changed format, while the text has been reset to meet its needs. In all this, though, there has been no lessening of the physical appearance of the book, which has been well done.

To show Sullivan at work there have also been added reproductions of his drawings for the Farmers' and Merchants' Union Bank of Columbus, Wisconsin, done just a few years earlier in 1919. The drawings are now in the Avery Architectural Library at Columbia University.

All in all it is a tastefully done book which any architect should be glad to add to his library if he does not have either of the previous editions.

Modern Architecture and Expressionism. Dennis Sharp. New York: George Braziller, 1966. 204 pp. $15.

Sharp believes that most writers on modern architecture have judged the Expressionist movement falsely, bringing to it a distorted view. His aim is to refute such judgment while he analyzes this "romantic stream" in modern architecture. The years between 1910 and 1923 in Germany were a time of conflict and despair, and in this emotional state realism was subordinated to the symbolic. This tendency spread from painting to literature, music and architecture. In 1919 one participant wrote: "Let us live in utopia, let us fabricate plans, castles in Spain; let us pretend and prepare for the time 30 years thence, when Germany will triumphantly lead in the arts." This was the spirit of Expressionism.

Sharp deals with Hugo Häring, Bruno Taut, Erich Mendelsohn, Peter Behrens and the other visionaries of the time, discussing

Continued on page 116

The place:

The stately
First National Bank of Mobile,
Mobile, Alabama

The man:

Mr. Mark Lyons III, President,
Gulf Flooring and Supply Co.,
Mobile, Alabama

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Bigelows. Specially created custom rug in the Board Room has colors and border design keyed to the two antique Chinese urns on either side of the fireplace.

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Books *from page 114*

buildings and projects and influences against the artistic, social and political background of the era. Among the topics discussed is the Amsterdam School, with an insight given into the way the Dutch architects differed from the German. To make his study complete, Sharp includes material on Rudolf Steiner and his "open sculpture" architecture.

With his sharp prose and an abundance of illustrative materials, Sharp defends his thesis admirably. The book includes a chronology of buildings and events, a lengthy bibliography and some source documents not available heretofore in English.

Builders in the Sun: Five Mexican Architects. Clive Bamford Smith. New York: Architectural Book Publishing Co., 1967. 224 pp. $12.95.

The vibrant contemporary architecture of Mexico is here portrayed in the work of five architects—Juan O'Gorman, Felix Candela, Mathias Goeritz, Luis Barragan and Mario Pani. Separate sections are devoted to each of these leading practitioners of architecture. There are biographical sketches, philosophical observations by the architects and a small measure of critical assessment by the author.

Each man's work is illustrated with stunning photographs in black and white. Smith, an English journalist now living in Mexico City, has wisely included a foreword by José Villagrán García, which is a concise statement of the development of architecture in Mexico.

John Wellborn Root, Architect. Harriet Monroe, with an introduction by Reyner Banham. Park Forest, Ill.: Prairie School Press, 1966. 291 pp. $8.50.

This is a facsimile reprint of one of the earliest American architectural biographies by an author who later became noted for the magazine *Poetry*, which she founded. Banham contributes an evaluative note on the book and the man.

Shops and Showrooms: An International Survey. Karl Kaspar. New York: Praeger, 1967. 167 pp. $15.

For the most part this is a book of illustrations of elegant specialty shop interiors. It reveals an astute knowledge of customer psychology on the part of the persons who were responsible for the display of chic wares.

The arrangement is by kind of store, and there are examples of shops for clothes, shoes, books, music, furniture, groceries, etc., including hairdressers and travel agencies. In all, 50 shops from the United States, Australia and nine European countries are presented, documented by photographs and floor plans. The text is in English and German. There is an index of architects.

The Lightning Book. Peter H. Viemeister. Garden City, N.Y.: Doubleday, 1961. 316 pp. $4.50.

The terrifying fire of the heavens known as lightning has been a source of fear, concern, destruction and anxiety from the days of primitive civilization to the modern era. It is so much with us that right now, as you are reading this, about 1800 thunderstorms are raging over the face of the earth.

In 1965, lightning caused over one-quarter of a billion dollars worth of damage in the United States alone, which for the country as a whole made for 10 percent of all fires, and much higher in re-

Continued on page 118

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Architect: Holabird & Root

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Books *from page 116*

gions that are especially prone to them such as the south.

Architects are indeed concerned with lightning, as one of their prime responsibilities is to provide a building's occupants with shelter. Yet it is curious that very few architects show a consistent and cognizant effort to provide structures with adequate and modern lightning protection. With new building uses, construction classifications, advances in science and radical and different techniques in planning and design, architects must not forget to consider the influence of lightning on their overall designs.

There is a wealth of literature on this subject, the contents of which need not be summarized herein, as the various publications adequately cover the field. However, of particular interest is a large collection of books and pamphlets compiled by Victor Gilbertson, FAIA, of Minneapolis, who has been researching the subject for years. There are manufacturers' catalogs and Ordinance Corps reports, the National Fire Protection Association's Code for Protection Against Lightning, the Underwriters Laboratories' Master Labeled Lightning Protection Systems and my own book *Climate and Architecture.*

But probably the most interesting and authoritative, all-inclusive volume on lightning is by Long Island engineer Peter E. Viemeister, who wrote *The Lightning Book.* Preliminary chapters cover many nonarchitectural topics as Benjamin Franklin, lightning research, birth of a storm, global vagabonds, electricity in the air, the lightning bolt, etc. Only 31 of the 316 pages are devoted to rods and roofs, another seven to farms, fences and fertilizers.

The lightning protection system basically developed by Franklin is still in use today. However, modern buildings have new problems which Viemeister has recognized. After discussing the relative exposure to lightning that is offered by the local terrain, the building site and the locality concerned, he relates the various types of sheathed structures and those with special problems caused by the form of the building, as in church steeples. In a letter to Gilbertson, Viemeister emphasizes the following guide as being of special significance:

- Give preference to BX wiring over Romex.
- Select a perimeter heating system when possible.
- Install airconditioning outlets overhead.
- Put electric cables in *outside* walls and ceilings.
- Ground well all major metallic systems and interconnect same.
- Locate telephone and power line arresters outside the house.
- Bond all aluminum roof and siding panels on opposite corners to earth and to plumbing.

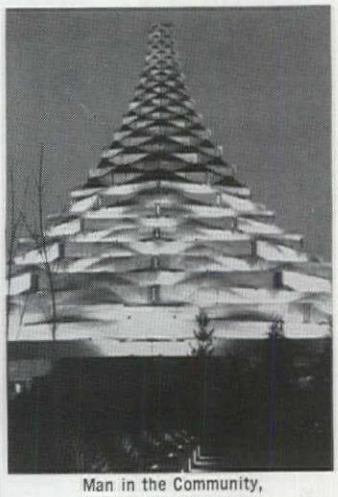
Viemeister stresses the concept that it is better to be surrounded by conductors rather than have them on one side, for in the latter case the occupants might have currents induced in their bodies. Metallic surrounding would insulate the occupants against induced effects.

The author, son of an AIA member, is to be commended for his nonhumdrum approach. He relates to today's needs and problems the principles expressed in detail in the more statistical codes and regulations. He should be a source of inspiration to architects in solving lightning problems before they are lightning disasters.

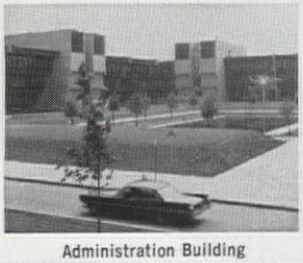
JEFFREY ELLIS ARONIN, AIA

expo 67

Pavilion du Québec

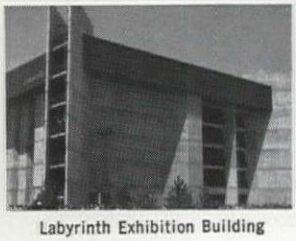


Man in the Community, Man in Health Pavilion



Administration Building

Ontario Pavilion



Labyrinth Exhibition Building

Air Canada Pavilion

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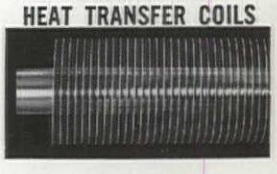
HEAT TRANSFER COILS



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The day they took away Clarence Schroeder's amateur status.

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The blame—and the credit—rests squarely with the Ansul "E" Model. One recent, fateful day, a fire broke out in Clarence's office. Like the true amateur he was, Clarence did a lot of running around and shouting. Then someone pointed to the "E" Model, hanging on the wall.

Clarence grabbed the extinguisher. He dropped it in his excitement, nearly breaking several toes on the left foot of bewildered Mabel Hansen, the bookkeeper. But he recovered his composure and went to work on the fire. Clarence gave forth with a blast from the "E" Model. But he didn't realize he had the nozzle pointed in the wrong direction. By the time he got straightened around again, he had used half the contents of the extinguisher.

Clarence doesn't give in easily. Undaunted, he went on to put out the entire fire with the charge that was left.

Well, the rest of the story is told in the inter-office memo from the boss. The next day, Clarence was appointed office fire chief.

Now he's holding fire drills and the like. And he's conducting classes on the use of the fire extinguisher. His favorite point about the extinguisher is the extra "margin of safety," which he, as the office pro, doesn't need, but which the amateurs around the office can count on when they get excited and waste half the charge in the "E" Model.

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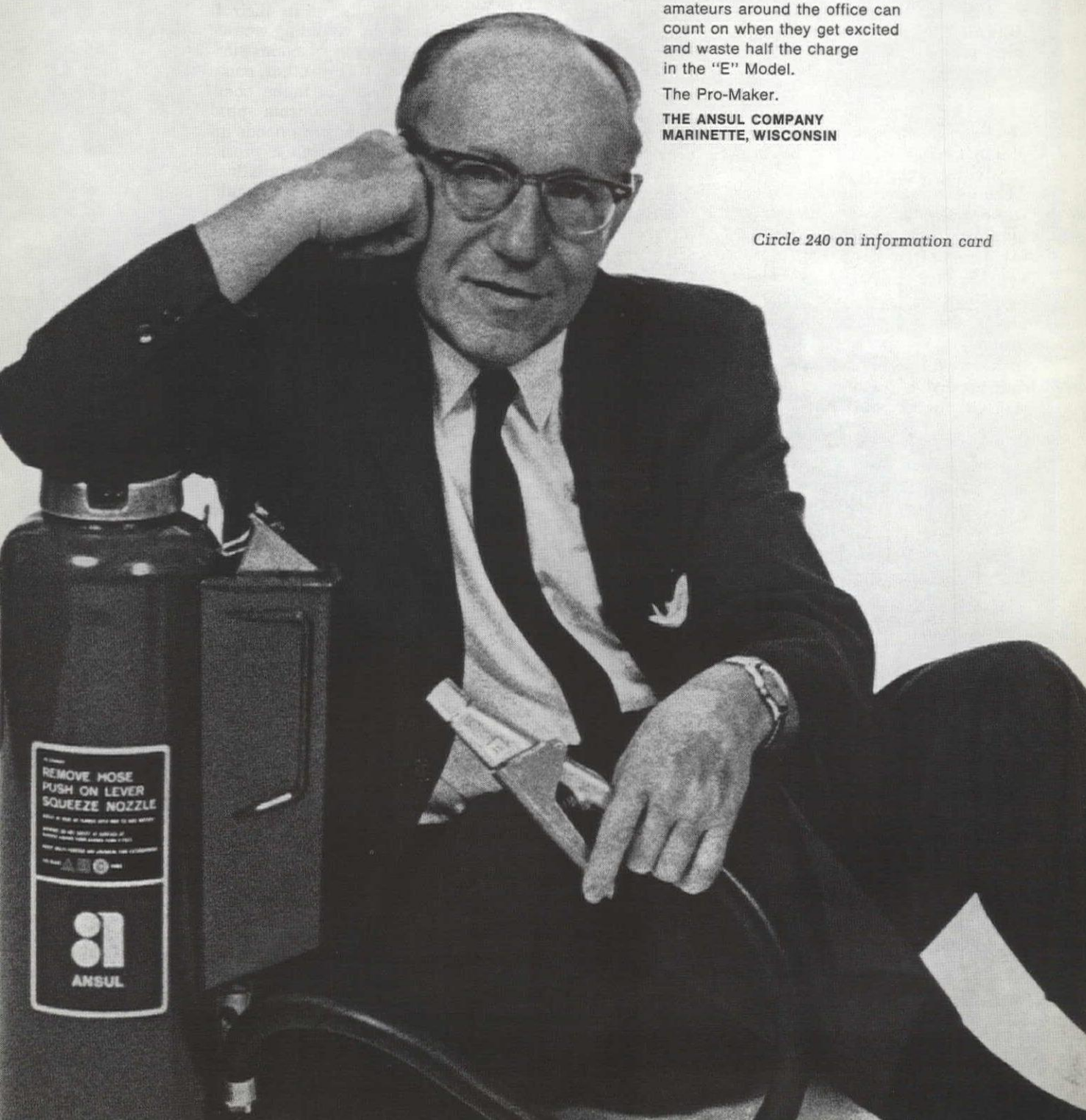

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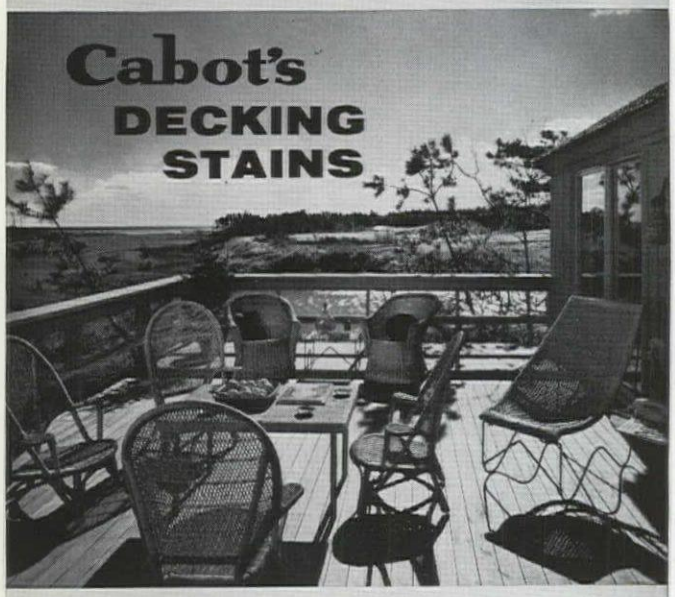

Home at New Seabury, Cape Cod, Mass.; architect: Royal Barry Wills & Associates, Boston, Mass.; developer: Emil Hanslin Associates, Melrose, Mass. Cabot's Stains used on Interior and Exterior.

A finish that stands up to heavy foot traffic and severe weathering.

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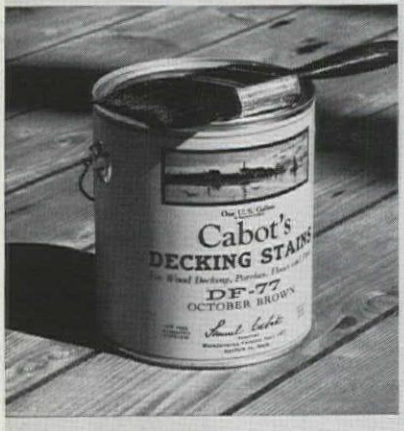

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Calendar

National

Sept. 19-22: Producers' Council 46th Annual Meeting, Hotel America, Houston
Oct. 1-6: American Institute of Planners 50th Year Conference, Shoreham Hotel, Washington, D. C.
Oct. 8-12: Prestressed Concrete Institute Convention, Queen Elizabeth Hotel, Montreal
Oct. 19-22: National Trust for Historic Preservation Annual Meeting and Preservation Conference, Chase-Park Plaza Hotel, St. Louis
Nov. 12-15: Community Junior College Facilities Planning Conference, Michigan State University, East Lansing

AIA Regional and State Conventions

Sept. 13-15: New Jersey Society of Architects, Berkeley Carteret Hotel, Asbury Park; North Central States/Minnesota Society of Architects, St. Paul Hilton Hotel, St. Paul, Minn.
Sept. 25-28: New York State Association of Architects, Nevele Hotel, Ellenville, N. Y.
Oct. 2-4: Northwest Region, Ridpath Hotel and Motor Inn, Spokane, Wash.
Oct. 3-7: Florida Association of Architects, Diplomat Hotel, Hollywood-by-the-Sea
Oct. 5-8: California Council, Vacation Village, San Diego
Oct. 6-8: New England Region, Sheraton-Eastland Motor Hotel, Portland, Me.
Oct. 11-14: East Central States Region, Hammond, Ind.
Oct. 12-14: Ohio Region, Nationwide Inn, Columbus
Oct. 18-20: Texas Region, Houston
Oct. 19-21: Pennsylvania Region, Hotel Hershey, Hershey
Oct. 26-28: Illinois Council, Sheraton-Rock Island Motor Inn, Rock Island
Nov. 2-4: Central States Region, Mayo Hotel, Tulsa, Okla.
Nov. 5: Western Mountain Region, Broadmoor Hotel, Colorado Springs, Colo.

AIA Committees and Related Meetings
(At the Octagon unless otherwise noted)

Sept. 15-16: Building Regulations
Sept. 18-20: Insurance
Sept. 23-24: School and College Architecture
Sept. 25: Architecture for Commerce and Industry
Sept. 25: International Relations
Sept. 27-29: Board of Directors, Chatham, Cape Cod, Mass.

International

Nov. 7-9: International Symposium on Esthetics and Design in Wood, State University of Forestry, Syracuse, N. Y.
Nov. 16-17: International Commission on Environmental Design Interprofessional Conference, Education Center, University of Maryland

Tour

• Around South America Architectural Trek, 21 days, departing Oct. 24. Repeated Jan. 30 and March 26, 1968. Arranged for AIA members with special group fares by United Travel Agency, Inc., 807 15th St., N.W., Washington, D.C. 20005. □

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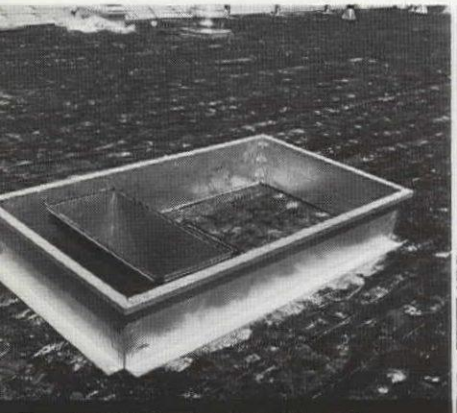
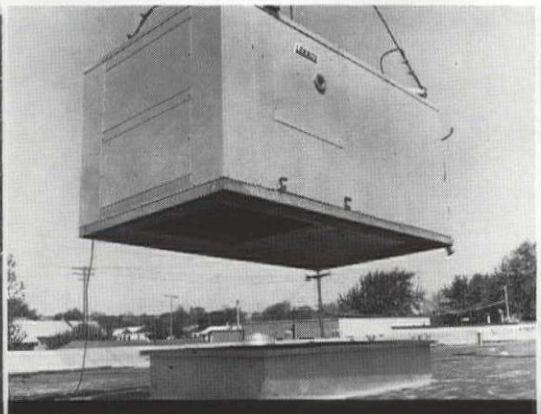
from "hole-in-the-roof" to start-up (same day!)

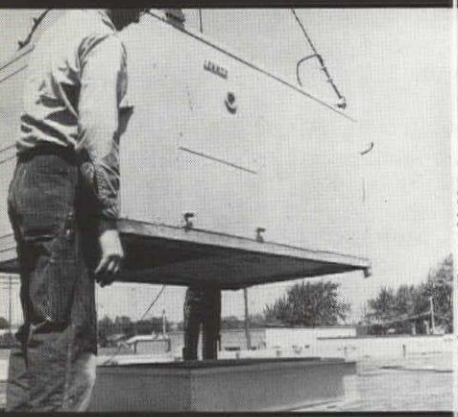


Easy installation begins with roof-mounting frame to be flashed in place.

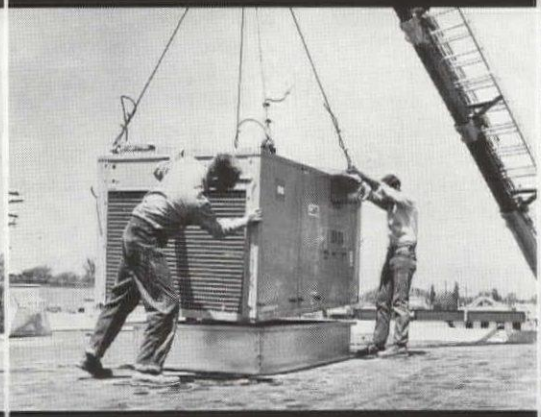


All ducts pierce roof within the frame.

All-weather unit bolts to frame, needs no other sealing.



New single-zone system heats, cools, ventilates.



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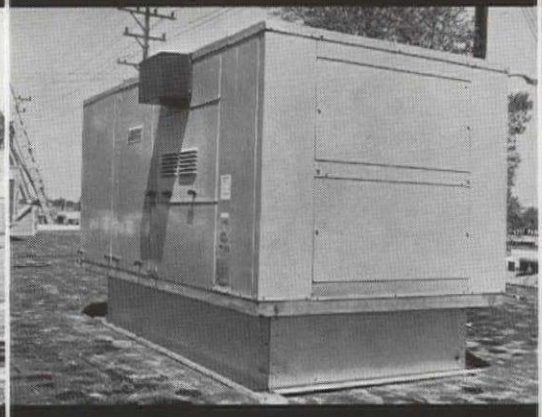
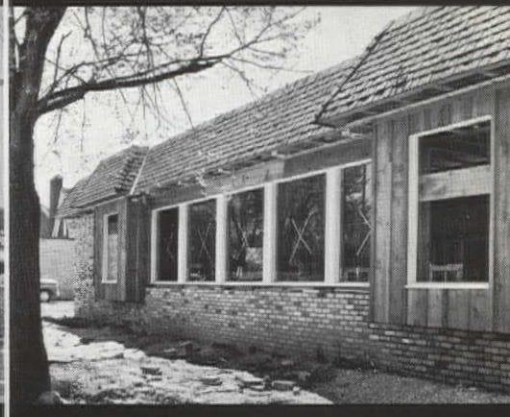


Commercial quality, factory-assembled; prewired and precharged.



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Letters

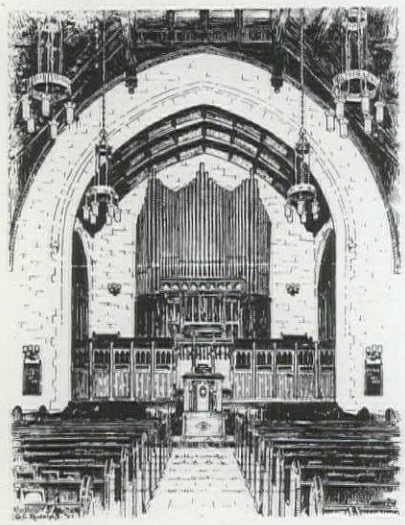
In Praise of John Wenrich

EDITOR:

I read with great interest the comments by John Wenrich in your Comment & Opinion for June. He is right in praising the dead (except Lewis), and I will take this opportunity to praise him—a dramatic composer, an atmospheric poet.

I don't know why John left Jules Guerin off his list!

The accompanying reproduction is of an illustration I made in 1927 when I was 15 years old. It was used on the bulletin cover of the Ninth Presbyterian Church of Philadelphia. It is particularly interesting because it was the first of $3 million worth of renderings produced by myself and later associates.



Obviously, there is a story behind all this. One thing is sure though: The site is 90 percent of good architecture, and it is the renderer's job to enhance that relationship in the most attractive way —all in about a week.

GEORGE C. RUDOLPH, AIA
New York, N.Y.

Evaluating the Bard Awards

EDITOR:

Leon Brand's article on the Bard Awards program which appeared in the May issue, though admirable in many ways, was marred by error and omission.

Mr. Brand claims that "Improvements in the output of the Housing and Redevelopment Board are somewhat less visible" than those in the Board of Education. If so, it's mighty curious that these very same awards were recently presented for 1967 and the result: *Both* buildings given First Honor Awards were constructed under the aegis of the Housing and Redevelopment Board. They were University Towers by I. M. Pei & Associates and Chatham Towers by Kelly & Gruzen. Parenthetically, Pei's building also won an AIA Honor Award for 1967, the only one constructed by an agency of the City of New York to be so honored.

Mr. Brand also is out of date on the board's position on fees. While what he claims may be true of the past, it is well known that for several months we have been working with the New York Chapter AIA and others on this question. As a result, the Housing and Redevelopment Board recently approved an increase in the basic fees averaging 30 percent. Just as important, in so doing we have pegged the schedule in such a way as to encourage rather than penalize diversity.

Finally, we also have been slashing happily away at the red tape that entangles an architect when he tries to do a job for the City. We have tried to turn over the planning of a building to the architect and not entrap him in regulation. We have shortened the time required to process plans and drawings, reduced the amount of material that an architect must submit for review and cut the number of exhibits. We now ask only for a concept drawing rather than a detailed design before a job is made definitive and, working closely with the Architects Advisory Committee which we instituted in 1966, we are devising a vastly simplified set of standards based on performance rather than specifications.

We are, in short, committed to good design; we are prepared to pay for it—and to insist upon it.

JASON R. NATHAN
Housing and Development Administrator, City of New York
New York, N.Y.

EDITOR:

The sponsors of the Bard Awards are obviously pleased in the extreme at the statement of New York City's HDA Administrator Nathan that his agency is "committed to good design, prepared to pay for it—and to insist upon it." One of the principal goals in establishing this program was to encourage public officials in New York to make just such commitments.

I believe that Administrator Nathan cannot really disagree with my lament that of the thousands of apartments produced under Housing and Redevelopment Board supervision the few hundred represented by Pei's University Plaza and Kelly & Gruzen's Chatham Towers indicate a batting average with almost boundless room for improvement.

The increase in the HRB fee schedule mentioned by Mr. Nathan is certainly welcomed by all interested in better housing and better design. The amount of the increase, i.e., an average of 30 percent, while it may sound significant, is based on what previously was a grossly inadequate fee. Thus, in my view, even the new schedule falls short of fair compensation for work to be performed. So be it. Mr. Nathan deserves credit even for this increase achieved by the New York Chapter AIA after great and long effort.

Finally, on the subject of red tape, I confess I am a congenital pessimist. Mr. Nathan merits every encouragement and all the support he can get. In the past, however, the agency which he now heads was not well known for efficiency or speed. Any new judgment of that reputation must, of course, be measured against performance rather than promise.

What is most important is that the City of New York has a critical need for socially significant quantities of new well-designed housing. We need more housing and we need it faster than any other city in the nation. If Mr. Nathan can get the job done, he will have earned the praise and gratitude of an entire city—architects and this writer included.

LEON BRAND, AIA
New York, N.Y.

Converting the Airports

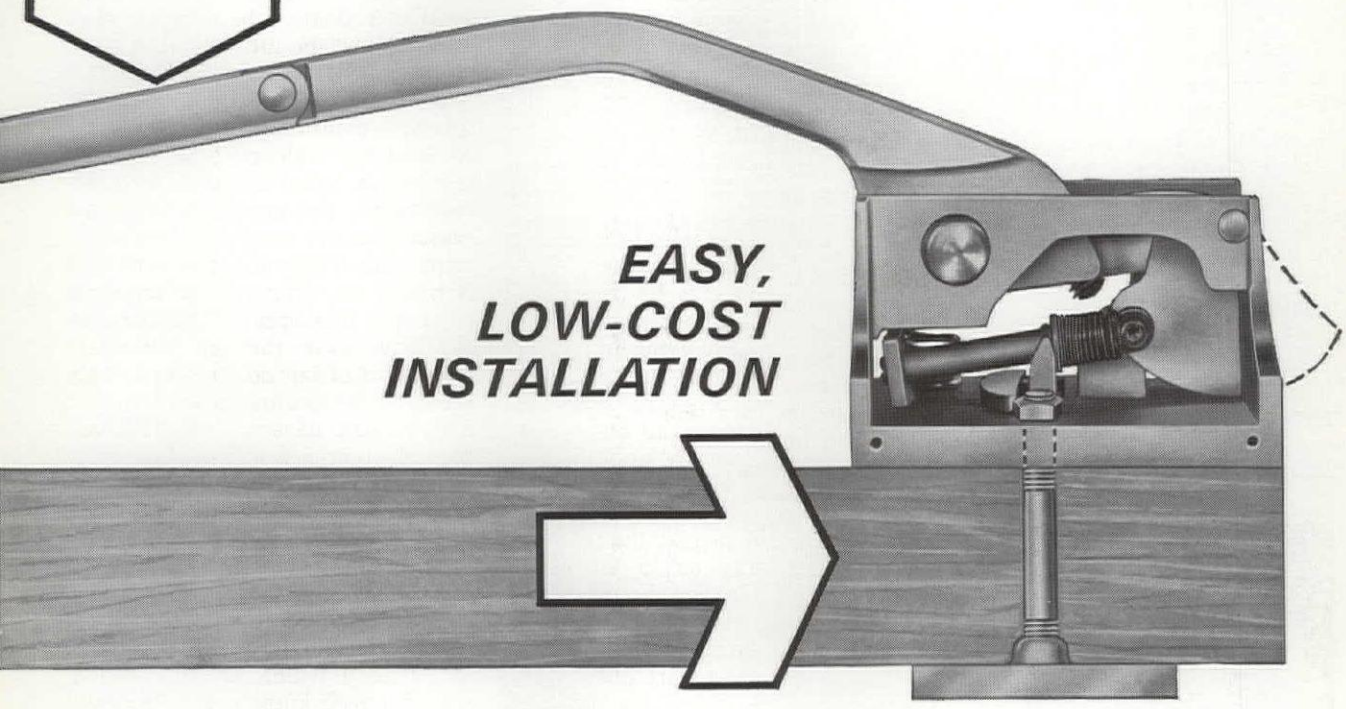
EDITOR:

In his article "The Big Ground Wave" in the February issue, Morris Ketchum Jr. said: "The architect who can come up with a broadly effective solution to the problem of airport conversion will be the most wanted man in aviation." I hereby present my solution to see if he is right.

The great developments in aircraft design and increased capacity have brought to air terminals around the globe a condition of vast obsolescence. It is inconceivable that nowhere has anyone built a simple double-deck system where the cars and/or cargo are posi-

Continued on page 124

SAFE, EASY OPERATION



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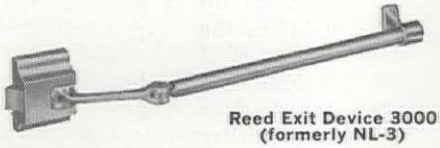

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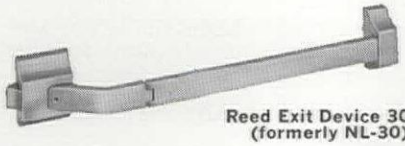
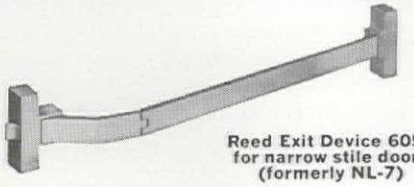


Reed Exit Device 3050
(formerly NL-30)



Reed Exit Device 6050
for narrow stile doors
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All Reed Exit Devices feature a Design Simplicity that assures safe, easy operation. The crossbar operates the latch bolt directly. There's no other mechanism to interfere; only one moving part and one compression spring; nothing can bind. Operation force is appreciably below the UL safety limits. A force any person, even a child, can exert. Safety in leaving the building is assured.

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All Reed Exit Devices are easy to install. The operating mechanism is completely self-contained. The cover of the mechanism is not an integral part of the assembly. No springs or levers are lost when the cover is removed. The operating mechanism is secured to the door by thru-bolts that screw into drilled and tapped lugs on the back of outside trim. No other assembly or adjustments must be made. The hinge stile crossbar installation is not critical; will operate even if misaligned.

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For more information, write for Catalog R, or contact your Reed Representative.

2003

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Letters *from page 122*

tioned directly below the planes which they serve.

According to a reliable engineer and construction firm in Honolulu, a system such as this would cost $12 per square foot. It would save endless time in acquiring similar areas where land shortage is a critical factor. The monetary savings from acquisition, clearing and paving equal areas would greatly defray construction costs. The design of ramps and lifts would have to fit the local conditions, and the cost of these items would be in addition to the quotation already cited.

In addition to effectively doubling the useful areas of existing airports, the following features

From the *Honolulu Advertiser*, Feb. 19, 1967.

might in themselves make such a system a feasible one.

1. Baggage would be moved directly from car to lift, and from lift to planes: a handling operation which could not be further simplified. There would be no need of pickup areas at remote parts of of the terminal.

2. Distances a passenger has to walk would be all but eliminated. He would board the lift from his car at check-in points and rise to the plane at flight time. This would in effect constitute a "vertical" transfer of about 20 feet, as compared to existing "horizontal" systems of thousands of steps, moving causeways, escalators, etc.

3. Normal operations would not be curtailed during the conversion period if handled as follows:

• Increment 1—Deck existing car parking areas and construct ramps to the runways.

• Increment 2—Deck existing plane apron after Increment 1 was in use.

4. Based upon a 30x30-foot modular system for the upper deck as quoted, opportunity for increasing or revising layouts to accommodate varying traffic patterns would be limitless. The area gains would provide additional flexibility, and obsolescence would be indefinitely deferred, to the extent that a lesser solution could not be justified.

JAMES MORRISON, AIA
Honolulu, Hawaii

In Defense of Snug Harbor

EDITOR:

I was delighted to see the Sailor's Snug Harbor buildings on Staten Island included in the article on the New York Landmarks Commission in the May issue.

As you undoubtedly are aware, I spoke about this particular project during the second business session at the New York Convention, explaining that the commission was defeated on the matter of the decimation of that great complex—and this is only the beginning of the battle. I base my case for Snug Harbor on four points:

1. The buildings form one of the most impressive—if not the most impressive—and important Greek Revival groups in the whole country. There is no question about their architectural quality or importance.

2. There is no necessity for the demolition. With the many acres around these buildings, there is plenty of room for modern development of necessary facilities.

3. No sincere or sympathetic effort has been made or authorized by the Snug Harbor trustees to incorporate these buildings in an imaginative way in their overall plan.

4. It is obvious that the first interest of the lawyers in this case was to disencumber the property from the restrictive effects of the landmarks law.

F. J. WOODBRIDGE, FAIA
New York, N.Y.

Pre-Engineered Construction

EDITOR:

I think a few observations are in order following the first National Conference on Pre-Engineered Construction which my firm held in Atlanta recently. It brought together 200 top executives from 90 leading US industries, along with buyers, raw materials suppliers, architects, engineers and contractors.

We at Star realize that pre-engineered construction is a controversial area in the architectural profession today; we do feel, however, that the chasm is closing.

We believe the charges that pre-engineered construction is eliminating the role of the architect are without basis. It is my contention that the huge building job which faces America in the next 30 years makes the architect's contribution all the more important.

In addition, it is our belief that new, more modern construction techniques are called for to complement the best architectural thinking and planning which is available. We firmly believe that pre-engineered, or industrialized, building techniques hold at least a partial solution to some of the problems facing all of us involved in construction.

One of our objectives in sponsoring the conference was to underscore our belief that the architect, the manufacturer and the builder must engage in constant dialog in an effort to form the new coalition that must be formed to rebuild America in the amazingly short time we have before us.

L. S. SHEALY
Vice President-Sales
Star Manufacturing Company
Oklahoma City, Okla.

Restoring Unity Temple

EDITOR:

Unity Temple — Frank Lloyd Wright's first building of a public nature—is now open to visitors on a 25-hour weekly schedule through September in an attempt to develop a fund for its restoration. The tours feature a sound tape recording with Wright himself speaking about the structure and display boards incorporating floor plans and photographs.

As you know, this historic building in Oak Park (Lake Street at Kenilworth Avenue), constructed in 1906, was a significant contribution to modern architecture. It reintroduced the temple form as a place of worship. The structure was the first use of pour reinforced concrete as an architectural building material in this country and included an integrated forced air heating system.

GLENWOOD BAKER
Chairman, Board of Trustees
Unitarian Universalist Church
Oak Park, Ill.

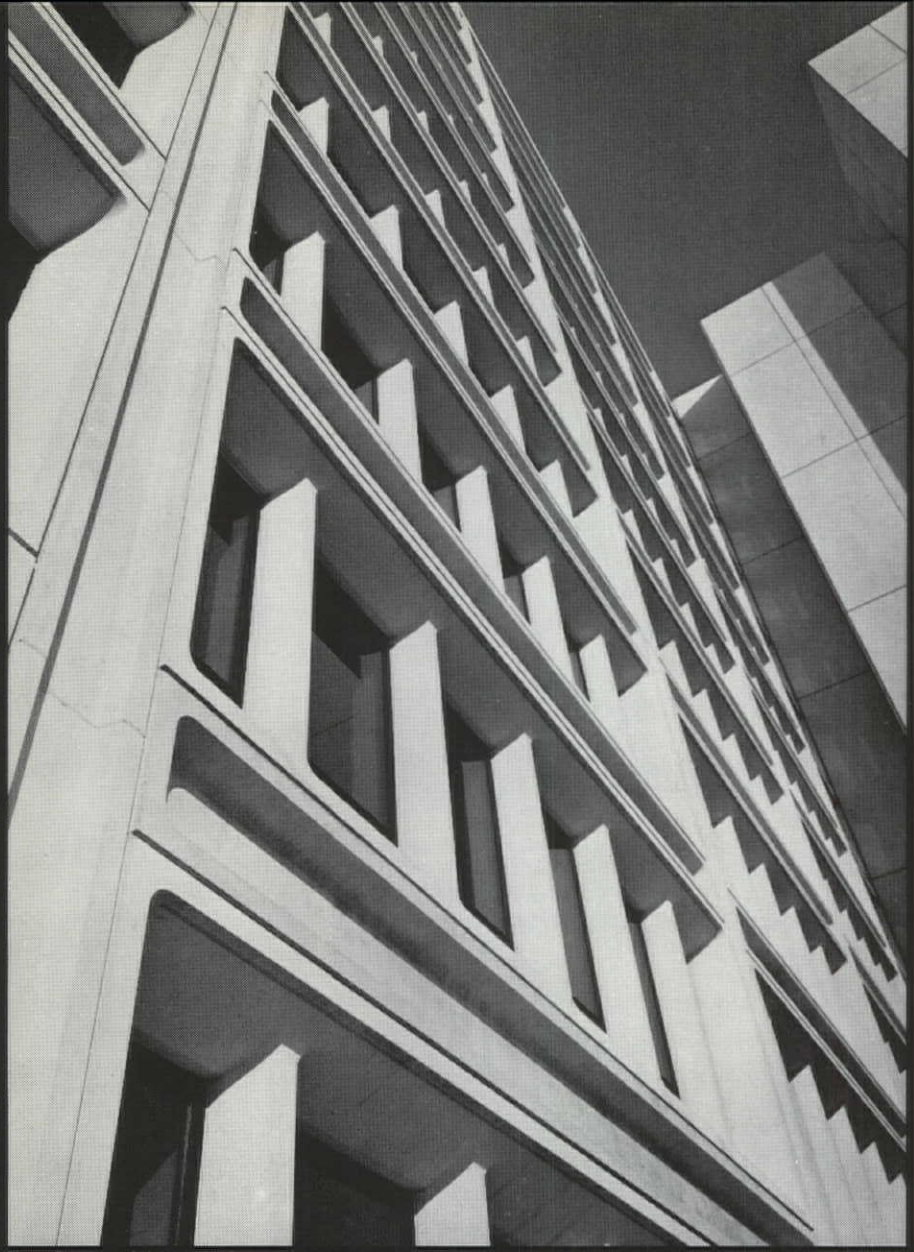
Another Trip to the Powder Room

EDITOR:

The sentiments expressed by Mrs. Brown in the April issue are in harmony with those of the washroom manufacturer. Although, admittedly, the writer has never had the occasion to visit the ladies' washroom, we are privy to planning of same.

All too often, it is our function to follow the instructions dictated

Continued on page 128



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Letters *from page 124*

by the architect, who has planned the washroom in a chaotic fashion.

Our industry has always attempted to keep the architect abreast of the "technical-industrial manufacturing processes of the 20th century" by providing catalogs which we believe reflect these changes and advances. However, the thinking seems to be that powder rooms are a necessary evil rather than a functional requirement of the structure.

We hope that reprints of the article are available since it should be required reading for the specification writer. PATRICK GRASSO
President
Accessory Specialties, Inc.
Long Island City, N.Y.

ED. NOTE: Reprints of "Planning the Powder Room" indeed are available (see Architects Information Service card).

EDITOR:

The author suggests that we architects might do well if we turned to anthropology for some of our answers. The *lingua franca* to which she refers is derivative of the accepted designation in use by anthropologists in diagramming kinship analysis: △ male ○ female. LABELLE PRUSSIN, AIA
Los Angeles, Calif.

EDITOR:

In response to Mr. Prussin, the problem with a visual logo is not so much what the experts think of it but what the public associates with it. These basic shapes are susceptible to many forms of interpretation in the mind of the public.

I myself have had numerous discussions on the question of sexual attribution as between circles and triangles, inverted and otherwise. I refrained from repeating the arguments on each side in my article since I should have had, for the sake of clarity, to descend from those high levels of tact and delicacy which I had set for myself in dealing with this subject.
DENISE S. BROWN
Acting Associate Professor
University of California
Los Angeles, Calif.

Auditorium Job Not Yet Done

EDITOR:

As a postlude to Betty J. Ritter's excellent article "Rebirth of Chicago's Auditorium" in the June issue, I am pleased to say that on June 29 my co-chairman, Harold W. Norman, and I announced that the Auditorium Theater Council raised all the money to reopen the world-renowned Auditorium Theater. Articles such as Miss Ritter's certainly helped us to reach that goal: $350,000 in answer to $150,000 of challenge offers.

But fund raising cannot stop now. Most theaters operate under foundation grants. Our council, however, must have cash on hand before anything pertaining to the theater—restoration, management, programming — can be enacted, and has no such grants for projects.

We hope that members of your Institute will contribute to further preservation of this important structure, now making certain that it will be put to the artistic use for which it was designed. Contributions can be sent to the council at 70 E. Congress Parkway, Chicago, Ill. 60605.
MRS. JOHN V. SPACHNER
Chairman
Auditorium Theater Council
Chicago, Ill.

EDITOR:

Thanks for the fine article on the auditorium. However, it would appear that the scaffolding photograph is upside down. Is it?
DAVID J. REICHEL, AIA
San Francisco, Calif.

ED. NOTE: Sharp-eyed reader Reichel is so right!

A Love Letter to the AIA

EDITOR:

Every day I spent in New York during the annual convention was special in a gloriously exciting week, thanks to the Institute's planning. More than ever before, I am convinced that architects are the greatest people on earth.

Following the convention, the Wisconsin Chapter of The American Institute of Architects (I could abbreviate the title but I *love* the look of the whole thing!) met at Mount Mary for a dinner meeting at which I was invited to speak—and it was one lecture which I really looked forward to giving. The chapter is part of a great and proud organization, and I feel it a privilege to be associated with it even in so small a way.
SISTER MARY REMY REVOR
Mount Mary College
Milwaukee, Wis.

ED. NOTE: Sister Mary is being a bit modest since she is now associated with the Institute in more than a small way, having received the 1967 Craftsmanship Medal.

Concerning Competitions

EDITOR:

For the past year some of my colleagues and I have been trying to find a source where young architects just starting out could find information about various running competitions in the country, but we have been unable to do so.

Recently some of our European friends showed us a few of their magazines where in each month's issue a special section is allotted to the particulars about upcoming competitions and results of those completed. One such example is the Swiss magazine *Werk*, a copy of which I have enclosed.

My colleagues and I hope that you find this a worthwhile and interesting concept and that we can read about new competitions in the AIA JOURNAL in the near future. FIROUZ ESFANDIARI
Boston, Mass.

ED. NOTE: We are in complete agreement with Mr. Esfandiari, and as a matter of policy we list all national competitions whenever the material is received in time for publication prior to registration deadlines. Note, for example, the "Competitions" listing in the April Calendar.

However, the truth of the matter is that of the dozen or so AIA-approved competitions held each year in the US, no more than two or three are national in scope, while the remaining are limited to a particular state or even a smaller jurisdiction.

A Suburbanite Speaks Out

EDITOR:

Your April cover feature "Cities: What's the Matter?" was exceptionally perceptive and gave some concrete answers to concrete problems.

However, in recommending high-density living, one factor was ignored: Why do city lovers flee to suburban houses? Perhaps the reason is more than just a flight from integration as the article implies.

For example, thin apartment walls often preclude the natural sounds of everyday living unlike houses which have natural soundproofing, i.e., *distance*. Little balconies, even those artificially planted with hot-house greenery, can seldom replace a man's desire for a bit of nature which is his own, although they could better serve their purpose by not overlooking dirty buildings, neon lights, barren streets or—worse—the neighbor's balcony.

Apartments must offer a wider variety of floor plans within the same complex and be designed to serve many choices of furniture placement. Swimming pools should be sized for the number of apartment occupants. Narrow sidewalks, already congested, should be widened to handle the increased numbers of people so that a Sunday stroll does not become a battle of elbows. Finally, apartments should be available for rent at

◄ *Circle 317 on information card*

prices commensurate with size, location and particular attractions.

Few of these are luxury items, but as yet they are unavailable in the city except at luxury prices. As your author states, until the cities can compete both physically and economically with the suburbs, they cannot win back those who otherwise would prefer to live "where the action is."

LORETTA DELOZIER
(New suburbanite)
Suitland, Md.

War, Cities and Slums

EDITOR:

Our neighbor, Ralph Walker, gave us a copy of your July issue earmarked to page 16 and the news item "Vietnam Protest Meeting Held During Convention."

The Community Renewal Society in Chicago which publishes *Renewal* deals with rebuilding life in the large cities. Its concern with including our article providing background perspective in the escalating war in the June edition is direct. The more the war escalates, the more natural and human resources go into the production of anti-human and destructive forces and the less go into pro-human purposes such as the rebuilding of city slums.

Many of your readers may wish to identify with this concern. Beyond that, all of the architectural treasures of civilization which are in the cities of the world are threatened if modern war breaks out, perhaps by accident, during one of the confrontations.

It requires a generation to pioneer air power or nuclear power or space power. It may require a generation to pioneer and demonstrate and sell global compassionate power to the people of all nations. It can be a generation of creativity and renewal and progress beyond any past period of history.

We are *not* seeking support for any peace plan or political action. We seek widest possible professional and public pro and con discussion of the new historic era just ahead.

HOWARD G. KURTZ
REV. HARRIET B. KURTZ
War Control Planners, Inc.
New York, N.Y.

The AIA JOURNAL encourages expressions of opinions from its readers but reserves the right to edit for length and style. Address letters to the editor at the Octagon.

Next Month

Kenzo Tange Observed: The AIA's Gold Medalist for 1966, who has just been commissioned to design a $25 million luxury hotel and apartment complex on San Francisco's Nob Hill, is deeply committed to the advancement of urban and regional planning in Japan. How his most recent buildings, including what is perhaps his most potentially significant work —the Communications Center in Kofu—contribute to those principles is analyzed by a US architect, reinforcing his text with some sensitive sketches of Tange's projects and of Tokyo.

Foursome on Education: In the initial article in this packet, a practitioner sets the stage with a concise statement of "what an architect is and what he should be, and what he performs and what he should perform." An educator discusses the human dimension as it pertains to the student-teacher relationship, an AIA staffer considers the role of research in the architectural school and a JOURNAL editor, walking into a lion's den, evaluates a student competition that seems to work.

An Architecture of Purpose: "By aiming for perfection, the architect has missed and misunderstood the life for which his building was designed." So writes an AIA member in his analysis of the bases of architectural decisions, an essay developed from studies began in 1963 when he undertook the establishment of a new curriculum at Tuskegee Institute. □

PHOTO & ART CREDITS: Prestressed Concrete Institute—p. 14; American Institute of Steel Construction—p. 22; Photo Researchers, Inc.—pp. 56-57; British School of Egyptian Archaeology, courtesy of Sir Leonard Woolley and the Egypt Exploration Society—p. 58 (plan); Barnaby's Picture Library—pp. 58 (bottom), 59 (top), 61 (left); Susan McCartney —p. 59 (lower left); Aerofilms, Ltd.—p. 59 (middle); European Picture Service—59 (bottom); Terence Davis from *The Architecture of John Nash*—p. 60; Darwin K. Davidson—pp. 61 (right), 62; Phil Palmer—p. 63 (top left); Bill Enghahl, Hedrich-Blessing — p. 63 (bottom left); Roland Chatham (top right); J. Alexander (bottom right); Leonardo Bezzola—p. 64; Strüwing—p. 65; Joseph Amestoy, AIA—pp. 66-67; Balthazar Korab—pp. 68, 70-73.

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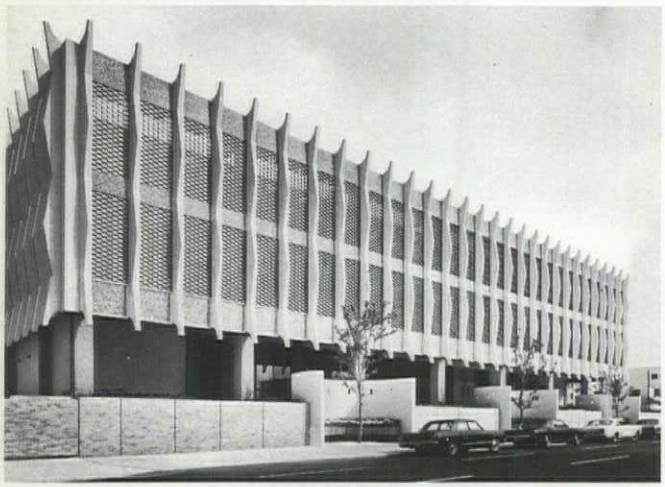

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Next, consider design. Tessera Corlon's random, cube-like design matches the form and mood of the library. And by combining Armstrong Vinyl Corlon Decorator Strips with Tessera, the architects added a distinctive, expansive look to their bold interiors.

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