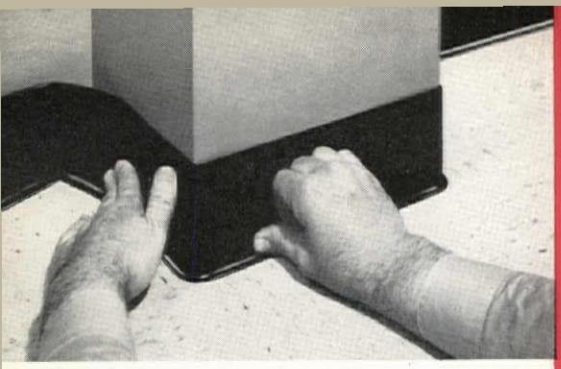
A·I·A

Journal

October 1965 ENVIRONMENT USA



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OCTOBER 1965

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General Articles

News Features

Departments

Cover: From Julius Shulman's portfolio (p. 45), a tree house—architect unknown—part of the adventurous "Environment USA"

LOOKING AHEAD TO NOVEMBER

Remembering Le Corbusier: What We Have Lost

"Some of his greatest masterpieces are still on paper," notes José Luis Sert FAIA, who worked with Le Corbusier in 1929-30. Sert, dean of the faculty of design and professor of architecture at Harvard University's Graduate School of Design, and a member of the firm of Sert, Jackson & Gourley, which collaborated with Corbu in the creation of Harvard's Carpenter Center for the Visual Arts, the recently deceased architect's only US building. "Like all great men," Sert writes, "he was far ahead of his time."

Architectural Concrete Fundamentals: Advice on a "New" Material

"The key to good architectural concrete," says James M. Shilstone, "is attention to detail at all levels of design, complemented by an understanding of the capabilities and limitations of this material."

Flexibility in K-12 Schools: Change Is Here to Stay

School administrators need buildings in which interior spaces can be rearranged to accommodate demands of changing curricula and teaching methods, declares William Corlett AIA. But "instant, infinite flexibility" is no substitute for a carefully formulated educational program, as this School Plant Study explains.

Practice Aids for Immediate Use: New and Revised Documents

Among the latest offerings developed by the Institute is the Project Concept Manual, a proposal for contract document organization. But it is just one of a half-dozen items covered in a special section devoted to professional practice as a follow-up to the practice aids in the October 1964 AIA JOURNAL.

PHOTO AND ART CREDITS: Jules Schick—p. 14; Dennis Galloway—p. 16 (top); Edmund Y. Lee (starting at top, left), Karl H. Riek, Don Normark, Jeremiah Bragstad—p. 22; Louis Reens—p. 22 (bottom); Thomas E. Hutchens—pp. 61, 63, 88, 92, 96; Wayne Bolick—p. 76 (left); US Army Photography —pp. 80, 82-84.

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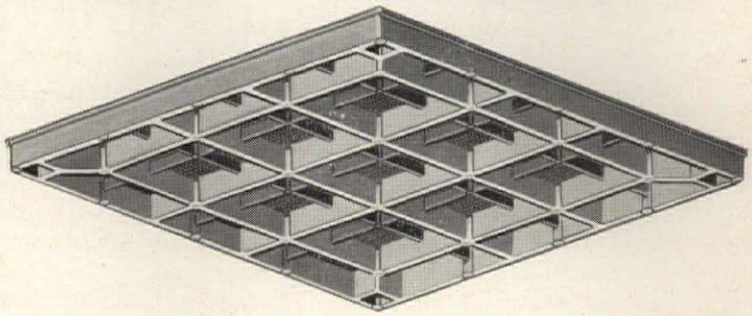

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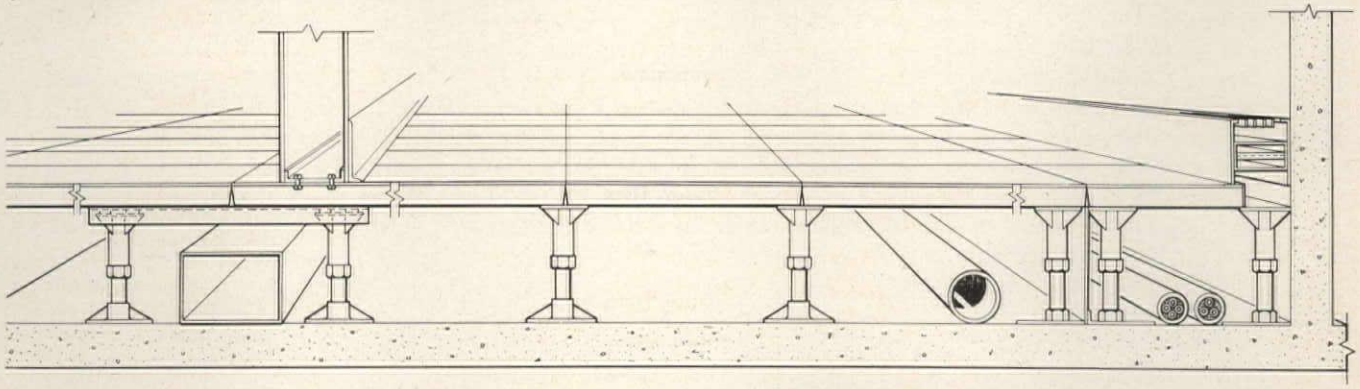

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Notes from a State Convention

AMONG THE Institute's current objectives as outlined by President Ketchum is "making our regional conventions, which have a total audience of twice that of our national conventions, into an even more vital asset to our profession and the public."

Having been indoctrinated in AIA affairs through a number of stimulating conferences of the Northwest Region, this writer does not have to be sold on the value of such gatherings. Last month I had occasion to attend a state convention on the other side of the country as the New Jersey Society of Architects met at Spring Lake. My convictions were reaffirmed.

To be sure, New Jersey has a decided advantage in that its members do not have relatively far to travel to the convention site, wherever it may be; consequently, this facilitates certain aspects of programming which are not feasible in larger states and particularly in far-flung regions. Nevertheless, AIA convention-planners might well steal a page or two from the notebook of the Garden State. Especially recommended:

Development of a realistic program format—The schedule takes human psychology into consideration, recognizing the fact that participants want, and need, some free time; and that in cases where it is not granted, they will simply "cut classes." Thus the three-day meeting on the Jersey coast devoted half of each day to professional seminars, leaving the remaining time (except for a late-afternoon business session) open for viewing the architectural exhibits and educational—product—displays, for strolling along the boardwalk, for golfing or what have you. Likewise, organized luncheons were held on Thursday and Saturday, but not on Friday. Evening events included a "Wild East" party, a cabaret dinner and the annual banquet.

Presentation of scholarship awards—As part of its awards luncheon, the Society takes time out to honor the architectural students from New Jersey who will share in the funds made available each year (now totaling $14,000). The $4,000 collected in 1965 was divided among eight scholars.

Recognition of newly licensed architects—The close of the banquet is reserved for a simple but impressive ceremony as each young man is called forth to receive his certificate. About a dozen or so were on hand last month to be so appropriately introduced into the profession.

Presentation of a nonarchitect award—In addition to its citation to a member (current recipient: Paul W. Drake FAIA). the Society annually honors a layman. This year it was Congressman Frank Thompson Jr. of the Fourth District "for his continuous activity in support of the arts in general, including architecture." In this regard, it should be noted that the Society's strong liaison with its local and state government is also reflected in the appearance of Gov. Richard J. Hughes as guest of honor at the opening luncheon.

As Congressman Thompson pointed out upon accepting the award at the annual banquet, the timing was most appropriate, because on the following Monday his bill to create a National Foundation on the Arts and Humanities was scheduled for the House of Representatives. Now that the measure has become law, some of his remarks explaining its organization are in order:

"The Foundation will have a three-tiered structure. There will be a National Endowment on the Arts, of which the present National Council on the Arts will be an integral part. There will be a parallel endowment on the Humanities, including a National Council. There will be a Federal Council on the Arts and the Humanities, composed of representatives from each of the two endowments, together with representatives from all other Federal agencies having to do with the arts and humanities.

"The Council will serve to coordinate the work of the two endowments and to avoid duplication of work done by other Federal agencies; and, of great importance, it will be the vehicle through which the recommendation of the two councils can be transmitted to the Federal agencies.

"Each endowment will have modest grant-making authority. By specific reference, grants may be made in the field of architecture and allied fields. A principal purpose is to stimulate and encourage state and local governments to be aware of both the fine arts and the humanities.

"We expect this Foundation to spark a comprehensive assault on the forces that are despoiling our land and our cities and on the public apathy which allows these forces to thrive. In short, we hope that the Foundation will help launch a War on Community Ugliness.

"Those of us in Congress who advocate this legislation intend that the Federal government participate in this war, not direct it. Throughout my Congressional career, I have insisted on a disclaimer of Federal control in legislation having to do with the arts. However, we believe that the Federal government, representing all the people, has a proper role to play. It can and should stimulate an awareness of esthetic values—an appreciation for beauty and form. It should call attention to and help preserve our cultural heritage."

Without a doubt, the New Jersey architects already have translated the Institute's objective into a positive statement. ROBERT E. KOEHLER
Editor

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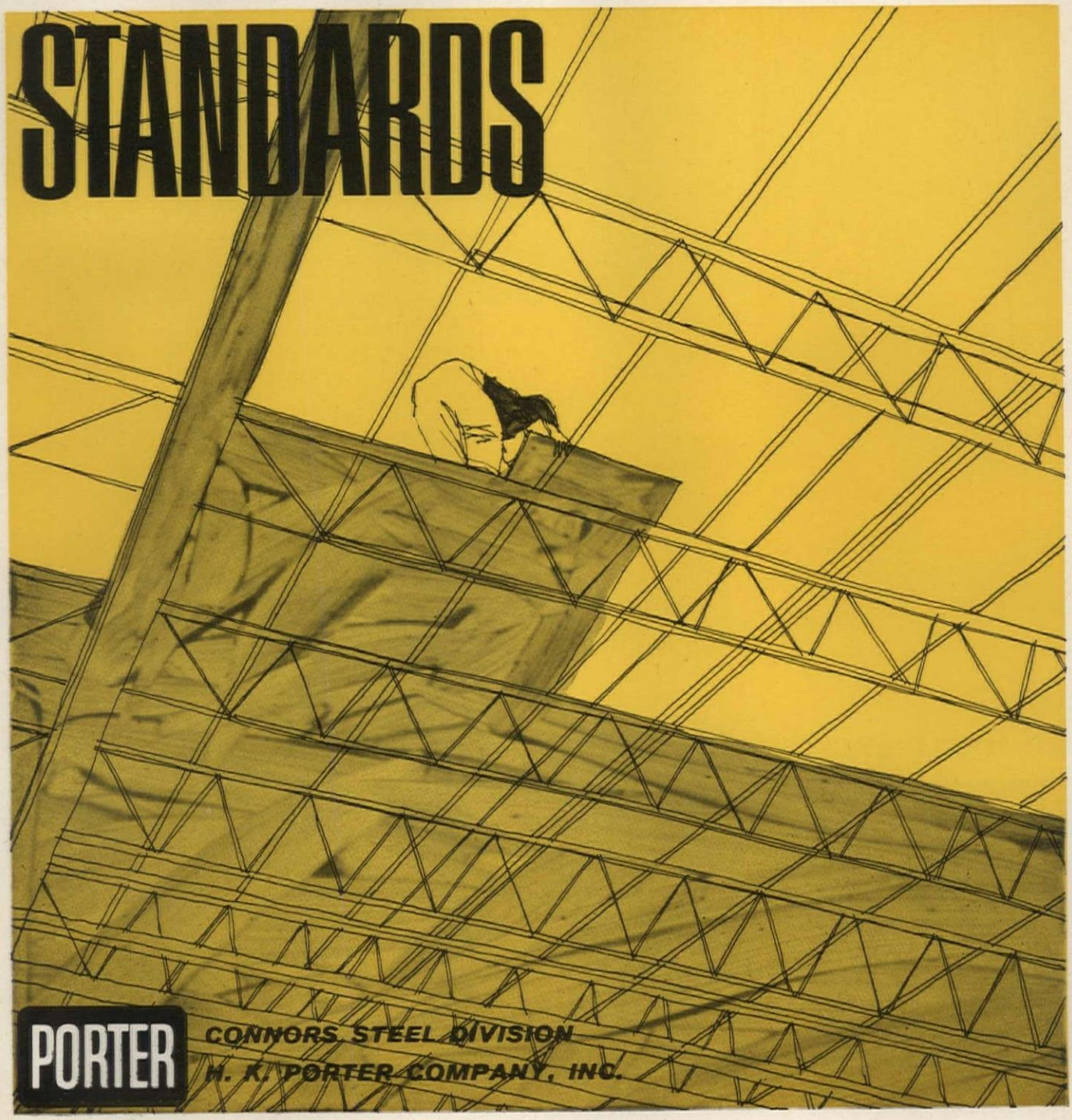

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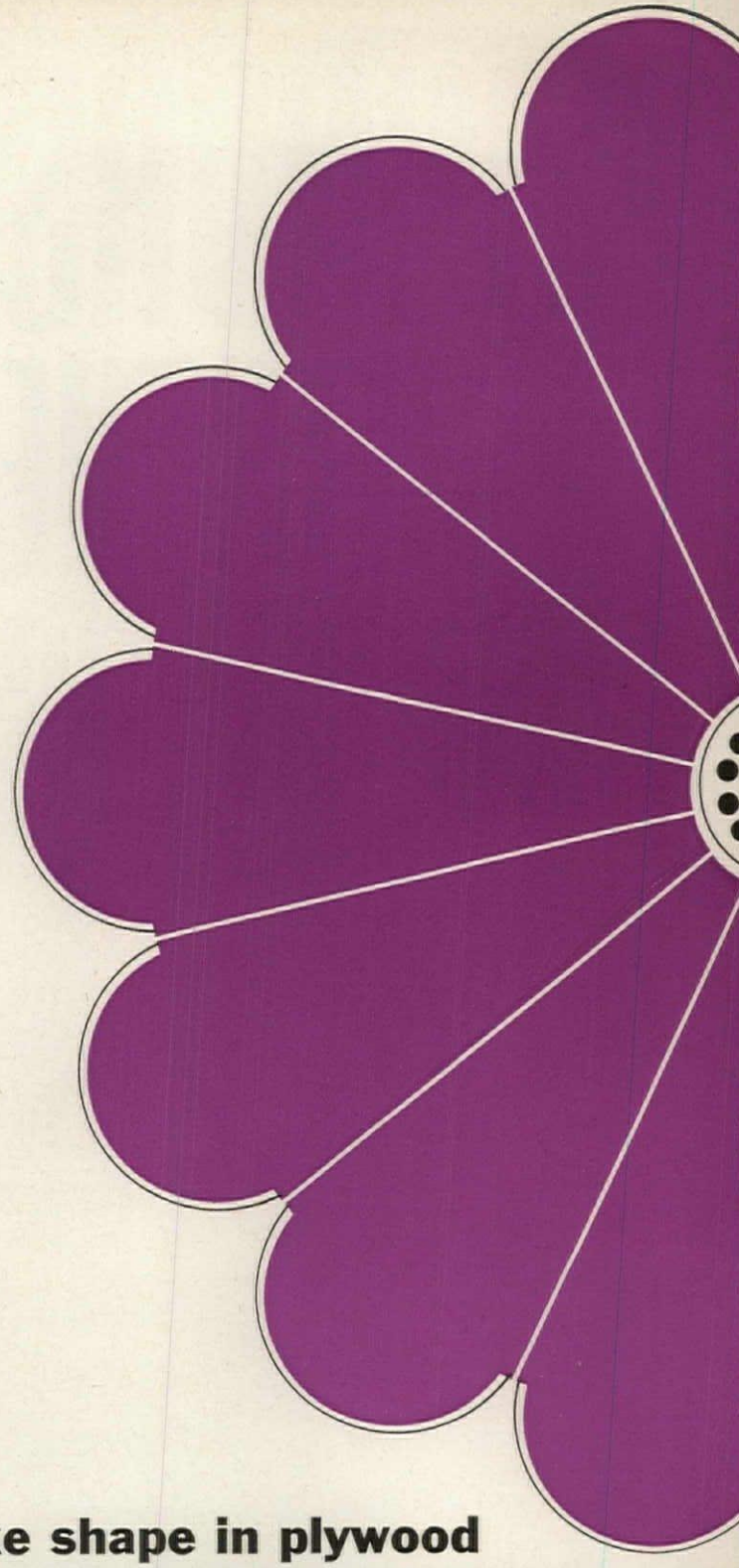

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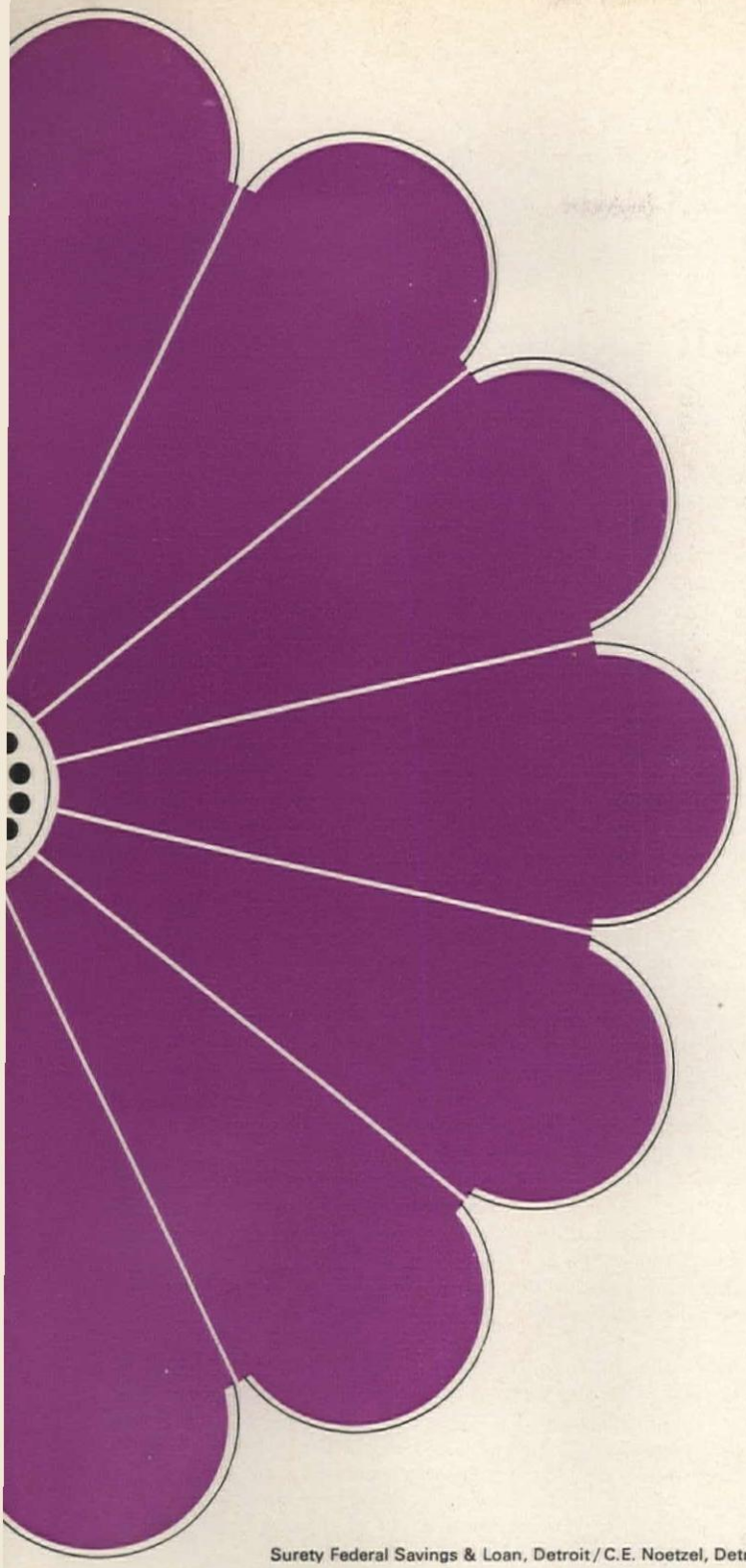

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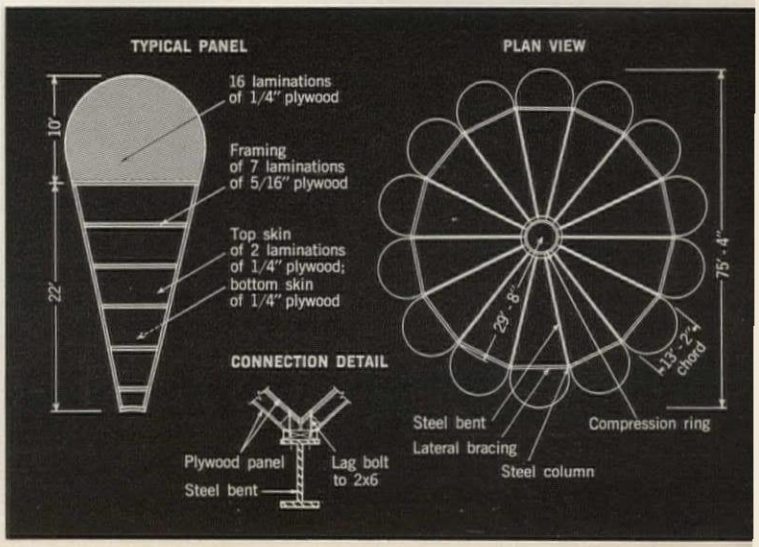

Toward an Educated Architect

THE PROFESSION of architecture is flourishing as never before but toward what end? It is paradoxical that affluence cannot seem to harbor excellence.

We all endorse the need for a better physical environment, while an increasing number of practitioners and educators point up the fact that there is a complete disparity between the architects' training and the needs of society. Fortunately, there is a new vitality and awareness being displayed by those who have taken off the rose-colored glasses.

As a result of a continued dialogue between many of these leading practitioners and educators, the Institute has initiated an educational research project to develop and test new approaches and curricula in a cross section of the professional schools of architecture and environmental design. The project will be directed by Robert L. Geddes, dean of the School of Architecture at Princeton, with the cooperation of the Association of Collegiate Schools of Architecture and the Institute's Committee on Education.

This project is aimed at accelerating the changes now underway in the schools; and stimulating the development and actually implementing new curriculum and teaching tools in a way that will benefit all schools and the profession. The changes will be developed within the framework of the administrative procedures, academic traditions and special strengths of the participating institutions.

The intent is to generate a true experiment in education working with the schools to establish clear and precise statements of intended goals. This is an exacting task but essential in any attempt to develop and test meaningful hypotheses. Merely endorsing the need for students with broader backgrounds without defining the background is pointless.

It is both understandable (and intolerable) that there has been hesitation on the part of practitioners and faculties to question established teaching practice. The sacred prestige of the case study method, which is in fact little more than a thinly veiled version of the Beaux-Arts approach without the drawing skills, tends to eliminate any questioning as heresy. To individuals trained under the prevailing system, the development of a logical approach based on rational criteria seems not only unnecessary but impossible.

If we are to accept the responsibility to take part in the shaping of the total physical environment, we must accept some major changes in the profession and thus in education. It is not enough to develop greater skills for the design of individual buildings, although this cannot be dismissed. Unfortunately, one good building in a bad environment doesn't change the environment. An English architect has put it most poignantly: "Americans produce the best buildings and the worst cities."

Both practitioners and educators have awakened to find that the comfortable old vocabulary is no longer relevant to the task at hand. People—clients, builders, the public and, most persistent of all, the students—are asking questions. The traditional answers are no longer appropriate. It is time to seriously accept the responsibilities of education *and* teaching: The student deserves more than haphazard teaching methods based solely on some kind of osmosis.

"In earlier times, when the rate of technological and demographic change was slow, societies could afford the luxury of their collective neuroses; today . . . behavior dictated by obsessive memories of the past (in other words by venerable traditions that have lost their point and by old, silly or actually diabolic notions raised to the level of first principles and canonized as dogmas) is apt to be fatally inappropriate," wrote Aldous Huxley in the *London Observer*, 1961.

While we must develop curricula which reflect a truly interdisciplinary commitment, at the same time it would be tragic if we eliminated the possibility for those specially talented students who are only interested in a narrow spectrum of the total area of concern. We must provide the flexibility to accept and encourage the already increasing variety in the background of entering students.

The major areas of exploration are set forth in the first four proposals of the Graham Foundation Conference Report (p. 53). Some specific concerns indicated by Bob Geddes are as follows:

- Improvement of competence in environmental programming, developing more effective techniques of problem stating and problem solving.
- Improvement of competence of the architect to play a central role in the creation of the built environment, developing both a shared general education with other disciplines and a specialization in planning, engineering and environmental controls, and building construction and economics.
- Improvement of teaching methodology, the selection of students and the evaluation of student performance as well as methods of professional internship.
- Improvement of the relationship between education and practice, developing a more effective research program that will feed back to the schools and the profession.

Several objectives of the study go beyond academic training. It can be predicted that any broad change in architectural school programs will have to be reflected in corresponding changes in recruitment of students, teacher training programs, apprenticeship and continuing education, and the education of sub-professionals.

Robert M. Hutchins, president of the Center for the Study of Democratic Institutions, noted recently in the *Saturday Review* that in California the job of keypunch operator has been declared surplus, but that the vocational schools are still grinding out students and advertising for more. The analogy is painfully obvious.

RICHARD R. WHITAKER JR.
Director of Educational Programs

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Corbu: Tribute to a Master

"I am living in the skin of a student," he confided upon receiving The American Institute of Architects' highest accolade.

Le Corbusier, who won the Gold Medal of Honor in 1961, was something of a teacher, too. His building output was not large, but each building, wrote Ada Louise Huxtable of the *New York Times*, "was a textbook of ideas and a wellspring of the contemporary spirit."

He had, in his nearly 78 years, also made prolific and didactic pronouncements which elicited countless utterances from others. The word flow continued in his wake with much of the current running in the popular press.

"Actually," said an editorial of the *Buffalo Evening News*, "his place in architectural history doubtless will be better secured by all he wrote rather than by anything he built."

Born October 6, 1887, in La Chaux-de-Fonds, Switzerland, Charles Edouard Jeanneret-Gris, who as a young man in Paris was to take the pseudonym of Le Corbusier, was a revolutionary whose theories spun around the machine but were centered on man.

"The human element, human scale and the concern of providing for a better and happier life," José Luis Sert FAIA has said, "are at the roots of Le Corbusier's architecture. The image of man is ever present in his works. This presence gives life to his architecture and adds visual interest to his buildings.

"In a world drifting toward dehumanized abstractions, Le Corbusier, like Picasso, remains obsessed with the human image. This concern with man is to be found in everything that comes out of his mind and from his hands."

Sert, who worked with Corbu in 1929-30, told of a picture in the master's Parisien work cell, a photograph of children in the wading pool atop the Marseilles Unité d'Habitation. "He said he likes this picture that proves that architecture can make people happier."

Le Corbusier's range of talents and qualities was covered by the citation accompanying the Gold Medal of Honor. It read:

"Architect, planner, sculptor, painter, author, poet, teacher, visionary and, most of all, man of principle who, often misunderstood but always respected, has by his tenacious insistence on seeking truth and beauty for the human environment, by his great works, by his discoveries and by his motto that 'Creation is a patient search,' led and inspired the dawn of a new architecture."

Le Corbusier's technological awareness and social concern drew him toward bold designs for man's total environment, the community. *Time* magazine observed that he designed "elevated freeways to make downtowns more accessible when Los Angeles was still getting used to stoplights."

Mrs. Huxtable called him "a modern Michelangelo" in a world "already modeled in his own image but only beginning to grasp his lessons."

Her counterpart on the *Washington Post*, Wolf Von Eckardt, estimated it will take architects "at least another generation to probe fully and absorb the depth and meaning of his prolific ideas."

Le Corbusier expounded on what Richard Neutra FAIA described as "current urgencies, the urbanistic and constructional needs of the contemporary community, and on solutions looming into an immediate and farther future." Neutra said it was not Corbu's "adherence to modern technology, nor to eternal rules and values that will make him outstanding for historians . . . but powerful, often thundering, deviation from the monotanous stillness of norms in a time obviously given to mass conformity. He was a one-man war against it."

Le Corbusier's personal and poetic concrete chapel at Ronchamp caused a stir in 1955.

Sert said Le Corbusier told him: "People are going to say I contradict myself; that after building Ronchamp and having many exclaim, 'Thank God that Le Corbusier got rid of his box architecture,' I am going back to building boxes in the Brazilian Pavilion in the University City in Paris. This is because they do not understand that I am mainly concerned with the different nature of the problems that I have to solve, and Ronchamp could not be a series of boxes, while by nature [biologically, as he put it] other buildings are.' "

Le Corbusier died August 27. Institute President Morris Ketchum Jr. FAIA cabled this message to M. Andre Maltraux, French minister of cultural affairs:

"On behalf of architects of the United States, I extend condolences to the architects and all the people of France for the loss of Le Corbusier, one of the world's greatest architects."

It was an appropriate message about a man who preferred the simple in his art, his living, his friendships and, presumably, in words of sympathy.

The cablegram came from the leader of the professional society in a country in which, Mrs. Huxtable wrote, the legacy of Le Corbusier is "especially alive. . . . But if the movement is still young, the men who started it are old; Mies van der Rohe is 79; Walter Gropius is 80. And . . . Frank Lloyd Wright and Le Corbusier, are gone."

Philip Will Jr. FAIA *as Institute president in 1961 presents the Gold Medal of Honor to Le Corbusier.*

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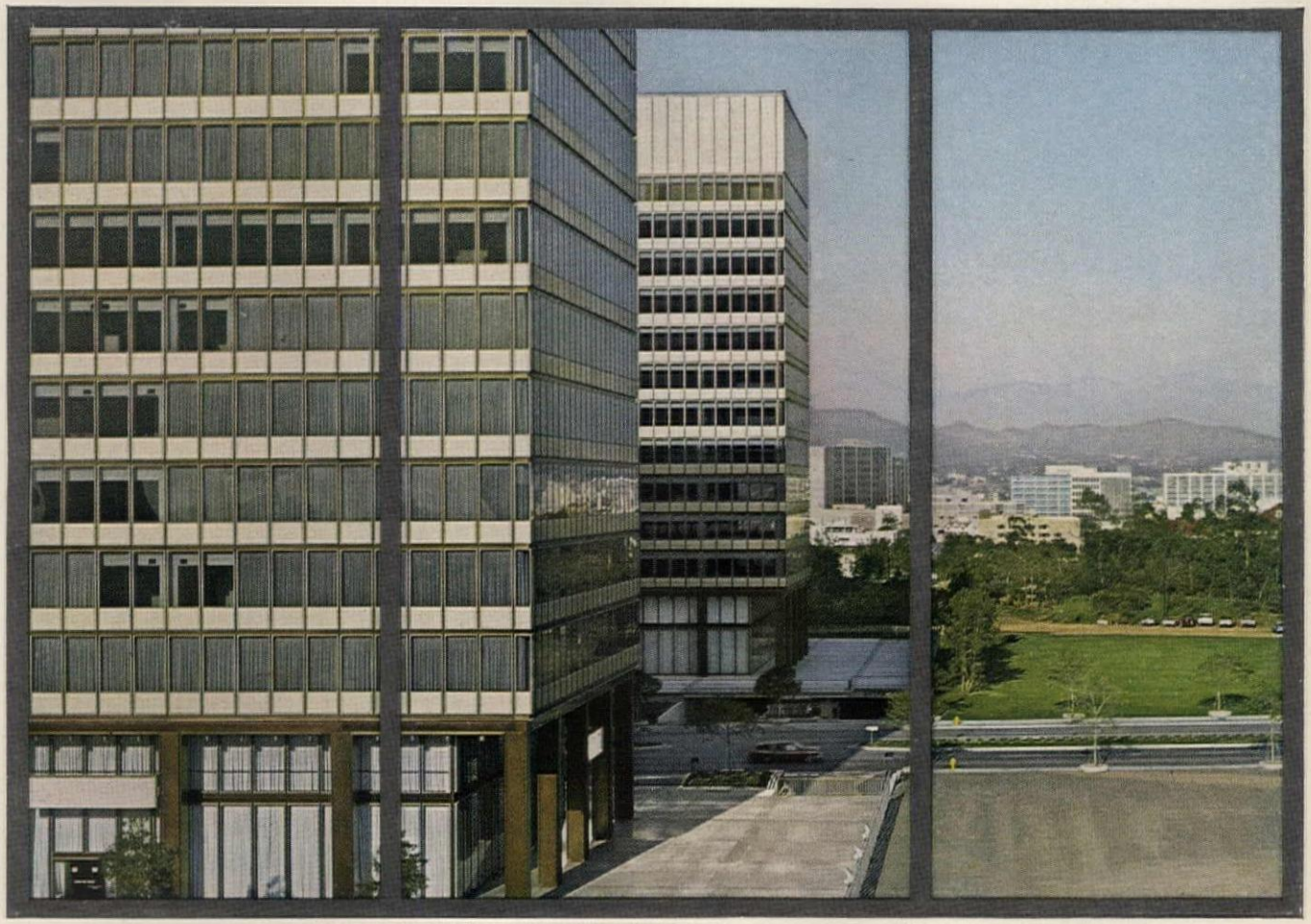

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Solargray®	¼"	1.1	150	42
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Graylite 61	3/16"	1.1	195	61
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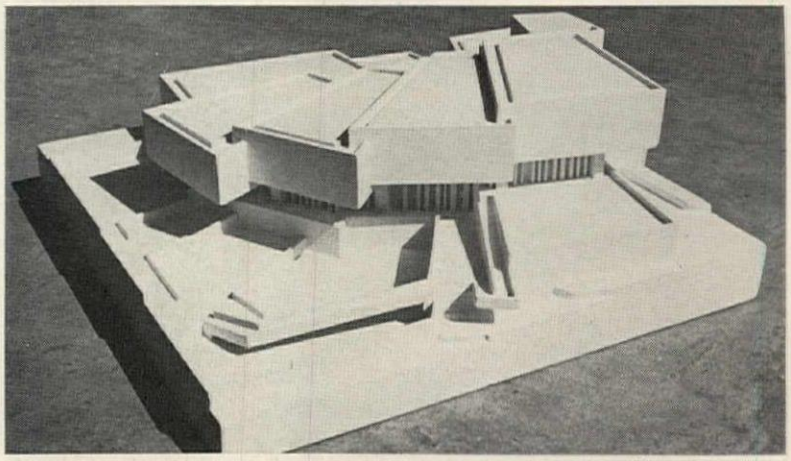
COMPETITIONS / 'Sculptural Statement' for Berkeley

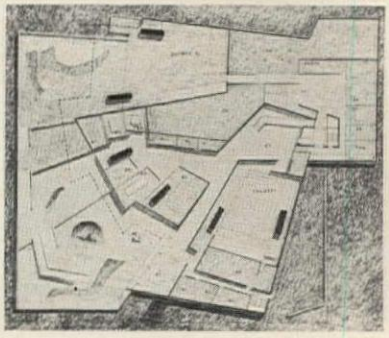
The nationwide competition to design the University Arts Center at the University of California, Berkeley, has been won by Mario J. Ciampi FAIA and Paul W. Reiter, associate architect, and Richard L. Jorasch and Ronald E. Wagner, associates.

The 90,000-square foot building will have an art museum with seven galleries, a theater workshop, conference facilities and studios for music and art. Cost of the unfurnished building is $2,825,000. Total project cost, including landscaping and furnishings, will be $4 million.

The five-member jury received 366 submissions in the competition. Ciampi, a native San Franciscan and a Harvard University graduate, produced a design that Peter Selz, director of the new museum, termed "a major sculptural statement itself . . ." The jury said the submission "can become one of the outstanding contributions to museum design in our time."

Lawrence B. Anderson FAIA, chairman of the Department of Architecture at MIT, was chairman of the jury.





System of Radial Terraces: Visually interconnected levels step down a sloping site. Upper and lower galleries employ natural lighting. Ground-floor plan (right) reveals angular exhibit, theater and ancillary spaces.

CRESCENTS FOR SPAIN: The winning entry in the Euro-Kursaal International Architectural Competition for a building complex in San Sebastian, Spain, is the work of Jan Lubicz-Nycz of the University of Virginia School of Architecture.

Lubicz-Nycz developed a "container," a distinct structure containing a variety of occupancies in collaboration with architect Carlo Pelliccia. William Zuk was structural consultant. Both are associated with the University.

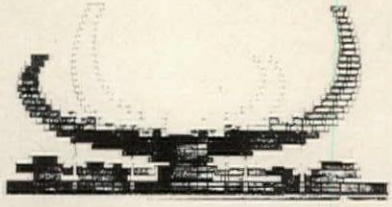
The design includes two giant crescents that rise 27 stories and hold apartments and hotel rooms. The project also involves shopping arcades, movie theater, skating rink, and swimming pool and a number of restaurants.

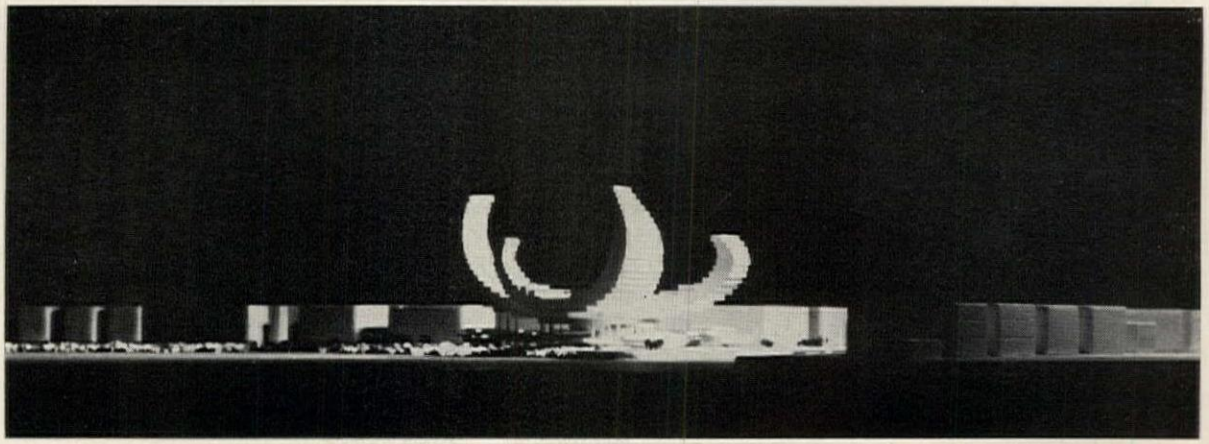
The winner was selected from among 124 entries from all over the world.

Lubicz-Nycz, 40, is a native of Poland. He studied in England and came to the US in 1958.

Cont'd on p. 20

Terracing in the Sky: Upper stories in crescent contain apartments; hotel rooms with patios are served by inclined elevators. Lower floors hold restaurants, theater, etc., and parking is at bottom levels. "Beton brut" concrete form resembles lotus blossom.





How do you top architecture like this?

With Johns-Manville Last-O-Roof

This is the new Beckman Auditorium at the California Institute of Technology. It was designed by Edward Durell Stone, built by M. J. Brock & Sons, Los Angeles, and the roofing job was handled by the Lytle Corporation of Pasadena.

This was a tough job, and Last-O-Roof was chosen because it makes tough roofing jobs easy. Last-O-Roof is a single-membrane, plastic elastomer product that can be installed in one step. It's a complete roofing system of totally compatible components... roofing membranes, cements, flashings and finishes. (The gold circles on the roof are a decorative paint.) Applied cold, Last-O-Roof can be used on low or steep slopes as well as involved configurations.

For complete information about J-M Last-O-Roof write Johns-Manville, Box 111, 22 East 40th Street, New York, New York 10016. Cable Johnmanvil.

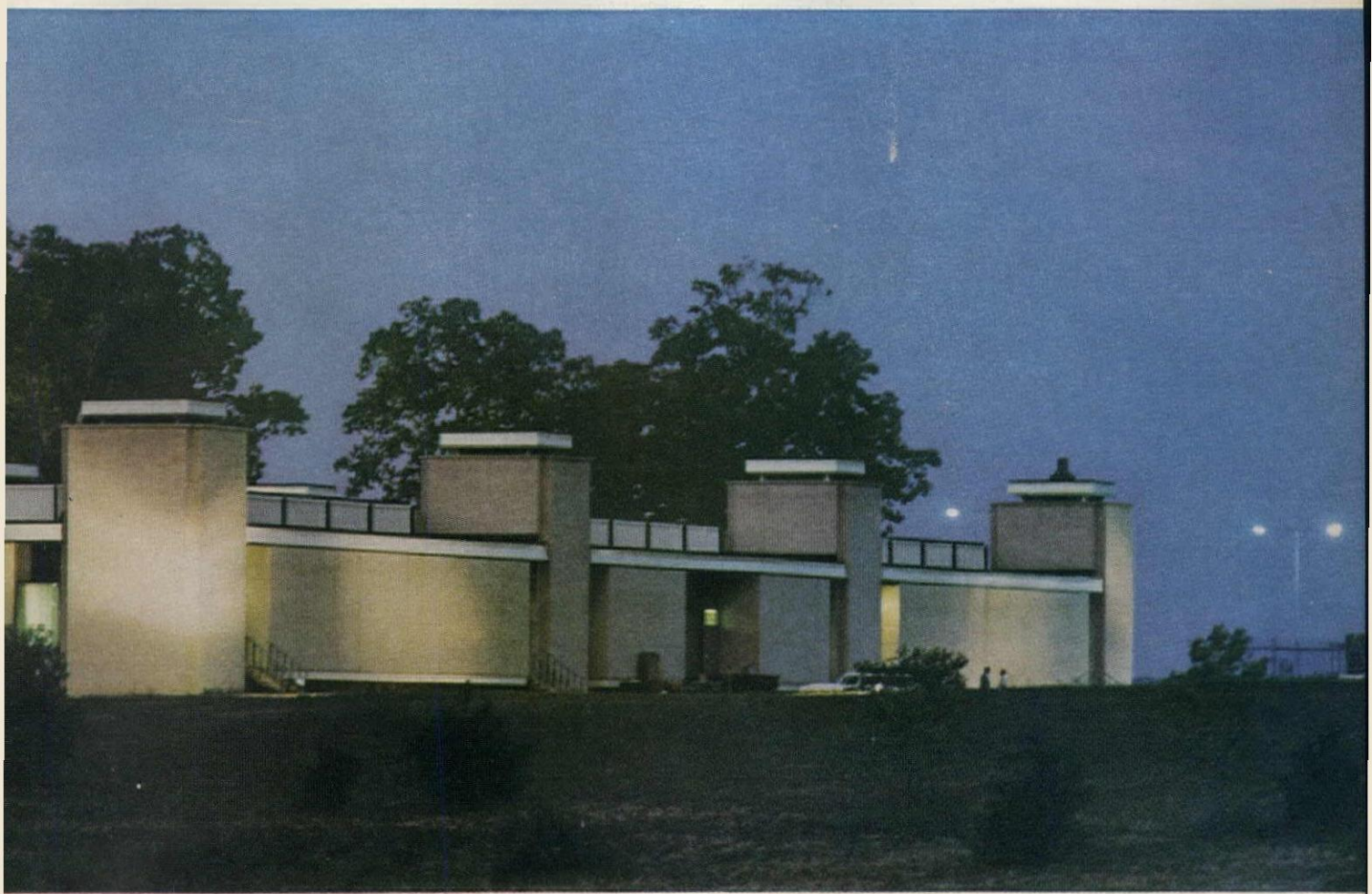
Johns-Manville

Molecular Electronics Division
Westinghouse Electric Corporation

First phase of the project (108,000 sq ft) is composed of four modules, three for research and production, the fourth for administration. Additional modules will be placed to form a number of partially and fully enclosed landscaped courtyards.

Space modules permit easy enlargement in relatively small increments

Westinghouse's Molecular Electronics Division facility is situated on a rolling, wooded, 7-acre tract in Anne Arundel County, Md. Roads, parking areas, and buildings are located so that a minimum of the site is disturbed.



Architect: Vincent G. Kling FAIA, Philadelphia
Structural Engineers: Allabach & Rennis, Inc., Philadelphia
General Contractor: Kirby & McGuire, Inc., Baltimore
Steel Fabricator: Derby Steel Co., Baltimore

Primary design motivation was to create a low-dust, noise-free, wide-span unit of space in which a controlled environment could be easily maintained . . . which could serve small research and production teams efficiently . . . and which could be expanded easily and economically when additional research or manufacturing space became necessary.

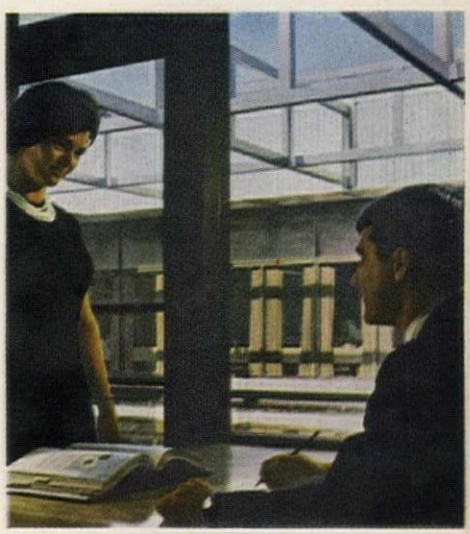
Solution is a simply organized square "space module" which structurally and architecturally can stand as an independent unit or in combination with other space modules.

Each unit is a square composed of a 90 x 90 ft, column-free central space 14-ft high, designed for laboratory or production use. Each is surrounded by a band of lower-ceiling space designed for office and service support areas.

The high ceiling portion of the structure is roofed with a steel-truss space frame resting on four Bethlehem wide-flange columns at the corners. The roof for the lower-ceiling perimeter area is formed by cantilevering the lower chord of the trusses beyond the columns to the outer walls.

BETHLEHEM STEEL

BETHLEHEM STEEL CORPORATION, BETHLEHEM, PA.



Courtyards provide interior spaces with an abundance of natural light and pleasant vistas, and create a stimulating human environment.

Octagon Observer Cont'd from p. 16

AWARDS PROGRAMS / New Concepts in Concrete

A building in North Carolina and a bridge in Canada, both termed unprecedented structures by the Prestressed Concrete Institute, placed first in its 1965 Awards Program.

The technique in the building, located in Durham, N.C., and designed by Welton Becket FAIA with M. A. Ham, Associates, Inc., as associate architect, involved the precasting of an entire exposed exterior structural system in short segmental units. The structural engineers were Seelye, Stevenson, Value & Knecht.

As each column rose story by story, trusses were created by threading alternating chord units and verticles on steel tendons. Stressing these tendons supplied the necessary joint rigidity. The design alternates truss and nontruss floors providing practically unobstructed window areas every other floor.

Precast, prestressed concrete double T floor units span in opposite directions on alternate floors so that each truss carries only one floor. Two large concrete columns, formed with precast units, are placed well in from the ends of each facade to provide support for the 33-foot cantilever trusses.

"The new, fresh attack of the concrete problem" shown in the building has "a great potential for the future," the jury said. "It represents an economy of effort we hope we'll see further explored by architects."

Canada's Hudson Hope Bridge represented to the jury a bold, new concept in bridge design and construction—precasting an entire bridge deck in short, segmental units, then hanging these units from a cable suspension system and post-tensioning the 680-foot deck span.

Thirty-four concrete multicell box girder units, each weighing 90 tons, were precast on the banks of a remote Canadian river, raised and carried into position by a traveling sling riding on the permanent cable system of the bridge. The sections were then post-tensioned, creating a precast prestressed concrete suspension bridge that won admiration of both engineering and architectural judges.

"The ingenious design made it possible to use native materials in an area remote from railroads and good highways," the jury noted. "In this and other aspects, the bridge demonstrates attributes we look for in architecture. In its detailing, it is, indeed, a great work of architecture."

The bridge crosses the Peace River just west of Hudson Hope, British Columbia. The engineers were Phillips, Barratt and Partners of Vancouver, B.C. The design concepts originated with Col. H. H. Minshall.

Precast Unprecedented: Sections of precast concrete are assembled on steel tendons by means of self-supporting monorail system and post-tensioned to form Vierendeel trusses. Design alternates truss and nontruss floors (right).

Eight Merit Awards went to the following:

MacArthur-Broadway Office Building, Oakland—Irving D. Shapiro & Associates, architects; T. Y. Lin, Kilka, Yang & Associates, structural engineers; SAE Fraternity House, University of Florida, Gainesville—Gene Leedy, architect; Medical Merchandise Mart, Lincolnwood, Ill.—Fridstein & Fitch, architects; George Kennedy & Associates, engineers; Automobile Club of Southern California, Beverly Hills-Westwood District Office —Welton Becket & Associates, architects; Stacy & Meadville, structural engineers.

Ventura Savings and Loan Association Building, Buenaventura, Calif.—William L. Pereira & Associates, architects; Woodward Tom Associates, structural engineers; Columbia River Bridge, Kinnaird, British Columbia—Choukalos, Woodburn & McKenzie, Ltd., engineers; Prof. R. Morandi, consulting engineer; MacKinnon Avenue Overcrossing, near San Diego, and the Vicente Creek Bridge, Monterey County—both by the California Division of Highways.

Judges for the program were Max Abramovitz FAIA, New York, chairman; Wallace L. Chadwick, Los Angeles; Edward D. Dart AIA, Chicago; Arthur G. Odell Jr. FAIA, Charlotte, N.C.; and Murray A. Wilson, Salina, Kan.

ESTHETICS IN STEEL: Eleven winners have received Architectural Awards of Excellence from the American Institute of Steel Construction in its 1965 program. Cited were these buildings, all completed since January 1964:

Chancery for the Embassy of the Federal Republic of Germany, Washington, D.C., Egon Eiermann, Karlsruhe, Germany; Curtis Residence in New Orleans, Curtis & Davis; Deere & Co. Administrative Center, Moline, Ill., Eero Saarinen & Associates; Emery Air Freight Terminal, Chicago, Hammond & Roesch, Inc.; First State Bank & Trust Co., Edinburg, Texas, Neuhaus & Taylor; General Electric Progressland Pavilion, New York World's Fair, Welton Becket & Associates; New Jersey Tercentenary Pavilion, New York World's Fair, Philip Sheridan Collins; Phoenix Mutual Life Insurance Co., Hartford, Conn., Harrison & Abramovitz; Rosen House, West Los Angeles, Craig Ellwood; Seattle Center Coliseum, Seattle, Paul Thiry FAIA; and Shamel Residence, Palm Desert, Calif., William F. Cody FAIA.

The competition drew more than 100 entries and was judged by a panel composed of five architects and engineers. *Cont'd on p. 22*

One good Mo-Sai® job deserves another

Mo-Sai windowall units provide a distinctive sculptured facade on the Hartford Building, now San Francisco's tallest. To the right and across the street, the award-winning International Building makes use of Mo Sai's versatility with glistening white Mo-Sai curtain walls. On the Hartford Building, large 7′ x 7′ windows are recessed in the 10′ x 12′ 4″ x 2′ Mo-Sai panels. Neoprene "zipper" gaskets hold the glass directly into the Mo-Sai windowall units that were cast within 1/8″ tolerances under quality controlled conditions at the franchised Mo-Sai plant.

Architects: Skidmore, Owings, and Merrill

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WITH EXPOSED AGGREGATE

Octagon Observer Cont'd from p. 20

Honor Awards Quartet: Russell M. Colwell Residence (top left), Gleneden Beach, Ore.—Fletcher & Finch, architects; Robert Pence Residence (top right), Mill Valley, Calif.—Marquis & Stoller, architects; A. O. Bumgardner Residence (lower left), Seattle, cited for remodeling—A. O. Bumgardner AIA [Practice Profiles, March '65]; Martin Rosen Residence (lower right), Orinda, Calif.—Ian Mackinlay & Associates.

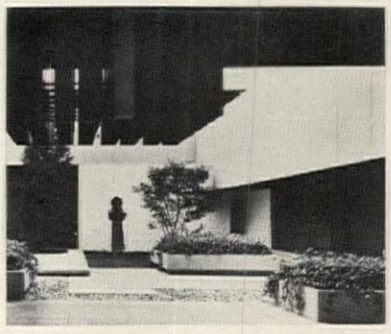
HONORS FOR WESTERN HOUSES: Twenty-six projects have been cited in the 1965-66 Western Home Awards Program co-sponsored by *Sunset* magazine and the AIA on a biennial basis. Open to all registered architects in the Far West and Hawaii, this year's program drew 443 entries, 18 percent more than the previous one. All of these houses have been completed since 1960. Photographs and plans of the winners, which are featured in the October issue of *Sunset*, go on display throughout the West beginning this month. They include, besides the four Honor Awards shown above, the following:

Awards of Merit—Donald J. Batchelder, Mill Valley, Calif.; Straub & Hensman, Los Angeles; Richard Dorman & Associates, Beverly Hills; Joseph Esherick & Associates, San Francisco (2); Donald R. Goldman AIA, San Diego; Hooper, Olmstead & Emmons, San Francisco; Liddle & Jones, Tacoma; Ian Mackinley & Associates, Orinda, Calif.; Marquis & Stoller, San Francisco; Leroy B. Miller AIA, Los Angeles; Richard C. Peters AIA and Peter Dodge AIA, Berkeley; Donald R. Roark, AIA, Denver; Calvin C. Straub AIA and D. P. Kutch AIA, Scottsdale, Ariz.; Barry L. Wasserman, San Francisco; Thomas O. Wells AIA, Honolulu.

Special Awards: Boyd A. Blackner AIA, Salt Lake City; James K. Leversen, San Francisco; William May AIA, San Jose; Osborne & Stewart, San Francisco; Volkman & Stockwell, San Francisco; James M. Widrig, Gig Harbor, Wash.

LANDSCAPING LAURELS: M. Paul Friedberg & Associates of New York have won three of the four top Honor Awards presented by the American Society of Landscape Architects.

The fourth Honor Award went to George Patton for work at the University of Pennsylvania campus. The Friedberg projects cited were the Pavilion of Spain at the New York World's Fair, New York's Nathan Straus Memorial Plaza and the Hillel School, Cedarhurst, N.Y.



Reigning in Spain: The landscaping of the Spanish Pavilion, New York World's Fair, winner of one of four Honor Awards, fits building's serenity.

SEEING THE LIGHT: Architects are invited to submit residential lighting designs—interior or exterior on new or remodeled homes, installed within the past two years—through October 15 in a nationwide contest. Entry blanks can be obtained by writing Sylvania Electric Products Inc., 60 Boston St., Salem, Mass.

UPCOMING AWARDS: The American Institute of Planners will present three Honor Awards for excellence in city planning on October 19 during its annual conference. The awards are made in three categories: less than 50,000, between 50,000 and 500,000, and 500,000 or more.

Cont'd on p. 108

HOSPITALS smooth traffic for patients, and personnel. Move supplies easier and faster with fewer employees. Control cross infection. Provide better service at lower cost.

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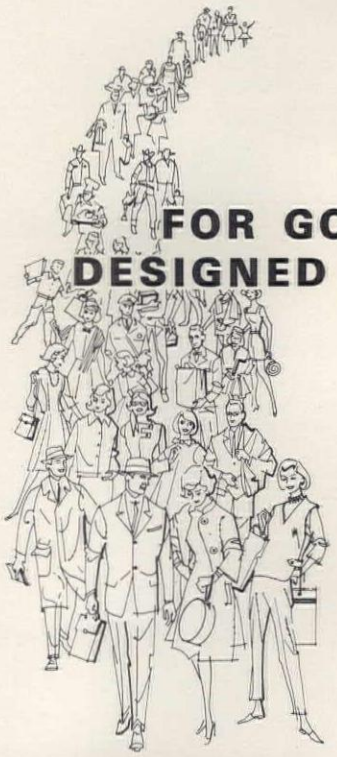

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For beauty for automatic doors choose Norton operators. Units are styled to compliment any architectural decor; to harmonize with any surrounding. You can choose operators for either surface mounting or for complete concealment in the transom. In either case, you have an attractive installation that provides the control you desire.

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COMPLETE VERSATILITY, ADAPTABILITY—Norton automatic door operators offer unlimited versatility. Operators can be applied in any type of location for any type of job. Really the only requirement is a door and an available electric supply. These units can be adapted to any traffic pattern. A complete line of switching components permits the switching arrangement the installation requires. Some of the possible traffic arrangements are illustrated on the next page.

DEPENDABLE, SAFE CONTROL—All Norton operators either concealed, or surface mounted, feature dependable, safe door control. Units are electro-hydraulic power opening with spring hydraulic closing. During power outages, or at the option of the owner, Norton operators function as regular manual door closers for both opening and closing.

GROCERY STORES find automatic doors increase profits. Even small grocerettes profit with automatic doors. Eliminate breakage and accidents at entrance doors. Cut costs in back-room handling.

NURSING HOMES assures easy access to dining rooms, chapels, and other community rooms for the aged and infirm. Provide safety in high traffic areas.

RESTAURANTS provide faster service with less breakage for both interior kitchen and external drive-in doors. Increase efficiency, improve employee morale and reduce costs.

INDUSTRY isolates noise and facilitates movement from one area to another. Smooth traffic in data processing centers, cafeterias, supply rooms, and other high traffic areas.

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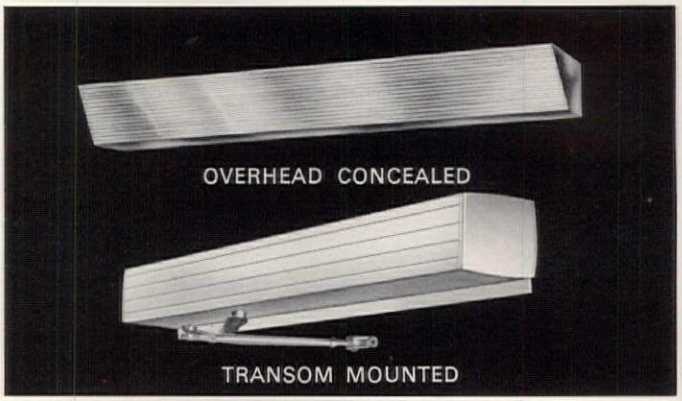
TURN PAGE

FOR COMPLETE VERSATILITY

Choose the Switching Best Suited to the Job

NO AUXILIARY EQUIPMENT REQUIRED WITH NORTON OPERATORS

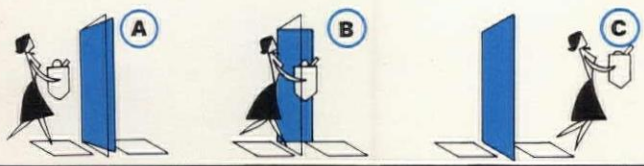
Norton automatic operators are complete and require no auxiliary equipment other than control switching. Units do not require pneumatic or hydraulic systems. It is not necessary to provide special pits, pipe chases or rooms for compressors or air lines. They're simply mounted and connected into a standard 110 volt power supply. Any type of operation can be obtained from the complete line of Norton equipment to afford maximum flexibility for the type of traffic flow.



MAT CONTROL

Most common type of operation; for one-way or two-way traffic of general public. Allows operating the door from a large area or zone rather than just a single point. Provides fast flow of traffic without confusion; requires no action on pedestrian's part.

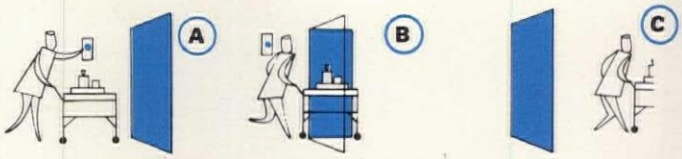
A. As traffic approaches and steps on mat, door opens and stays open until traffic leaves mat.
B. As traffic crosses door threshold and steps on *safety mat* door remains in same position. Operator will not operate either open or close when traffic is on this mat.
C. When traffic leaves *safety mat*, door closes through spring action of built-in door closer. Closing swing is controlled hydraulically.



DELAYED-ACTION CONTROL

For traffic where only one switching operation is desired; door remains open for a predetermined length of time (0-3 minutes), then closes. Not recommended for general public.

A. Traffic actuates switch and door opens.
B. Door remains open for preset length of time while traffic passes through.
C. Door closes after preset time elapses. If switch is actuated before time elapses, timing starts over.



MULTIPLE SWITCHING

For one-way traffic where floor mats are not used or two-way or other multiple traffic through a single door. Allows use of large number of control stations. Low voltage assures maximum safety.

A. Traffic approaches and actuates switch to hold door open.
B. Door remains open until the same switch or another switch is actuated.
C. Door can be opened or closed from any switch. Switches can be located at any number of locations to assure a smooth flow of traffic.

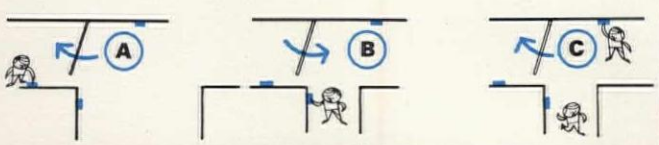


PHOTO-ELECTRIC CONTROL

For one-way or two-way traffic where pedestrian cannot operate switches, or where floor sanitation is important or in sterile areas.

A. As traffic approaches, cross light beam is interrupted and door opens.
B. Door remains open as long as approach cross beam or diagonal beam is interrupted.
C. When diagonal beam is no longer interrupted, door closes. For two-way traffic, a cross beam is used at either approach.

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DIRECT SWITCHING

For one-way traffic or two-way traffic. Ideal for industrial locations where lift trucks, carts or other wheel vehicles are used. Switch controls the operator directly.

A. Traffic approaches and actuates switch. Door opens.
B. Door remains open allowing traffic to pass.
C. Door will close only when first switch or another switch is actuated.

Weis solid brass recessed latch releases by merely lifting door upward. No delay in reaching an emergency situation fast.

This Weis feature is especially important in hospital, school, and other institutional locations.

Compact demonstration kit shows action... display brought to your office upon request.

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CALENDAR

Oct. 7-10: National Trust for Historic Preservation Annual Meeting, Sir Walter Hotel, Raleigh, N. C.

Oct. 15-16: National Conference of Professional Engineers in Industry, Oklahoma-Sheraton Hotel, Oklahoma City

Oct. 20: "Architectural Expression of Medical Care Functions" Session at American Public Health Association Annual Meeting, Chicago

Oct. 24-26: Utilities Conference for Architects, Roanoke, Va.

Oct. 24-27: National Association of Housing and Redevelopment Officials Conference, Sheraton Hotel, Philadelphia

Nov. 10-12: Building Research Institute Fall Conferences, Washington Hilton Hotel, Washington, D.C.

AIA Regional and State Conventions

Oct. 6-10: California Region, Yosemite National Park

Oct. 7-9: Louisiana Architects Association, Ramada Inn, Alexandria

Oct. 10-13: New York State Association of Architects, Concord Hotel, Kiamesha Lake

Oct. 14-16: Ohio Region, Atwood Lake Lodge, New Philadelphia

Oct. 21-23: Pennsylvania Region, Hershey; Western Mountain Region, Mountain Shadows Resort, Scottsdale, Ariz.

Nov. 3-5: Texas Society of Architects, Terrace Motel, Austin

Nov. 3-6: Central States Region, Des Moines, Iowa

Nov. 4-6: Alabama Council of Architects, Montgomery

Nov. 5-7: East Central Region, Lexington, Ky.

Nov. 17-20: Florida Region, Jack Tar Hotel, Clearwater

AIA Committee and Related Meetings

(At the Octagon unless otherwise specified)

Oct. 7: Building Construction, AGC Headquarters, Washington, D. C.

Oct. 7-8: Architects-Researchers' Conference by the Research for Architecture Committee, Ann Arbor, Mich.

Oct. 8-9: Documents Review; ACSA Board Meeting, Denver

Oct. 8-10: Press and Building of Cities, Northwestern University, Evanston, Ill.

Oct. 11-12: Historic Buildings

Oct. 30-31: Esthetics Committee

Nov. 5: Industrial Architecture

Nov. 16: Joint Committee on the National Capital, Washington Center for Metropolitan Studies, Washington, D. C.

Nov. 19-20: Press and Building of Cities, Philadelphia

Jan. 12-13: Reynolds Student Prize Jury

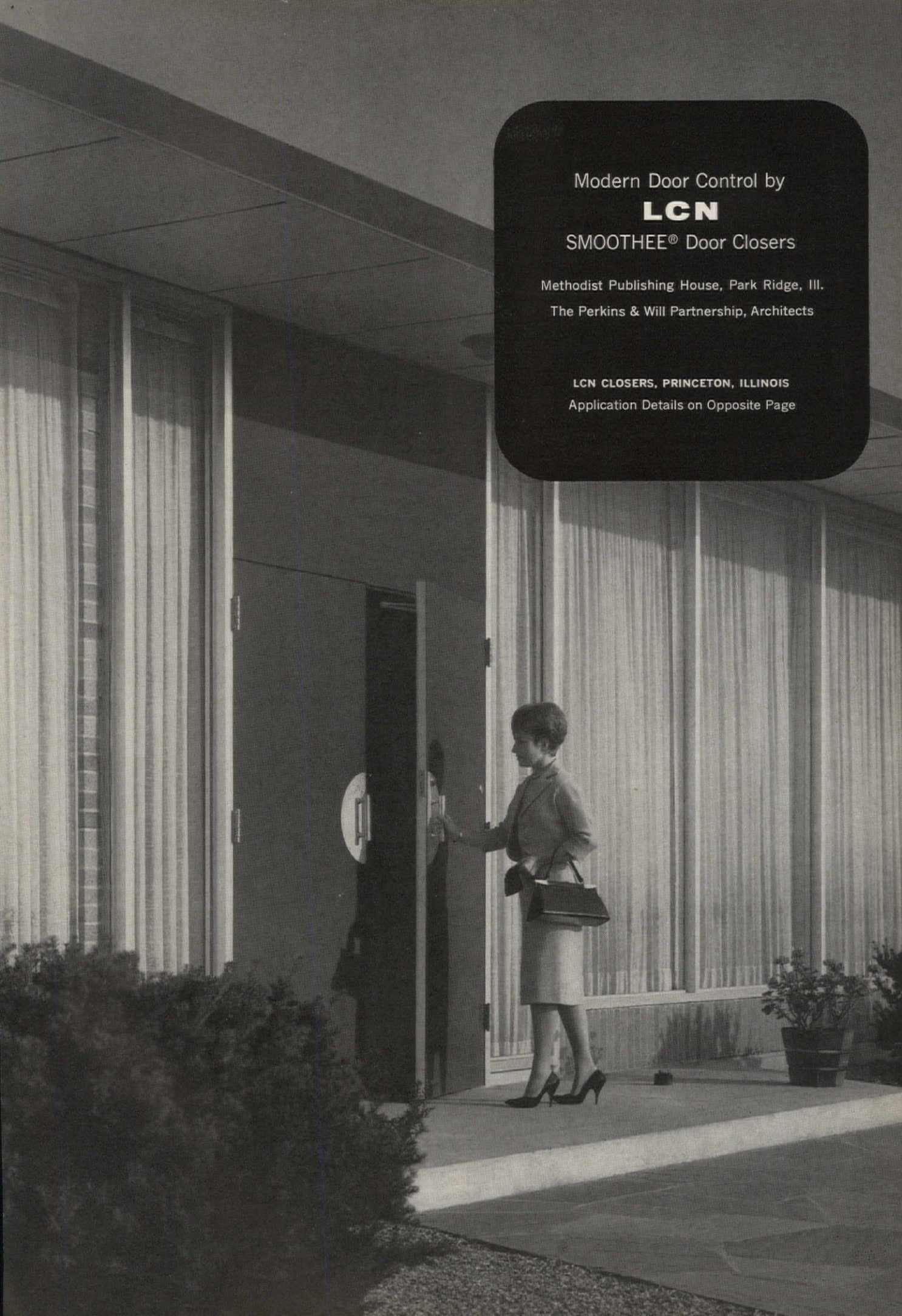
Competition

(With deadline for application or registration)

Oct. 15: Design of historic Copley Square, Boston, single stage, national. Professional adviser: Charles G. Hilgenhurst AIA, Copley Square Competition, Boston Redevelopment Authority, City Hall Annex (10th floor), Boston 8, Mass.

Tour

Feb. 13 and Oct. 9, 1966: Mexican Architecture and Interior Design Seminar-Tours. Two weeks each. American architects are shown buildings and designs in Mexico. Information: T. H. Hewitt, Apartado Postal 5-251, Mexico City 5, D. F. ■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Application Details on Opposite Page

RESEARCH PROJECTS

A new edition of the AIA Research Survey is now in preparation. Questionnaires will be sent to all organizations represented in the current survey; however, all architects involved in research whose activities are *not* reported in the current edition are urged to make such activities known. Correspondence should be addressed to the Director of Research Programs, AIA, at the Octagon.

Southern Illinois University

"World Design Science Decade 1965-75"; Proposal by R. Buckminster Fuller at the Sixth Congress of the International Union of Architects in London, 1961, to be concerned with redesign of world facilities so as to render the total resources, now preoccupied with serving 44 percent of humanity, adequate to the service of all mankind, through scientific design and anticipatory planning. Project is viewed as five two-year increments of work to be undertaken by architectural and planning schools. Role of researchers at SIU is to plan successive phases, acquire data and provide guide analyses of trends shown in data. First two documents of the program have been issued. Document 1, "Inventory of World Resources, Human Trends and Needs," by Fuller and John McHale, issued in 1963. Document 2, "The Design Initiative," by Fuller, issued in 1965.

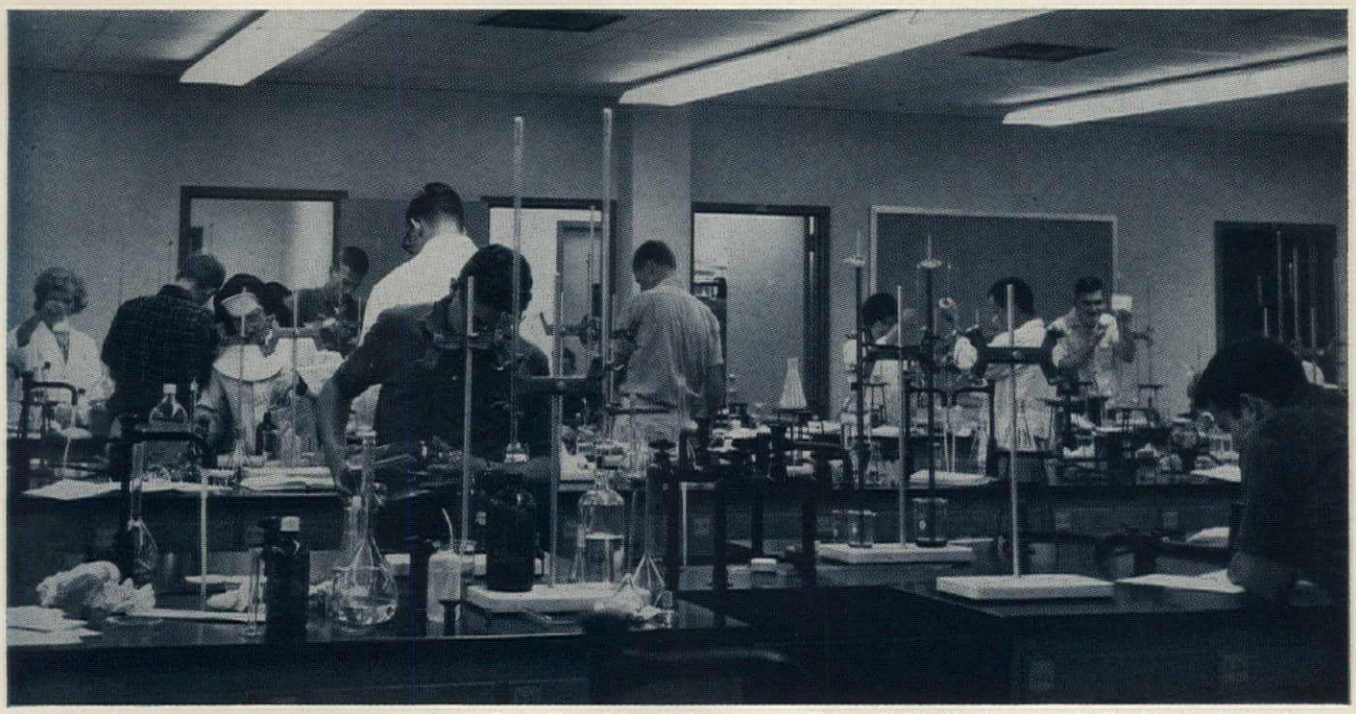
Oklahoma State University

"The Blind—Space Needs for Rehabilitation": Establishing design criteria for buildings used to train the blind. F. Cuthbert Salmon AIA, project director; Christine F. Salmon AIA, assistant director; Robert L. Wright. Sponsor, US Department of Health, Education and Welfare, Vocational Rehabilitation Administration. Budget, $26,000. Begun, 1961: Completed, 1962. Reports published by Oklahoma State University in 1964.

"Sheltered Workshops—An Architectural Guide": Design criteria for planning sheltered workshops. F. Cuthbert Salmon, project director; Christine F. Salmon, assistant director; P. T. Astore; D. Durfee. Sponsor, HEW, Vocational Rehabilitation Administration. Budget, $45,000. Begun, 1963: Completed, 1964. Reports to be published in book form.

University of Utah

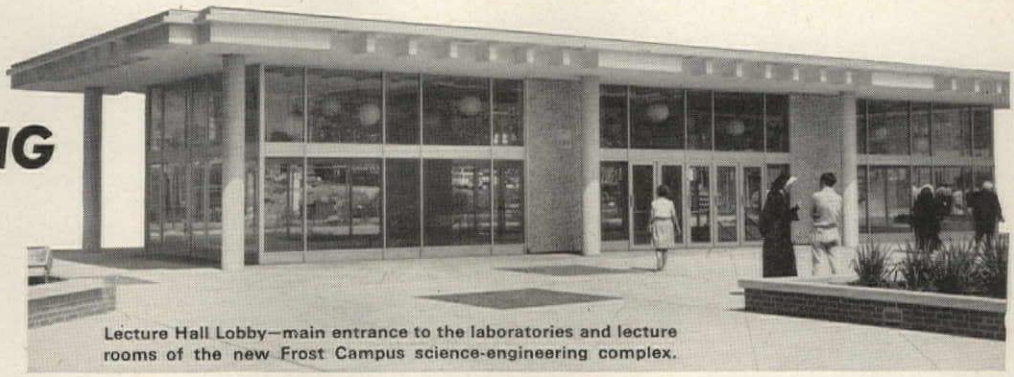
Researching material for publication by National Institute of Mental Health of "Community Mental Health Centers—An Architectural Guide": Compilation based on visits to institutions and consultation, collection and preparation of written and illustrative material on the organization and design of mental health centers to be built with matching state and Federal funds. Roger Bailey; Almon Bate; Courtney Black; Donald Ellis; and consultants in psychiatry and psychology, and from NIMH. Sponsor, NIMH. Budget, $27,926. Begun, 1964: Completed, 1964. No reports available yet. ■



Leo A. Daly Company—*Architects* Lester W. Penn, Sr.—*University Engineer* Peters-Eichler Heating Co.—*Air Conditioning Contractor*

What's BOHN doing in St. Louis University's new Chemistry Building?

COOLING IT!



Lecture Hall Lobby—main entrance to the laboratories and lecture rooms of the new Frost Campus science-engineering complex.

Heating it, too! Creating a comfort environment for academic achievement. In this ultra-modern facility, dependable BOHN central station and fan coil air conditioning units satisfy the comfort requirements essential to effective teaching and learning.

The new Chemistry Building is only one segment of St. Louis University's 150th Anniversary $53 million development program which will reach its climax in 1968.

In the oldest university west of the Mississippi, BOHN equipment supplies time-proven reliability. BOHN—the progressive name in air conditioning.

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BOOKS

Islamic Architecture and Its Decoration, A. D. 800-1500. Derek Hill and Oleg Grabar. Chicago: University of Chicago Press, 1964. 88 pp. $17.50

The greater part of this book is a photographic survey of early Islamic architecture in Turkey, Persia, Afghanistan and Russian Central Asia. Hill's remarkable collection of photographs made over a nine-year period is introduced with a text by Grabar of the Department of Art, University of Michigan. Hill, himself a painter, has succeeded in making his photographs esthetically appealing. It is regretted that where the use of color is so significant there are only four plates in color.

Grabar provides a concise yet lucid introduction to the subject, presenting the physical, historical, social and cultural setting for the period covered. He discusses the endless variety of techniques and themes. His contribution to the book is concluded with bibliographical notes and a short but useful glossary.

Hill is hopeful that his photographs will serve at least two purposes. First, orientalists will welcome the collection of photographs of ornamental details from a comparatively little known part of the world. Indeed, many of the buildings have never appeared in published photographs heretofore. The second use anticipated by Hill will be by architects searching for inspiration for decorative features of proportion and harmony for some of today's stark buildings.

MARY E. OSMAN

Mark Tobey: The World of a Market. Mark Tobey. Seattle: University of Washington Press, 1964. 80 pp. $7.50

The Pacific Northwest's leading figure in the artistic world and the first American to be given a retrospective exhibition at the Louvre has been carrying on a love affair with the Seattle Public Market for quite a spell. But the publication of this collection of Tobey's paintings and drawings—64 in all, mostly actual size, and 42 in color—comes at a most appropriate time.

There could be no more eloquent plea for preservation of the Market, "which is in danger of being modernized like so much processed cheese," as the artist puts it in his introductory essay. Even Frederick Gutheim, writing in the *Washington Post* a while back, issued a plea to keep the Seattle landmark unchanged.

This is not to say that the local citizens, including the architects, are in any kind of agreement. A group known as Friends of the Market has been attempting to raise money and develop concern for rehabilitation. ("It's a fashionable course," one architect was overheard saying.) And the Municipal Art Commission has placed the project on its historic site list; still, many others accept the idea of seriously studying alternative solutions to the area's redevelopment.

Architect Ted Bower, for example, says he understands Tobey's feelings, "But the phoniness in our society will not be changed by *preserving* one (possibly anachronistic) colorful remnant of our simpler past. Phoniness will disappear when we start to face up to our real present problems and also recognize some humane social goals."

Getting back to the book, if Tobey's brush and pen say anything, they express the profound humanity emerging from the fascinating jumble that is the Market: the long, roofed stalls, the gleaming array of fruits and vegetables; the fish and the flowers; the old books, old clothes, old phonograph records —and the unforgettable succession of people, of course.

No matter what its fate might be, "The Market will always be within me," Tobey declares. "Established back in 1907 by the farmers themselves—not for the tourist trade but as a protest against the high prices paid to commission men—it has been for me a refuge, an oasis, a most human growth, the heart and soul of Seattle."

ROBERT E. KOEHLER

Sculpture in Britain, 1530-1830. Margret Whinney. Baltimore: Penguin, 1964. 314 pp. $16.50

Here is another scholarly well-illustrated work in the Pelican History of Art series. It is concerned with a long neglected aspect of English art. Dr. Whinney, a reader in the History of Art at the Cortauld Institute of Art, University of London, is frank to admit that English sculpture for the three centuries covered has neither the interest nor the quality of English architecture and painting. Furthermore, even very few of the leading sculptors could approach the work done in Italy, France or the Netherlands during the same period.

Nevertheless, the author defends her lengthy book with its lavish collection of plates on the grounds that as much can be learned about English taste from sculpture as from the other arts and that since no fully illustrated survey of the subject exists, this will serve some useful purpose. She seems to have covered her topic with thoroughness, examining in detail the work of all major sculptors and adding new dimensions to the centuries covered.

Resort Hotels: Planning and Management. E. Abraben. New York: Reinhold, 1965. 98 pp. $22.50

In the affluent society the resort hotel has really come into its own, and today Americans spend some $20 billion on the tourist business. In a foreword to this book, Morris Lapidus AIA points out that the resort hotel is one of the most complex problems an architect has to solve, equaled only by hospital projects perhaps.

Whereas the hospital is primarily a service organization and is usually endowed or publicly supported, the resort hotel has to produce a profit. And, he continues, a hospital patient is a captive—he cannot leave when the whim strikes him; the resort hotel guest can check out anytime the most minor inconvenience displeases him. It is evident Abraben wants to keep that hotel guest happy, and he has done a great deal of thinking about resort hotels: their planning, design, operation, administration and management—in short, just about everything.

Cont'd on p. 34

All books reviewed on these pages are available on loan to corporate members of the Institute for a service charge of 50 cents for the first volume and 25 cents for each additional volume requested at the same time from the Library at AIA Headquarters.

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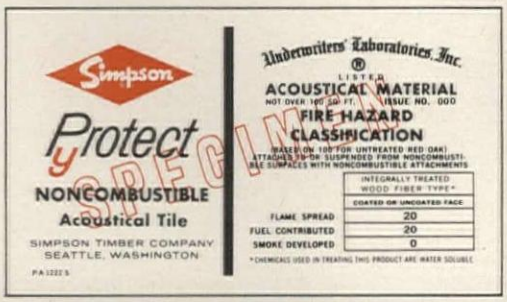

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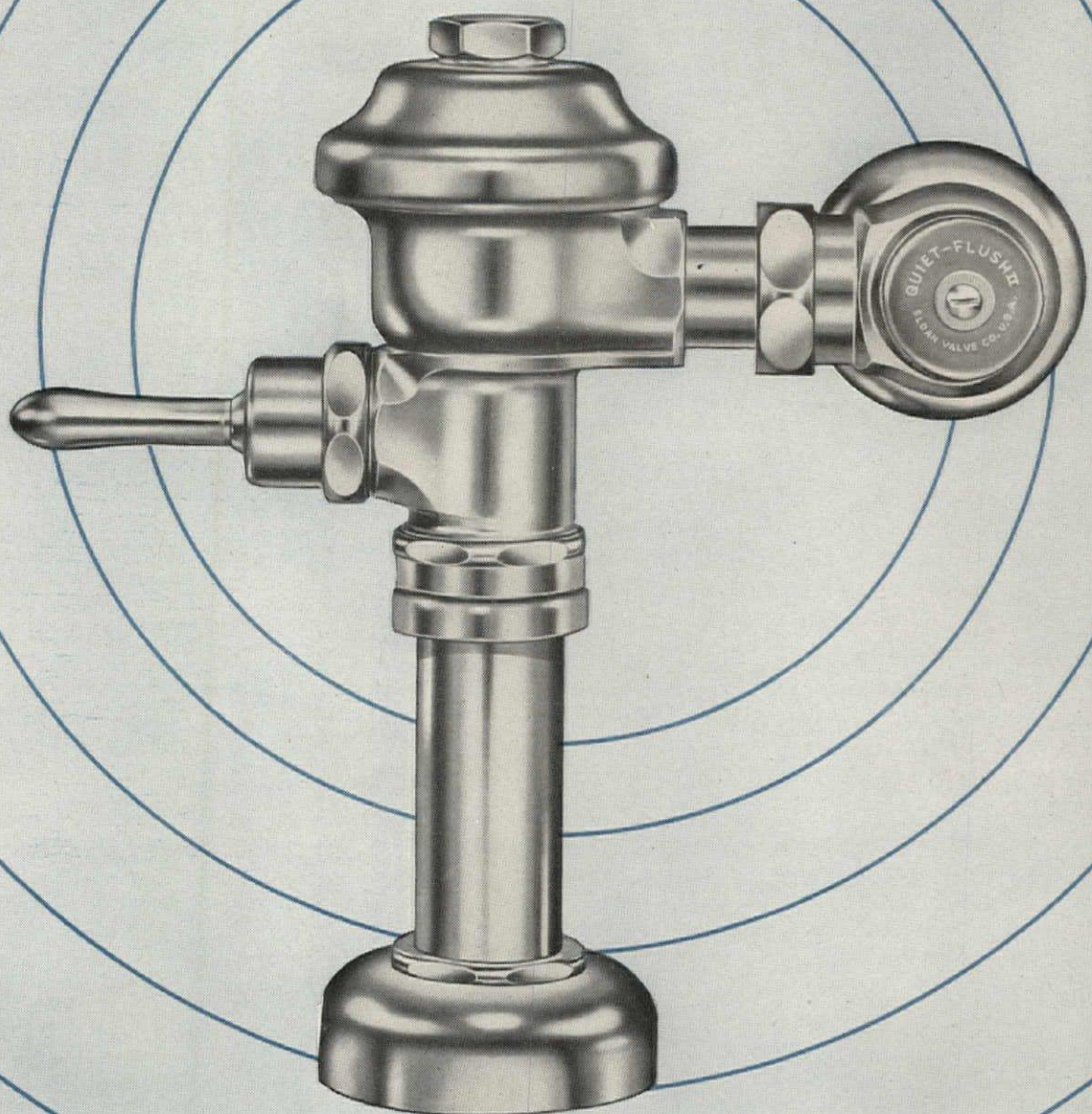

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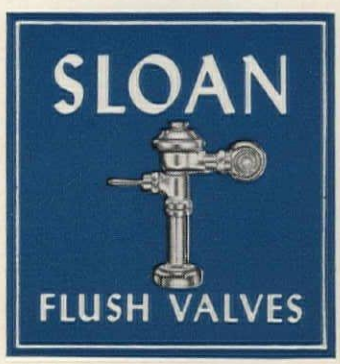

Books Cont'd from p. 30

Following introductory chapters on the tourist industry and on hotel management, the author gives us detailed information about golf courses, marinas, resort airports, tennis courts and ski resorts. He discusses kitchens, restaurants, menu planning, liquor service, furniture, laundries, and other services. The book is concluded with a picture section of nearly 200 pages of some 300 plans and photographs of tropical resorts, mountain resorts, ski resorts, urban hotels, marinas, small airports, golf courses, hotel service equipment and hotel rooms. A most useful book. M.E.O.

The Architect in the Nuclear Age: Design of Buildings to House Radioactivity. James F. Munce. New York: Hayden, 1964. 241 pp. $22.50

This is a technical book originally published in England, intended for the architect who may be called upon to design any building type which may house any kind of highly radioactive material. It may be a factory, a hospital, a laboratory. The problems of radioactivity are manifold, and Munce's purpose is to analyze them and to help the architect in finding solutions.

After an introductory discussion of the physics of nuclear fission, chapters follow on reactors and accelerators. The author then surveys nuclear energy developments in the United States, Great Britain and the Communist countries. He gives detailed information on site selection and planning of radioactive laboratories, and devotes a chapter to radioactivity in medicine, covering such items as X-ray and therapeutic departments and radioisotope treatments. Chapters follow on irradiation of food; protection; process materials; and structural materials and methods. In conclusion, Munce writes on the architectural opportunity of nuclear fission.

Zone Mental Health Centers. John P. Reidy. Springfield, Ill.: Charles C Thomas, 1964. 172 pp. $4

Therapy by Design. Lawrence R. Good, Saul M. Siegel, Alfred P. Bay. Springfield, Ill.: Charles C Thomas, 1965. 193 pp. $10

Here are two related books in that both of them place an emphasis upon the effect of architectural environment on human behavior. The former relates how the state of Illinois has developed the medical concept that the mentally ill are more responsive to treatment when near family and friends. Thus, isolated state institutions are to be supplemented by mental health clinics near the patients' homes, the state providing clinics in six well populated zones. The book is of interest to the architect because it gives insights into the way the medical professionals and architects worked together to translate the treatment concept into actual building plans.

The second book deals with the effects of buildings upon hospitalized psychotic patients. In 1961 a conference was called to study the problem, and the participants came to the conclusion that there was an absence of systematic knowledge about the subject. As a result, a project was undertaken at Topeka State Hospital to develop architectural plans which would modify existing psychiatric wards to make them congruent with modern forms of treatment. A report of this project constitutes the first part of this book. The second part is given over to the proceedings of a conference of social scientists and architects called for the purpose of discussing the validity of the design.

Industrial Archaeology: An Introduction. Kenneth Hudson. Philadelphia: Dufour Editions, 1964. 179 pp. $7.50

What is industrial archaeology? For those who contend that industry and archaeology cannot be united in the same breath, the term, in use for scarcely 10 years, has created considerable controversy and interest. Hudson's definition is "the organized, disciplined study of the physical remains of yesterday's industries."

The purpose of the book is to bring us to a better understanding of the industrial buildings and machinery of the 18th and 19th centuries and to prevent further widespread destruction of important industrial monuments. The author gives explicit advice on what to look for in such major industries as coal, textiles and metals. A final chapter deals with the methods of documenting and recording industrial monuments. ■

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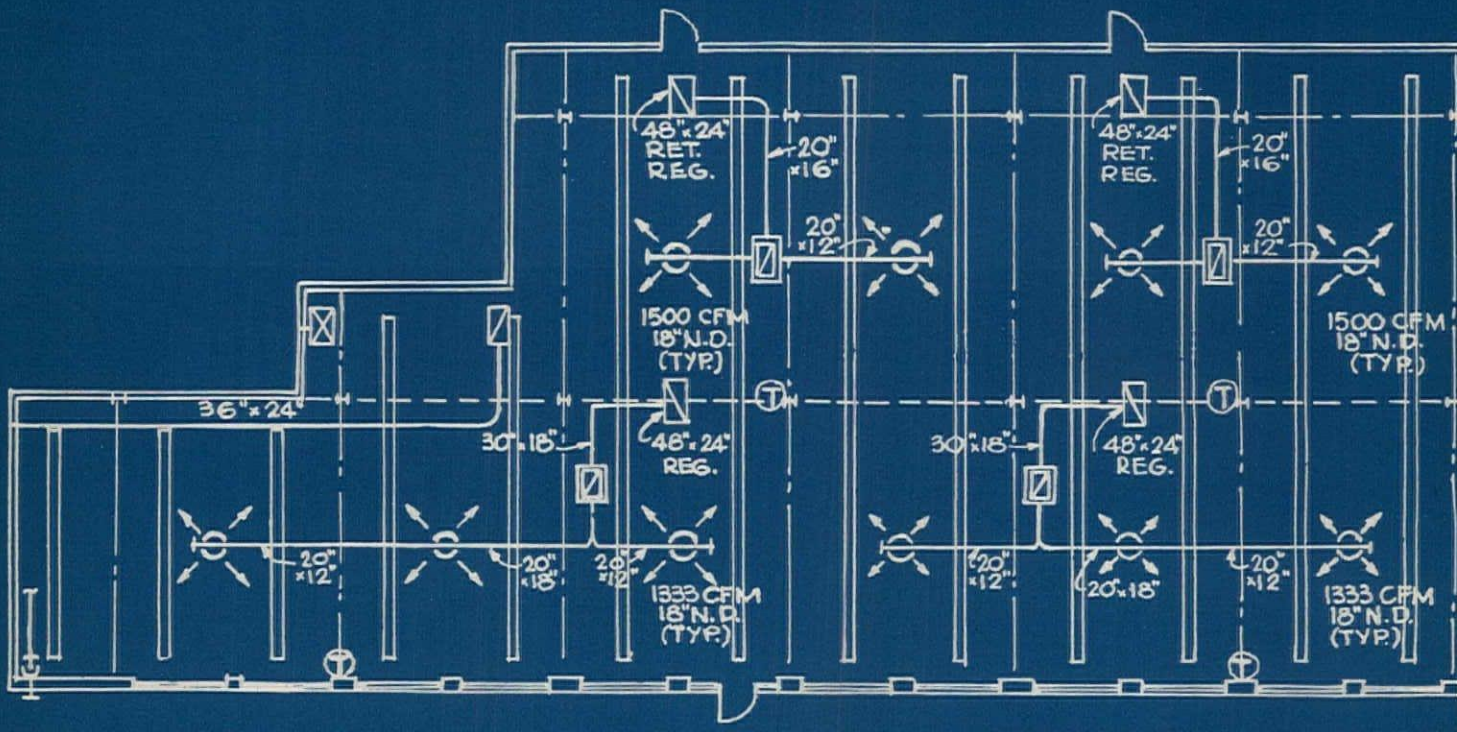

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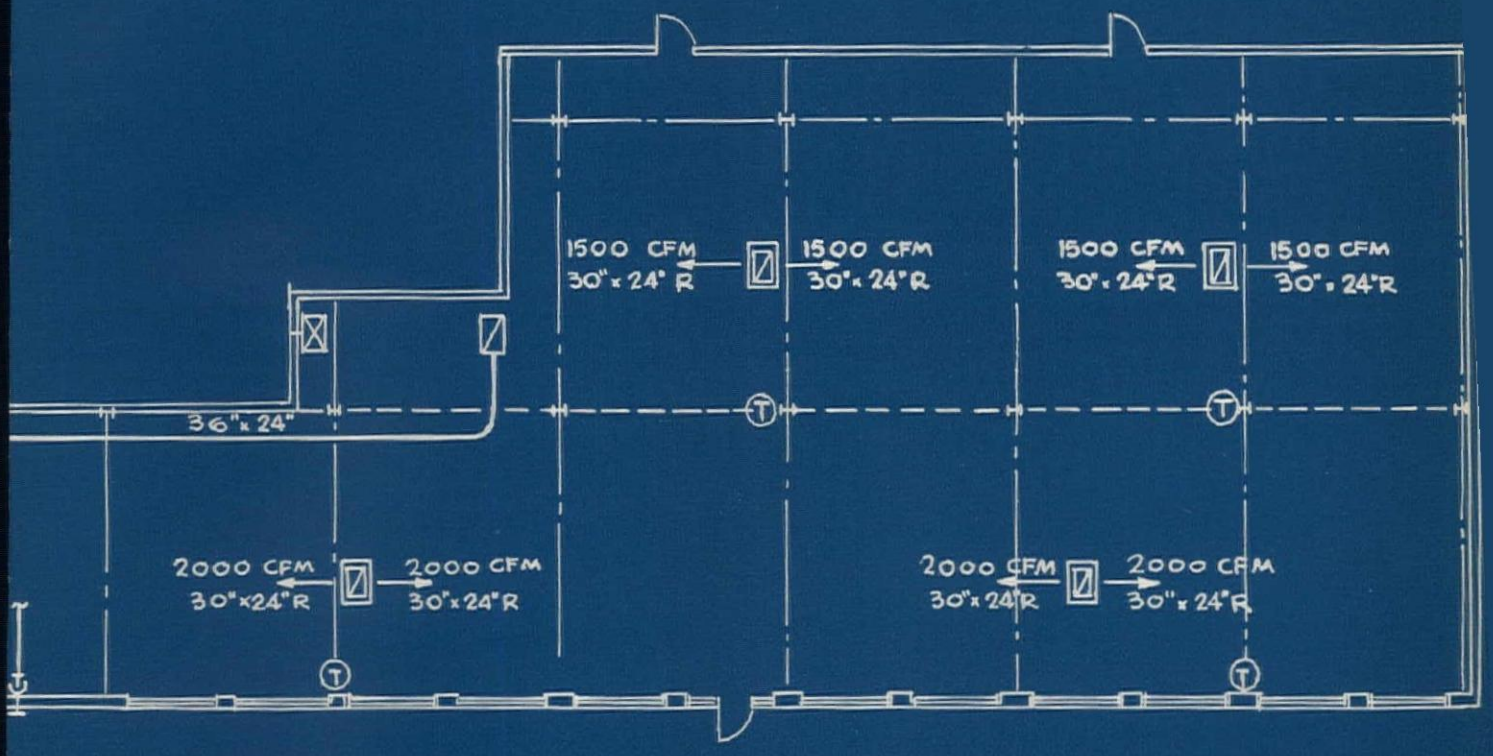

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LETTERS

Photographer's Rebuttal

Eric Pawley's review in March of "Photographing Architecture and Interiors" (Whitney) brought a reply from the author. Its publication has been timed to coincide with a presentation of the photographer's work, beginning on page 45.

EDITOR:

My writing of the book was prompted by the need for an architectural tool on the part of many commercial photographers throughout the country. Wherever I meet them, I learn that the great market for architectural photography has been literally untapped; that although many commercial photographers have attained superb technical ability, their knowledge and understanding toward the approach of design photography is sadly lacking.

I further believe that this lack stems from the failure of the architectural profession in general to have a better understanding of photography. If the architect could learn how to look at his buildings from a photographic point of view, he would then be better able to convey to his photographer some concept of where a composition should begin and end; and how to compose design elements into a story-telling photograph and yet create a form of art image which would, in turn, have impact on the viewer.

Accordingly, this concern with the architect is the subject of a good part of my book. But if Mr. Pawley had read carefully and *evaluated* my statements, he would have then understood more clearly my point that the market for architectural photography among advertising agencies and others would thereby be considerably expanded. The reviewer was not correct in his comment that picture editors of magazines and advertising agencies are "only rarely concerned" with the same criteria and objectives as the architect. During the past decade particularly, the advertising agency has been sensitive toward the use of so-called design-type photographs, and the art director knows that unless he creates a strong visual image, he cannot attract readers and purchasers by his copy and layout.

Furthermore, I do not quite accept Mr. Pawley's statement about my "purity." He misunderstands why I suggested the "one more" shot be eliminated from a photographer's practice. Like anyone else, the photographer needs to develop discipline in his work. Once a setup is made, the exposure should be calculated so carefully—whether by eye or instrument does not make any difference—that the photographer will not have to rely on the crutch of the "one more" shot.

And why does the reviewer decry the use of the portable garden idea of dressing up inadequately landscaped areas? If we are doing a story, the purpose must be understood. We again are trying to educate the public through our photographs toward an appreciation of good design. Therefore, if we are going to produce a favorable impression of a house, for example, as assigned by a magazine editor, the question arises: Should we not bear the responsibility to create the best possible image; and if landscaping is immature or missing entirely, why can't we hasten this process as described in the book, so that the finished photographs will convey to the magazine reader how the house looks, or could look, if good design is applied!

Mr. Pawley likewise is critical in his reference to "other curious excesses," as described in his remark about taking the curse off Lever House. I did not find the branch of the tree on Park Avenue —the tree happens to be in front of the Seagram Building.

And why does the reviewer make an issue of the difference between "available" and "existing" light? In photography certain clichés do creep in, and available light is a commonplace term used to describe the light in a room; I am just simply more objective and call it existing light, for that is exactly what it is.

My black skies—"manipulated," as Mr. Pawley calls them—are not produced for picture editors. There are occasions when the photographs are dodged to eliminate the glare which would be distracting

Cont'd on p. 104

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Project:
ENVIRONMENT USA

Of such crucial intensity is war that the struggle itself can consume all attention, submerging the campaign's very objectives. The War on Community Ugliness: Is it merely that? Or is it a crusade for a beautiful, efficient, livable America? It is, in the ultimate, for the latter. There is little danger that the negative aspects be given too great emphasis, for ugliness, as The American Institute of Architects points out, "is allowed to flourish by the great mass of people who have trained themselves not to see or, seeing, think that nothing can be done about it." This approach notwithstanding, the propensities of creative architects are toward the positive, as depicted by the following photographs from an exhibition originally planned by the Architectural Panel of Los Angeles, a portion of which was later hung at the Octagon House.

A PORTFOLIO BY JULIUS SHULMAN

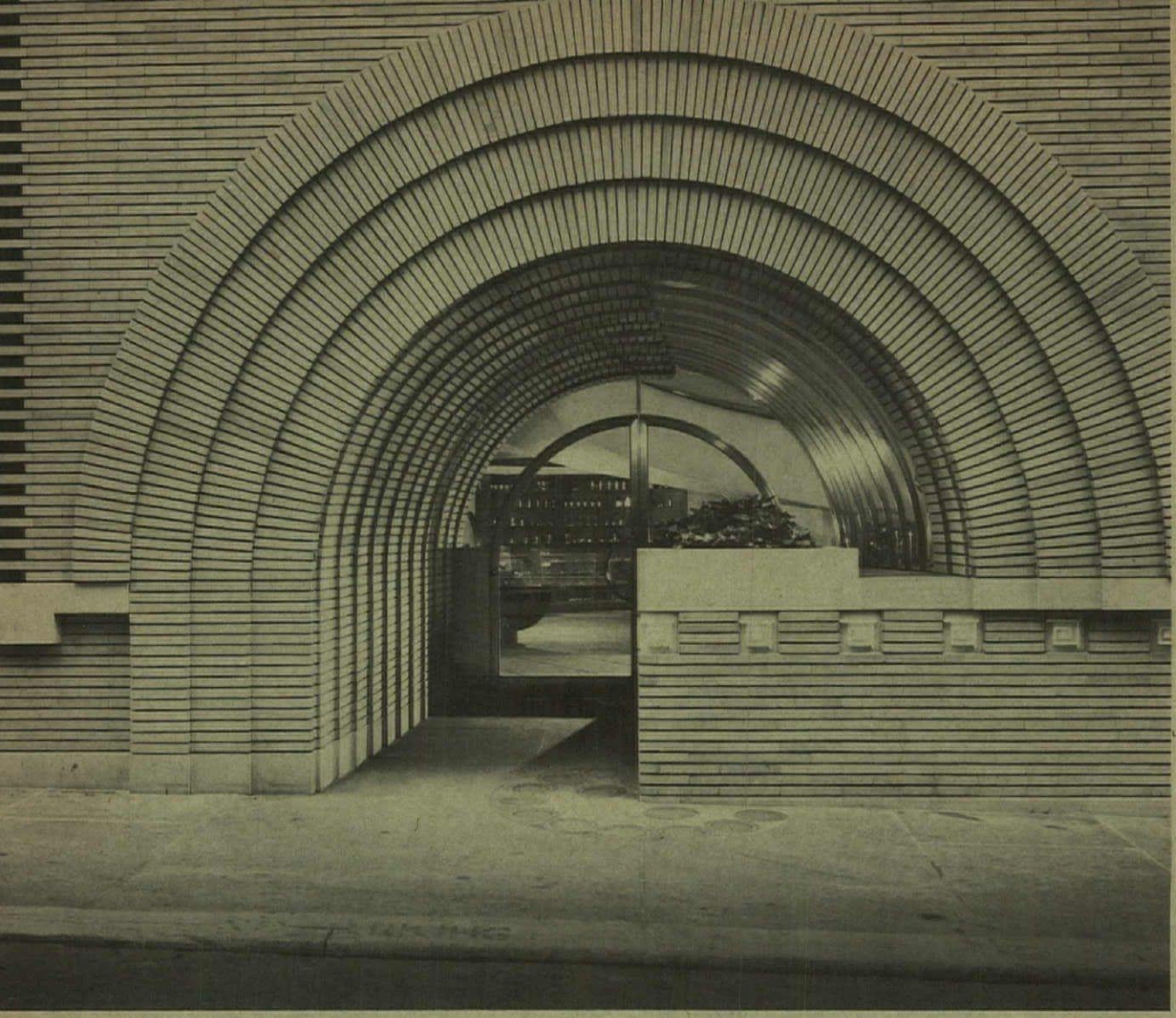
Open land is vanishing and old landmarks are violate. Worst of all, expansion is eroding the precious and time-honored values of community with neighbors and communion with nature. The loss of these values breeds loneliness and boredom and indifference. Our society will never be great until our cities are great. PRESIDENT JOHNSON

A happier and lovelier America, by design. A house at Big Sur, Calif., by Gregory Ain AIA beckons to sea, sky and land, inviting them in. It represents, at once, shelter and continual communion with nature. In his own house, Frederick Emmons AIA sought an answer to the question: How do I look from my neighbors' point of view? A gratifying communal contribution resulted. A housing project by Ridgely & Wexler in California's Conejo Valley demonstrates with its sculptured site that tract housing can be beautiful. Single-family dwellings are blessed with singleness. But such a house is inappropriate for many families, especially in urban areas. Marquis & Stoller's multiple low-income housing in San Francisco has a handsome, safe environment for all.

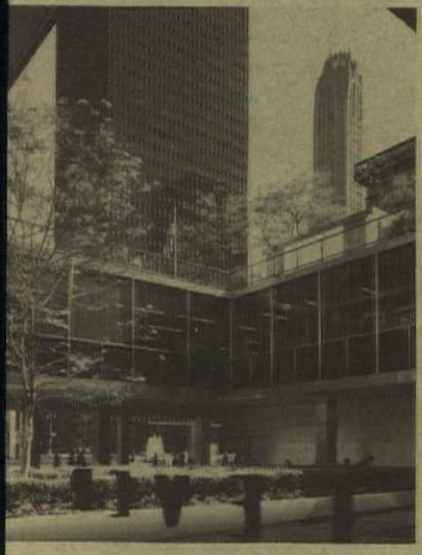
In every part of the nation we need men and women who will fight for man-made masterpieces and against senseless squalor and urban decay.

STEWART L. UDALL

Wherever there are children, there must be space to play. In Los Angeles, the Park Department created this small park and shelter complex in the midst of a busy and heavily populated area. In search of a playful, carefree, away-from-it-all atmosphere, Spencer & Lee produced this fantasy in Vacation Village on San Diego's Mission Bay. But man can enjoy beauty not only when in retreat but while at his labors. An industrial complex by Charles Luckman & Associates is graced with a rural, parklike atmosphere. Man, through design, is also brought closer to his God. A church in the wildwoods by Mario Ciampi FAIA is strongly rooted in the earth but heavenward in its quintessence.



Beauty that is man-made is of particular importance to our cities. Two of Frank Lloyd Wright's contributions: San Francisco's V. C. Morris Shop with its exciting arched entrance and New York's Guggenheim Museum with all its spatial intrigue. In Detroit, the Michigan Consolidated Gas Co. Building by Minoru Yamasaki & Associates respects and enhances the site. The Seagram Building in New York (Ludwig Mies van der Rohe FAIA and Philip Johnson FAIA) is happily framed by Lever House (Skidmore, Owings & Merrill), a visually satisfying interrelationship between two major structures. Yet as we move toward buildings that are integrated with our technological age, we acknowledge the esthetic values of the past. The Bradbury Building in Los Angeles, completed in 1893, works well to this day in all its decorative elegance, as designed by George H. Wyman.



As a citizen, all my thoughts have gone toward a better understanding of human and community needs. My camera, since 1936, has been dedicated to that cause.

JULIUS SHULMAN

At Harvard, the old and new live together compatibly. The Yard will continue a sanctuary of space and freedom for generations unborn. When Le Corbusier was commissioned to do Carpenter Hall on the Cambridge campus, few could visualize the master's solution to a confined space. But in viewing the building from the approach shown, there is little awareness of surrounding structures. Finally, a reminder of our wondrous, natural endowment. Design, preservation and conservation—these are the guideposts for a greater, more beautiful and more livable America [commentary based on observations of Julius Shulman].

BLUEPRINT '65

Architectural Education and Practice

*Impressed by the changes taking place in architectural schools and by a re-examination of architectural education and practice conducted by the AIA, the Graham Foundation charged a team of three educators and two practitioners to evaluate the Institute findings and to propose specific actions, indicating their approximate costs and benefits. This report reviews the nine recommendations formulated by the group * in conference.*

IN HIS BOOK on resource economics, "Scarcity in Growth," Harold Barnett argues that to an advanced society natural resources become less important than the resources of human skills and institutions. For several years, The American Institute of Architects has studied ways of enhancing architectural skills and the institutional framework within which these skills can be most effective.

The consensus of these studies was that architects require both a professional school training and a college education; that the technology of environment was neglected; and that there should be a profession concerned with the physical environment and with specialties united by common professional and cultural concerns to solve the complex problems of this physical environment. These AIA recommendations for changes in education are modest, considering the changes taking place at present and considering the ambitious goals of the profession.

Institute support for a more general education makes great sense in a rapidly changing society where specific information will be out of date before it can be used. But there is disagreement even among educators on just what form this broader and more liberal education should take. Some feel that education should be slanted toward architecture, while others feel that any hint of professionalism in liberal education subverts it. Indeed, no first-rate university would permit any organization to dictate a definition of education.

* The five-man team, all Institute Fellows: Dean G. Holmes Perkins, Graduate School of Fine Arts, University of Pennsylvania, and Robert F. Hastings, Detroit, both members of the former AIA Special Committee on Education; Eugene J. Mackey, St. Louis, chairman of the AIA Committee on Education; Dean Lawrence B. Anderson, School of Architecture and Planning, MIT; and Dean Joseph R. Passonneau, School of Architecture, Washington University.

RECOMMENDATION 1

That the AIA encourage schools of architecture to require their students to qualify for Bachelor of Arts or Bachelor of Science degrees. These degrees would require two years of liberal education and two years of specialization in architecture.

These liberal education requirements are a great deal less than the education program for doctors or lawyers; but they comply with the practice in most fields, adding one more year to the architect's education. Two years of graduate work would lead to the first professional degree. Students with three or four years of work in liberal arts colleges offering studio courses could complete their work for the first professional degree in about three years. College students without preliminary training in architecture would need four additional years to qualify for the professional degree.

While most architects and educators would agree with this recommendation, the five-man group is uneasy about rigidly organized curricula. The profession tends to assume that higher education should always begin by general surveys of the field and proceed gradually toward specialization of a depth indicated by dissertation titles.

James S. Ackerman, in the Winter 1964 issue of *Daedalus,* argues for the reverse in which every student begins by mastering the techniques of his chosen discipline. Subsequently, he would be far better equipped to understand the problems underlying other fields and to gain a commanding perspective of his culture. To Ackerman, education as now "designed to promote empiricism and technological specialization . . . manages to stifle philosophical synthesis and ethical speculation."

Students differ greatly in their motivations. Many of the gifted ones should be led into architecture by exploiting their early passion for drawing and design; thereafter, gradually broadening their horizons by exposure to studies based on mathematical and verbal constructions. It is an absolute concomitant to the architect's need for a general education that his early visual training be an integral part of this liberal education.

RECOMMENDATION 2

That the AIA work with the universities to develop studio courses as part of the liberal education sequence.

Beyond the first professional degree is the realm of the advanced degree program, singularly undeveloped in architecture. Only 20 percent of architectural students continue in advanced work, limited often to one additional year. The lack of development in advanced degree programs aggravates the hiatus between schooling and apprenticeship, another weak point of the recruitment program.

The professions oriented toward research and practice, such as medicine and engineering, are demonstrating remarkable progress in their active pursuit of both. Research not only informs practice but also leads advanced students to the frontier of knowledge in their field. Something must be done soon to promote advanced scholarly architectural work in the university. Teaching, research and practice interacting closely with each other would move the profession forward.

RECOMMENDATION 3

After the college degree of Bachelor of Arts or Bachelor of Science, there should be two, and perhaps three, recognized architectural degrees roughly equivalent in all universities. In addition to the first professional degree, there should be a doctorate with the same rigorous requirements as the Ph.D. programs of other fields, and perhaps an intermediate degree prior to advanced research and study.

None of these recommendations would incur a direct cost to the AIA. The cost would be voluntarily absorbed by universities and students to the benefit of the profession.

The AIA's Special Committee on Education has recommended that architects assume responsibility for building technology. Professor Anderson who is convinced that "the design of the physical environment is an interdisciplinary problem" makes an illuminating distinction between the terms of "discipline" and "task": "A man who wishes to explain knowledge, that is to apply it rather than discover it, first needs a discipline, a body of knowledge so organized that it can be applied. . . . Second, he selects a task or several tasks, or he can make application of his discipline to yield valuable results." For example, engineering is a discipline which can be applied to the task of environmental design.

The Special Committee has also suggested, and rightly so, that architects must take over the routine information of day-to-day engineering, or else develop a "cast" of technicians. Neither structural engineering nor mechanical engineering are scientifically or technically demanding as presently practiced. This and a variety of other informa-

tion is necessary to the daily practice of architecture and in its application to the solution of a variety of new tasks. The alternative is that the shaping of the environment will continue to be in the hands of people with different aspirations and values.

Architectural design like engineering is a form of problem solving, and "the general nature of the activity and the design of a cathedral, an ashtray, a highway network, a suspension bridge or a summer cottage is not different in kind. The information needed is different, the values against which to base excellence are different, but the processes are similar." [Passonneau] Not everyone agrees with this proposition. If architecture is an act of untutored genius, then this thesis will fall down.

However, there are demanding technological problems with which architecture should wrestle. Only in this way can architects expect to command the attention of engineers in regard to these problems. Disturbed by the statement from the Special Committee that the trend of engineering profession's attitude, interest and education is being influenced more by the challenge of technology than the needs of the building field, Professor Anderson sees a clear assumption that building no longer offers a challenge of technology even though it has done so throughout the ages:

"Today there is an abundant evidence in American government, intellectual and business circles, of the growing desire to shift priorities toward the sector of human needs. While it is certainly far too early to predict any millennium, it takes little imagination to visualize what might happen if all or even a large fraction of our tremendous technological capability were redirected in this fashion. Perhaps then, architecture and civic design will graduate from producing prestige monuments for corporations and institutions and enter more fully into the broad social involvement that we have preached. When that day arrives the other disciplines will be eager to collaborate."

RECOMMENDATION 4

That several schools of architecture and associated schools of engineering be encouraged to prepare and test jointly technological curricula using both the most sophisticated graphic and model techniques to deal with the various kinds of information necessary for rapid, accurate and sophisticated design. The aim here would be to train architects to deal better with technical ideas and to train engineers to handle more effectively important architectural problems.

This is beyond the capability of the AIA and beyond the financial abilities of most schools. The AIA could encourage schools and also help them in approaching either the government or foundations for direct assistance.

RECOMMENDATION 5

That the AIA prepare a set of handsomely organized manuscripts as learning aids for schools and offices in structures, materials of construction, mechanical equipment, lighting, landscape architecture, highway and traffic, construction practice, office management and other relevant subjects. The AIA should keep these manuscripts up to date and functional. A pilot study for the development of material on mechanical engineering would show the study procedures, costs and usefulness of further studies.

The AIA Committee on Education reports that "a single group of professionals including architects, engineers, planners, landscape architects, etc., must be educated, qualified and oriented to assume their responsibility for the increasing needs of expanded urban planning. Architects must provide proportionately stronger leadership in the planning and designing of environmental structures and their related spaces."

Architects can be proud to belong to the profession which invented and institutionalized city planning. However, shortly after the term was coined, architects to a considerable extent abandoned the art perhaps because of its enormous complexities. Physical planning has been badly done, and the larger aspects of city planning discouragingly ignored. The argument for expanded practice is an attempt to redress this lack of professional concern.

RECOMMENDATION 6

That the AIA set up an operations research analysis of environmental practice and education in cooperation with engineers and others.

Recommendations 4-6 subsume many others involving research in architectural practice and education in an attempt to understand the best ways of shaping the environment, to understand the nature of that profession best designed to do the job, and finally to organize an educational system for the training of that profession.

The most important issue in education is the quality of students and teachers. "There is room for enormous improvement in design education, specifically in schools of architecture, not only in generally higher standards of recruitment and performance generally, but also in adapting the outlook of these programs toward a more realistic view of contemporary life instead of a preservation of cult." [Anderson]

Perhaps the most important and immediate contribution the AIA could make to education would be to develop ways of bringing good teachers into the schools, particularly those with low budgets and those far from urban centers. (Whether architectural schools removed from their urban areas are, in the long run, viable was not discussed.) The recruitment of able students is an equally important but more difficult problem.

RECOMMENDATION 7

That the AIA should set up 6 to 12 honorific AIA fellowships. To qualify for these, a candidate would be in architectural practice for about three years. The AIA would then finance him ($5,000-$10,000 per year) to return to school for one or two years in a degree program or independent research in return for one or two years' teaching in an architectural school other than the one in which he studied. This would serve the double purpose of getting able architects involved in research and of providing a small reservoir of well-qualified teachers.

The public in general and architects in particular are not aware of the dramatic improvements in American education in the past 10 years, nor of the high cost of good education. One of the most important reasons for this improvement is the enormous subsidies provided for advanced education and research on the Federal level.

A second is the dramatic campaign to raise the $80 million "Fund for Harvard College." Before this was initiated, no such ambitious fund-raising campaign had ever been undertaken, but they have become commonplace since. A less noticed but important program has been the Ford Foundation "institutional grants" to universities which could demonstrate plans and actions, making effective use of large sums of money. These grants allocate the money to the institution which must then raise two or three times as much from other sources. Perhaps a more important effect is the incentive given to private universities to plan for the future in a way few have done before.

RECOMMENDATION 8

That the AIA encourage either the Ford Foundation or the Rockefeller Foundation to announce a program of institutional grants of $100,000-$500,000 to architectural schools that could demonstrate ways of dramatically improving themselves. The schools would have to show that the increased investment would be permanently maintained money and should be granted on, say, a 1-2 matching basis.

Architectural talent is not generally an issue in the commission-granting process. An extension of this disturbing proposition is the fact that there is no institutionalized way by which able young architects can come into the profession. More young talent is dissipated in architecture than perhaps in any other profession. Yet, as practitioner Hastings points out, it is difficult to find people of the age group 30-35 and above to do jobs well. Restated: There is a mismatch between jobs that need doing and talent available to do them.

The real delinquency in architectural education and practice is not carrying an architect's education to the point where he can actually build buildings; this provides the background for the above two seemingly paradoxical problems. Mackey, who has been both a teacher and a practitioner, is most concerned with bridging this gap and has postulated the idea of "teaching firms." In a teaching firm able young architects would under the direction of the principal be made responsible for an entire job, learning by doing all parts of the development of building including client contacts, design, working drawings, supervision of technical organization and of building construction.

RECOMMENDATION 9

That the AIA sponsor experimental internship programs uniting interested schools and offices.

"Looking at this important area—internship—a research program could call for proposals from "teaching firms" conceivably to work closely with a school in their area to build a better transition between formal education and practice.

"Experimental programs at the post-graduate and preregistration levels are critically needed. Here lies a challenging opportunity for the educator and practitioner to work together. Just as the innovation of a visiting critic yesterday is a com-

monplace today, the "teaching firm" concept could be the commonplace of tomorrow, with equally important gains for the student, teacher and practitioner.

"For example, two or more offices conveniently located near an accredited school of architecture could develop a program whereby students in the last two years would be interviewed, recommended and subsequently engaged by the practitioner for a one-year period, renewable by mutual consent.

"During the last two years of school, office contact would necessarily be limited but regularly scheduled, for specific purposes, as part of the professional obligation and commitment of each. After school, the conventional relationship of employer-employee could be established, with certain differences for the period of the appointment to a "teaching firm"; i.e., the firm would be obliged to provide a series of graded experiences involved in the performance of professional services.

"Nominal compensation for work done would be agreed upon, subject to review if reappointed for a second year. I am satisfied that in every AIA chapter, there are enough qualified and interested practitioners who would undertake a program of this kind as a duty and service to the profession.

"If a pilot program could begin simultaneously with the experimental efforts of schools as part of the proposed AIA research program, others would follow in impressive numbers and with gratifying results. The advantages to students are obvious: Instead of limited opportunities to meet architects, scheduled interviews would allow each to know the other with some semblance of order and dignity. Interviews could be held at the school and in the office, where the performance of each would be apparent to the other.

"The proposed AIA research program in education will undoubtedly not be limited to exploring methods and practices in school or without some exploration of that critical gap between in-school experience and post-graduate experience. Qualified practitioners are available to work with schools toward a more challenging internship leading to the practice of architecture." [Mackey]

Recommendations 1, 2 and 3 regarding college education and architectural school training are essentially manifestos which, if adopted by the AIA, would bring great pressure to bear on schools and universities. The cost to the Institute would be primarily administrative and editorial energy.

Recommendation 4 suggests that the AIA should encourage schools to be interested in innovation and that the Institute lend its support to such schools in their search for funds.

Recommendations 5 and 7 are for action to be undertaken by the AIA. The cost would be substantial, but could be determined by pilot studies.

Recommendation 6 would cost the AIA about $100,000 a year for a research office. A great deal of outside funds would be necessary to develop detailed pieces of this program.

Recommendation 8 is simply an approach to foundations and will cost the AIA nothing. If implemented it would probably have a greater effect on the schools than any other recommendation except No. 6.

Recommendation 9, regarding an institutionalized internship, might involve the greatest change in the structure of the profession. The principal cost would be incurred by young architects and by individual firms.

Perhaps the most important development in the AIA's interest in education is the decision to set up a special research project to implement its ideas on education and practice—the effects should be profound. ■

Readers who wish to pursue these ideas further can obtain the Report by the AIA Special Committee on Education by writing the Director of Educational Programs at the AIA Headquarters; and further elaboration on the proposals by writing the Graham Foundation, 4 W. Burton Place, Chicago, Ill.

Blurred Images and Undefined Goals

Written for the Ark Report, *January 1965, sponsored by the Architecture Association of the University of California. The author, formerly chairman of the Department of Architecture at Berkeley, now holds a similar position at Yale University.*

I have been asked to write about the idea of a school and the role of the faculty in it. This is a curiously disturbing combination of topics, I think, because it suggests the assumption that there exists a goal, an image of a finished product of the school toward the production of which an organized faculty might work, while unformed students were given shape and were then polished in their hands. But we do not have such a convenient image, and as far as I know there is no school, nor even any hero of the profession, who could provide us with one. Our job as a profession is so far undefined, our areas of required competence not yet all that clear, so that first-year architectural students, or even people who have never been near an architectural school, are willing to execute architectural commissions. But society (outside TV) has certain real reservations about premedical students who perform surgery. And while medical care improves, the environment goes to hell.

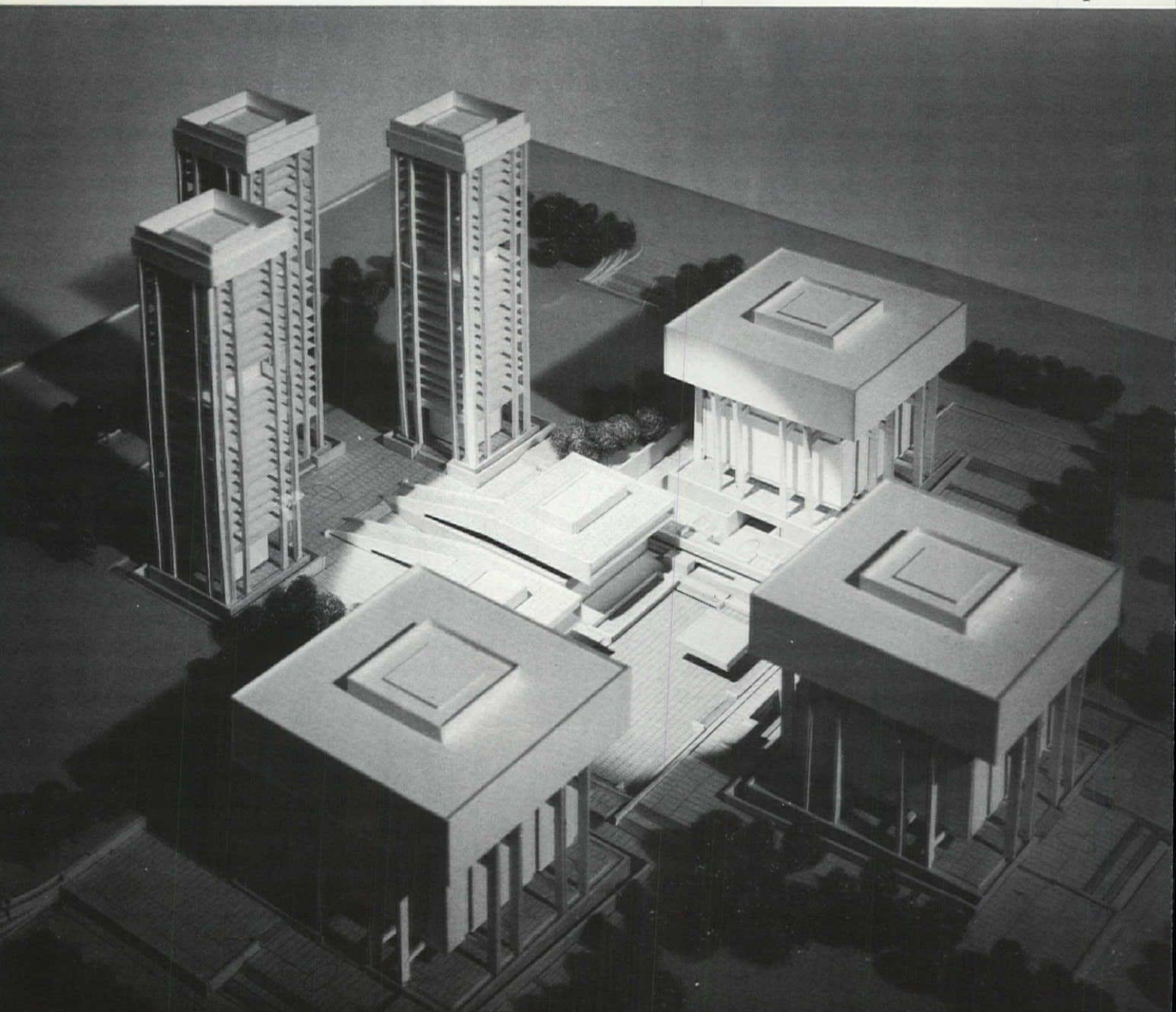
CHARLES W. MOORE

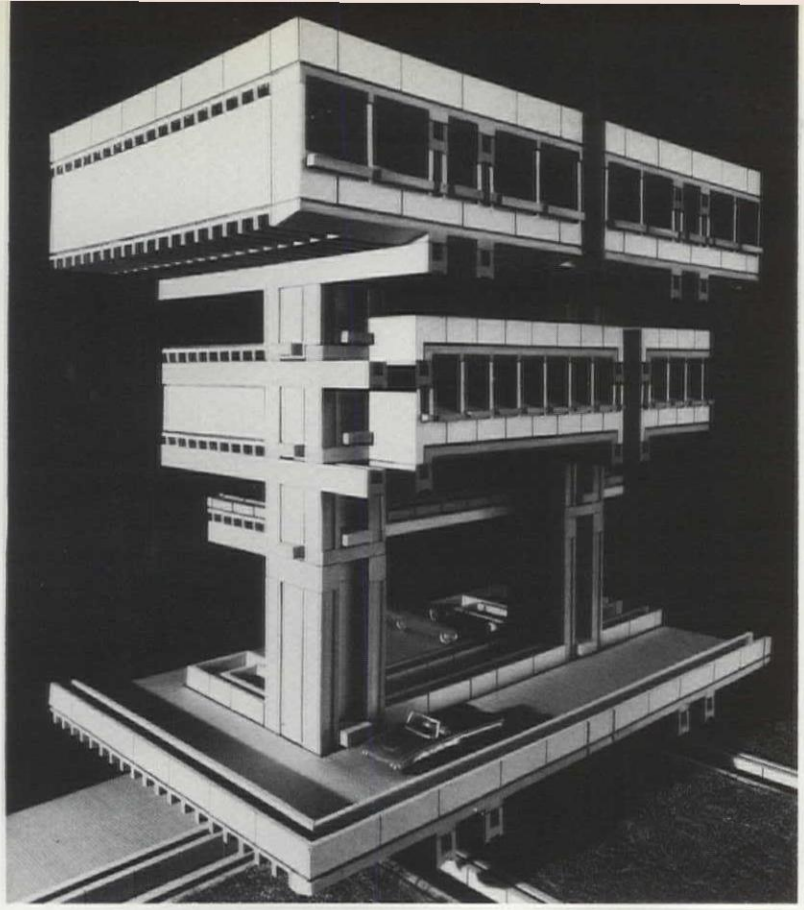
1965 ROME PRIZE

The manipulation of exterior and interior spaces highlight the work of William E. Pedersen Jr., winner of the 1965 Rome Prize in Architecture, as samplings from his portfolio attest.

Each year the American Academy in Rome offers a limited number of fellowships abroad for mature students and artists capable of independent work in furthering the development of the fine arts and classical studies.

This year's recipient obtained a Bachelor of Architecture degree from the University of Minnesota in 1961 and a Master of Architecture degree in 1963 from the Massachusetts Institute of Technology. He most recently has been associated with the Cambridge office of Eduardo Catalano.





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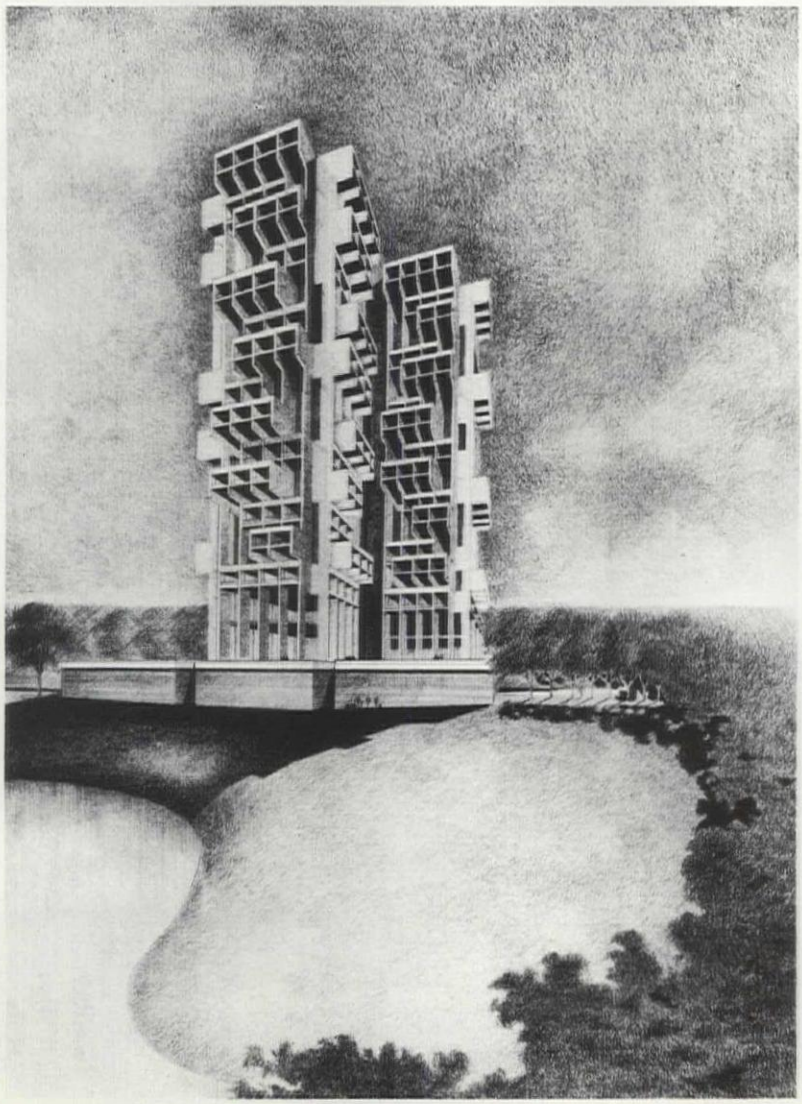

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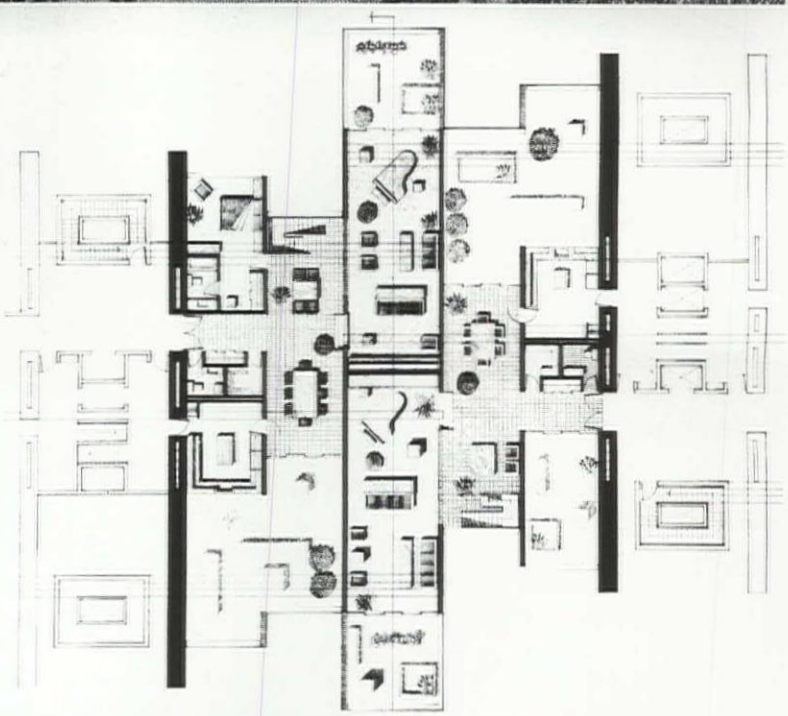
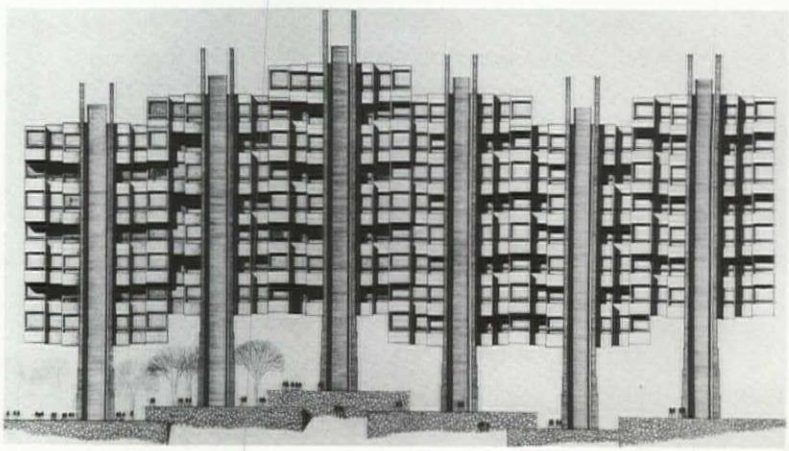
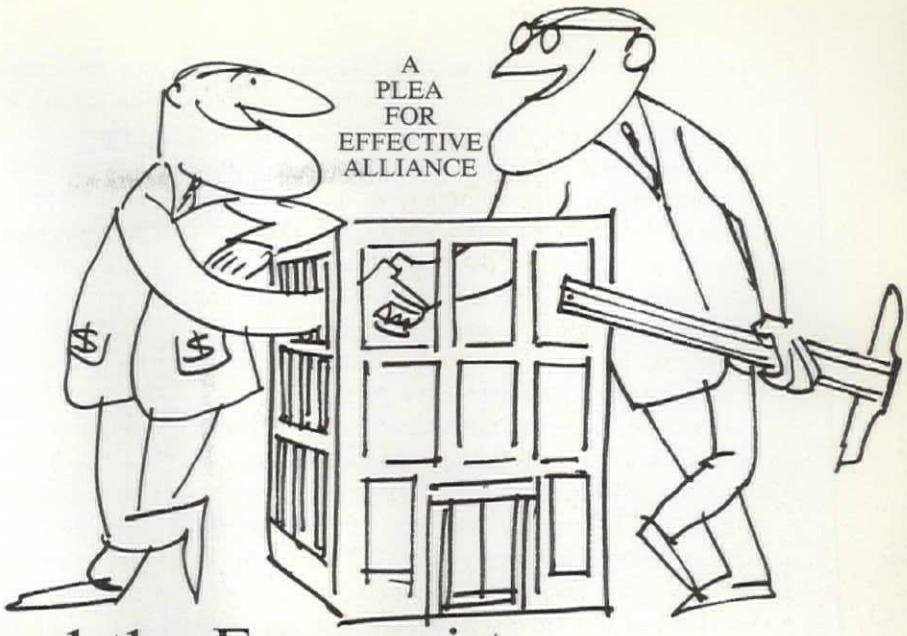
1 Urban university for science and technology providing for 5000 students in the first construction phase and with consideration given only to the basic requirements of a complete academic facility. Pulsation of spatial flow by compression and expansion of space dictated the configuration. **2** Protoype structure for research and development whose objectives include a synthesis of precast concrete structure and mechanical services resulting in a spatial flexibility capable of satisfying the continually changing demands of research. **3** Medical center with nursing rooms pivoting from a column cluster in each tower element. **4** East elevation of the center, designed for a suburban community.

A study in multiple housing to fulfill the need for a more human environment in a vertical structure was the Rome Prize winner's objective in this high-rise luxury housing. Static cells of a conventional shaft become active participants under Pedersen's arrangement. His approach, he explains, was "to express the housing of people by a system of interior and exterior spaces to create interaction between the individual and his environment." Pedersen sought "a rich spatial quality" in one design. In another, the quest was for "freedom and interaction with the exterior environment."







The Architect and the Economist

BY JOHN WILLIAM MC MAHAN

The author is a partner in the Los Angeles firm of Development Research Associates (Bunker Hill and South Seattle Urban Renewal Projects, Medical Center at Irvine Ranch) and has been active for many years in real estate consultation.

"GOOD DESIGN doesn't cost, it pays," the architect informs his client when hard pressed to explain spiraling cost estimates in connection with a large building project. The client uneasily accepts this answer, but begins to wonder whether the project is still economically feasible. "Was it feasible in the first place?" he says to himself, as he leaves the architect's office.

The next day the client calls an equally well-known economic consulting firm, and requests that it view the plans the architect has prepared thus far. The staff of the consulting firm goes over the project and attempts to establish whether it is economically feasible. Their conclusion: a job costing more than the anticipated revenues will support. The outcome: possibly a ruffled architect and probably a cancelled project.

The situation may well be reversed. A client employs an economic consulting firm to determine the feasibility of a specific project. After several months of study, a thick handsome report is handed the client, portraying a glowing account of potential market demand and projected equity return from a successful building development. The client then takes the report to an architect and requests that the recommendations of the report be translated into a definitive plan and building design. The architect carefully studies the report, performs some preliminary planning work and determines that the project recommended by the report cannot be physically placed on the site because the economist has not taken into consideration, say, the magnitude of parking that will be required. The outcome: a useless economic report and a confused client.

Unrealistic? Not in the least. The circumstances outlined in these two instances are repeated almost daily throughout the United States. In many instances such as those outlined above, professional advice is conflicting and misleading. The result is often the cancellation of sound real estate projects that could and should proceed. Perhaps more alarming is the antagonism this situation may create between what should be two highly complementary professional disciplines. It might be well to outline the reasons for what appears to be a misunderstanding between the architectural and economic disciplines, the cost of a lack of cooperation between them, and an evaluation of various methods taken to resolve the differences.

The seeds of mistrust between the architectural and economic disciplines have long been germinating. In many instances they are the results of legitimate points of difference. In others they are completely groundless. There appear to be three reasons: a lack of respect between the disciplines; a lack of interprofessional knowledge; and poor client coordination.

The lack of respect is generally more evident in the identification of a problem than in its solution. Certainly there are areas of professional endeavor that are obviously economic or esthetic. The identification and measurement of the market potential of a particular site are definitely economic. Building design and production of working drawings and specifications are clearly archi-

tectural. Between these two well-defined areas, however, are the "gray area" decisions which affect a project. The question of project phasing, the establishment of unit "mix" and size, the determination of parking requirements, each of these decisions could be claimed by either discipline. Actually they draw heavily on both and should be met jointly. For the economist to assume he can adequately answer a technical problem is a gross mistake on his part. For the architect to attempt to solve an economic problem is no better.

A second cause of misunderstanding between the two professions is a sheer lack of knowledge about the other side of the development problem. This is not to say that the economist must intimately understand every technical problem. It does mean that he is to be generally familiar with the architect's vocabulary, methods of approach and areas of contribution. It also means that the economist must recognize the instances where he can assist the architect in proceeding more efficiently in reaching a technical conclusion.

As an example, there is little reason for the architect to be concerned with the question of unit mix except as it relates to the design solution. This highly critical information should be furnished by the economist, and based on sound market judgment. The architect is then free to proceed immediately to other more constructive areas. Other instances in which the economist can furnish the architect with important information include acreage absorption, ultimate project saturation, price or rental range, marketable features to be included, etc. To be of benefit to the architect, the economist must recognize the necessity of furnishing this information early in the plan and design-solution process.

Looking at the other side, the architect should not be expected to be totally absorbed with the economics of a design or plan solution. It is desirable, however, that the architect understand the language of the economist (since it is that of the client) and the areas in which he will require technical information to proceed. Examples include peculiar soil problems that may restrict high-density development, anticipated changes in circulation which may actually create new demands, a unique design solution which is under consideration and may be significant in creating new demand.

In many instances the misunderstanding is not the fault of the professional disciplines but rather the client's. For example, the client who engages an architect prior to seeking sound economic advice and then expects the economist to substantiate the predetermined decision of the client and architect. If this decision is a result of client ignorance, then the record should be set straight, preferably by the architect. If the client is knowledgeable in his course of action and is merely attempting to present the economist with a *fait accompli* to be economically rationalized, the burden is on the economist to either reject the assignment or take it with the clear understanding that he is then evaluating an architectural concept, and not performing a complete analysis of a site's market potential.

Whatever the reason for disharmony between the architect and the economist, the costs are often high. Three major areas of cost can be identified: dollar cost, loss of time and loss of quality.

The first area of dollar loss involves the matter of consultant fees. If an economic report is not capable of physical implementation, then much of the work must be redone and/or the report discarded. Although this cost item is relatively small, it does hit the client as a direct out-of-pocket expense prior to even determining whether the project is feasible. The cost can also prove expensive to the professional firms themselves, particularly if rework is not covered in the original scope of the contract. More formidable costs arise from the possibility of error in the project. Misjudgment in determining the size of a parking structure, over-optimistic market absorption or poor selection of tenant features may cost severely in terms of project success.

Although more difficult to identify, the cost in valuable development time can often be just as critical as an actual dollar loss. The economist struggling to reach a technical decision that could be made instantaneously by the architect is a cost neither the economist nor the client can afford. Similarly, the architect can ill afford to waste valuable budget on establishing economic data for his planning and design activities.

The client can also be directly affected by a loss of time due to lack of professional cooperation. This can come about through reworking phases that have gone awry, time deadlines that are not met or material that is not delivered to the proper government agencies or financial institution. This loss of time can cost the client money in the form of additional interest during the interim period, or may completely scuttle a project if an option or other deadline is involved.

The final cost is the most difficult to measure. This is the lower standard of quality arising out of interprofessional disharmony. Design quality is often severely affected when the economist intrudes into esthetic matters or when the architect devotes such a large portion of his budget to answer nonarchitectural questions that little time is left for creative design exploration. Other elements of project quality may also be affected: an excellent site not used to its full economic and esthetic potentiality; a sizable sector of the market

bypassed or misjudged; structures underdesigned in terms of physical and economic life.

There are three possible solutions to the problem: client assumption, professional integration and professional coordination. When beset with the problems and delays arising from the failure of consultants to coordinate their activities, many clients, particularly builder-developers, have tended to discard the consultants and assume the functions within their own organizations. This so-called "in-house capability" approach has seen many developers add architect and economist directly to their staffs in the hope that greater coordination and flexibility can be achieved. The result is generally a moderate increase in efficiency at a substantial loss in independent judgment in which project quality and overall feasibility may be sacrificed to other goals.

Still another approach is taken by the disciplines themselves. This approach entails integrating the other disciplines into the professional operation and thereby offering a so-called "one-stop shop." In this manner the architectural firm forms an economic division, or the economic firm adds a technical function (e.g., planning).

Let us consider the case of the economic division of the architectural firm. Generally, this function is offered on a staff basis as an adjunct to the technical operation. The objective is usually to supplement the technical operation and not to create economic services themselves. There is, however, a danger that the economic function will be viewed less and less as a staff function and more as a means to job development. In such a case, it is doubtful that the client will receive the full benefit of independent professional judgment.

In the case of the economic firm that adds an architectural planner, the problem is not as acute because the sequence of activity makes it difficult to utilize planning in promoting additional economic consulting business. The problem of receiving less than the best advice persists, however, as the economic firm generally cannot pay the rates necessary for top architectural planning talent.

A better solution is for the disciplines themselves to coordinate their activities on a particular project. This method appears to overcome the disadvantages of the two preceding approaches. The lowered quality of the client assumption approach is avoided because more qualified talent may be brought to bear on a problem. The lack of independent judgment inherent in the professional integration approach is overcome, and a wide range of exposure of the professional architectural and economic firm assures the client of being current on most new concepts and developments in the real estate and building fields.

The most satisfactory solution in terms of both the client and the disciplines is increased professional coordination. How can this be achieved? The first step toward meaningful results is for each discipline to respect the areas of influence and abilities of the other, and to be informed on its activities, problems and personalities. There are several areas which will improve day-to-day coordination:

- The early appointment of an architect and an economist concurrently will bring technical considerations into the analytical processes of the latter, and create a better understanding of the final economic conclusions and recommendations. In many instances considerable success has been achieved with "brainstorming" sessions in which both disciplines are able to bring their professional judgment to bear jointly on a project's problems.
- A clear understanding of areas of influence should be established as early as possible in an assignment. In instances where the architect and the economist have not worked together, it may be desirable to spell out these responsibilities in writing so that all members of the project team as well as the client understand what is to be expected from each member of the project team.
- It is incumbent upon the economist to reach conclusions regarding feasibility as soon as possible. If the project is feasible, it allows the architect to begin immediately with the schematic phase plans. If the project is not feasible, the assignment can be terminated, thereby saving the client further professional expense.
- In assignments where a written report is required, the reports of all consultants should be generally consistent regarding the facts. This does not mean that major areas of professional disagreement are to be whitewashed, but rather that minor areas of inconsistency—figures, names, etc. —be eliminated in order to avoid doubts on the entire professional effort.
- Finally, the client must be continually made aware of the job's progress and direction. It may be desirable for the client to appoint an individual within his organization responsible for direct coordination.

Each professional firm will wish to approach individual projects in different ways. The purpose of these recommendations is not to formalize any particular method but to indicate ways that many firms have found effective in day-to-day operation. They are suggestions toward a joint effort of the architect and the economist directed at producing better projects for the business and social community which these two professions are expected to accommodate.

This article is published under the auspices of the Commission on Professional Practice, Dean Hilfinger AIA, *chairman, and the Committee on Office Procedures, Gustave R. Keene* AIA, *chairman*

Budgeting Tools for Office and Project Costs

BY JOHN W. MC GOUGH, AIA

A number of office forms have been developed to assist architects in budgeting realistically for their services and recording building costs. Properly maintained, these forms will suggest antidotes for losses sustained in past projects and help determine adequate compensation for future ones.*

IN TODAY'S PRACTICE, it is essential that each architectural project pay its own way. To insure a financially successful job, an architect should not only establish a realistic budget but compare it with actual performance as the project moves along (Forms 1 and 3). He should have records which help pinpoint areas where losses may be incurred so that he may avoid them, if not on the current project, at least in subsequent ones. The architect needs reference material particularly when negotiating future projects, for preliminary budgeting of services and construction as well as for a final check on construction cost estimates (Form 4).

The office forms suggested here follow budgeting principles which apply to any firm and any project for services which, for the sake of convenience, follow those listed in the Owner-Architect Agreement (AIA Document B131). These forms are particularly appropriate for firms with outside consultants; and where compensation is based on a lump sum or percentage of construction costs. Complementing an established bookkeeping system and backed by monthly man-hour summaries and direct expense ledger for each project, they are the architect's most important tool in the development of a sound budget. Two major considerations for such a budget are the determination of an overhead percentage and the allocation of charges for principals' time.

Overhead, expressed as a percentage of direct job salary costs, should be computed at least once a year by relating the total annual overhead to the direct job salary costs. Overhead absorbs a large part of the architect's compensation. Consequently, the architect should define these expenses which belong to this category. A typical listing appears on the opposite page.

How principals' time is charged depends upon the size of the firm and the number of principals. A common method is to include a principal's time directly chargeable to a project as part of the direct job salary costs, while the balance of his time becomes a part of the overhead costs. The hourly

* Forms 1 and 2 are revisions of those developed by Gustave R. Keene AIA of Eggers & Higgins, New York architectural firm.

charge for a principal's time may be computed from his yearly draw. If this method is not followed, the percentage budgeted in the forms for the principal's share should be adjusted upward.

Several items are used in the forms which require clarification. The term "principal's share" is used rather than "profit" since profit is a function of gross income. "Overhead" is used for indirect expense. Direct job salaries include salaries of employees and principals directly chargeable to the project.

Form 1: Budget of Production Costs—This form (on the next page) is executed to budget funds available for architectural services.

· Item 3: Principal's share—a variable which depends upon the method for charging principals' time as discussed above and upon the type of project and client involved as they affect his participation, responsibility and availability of organization. It should include a percentage for contingency in addition to the base share.

· Item 5: Consultants' charges—determined by applying prevailing consultants' fees to estimated construction value for their respective part of the work.

· Item 6: Miscellaneous direct expense—defined by the architect.

These three foregoing items may be estimated from experiences recorded on Form 3 for previous projects.

· Item 9: Overhead—a percentage of direct job salary costs. Where accurate records of a firm's overhead costs do not exist, a rule of thumb is to assume the overhead as 100 percent of direct job salary costs. Thus the sum allocated under item 8 would include half for overhead and half for the total allowable salary budget (item 10).

DIRECT EXPENSE	INDIRECT EXPENSE *(or overhead)*
A WAGES Technical staff a) Special partners b) Draftsmen c) Spec. writers d) Research (specific project) e) Building Dept. expenditures	A WAGES Sr. partners (note #1) Secretarial & clerical General research Plan desk & messenger Education (seminars, professional meetings, etc.) Excused Time: a) Jury duty b) Birth c) Death d) Holidays e) Office party f) Entertainment (Bldg. Congress, Christmas party, etc.) Severance or termination pay Others (note #2)
B REIMBURSABLE EXPENSES Consultants-engineers a) Structural b) Mechanical c) Electrical d) Landscape & site e) Acoustical f) Lighting g) Others: soil analysis, test borings, & surveys, etc.	B LEAVE Sick leave (week or more) Sick leave (isolated days: note #3) Vacations
C OTHER EXPENSES (optional reimbursable) Photos & reproduction Blueprinting Special messenger service Building Dept. fees Travel & long distance phone (specific project) Finished perspective & models Telegraph, postage & shipping expenses (special projects) Entertainment (special projects) Special equipment (special projects)	C INSURANCE Unemployment Public liability a. Bodily injury b. Property damage Workmen's Compensation Social Security Disability Errors & omissions Valuable papers Fire, payroll, theft Major medical hospitalization and/or life Pension
NOTE #1 On consulting jobs, very often all salaries are charged, including fixed dollars per hour for senior partners.	D MISCELLANEOUS TAXES Gross receipts Sales Occupancy
NOTE #2 Unproductive time, not included under Indirect Overhead—staff meeting, standby time, coffee breaks, cashing of payroll checks, personal telephone calls.	E OTHER Rent & electricity Telephone, telegraph & postage (general) Books & magazines Dues, fees, licenses Towel & cleaning Bonuses Christmas party Entertainment (general) Contributions Fares, automobiles, taxis Equipment & replacement Accounting, atty. & public relations fees Special equipment (general) Supplies (drafting, clerical, etc.) Interest Depreciation Bad debts
NOTE #3 Isolated days as excused time can be considered as a direct cost or as an indirect overhead depending on the size and policy of the particular office. This item amounts to approximately 10% of the total office wages and therefore could be a considerable dollar cost. If an office wishes to keep the direct costs low and overhead high, it should be carried as indirect overhead, but if the office policy is for low overhead and high direct costs, it should be carried in that column.	

FORM 1

BUDGET OF PRODUCTION COSTS

Project No._____
Date_____
Project_____ Partner-in-charge_____

1	Total estimated construction cost	$	
2	Total compensation (basis ___ %)		$
3	Principals' shares @ ___ % of total compensation		
4	Left for disbursement to cover production costs		$
5	*Consultants Charges*		
	Structural ___ % of $ ___ = $		
	Mechanical ___ % of $ ___ = $		
	Electrical ___ % of $ ___ = $		
	Civil ___ % of $ ___ = $		
	Landscape ___ % of $ ___ = $		
	TOTAL	$	
6	*Miscellaneous Direct Expense*		
	Blueprints	$	
	Travel & entertainment		
	Toll calls & miscellaneous		
	TOTAL	$	
7	Total of 5 and 6		$
8	Allowable combined salary and overhead costs (4–7)		
9	Overhead @ ___ % of direct job salary costs		
10	Total allowable salary budget		

SALARY BUDGET BREAKDOWN

1	Schematic design	15%	$
2	Design development	20%	
3	Construction documents	40%	
4	Receipt of bids	5%	
5	Construction	20%	
	TOTAL		

FORM 2

MONTHLY SALARY BUDGET STATEMENT

Project No._____
Project_____ Partner-in-charge_____

	BUDGETED SALARIES	ACTUAL SALARIES	% OF BUDGET	% OF COMPL.	DATE	REMARKS
Schematic design						
Design develop.						
Subtotal						
Const. documents						
Subtotal						
Receipt of bids						
Subtotal						
Construction						
TOTALS						

Where experience shows this percentage to be less than 100 percent, use the formula: total allowable salary budget (B) plus overhead percentage times B equals allowable combined labor and overhead costs.

· Item 10:—Total allowable salary budget—broken down into percentages conforming to the Owner-Architect Agreement as being the most appropriate to the architect's compensation for each phase of the work. If the architect changes the percentage stipulation, he may well affect his billings to the owner; however, experience may dictate changes in the percentages, depending upon a firm's method of operation. Periodic performance checks are computed from the man-hour summary sheets on Form 2 (Salary Budget Statement) to determine actual performance for each phase of the work.

Form 3—Architects' Cost of Rendering Service—Prepared at the completion of a project and maintained for reference, the form reflects exact costs and is the final performance record. Essentially a profit and loss statement, it includes a production and construction time schedule.

· Item 1: Construction costs—taken from the contractor's final certificates.

· Item 2: Reimbursable costs—not essential but useful in helping an owner estimate total cost of architectural services.

· Item 3: Total compensation—taken from the books. It is recommended, however, that these values be maintained as memo items in the direct expense ledger.

· Item 4:—Direct job salary costs—taken from Form 2.

· Item 5: Percentage overhead costs—related to the percentage of item 4.

· Item 6: Consultant costs—taken from approved consultants' statements.

· Item 7: Miscellaneous direct expenses—taken from the project ledger.

Form 4: Project Building Cost Information—This form records the complete project costs taken from the contractor's breakdown and final certificates, where a project is divided into general, mechanical and electrical work and various separate contracts such as for fixtures, landscaping, etc. The construction costs, including change orders, furnishings, architect's services and taxes, determine the total cost of the project. Financing costs, legal fees or interest on construction loans are not listed as they vary on every project. The amounts are broken down in terms of cost per square foot, per cubic foot and percentage of construction and project costs. A sketch of the project side plan showing the location of buildings and dimensions is recommended. ■

The Committee on Office Procedures welcomes comments or inquiries on its studies. They may be addressed to the Director of Professional Practice Programs at the AIA Headquarters.

FORM 3

ARCHITECTS' COST OF RENDERING SERVICE

Project & location _____ Job # _____

Type of facility _____

Size _____ Cu. ft. _____ Sq. ft. _____

Time schedule _____

Production _____ to _____

Construction _____ to _____

1 CONSTRUCTION COST

		% of Const. Cost
General		
Mechanical		
Electrical		
TOTAL		

2 REIMBURSIBLE COSTS

Item	Amount
Travel & sub.	
Teleph. (L.D.)	
Duplication	
TOTAL	

3 TOTAL COMPENSATION

$ _____

Basis 6% plus additions for revisions

4 DIRECT JOB SALARY COSTS

	Cost	% of Total Compensation
Schematic design		
Design development		
Construction documents		
Receipt of bids		
Construction		
TOTAL		

5 OVERHEAD COST

	Cost	% of Total Compensation
@ % of direct labor costs		

6 CONSULTANTS

	Basis of Consultant Fee			
Structural	% Gen. const.	=		
Mechanical	% Mech. const.	=		
Electrical	% Elec. const.	=		
		=		
		=		
TOTAL				

7 MISCELLANEOUS DIRECT EXPENSE

Office & drafting supplies	
Duplication	
Postage	
Telephone & telegraph	
Automobile	
Travel	
Entertainment	
Rendering	
TOTAL	
Total costs (Items 4, 5, 6 & 7)	
Principals' share	

Remarks _____

FORM 4

PROJECT BUILDING COST INFORMATION

Project and location _____ Job # _____

Description _____ Cu. ft. _____ Sq. ft. _____

Contractor _____

Construction time: From _____ to _____

DIVISION OF WORK	TOTALS	S.F. COST	C.F. COST	% OF C.C.	% OF P.C.
General					
Elevators					
Overpass					
Tunnel & conveyor					
Paving					
TOTAL GENERAL CONST. COST					
PLUMBING					
HV & AC					
Fire protection					
Lawn sprinkler system					
Site utilities					
Kitchen					
TOTAL MECHANICAL COST					

DIVISION OF WORK	TOTAL	S.F. COST	C.F. COST	% OF C.C.	% OF P.C.
Electrical					
Fixtures					
Site utilities					
Metering					
TOTAL ELECTRICAL CONST. COSTS					
OTHER CONTRACTS					
TOTAL CONSTRUCTION COST					
Furnishings					
Architects' services					
Taxes					
TOTAL PROJECT COST					

THE MAGNIFICENT SHED

A Short Story

BY LILIAN JACKSON BRAUN

EVER SINCE the age of 12, Jip had dreamed of becoming an architect, smoking a pipe and designing skyscrapers. By the time he was 26, Emery Everett Jipsum AIA had changed his vocabulary, but the dream was the same: He wanted to design high-rise buildings.

And yet he was employed at the oldest drafting board in the smallest cubbyhole at the farthest end of the design department, detailing toilet rooms for junior high schools.

It was not that he lacked talent. At college, his visionary design for a high-rise embassy in the Congo had won a prize, and after graduation he easily got a job with Ivey, Biggs, Epping, Anderson & Mudd. To date, however, the loftiest assignment given to young Jipsum at IBEA&M was the stairway layout for a new apartment tower—33 flights, each one exactly like the other 32.

Then one evening at a chapter meeting, his life took a new turn. He met Harry Plugmore, a newspaperman who handled the bowling column, obituaries and architectural news for the leading daily. Jip's tongue had been loosened by the tomato juice served at the social hour preceding dinner, and he gave the newsman a stinging critique on a high-rise that was under construction in the civic center. Jip took exception to the massing, the orientation, the module, the fenestration, the site planning, the quality of the glass—and even the construction shed, which he labeled an eyesore.

"Here's how I would have designed that building," he said, sketching on the white linen tablecloth. "My concept would be a powerful statement of the vertical, resolving the problem of mass without resorting to clichés. I'd use a cross-axial plan with an off-center core and an illusory system of staggered black voids."

"I see," said Plugmore.

"I think this would create an architectural matrix that enunciates the structural materials and conveys an exuberant dynamism. It would have significance as well as emotional content and pragmatic integrity. Notice how the vertical module solves the problem of fenestration in a nonstylistic idiom."

"Mmmm," said Plugmore.

At that moment the speaker of the evening opened his remarks on "The Architect as Father Image," and Jip forgot his conversation with Plugmore until the next afternoon. He was busy designing the parking lot for an airport when he was summoned to Epping's office.

No one at IBEA&M was quite sure where Epping fitted into the firm. Anderson and Mudd—the two who appeared perpetually worried—were engineers. Ivey and Biggs, who looked misunderstood and unappreciated, were architects. Epping was outstanding only for an excess of enthusiasm and a heathen interest in publicity.

"Sit down, Jipsum," said Epping, with enthusiasm. "It's time we got better acquainted. Harry Plugmore seems to know more about you than I do."

"Oh?" said Jipsum, never at a loss for words.

"He tells me you've got some original ideas. How would you like to put those ideas to work?"

Epping went on, "As you know, we're doing the new Marine Building, and we'd like you to give some serious thought to a design—an original design—for the construction shed. You made a good point to Plugmore; there's no reason why the building site should be defaced by a hideous shanty. Do you think you can handle it?"

Jip's first indignant impulse was to quit his job. On second thought he decided spitefully to design a construction shed that would set architecture back a hundred years. Then they could fire him!

What he committed to paper was a conglomeration of balconies, cantilevered decks, floating stairways, *pilotis,* clerestories, colored plastic spandrels, grillwork, fins, arches, domes, masts, trellises and planters. He indicated a landscaped exterior with pool and fountain, bordered with geraniums. The interior included a glass-walled lounge overlooking the excavation, to be equipped with Barcelona chairs, fireplace, split-leaf philodendron, carpeting and a cocktail bar.

Fifteen minutes after he had sent the plans to Epping's office, he was summoned to the conference room. Ivey, Biggs, Anderson and Mudd sat there in stunned silence, but Epping was pacing the floor.

"Jipsum, it's magnificant!" said Epping. "For the Marine Insurance Company the nautical symbolism is a natural! And it has a great public relations angle—a viewing center for sidewalk superintendents, where the business executive and the woman shopper may observe bulldozers and steam shovels in airconditioned comfort and without loss of dignity. The publicity will be phenomenal!"

Overnight Jipsum became a celebrity. As soon as the magnificent shed was completed, a reception for newsmen and city officials was held on the clublike premises, and the mayor was photographed for newspapers and television as he presented a citation to the brilliant young architect from IBEA&M.

Harry Plugmore reported in his column: "Emery Everett Jipsum's adventurous spirit links him with the romantic individualists. The field office he designed for Marine Insurance has a strong flavor of Frank Lloyd Wright, circa 1914."

Then the public started writing letters of commendation to the newspaper and a speculator in the building industry expressed a desire to duplicate the shed for residential use. The city installed an exhibit of marine history. A leading art gallery lent 19th century seascapes, and schools brought busloads of students downtown to visit the magnificent shed. Wednesday afternoons there were fashion shows.

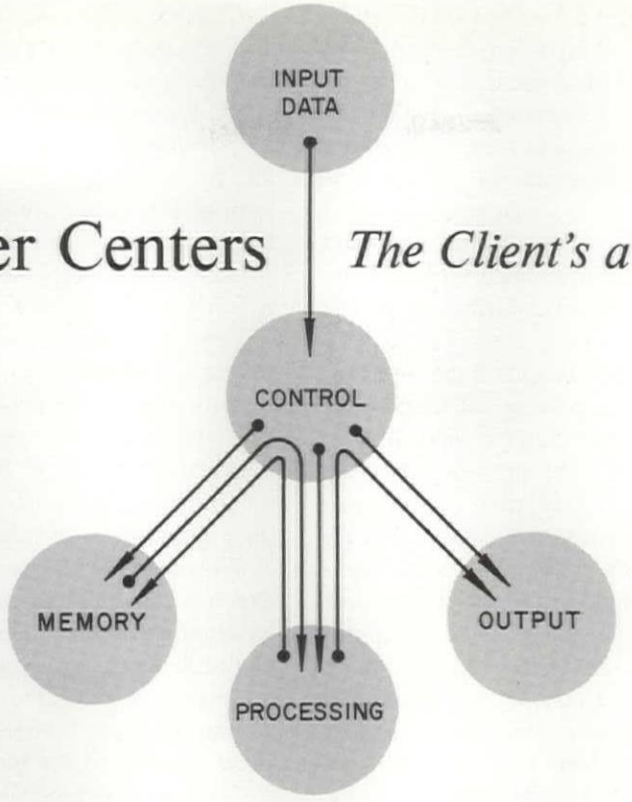
Meanwhile Jipsum's salary was doubled, as he designed more construction sheds for IBEA&M jobs, each one more exuberant than the last. Epping arranged for the rising young architect to appear on a national television show in which a panel easily guessed his occupation: designer of construction sheds.

It was a far cry from Jip's high-rise dream, but Epping summed it up with characteristic enthusiasm. "Jipsum," he said, "you have done a great thing for the profession." ■

The author, editor of the "Living" section of the *Detroit Free Press,* is a three-time winner of an AIA award for architectural writing and contributor to the *Monthly Bulletin,* Michigan Society of Architects.

Computer Centers

The Client's a Machine



BY H. SAMUEL KRUSÉ, FAIA

Computer centers may have sprouted like weeds, but their design requires hothouse flower care because they contain super-sensitive mechanisms.

THE FIRST electronic digital computer was invented by Professor Howard Aiken of Harvard University in 1944, and thus was started a new era in which machines perform enormously complicated calculations in a few minutes.

The early models were slow and awkward. They were experimental, custom-designed machines; too expensive, too profligate in their use of space, and much too unreliable for general use. Only the US government and a few wealthy institutions could afford the new electronic wonder.

But in 1958, solid-state devices and transistors replaced vacuum tubes, making possible today's small, cool-running and reliable computers. Practically overnight, computers became within the reach of all who have complex problems to solve. Although the Federal government remained the biggest single customer, use of computers became so general that in the United States alone, 21 companies will produce $5 billion worth of machines this year to satisfy the demand. The new industry offers its customers 250 commercial models, ranging in cost from $8800 to $4.3 million; and in size from the 94-pound navigator in the Gemini capsule to 180,000-pound giants.

Computers are already performing some 700 different tasks, which vary from prosaic inventory operations for mail-order houses to the glamorous, complex calculation for the moon-shot program. Computers can multiply 500,000 10-digit numbers in a second. They are used to develop jet aircraft and to do rapid indexing and analyzing; they were used to decipher the Dead Sea Scrolls. The computer develops and guides our ballistic missiles and trips to the moon, and determines routine routing of airplanes, trains, trucks and telephone calls.

The computer is basically an electronic machine that can do arithmetic and select from stored information with superhuman accuracy and speed. Within a compact space, an intricate network of fine wire circuits controlled by miniaturized transistors, and hundreds of thousands of tiny, magnetized metal rings, combine to form a memory-processing unit.

Information is fed to the computer's memory unit from magnetic disks, magnetic tapes, punch cards or directly by an electronic typwriter. The facts are first translated into binary language, (to make them compatible with equipment which is capable of expressing only two conditions, by means of positive or negative electrical charges). They are then fed into the computer, which relays the facts electronically to the metal rings or "core" of its memory unit. Once there, they will never be forgotten unless erased from the unit. This process of feeding the computer's memory is called *input* and can be performed, given the right equipment, from locations remote from the computer.

When a problem is to be solved by the computer, the information in the computer's memory unit must be compatible with that needed to solve the problem. The problem is programmed in language the computer understands—a language of letters, numbers and symbols. A master or control program "tells" the computer to send extremely rapid electric impulses into the memory unit, selecting or passing ferromagnetic rings which represent the necessary bits of information contributing to the answer of the problem.

When the computer has assembled the information and performed the necessary calculations to satisfy the program, the computer is said to have *processed* the input data. The answers from the machine, called *output,* are recorded on magnetic tapes, punch cards or printers which type the results on paper (sketch on preceding page). Computer centers have sprouted like weeds all over the country. A large hotel chain has a computer center where reservations for all their far-flung hotels are controlled, and all bills computed and returned to the hotel. This is done so rapidly that a guest leaving his room on the ninth floor to check out of the hotel will have his bill waiting for him when he appears at the cashier's window, even when the computations are done more than 1000 miles away. Airlines have similar centers for the same purpose, and the air defense of our country is controlled by similar centers.

A number of factors should be considered in determining the location of a computer facility.

Cost analysis is a factor in which computing centers are little different from other dynamic facilities. Land costs and building costs must be in balance with space required for efficient operation of equipment; for ancillary activities of programming, coding and engineering; and for future expansion and developments.

Insurance costs are directly related to the type of construction housing the computer center and to the center's location in relation to potential fire hazards and fire protection facilities.

Accessibility of site for delivery of equipment and supplies must be considered, as well as adequate door and passage widths. If elevators are involved, they must be of sufficient size and capacity to transport the heavy equipment. Efficient operation and servicing depend largely on access to the equipment by both operators and service engineers. Units requiring operator control, such as console, tape units and card input-output units, are better placed in the center of the computer work area, while units requiring little or no operator control can be located in less preferential space. The major objective of the work-flow pattern is to prevent input data—on cards, tapes or other media—from being confused with the output.

Utilities, such as electric power of proper quality and reliability for computers, adequate water supply and raw air supply of good quality for air-conditioning, are critical for computer operation.

Communication facilities are an important factor, for remotely located sites. The full exploitation of the center's capacity can be affected by the availability of leased wire facilities.

Computer centers have common characteristics which greatly influence their design.

They are critical. The computer center must be operable 24 hours a day. Guarantee of continuous operation is often a contract requirement by agencies who buy service from computer centers, and heavy damages must be paid if guarantees are not fulfilled. Computer centers frequently insure these guarantees and the machines and personnel.

They demand unique environments. A home for expensive equipment and personnel requires an environment both demanding and unique. Such an environment is never cheap. Although computers are many times located in industrial buildings, the actual space for the machines is peculiarly "computer space" and not industrial.

The computers get more attention than people. The great cost of the machines, the serious consequences of machine failure and pressure from insurance requirements, manufacturers' demands, and agencies' anxieties—all of which can conflict with governmental and financial interests—make concern for people seem a secondary matter.

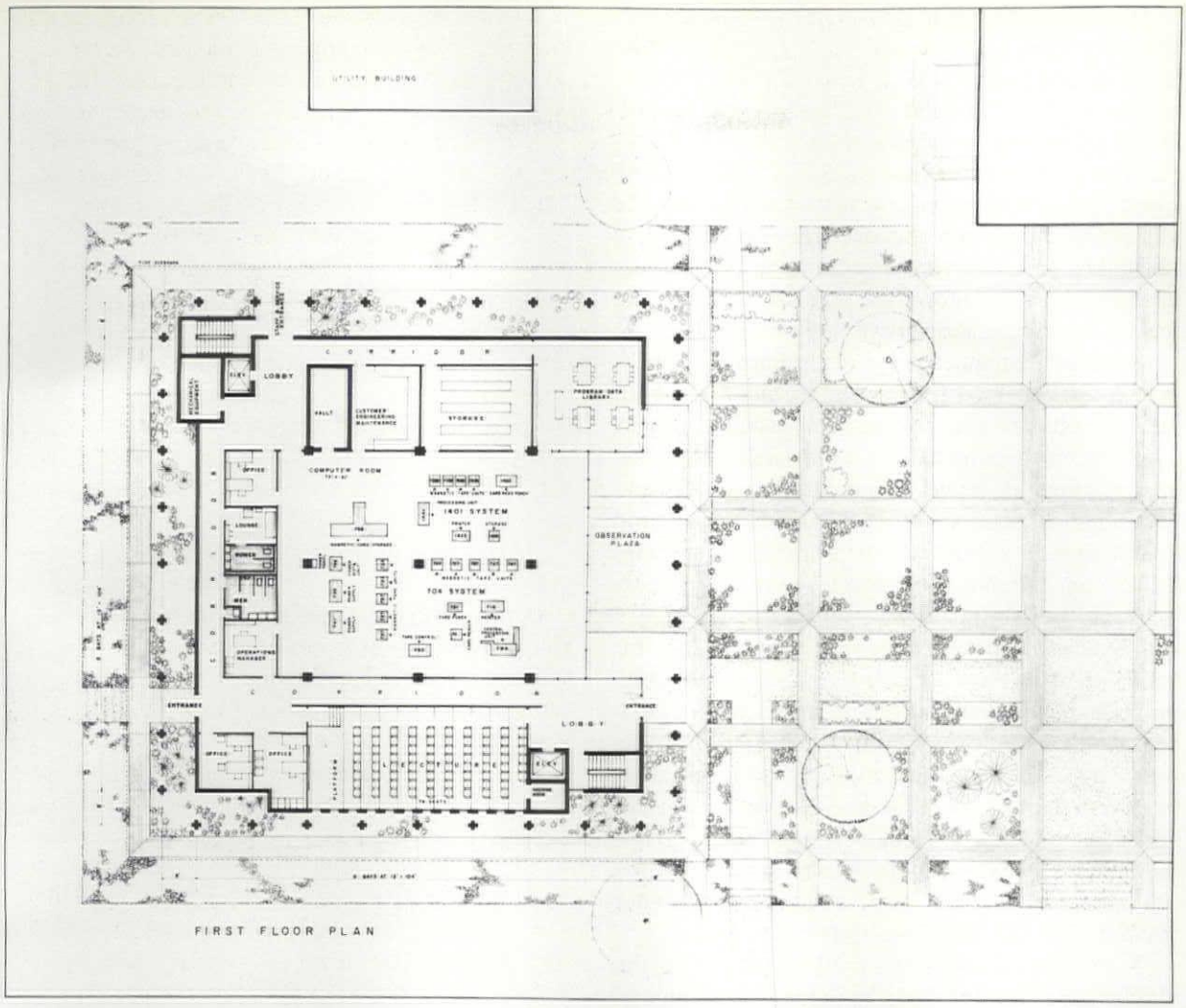
Large quantities of input-output materials must be stored and processed.

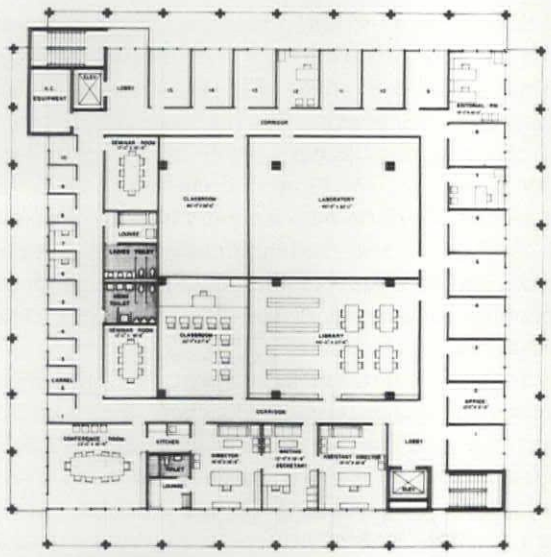
Let us investigate in some detail the requirements an architect must fulfill to satisfy these common characteristics.

The program for a computer center develops from a combination of several electronic units interconnected by cables and tailored, with the aid of the manufacturer's representative and owner's programming and processing staff, to perform a predetermined class of service; the offices and spaces for system engineer, programmers and operators; and specialized data storage facilities. The architect must develop a close relationship with the owner's insurance agent and manufacturer's representative early, for requirements to satisfy both are unique in details with the individual firms in spite of general similarities.

Machine layout for the computer system should be made prior to designing the building, since the floor area required for the system is determined by specific groups of components, located so cable limitations are not violated and proper clearances are maintained for servicing work space. Generous operating aisles must be provided and adequate area allotted for anticipated expansion.

Space must also be determined for tape storage





Floor plans above and left were developed for a center at the University of Miami. The availability of larger computers negated plans but flexibility saved the day.

within the main machine room that houses the computer components. Space also should be provided for printer form stands, storage cabinets, card files, work tables and desks, and punch card equipment such as puncher, sorters or transceivers, remote inquiry stations and transmission units.

The integration of the computer work area with that of other research and accounting areas and with storage areas are ingredients of the usual architectural synthesis. The work-flow from various punch card equipment to and from the system can be considered after aisles and intermediate storage locations are planned. Such items as permanent document files, card files and magnetic tape files require different storage facilities and should be located for efficient utilization of space and short travel time to the computers.

The floor plans illustrate the functional relationships of a proposed center at the University of Miami where site considerations made a vertical disposition of elements the most feasible solution. In this project, computer service is for research. The computer systems indicated on the first floor were not installed. Developments in computer availability and demands for computer service occurred so rapidly that, before working drawings could be completed, entirely different and larger computers were actually installed. Thanks to a flexible design, this was done without too much consternation or expense.

Machines for a computer center are heavy and cannot be located so as to be harmonious with a

particular framing system without reducing the efficiency of operating procedures or destroying flexibility for other arrangements in the future. Cables that interconnect the machines are big and heavy and require openings in the floor system.

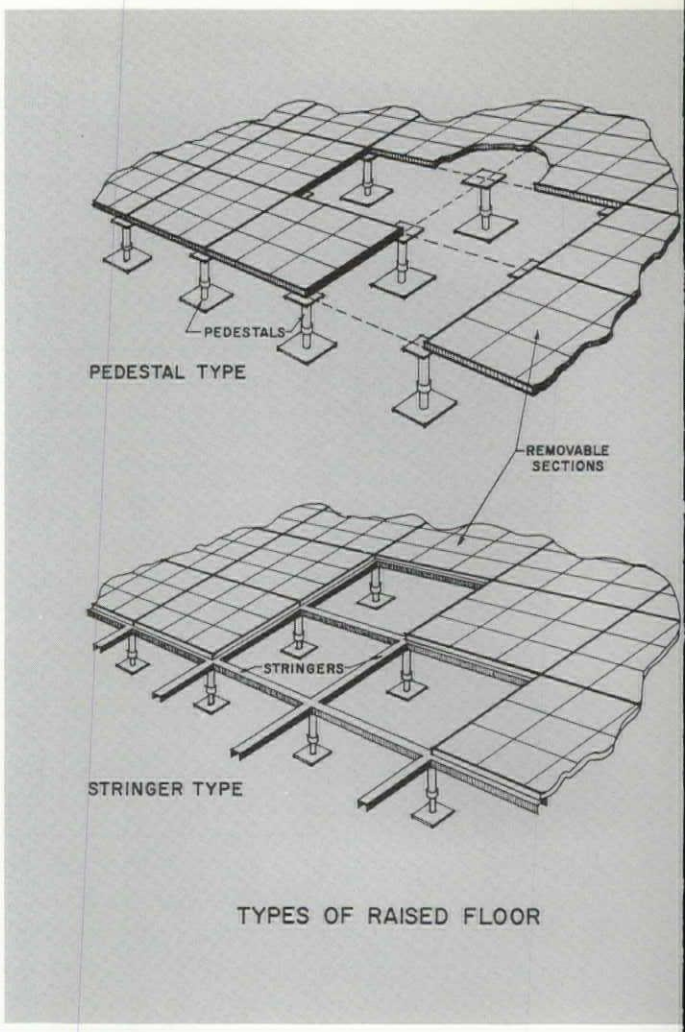
Structural engineers have determined that floors which are capable of safely supporting a live load of 150 pounds per square foot usually support computer system machines adequately. However this requires judgment in the cutting of holes and judicious placement of machines. A 150-pound load-carrying capacity floor is rare in buildings except in warehouses, basements or first floors built on the ground.

The use of patented raised floor systems for machine rooms has become the ready solution for providing the structural requirements without losing the flexibility needed for other demands. The space between the raised floor and the permanent floor can be used for power cables to the equipment and for inter-unit cables, and as an airconditioning supply plenum. Raised floors provide for personnel safety and allow future layout change with the least remodeling cost.

A number of types of raised floors are on the market and fall into two general classifications: pedestal type and stringer type. They consist of movable floor sections made of metal or wood to which composition flooring is applied. The sections are supported at their edges by structural members or by stringers that rest on pedestals, or they are supported only at the corners by pedestals. To gain access to the space below the raised floor, the individual floor section can be easily removed.

A word of caution: Although a raised floor can distribute concentrated loads, it should not be expected to do so without some modification. Careful analysis of the floor loading should be made; it might become necessary to use other structural members to distribute such loads or, perhaps, the equipment can be relocated to avoid concentration of load in excess of the raised floor capacity. Materials such as vinyl tile have been preferred for finishing because of their resilience and resistance to cracking and dusting. Insurance companies, of course, prefer the metal sections to the wood; underwriters say that, if the use of wood cannot be avoided, it shall be of lumber which has been pressure-vacuum treated by an approved fire-retardant treatment process.

Floors carrying the machines should be isolated from the remainder of the building for two reasons: 1) in certain manufacturing and commercial areas, buildings can be subjected to vibrations which can affect the performance of the computer equipment; 2) the mechanical units of the computer system, such as the card machines, printers and blowers are a source of noise. If sustained vibrations are predicted to measure 0.25G* (or more), the manufacturers will have to make modifications to their equipment or make recommendations for damping the vibrations within acceptable limits.



TYPES OF RAISED FLOOR

Sound isolation for the machines and acoustical treatment for the room and ducts to the room are accomplished by the usual techniques. The floor construction should be vibration-isolated from adjacent construction. Wall construction should be of sufficient density to prevent the transmission of sound; the joints at base floor and base ceiling, a well as the doors, should be sealed. Ducts should be insulated to prevent passage of noise through them to adjacent areas, and a sound absorbing ceiling should be used.

Since low levels of illumination are required for

* G's of acceleration are calculated from vibration readings of amplitude and frequency using the formula $G=0.103df^2$, where d is the displacement in inches from the mean and f is the frequency in cycles per second.

easy reading of various console, indicator and signal lamps on the various pieces of equipment, direct sunlight and intense illumination should be avoided in the general machine areas. The recommended light level in these areas is 50 to 55 footcandles at a height of 30 inches above the floor, with a recommended minimum of 40 footcandles.

General lighting should be held at an approximately equal level over the entire area of the machines, since operating and engineering personnel must frequently work behind the various pieces of equipment. Where spotlighting of particular pieces of equipment or display areas are desired, higher intensities must be provided.

Incandescent lights impose a greater load on airconditioning systems than do fluorescent lights. For this reason, and since the equipment produces considerable heat, fluorescent lighting is favored. In order to achieve the recommended 50 to 55 footcandle level of illumination, 2.5 to 4 watts of power per square foot of floor area is required for fluorescent lighting, whereas, 8 to 12 watts per square foot would be needed for incandescent lighting. Lighting fixtures recessed in a hung ceiling provide a method for using the "attic space" above the ceiling as an airconditioning plenum for dissipating the heat from lighting fixtures.

Because of the great heat loads from the various computer components, large quantities of cool air are needed to maintain room temperatures acceptable for the functioning of components and the comfort of personnel. Machines are designed to take cool air in at their bases, and discharge warm air at their tops. The room airconditioning system for the main machine areas, therefore, logically should supply cool air near the floor and exhaust warm air at the ceiling. This can be accomplished by using the raised floor to create an underfloor supply air plenum, and the hung ceiling to create a return air plenum.

In this scheme, cool air is introduced into the room through long, narrow, floor registers set in slots cut in the perimeter sections of the raised floor. It mixes with the room air and is then pulled into the bases of the computer components which have built-in fans. Some components will take air through holes cut to size and location in the raised floor sections under the machines and take air directly from the underfloor plenum, through the units, exhausting the air through the top of the machines. Return air outlets, located in the ceiling over the computers to capture the warm air as quickly as possible, return the air to the airconditioning equipment through the plenum over the ceiling, dissipating heat from the lighting fixtures as the air flows over the fixtures.

Design requirements for the airconditioning system are determined through consultation with the computer manufacturer, whose requirements are based on equipment protection, not creature comfort. Fortunately, there is no real conflict in requirements satisfying both machines and men.

At temperatures above 100 F, the life of a transistor is relatively short. As temperature decreases, transistor life increases, but at a diminishing rate, and becomes asymptotic to the temperature in the range 70 to 75 F. High relative humidity is not desirable, as it encourages electrostatic leakage between components with resulting computer errors. Currently, manufacturers ask for 75 F DB and 50 percent RH in the computer room; however, a few degrees' variation in temperature and fluctuations in relative humidity from 35 to 80 percent under certain conditions are acceptable. The tapes used in the computers will operate within a humidity range of 20 to 80 percent, but 35 percent minimum is required to protect the paper in the punch card machines.

Room design conditions set at 75 F DB, with a plus or minus 1.5 F control fluctuation, and 50 percent RH, with a plus or minus 5 percent, control fluctuation usually will satisfy the manufacturer's requirements. The manufacturer also restricts the RH in underfloor supply plenums to a maximum of 80 percent to forestall any chance of condensation forming within the floor plenum or within the machine when the floor supply outlet is located directly under the machine air intake.

A separate airconditioning system is recommended for computer areas, for a number of reasons: The amount of heat dissipated while computer components are in operation requires year-round cooling; conditions must be operational before machine power is turned on; most computers in computer centers function 24 hours a day, while other portions of the building might not; and reliability of performance must be high.

The underfloor airconditioning plenum system, previously described as using the raised floor construction, is not permitted by code in some localities. Where such code restriction prevails, three very common systems will provide the necessary conditions: 1) a single-duct system where ducts conventionally distribute cool air over the

entire machine area in sufficient quantity to absorb the heat load of the entire room, including that generated by personnel, lights, machines and solar load on the room; 2) a two-duct, two-unit system where one duct system with its air-handling unit supplies the machines directly with the properly conditioned air, while the other duct system with its air-handling unit absorbs all heat loads except machine loads; and 3) a two-duct, single unit system where one duct system supplies the machines and the other, the room, from a single airconditioning unit which supplies both room and machines with air that is conditioned to meet computer standards.

Controls for airconditioning must be reliable and monitored. A room thermostat set for 75 F controls face and by-pass dampers and control heaters for supply air. Humidifiers are regulated by a master humidistat set at 35 percent minimum and a submaster humidistat set at 80 percent maximum. The submaster humidistat is located in the duct or plenum supplying air to the machines; the other humidistat, in the room. To facilitate monitoring the performance of the airconditioning system, a control panel should be located in a representative area of the computer room. This panel records on charts the temperature and humidity conditions, both in the room and in the supply duct or plenum.

Power for computers must be of good quality and dependability. The line-to-line voltage tolerance must be maintained within plus 10 percent or minus 8 percent of the normal rated voltage, measured at the receptacle when the computing system is operating. Voltages may be either 208 or 230, but not both (usually the former). The supply is 3-phase, 4-wire, 60-cycle, and the frequency must be maintained at 60 cycles plus or minus 1 cycle per second. The feeder for the computer system should feed no other loads, since possible fluctuations of current can cause computer malfunction. It should not only be protected by a main line circuit breaker but also by a remote power-off device located in the main machine area.

In some localities where power interruptions occur frequently, some type of stand-by power should be available for continuing operations of the computer equipment.

Since continued operation of the computer equipment is dependent upon the information contained on tapes, cards, disks and similar media, it is essential that facilities be provided to safeguard properly this vital data from destruction or damage. Storage for tapes, cards, etc., which are not an integral part of the computer but vital to its function, should always be stored in waterproof, noncombustible storage units having the same temperature, humidity and cleanliness conditions as the computer room itself. Normally only tapes, cards, disks, etc., as are needed day to day or current to operations are stored in the computer room. A standard fire vault is satisfactory, but tapes should be stored in metal cabinets in the vault, because the usual 2 to 4 hour fire-vault door exudes a vapor when it is "cooked," and this vapor can damage the tapes.

In some areas, local codes and ordinances (under certain conditions insurance regulations) require automatic water sprinklers. Usually, the use of sprinklers can be avoided by using noncombustible materials and fire-resistant construction.

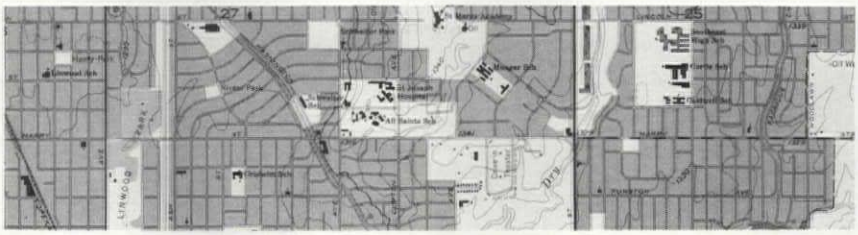
In view of the importance of certain key units in a major computing center, approved automatic carbon dioxide protection is sometimes provided, if feasible, to discharge directly into the enclosure of critical components, such as the power unit, the central processing unit, and similar units considered particularly vulnerable to fire. Such protection is actuated by sensitive smoke-detection equipment.

Portable carbon dioxide fire extinguishers of the handy 15-pound size, located at strategic points in the computer area, will usually satisfy requirements in fire-resistant buildings.

The computer is unique among machines, in that it can check itself at the same lightning speed at which it calculates. It also proposes improvements, alterations and complete redesign of itself with equal speed. This facility could be disastrous for the architect designing a computer center, if it were not a fact that the trend for bigger and better computers relates to capacity and not to size. The development of computer components tends toward handsomer, more compact, cooler operating machines of tremendous capacity for performing a variety of services with greater speed.

The design elements of a computer center are relatively few and not difficult to arrange. If provisions are allowed for adequate expansion in the computer rooms (How can an architect miss, with computers shrinking in size with each new model?), and if adequate storage space for tapes and paper goods is available, any computer center can accommodate a tremendous expansion of service without increasing the center's plant. As long as the center is accessible to telephone wires or is fitted with a gun antenna focusing on Early Bird, data from the far reaches of the world and even outer space can be transmitted.

The design of computer centers is no different from the design of any other building for an exacting, uncompromising client with expensive tastes. The only real difference is that the client for computer centers is an exacting and uncompromising machine. ■



PREPARED BY PAUL D. SPREIREGEN, AIA, FOR THE COMMITTEE ON URBAN DESIGN

The Politics of Urban Design

BY GORDON G. WITTENBERG, AIA

For many people, politics is regarded as the contrivings of the unscrupulous in government, an activity which is suspect and conducted largely out of public view. For the author, the concept as it operates in urban redevelopment must be politics in the best sense: the art of statecraft involving all affected persons. He explains his views by recalling the successful experiences of Little Rock from which he has extracted a number of practical precepts, all applicable to any city concerned with urban improvement programs.

EVERYONE involved in architecture and its related fields shares the desire and recognizes the necessity for good urban design. I want to discuss, therefore, some of the methods and techniques which can be utilized to make this happen, and where all of us fit into this picture. I further want to discuss how to arouse our politicians, planners, businessmen, and citizens to demand the implementation of these techniques. This is the "politics" of urban design.

Our world is literally exploding into new dimensions. Its mushrooming population places immense pressures on the very means of existence. The millions of people in our urban communities are no longer satisfied merely to exist. They desperately want, demand and will attain a better way of life. Obviously, the cities that remain only the products of the past 50 years will suffer simply because the urban planning—and the lack of it—in the first half of the 20th century isn't adequate for the remainder of the second. Those cities that have the vision to plan boldly and the determination to build soundly can look forward to winning in this great competition. In fact I'm not at all sure that we have much choice. Not to act has only one alternative: defeat by default.

Fundamentally, our problem begins with arousing the interest and concern of the citizenry to the condition of our urban areas, to the courses of action available and to the danger signals occasioned by rapid, sprawling growth.

I would like to submit the example of Little Rock, Arkansas, as an interesting case study of a city's efforts to insure a sound urban design to provide for modern man's needs in a new urban environment. I would not be so presumptuous as to pretend that this story is a flawless one, or so naive as to proclaim that the plan for a renewed and revitalized Little Rock represents the patented panacea for the urban ills of your city or any other. No two communities are exactly alike. Therefore, no plan for solving the problems unique to individual cities can be exactly alike. But there are experiences worth sharing.

Some time ago it became obvious to us in Little Rock and the surrounding area that people were unwilling to accept the outdated, second-hand way of life found there. Our area was then beginning to realize its enormous potential as a thriving center for business and industry. We were in the process of converting from an agricultural to an industrial economy. New industries started to bring in new plants and unprecedented payrolls. They were also creating a demand for new housing, new schools, new shops and added community facilities which are all a part of the total picture.

The presence of a new industrial plant throws the outworn and obsolete parts of a town into sharp contrast with the new. We can take a page

Adapted and updated from an address given at the Northwest regional conference in Portland last fall. The design and plans to which the author refers were presented in an article "Main Street, Little Rock" in the AIA Journal, July 1963.

from the book already written by American industry. US manufacturers are noted the world over for their readiness to scrap obsolete machinery to replace it with more efficient apparatus. It is an equally good investment to scrap obsolete elements of a community plant and to replace them with more efficient, attractive and functional urban components. No city can grow to its maximum potential if the entire community is not kept up to high standards.

In Little Rock we recognized our obligation to renew and revitalize our urban environment; to cut out the diseased tissue of slums, repair the worn fabric of poor environment and begin to set our physical house in order to meet the challenge of the times. This didn't just happen.

City officials, planners, architects and businessmen took a long hard look at the problems of the community and set out to determine the most equitable and effective means available to solve them. It was obvious that a piecemeal, sporadic attack on isolated situations would never provide a lasting solution to those problems which had been abuilding for a hundred years or more. Nor would it solve the problems of urban sprawl rampant around the periphery of the city. What Little Rock needed was a plan. More important still, there was a need to devise a plan which could be carried out within the framework of financial and legal capabilities.

A cross section of community leadership met to analyze our problems. It was quickly determined that the situation we faced was not just a "city thing," an isolated problem of the central city alone. Like most metropolitan areas, Greater Little Rock was made up of a number of separate municipalities and many more independent governmental entities. Nevertheless, all shared mutual concern over the welcome but problematical growth we were experiencing. It was agreed that the establishment of the proper pattern for growth and development could best be achieved through a coordinated planning effort for the entire area.

As a result of the concerted action of local citizens, a Metropolitan Area Planning Commission was established. This agency was set up to treat the planning problems of the entire county rather than those within the city limits alone: a paper line which urban problems readily traverse. This agency now works with the city, county and state planning commissions for a coordinated, orderly program of growth and development.

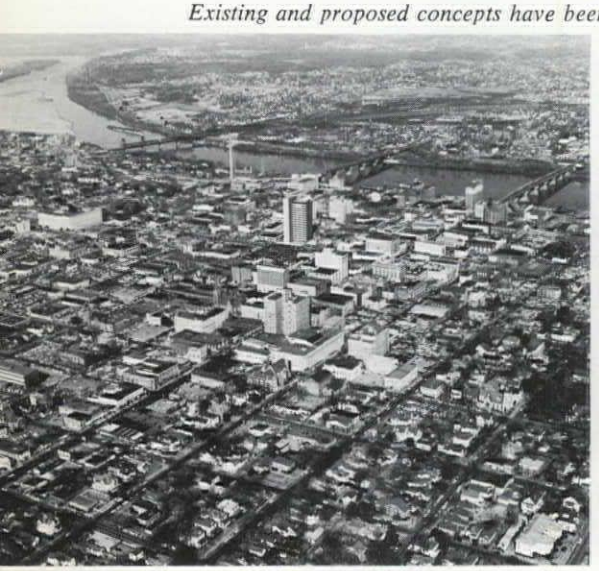
"Metroplan," as we call the Commission, is financed primarily by contributions from each of the participating cities, their school districts, the county and other financially able bodies. It is directed by a board of commissioners composed of leading citizens concerned with the development of the area. An architect is the past chairman. Metroplan is properly staffed with professional planners whose experience and academic backgrounds provide a wide range of talent necessary for this most comprehensive endeavor.

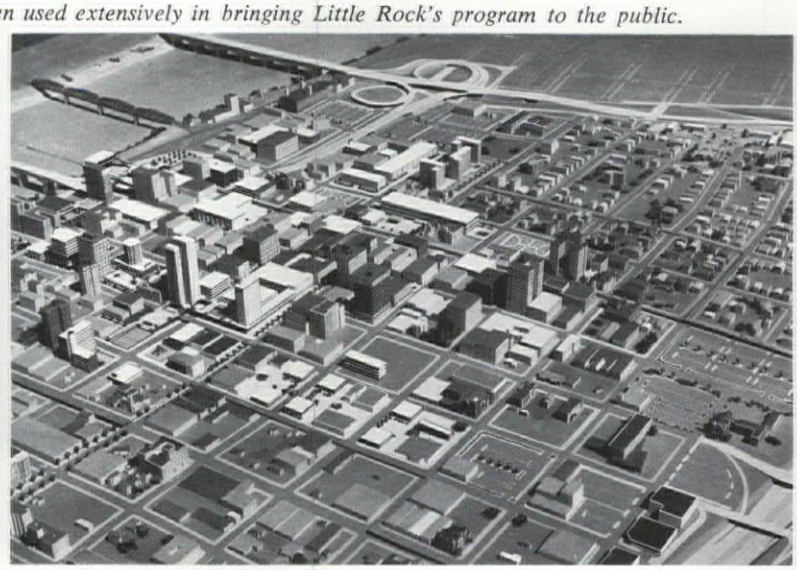
That good planning is good business became evident sooner than anyone had anticipated. Through Metroplan's studies of growth patterns, the school districts were shown where schools would be needed a decade hence. This enabled them to purchase land in advance of need for 10 to 20 percent of its later market value. The investment put forth by the school districts for metropolitan planning has proven a fantastic bargain.

Many other direct, tangible dollar-and-cents savings could also be illustrated with regard to such items as the location of industrial sites, sanitation facilities, public utilities, expressways and interstate highway projects.

This is good, sound, sensible planning. It's been good business and great politics. I can't think of a single elected official who opposed this opera-

Existing and proposed concepts have been used extensively in bringing Little Rock's program to the public.





tion. I can remember a number of them who used it as an example of *their* progressive thinking. This is as it should be. It's remarkable how progress can be accelerated if we aren't particularly concerned about who gets the credit.

As studies of the urban area progressed, it became apparent that we had an urban body with a sick heart. Our new growth areas would never realize their fullest potential until something was done to improve the heart itself, the control center. Our central city was still the hub of the entire urban area. It had to be revitalized and modernized to service adequately the pressing demands of its sprawling environs.

After extensive study, it was concluded that the best means available to attack the problems of blight and decay within the city was a comprehensive program of urban renewal in its fullest sense: a massive, citywide attack on the deficiencies inherited from the past. Fortunately, we had a good city-manager form of government, many members of which had been involved from the beginning. We also had an active housing authority which had earned the respect of the community. Therefore, we had in existence the necessary vehicle to get *going*. Since that time, Little Rock has established a national reputation as an outstanding example of a community which has used well this tool for rebuilding the city from within. By the end of this year, Little Rock will have completed five urban renewal projects, which is a very good record. Three more projects are presently in execution and four more in the planning stages. Project areas involve some 3500 acres of the city and constitute an ultimate expenditure in Federal and local funds of some $82 million.

As of the first of this year, $31 million in new construction has been completed or announced on land which has been cleared and made available for redevelopment through the renewal program. In addition, over $13 million has been spent by property owners on the rehabilitation of property within the project area. In many instances the evidence of progress in neighborhoods adjacent to the project areas has been just as dramatic, thanks to the improved health of the renewed neighbors. We are finding that for every dollar of public funds expended, private enterprise is spending five dollars in the rebuilding cycle. That's quite a business generator in a city of 130,000 population.

Little Rock has reaped a wealth of benefits from our urban renewal program. We have created a better living environment for thousands of our citizens. New jobs, payrolls and profit have been realized in the process. I must add, however, that the job doubtlessly would not have been done without the financial assistance made available under the urban renewal program. Few, if any, urban centers in the United States are in a financial position to meet effectively all of the burgeoning demands occasioned by the explosive transition from a rural to an urban society. The city is strained to the very breaking point in order to meet the cost of operating the community plant. With an ever-increasing population, the city finds itself faced with the need for enormous capital improvement programs necessary to service new growth areas. At the same time, it is trying to give attention and positive action to the older, declining areas.

I find it difficult to understand those who contend that a common purpose does not exist in the area of urban design in which government—both local and Federal—can unite with private enterprise to form an effective alliance. I am not willing to concede that the Federal government is my enemy. It is my government and it should work with me. Urban renewal is based on a partnership of government and private enterprise. The lion's share of the money spent in this program in the long run is, and will be, furnished by private sources.

I don't propose urban renewal as a cure-all or advocate its use in all cases. It is only a tool. Much depends on how you use, misuse or fail to use it. Cases can be sighted in some cities where urban renewal has worked badly or not at all. Most failures can be attributed to poor or inadequate planning and to a lack of the most vital elements of all: community understanding and support.

This brings us back to politics, convincing the right people and keeping their confidence. When I say "politics" and the "right people," I don't mean that you stop with Capitol Hill in Washington or the Statehouse, City Hall, County Courthouse or Planning Commission. The right people also means the news media, the construction industry, the real estate board, the financial industry, the Chamber of Commerce, civic clubs, PTAs, church groups, every public or private agency, business, profession and individual citizen who is affected by urban design—in short: everyone. Naturally, you cannot convince everyone, but general public understanding and acceptance is as fundamental to the success of any program of this nature as good spaghetti is to an authentic Italian restaurant.

Little Rock incorporated a most effective vehicle to insure good politics in its efforts. Understanding the significance of this program to the city's future, business leaders realized that they needed the continual and solid backing of the entire community. The result was the organization of the Urban Progress Association. The incorporators of its charter included the presidents of every bank, every utility, every major department

store, property owners and the proprietors of most of our leading businesses. Urban Progress has repeatedly proven its worth to the community in its active support of sound local government, comprehensive metropolitan planning, orderly growth for residential and industrial development and, where needed, renewal and redevelopment.

Urban Progress was largely responsible for the early approval of our request for planning funds. It organized and scheduled meetings for local groups of officials having a part in planning to assure that there were no overlapping efforts and to keep all official agencies informed of plans as they developed. Laymen who had specialized knowledge and experience in certain fields were organized into technical advisory committees. No public funds are used by Urban Progress. Every penny necessary for its operation—running about $35,000 a year—is furnished by private membership investment.

This association keeps the community constantly informed through newsletters, speeches, slide talks, motion pictures, newspaper and magazine articles, television and radio.

As an official civic group in the community, Urban Progress does not actually participate in the preparation of plans and has no official voice in their ultimate approval. However, its members so closely ally themselves with the program that they are an actual part of it every step of the way. Urban Progress has provided the public information needs and the organizational backing of the community: the politics of urban design.

This association has been especially instrumental in the initiation and current execution of Little Rock's most dramatic program involving the creation of a new design for the very heart and core of the city—the Central Little Rock Urban Renewal Project. This is a massive 508-acre program involving the realization of the entire central business district and its environs. In execution now for four years, it is projected for another six. By the end of this year, work will begin on $14 million worth of new construction on land made available for redevelopment through the project. Some of the finest talent available has been incorporated into the planning of this project and the architectural treatment of the redevelopment proposals.

This project actually had its birth as early as 1957 at the National Citizens Planning Conference held in Little Rock. To translate the theme—"Main Street 1969"—into visual terms, the Arkansas Chapter AIA created a concept of what Downtown Little Rock could look like in that year—based on broad assumptions and the best estimates the architects could make, working as they were with limited basic data and an exceptionally short time schedule for the preparation of drawings. This visualization was, however, all that was necessary to fire the imagination of the business and civic leaders who saw in the concept a rallying point as well as a place to begin molding a new central business district. Since the inception of the Downtown Little Rock 1969 plan and, eventually, the adoption of the Central Little Rock Urban Renewal Project, the results have been almost awesome.

The renewed faith in the downtown area—inspired initially by the efforts of our local architects—has resulted in a strictly private investment of over $64 million for new construction and remodeling in downtown Little Rock. This amount is greater than was spent in this same area in the preceeding 40 years.

As a part of the downtown renewal project, a general rehabilitation program has recently been initiated. A 30-man committee was organized within the membership of Urban Progress to assist the renewal agency in encouraging businessmen and property owners to examine the esthetic posture of the landscape and streetscape and to coordinate remodeling and rehabilitation. This committee is making marvelous headway in eliminating the typical unlovely, uninviting, worn-out look of the downtown asphalt jungle which repels resident and visitor alike. All in all, Little Rock is getting a gigantic face lifting—not without mistakes—but a bright new face it is!

In addition to the face lifting, we in Little Rock are also looking at our governmental structures with a mind toward modernization. A citizens group with metropolitan representation has recently recommended consolidating many of the governmental functions which now duplicate each other in our various incorporated municipalities within the metropolitan area. If put into effect, this can save our taxpayers millions of dollars. We are all aware of the natural tendencies of governmental entities to covet the functions of their various branches. Convincing a quarter of a million people that the consolidation of a large number of municipal services is good business is not as easy a task as it would appear. But the job we have done so far wasn't easy either. So we're going to try.

Recent efforts have shown positive progress. In order to assure a continuity of effort, a full-time Community Development Department has recently been incorporated into the structure of the Little Rock municipal government. Similar efforts are underway in the neighboring city of North Little Rock and elsewhere throughout the area.

I would carry this one step further and report that the General Assembly of Arkansas in 1963 created a State Planning Agency to coordinate and concern itself with planning on a statewide

basis. This wasn't anyone's pet dream either. It came about because our elected officials had seen demonstrated proof of the great need and benefit to be derived through coordinated efforts rather than the haphazard methods of the past.

Communities in Arkansas are also able to hire the services of the City Planning Department of the University of Arkansas to assist them in setting up minimum code requirements, master street plans and many of the necessary planning concepts fundamental to their development.

There are a few important lessons to be learned from our efforts—all worth consideration here.

· *The planning and rebuilding of our urban areas cannot and should not be considered a purely private endeavor.* There is a public obligation through the provision of necessary public facilities which must be met. It is becoming more and more apparent that public investment is often the catalyst necessary to generate private initiative and development. Desirable and adequate expressways and thoroughfares must be provided throughout the city to make the vital link between outlying residential areas and the central business district. This planning must be coordinated with the state and interstate transportation systems. Cultural and recreational facilities must be provided. Government buildings must be made attractive and easily accessible to the public. Without these public investments to provide a sound base for the area, private development will lag. Thus, public initiative through the provision of public facilities is necessary for private investment.

· *Planning studies and proposals should be made with an eye to the needs of the entire community.* It is important, before undertaking any part of a development or project, to develop a detailed plan for the future growth and development of all of the community. It is vital to know in detail how each part of the urban design relates to the other parts before attempting to treat any portion of the whole. An urban area operates on too many different levels and has too many interrelationships to be examined and treated in a piecemeal fashion.

· *Private plans should be developed with official public participation and sanction.* Thus, when they are completed, they will have official recognition and can then be carried out rather than forgotten. This does not rule out private participation in the planning process, either through work or money or both. It means that there must be recognition in City Hall, in the business community and among the general public that the city has its responsibilities for the plans under preparation. Unless everyone who is directly affected by the program is involved in the planning and a solid broad participation is realized, the program is in critical danger of lacking the necessary support for adoption. Without support, the plan will merely languish, ignored in the files.

· *The leaders cannot move ahead of public understanding, approval and acceptance in programs involving public action.* If the community and its public bodies are to be included in plans for urban design, they must be made to understand what the problems are, how the community is affected, why the plan must be carried out and what the benefits are to the community. Perhaps this sounds basic, yet many groups today involved in this type of activity overlook the need to tell and sell their plans and program—and many stub their toes on public opinion or the opposite, public apathy.

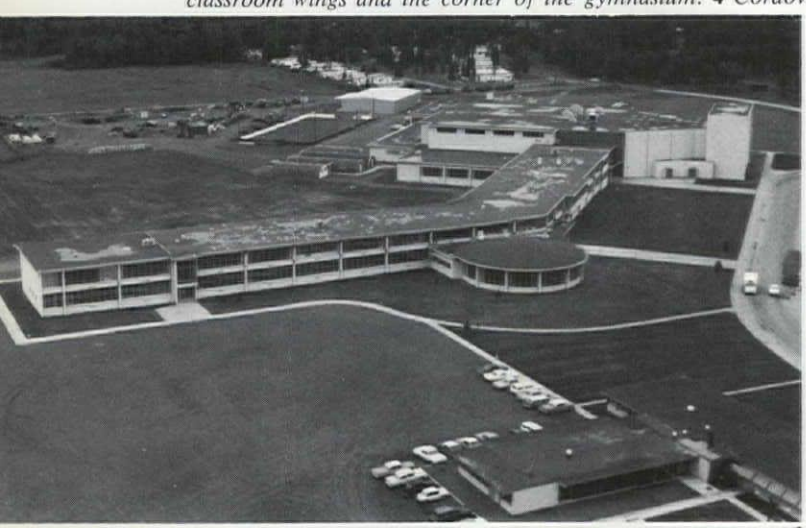
· *Lastly, plans must be kept flexible and easily adaptable to changing economic trends and conditions.* Set realistic time limits for completion and be prepared to meet with demands for unparalleled speed on the one hand and a deliberate snail's pace on the other. There is a need for infinite patience. Remember that this job cannot be accomplished overnight.

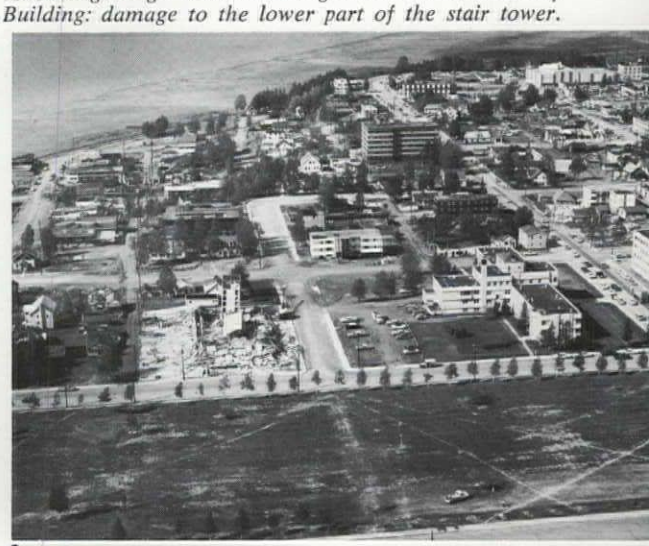
These are a few of the elements which must be considered when we speak of the practical politics of urban design. Undoubtedly, there are many other factors more or less important, depending on situations unique to each community, which must also be considered. And it is incumbent upon us to make these matters *our* business. Why us? A writer once said, "I finally understand what architects are. You are the people who can see buildings before they are there—I can't." Chloethiel Woodard Smith FAIA told some of her colleagues a while ago, "As architects, we must see, even if all too frequently with less than perfect vision, what no one else can see—the building finished and used by the people it was built for, or the city completed and lived in by the people it was built for. Each year, as we finish a new town or building, we can look at the buildings 'after they are there' and see if they are as fine as those we saw before they were there." Mrs. Smith went on to say, "We are pretty well agreed that the millions of square feet of the new haven't satisfied our all too recent and all too timid dreams for fine cities that are more than new. We must find new dreams, new ideas and new ways of communicating; not just new bricks and fresh concrete. For the architect, unlike the sculptor, the painter, the musician, the poet, is bound to people and, except in rare instances, he must bring people along with him or his art will remain paper, habitable only in the mind."

I couldn't agree more—if the art of urban design of which we are capable is not to remain merely paper, then we must decide that we too must bring people along with us. This, then, is the definition of the politics of urban design. ■

How to Design Against Earthquakes

1 *West Anchorage High School: relatively minor damage of circular library as compared to the adjoining classroom wing.* **2** *The city of Anchorage in the L-Street slide area: pile of rubble at left center contains the Four Seasons Apartments. Knik Arms Apartments is at top center.* **3** *West Anchorage High School: damage at the intersection of classroom wings and the corner of the gymnasium.* **4** *Cordova Building: damage to the lower part of the stair tower.*





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BY LLOYD E. HIXON, AIA

Earthquake damage may be minimized and repair work made less costly by the architectural consideration of size, arrangement and shape in the design of a building and by a judicious choice of finishes. These conclusions are based upon the author's observations following the Good Friday earthquake of March 1964 in Anchorage, Alaska. He was a member of a group of architects and engineers sent by the Boston engineering firm of Metcalf & Eddy to inspect the damage and determine the best methods to repair and rehabilitate structures and utilities, with a view toward minimizing future losses.

OFTEN DETERMINED before the structural system is developed, the shape, size and arrangement of a building and the selection of finishes are entirely in the hands of the architect. The resistance of a building to the destructive forces of an earthquake, therefore, clearly lies within the province of architectural design.

It is true that when a building is situated in a slide area, very little can be done to avoid its complete destruction. But, in the Alaskan earthquake, it could be observed that the shape of a building in plan, the proportion of height to width, the relationship of window area to solid wall, the mass of a structure and the arrangement of architectural elements and connections affected the extent of damage caused by the shock waves. Certain finishes were damaged to the extent that complete replacement was necessary, while others minimized the damage, the cracks and breaks in their surfaces hardly noticeable.

Effects of Shape

The perfect plan shape for a building subject to seismic forces is a circular one. Comparatively minor damage was sustained by the circular library of the West Anchorage High School (Fig. 1). With a shell dome supported by 12 equally spaced perimeter columns, seven segments of the circle were unrestricted while five segments had abutting one-story elements connecting the library to the school. The damage was confined to these restrained five segments. A crack in the floor slab and a corresponding one in the roof followed a line joining two opposite perimeter columns at the abutting structures, while vertical plaster cracks developed on four of the six columns supporting the restrained segments.

The circular form unrestrained by abutting elements, elliptical forms, rectangular shapes with convex curved sides or lenticular hyperboloids should be able to withstand earthquakes with little or no damage. In the case of free-form shapes, a concentration of forces may occur at the points of curvature reversal, causing considerable damage in these areas.

The square or rectangle form appears to be the next choice of plan shape able to minimize damage from seismic forces. However, the proportions of length to width should be such that their difference does not exceed a limit of approximately 3 to 1. Long rectangular shapes should be broken into smaller rectangles or squares by the use of seismic joints of sufficient width to allow for maximum free movement of each part, or by connecting elements of the building to allow free movement of the adjoining portions.

In the Anchorage area, the simple rectangular buildings sustained only minor earthquake damage (Fig. 2). Long rectangular buildings such as the Denali Elementary School, not divided by seismic joints, had cracks at regular intervals. Again, more extensive damage occurred at the junctions of abutting classroom wings (Fig. 3). When these wings intersected at an angle other than a right angle, the damage appeared to be less, as in the case of classroom wings near the West Anchorage School library. Sufficient seismic joints at the junction of various wings may confine the damage to only the rupture of these joints and perhaps some of the floor cracking sustained by the Alaska Psychiatric Institute.

Effects of Height and Width

Other factors being equal, there appears to be a relationship between damage due to earthquake and the proportion of height to width (slenderness ratio) in buildings over five stories high. The three tallest buildings in Anchorage, with heights of about 2½ times their width, including the 15-story steel frame Westward Hotel and the 14-story reinforced concrete L-Street and McKinley Apartments, were seriously damaged.

Similarly, the two tallest office buildings—the Hill and the Cordova—suffered extensive damage in their mechanical cores subjected to most of the shear stresses. In addition to the core damage where the concrete was badly cracked particularly at the lower floors, the columns were severely buckled in the Cordova Building with a height of 1¼ times its width as compared with the Hill Building where height and width are about equal. (Fig. 4.)

A six-story reinforced concrete building with a height 1¼ times its width, the Knik Arms Apartments, suffered very minor damage even though it was in the L-Street slide area and moved several feet from its original location. (Fig. 2.) The movement of the ground under the building changed the seismic force so that the building was vibrating at a lesser degree. In this case, the ex-

tent of the damage was not relative to the height and width proportion as in the case of a badly swaying structure. This building had other advantages in its design which are discussed below.

Relationship of Window Area to Solid Wall

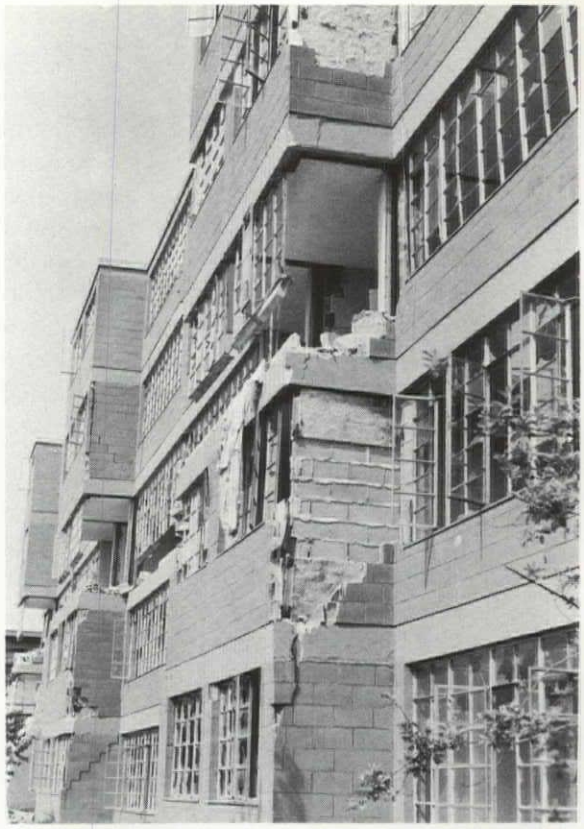
The effects of the relationship of window area to solid wall area on building damage caused by an earthquake can best be illustrated by comparing the damage to the Hillside Apartments and to the Knik Arms Apartments. The Knik Arms had a window area of less than one-fourth of the solid wall area. The building was a large solid concrete box with small openings. The Hillside, on the other hand, was made up of disconnected bands of solid walls and windows, equal in area on the south and one-third window area on the north (Fig. 5). The Hillside was damaged beyond repair by the earthquake and the Knik Arms Apartments suffered little damage.

The classroom wings of the West Anchorage school were built with a high percentage of window area to solid wall (Fig. 6). This fact plus the great mass of the concrete floor and roof slabs (9 in. thick, and in some spots 11-in. roof slabs) contributed to the earthquake damage of this building. Such a great dead load created a lot of momentum once it was set in motion.

Exterior Finishes

A wide variety of exterior and load-bearing materials was surveyed. They are evaluated here solely as exterior finishes without structural functions. In general, panel materials fastened securely to the structure but with some freedom of movement along the joints fared better than monolithic or unit masonry joined with cement mortar. Cracks and breaks in the latter walls were more expensive to repair, requiring cleaning of joints, tuck pointing for unit masonry and filling of cracks.

Most wood framed buildings with plywood panels, wood shingles or siding had little damage. Buildings with asbestos shingles had a few cracked or missing shingles which could be easily replaced. Insulated metal siding attached to wood framing or on furred masonry walls withstood the earthquake with flying colors. There were instances of attachments loosening or bolt heads shearing off, as in the case of Orion High School



5 *Hillside Apartments: damage from the large window area and cavity wall construction on the south.*

at Elmendorf Air Force Base, but the ensuing repairs were minor.

Curtain walls consisting of insulated metal panels and glass required only minor recaulking of joints. (Fig. 7.) But great danger to life and property resulted from the failure of the connections for precast concrete and other heavy exterior panels. The attachment of these panels in an earthquake area must be especially designed to withstand such forces.

Poured concrete walls developed many cracks. Larger than hairline cracks required routing out and grouting with material more elastic than cement mortar. An epoxy grout or the injection of epoxy into the cracks without routing gave good results. Hairline cracks could be sealed with a good bridging paint. These expensive repairs could be avoided in future earthquakes by providing a more flexible outer skin such as metal siding, plastic laminates or other panel types.

Walls built of unit masonry suffered damage which required extensive raking and tuck pointing of the joints (Fig. 7). Reinforced unit masonry walls withstood the shocks well, the hairline cracks in the joints requiring only a good bridging paint. Veneered masonry and two-wythe cavity walls usually separated by insulation were highly unsatisfactory for the Anchorage area. Even when well tied, the movement of the facing in relation with its backup broke the ties; and 50

to 70 percent of the facing separated. The two-wythe cavity walls lost their outer wythe, making expensive repairs necessary (Fig. 5).

Interior Finishes

Panel finishes such as plywood, plastic laminates, gypsum wallboard and similar materials withstood earthquake shocks better than masonry units or ceramic tiles bonded to backup material with cement mortar. Building movement caused panel joints to open, but there was little or no need for repairs. Hairline cracks in masonry units needed only a coat of paint, but larger cracks had to be routed out, grouted and then painted.

This type of interior damage constituted the bulk of repair work encountered in the schools and public buildings of the Anchorage area. Plastic laminate panels had no damage except where the panels were installed over plaster walls. The cracking of plaster caused the panels to buckle; but the removing and resetting of the affected panels were very inexpensive.

Ceramic tiles were loosened when the bond with cement mortar bed was broken by the earthquake shock. Tile wainscots applied with adhesive seemed to withstand the shocks better. Replacing loosened or crazed tiles was not expensive or difficult.

A poor material for resisting tensive and shear stresses, plaster was subject to cracking and spalling by the earthquake. When the plaster was applied over gypsum lath or to metal lath on wood or steel studs, the repairs were easy and inexpensive. However, cracks in the solid plaster opened up the entire partition making necessary the com-

6 *West Anchorage High School: classroom wings with their large glass-to-solid-wall areas.*

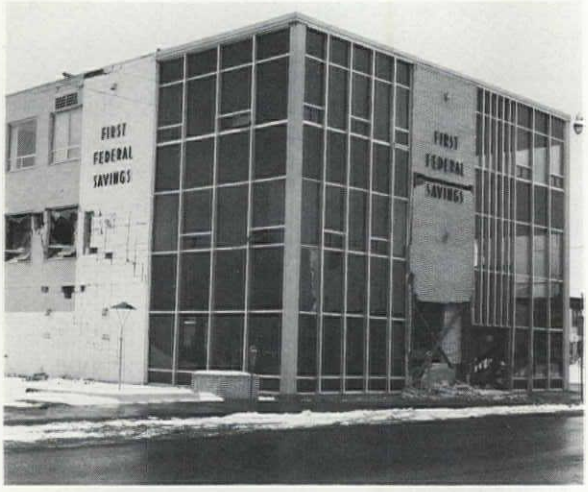
plete removal and replacement of the damaged units. In the L-Street and McKinley Apartments, more than 50 percent of the interior partitions had to be removed and replaced, indicating the desirability for a different type of partition in earthquake areas.

The flooring material found in most schools, public buildings and apartment buildings was resilient tile, asphalt tile being most common in the older buildings and vinyl or asbestos-vinyl being used in the newer structures. The asphalt tile reflected every break in the subfloor, especially concrete floor slabs. The repairs to resilient floors consisted of removing the tiles and patching the subfloor if the cracks were large, and then relaying new tiles after leveling the subfloor with an emulsion where a differential settlement had occurred. The more difficult task of matching the existing tile was best accomplished by introducing a contrasting color and by removing a few more tiles in order to create an interesting floor pattern. (Fig. 8.)

Ceramic tile floors suffered damage similar to tile wainscots. Unless cracks appeared on the surfaces, the determination of whether the ceramic tile flooring had lost its bond with the setting bed required tapping the floor to locate any squares which had loosened.

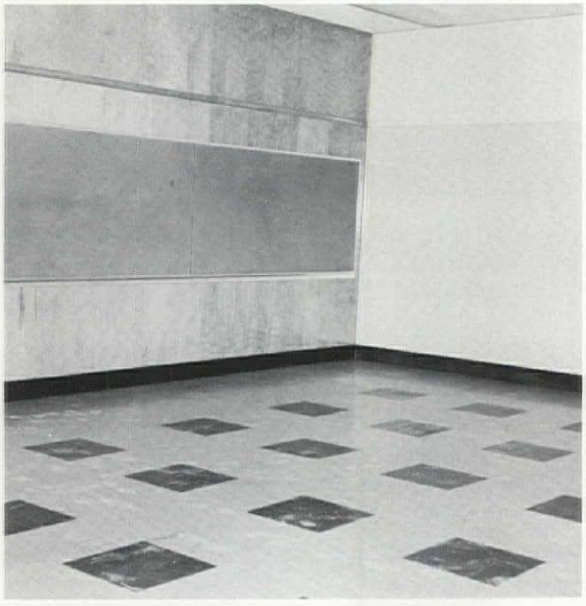
Earthquake damage to terrazzo floors reflected the damage to the subflooring and repairs were very expensive. Cracks in the terrazzo were routed out and filled with epoxy tinted to match the color of the terrazzo, but these stood out strongly as patches. For large cracks and breaks, and in areas where appearance was of the utmost importance, the only method was to remove the complete section between divider strips. It may be concluded that terrazzo should be used sparingly if expensive repairs following an earthquake are to be avoided. A terrazzo flooring consisting of an elastic matrix such as polyester resin for the granite or marble chips instead of a cement matrix would have suffered little damage during the earthquake. Also, the repair of such a finish is easy, comparatively inexpensive and cannot be detected from the existing adjacent areas. No terrazzo flooring of this type existed in the Anchorage area.

A few design choices that lie entirely in the hands of the architect, when judiciously used, could minimize costly repairs to buildings subjected to seismic forces. Many more alternatives can and should be investigated. The Anchorage disaster has aroused the curiosity of architects working in areas subject to earthquakes. It has also revealed what they can do before engineers and other specialists are invited to contribute to the design of a building. ■



7 *First Federal Savings Building: relatively greater damage to unit masonry as compared with curtain wall.*

8 *West Anchorage High School: repaired classroom floor avoiding the patched look of old and new.*



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Security Federal Savings and Loan — Columbia, South Carolina / Architect: Jackson and Miller / Dealer: Binswanger Glass Company / General Contractor: Laf Tarrant

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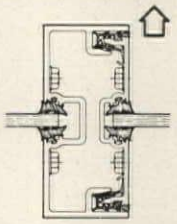

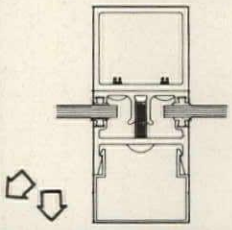

H V Trimline, Series 404

A basic grid system, easily erected and glazed from the exterior. Depth of mullion variable by your choice of back members and snap-on face. Accommodates glass, panels, doors, vents. No exposed fastenings.

First Federal Savings & Loan — Wichita Falls, Texas / Architect: Bank Building & Equipment Corporation / Dealer: Southwestern Glass & Paint Company, Inc. / General Contractor: Bank Building & Equipment Corporation

Citizens Bank — Gainesville, Florida / Architect: Kemp, Bunch & Jackson / Dealer: Crystal Glass & Paint, Inc. / General Contractor: Tassinari Construction Company

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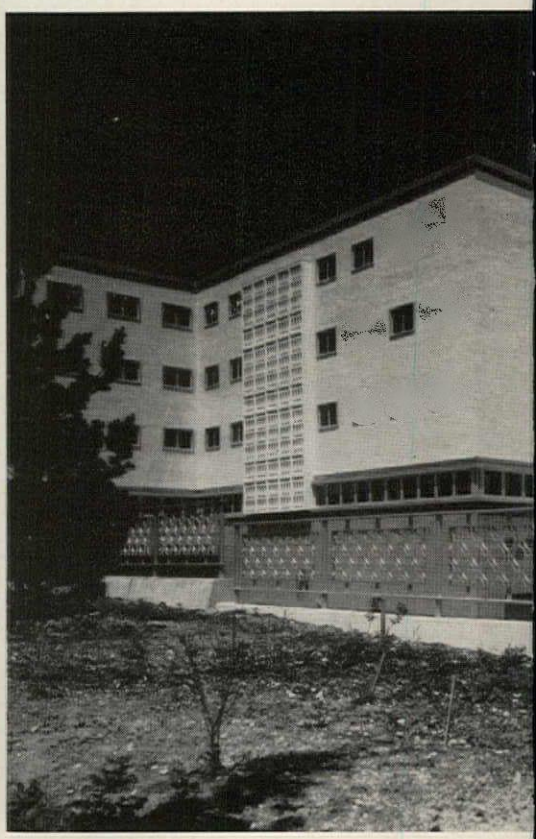
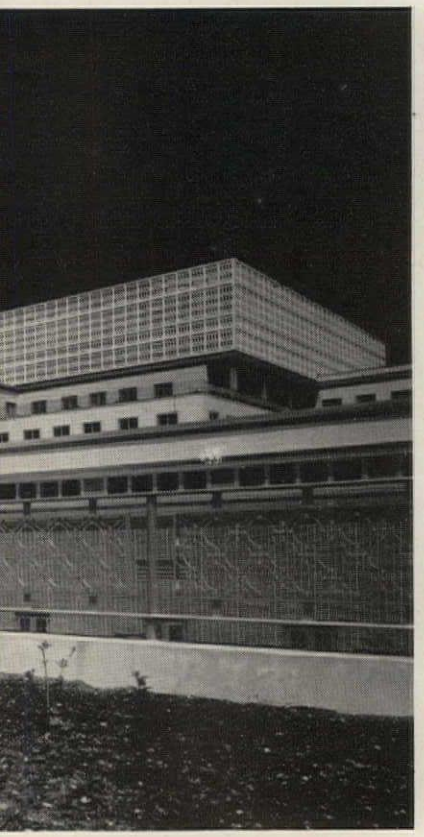


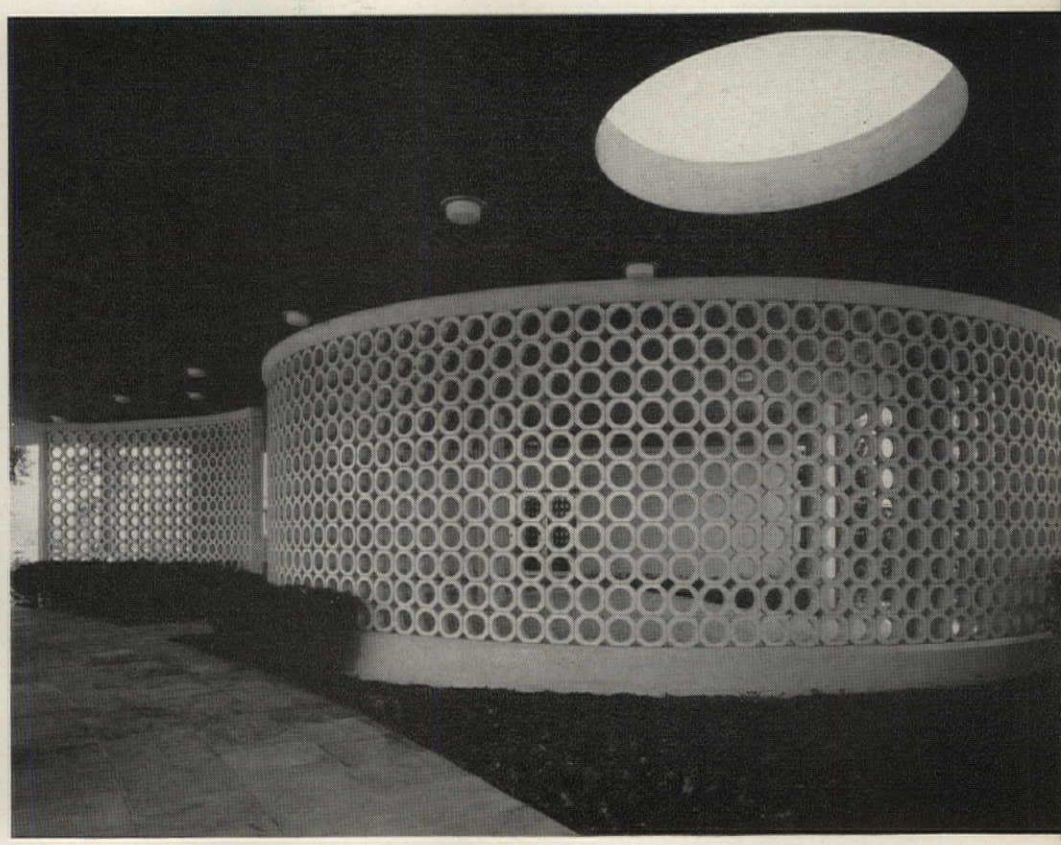
CREATIVE USE OF MODERN ARCHITECTURAL TERRA COTTA in hospital design is exemplified by these screen walls that enclose mechanical equipment, utilize daylight, provide sun control, ensure privacy, and enhance the overall appearance.

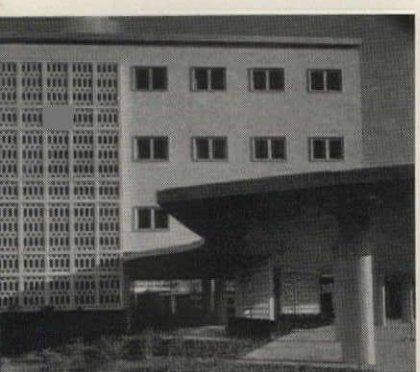
When you bring today's Architectural Terra Cotta into your plans, you can design creatively . . . and in virtually any color under the sun. You have a wide range of distinctive grille designs from which to choose, or you may create your own . . . for perforated facades, free-standing walls, room-dividers, or through-wall units that provide unique lighting effects. Whatever your selection—contour, color or finish—Federal Seaboard craftsmen will meet your most precise requirements, because all Terra Cotta grilles are custom-made and, for economy, are machine extruded.

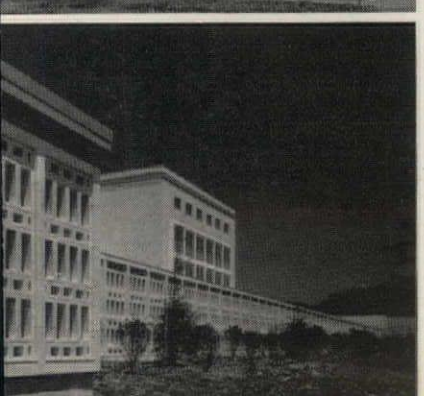
In addition to grilles, Architectural Terra Cotta can be specified in sculptured patterns or smooth plain surfaces, polychrome panels or sculpture. In fact, the utilization of this time-tested ceramic material for exteriors and interiors of buildings of all types is almost unlimited. Write for the facts. Construction detail, data, color guide brochure, advice and estimates on preliminary sketches will be furnished promptly.

Ter a Cotta grilles can do for a great hospital









Veterans Administration Hospital, Washington, D.C. Designed by Eggers and Higgins, and Edwin A. Keeble Associates, Inc., architects. More than 27,000 glazed white Terra Cotta grilles in various sizes up to 10" x 20" x 4" were specified for screens enclosing mechanical penthouse, terraces, stairs and animal laboratory for this, the world's most fully automated hospital. Grille design FS-K was specified for serpentine screens at entrance. Trim for spandrel beams and structural columns also was selected in matching Terra Cotta.

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The War: Action and Words

From all quarters across the land, the Institute is gaining support in its War on Community Ugliness. Here's a random sampling from the front lines of the current crusade.

Art in Atlanta: In a move spearheaded by the North Georgia Chapter AIA, Atlanta's Vice Mayor Sam Massell Jr. has proposed a citizens Art Advisory Board on matters of civic beauty. He said it was commendable that the AIA and the AIP "have displayed an active interest in the creation of such a body which frequently would be reviewing the works of their own members."

The general subject of beauty, which has been given a good press by the city's two daily newspapers, has created some heated discussions concerned with advertising displays at the Atlanta Airport Terminal. (The North Georgia Chapter's extensive role in the war effort will be reviewed next month.)

Diagnosing Sick Cities: Summarizing its intensive study of the nation's burgeoning metropolitan areas, *Look* magazine devoted the majority of its September 21 issue to communities that are finding their way back to health. "The cures for our sick cities are not quick, cheap or easy, but they are known," the editors reported.

The magazine featured articles on Detroit, San Francisco, Washington, D.C., Hartford and Houston as cities working out cures for typical urban maladies. Boston, New Haven, Conn., Pittsburgh, Philadelphia and Wilmington, Del., also were cited for civic betterment programs.

California Blight and Beauty: An audio-visual report on what is happening to the state's natural resources and ways in which intelligent concern may stem the tide of its destruction is being prepared by the California Council AIA.

A major feature of the 30-minute color-slide presentation will be case histories showing how civic concern and action have waged successful battles in the War on Community Ugliness. Bay Area photographer Randal Partridge is employing new camera techniques as he travels about the state shooting for the report.

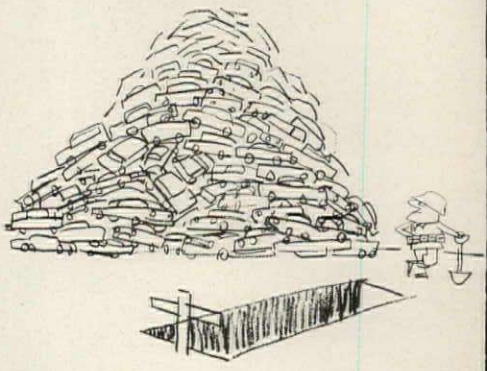
Philadelphia and the Public: The executive committee of the Philadelphia Chapter AIA has gone on record opposing the siting of the proposed 57-story Federal Courthouse and Office Building on Continental Square as "in contradiction to almost all of the concepts on which the Penn Center and City Hall area redevelopment planning has been based." The statement says further:

"The architects agree that a site so close to City Hall is not the place for a 57-story building because its shadow would fall across the great, new Penn Square West Plaza public space now being created; it would destroy the centrality of the City Hall Tower in the Center City composition; and it would be too large and massive a structure to take a respectful position with the existing buildings and in the scale in the urban scene which has been so carefully conceived by the Planning Commission and the architects who have worked in the area for the past several years."

Tomorrow's Cities: Working under a $15,000 grant sponsored by the Pittsburgh Plate Glass Foundation, Syracuse University is studying the physical development of the US city of the future. The program will concentrate on bringing architectural design training into direct contact with the needs of the people in the community through a proposed University-Community Extension Service for the environmental arts.

Syracuse, in beating out eight other universities for the grant, said this about the program's need: "Intimate environmental design attention has largely been limited to those small parts in the central business district and in active renewal project areas. The quality of environment found in large areas of the city continues to deteriorate. These gray areas are receiving very little skilled environmental design attention and that which is received is generally a 'foreign element' imposed from without.

"The resultant lack of design involvement in the community is not only blighting to the physical structure of the neighborhoods but also deprives the people of the source of



emotional enrichment possible through cooperative action in environmental improvement.

"This gap cannot be met by uncoordinated and sporadic effort. Filling it will require the education of an entire new generation of design practitioners who feel personally involved in the total environment and have the leadership training necessary for effective work."

Fans for the Film: The AIA's new movie "No Time for Ugliness" has gotten off to a flying start, with 120 copies already sold to chapters and 40 more available for loan purposes. All orders for purchase of the film—the first copy costs $35—should be directed to the State and Chapter Affairs Office at the Octagon, while requests for use—no rental fee is charged—must be sent directly to Sterling Movies, USA, Inc., Booking Exchange, 43 E. 61st St., New York, N.Y. 10023.

Albuquerque-Downtown: Charged with the long-range planning for the core area, "Downtown Albuquerque" is composed of a technical

Cont'd on p. 92

Specify the Beauty and Brawn of Round Concrete Columns

Round concrete columns lend an impressive appearance to any type architecture, are always more economical when formed with SONOTUBE Fibre Forms.

Dependable SONOTUBE Fibre Forms require minimum bracing and permit continuous pours as high as 40 feet.

Round columns of concrete enhance the appearance of any structure while performing an essential support function. And the fastest, most economical way of forming them is with SONOTUBE Fibre Forms. These low-cost forms place, brace, pour and strip easier . . . to speed the job and hold down building costs. Plan for round concrete columns and specify forming with SONOTUBE Fibre Forms. SONOTUBE Fibre Forms are readily available to contractors coast-to-coast in sizes 6″ to 48″ I.D., in standard 18′ shipping lengths or as ordered. See our catalog in Sweet's.

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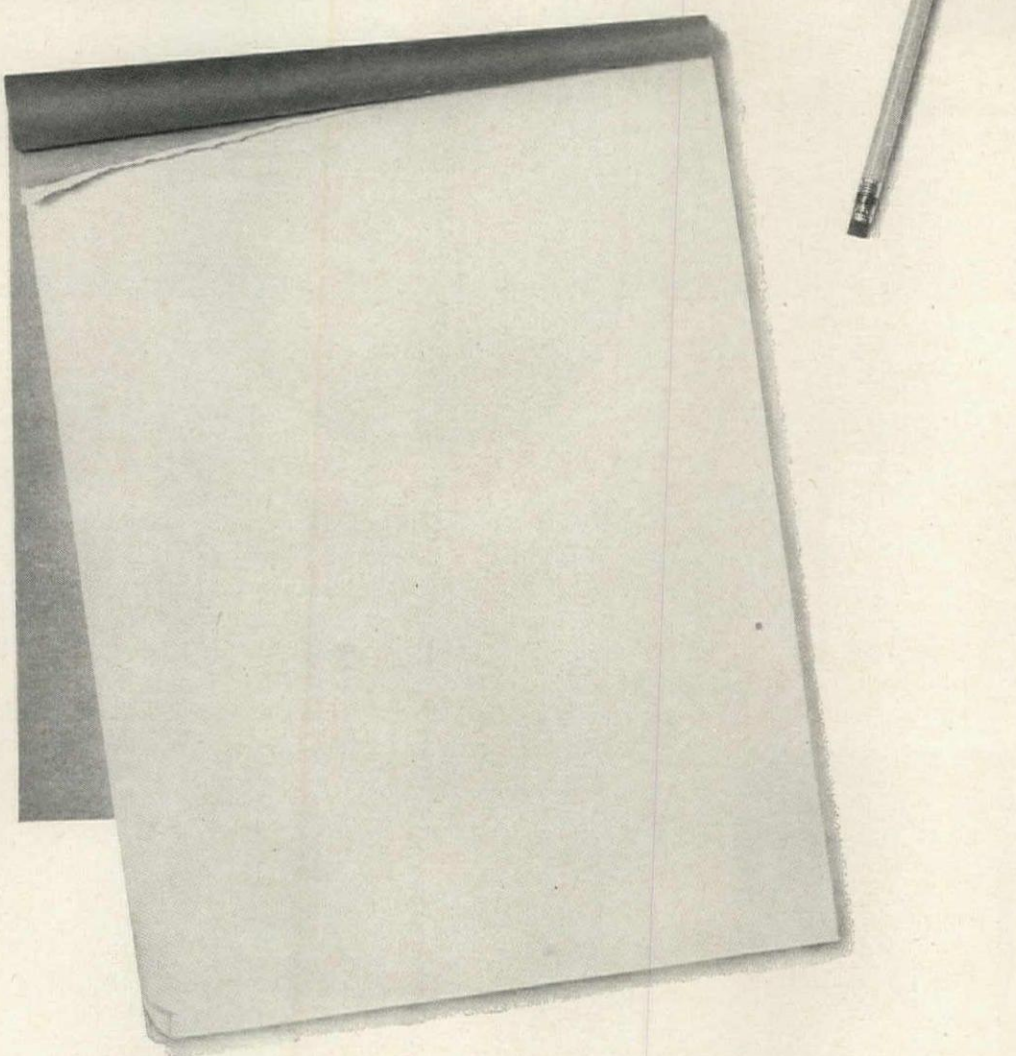
Go ahead. Design a ceiling that cools, heats, lights, communicates, controls sound and beautifies just the way you want it to...



I will install it. And guarantee its performance, too!

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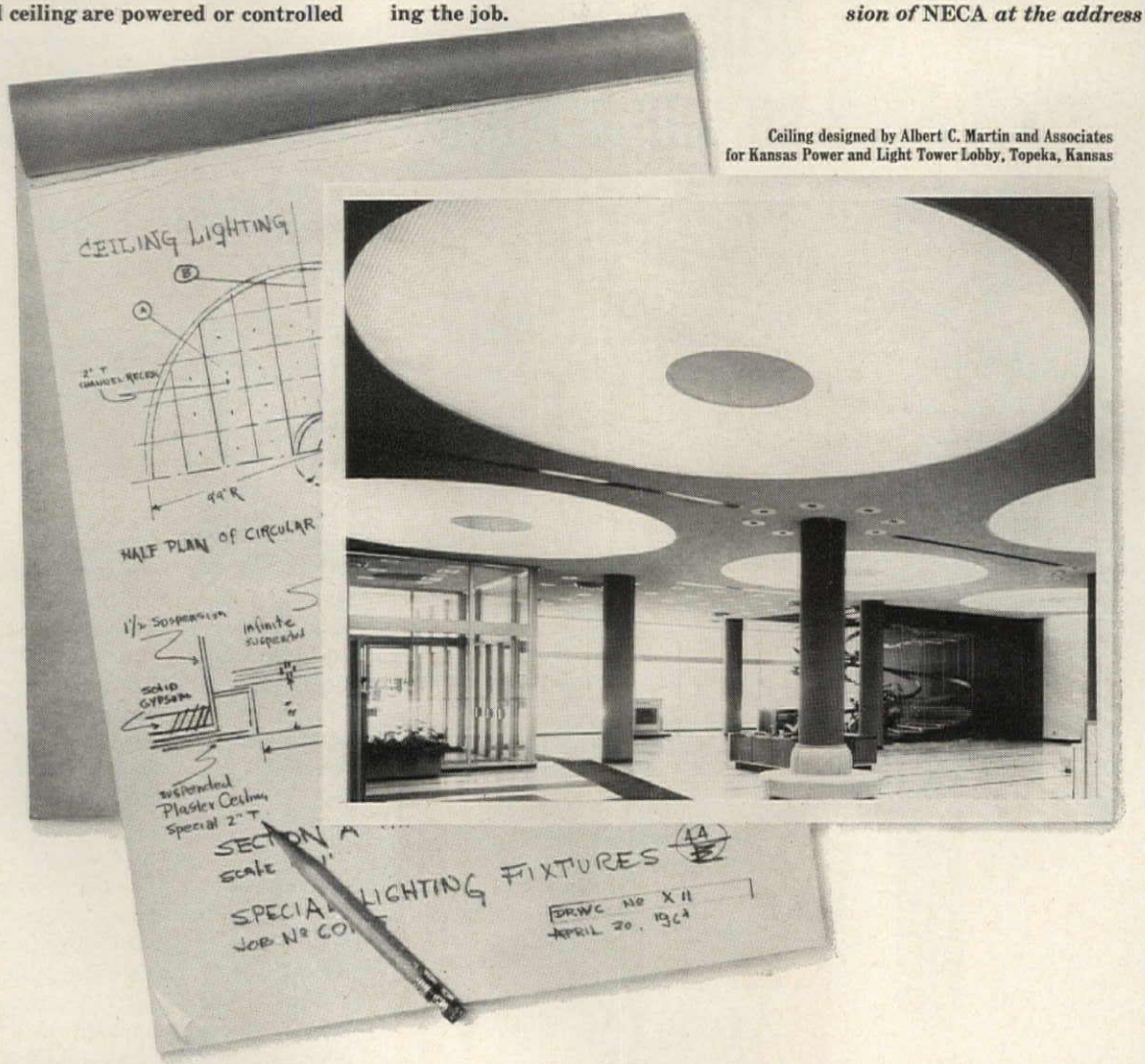
Why an electrical contractor? Because most of the functions of an integrated ceiling are powered or controlled by electricity... and electricity is the electrical contractor's business.

Of course, proper installation will require the services of carpenters, sheet metal men, plasterers, plumbers, heating and refrigeration men. But your qualified electrical contractor has plenty of experience in coordinating the efforts of these specialists—and he has available to him established and recognized procedures through which jurisdictional questions can be settled without delaying the job.

And that's not all. Place the responsibility for your integrated ceiling in the hands of your qualified electrical contractor and he'll guarantee the performance, not only of the electrical functions, but of the entire electrically space-conditioned ceiling system.

NECA *has prepared a film on integrated electric ceilings. To arrange a showing, contact the Marketing Division of* NECA *at the address below.*



Ceiling designed by Albert C. Martin and Associates for Kansas Power and Light Tower Lobby, Topeka, Kansas

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The War Cont'd from p. 88

staff aiding a committee appointed by the City Commission. The staff is headed by two local architects, whose fees are paid by downtown property owners, and by a senior planner from the Planning Department staff.

The group's proposal calls for a transportation and trade center, in-core living and cultural facilities and a governmental center. The long-range plan, which identifies land use up to the year 2020, recommends the gradual elimination of the grid street system and, in some areas, a vertical separation of vehicular and pedestrian circulation. Vertical zoning is one device which will be used to implement the plan.

The urban planning committee of the Albuquerque Chapter AIA, whose members are donating their time, is serving as professional adviser and critic at work sessions of the "Downtown" staff.

An Outsider's View: What does the nonarchitect think about the Institute's war? The president of the

University of Connecticut, Homer D. Babbidge Jr., expressed himself in the second issue of *Podium*, published by the Connecticut Chapter AIA. Asking the question "What Price Educational Architecture?" he discussed specific undertakings of the past two years at his institution, ending on this note:

"The Connecticut architects for whom *Podium* is principally intended are asked to bear part of the responsibility for the architectural sins of contemporary public building, which I must agree in the main has hardly been distinguished.

"But if, indeed, 'it takes two to tango,' we must concede that the client shares fully the blame for architectural disappointments. In matters of public building you

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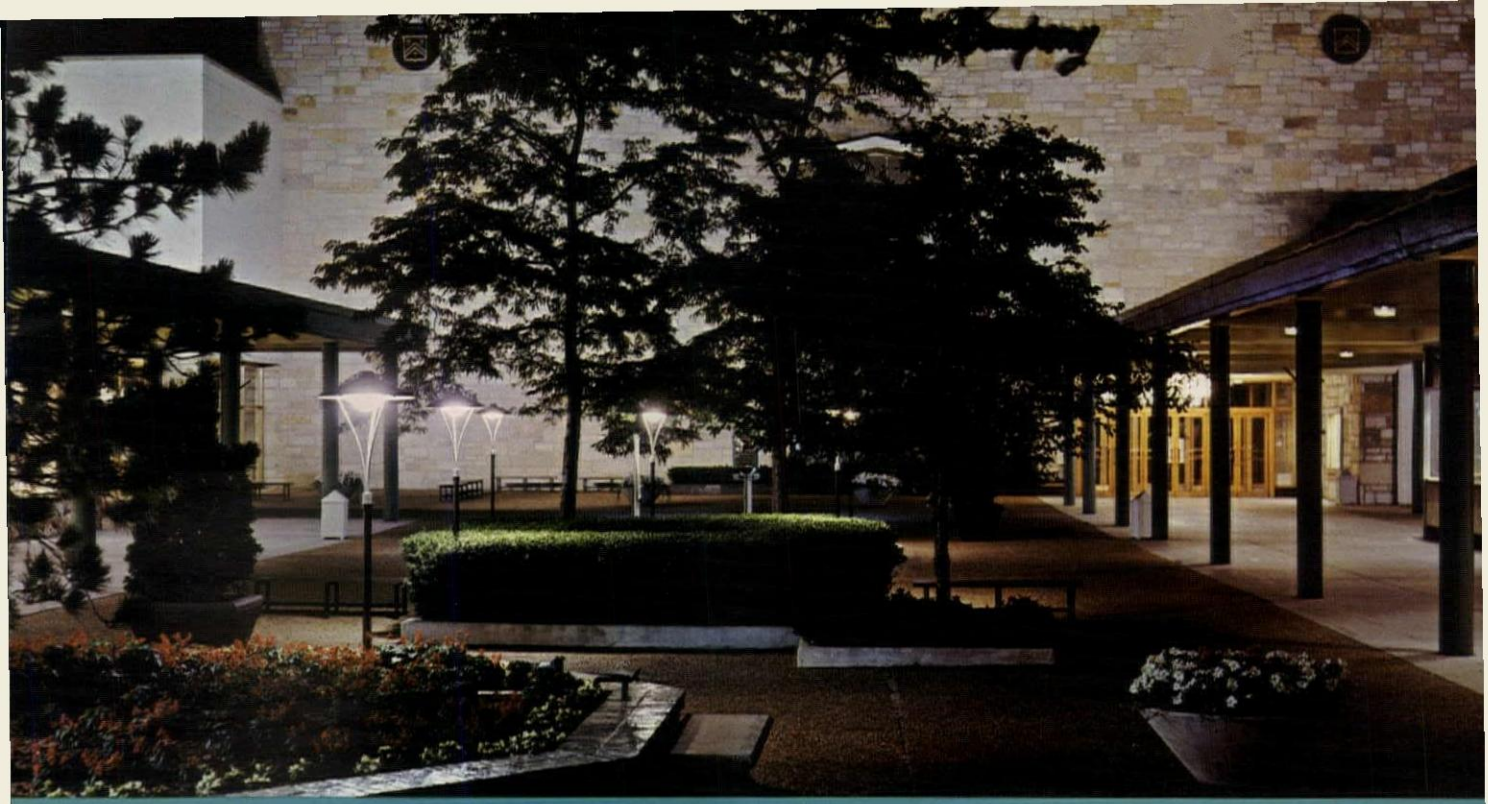

Line Material CONTEMPORARY LAWN-GLO's, Style A, installed in the mall at Mayfair Shopping Center, Milwaukee, Wisc. | *Engineered and Installed:* MAYFAIR PROJECT ELECTRICAL DEPT., Milwaukee, Wisc.

FOR A RHAPSODY IN STYLING AND COLOR

LINE MATERIAL SOFT ILLUMINATION OUTDOOR LIGHTING

TO 175 WATTS MERCURY • 189 WATTS INCANDESCENT
8000 LUMENS • 0.8 MAINTAINED FOOTCANDLE

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Choose just the right tone to set the mood with the styling of Line Material outdoor lighting. An array of contemporary and traditional fixtures allows you to underscore your job in the key you choose. All L-M fixtures have been styled by the noted industrial designer, Jean Reinecke. Styling ranges from a crisp, sharp modern design to an authentic reproduction of a whale oil lamp. And when you add a variety of 9 dramatic decorator colors, you have a design freedom available in no other outdoor lighting line.

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You enjoy engineered, optimum useable lighting when you choose Line Material luminaires. Aluminum construction assures long, corrosion-free life. Low-cost maintenance is realized with the accessible interior that is easy to clean or relamp.

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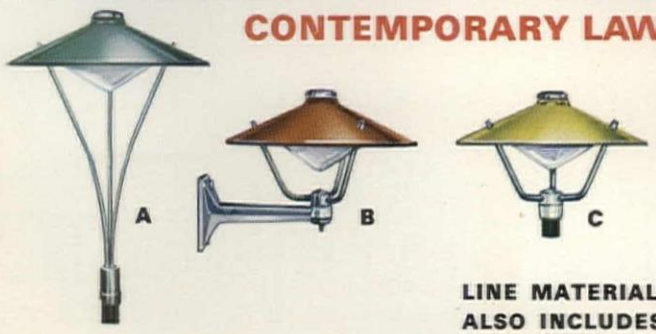
Minimize the efforts in coordinating your lighting job by obtaining all the equipment from Line Material. In addition to luminaires—poles, ballasts, lamps, brackets, wiring and power supplies, including transformers, are available from your L-M Authorized Distributor, backed-up by an L-M Lighting Engineer and an L-M Field Engineer. They'll be happy to work with you.

CONTEMPORARY LAWN-GLO® (Scale: 1"=2')



The smart, modern styling complements any contemporary architectural motif. Provides a flair to soft, functional lighting; 9 decorator colors, and 3 styles.

SPECIFICATION
Utilizes incandescent lamps through 150-watts; has plastic, non-glare globe; standard 2-inch or 3-inch OD yard light post mounting; supplied with or without photocontrol.

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TURN PAGE

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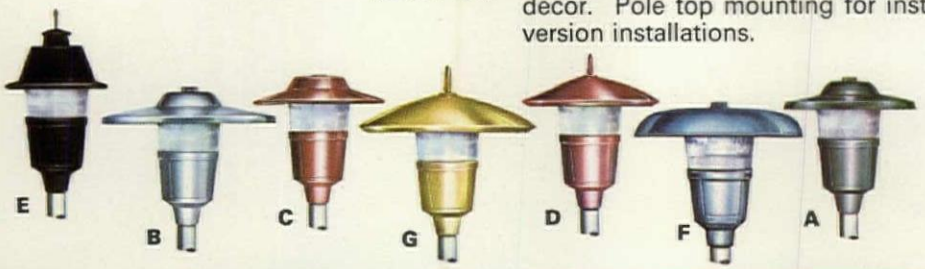
To 175 watts mercury • 189 watts incandescent • 8000 lumens • 0.8 maintained footcandle

STYLEKING

(Scale: 1″=3′)

Diversified, graceful styling plus a choice of 9 dynamic colors. Cover interchangeability gives added versatility. Will match any architectural decor. Pole top mounting for installation economy in new and conversion installations.

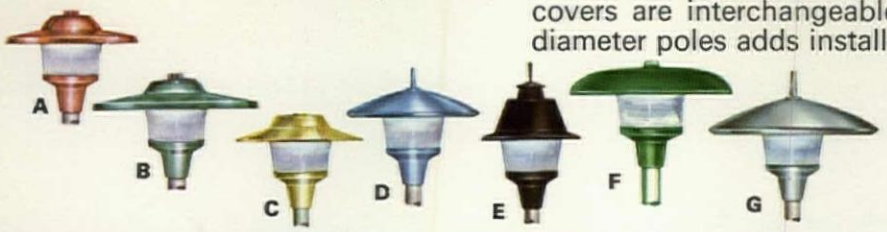


SPECIFICATION
For lamps rated to 175 watts mercury or 189 watts incandescent; constant-wattage, high-reactance or reactor ballasts; IES Types I, I-1 way, II, II-4 way, III, IV and V distributions; 3-inch and 7-inch mounting fitters; photocontrol accommodation for Styles A, B, C, and F units.

STYLETTE

(Scale: 1″=3′)

Complete choice with 7 designs and 9 colors, to match every architectural design and mood. In addition, the distinctive covers are interchangeable. Pole top mounting for 3-inch diameter poles adds installation economy.



SPECIFICATION
Designed to operate incandescent lamps rated up to 189 watts. IES Types I, I-1 way, II, II-4 way, III, IV and V distributions; 3-inch mounting fitter; includes built-in photocontrol.

LAWNAIRE (Scale: 1″=2′)

Contemporary styling combined with application flexibility. Available in a choice of 9 decorative colors. For mounting on 3″ OD pipe.

SPECIFICATION
Available for use with 75-, 100- and 175-watt mercury lamps; internally mounted high-reactance ballast; IES Types II, IV and V distributions; built-in photocontrol.

STYLED SUBURBANAIRE

(Scale: 1″=2′)

Economical, quality lighting plus fresh, modern appearance. Open refractor reduces dirt and moisture accumulation. Mounts on 1¼-inch pipe support. Choice of 9 decorator colors.

SPECIFICATION
Available for use with 189-watt incandescent, 100- and 175-watt mercury lamps; high-reactance or reactor ballasts; IES Types I, I-1 way, II, II-4 way, III, IV and V distributions; built-in photocontrol receptacle.

TRADITIONAL LAWN-GLO

(Scale: 1″=2′)

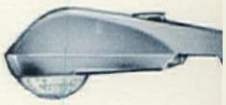
Efficient, controlled illumination combined with charm and styling of Early American whale oil lantern. Long lasting beauty and minimum maintenance achieved with cast aluminum base and cover plus shatterproof, acrylic plastic refractor. Available in black or white with gold finial, roof, and refractor clips.

Wall Mounted

SPECIFICATION
Available for incandescent lamps through 150-watts as well as a 100-watt mercury lamp with high-reactance ballast; mounts on standard 3-inch OD yard light post; supplied with or without photocontrol.

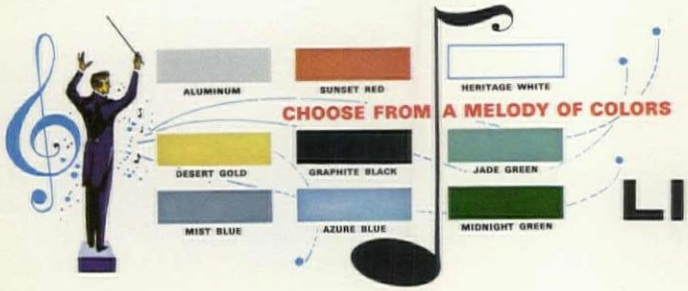
DUSK-TO-DAWNER

(Scale: 1″=2′)



Fresh, modern lines and styling plus excellent lighting. Aluminum finish blends with all types of architecture. Mounts easily on poles or flat surfaces; also available for mounting on 1¼-inch pipe supports.

SPECIFICATION
Available for use with 100- and 175-watt mercury lamps; internally mounted constant-wattage, high-reactance, reactor or constant-current ballasts; IES Types II, III, IV and V distributions; built-in photocontrol receptacle; completely pre-wired, including power supply leads.



FOR COMPLETE INFORMATION on Line Material's line of outdoor lighting contact your L-M Distributor or write Line Material Industries, Milwaukee, Wisc. 53201.

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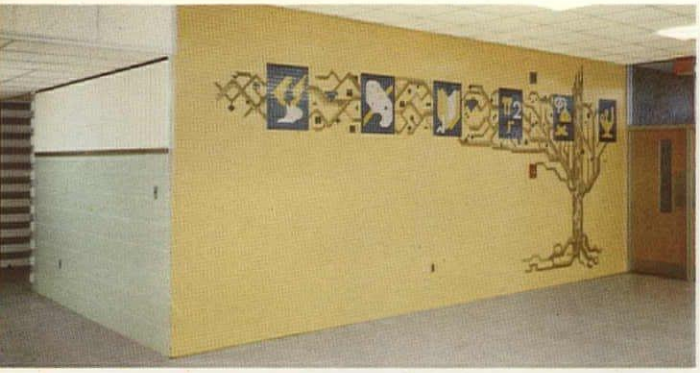

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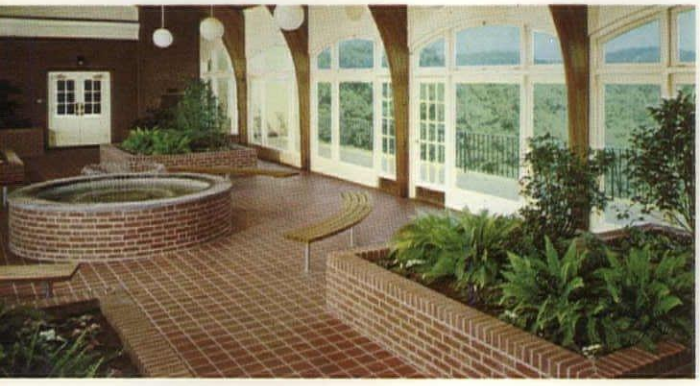
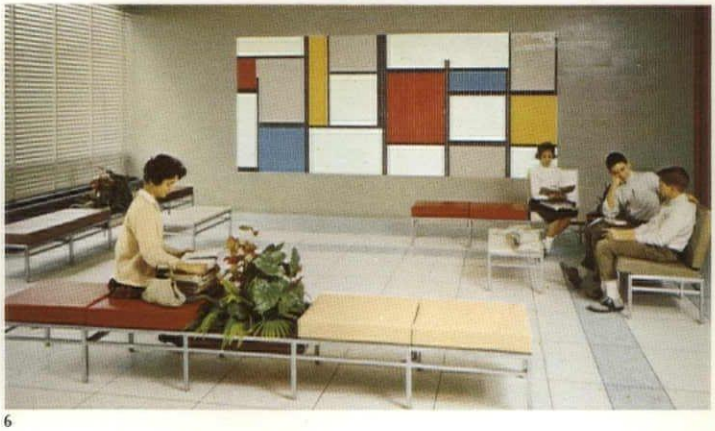
CERAMIC TILE
American Olean

5





6

Entrance Areas...made distinctive with tile

1. Entrance Area, upper left, Pennfield Jr. High School, Hatfield, Pa. Feature wall: 1⅜" Tile Gems® with mural in assorted glazed colors. Architect: Howell Lewis Shay & Assoc. Tile Contr.: E. Roman & Son. Plate 537.

2. Apartment lobby, left center, of Troy Towers, Bloomfield, N.J. This distinguished mural is 1" x 1" ceramic mosaics. Architect: Gerber & Pancani. Tile Contr.: Bloomfield Tile & Terrazzo Co. Plate 518.

3. Freedoms Foundation, lower left, at Valley Forge, Pa. Floor is subtly shaded Murray Ember Flash quarry tile. Architect: Howell Lewis Shay & Assoc. Tile Contr.: Italian Marble Mosaic Co. Plate 516.

4. Entrance lobby, upper right, of Dulaney High School, Towson, Md., has colorful abstract ceramic mosaic design. Architect: Henry Powell Hopkins & Assoc. Tile Contr.: Atlas Tile & Terrazzo, Inc. Plate 539.

5. Entrance, in E. B. Erwin High School, Birmingham, Ala. Color and design interest is given to walls by using contrasting stripes of tile against a background of scored tile SD-5 in 370 Cr. Mocha. Architect: Davis, Speake & Thrasher. Tile Contr.: Wilson & Daniels Tile Co., Inc. Plate 536.

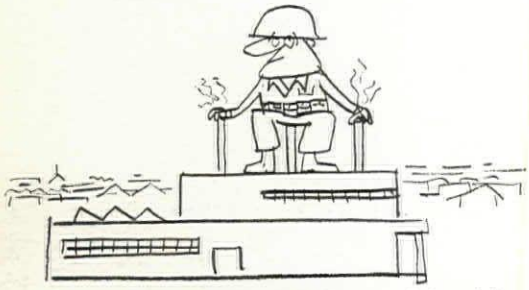
6. Lobby, lower right, James M. Bennett Jr. High School, Salisbury, Md. Mondrian-type mural is 1⅜" Tile Gems. Architect: Booth & Somers. Tile Contr.: The Ba-Mor Co. Inc. Plate 512.

Write for new color booklet 1100, "Ceramic Tile in Architectural Design."

American Olean Tile Company—Executive Offices: 1899 Cannon Ave., Lansdale, Pa. Manufacturers of glazed tile, ceramic mosaics and Murray quarry tile.
A Subsidiary of National Gypsum Company

The War Cont'd from p. 92

know the client very well, and the extent to which the *cliens publicus* is able to fulfill his role in this partnership is, after all, a challenge of an educational nature. It is our joint task first to educate and then to elevate his sights until client and architect are able jointly to produce architectural expressions that are of the people and a credit to the people."



Billboards and Buses: Advertising on the exterior of Pittsburgh's public transit vehicles is being challenged by six citizens who claim it is illegal and detrimental to the best interests of the community. The group consists of one ardent campaigner against billboard abuse, two architects and three landscape architects.

As Grant Curry Jr., president of the Pittsburgh Chapter AIA, puts it: "There can be no such thing as an attractive sign on a bus or street car. No matter how beautiful the sign may be, contradiction of purpose makes it objectionable. You could place the Mona Lisa in a solid gold frame on a bus and it would still be ugly if it bore a commercial trademark."

Shaping San Francisco: An interprofessional 12-man committee on urban design composed of AIA, AIP and ASLA members has been in operation since January to assist in establishing goals for updating San Francisco's master plan.

"What is needed is a new design tool," the committee declared in its report to the Board of Supervisors. "It must consist not only of broad verbal policies but also visions of what the city seeks to become. It must be so clearly perceived that a committed body of public interest can understand its opportunity for urban design quality and can also see what is at stake when a particular interest is pushed. Such a tool is needed to provide an appropriate framework for development decisions by government and the private sector."

Exploring Our Environment: A summary of the first Interdisciplinary Conference on Environmental Design sponsored by the National Association of Home Builders [AIA JOURNAL, Feb. '65] has been produced in a 24-page booklet called "31 Minds Explore Our Environment." A companion 10-inch record of taped excerpts from the two-day meeting is being mailed to a selected list of decision-makers in various fields. The booklet and record can be purchased for $2.50, or the former alone for $1, by writing to Ward V. Buzzell, NAHB, 1625 L St. N.W., Washington, D.C.

Shulman Show: "Environment USA," a photographic exhibition by Julius Shulman, samples from which are featured in this issue, opened at the University of Kentucky in Lexington October 5. Shulman is interested in assisting and participating in AIA chapter and regional civic programs, and his show also is available in this regard. Inquiries should be made directly to him at Box 46206, Los Angeles 46, Calif.

Beautifying New York: In presenting its Albert S. Bard Citation for promoting the city's esthetic interests to Albert Mayer FAIA, the Citizens Union of the City of New York said in part: "Beauty in the city must reveal to all the people everywhere in their daily lives and not merely in the costly, monumental centers of government, trade and culture.

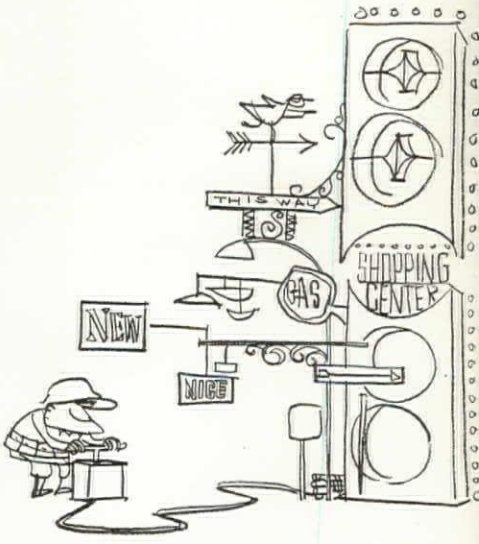
"Here in New York, working closely with the people of the area, he has brought a fiesta-like quality to drab neighborhoods by his notable design of the East Harlem Plaza at Jefferson Houses, by his creation of a lively atmosphere in the design of Franklin Plaza, by his revision of the playground area at James Weldon Johnson Houses and by his concept of the plazas in the Park Avenue Market."

Urban Design Week: With the support of the city and the state, the Seattle Chapter AIA sponsored an Urban Design Week September 27-October 1. Headlining the activities was an address by architect Constantinos Doxiadis before a black-tie gathering in the Olympic Hotel's Grand Ballroom. Architects were joined by civic and governmental leaders in hearing the president of the Athens Center of Ekistics talk on city planning goals.

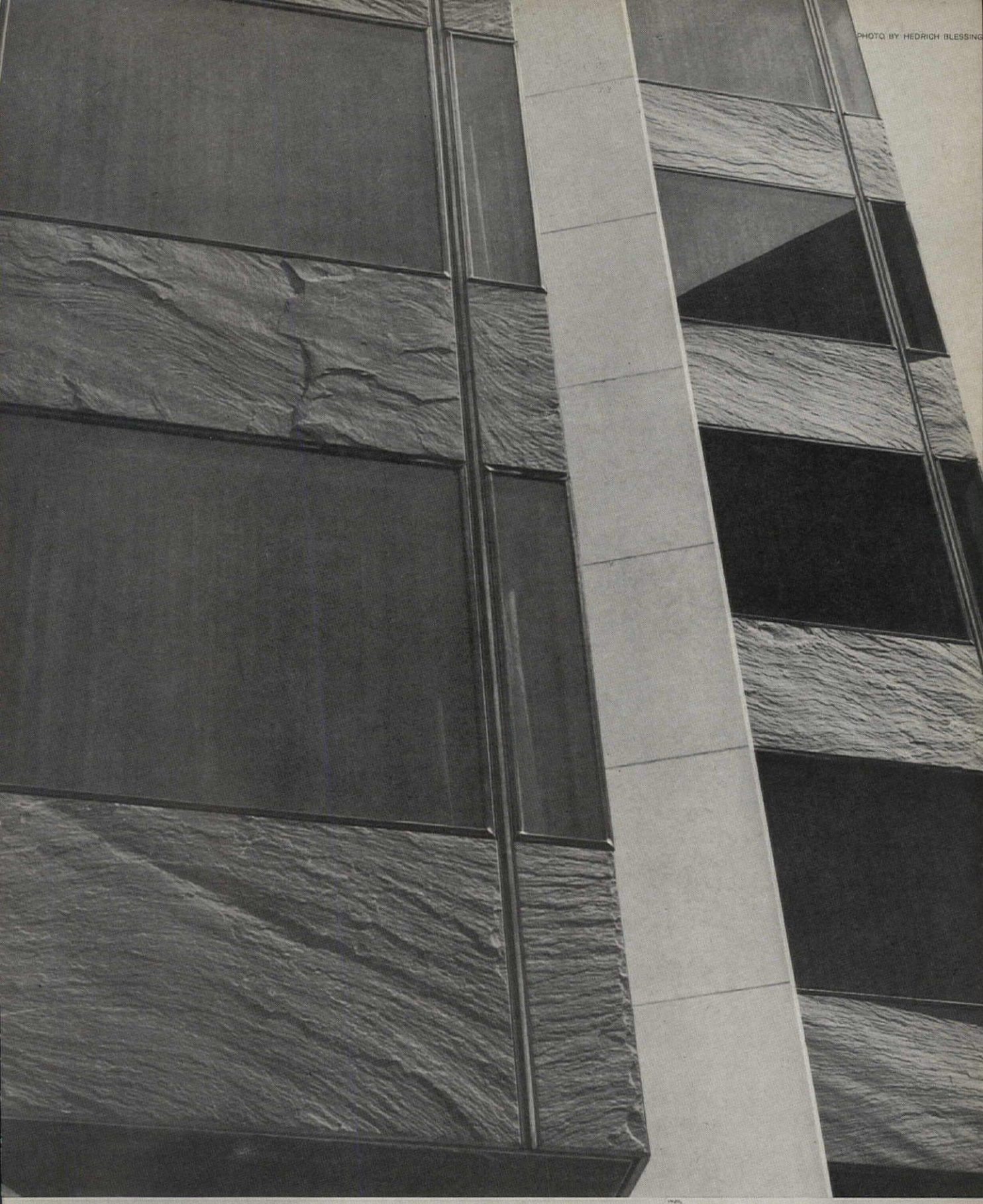
Environmental Approach: A new concept in the organization of research activities has been implemented at the University of Pennsylvania with the creation of the Institute for Environmental Studies in the Graduate School of Fine Arts. It will coordinate research activities associated with architecture, landscape, city planning, regional planning and civic design.

The School's Institute for Urban Studies, the first of its kind in the United States, and its Institute for Architectural Research were merged in the forming of the new Institute for Environmental Studies and will no longer exist as separate entities.

Director Gerald A. P. Carrothers sees the creation of the Institute "as another step forward in breaking down traditional boundaries between various scholarly and professional concerns with environment."



Real Public Participation: The ordinary citizen, in his own way, has an active contribution to make in this crusade against ugliness, as demonstrated by hundreds of residents in the nation's capital not too long ago. Under the direction of the Howard University Community Service Project, which utilizes student volunteers, Second Precinct citizens collected debris, hauled away abandoned cars and planted grass, with the cooperation of the police, sanitation and health officials and the National Park Service. ■



rchitects Perkins and Will achieve an awe-inspiring architectural effect with the use of BUCKINGHAM® LATE PANELS from Virginia on the magnificent United States Gypsum Building. The natural character f the multi-million year old slate panels reflect the beauties and wonders of this earth while the structure, marvel of modern building technology, soars into space above Chicago. Like brush strokes across an rtist's canvas, the natural cleft texture of the BUCKINGHAM® SLATE adds dimension and humanistic feel- g to the whole city area and the building becomes a timeless work of art. Catalogs on BUCKINGHAM® LATE panels, flooring and roofing in Sweet's and Stone Catalogs. Listed in AIA Building Products Register.

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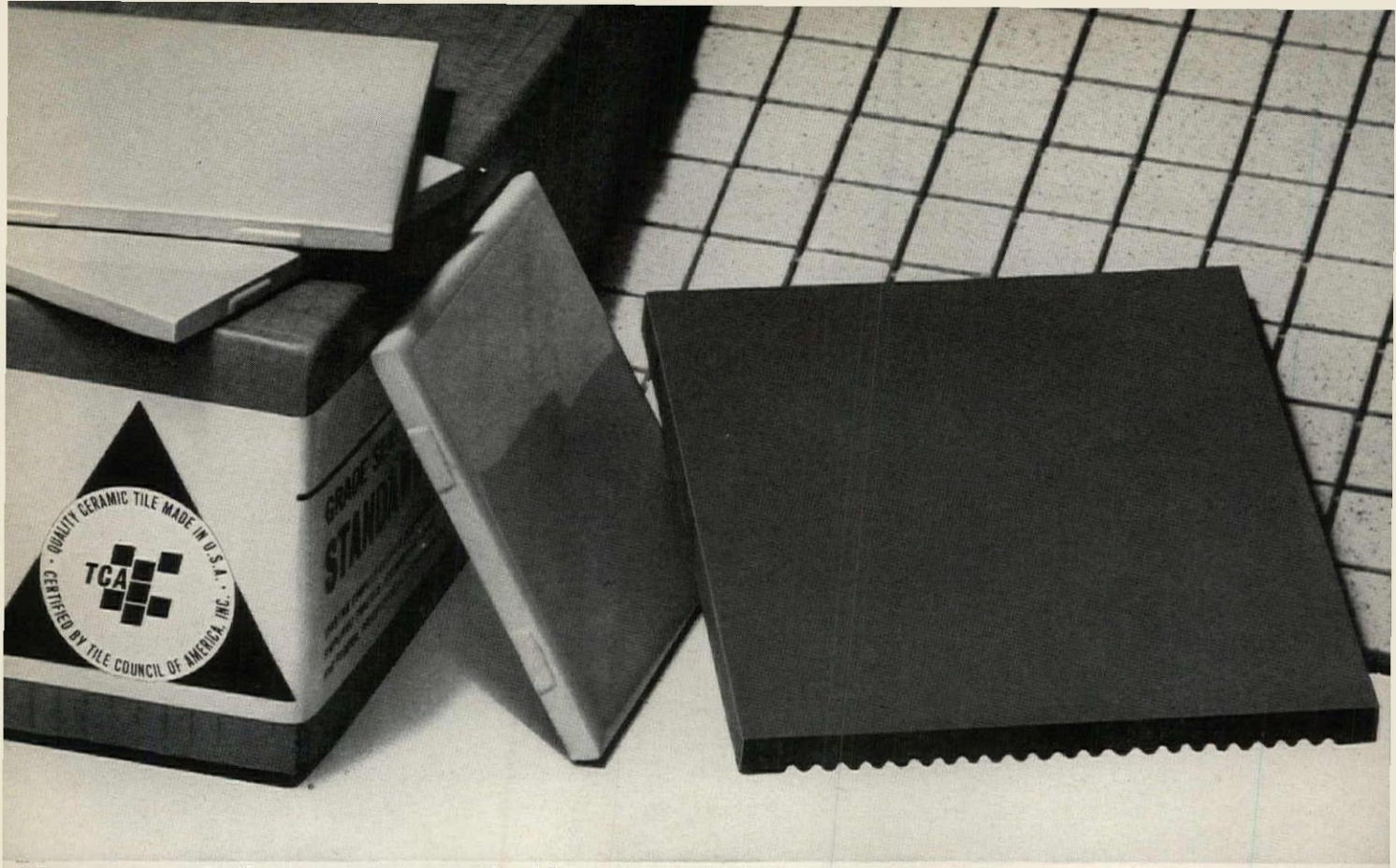

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PRESTRESSED CONCRETE provides lesson in flexible classroom design and construction

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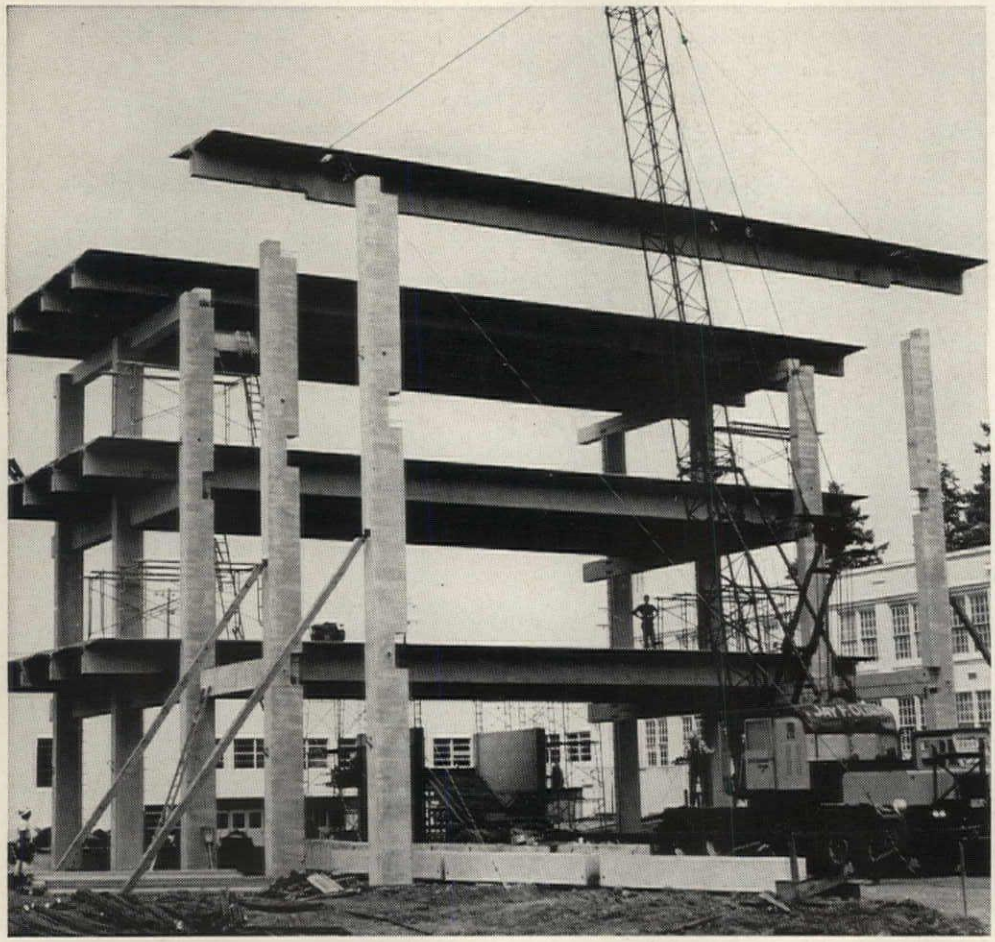
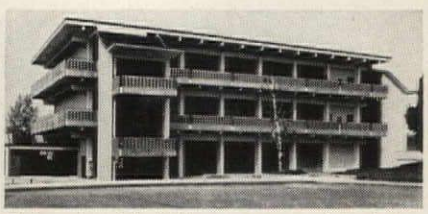


Precasting of all structural members (columns, beams and tees) cut job-site time and costs to the absolute minimum. Statistics: COLUMNS are 16″ x 30″ x 49′-9″, three stories in one piece, with notches and cast-in bolts at each floor level to receive the precast beams. BEAMS are 16″ wide x 2′-2″ deep at floors and 1′-9″ deep at roof. FLOOR tees, 8′ wide x 36″ deep, span 61′ beam to beam and cantilever 8′-8″ each end. A 4″ poured-in-place composite concrete topping completes each floor. ROOF tees are 8′ x 28″ spanning 61′ and cantilevering 9′-8″ each end. Job-site form work was greatly reduced.

Design considerations for the construction of a Commons Building for the Roseburg, Oregon Senior High School were as follows: the building was to contain the equivalent area of twelve classrooms and a space which could be used as a cafeteria or a large-group instruction area. A restricted site on an already crowded campus made it necessary to develop a three-story scheme. Because of the much needed classroom space and the fact that the high school would be in session during much of the construction, speed was essential.

Using CF&I-Roebling prestressing strand, prestressed concrete single-tee beams with precast reinforced concrete columns and beams were chosen for the structural system to meet the requirements of the project. Single-tee beams provided an economical means of spanning the sixty foot width of the building. In addition, they left floors unencumbered by structural elements to permit maximum flexibility for classroom arrangements. The wide overhang allowed for perimeter corridors. Concrete also met the Type I construction requirements of the building code for fireproofing.

If you will tell us what type of structure you are considering, CF&I-Roebling will be happy to supply pertinent information and the names of prestressing fabricators in your area. Write to The Colorado Fuel and Iron Corporation, Construction Materials, Denver, Colorado, 80202, or Trenton, New Jersey, 08602. Sales offices in principal cities. 9975



This school building was completed at a cost 10% under the estimate, at a saving of 5 months over conventional construction. The structural system was erected in 6 days with a minimum of labor.

Architect: John L. Briscoe, AIA
Eugene, Oregon

Engineer: William W. Wilson
Eugene, Oregon

Contractor: Todd Building Company
Roseburg, Oregon

Fabricator: **Prestressed Concrete Div.**
Morse Brothers, Inc.
Harrisburg, Oregon

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New Look at Age-Old Brick

BUILDINGS higher than 18 stories with relatively thin load-bearing brick walls will be coming off the architects' drawing boards in the not too distant future.

More than 600 representatives of the building industry heard this prediction from the Structural Clay Products Institute, which sponsored a national two-day conference in Pittsburgh recently—the first of its kind ever to be held.

A structural engineer from Boston, William J. LeMessurier, was even more optimistic when he presented engineering calculations showing that it is possible to have a 25-story building supported by eight-inch-thick brick bearing walls.

The contemporary bearing wall concept, as it is tabbed by SCPI, calls for floors and roofs to act as horizontal diaphragms and distribute lateral loads to masonry walls which serve as vertical diaphragms and carry loads to the ground. The result is a combined structural wall system, making possible significant economies in design, construction and materials.

Gyo Obata AIA of St. Louis, said that "The potential of brick as a bearing wall has hardly been realized and certainly has not been generally exploited in this country." He noted that in Europe, and particularly in Switzerland, "the allowable bearing capacity of brick has been better understood and realized." Among the buildings constructed in Europe since World War II is one 18 stories high with eight-inch-thick brick walls.

Obata explained that if the U.S. building code requirements for brick, steel, concrete or wood are compared, "We find that brick masonry as a structural material is being discriminated against."

Richard M. Gensert of Cleveland, who was structural engineer for the Pennley Park Apartments in Pittsburgh—the conference case study (see photos)—also pointed out that existing building codes in most areas require masonry bearing walls to be thicker than they need to be.

Pennley Park has 12-inch-thick transverse bearing walls, but they could have been thinner if it had not been for code restrictions. Nevertheless, it was estimated that the use of a brick bearing wall system resulted in a 10 percent saving of the project cost.

Called upon to address the conference, Pennley Park architect Tasso Katselas of Pittsburgh talked more about architecture than he did about brick.

"One thing becomes clear," Katselas emphasized. "The architect is not really designing the contemporary wall, but is backed up against it, shoved into a corner and asked to create within a most rigid framework.

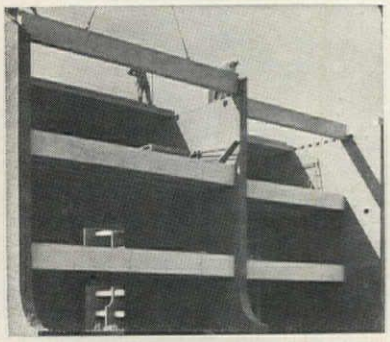
"It is becoming more and more difficult for the architect to design environment as a creative influence to life. It is, instead, increasingly apparent that quality is in danger of becoming that which is cheapest and quickest. Where God is the dollar and application, not imagination, is the role of the creator—this is the contemporary wall."

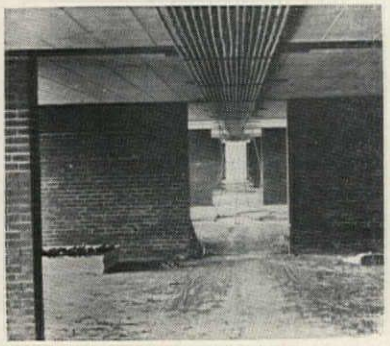
Referring to the masonry wall itself, Katselas declared: "Brick's main advantage to me is that it establishes a scale which is relentless. It allows the human to identify easily with it as a building material. It gives him the necessary option of participating in the understanding of the structure if he so desires.

"The brick properly applied can define doorways and windows. The brick properly applied replaces the sculptural ornaments in the Gothic temples; it becomes the equivalent tactile unit. The brick properly applied can say 'I am of the earth.' The brick properly defined can reach up and proclaim itself as an element of strength.

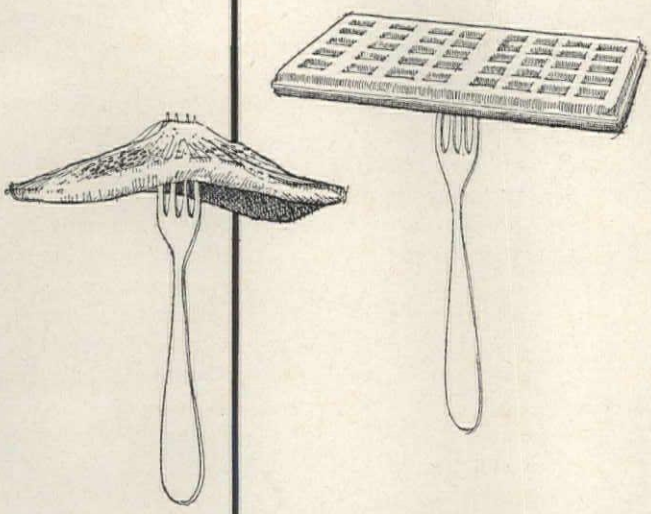
"The architect needs this kind of understanding because establishing a criteria for selecting a basis for construction is a lonely, personal design task. If the architect is honestly creative, he must stand up with no one to help him and make decisions based on a realization, not only of what major elements in architecture are, but what the minutest element in architecture is. He must know what a door, a window, a step, a hall is—what the true meaning of each is—and then he must know one thing further: how materials can help develop and express these properly." ■

Floor system of precast concrete planks bears 4 inches on the masonry walls at Pennley Park. Precast concrete spandrel beams frame into the bearing walls to carry corridor and exterior panel walls. While floors are laid in one area, bricklayers erect walls in another. Utilities run through the corridors of the apartment project, whose bearing walls express the structural concept clearly.





Waffles are stiffer than pancakes.



When you hold up a waffle, it stays flat. A pancake droops.

You can get a pancake to stay flat by using more batter. But the extra materials and the overcooking add to the cost of the breakfast.

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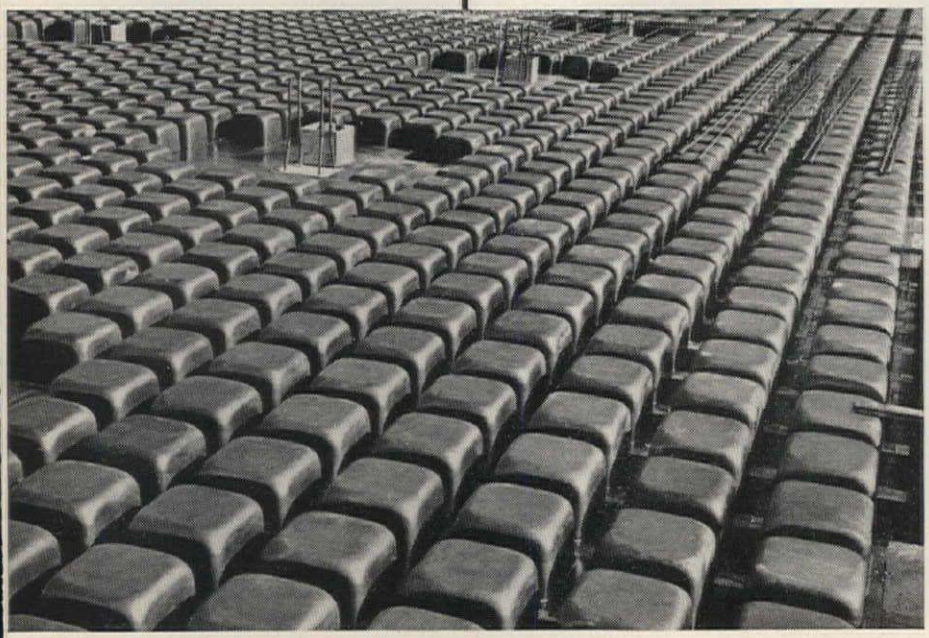

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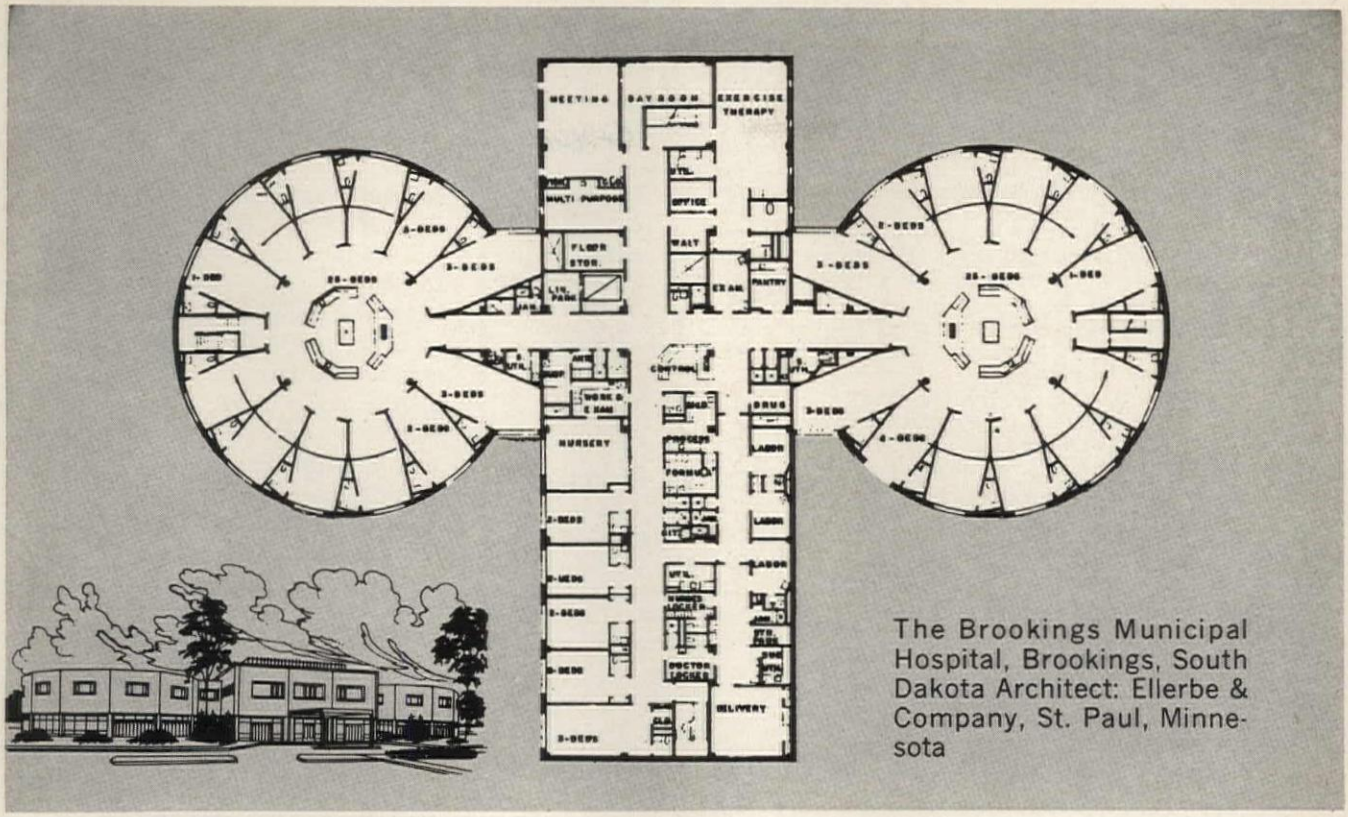

The Brookings Municipal Hospital, Brookings, South Dakota Architect: Ellerbe & Company, St. Paul, Minnesota

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Letters Cont'd from p 39

not only to editors but to architects and potential clients as well. I feel it is our responsibility to convey a design concept as clearly and succinctly as possible to whomever is interested in architecture.

Therefore, this is a true representation because there are times when that building would have a good sky and if we cannot photograph it then, we can make up for it by a certain degree of darkroom work. Is there really anything wrong with that?

Furthermore, many of the pictures in my book are from infrared negatives. I have a way of photographing with infrared film which makes it possible to create a handsome sky without allowing it to go fully black. This is done by manipulation of filters, and if the reviewer would like to learn about it, I would be happy to provide him with the information.

JULIUS SHULMAN
Los Angeles, Calif.

NECROLOGY

COLE, VICTOR O.
Raleigh, N.C.
CRABB, E. H.
Indianapolis, Ind.
KAUFMANN, ALBERT A.
Elizabeth, N.J.
KNOBLOCH, PHILIP G.
Pottsville, Pa.
MCLAREN, ROBERT J.
Chicago, Ill.
MONNOT, C. L.
Oklahoma City, Okla.
PFOHL, CYRIL H.
Winston-Salem, N.C.
ROBINSON, NORMAN ALFRED
Detroit, Mich.
RUSS, EDWARD HERMAN
Sacramento, Calif.
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SCOPES, WILLIAM
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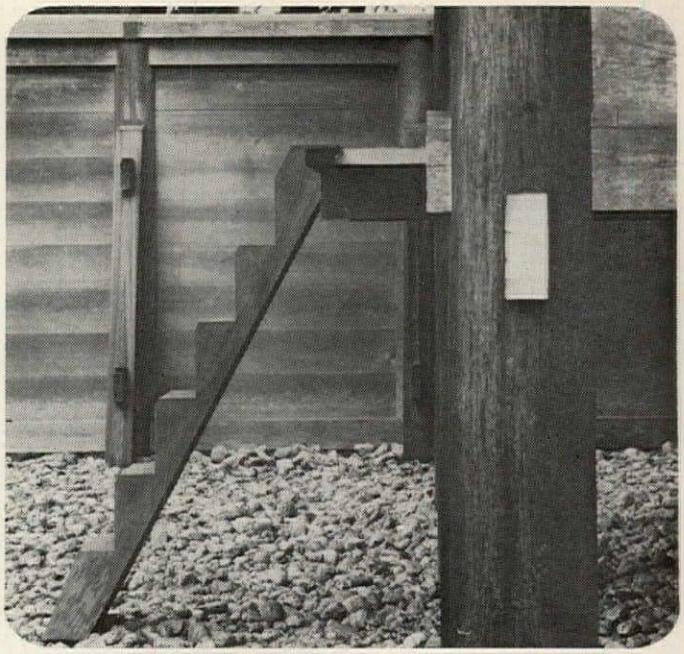
*United States Plywood's name for DuPont's Tedlar™

ISE: PROTOTYPE OF JAPANESE ARCHITECTURE

by Kenzo Tange and Noboru Kawazoe, with photographs by Yoshio Watanabe, preface by John Burchard; complete text in English.

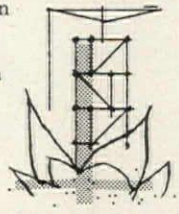
Bruno Taut has ranked Ise alongside the Parthenon in architectural importance. "In the subsequent history of Japanese architecture", Kenzo Tange writes, "extending over more than a thousand years, it proved impossible to advance beyond the form of Ise . . . . The entire later course of Japanese architecture starts at Ise . . . . Along with the Parthenon Ise represents the peak in the history of world architecture". ISE: PROTOTYPE OF JAPANESE ARCHITECTURE is not only a book of sheer beauty, it is also of great importance as a photo document, for the innermost areas of the Ise Shrine, ringed by four fences and containing the key buildings, are barred to visitors. 114 photographs, 20 line drawings; 10⅝" by 11⅛", 212 pages, boxed; $17.50



THE VOICE OF THE PHOENIX: POSTWAR ARCHITECTURE IN GERMANY

by John E. Burchard.

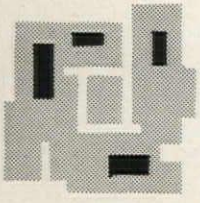
The incredible amount of new construction in Germany, necessitated by war's destruction, is here evaluated in relation to America's rebuilding, necessitated by deterioration and population explosion. The author hopes to discover generalizations to help us solve our own complex urban and architectural problems. More than 200 photographs of new German buildings assist in the analysis. 200 pages, December 1965, $12.50



INTENTIONS IN ARCHITECTURE *by Christian Norberg-Schulz.* A morphology of the art, starting from the simplest cell and relating it to the most complex structures, this work aims at an integration of the fragments of the architectural totality through a study of their possible interrelations. 242 pages, 102 halftones. January 1966, $8.50

THE ARCHITECT AND THE CITY *edited by Marcus Whiffen.* Papers from the AIA-ACSA Teacher Seminar, Cranbrook Academy of Art, June 11-12, 1962. 133 pages, February, 1966, $4.00

ARCHITECTURE IN ANCIENT EGYPT AND THE NEAR EAST *by Alexander Badawy.* This volume covers evolution of building from earliest times to the Hellenistic Period, but departs from chronology to subdivide architectural achievements by country and into domestic, religious, funerary, and military groups. 400 tracings made by the author from rare sources, 232 pages, December 1965, $10.00



IN MIT PAPERBACK:

THE CITY: ITS GROWTH, ITS DECAY, ITS FUTURE *by Eliel Saarinen.* In historical perspective, Saarinen appraises town planning in the Middle Ages, analyzes its decline in the industrial revolution, visualizes the city of the future through his concept or organic decentralization. $2.95*

MEGALOPOLIS: THE URBANIZED NORTHEASTERN SEABOARD OF THE UNITED STATES *by Jean Gottmann.* $3.95

THE IMAGE OF THE CITY *by Kevin Lynch.* $2.95*

THE NEW ARCHITECTURE AND THE BAUHAUS *by Walter Gropius.* $1.95*

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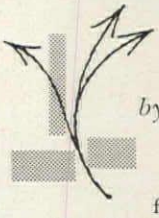
GARDEN CITIES OF TO-MORROW *by Ebenezer Howard.* $1.95

*Available in hardbound edition.



THE VIEW FROM THE ROAD

by Donald Appleyard, Kevin Lynch, and John R. Meyer.

This profusely illustrated study is the first comprehensive attempt to consider the urban highway as a positive visual experience. The authors examine highways, develop esthetic criteria, analyze driver-attention habits, suggest a system of notation. 9⅜" by 15", 72 halftones, 60 drawings, 64 pages, 1964, $15.00
(Published by the M.I.T. Press for the Joint Center for Urban Studies of the Massachusetts Institute of Technology and Harvard University.)

REGIONAL DEVELOPMENT AND PLANNING: A READER *edited by John Friedmann and William Alonso.* This volume makes available for the first time in one place, and in an orderly and logical manner, the most valuable writings on regional development and planning. xvii + 722 pages, 1964, $9.75

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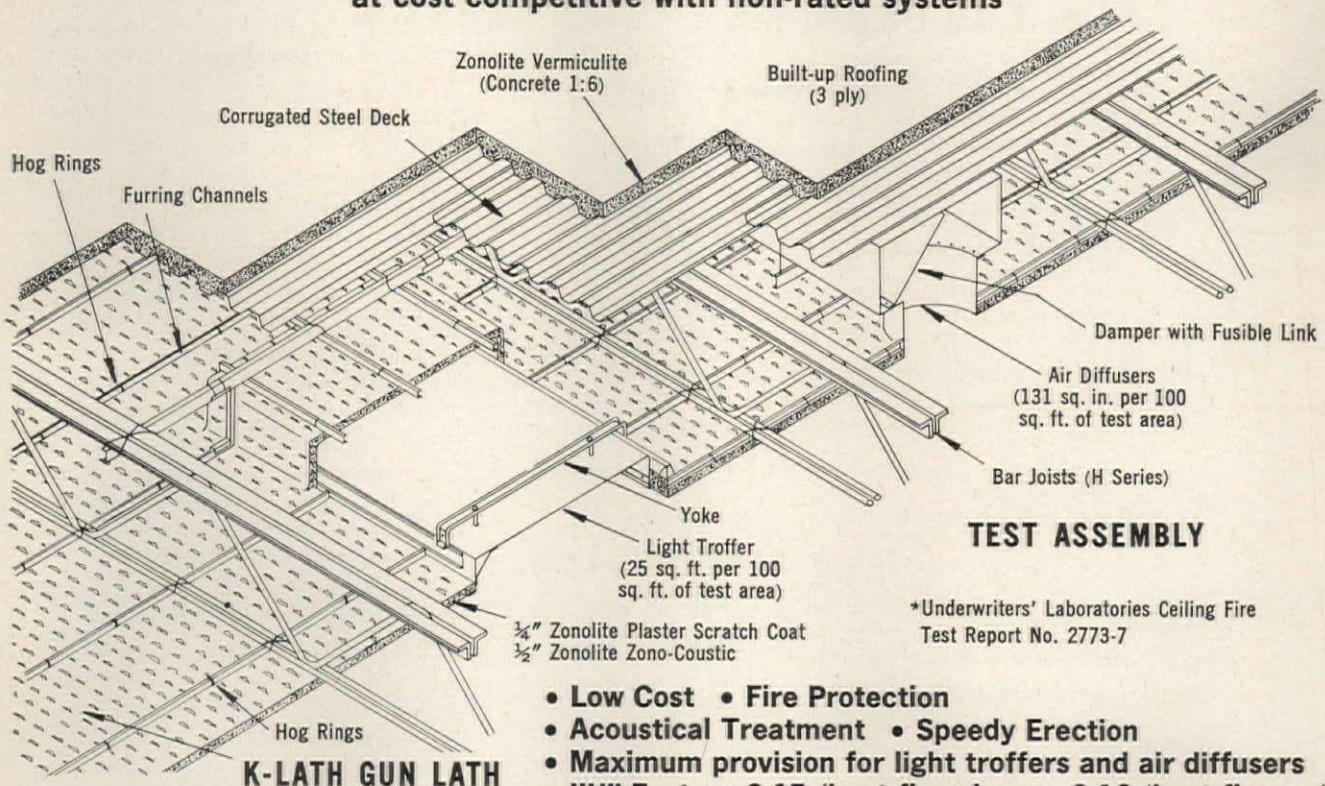

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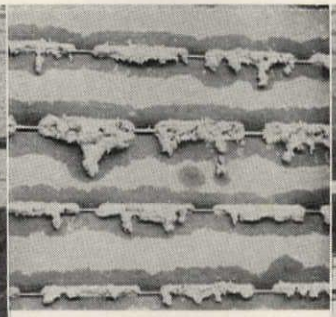

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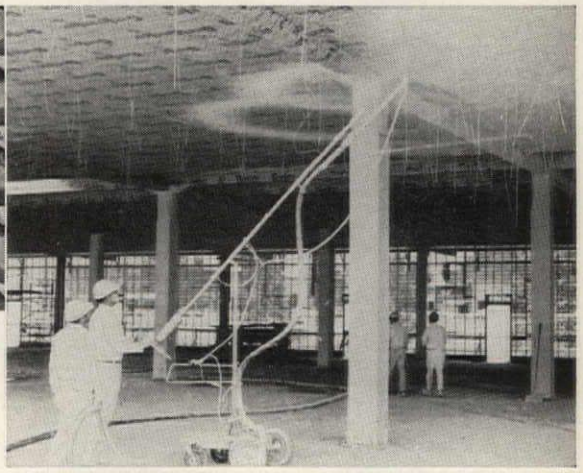

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Octagon Observer Cont'd from p 22

AIA AFFAIRS / Personnel Changes At The Octagon

Kenneth C. Landry AIA has been named full-time administrator of Governmental Affairs for the Institute.

Executive Director William H. Scheick FAIA said he made the appointment, which resulted in other staff changes, in response to a long-felt need of the membership. The increased service the AIA can give to Federal agencies seeking to improve design capabilities prompted the move, he added.

Administrator of the Department of Public Services for the past two years and a member of the Institute staff since April 1962, Landry in his new capacity will report directly to Scheick.

Landry was in private practice for 13 years and was a partner in the Baton Rouge, La., architectural firm of Bodman, Murrell, Landry & Webb prior to his appointment at the Octagon.

M. Elliott Carroll AIA succeeds Landry as administrator of the Department of Public Services.

Carroll, who joined the AIA staff in 1960 and who has been administrator of the Department of Professional Services the past 2½ years, will continue to be staff executive to the Committees on Esthetics and Industrial Architecture and also will staff the Committee on International Relations.

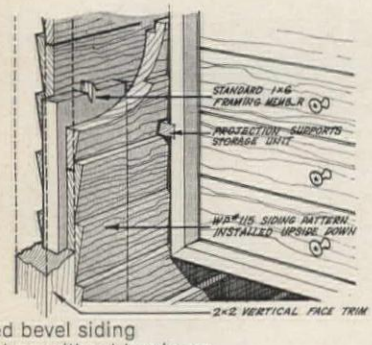
Robert J. Piper, director of the Institute's Professional Practice Programs and Urban Design Programs since 1961, has been promoted to succeed Carroll as administrator of the Department of Professional Services.

Succeeding Piper as director of Professional Practice Programs is Leonard Mayer AIA.

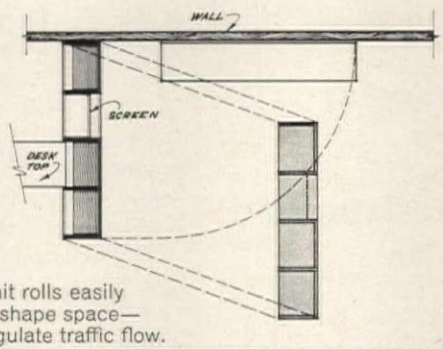
Mayer comes to the Institute from the Washington architectural firm of Faulkner, Kingsbury & Stenhouse, where he was a project manager, primarily on hospital designs. Before that, he was with the planning and research department of the Perkins & Will Partnership in Washington.

Mayer holds a Bachelor of Architecture degree from Catholic University and has completed additional studies at George Washington University.

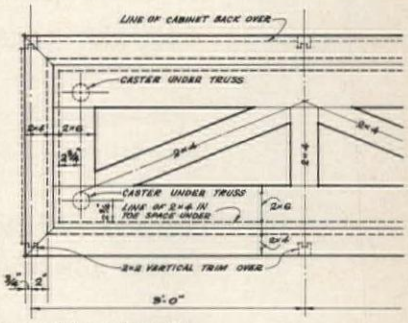
Design: Mel Kroker; Broome, Selig & Oringdulph.



ted bevel siding
helves without hardware.



Unit rolls easily
to shape space—
regulate traffic flow.



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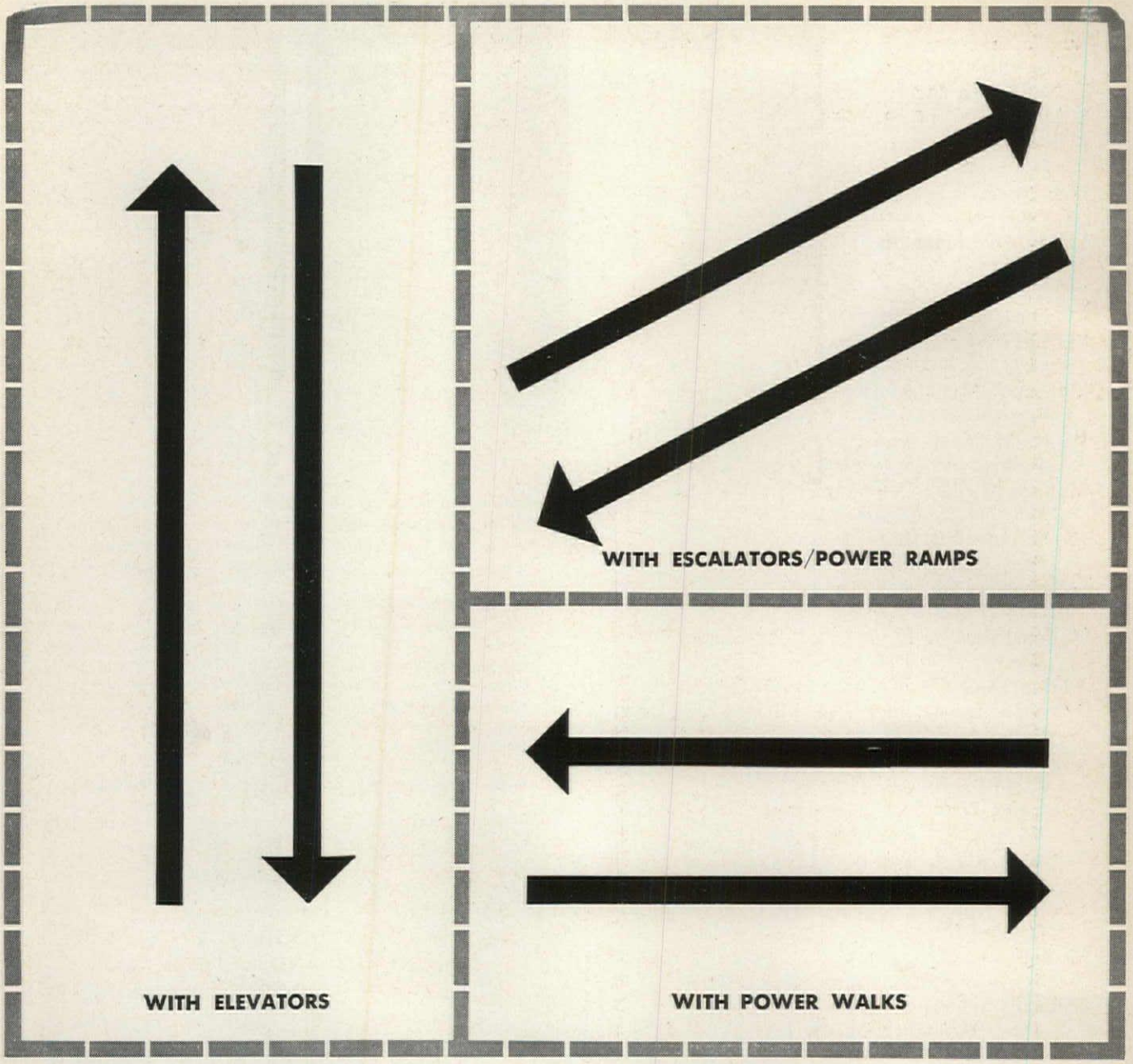

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