A·I·A

Journal

uly 1965

1965 AIA Honor Awards

WANTAGH HIGH SCHOOL ADDITION, *Wantagh, L.I., New York. George E. Tumey* — Architect. J. R. *Stevenson Corp.* — Builder. *Column facing is contoured architectural terra cotta units 17¾" x 23¾", in mottled russet. Perforated wall screening the stairway in lower photo is composed of white Ceramic Veneer grilles (Design No. FS-EE).*

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A·I·A Journal

JULY 1965

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VOL XLIV, NO 1 BPA

The 1965 AIA Honor Awards

Cover: The shot of this First Honor Award building (p 28) is the work of Robert Damora AIA, who not only won an Award of Merit himself but also the Architectural Photography Medal

LOOKING AHEAD TO AUGUST

The 1965 Convention

It was billed in the advance releases as a record-breaking gathering of architects—and it lived up to its name. More than 4000 registrants, including 1500 corporate members, signed in at Washington's Sheraton-Park Hotel to participate in the AIA annual convention and the concurrent XI Pan American Congress of Architects. What was said and done during the June 13-18 program will be recapped in the August issue—a review for those who came to the nation's capital and a summation for those who stayed at home.

Highlights from No 97

NES WINS ELECTION: In this year's only contested post, Charles M. Nes Jr FAIA, winding up his term as Middle Atlantic Director, was named First Vice President, with automatic succession to the Institute's top spot in 1966. Morris Ketchum Jr FAIA heads the slate of officers, which appears in the adjacent column, along with the five newly elected Directors whose terms will expire in 1968.

PRESIDENTIAL CITATION: A delegation headed by outgoing President Arthur Gould Odell Jr FAIA called at the White House to present a citation to President Johnson commending him for his leadership in the campaign to make America more beautiful.

MUMFORD'S NEW WORLD PROMISE: In presenting Lewis Mumford HON AIA, Odell referred to the first annual Purves Memorial Lecture as "the intellectual highlight" of the convention. Today's best-known critic on man's environment deplored society's dedication to the machine but ended with a note of hope concerning "the New World that has still to be discovered and domesticated by the spirit of man."

PHOTO CREDITS: © National Buildings Record—50, 52, 53 (left); Chicago Heritage Committee—51 (left); Claire Kofsky—53 (right); Pittsburgh Plate Glass Co—54 (center); Readers Digest—54 (bottom); Louis H. Dreyer—55 (center); Don Morgan—56 (bottom); National Trust for Historic Preservation—57; Bradley Smith (starting at top, first column), Johnson, Johnson & Johnson, Charles May, James Dunlap—61; US Park Service, Thomas Hollyman, Phil Stitt—62.

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The above is intended to facilitate communication between the membership and the AIA Headquarters and is not a complete staff listing

New Horizons for AIA JOURNAL

EDITORIAL achievement is the first and basic requisite of a successful magazine. Now that Bob Koehler has just officially taken over his new duties as editor, a few remarks about the AIA JOURNAL and its editorial content might be appropriate.

Of all of the many elements that make up a magazine, the essential one is editorial content. Editorial is the product delivered to the customers: the readers of the magazine. As in any endeavor, if the product is a good one, the customers will be faithful and grow in number. In most businesses, this would be enough to ensure success, but today a magazine cannot grow and prosper without advertising. Thus a magazine has a second group of customers: companies that believe the readers of the magazine are important enough and numerous enough to warrant an attempt to inform and influence them through dollars spent on advertising in the magazine.

Good editorial content thus generates and maintains a reading audience; circulation and readership can then be translated into advertising income; and finally income can be translated into improved editorial content. In this way, readers can be assured of increased quality—and quantity, perhaps—of editorial content, and advertisers will get a better buy for their money.

In order to relate some of these things more directly to the JOURNAL, it should be said that over the years there has been a lot of soul-searching about the audience and purpose of the magazine. Now the search has led to a single central editorial purpose—that of serving architects and, through them, serving architecture. There is a small but hardy band of non-architect subscribers who read the JOURNAL because they *want* to know about architecture. However, over 85 per cent of the circulation is now among US architects, most of them in active practice, who read the JOURNAL because they *must* know about architecture.

Having found its proper audience and purpose, the magazine is now turning more fully toward the task of finding means of communicating with its readers more effectively. The major efforts in the coming months will be concerned with increasing the value and stimulation of the editorial content and with methods of improving the presentation of the content to make it more provocative and interesting to our architect-readers.

The role of the editor, and of his staff, has nowhere been better described than in a recent want ad—undoubtedly written by a pretty good editor: "An editor must be able to think and plan, organize and execute. He must know writing and reporting, people and production, must be able to create and meet deadlines, write and inspire bright copy, bright heads, exciting leads. An editor must believe all stories can be shorter and better and must be willing to work toward those goals."

To the editor's post, Bob Koehler brings the best kind of training and experience for the job ahead. A journalism graduate of the University of Wisconsin, he has been actively engaged in editorial work almost 20 years, 12 of them in architectural journalism. *Architecture/West*, which he edited for six years, won several editorial awards during his tenure. Joining the JOURNAL as associate editor in 1962, he later became managing editor and now editor. A member of Sigma Delta Chi, professional journalism society, he has just had the honor of being asked to chair a national publishing seminar on editorial excellence.

Playing an important role in the editorial development of the magazine in the days ahead will be Charles Thomsen AIA, who has recently been appointed associate editor. A practicing architect, he has BA and BArch degrees from Columbia. His experience includes work with William Lescaze FAIA and other architects, with the Museum of Modern Art and with the Department of the Interior Historical Buildings Survey. He has been very active in New York Chapter affairs and for the past two years has been editor of *Oculus*, the monthly publication of the chapter.

Another mainstay of the editorial staff is Marilyn Ludwig, assistant editor. After receiving a BA in English from Miami University, she has spent seven years in editorial work, almost four of them on the JOURNAL.

Marilyn Housell, the art director, has been on the staff for five years, all of her professional life except for a year as an illustrator for the Department of Agriculture. Her preparation included four years as a student at the Corcoran School of Art, where she won a scholarship from the Women's Advertising Club of Washington.

The editorial staff is rounded out by Richard Stitt, Institute Director of Information Services, with whom a working agreement for cooperative effort on committee activities exists.

It all works out to an editorial staff of four with part-time help from a fifth staff member. It is a young but experienced group. The average age is only 34, but the average professional education and experience is 14 years. The vigor of the staff is attested by the quantity and quality of its editorial output—almost as many editorial pages per year as other magazines with over four times as much advertising and four first editorial awards from *Industrial Marketing* in five years, more than any other architectural magazine.

DUDLEY HUNT JR, AIA
Publisher

In Search of a Rare Breed of Cat

THE AMBITION of most young architects is to practice, and in these busy times that future is open to many. Consequently the architect who is interested in a nonpracticing career, and expects to be content with it, is a rare breed of cat. Educators bear me out in my conviction that the demand for this type of young architect is skyrocketing. He is sought by the building industry, by government, educational institutions and publications. He is sought by home builders, trade associations and large corporations who want architects to manage far-flung physical plants.

This competing demand is keenly felt here at the Octagon. One of my responsibilities is to maintain a staff capability for the high level of performance to which you have become accustomed in Institute services. Many of our jobs are handled best by architects who understand the needs of the profession and think and speak in its language.

The nature of their work is close to many aspects of practice *except* the creative processes of design. And so when we seek to recruit an architect for a replacement of a new job, we had better find one in the rare-breed-of-cat category. And this, my friends, takes a lot of searching.

My own generation was hardly different as architectural students from the youngsters of today. From the point of matriculation in architectural school we devoutly believed that our role in life would be the creative side of architecture. But there was a notable difference for the graduates of college classes from 1927 through about 1935. We entered a cold cruel world in the throes of a depression. Out of sheer necessity many of those budding architects gravitated into jobs outside of practice. Some did very well in subsequent years, and today are seen in important posts where it is mighty good to have a fellow architect.

Today's greatly increased demand for architects outside the field of practice is significant in several ways.

It is significant to students of architecture because of the great variety of opportunities for success which the future holds. An old friend of mine, successful in the building industry, told me that he realized while still in architectural school that he would never be a good designer. But he loved selling, and found that talent and his architectural education to be the best possible combination for his career in industry. Many students who drop out of architecture could complete their education with emphasis on courses other than design. Today the practice of architecture needs their talents just as much as the other "outside" sources of demand for architects. The graduate should always take the time to become licensed to fully prepare himself for any career he might pursue in the profession.

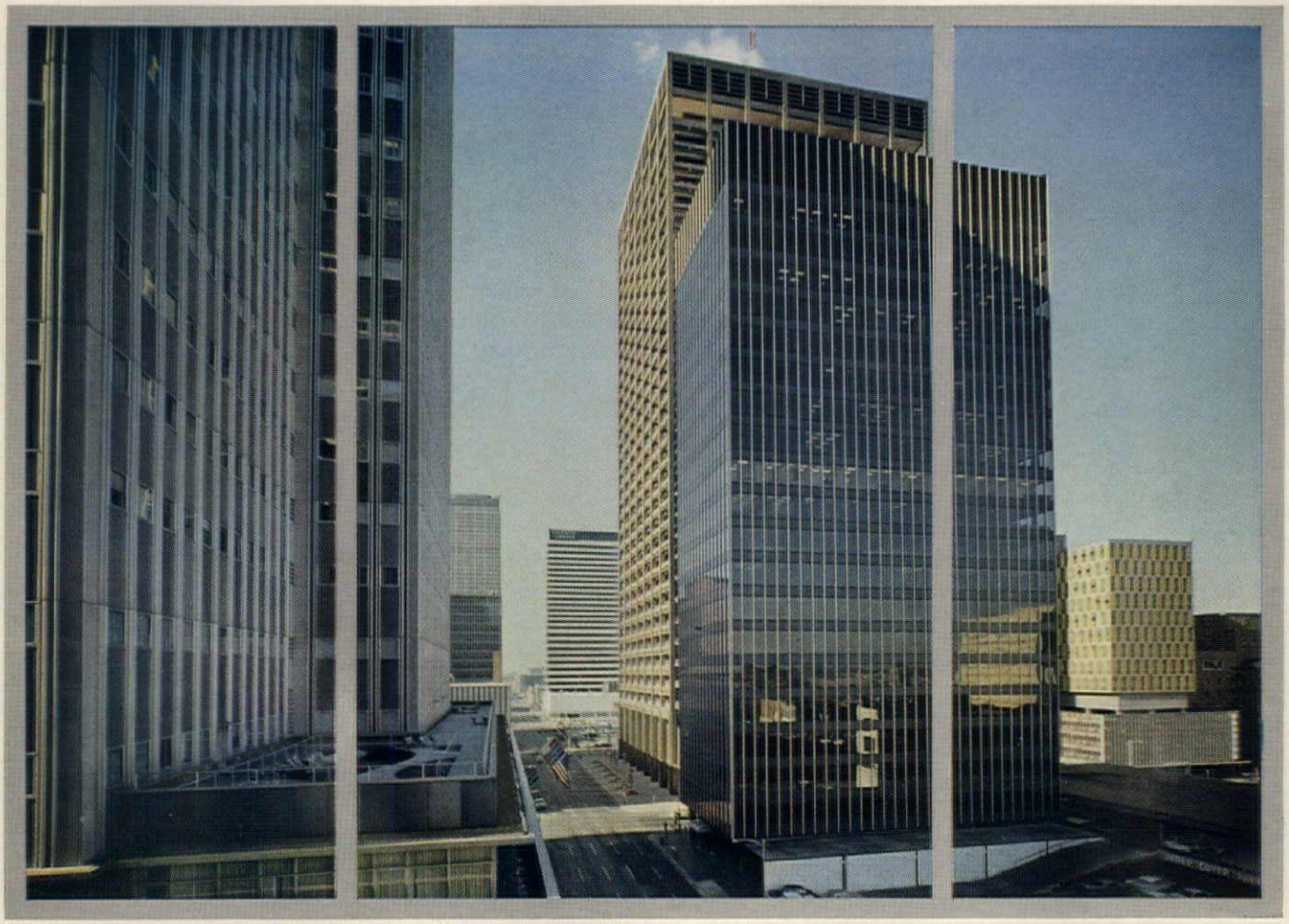
The new demand is significant for the schools because it means they run no risk of producing too many architectural graduates. Of greater significance are the implications for the scope of curricula. The raw material of a freshman class now represents a greater potential than ever before in terms of latent talents valuable in the profession. Hopefully the schools will formulate curricula that develop these talents in advanced courses following basic architectural training.

The significance for the profession is broad. The total profession is becoming more than a fraternity of practitioners—in some ways resembling the situation in law. To be sure, the added opportunities represent a competition for licensed architectural graduates which will affect firms in practice. Good salaries are available for architects in these other fields because the jobs carry responsibilities exceeding those of supporting personnel in architects' offices.

For the Institute the significance of this new demand for architects is clear. The profession will grow rapidly and attain greater diversity. At the same time it must preserve its solidarity and singleness of purpose. Once an architect, always an architect, no matter what role he plays. The Institute can keep pace by vigorously implementing its policy to welcome to membership all architects who will abide by our ethical standards. An expanding, flowering profession united in one professional society is sure to be strong.

WILLIAM H. SCHEICK, FAIA
Executive Director

You're looking at Houston through a new glass from PPG that shuts out 70% of the sun's heat and has a "U" value of .35



Photograph taken through a sample of SOLARBAN TWINDOW simulating typical building location. Camera: 4 x 5 Linhof, 1/10 second at f/22 with Ektachrome daylight.

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Solargray®	¼"	1.1	150	42
Solarbronze®	¼"	1.1	150	51
Solex®	¼"	1.1	150	73
LHR Clear	¼"	1.1	140	47
LHR Solargray	¼"	1.1	110	24
LHR Solarbronze	¼"	1.1	110	27
LHR Solex	¼"	1.1	110	35
SHEET GLASS				
Clear Sheet Glass	1/32"	1.1	205	90
Graylite™ 31	⅛"	1.1	170	31
Graylite 61	3/16"	1.1	195	61
Graylite 56	1/32"	1.1	190	56
Graylite 14	1/32"	1.1	150	14
Graylite 52	¼"	1.1	185	52
HIGH PERFORMANCE (Insulating, Heat and Glare Reducing)				
Clear Twindow®		.60	170	78
Solarban Twindow		.35	65	20
LHR Solargray Twindow		.60	90	22
LHR Solarbronze Twindow		.60	90	25
LHR Solex Twindow		.60	90	32
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OCTAGON OBSERVER

AWARDS PROGRAMS / Ketchum and Reynolds in London

The newly elected President of the American Institute of Architects told a British audience assembled for the presentation of the R. S. Reynolds Memorial Award in London June 1 that the most important thing architects can build is a greater interest among men in their own surroundings.

Morris Ketchum Jr FAIA said architects must work to "create community awareness and move quickly to a state of community commitment."

Among the listeners to the AIA's then Vice President in the Hyde Park Hotel were officials of the Royal Institute of British Architects, who were on hand to see London architects James Stirling and James Gowan receive the $25,000 prize for their design of the Engineering Building at Leicester University.

Ketchum lamented the condition of most cities of the United States and Great Britain. "What is wrong with us, or with man himself, when the two nations of the world with the best combination of advanced technology, public education and political freedom and stability live amid ruinous urban ugliness?"

The New York architect emphasized that the urban mess "is not the result of bad taste or bad decisions but of no decisions at all." For the first time in history environmental decisions are left to the ordinary citizen, and before architects "can design, we must educate," he declared.

"Urban man will make positive decisions about his environment or he will let them and it go by default to the greedy entrepreneur seeking the quick buck. It is a perversion of the meaning of democracy and a complete renunciation of our heritage to tolerate the ruin of urban life and nature in the name of free competition and public expediency," Ketchum added.

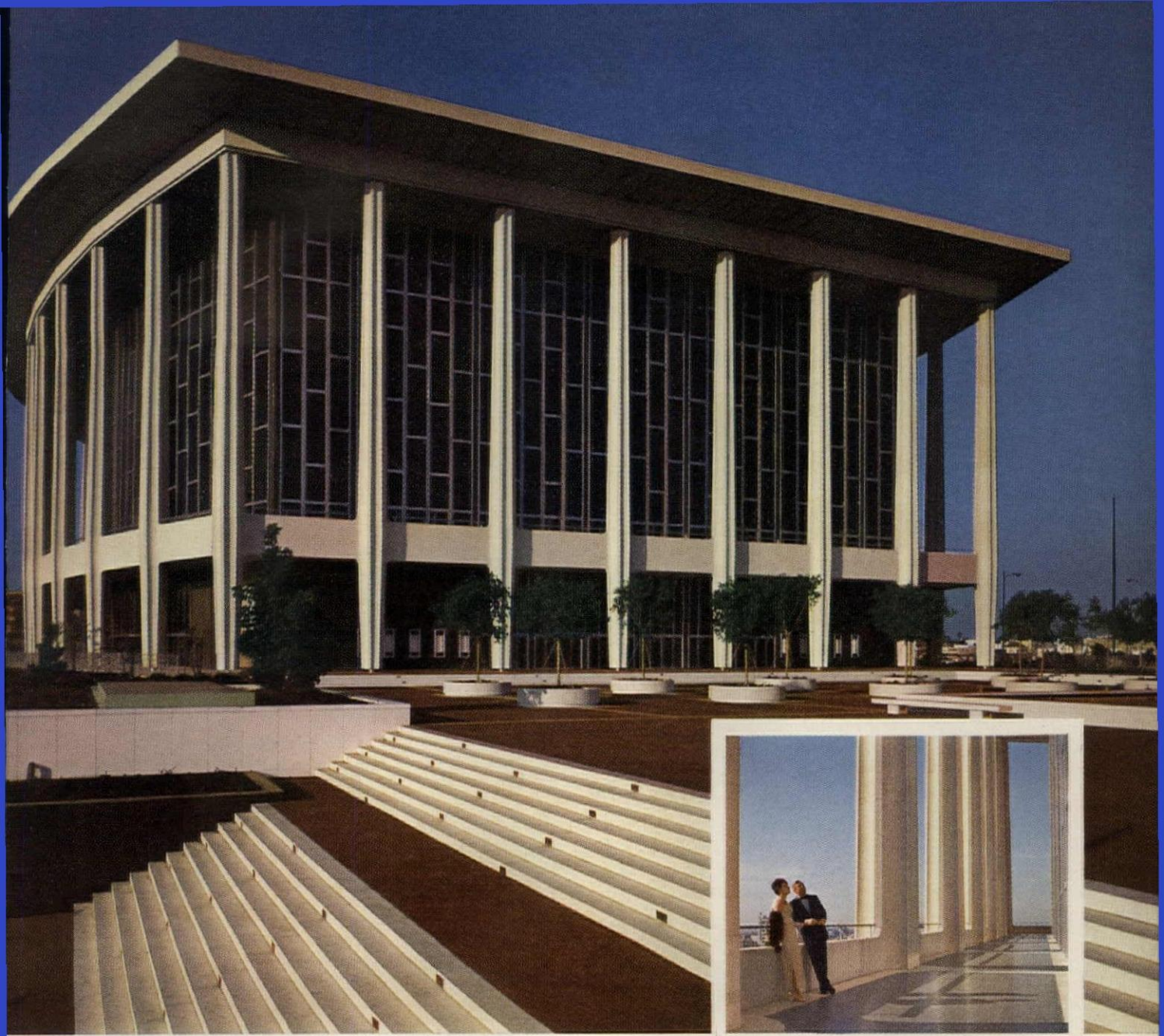
The 1965 award was publicly announced a day earlier in Leicester at a luncheon for university and city officials given by the AIA, which administers the international program "for distinguished achievement in architecture with significant use of aluminum."

The US party also included R. S. Reynolds Jr, Richmond, Va, board chairman of Reynolds Metals Co, which sponsors the award; William H. Scheick FAIA, the Institute's Executive Director; and William Stephen Allen FAIA, San Francisco, chairman of the AIA jury which selected the winner.

In touring the Engineering Building, the American group joined a notable throng dating back to the opening of the structure in the fall of 1963. In its first two school terms the building drew more than 5000 visitors, mostly architects and designers. It has been averaging one organized architectural party a day from all over the world.

Aluminum's '65 Winner: Leicester University's Engineering Building, in the words of the AIA jury, is a "distinguished work of architecture, a powerful expression of both the art and technology of our time."

Built under rigid rules of cost and function on a leftover campus site, the building consists of an expansive base of low-lying engineering workshops with roof-lights, two cantilevered towers with snubbed-off undersides to clear obstructions below and arrays of glass to provide natural light for laboratories, classrooms and offices. The architects credit standard aluminum glazing bars with making possible much of the unusual configuration required by the design. *Cont'd on p 10*



Los Angeles Music Center's Memorial Pavilion / Los Angeles, California | Architects: Welton Becket and Associates / General Contractor: Peter Kiewit Sons' Company

Mo-Sai in a timeless performance of beauty and strength: Double tapered and fluted columns of glistening Mo-Sai precast concrete surround the Los Angeles Music Center's Memorial Pavilion. The Mo-Sai columns were precast under controlled factory conditions in nine sections of three pieces each. The sections were then held in place with steel bands around a steel pipe core and filled with concrete, binding the components into a solid structural unit. The 87-foot-high columns are a classic example of functional beauty. At second-floor level there is an intricately curved transition between tapered columns and Mo-Sai spandrels . . . a real achievement in precasting because of the many varying dimensions.

Architect Welton Becket expressed his intention of creating a building of timeless beauty that would have a fresh look 100 years from now . . . Mo-Sai is the timeless material.

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Octagon Observer Cont'd

THE MULTIPLE-HOUSING CHALLENGE: The 48-page report presenting the winners in Ruberoid's fifth Architectural Design Competition is not only a handsome piece in itself but contains some interesting concepts and discussion regarding the problems inherent in middle-income urban housing. Working with the Housing and Redevelopment Board of the City of New York, the sponsor used as its working hypothesis the site of the proposed East River Urban Renewal Project.

Winners of the $10,000 first prize were Hodne Associates of Minneapolis.

The seven-man jury, headed by New York's Albert Mayer FAIA, noted that "the over-all caliber of the entries was superior to those produced for any previous multiple-housing competition," but found it necessary to add these qualifications:

"Generally speaking, the contestants demonstrated an insufficient concern with reality, both in terms of economics and in terms of utilization of ground and space. Open space, in most cases, was in the nature of a vacuum between houses or slabs and towers.

"As a group, moreover, the contestants placed too great an emphasis on high-rise construction to the virtual exclusion of middle-rise housing. Any architectural solution is, after all, based upon a certain pattern of living, and we are limiting ourselves if we think purely in terms of high buildings. The winning solution, for example, was based upon a combination of high rise and low rise.

"Most of the high-rise schemes which were submitted, moreover, were sculptures of one form or another. Only a few of the competitors thought in terms of housing with usable open spaces for family and children. The majority of them simply set aside 8000 square feet for a community center, as required by the program, without giving sufficient thought to the types of facilities that would enhance life."

Architects and planners who desire copies of the report should make their requests on company letterheads to the Ruberoid Co., 733 Third Ave, New York, NY 10017.

Cont'd on p 12

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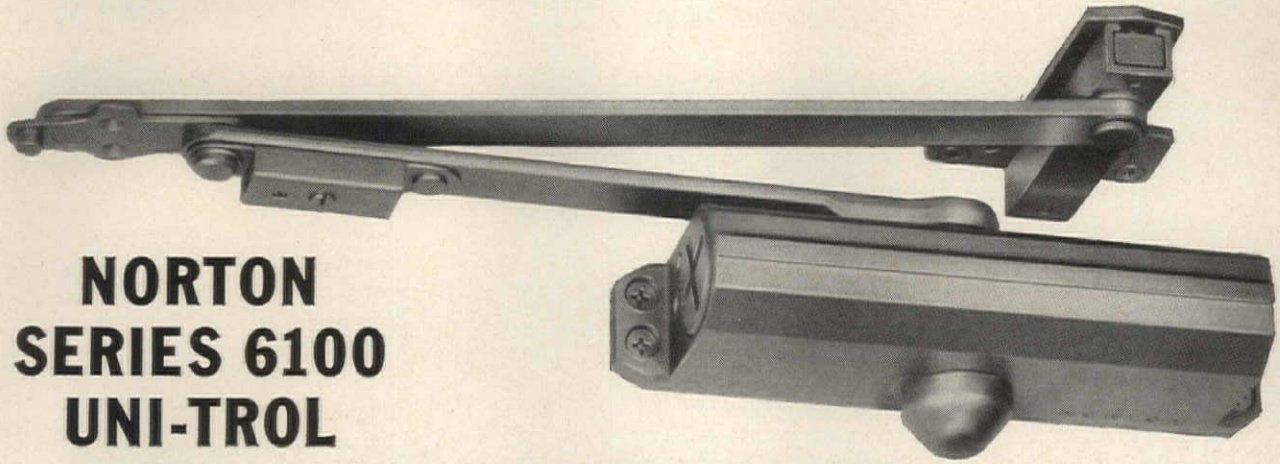

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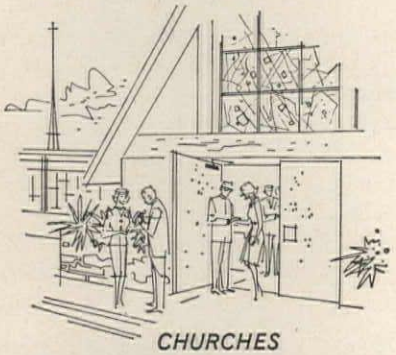
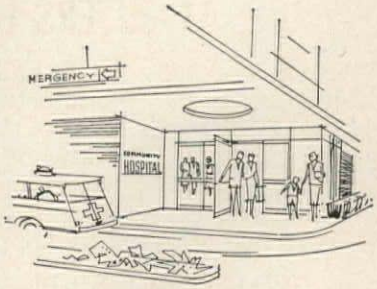


CHURCHES

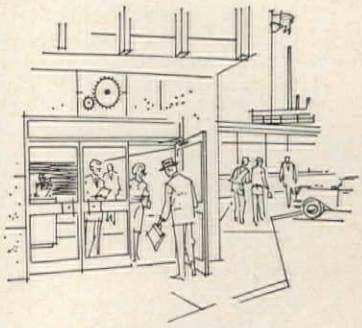
Regardless of the type of building there's always a number of doors that receive more abuse than others. The pounding volume of traffic through these doors can, in some cases, result in door closer failure.

To overcome the problems associated with these high traffic areas, the Norton Series 6100 has been developed. It basically combines a door closer and a door holder into a single product. It is a coordination of both functions to give complete door control. Acting as a door closer it keeps door closed when it should be closed. Acting as a door holder it easily engages the holding device when a large amount of traffic comes through. A spring acts as a cushion to absorb the jarring effect when the door is opened quickly.

The over-all effect is less abuse to door, frame, closer, and holder with improved control. Extreme testing conducted prior to the introduction of this product confirmed the benefits of unitized door control. If you're interested in seeing for yourself how well this new closer-holder operates, contact your builder hardware distributor and arrange for a test installation. Or, if you wish, send the coupon at the bottom of the ad and we'll have our representative arrange a test installation. Give it a fair test, but install it where it will get lots of use, or, if you wish, abuse. It'll take it. You'll find the investment well worthwhile.



HOSPITALS



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EDUCATION / Cheer, Cheer, for Old Notre Dame

When the University of Notre Dame moved into its new 13-story library in September 1963, it turned over the vacated building—three stories of library stacks and bookshelves—to the Department of Architecture.

In addition to a new home, the Department's personnel acquired, in effect, an experimental laboratory to test its skills in design and construction. The results were formally viewed by alumni and other guests during the May 1 dedication, at which Dean Pietro Belluschi FAIA of the School of Architecture and Planning, Massachusetts Institute of Technology, was the principal speaker.

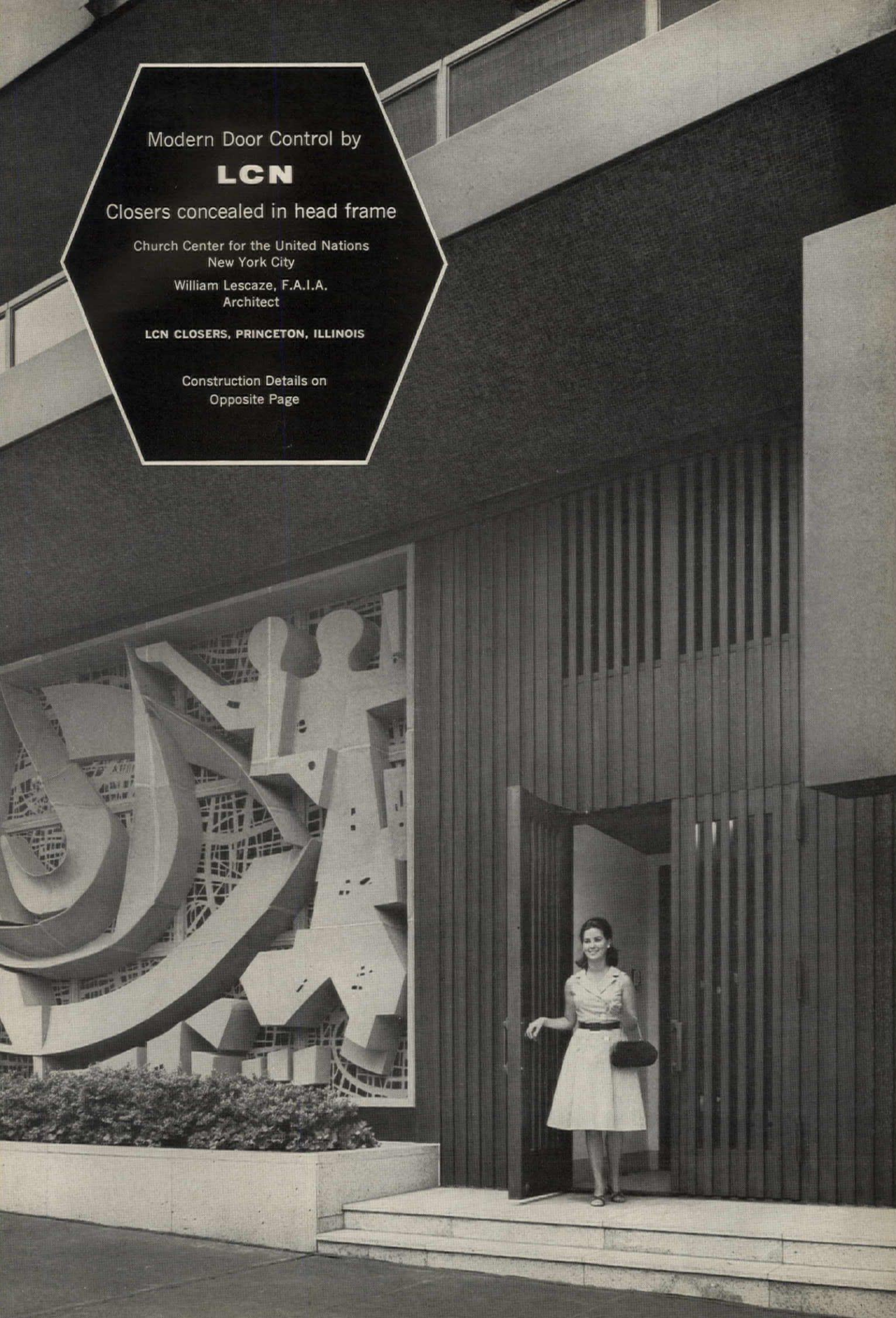
Prof Frank Montana FAIA, Department head, created the design used in transforming the vacant library into the Architecture Building; and building supply firms were among 25 contributors who donated their materials for use in the structure. The renovation process was completed at a cost of $250,000 by Thomas L. Hickey Construction Co, Inc, of South Bend.

Main Exhibition Area: Columns from stacks that had to be retained for support have been used to create display areas in the lobby. They are surfaced with precast panels of different types of aggregate.

The library stacks presented the biggest problem in remodeling the building, Professor Montana, said, because they were supporting the floors. In order to remove the stacks, a diagonal brace had to be trussed on top of each column before removal. On the ground floor, where removing vital columns would weaken the structure, columns were employed as partitions for making 25 study carrels for thesis students. On either side of the central core area of carrels are class and work areas for the third- and fourth-year design students, containing work tables which they built.

The main floor contains the administration area, faculty offices, a conference room, a lecture room and the architectural library. An observation gallery overlooking the main floor has been constructed from an old gallery which supports the third floor. The latter also houses some faculty offices and contains all the classrooms and drafting rooms, accommodating over 100 first- and second-year students.

Cont'd on p 18


Modern Door Control by
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Closers concealed in head frame
Church Center for the United Nations
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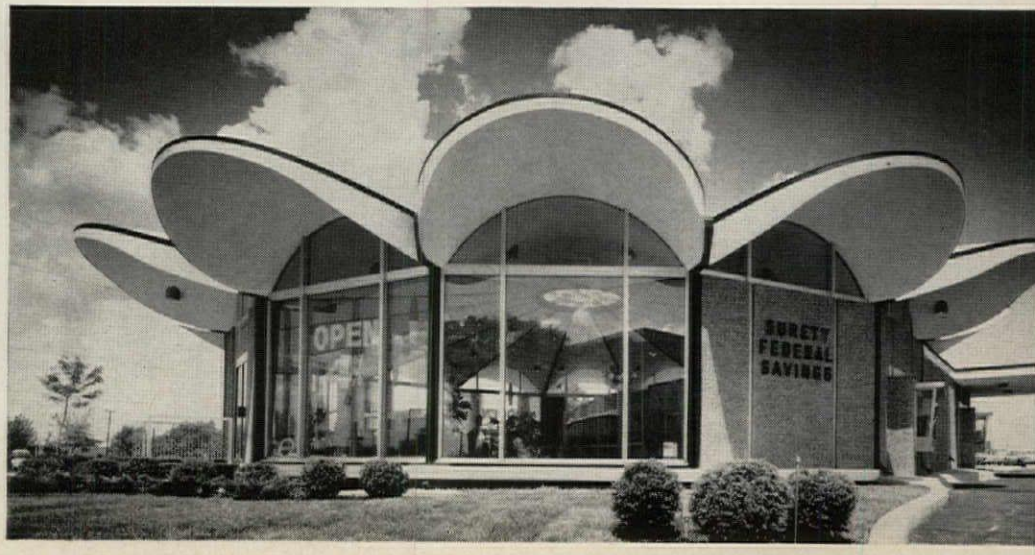
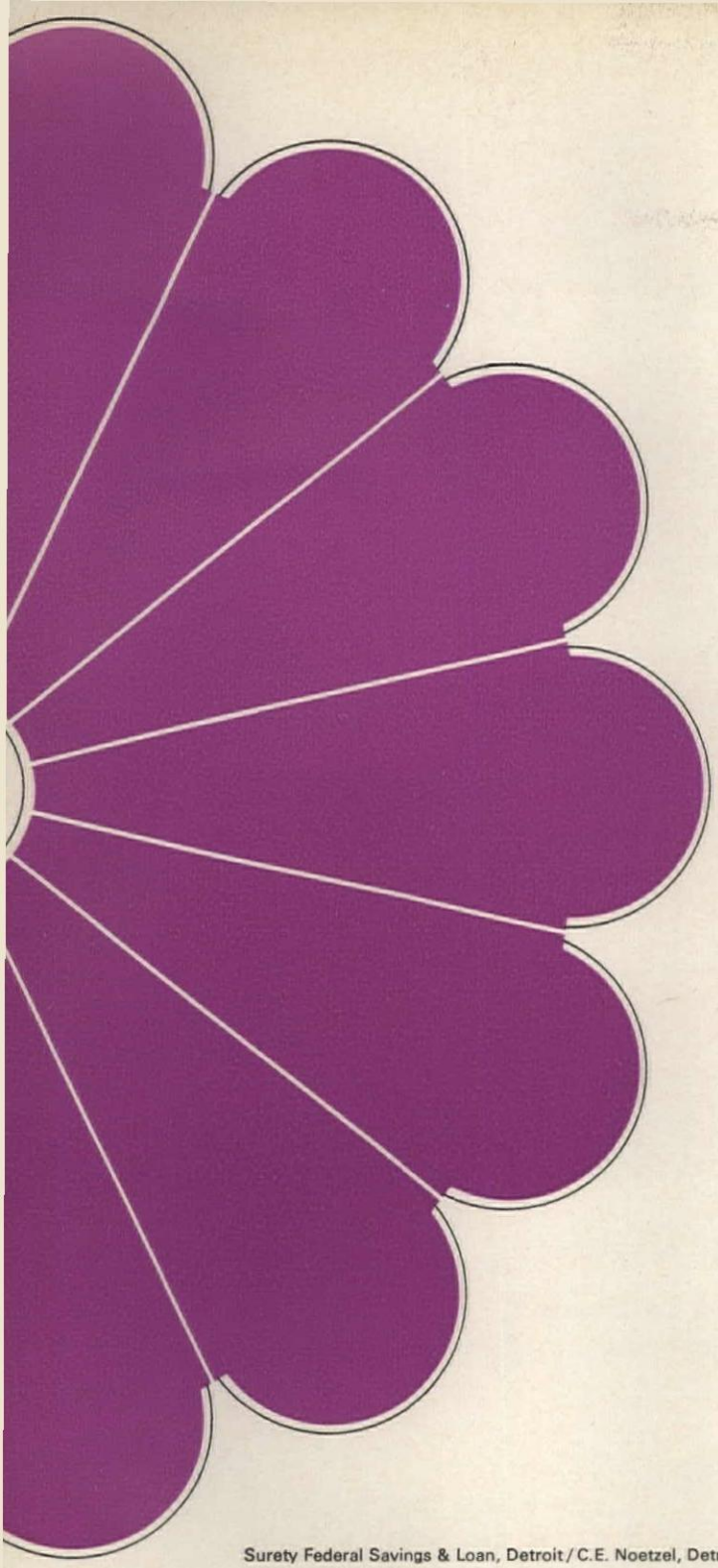
Construction Details on
Opposite Page

the most exciting ideas take shape in plywood

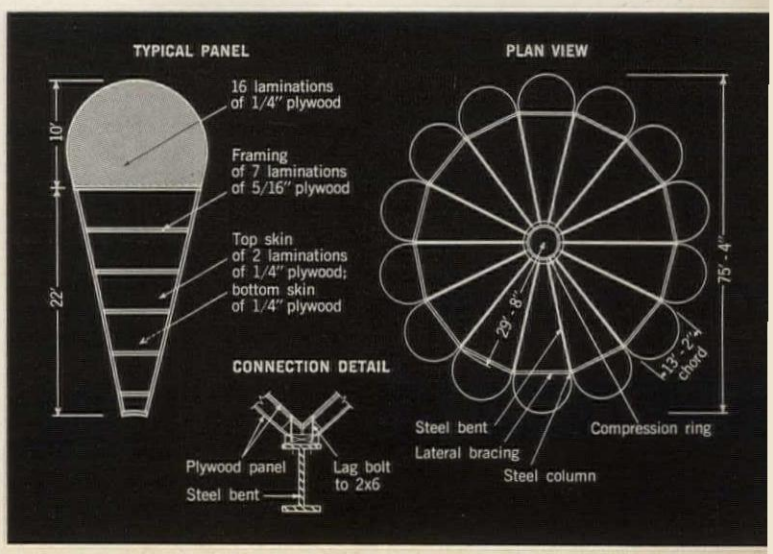


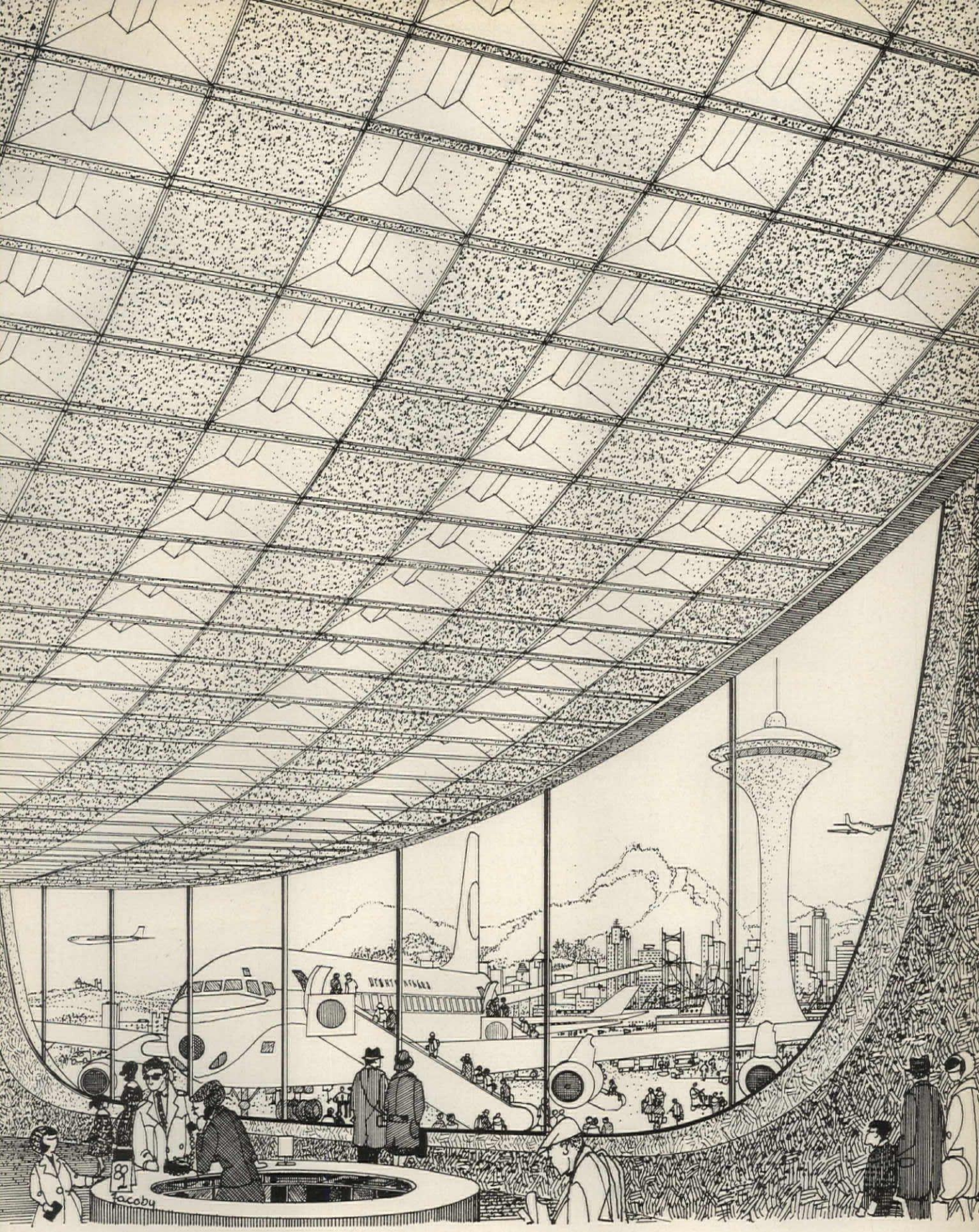


Surety Federal Savings & Loan, Detroit / C.E. Noetzel, Detroit, Architect / Plywood Structural Div., G.H.L. Corp., Auburn Heights, Mich., Fabricator

Fourteen petal-shaped plywood components roof this drive-in bank that blossoms by a busy Detroit highway. It's another case where only plywood could reconcile a demanding design with a tight budget. Concrete was considered but would have cost twice as much. The conical plywood panels were so lightweight and so carefully engineered that they took only three days to install. Whenever your designs call for unusual shapes, high strength and low cost, look into plywood components and structural systems. For more on DFPA plywood, write us at Tacoma, Wash. 98401 (US only).

AMERICAN PLYWOOD ASSOCIATION





There is virtually no limit to the design effects possible with Armstrong Luminaire Ceiling Systems. In this airport departure building, rows of Luminaire modules suspended alternately with rows of flat sections shape an inwardly curved ceiling—creating an ethereal quality in harmony with the concrete support columns.

For free technical data on Armstrong Luminaire Ceiling Systems, a construction drawing of this particular design, and details on the many other design variations possible with Luminaire, write Armstrong, 4207 Sage St., Lancaster, Pennsylvania.

Ceiling Systems by

Armstrong

Octagon Observer Cont'd

THE GAP: Work in city and regional planning at Ohio State University has taken on a new look—and 15 different master plans for the neighboring city of Newark are expected to result. Under the program begun last fall, all first-year graduate students start their study using one selected city as a focal point. All planning courses and projects during the entire two years of work toward the master's degree center around that city's problems.

"It's our way of narrowing the gap between training and the actual experiences our graduates will have when they begin practice," explained Laurence C. Gerckens, associate professor in the School of Architecture and Landscape Architecture.

"We were unhappy with the common approach of teaching city planning through the short-term study of isolated projects or one-year field problem experience. Planners work on a wider basis, and it seemed illogical to have students study parking problems in one area, population in another and housing in still another."

SELECTING SYRACUSE: The Pittsburgh Plate Glass Foundation has picked Syracuse University for a $15,000 grant in a competition among nine universities on the physical development of the American city of the future. The Syracuse program concentrates on bringing architectural design training into direct contact with the needs of the people through a proposed University-Community Extension Service for the environmental arts. The PPG Foundation also cited Carnegie Institute of Technology and Washington University of St Louis for honorable mention.

DESIGNING FOR DRAGS: What started as an undergraduate thesis at Pratt Institute's School of Architecture wound up on exhibition at the Hartford (Conn) Autorama, under the sponsoring of the Autorama Corp and the American Hot Rod Association. Seniors Frederick Goldberg and Robert Colwell Petrucelli spent about 2000 hours in creating a model of a drag city, which they hope will become a reality some day.

Cont'd on p 80

A·I·A
Journal

The 1965 AIA Honor Awards

THE 1965 Honor Awards Jury considered 388 entries—less than in 1964, but perhaps higher in over-all quality. In spite of broad support by practitioners in several states, notably California and Texas, there were no submissions from nineteen states. The Jury would support steps by the Institute to broaden the entries geographically. After several reviews of each submission, the jurors agreed that fifty projects were of superior quality. These were studied again several times by the entire Jury, which voted for about one-quarter of these: a total of eleven awards.

The report of the Jury for the 17th annual program, whose 11 winners are presented on the following pages

The submissions were of high quality, and the building types and solutions of infinite variety. It would appear that much superior work of modest scale is being done by the AIA membership. The Jury was particularly pleased to see the results of talent, discrimination and serious professional effort in projects of low cost and moderate size as well.

The same cannot be said, however, for large-scale buildings and the spaces around them. In many cases the buildings were enhanced by great spaces, but few by truly human spaces. High-quality structures often lacked successful site treatment and placement of site elements. Many projects involving the fabric of the city failed to satisfactorily relate the new and the old. It was refreshing to see so many good individual houses. Their quality seems to contradict our reputation of abandoning this category in our practice today.

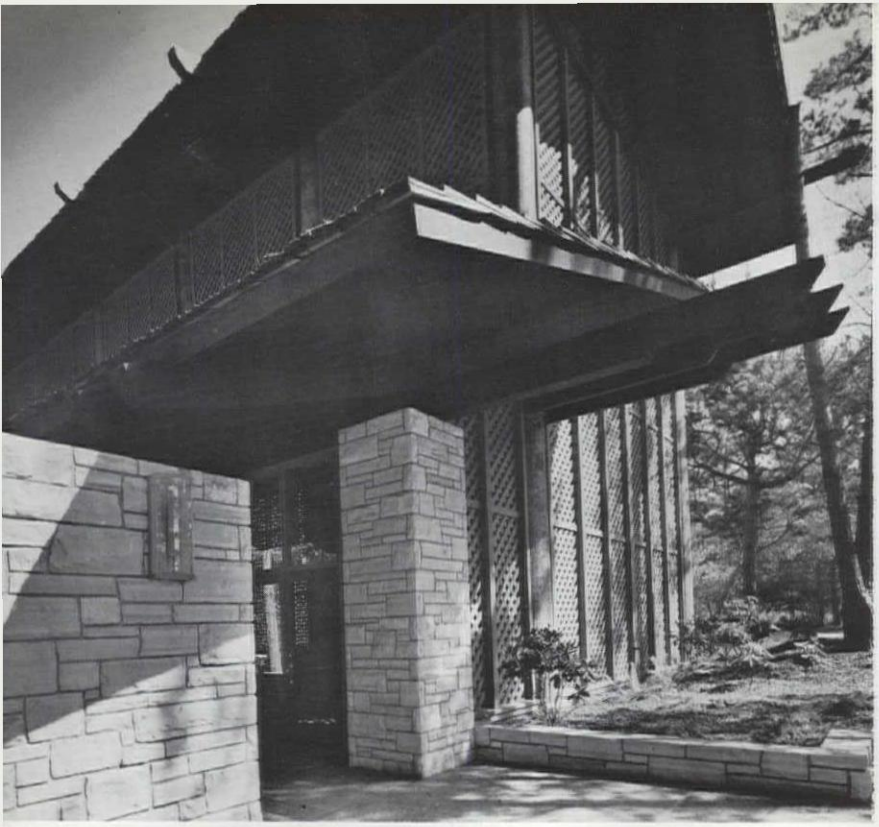
Lack of sympathy between artist and architect was apparent in many instances. Often the painting or sculpture failed to provide the intended focal point for a space. The resulting effect on the Jury was loss of enthusiasm for the architecture.

Singleness of purpose, logical expression and careful detailing as usual rated high with this Jury, which commends the premiated entries in these respects.

Chairman Willis N. Mills FAIA, Philip Johnson FAIA, Donald Lutes AIA, Nathaniel A. Owings FAIA, Peter Tarapata AIA.

FIRST HONOR

Reid & Tarics *Project Designer: Robert F. Olwell*



Project
Eleanor Donnelly Erdman Memorial Chapel
Robert Louis Stevenson School for Boys
Pebble Beach, California

General Contractor
Volmer Peterson

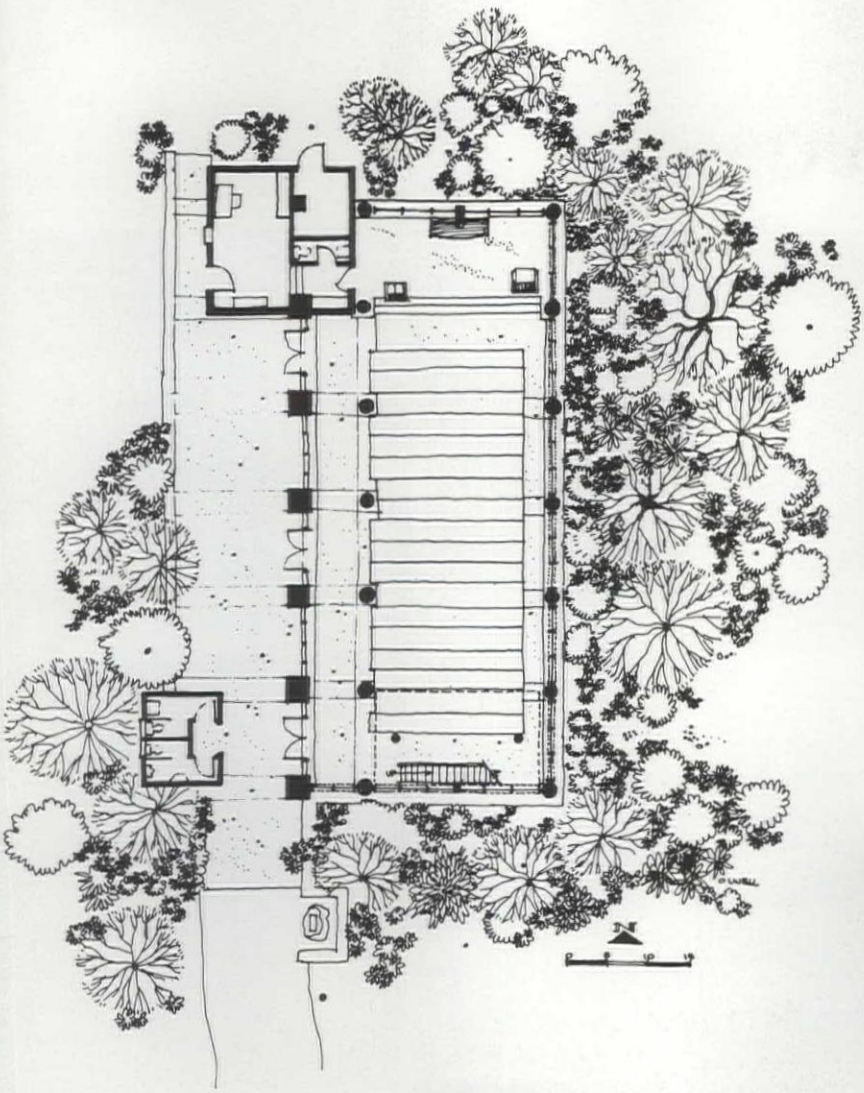
Jury Comment

A delightful small chapel of indigenous materials used in a forthright way and consistently detailed. Although modest and informal, the chapel is dignified, reverent in mood. Its strength echoes that of the surrounding trees, its wood tracery the softness of their leaves.

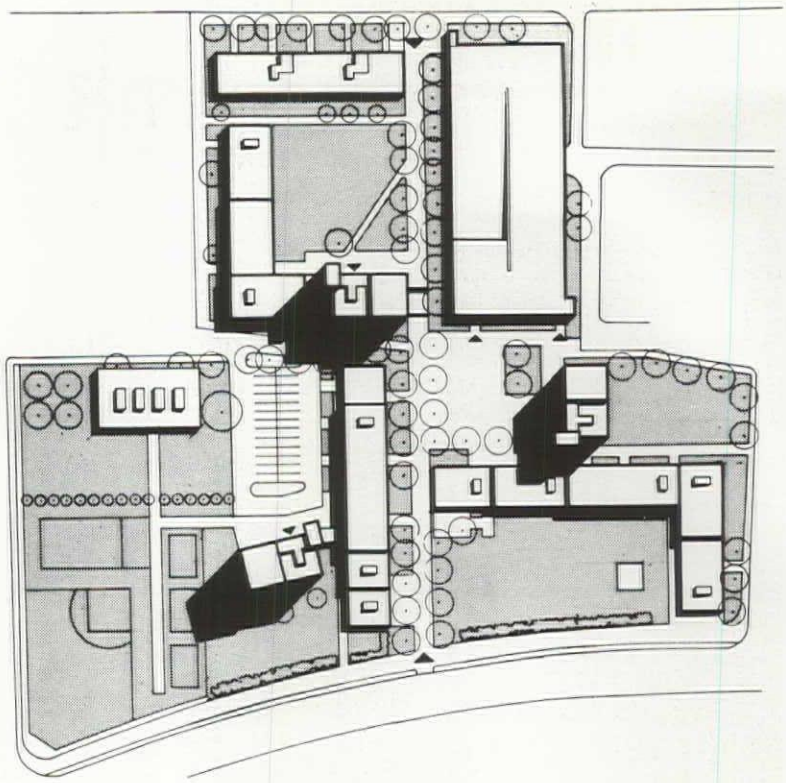
Architects' Statement

This private boys' junior high and high school is nondenominational but has a memorial chapel. The site, located in Del Monte Forest, a half mile from the sea, is relatively flat and densely covered with Monterey pine and scrub oak. The nearest of the school buildings is more than 100 yards away, giving the site itself an unbroken quietness. By preserving the stillness of the pine grove and by leaving intact the natural order of materials, shapes and colors, the design was conceived to express the building's intent as directly as the symbols which help to identify a denominational church.

The nave is a long narrow space supported by a structure of log columns with glass between, protected on both sides by a wood fretwork which will permit only glimpses of the forest outside. The roof is covered with wood shakes at the same low pitch as the other buildings. Stone is used to construct the piers of the side aisle (which furnishes lateral support for the nave), as well as for the entrance and the sacristy area. At the rear of the nave is a small, independently supported choir loft, the piers of which continue up to hold the organ case.



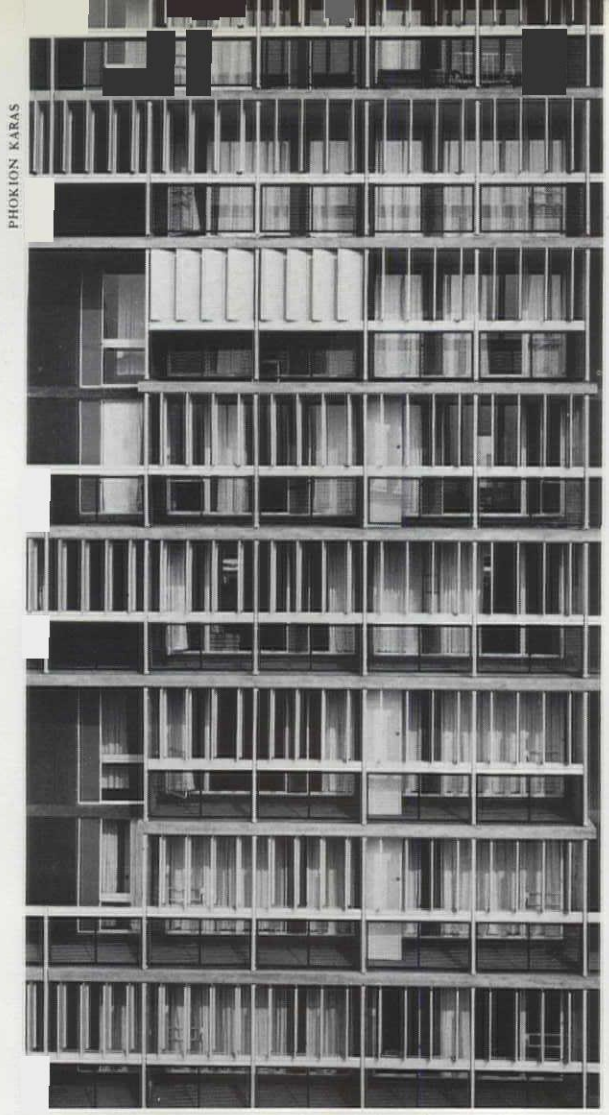
PHOTOS: ROGER STURTEVANT



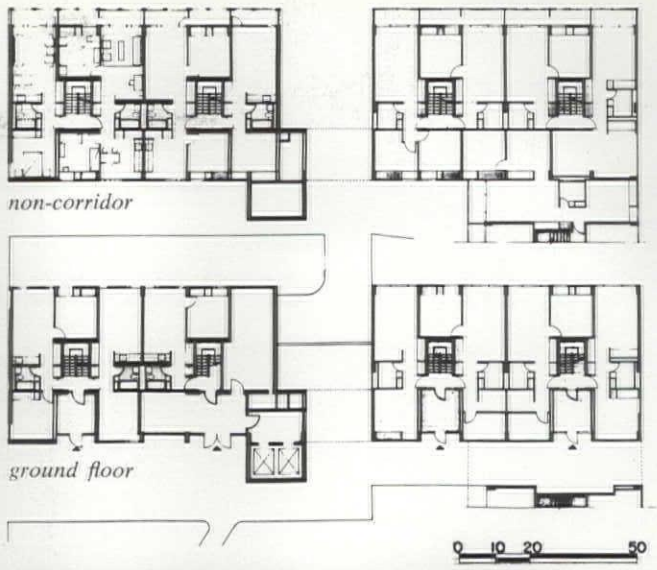
FIRST
HONOR

Sert, Jackson & Gourley

WILLIAM H. TOBEY



PHOKION KARAS



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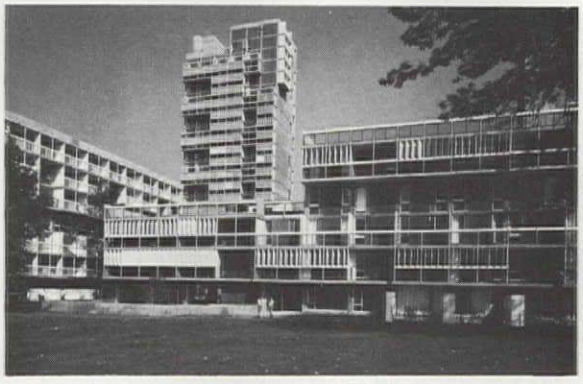


WILLIAM H. TOBEY

Project
Francis Greenwood Peabody Terrace
Harvard University
Cambridge, Massachusetts

Structural Engineers
Nichols, Norton & Zaldastani

Mechanical and Electrical Engineers
Sidney J. Greenleaf Associates, Inc

Landscape Architects
Sasaki, Walker & Associates, Inc

General Contractor
Vappi & Co, Inc

Jury Comment

Not merely a solution but a breakthrough in the grouping of high and low buildings. The site plan, the spaces between structures, the consistency of scale and the thoughtful facades are some of the elements adding up to a fresh, light quality and unity.

Architects' Statement

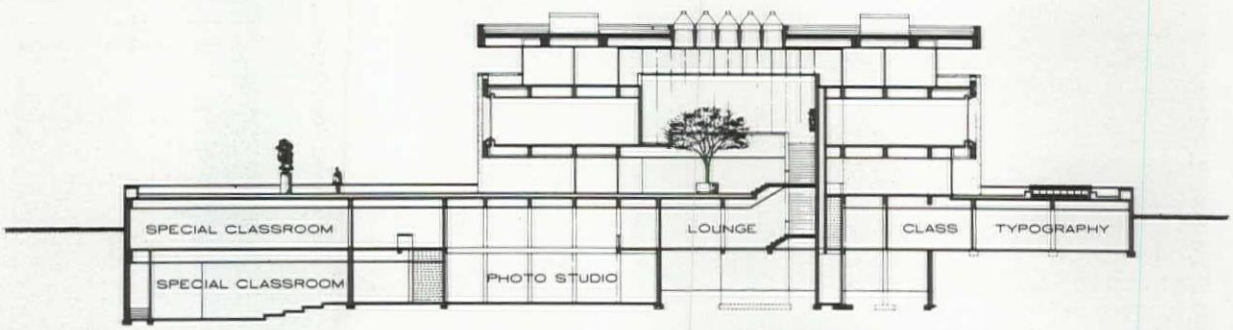
The six-acre site was to be developed for the largest number of student families consistent with proper design standards. Local law required that parking spaces be provided for 70 per cent of the dwelling units. Through traffic was eliminated by the closing of existing streets, and a pedestrian mall was introduced, tying the riverbank to the neighborhood behind. The project was linked to the University's previous residential buildings along the river by similarities of color and scale and court concept.

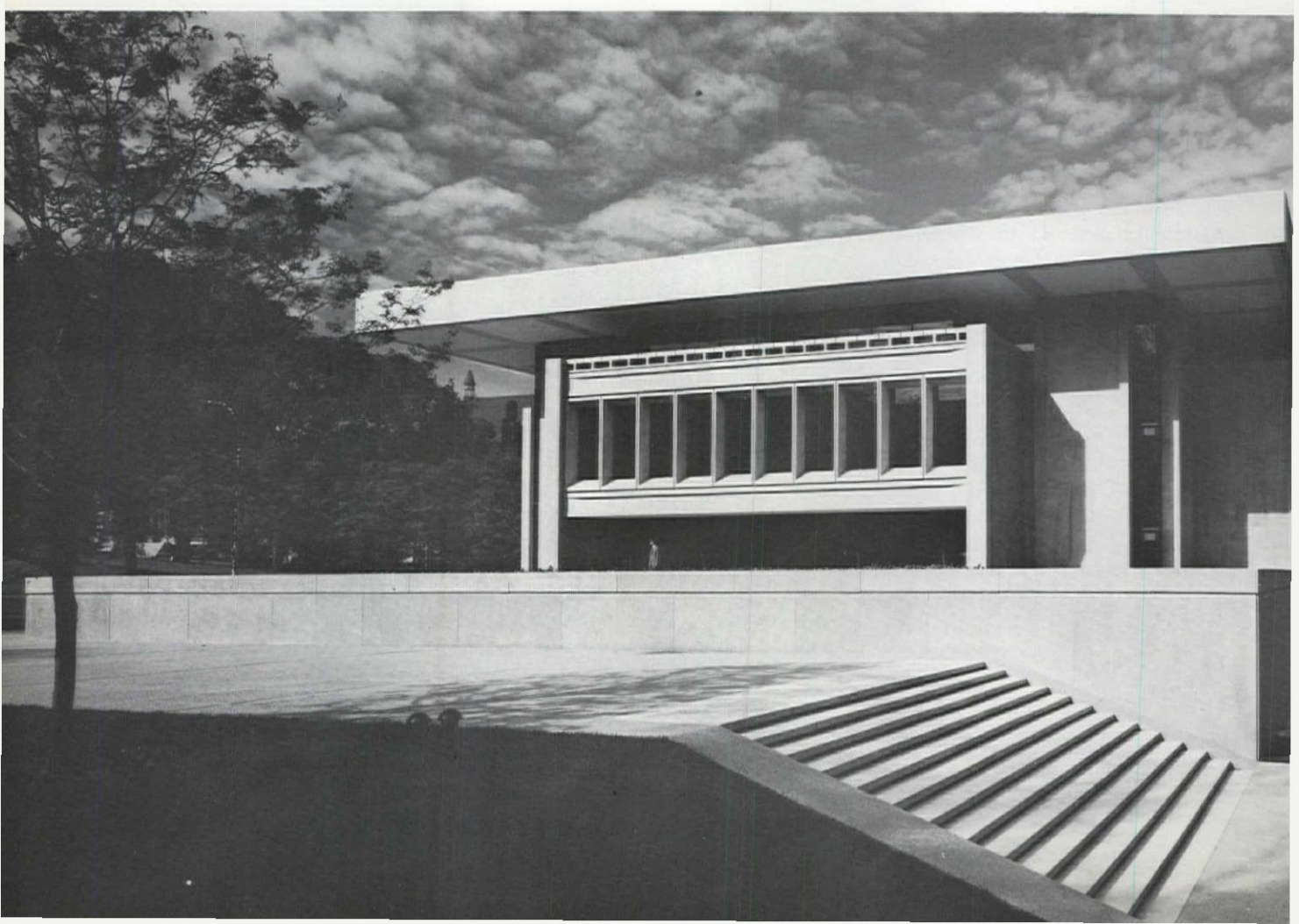
Three 22-story towers were combined with terraced buildings of seven, five and three stories, blending the old scale of the neighboring houses with the new scale of the towers. The first three stories of both towers are walk-ups. Beginning at the fourth floor and above, the apartments are serviced by elevators which stop at every third floor. Five hundred families are housed in a variety of apartment types ranging from efficiencies to three-bedroom units. A plaza in the heart of the building group is designed as the center with a place for outdoor meetings and shows. Several community facilities, a commissary and a 350-car garage are located around the central plaza.

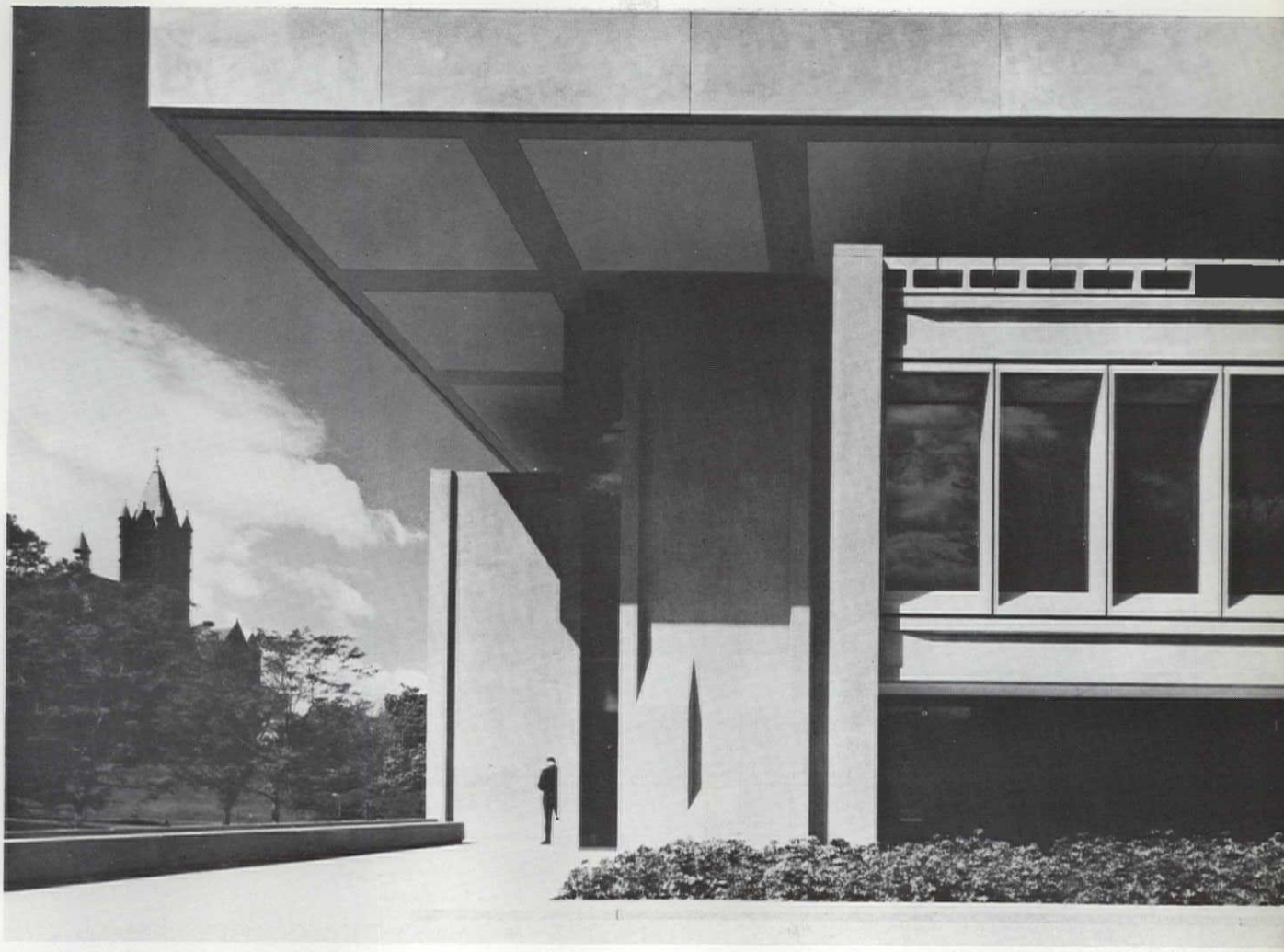
FIRST HONOR

I. M. Pei & Associates and King & King

Associated Architects







Project
School of Journalism
S. I. Newhouse Communications Center
Syracuse University
Syracuse, New York

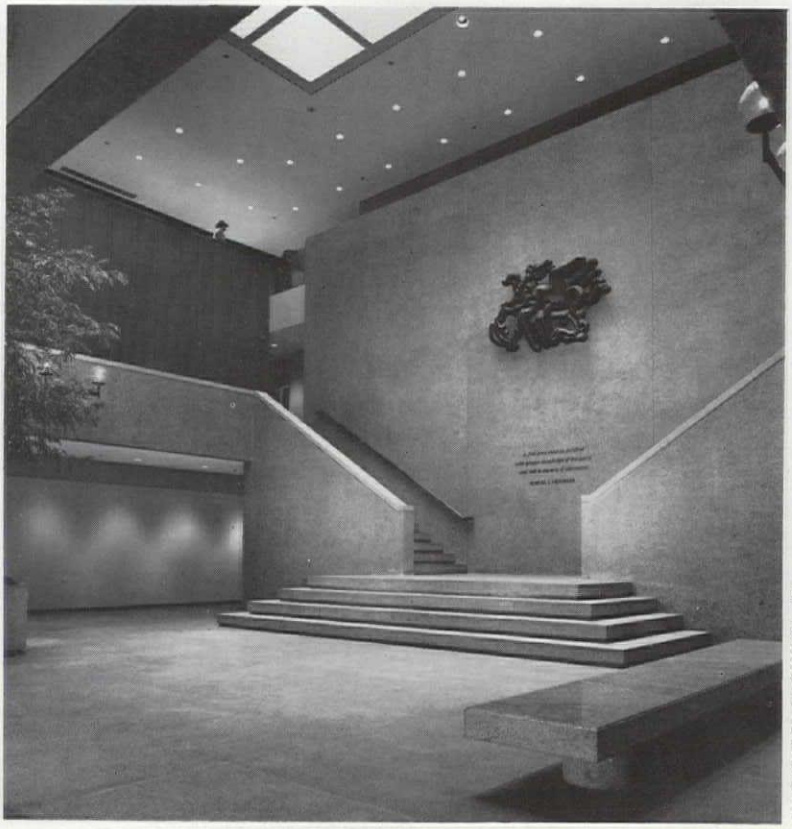
General Contractor
J. D. Taylor Construction Co

Jury Comment

Key structure in an important new campus complex, the building exemplifies a powerful manipulation of mass and plane to enclose space. Its relation to its environment is superb, its materials simple and logical, its detailing excellent.

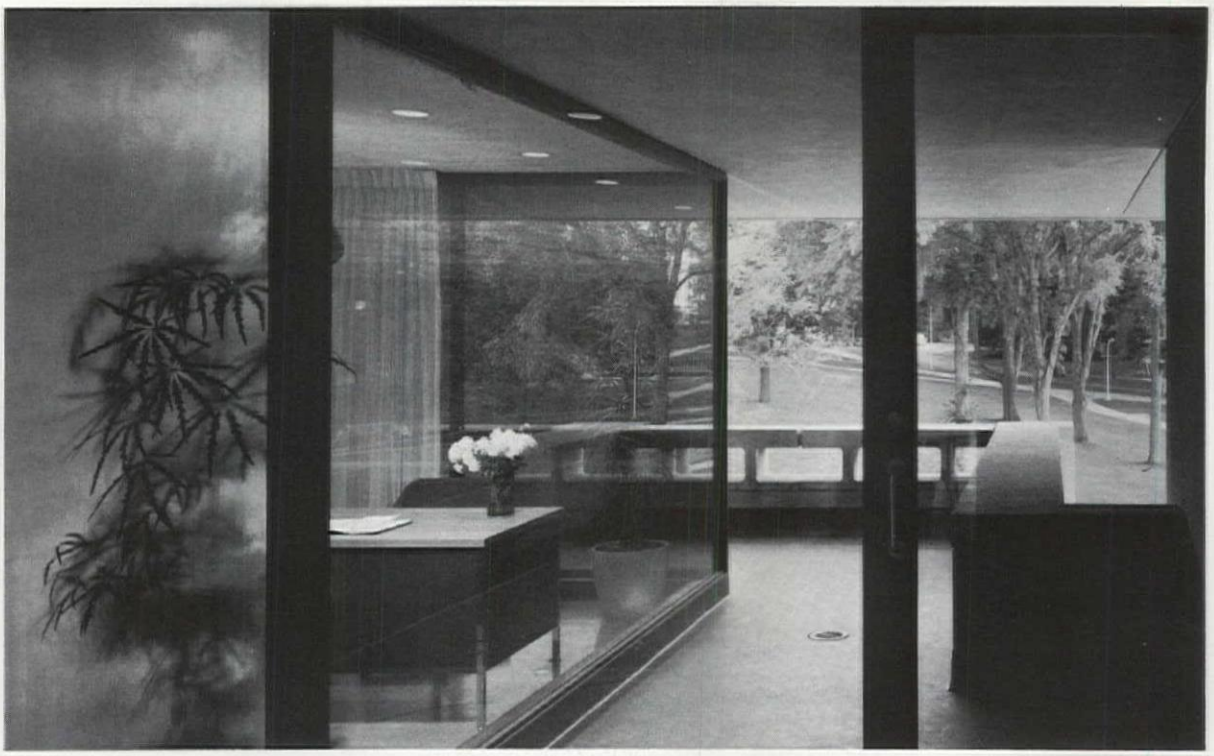
Architects' Statement

It was desirable that the structure be the focal point of, and portico to, the future quadrangle. In addition to providing "a place where teachers teach and students learn, where research in mass media is conducted, and where the history and memorabilia of public communications



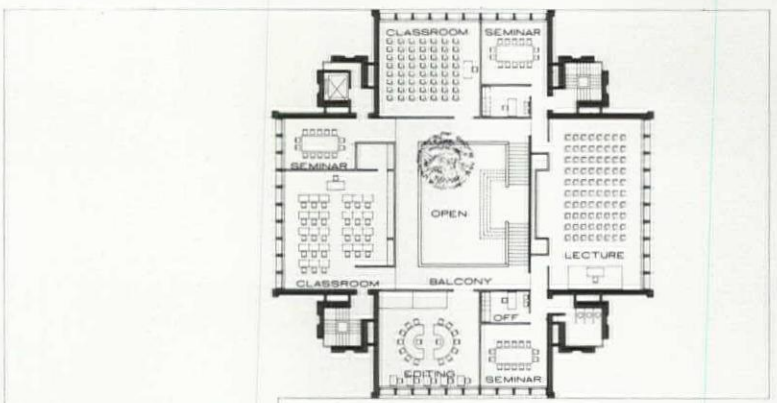
PHOTOS: ROBERT DAMORA, AIA

ROBERT DAMORA, AIA

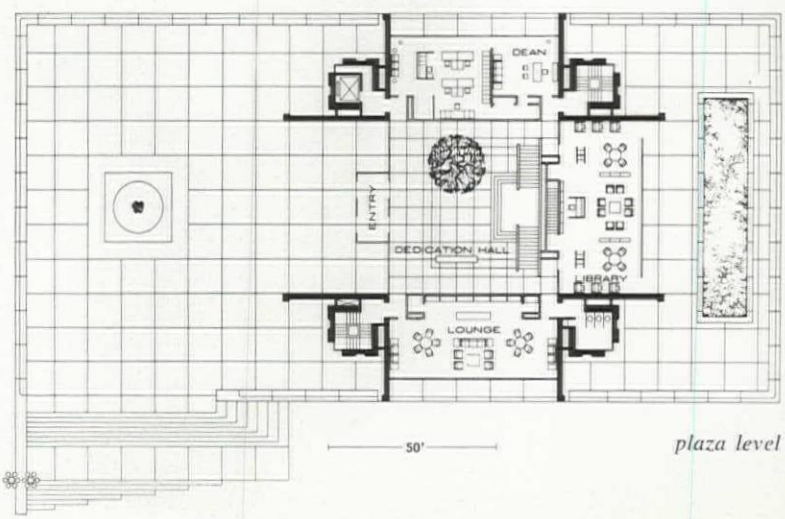


are preserved for future generations," the building had to set the tone in respect to materials, scale and spatial feeling for its yet-to-be-constructed neighbors, providing a compatible unit in spirit with the existing, expanding campus.

The multitudinous programmed space requirements dictated the introduction of the long-span column-free structural system enabling the placement of the semipublic large room on the plaza, the high-ceiling classrooms on the second level and the numerous private offices on the top tier. The exterior facade attempts to reflect the internal functions: low glass walls in those areas where a view is welcomed and where light control is not critical; deep concrete frames where relative solitude and control of unwelcomed light and glare are the criteria. The raised plaza was created as a unifying element for the center, providing an entrance terrace and housing those elements which do not require natural light.



second floor

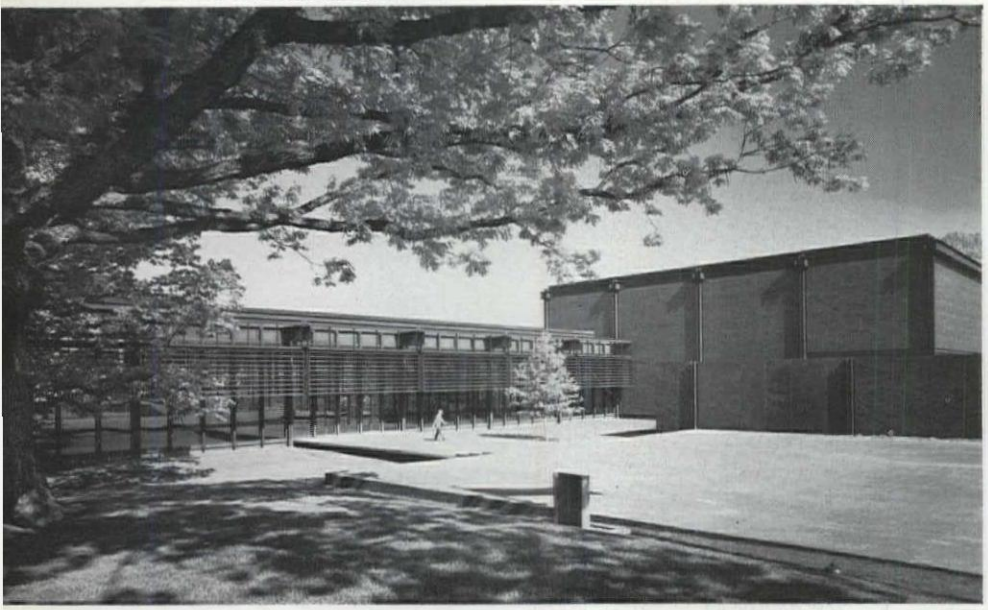


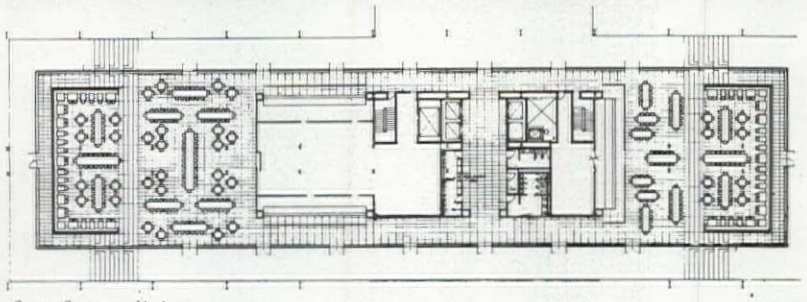
plaza level

PHOTOS: © EZRA STOLLER ASSOCIATES

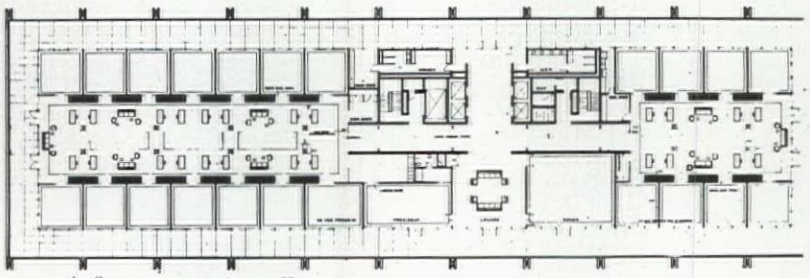
FIRST
HONOR

Eero Saarinen & Associates

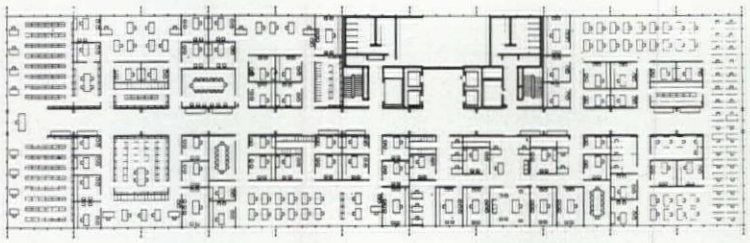




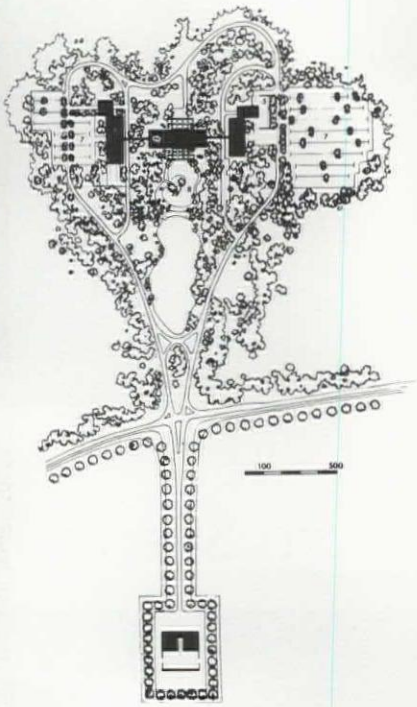
first floor—dining



second floor—executive offices



typical floor—offices



Project
Deere & Co Administrative Center
Moline, Illinois

Structural Engineers
Ammann & Whitney

Landscape Architects
Sasaki, Dawson, Demay Assoc, Inc

General Contractor
Huber, Hunt & Nichols, Inc

Jury Comment

Frank, clear and yet delicate structures. Steel that has formed a self-protecting oxide is used inside and out to give the building a marked unity. Dramatic in its siting as well as in its form, the complex spans a ravine and a stream flowing into a reflecting pool. It is in scale with the people who use it.

Architects' Statement

The design of these buildings was determined by the character of the client—a well-established farm machinery manufacturer—and of the site—600 acres of high table land and low river land, divided by wooded ravines. One appeared the most pleasant and human site for the complex. In such a tree-studded setting intimately connected with nature, a strong, bold structural system seemed appropriate.

The eight-story administration building is placed crosswise on the floor of the valley. At its fourth floor level, glass-enclosed bridges stretch out to the laboratory and the exhibition units on the high slopes of the ravine. The approach is from the valley below, along a man-made lake, and up to the building entrance and the parking lot. Metal-louvered sunshades supplant curtains or blinds which would obscure the view; laminated reflected glass prevents glare. As many employees as possible have an outside view, since most general working areas ring the outer walls, with private offices on the inside.

MERIT

Crites & McConnell

PHOTOS: JULIUS SHULMAN

JULIUS SHULMAN

Project
Ray D. Crites Residence
Cedar Rapids, Iowa

Structural Engineer
Richard G. Whiteaker

General Contractor
Berger Construction Co

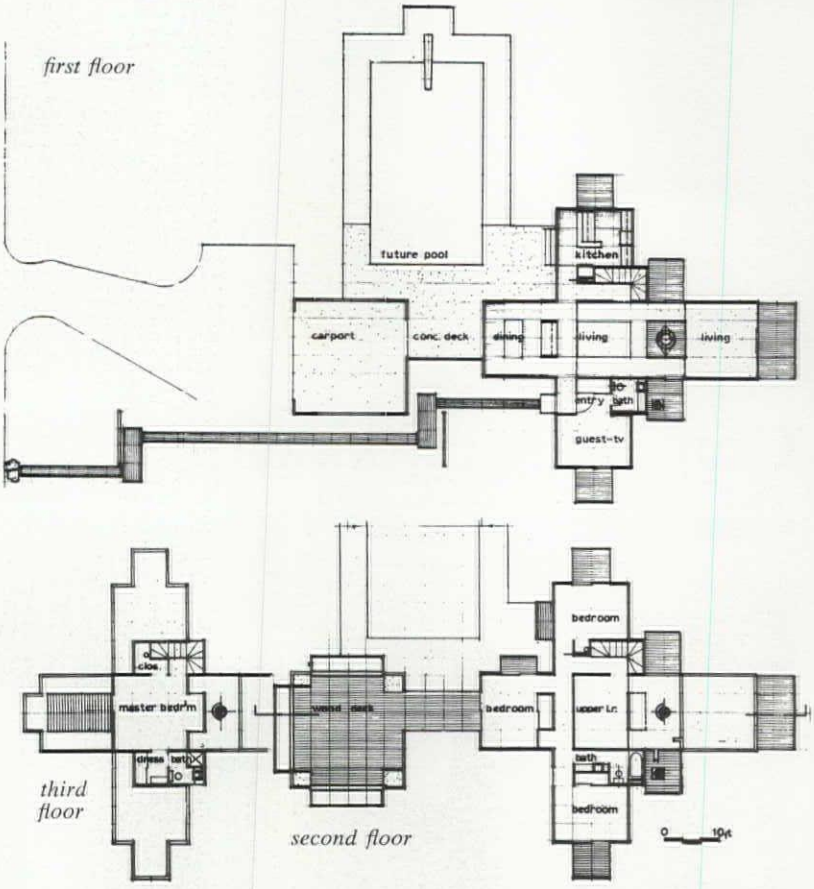
Jury Comment

A variety of living spaces through a playful composition of vertical elements. The house represents a most imaginative use of simple materials both inside and out, and through consistency of materials, its form acquires a sculptural quality. It fits the environment with sensitivity.

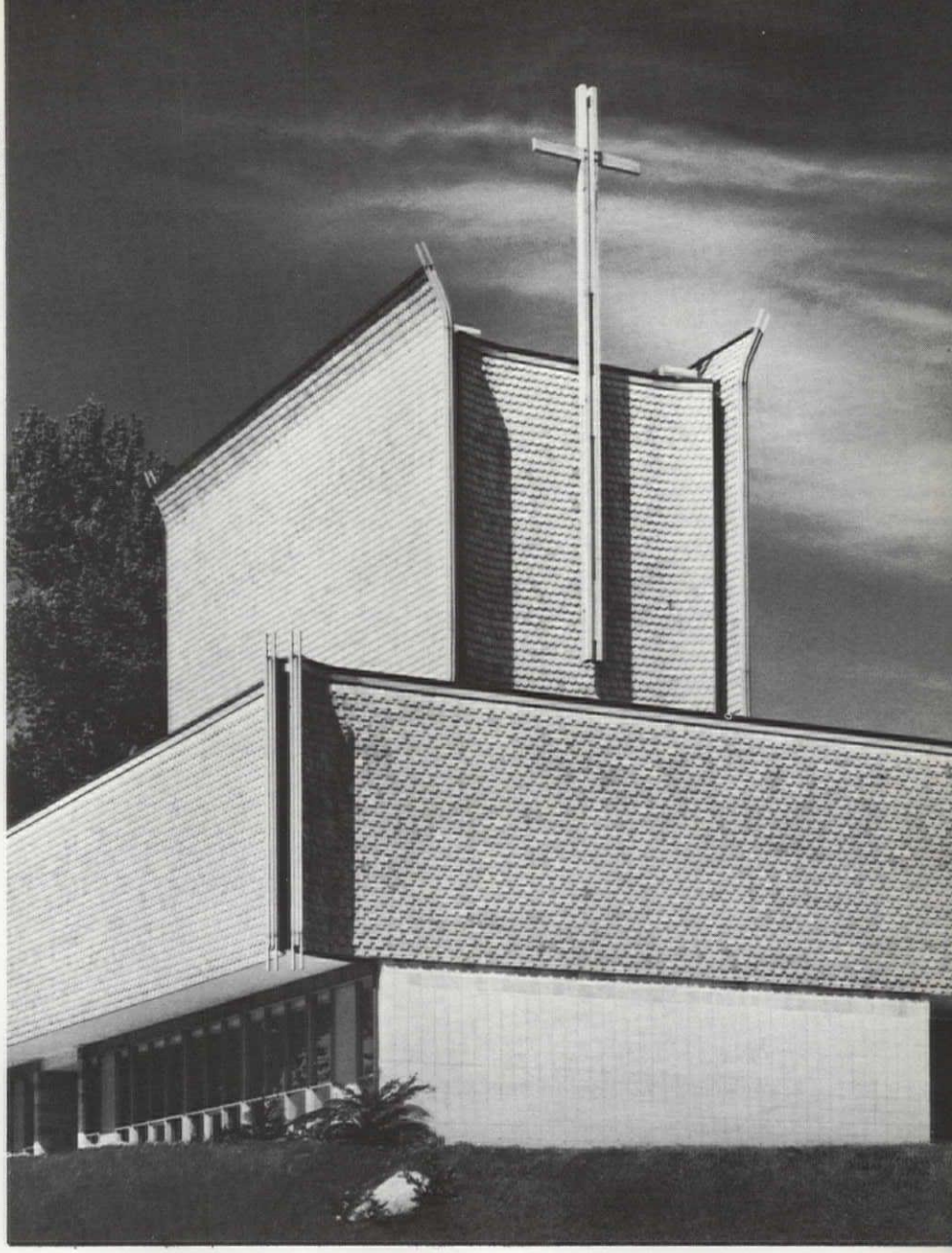
Architects' Statement

This residence is located on a tract of rolling, heavily wooded land and is occupied by a family of five; the children—two girls and a boy—are 12, 6 and 5. The problem was to build adequate space on a limited budget in a way that the beauty of the woodland integrated into the interior. Likewise, the exterior will ultimately blend with its surroundings, since this area of 22 acres will contain 16 other houses in a development which will require that each unit respect the privacy of the others.

The design solution was suggested by the extreme verticality of the trees; the materials were selected from stock cedar lumber components and joined without special milling. Rough sawn cedar was used for exterior siding and, upon completion of the weathering process, will be nearly the color of the tree trunks. Unfinished cedar car siding was selected for most of the interior walls, with the exception of some contrasting areas of white sheetrock. The plank-and-beam floor structure has its underside stained, its upper surface stain-waxed.

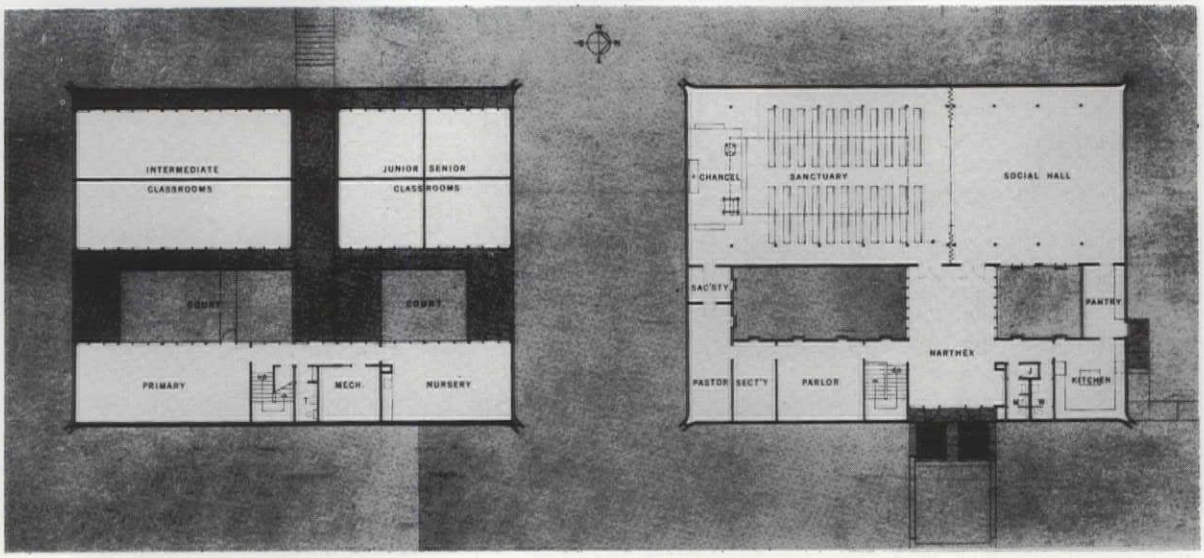


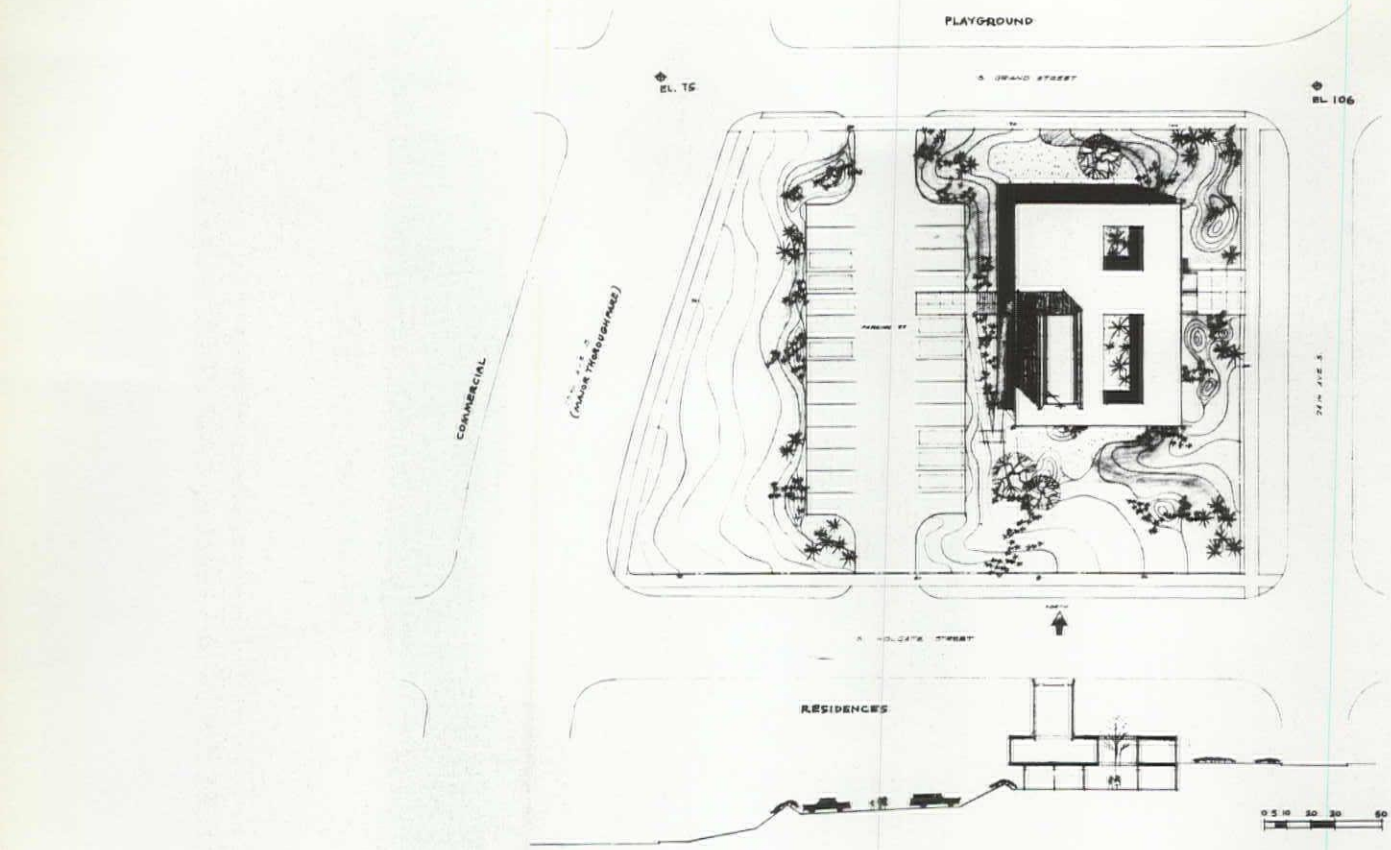
CHAS. R. PEARSON

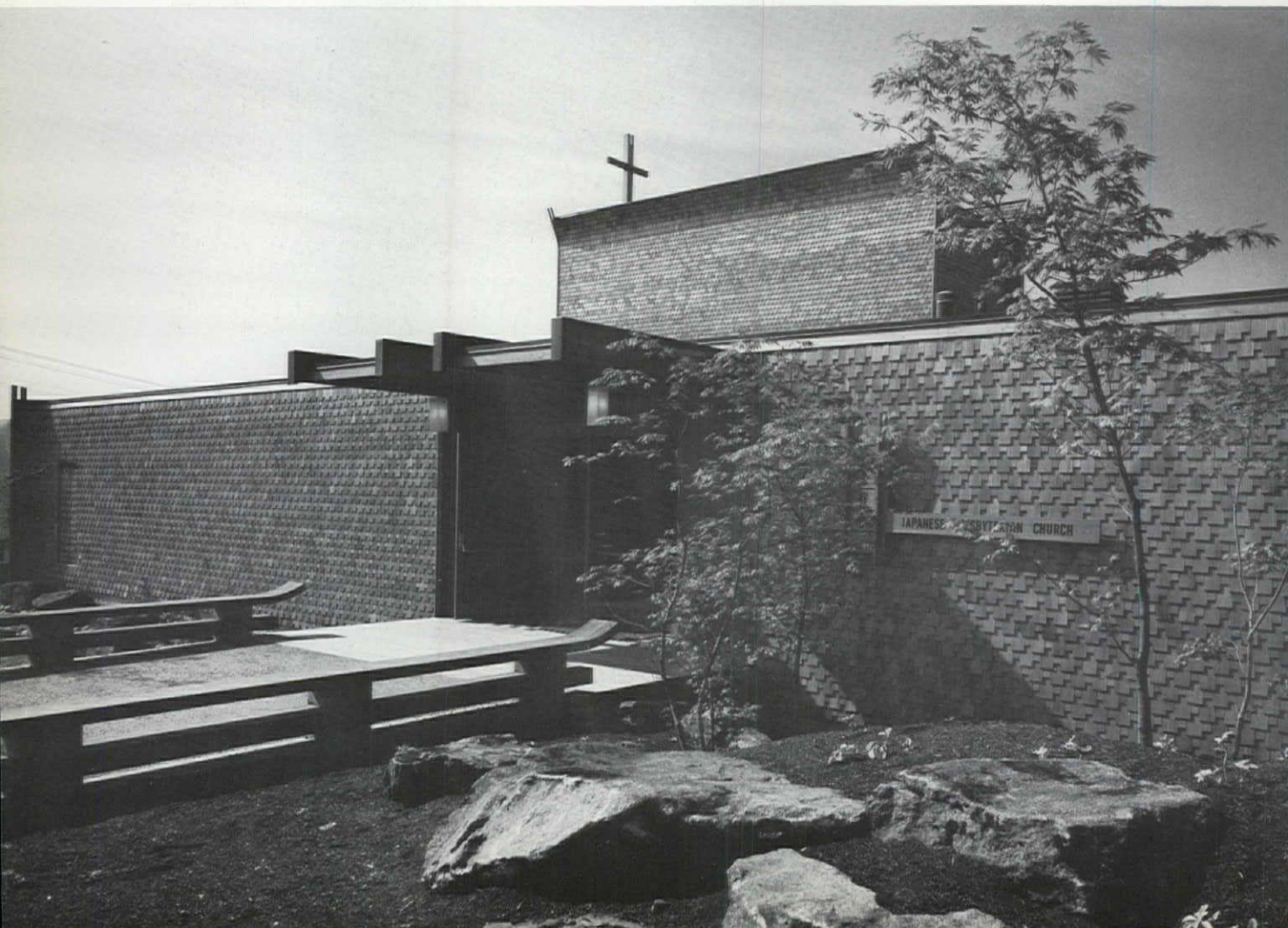


MERIT

Kirk, Wallace, McKinley & Associates




PLAYGROUND
EL. 75
EL. 106
COMMERCIAL
RESIDENCES


CHURCH

PHOTOS: HUGH STRATFORD (EXCEPT AS NOTED)

Project
Japanese Presbyterian Church of Seattle
Seattle, Washington

Structural Engineers
Worthington, Skilling, Helle & Jackson

Mechanical Engineers
James B. Notkin & Associates

Electrical Engineers
Thomas E. Sparling & Associates

Landscape Architect
Robert Chittock

General Contractor
Rudy Simone Construction Co

Jury Comment

A sensitive use of materials and forms natural to the setting and appropriate to a Japanese-Christian congregation. The church has a modest, serene quality. Its strong, simple massing is eased by the shingle textures and subtly curved walls.

Architects' Statement

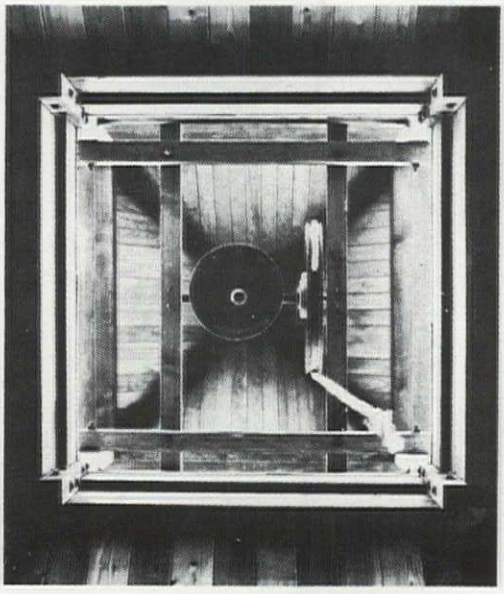
The creation of a religious structure for this client posed intriguing architectural problems: to produce a building that would satisfy the philosophical aspirations of the congregation and to bring forth a Christian symbol inspirational to the community. The concept was to provide a completely enclosed environment. The congregation required a sanctuary seating 200, with an adjoining fellowship hall which would be opened to the sanctuary for the large funerals that are very much a part of the function of this church.

The natural characteristics of the sloping site inspired the contrasting vertical form, and the subtly curved textured walls of the lower narthex and upper sanctuary masses were designed to recall the distinctive designs reminiscent of Japanese architecture. It is intended that the quiet simplicity of textures created by the native shingles will produce an ageless quality for the shapes of the building. The contrast of spaces that have been designed, together with the variety of lighting from courtyards and skylights, hopefully has created an inwardly directed environment of sanctity, truly conducive to religious inspiration.

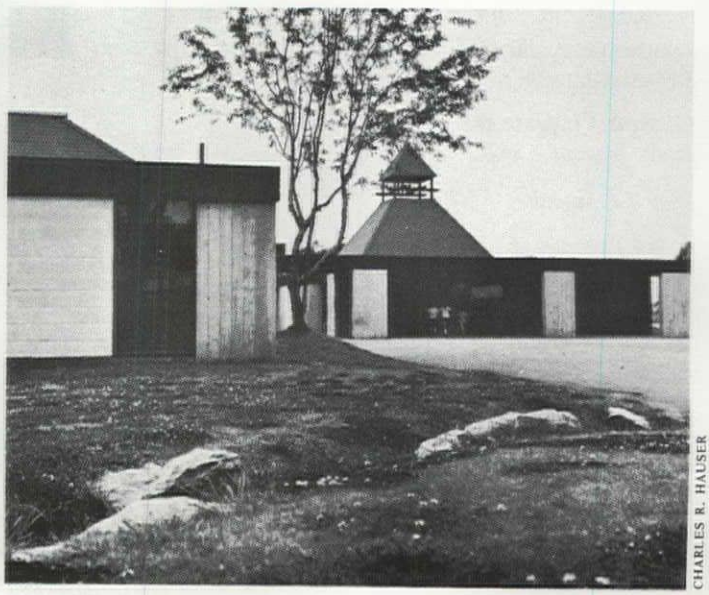
CHARLES R. HAUSER

MERIT

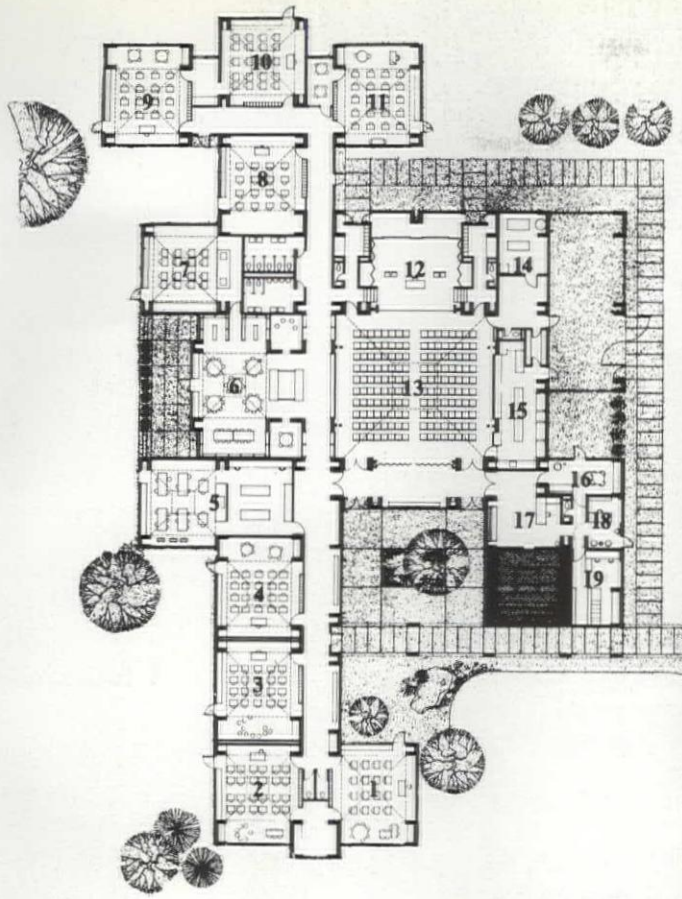
William D. Warner, AIA



WILLIAM GEROLD



CHARLES R. HAUSER



1 first grade
2 second grade
3 third grade
4 fourth grade
5 arts and crafts
6 library
7 science
8 fifth grade
9 sixth grade
10 seventh grade
11 eighth grade
12 stage
13 multi-purpose
14 utility
15 kitchen
16 lounge
17 reception
18 headmaster
19 secretary
20 four year olds
21 four year olds
22 kindergarten

Project
Gordon School
East Providence, Rhode Island

General Contractor
F. N. Gustafson & Sons, Inc

Jury Comment

Sympathetic to the small child is this fresh, village-like organization of an elementary school. A noteworthy example of appropriate scale and a fine expression of a direct use of simple, inexpensive materials, it is a community of spaces well fitted to the site.

Architect's Statement

The school consists of three groups of classrooms clustered about an administration unit and educational resources center, including a library, a multipurpose room, a music room and facilities for art, crafts and sciences. This center opens opens onto a terrace and overlooks a stream and woodland which provide opportunities for the study of nature.

The building is constructed on a modular planning grid of regularly spaced hollow concrete piers which hold up the roofs and eliminate footings except at these points. The piers provide space for wiring and piping to come down easily from the ceiling and also serve as useful, inexpensive places for closets, fire extinguishers, sinks, drinking fountains and trash cans. The spaces between piers are generally uniform in dimension and allow all walls to be selected from a choice of a half-dozen prefabricated panels. The roofline and corridor ceilings are kept low to be in scale compatible with the elementary school child. However, the classroom ceilings peak up in the center as in a tent, with a skylight for natural illumination. Colorful tiles made by the pupils are mounted in mosaic forms at certain areas, and other spaces for temporary exhibits are provided throughout the school.

WILLIAM GEROLD

PHOTOS: JOSHUA FREIWALD

MERIT

Roger Lee Associates *Partner in Charge: Ward Higgins, AIA*

Project
Terrace East and Terrace West Apartments
Berkeley, California

Structural Engineer
Jack Kositsky

Landscape Architect
Tak Sakanashi

General Contractor
C. M. Peletz Co

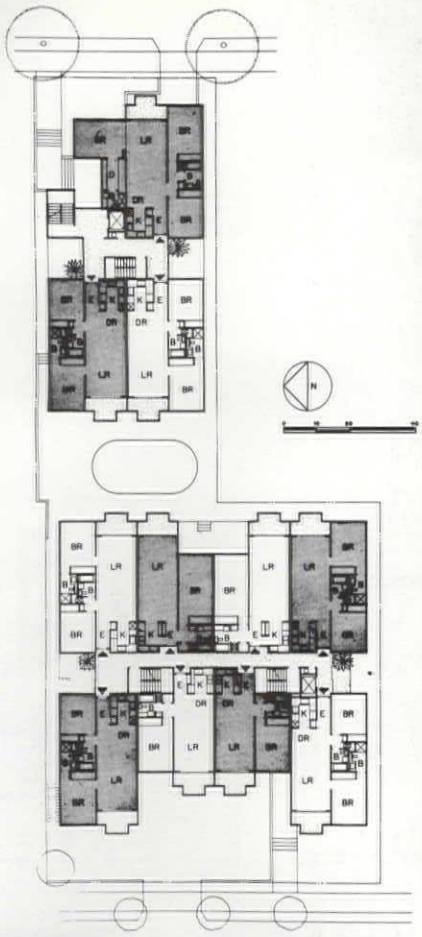
Jury Comment

An example of outstanding multiple housing on a small site. Modest in character and detailed with great care, the project is a compatible addition to its neighborhood. Design interest is achieved by juxtaposing voids—balconies in iron—and surface-smooth windows.

Architects' Statement

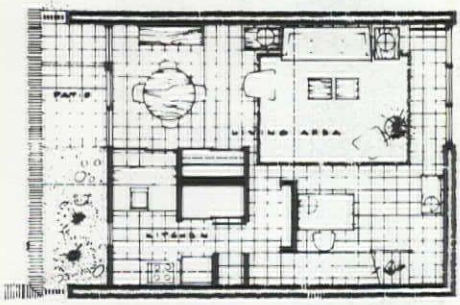
The L-shaped site near a central city area lies in two different zoning districts: the larger west portion fronting on a main street with large commercial and residential buildings; and the smaller east portion fronting on a quiet residential street of relatively small apartment buildings, which face a botanical garden and greenhouse. The site has a 12-foot difference in grade from east to west. It has excellent views in those directions but unsightly ones to the north and south sides of the property.

The solution attempts to be compatibly scaled with adjacent development by providing two structures, large and small, with a common swimming area. There are no windows facing the sideyards; landscaped courts at each end of the buildings provide views and light for bedrooms and public corridors, while major rooms face the desirable views or the central landscaped area. All apartments have balconies which are open for views but partially recessed for privacy. All parking is kept unobtrusive by being placed beneath the buildings and is screened by solid walls. A walk along the north side permits access to the centrally located laundry and pool areas and a convenient route to local shopping and transportation at the west street.

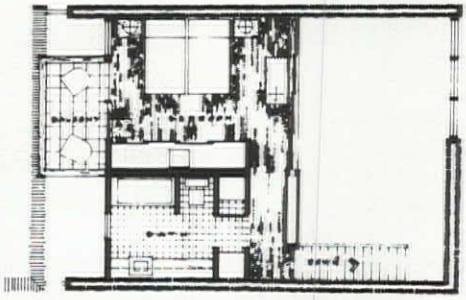


MERIT

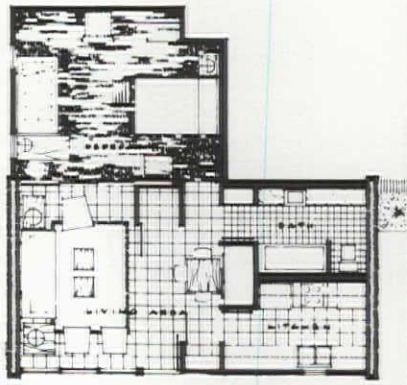
R. Gommel Roessner, AIA



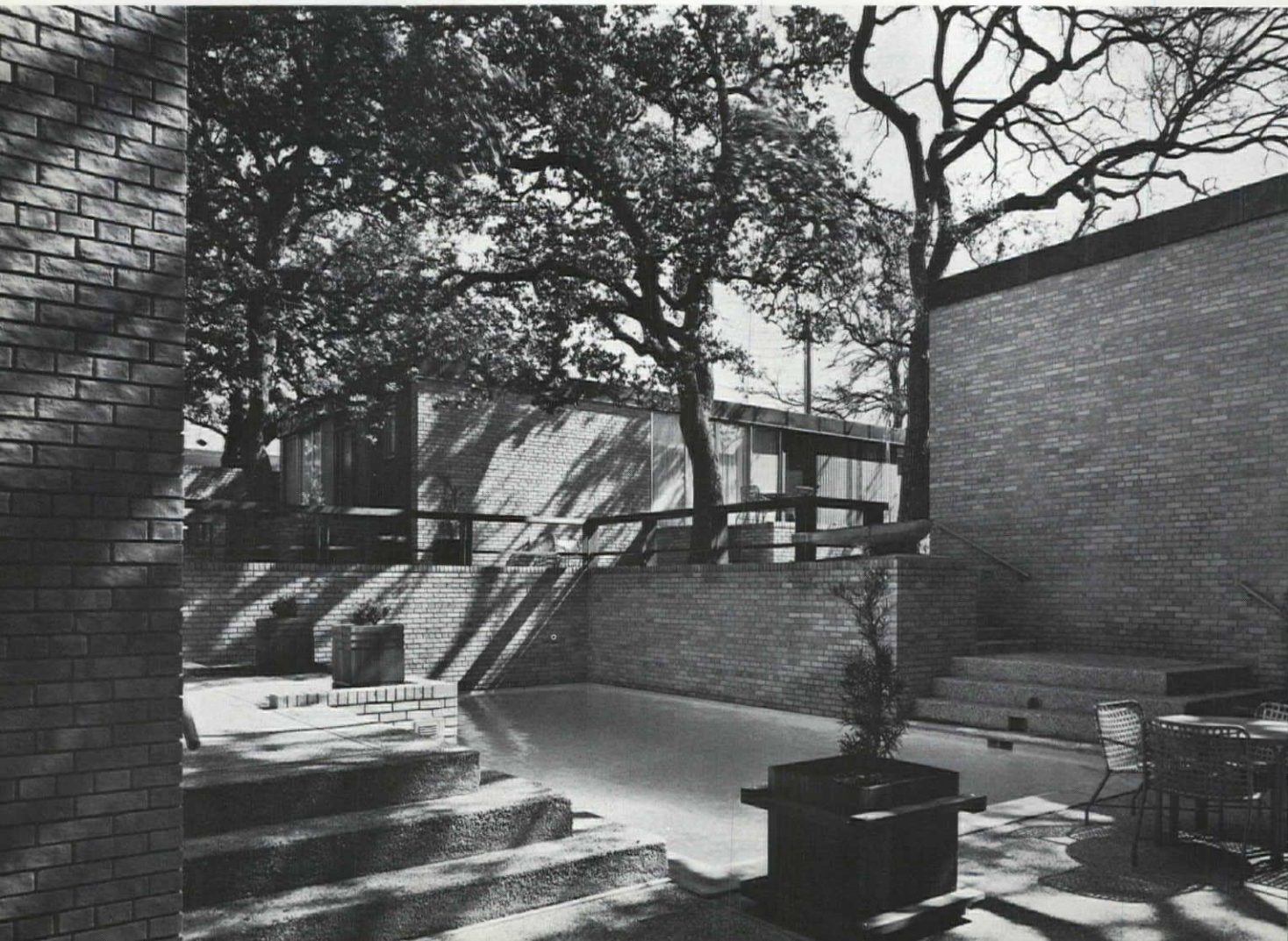
first floor—unit three



second floor—unit three



floor plan—unit two



Project
Oaks Apartment Complex
Austin, Texas

Structural Engineer
George E. Maxwell

Landscape Architect
C. Coatsworth Pinkney

General Contractor
Robert C. Gray

Jury Comment

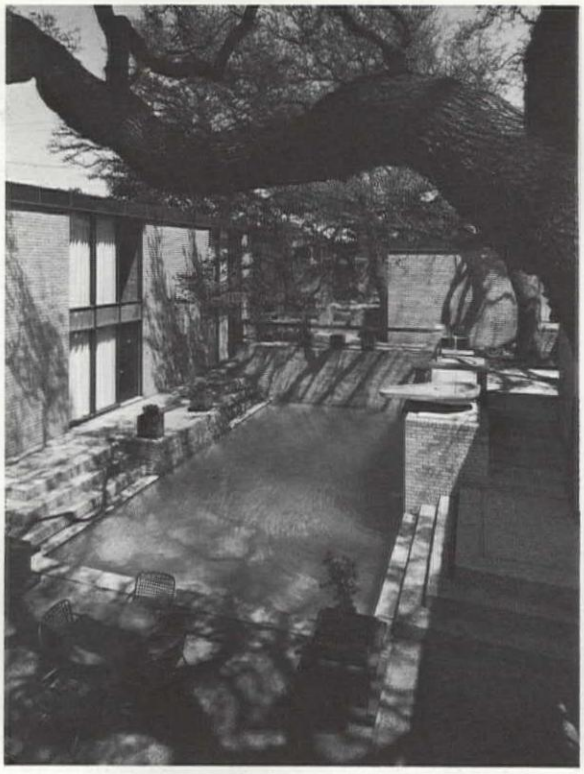
Apartments each with a private view and grouped around an intimate court made exciting by an astounding manipulation of levels. The use of water and preservation of trees produce an urban oasis.

Architect's Statement

The program called for the creation of an environment to produce personal privacy and still maintain an openness of planning on a site studded with large, beautiful oak trees, with a grade-rise of 11 feet from the northwest to the southeast corner. The project was designed in three separate buildings, each apartment being assigned either an enclosed garden, balcony or terrace as part of its own outside living space. The complex was closed from the outside world by brick walls and steel gates with a low copper-covered canopy leading into the large outdoor foyer.

The apartments accommodate three types of spaces to satisfy the desires of various living situations. Type 1—the two-apartment unit on the high point of the site—is an intimate, enclosed space for those persons who enjoy restful surroundings. Type 2 develops the tall and graceful living space with the balcony sleeping area for tenants seeking elegance and a strong sense of exuberance for entertaining. Type 3 incorporates both situations into a given living unit.

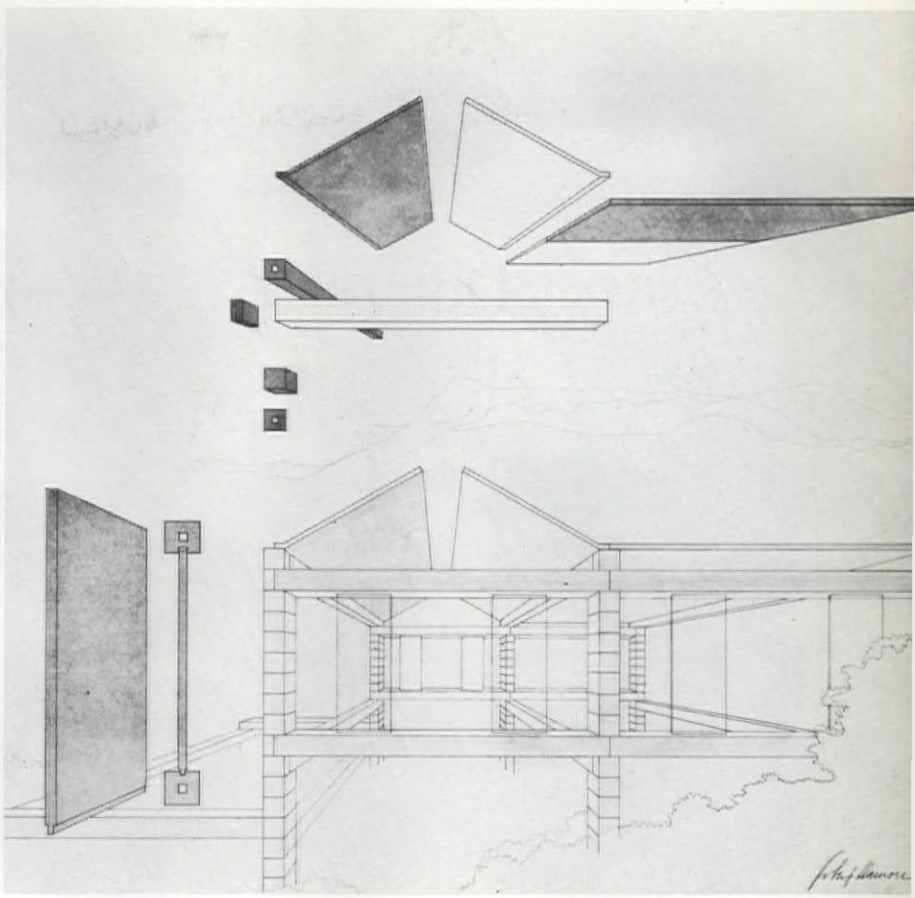
PHOTOS: MEARS



MERIT

Robert Damora, AIA

PHOTOS: ROBERT DAMORA, AIA



Project
Prefabricated Tract House, New Seabury Community
Cape Cod, Massachusetts

Structural Engineer
Sepp Firnkas

Landscape Architect
Suzanne Sissen

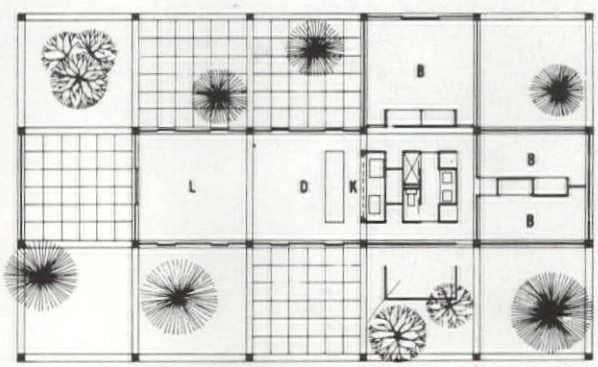
General Contractor
Emil Hanslin Associates, Inc

Jury Comment

Ingenuous and imaginative with a sensitive feeling for the scale of a small house. The use of the structural grid permits great flexibility in this prefabricated project of concrete components, a neat and orderly concept offering a variety of choices.

Architect's Statement

In the main, today's residential construction still adheres to a building philosophy developed centuries ago. The subject house was designed for a projected diversified 1000-unit community and involves the following threefold problem: 1) the use of modern technology to reduce the cost of materials and labor and hence increase space and quality; 2) the cost efficiency of mass-produced component parts and the flexible assembly of these parts into an unlimited number of varying houses to satisfy individual planning, siting and topographic requirements; 3) a final realization that beauty and human need are paramount in residential design. The problem's resolution lies not in this single house but in the re-evaluation of residential design and the development of an updated process of building that relates to today's living needs, industrial potential and economic efficiency.



The structural system is a rigid frame assembled from six precast post-tension concrete components which are site assembled to meet varying planning, site and topographic requirements; enclosure walls for both exterior and interior use consist of aluminum framing with glass or insulated panels; roof and floors consist of precast prestressed insulated concrete panels. The mechanical system is designed for year-round occupancy in the New England climate; the structural system incorporates hollow centers that act as a continuous mechanical-chase system. Rooms may be added or subtracted to coincide with family growth and changing planning requirements.

MERIT

Clark & Beuttler

Project
Headquarters Building for Citizens Federal Savings and Loan Association
San Francisco, California

Structural Engineer
H. J. Brunnier

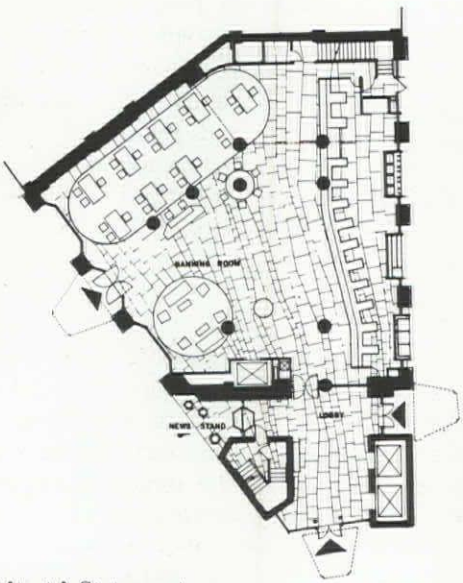
Mechanical and Electrical Engineers
Keller & Gannon

Landscape Architect
Lawrence Halprin

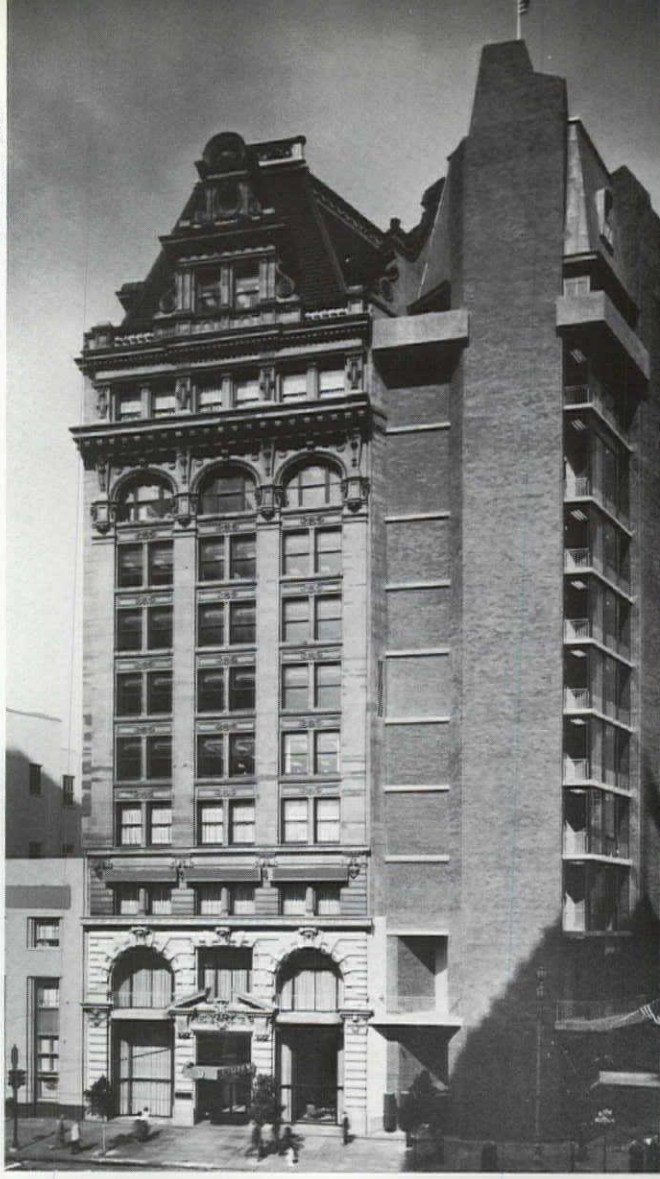
General Contractor
Joseph L. Barnes Construction Co

Jury Comment

An addition to a fine old building conceived in empathy. The result is a solution rarely achieved under such circumstances. The old is enhanced by the new, and the new is graced by the old.



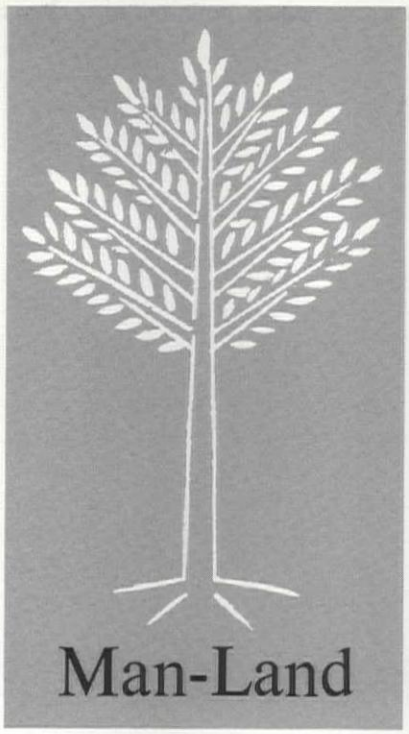
PHOTOS: MORLEY BAER



Architects' Statement

The client owns a building which is a local landmark and, though not a historic monument, has a certain substantial turn-of-the-century character. The client also owns the adjacent 1000-square foot gore corner. The 12-story building, which went through a severe earthquake without structural damage, has great public relations value for an institution founded in the last century. Among six schemes evaluated was one calling for complete demolition. The adopted concept was dubbed the "core on the gore."

A ribbon pattern of 4-foot fluorescent tubes, set parallel to one another on the ceiling, starts in this lobby and leads the eye into the banking room. On the street are a newsstand, telephone booths, a flower shop and a shoeshine stand with gay awnings. The new core consists of brown brick-faced shafts—elevator and stairs—separated by glass lobbies. Day and night a tower of light, formed by the lobbies stacked one above the other, accents the corner. In appearance the addition is of today; it echoes the old building but does not ape it. The new addition allows the existing structure to be gutted and airconditioned and to yield maximum usable space.



The Man-Land Relationship

BY JOSEPH E. HICKEY

Restore the long-lost equilibrium, says the regional planner of the Connecticut Interregional Planning Program, and regain society's health

A LANDSCAPE is the product of the interaction, in varying form and degree, of man and land. The human or cultural imprint illustrates the genius of that society, its aims, purpose and structure, while the natural or physical presence is expressed through the variety, relief, monotony or other peculiar structural features of the land. Either element can dominate the landscape, depending upon its relative prominence in a given area. At one extreme there is the inhospitable polar region or desert where man's foothold is tenuous and his imprint barely discernible; and at the other the large, fertile alluvial plain where man's works dominate.

Most landscapes are at neither extreme however. In the average countryside man and land have interacted and almost literally become a part of each other. The "good land" is man's sustenance, and the far hills the subject and inspirer of his dreams and poetry. Through centuries of experimentation man has tried all of the land and has finally concentrated his efforts on the best soils, leaving the poorer land for pasture or as forest. In its best form such a landscape reaches an equilibrium with nature, with as much returned to the soil as is removed. Man and land are in harmony with each other, and the arrangement of physical and cultural features shows this harmonic pattern.

Such harmonic landscapes are found throughout the world wherever a beneficent nature and a stable agricultural society have been able to collaborate. Whether in Kent, the "Garden of England," or in the monsoon alluvial civilizations of East Asia, the same basic phenomena are seen: equilibrium and harmony. Differences in type of response to the land simply reflect the outlook and traditions of the particular peoples involved.

Within this pattern the village and, increasingly, the city played an important role. These agglomerations of population grew out of the surrounding landscape and thus were true regional centers, the culmination and apex of local culture. Here were concentrated the artistic, religious, political and economic developments of the society.

A Worldwide Breakdown

In the last two centuries there has occurred a breakdown in this organic man-land relationship, beginning in the Western World and now spreading everywhere. The start of this change has been equated with the forces unleashed by the Industrial Revolution, although the roots lie further back in history. Perhaps the problem emerged with the rise of capitalism when the conception of land changed: "When land became a commodity, not a stewardship, it passed out of any kind of communal control." [1]

With the Industrial Revolution many new urban agglomerations grew up overnight, commonly with little relation to their environment. Also the improvement in transport and communications removed any limitation to the increase in city size and thereby often broke the last links binding

[1] Lewis Mumford, "The City in History," New York, Harcourt, Brace & Co, 1961 p 416

towns with their hinterland. Thus the city became a self-contained island, sustained only by the rails connecting it with other cities and with its back turned to the surrounding countryside. As Dawson charges, the city was no longer a part or servant of its own region—nor organized primarily as a place for its citizens to live. It was now a place for the production of wealth.[2]

In addition to causing this rupture in the urban-rural relationship, the city itself became characterized by its lack of order and ugliness. In this bleak milieu the struggle of the fittest to survive went on from day to day, unrelieved by any traces of beauty. The economic position of the poor was possibly no worse than in previous centuries, but the lack of opportunity to enjoy beauty or environmental harmony assuredly impoverished them spiritually.

The last half-century, although seeing the removal of many of the social and economic abuses of the previous century, has also witnessed the growth of suburbanization, largely an attempt to escape the undesirable aspects of the typical city in Western society. This well-documented and much-decried trend has given many people improved living conditions (at least temporarily until the weather and the passage of a few years expose the quality of these largely jerry-built structures), but it has undoubtedly been a visual blight upon the landscape. Whereas the nineteenth century city was characteristically small and compact, the mid-twentieth century city spreads its scrofula of mediocrity over vast stretches of land. The end result is that the average man is further removed from opportunity of contact with his native countryside.

What has happened to the once-harmonious man-land relationship? It appears that the former healthy balance has been destroyed and that man's world, in the guise of the city, is not only growing disproportionately in relation to the physical environment but also bent on devouring it. Man and nature are no longer partners—man is now the dominant, a plunderer crazed by his search for new wealth and judging everything according to its ability to provide him with such wealth. The clarion call of outraged conservationists has helped end some of the worst abuses of this type, ironically through appeal to man's sense of self-interest, but until recently little heed has been paid to the destruction of esthetic resources or those appealing to man's spirit.

Man's Great Conditioner

Accompanying this disorganization in landscape forms there also appears to be evidence of social disorganization both on an individual and a group basis. Is it possible that this is simply another symptom of the same problem, in this case a human reaction to the chaos of the times? In view of the increasing proof that man's responses are conditioned to a great degree by his environment, it is particularly noteworthy that today many of the more intelligent, sensitive members of society should feel alienated and that the "antihero" is the favorite figure of current literature. It surely does not seem a sign of a healthy society.

Giedion stated that today's social disorder is an inheritance from the Industrial Revolution, with today's maladjusted, unintegrated man the product of a century-long rupture between thinking and feeling.[3] Many feel also that contemporary artists and scientists have lost contact with each other, with this split between science and art perhaps causing much of the antiscience undercurrent in our society. Science and its associated technological civilization have indeed been able to provide bread for man, but they too often seem incapable of meeting the higher needs and aspirations of man.

What is the significance of this change in the man-land relationship and what further changes does it portend? In particular does the deterioration of the physical environment mirror the condition of society as a whole and perhaps indicate its future course? Many observers from a multitude of disciplines have analyzed the situation from all angles and have reported conclusions covering an equally broad spectrum of opinion. Nevertheless, two basic schools of thought can be discerned: those who see nothing greatly wrong and those who have serious doubts about the future.

Most of those who are either favorably disposed or neutral concerning these developments have uncritically accepted them as a given without attempting to pass judgment on the merits of this change. At best these spokesmen preach the need for some visual order in the future environment, to be formed from the fusion of the city and the countryside. Perhaps they are correct in submitting to the presumed inevitability of this trend, but the desirability of the trend itself can and must be evaluated. In particular the question as to whether this environment will be able to satisfy all the needs of man must be answered.

A particularly optimistic observer was the late French Jesuit scholar, Pierre Teilhard de Chardin. Pierre Teilhard with his rare insight stated that this is an age of transition and therefore intellectually, politically and even spiritually troubling. To illustrate the significance of this break, he quotes Abbé Breuil as follows: "We have only just cast

[2] Christopher Dawson, "The Dynamics of World History," New York, New American Library of World Literature, Inc, 1962 p 193

[3] Siegfried Giedion, "Space, Time, and Architecture," Cambridge, Harvard University Press, 1952 p 11

off the last moorings which held us to the Neolithic Age." His feeling is that man's further evolution will be mental and social and furthered by his agglomeration, which will cause "mankind to reflect upon itself." [4]

The Metropolitan Beehive

If this theory is correct we must expect unsettled times as old forms are cast off before new ones can be molded. Perhaps man has broken his millenia-old tie to the land and is rising into a new level of existence, that of life in the metropolitan beehive, with its stimulating yet exhausting environment.

On the other hand many people see a great danger in the destruction of landscape. This school of thought insists that beauty and harmony in environment are necessary to man for the satisfying of all his needs. Fairfield Osborn stresses the need for environmental "habitability," stating that a habitable place "connotes a living place that is practical for both work and leisure, that is healthful and that contributes to a sense of happiness." [5]

Kevin Lynch, who has done much pioneering work in environmental imageability, makes a number of comments in this regard. He feels that a harmonious environment is not only desirable but essential to man: "The need to recognize and pattern our surroundings is so crucial, and has such long roots in the past, that this image has wide practical and emotional importance to the individual." [6]

This environmental significance to man applies to society as well as to the individual. Lynch again says that an "accordant and integrated physical setting, capable of producing a sharp image, plays a social role as well—furnishing the raw material for symbols and collective memories of group communication." Further emphasis is given by a recent publication of UNESCO, which states "that landscapes and sites, on account of their beauty and character, are necessary to the life of men for whom they represent a powerful physical, moral, spiritual, and regenerative influence, while at the same time contributing to the artistic and cultural life of peoples, as innumerable and universally known examples bear witness." [7]

These critics of the present scene vary in the degree of their opposition. At one extreme are those influenced by Spengler's theory of the life-cycle of civilizations. From this standpoint urbanization is a sign of maturity and approaching old age. One historian states that "no civilization has been able to resist the destructive effects of urban and bureaucratic centralization. It has well been said that the great city is the grave of a culture." [8] To such scholars urbanization and the accompanying human and environmental wastage signify internal decay in the social organism; the society may be prosperous and powerful, but its wellsprings of vitality and spontaneity are drying up.

The Lowest Common Denominator

Other observers are simply repelled by the visual chaos of the modern city. The relentless, glacier-like advance of this urban tissue, swallowing up more and more countryside, excites these spokesmen to greater efforts on viewing the removal of all local flavor through the blending of city and country and the reduction of both to the lowest common denominator. This feeling that quality is being sacrificed in favor of sheer quantity is perhaps best summed up by Mumford's statement that "The form of the metro is its formlessness, even as its aim is its aimlessness." [9]

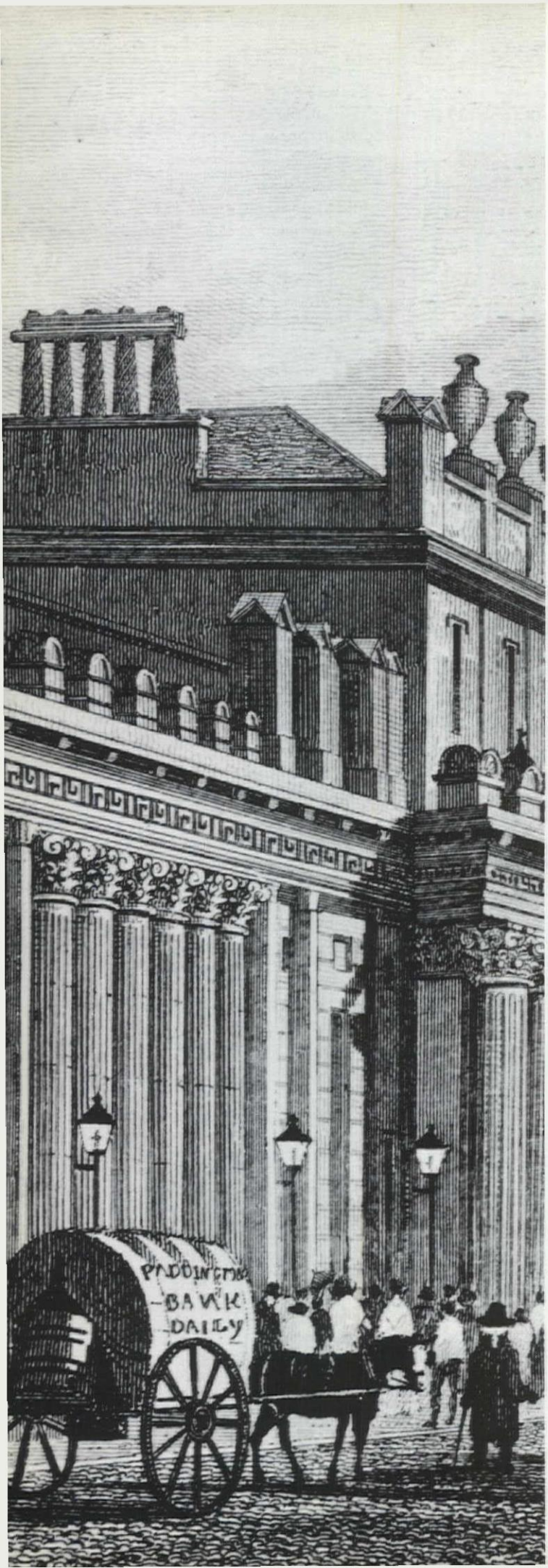
Caught amidst all these conflicting claims and theories, it is difficult to decide what to believe. It may be true that our increasing urbanization is a sign of our maturity and eventual decay. It may also be true that our urbanization is the new form of a progressive future. The only point of agreement is that this is a period of change, with all the tensions and insecurity typical of such periods.

Nevertheless, it is impossible for a society to stand still or attempt to push back the clock. Caught up in the dizzy pace of our complex culture, we can do no other than hang on and hopefully steer the juggernaut in a desired direction. The advantage of such a society is continual change and growth—the price paid for that advantage is a lack of security and permanence. We can be seen to occupy an exciting position in history, a position of danger but also of challenge where there is much to lose but also the potential for great accomplishment as a society.

If we decide to accept the challenge, we must make the most of our inherent cultural potential. To do this Western man must look into his subconscious, or "group soul," to try to understand his needs and longings, his strengths and weaknesses. In so doing he may achieve his reintegration and be better able to chart his future course. The resulting collaboration of arts and sciences, feeling and intellect could restore the long-lost equilibrium required by a healthy society. The salutary effect on the appearance of our physical environment would also be an evident and welcome result of this rapprochement. ■

[4] Pierre Teilhard de Chardin, "The Phenomenon of Man," New York, Harper & Bros, 1959 pp 212-214, p 287
[5] Edward Higbee, "The Squeeze," New York, William Morrow & Co, 1960 foreword
[6] Kevin Lynch, "The Image of the City," Cambridge, Technology Press & Harvard University Press, 1960 p 4
[7] UNESCO Draft Recommendation Concerning the Safeguarding of Beauty and Character of Landscape and Sites, General Conference, Nov 9-Dec 29, 1962 p 14

[8] Dawson, *op cit*, p 221
[9] Mumford, *op cit*, p 544



Pitfalls
and
Plausibilities
of

Landmarks Preservation

BY ROBERT C. WEINBERG, AIA

Not every reader will be in accord with all of the author's views, but they contain much to ponder and to discuss; surely preservation must be made practical in order to become possible on any wide scale

THERE has been a genuine spurt of interest on the part of the public in the preservation of its landmarks. The autumn of 1964 was marked by an officially proclaimed Landmarks Preservation Week as part of an "American Landmark Celebration" from August to November 1964. The HHFA published "Historic Preservation Through Urban Renewal," while the Council of the City of New York has established a permanent Landmark Commission with legal power to protect designated buildings and districts.

The nation has been roused by books and articles. The press has taken up the hue and cry to save this or that building from destruction. Money is being raised, committees formed. In fact, there is finally a realization on the part of the people of the United States that they have a past worth preserving, a tradition worth continuing and that there are man-created works of art in scenery, in landscape and in urbanism, as well as in architecture, which must not be allowed to be lost to the generations to come.

This is all to the good. But if we examine closely just how these acts of preservation are to be accomplished and what are the items of supposed esthetic or historic significance which are selected as the rallying cry for these campaigns, one sometimes wonders whether the public may not have gone overboard in its enthusiasm and misdirected some of its efforts. It is here that the architect may be of help to his community not only by examining carefully the merits of the building or open space considered for preservation but also by reviewing the method proposed to effect it.

Unfortunately, the architect is not always asked to advise at the outset. In fact, if he is called in at all, it is more likely as an afterthought.

When some committee has managed to stop the demolition, has acquired the site and raised the money, an architect is finally asked to estimate the cost of the restoration job whose necessity, desirability or method will by then have been decided by laymen. The architect should not wait until called in at this late stage. He should take part in the movement at the very outset, as a member either of the ad hoc committee formed for a particular piece of preservation or of the continuing committee. In this position, his advice will be available on the matter of selection as well as on the method of preservation.

It may be that the property in question is not worth "saving" or that it cannot be used for any conceivable contemporary purpose; it may be economical to restore and useful in itself but would be out of place in its present location, suggesting the alternative of moving it elsewhere. Should any building that is old be kept merely because of its antiquity, or should any building that happens to have housed a celebrity be saved if it is of neither architectural nor esthetic significance; would not a simple plaque do in its place?

These are all questions which should be answered before any decision is made to acquire or restore. An architect, whether retained as a consultant or acting as a member of a voluntary committee, should make himself heard as soon as the issue is raised. We went through this sort of thing in New York City when the temporary Landmarks Commission was created. It included some very able members, several of them architects, who grappled with such questions and who were often embarrassed by the well-meaning efforts of lay citizens, particularly politicians, who jump into any local fight to preserve anything at all if they can make an election issue out of it.

I have watched a number of the things that have been happening in and around New York and have noted my personal reactions. These thoughts on the subject are not all-inclusive and hopefully not arbitrary, nor do they propose any specific remedies. Rather, they may serve as a sort of checklist for those in the profession who find themselves involved in preservation efforts. They should be regarded as mere footnotes or addenda, moreover, to the excellent summary of objectives for the preservationist given by Robert J. Kerr II at the end of his article "Historic Preservation—A Pragmatic Approach" in the April 1964 issue of the AIA JOURNAL. His piece sets the sights; I only try to follow through.

For one who remembers the feuds, in architectural school and early practice, between advocates of "conventional" vs "modern" design, and for one who in those days preached and fought for the latter, I am somewhat surprised to find myself, now, so concerned about the preservation of the good architecture of our past, even our immediate past—as immediate as the great period of post-renaissance during the first decade of the twentieth century when the firm of McKim, Mead & White built their masterpieces. The needless demolition of Pennsylvania Station, when its exterior colonnade at least could have been preserved intact in relation to a new, more economic and possibly more efficient use of the interior, symbolized the point of change for me. It was the jolly experience of participating in a picket line in front of Penn Station in August of 1962 that really set me going as champion of still another cause which I hope will not be a lost one.

Before listing some of the architectural and urbanistic questions that should be raised—and their esthetic, moral and social implications—let me say a word about the so-called "practical," administrative aspect of preservation in a nation where government seldom takes the initiative or foots the bill. Among the questions we must think about in preservation, therefore, is the cost of doing it. This may be expressed in various ways. One of these is the price that must be paid for the property by some voluntary association when no useful economic future can be found for it

Fig 1—Robie House: "let the building just stand that way"

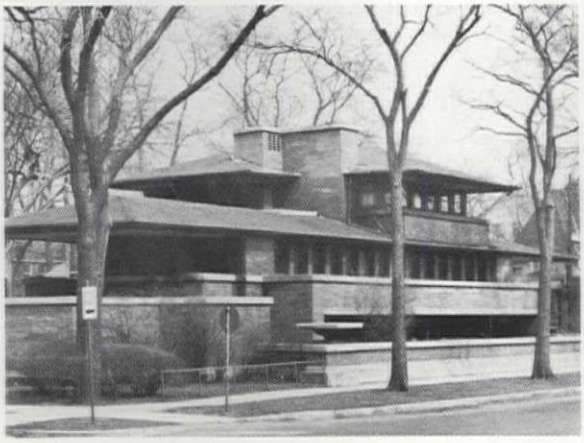
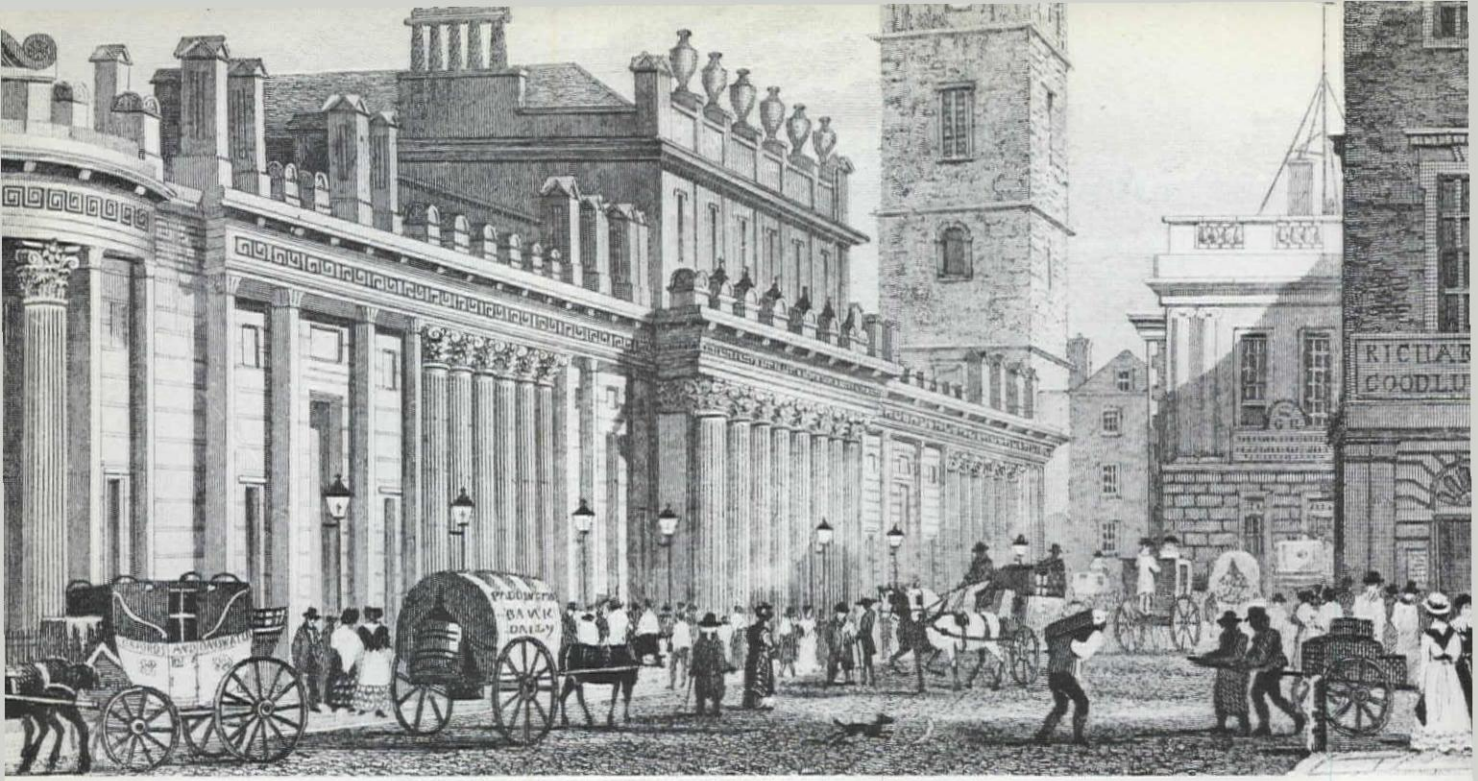


Fig 2—Penn Station: "countless missed opportunities"



that will interest an investing purchaser. This means that, generally speaking, the salvaging organization will have to pay the full market price unless the present owner is willing to sell it for less, as a gesture of goodwill. Having acquired the property and still not having any economic, income-producing use for it other than possibly enough income from admissions to cover its bare maintenance, there comes the problem of the cost of restoring the building.

A case in point is the Robie House (Fig 1), one of the great landmarks of Frank Lloyd Wright's work in Chicago. This had been used, for a number of years after it ceased to be a private residence, as a dormitory of a theological school which apparently did not take the best care of it. It was recently purchased from the seminary by William Zeckendorf, who used it as headquarters for a building operation nearby and then made a present of it to a local preservation group that is now raising money to repair it. While, from the outside, it does not look as if it had been greatly damaged, it seems to require a great deal of work inside—enough, it appears, to run up an estimate of some quarter of a million dollars to repair a house that originally could not have cost one-fifth of that to build.

This raises the interesting question as to whether repair costs may not be inflated because of too great an effort to recreate archeological authenticity. Would it not suffice, in such a case, to make reasonable, minimum, serviceable repairs and let the building just stand that way, even if it showed some scars of battle from use by alien occupants? (Monticello, all dolled up with superfluous antiquities and operated as a public peepshow, replete with a ladies' tearoom and gift shop, is less a monument to Jefferson than it would be if it were left in the lean, ascetic, functional condition characteristic of its long history as a private home.) We hear constantly that the cost of restoration is so high that it is not economic to renew eighteenth century houses, such as those on Philadelphia's Society Hill, for modern residential purposes at anything like the competitive cost of building new townhouses of the same volume and convenience and of equal attractiveness. This bears looking into. Europe abounds with examples of restorations following the ravages of wars. I cannot imagine that the frugal Germans, Dutch, Danes and even the French have paid through the nose—as we here apparently must do—in order to restore and even entirely re-create their historic landmarks.

The architect can be alert to the countless missed opportunities where, as in the case of Pennsylvania Station (Fig 2), an important part of a great building could have been preserved and usefully worked into a new scheme of things without involving any extra cost except the expenditure of brains and imagination. (This was done some decades ago when the inner part of Soane's original Bank of England (Fig 3) was replaced by a later structure (Fig 4), leaving the outer colonnade intact.)

In the February 1964 issue of *Harper's,* in his article on the "Battle Between Art and the Machine," Edgar Wind has much to say about the "particularly destructive use of mechanization in its illicit extension of the past" and refers to present-day refacing of historic structures as "monumental examples of the naive obstinancy and self-delusion that bedevil our mechanical age." The architect can help the well-intentioned layman

Fig 3, across page—Original Bank of England: "inner part . . . was replaced by a later structure (4, below), leaving the outer colonnade intact"

Fig 5—Society Hill: "preservation of an entire ambience"

avoid this pitfall. Mr Wind quotes a nineteenth century writer, Auguste Prost, who said in 1885 that "to remake an ancient monument is to place oneself in the dilemma: either to falsify it by failing or produce a pastiche by succeeding." Prost admitted the necessity of restoring corroded parts; "but to set oneself the task of replacing a decayed work in its entirety is to cause the certain loss of the object. . . ." First one wishes to repair, then one is drawn into wanting to restore, and today one destroys whatever is left of the old in order to rebuild entirely.

In all preservation efforts it is necessary to consider the purpose to which the restored or remodeled building is to be put, and here I stress the importance of considering the *useful future* of the building, rather only its restoration for historic, archeological or sentimental reasons.

But what is generally forgotten by those concerned with saving old buildings is the fact that the protection of an individual building, lost in the mass of contemporary chaos, does not really amount to very much in the end. What we must strive for is the preservation of an entire ambience or neighborhood character that is worth continuing into present-day community life and into the future. This is what is being bravely undertaken by the planners of the Society Hill district in Philadelphia (Fig 5). True, the Williamsburg project may be a work of art in itself, but it is basically a museum piece and cannot be considered as either a typical or a valid prototype for what we are talking about. Much closer to our objective is something that is being done in Columbus, Ohio, where an entire neighborhood (Fig 6a), known as the German Village, consisting of small houses dating from the early nineteenth century (Fig 6b) that together constitute a delightful residential atmosphere, is being rescued from demolition and further mutilation and brought into line *as a valid way of living for today and tomorrow*. So too, the current effort in connection with the new Stock Exchange operation in lower Manhattan to salvage and rebuild at least a whole block of remaining eighteenth century houses surrounding Fraunces Tavern* would, if all these buildings can be put to good use as clubs, meeting places, restaurants, etc, constitute a valid exercise of the preservation effort.

One wonders, too, whether a rescue operation on a single house, unrelated to its surroundings, has real value in the long run. A recent news story tells of the efforts of the Ipswich, Massachusetts, Historical Society "to save the 257-year-old Appleton House from being razed for a filling station." The story goes on to tell all of the financial problems involved in this apparently admirable effort, but fails to reveal whether the saving of this one house would, in fact, form the anchor and keystone in the preservation of an entire neighborhood of "colonial" buildings, or whether it would simply be the artificial embalming of a single historic structure at a location where modern automotive services may be much more needed from the city planning point of view. If the 257-year-old house is worth salvaging as a museum piece, it may be better to remove and rebuild it in a more congenial surrounding. An instance where this latter type of operation was successfully and appropriately carried out is the Boscobel Mansion (Fig 7) which stood for many

* It should be noted that this so-called "historic" building is actually a skillful, early twentieth century reproduction of a long-lost landmark.

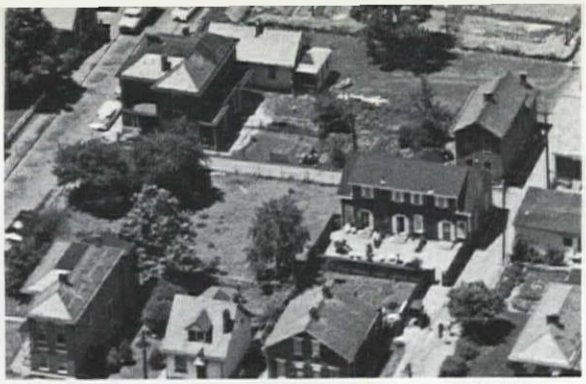


Fig 6a—German Village: "small houses dating from the early nineteenth century (6b) . . . being rescued"

Fig 7—Boscobel Mansion: "re-erected on a superb site"

years on a site overlooking the Hudson River some thirty miles north of New York. Its site and the property surrounding it were taken by the government for a veterans hospital. Through the efforts of architect Harvey Stevenson FAIA and with the financial aid of the owners of the *Reader's Digest,* the house was taken down piece by piece and re-erected on a superb site, also overlooking the Hudson, some miles to the north where it is now in good hands and available as a local museum, displaying furnishings and plantings typical of the era in which it was built.*

* See "The Boscobel Restoration," AIA JOURNAL (July 1961)

An instance of what seems to be a misguided effort to maintain something *in situ* involves Hull House (Fig 8), the famous headquarters of Jane Addams and the birthplace of the settlement movement in this country. It had been a real social landmark to generations of citizens, including our own, who came to regard it as the outstanding institution of late nineteenth and early twentieth century Chicago. Here, a valiant effort to retain the old house seems to be paradoxically a waste of energy. Jane Addams started her operations in what had been a fine, old 1850-ish mansion belonging to one Mr Hull. As it then stood, it was a forlorn relic surrounded by slums, and no attempt was made by Miss Addams to retain its exterior architectural features since it was primarily needed as shelter for the important humanitarian work at hand. This was aided, of course, by the psychological benefits of large, well-proportioned rooms and comfortable interiors such as are not even attempted in the most expensive settlement houses or other public institutions today. So Mr Hull's old house was soon shorn of its exterior porches and cornices, picturesque though they were; one or two stories were added, as well as wings; and what was left has no architectural distinction whatsoever. Moreover, the very fact that the slums surrounding it are being demolished in favor of high, bright new buildings comprising an urban renewal project would (if well done) seem to me to be the ultimate dedication to the objectives of Jane Addams. Chicago should let it go at that. To reconstruct the house artificially or to restore the original exterior of the suburban residence of a forgotten merchant, bearing no relation to the days when it served Miss Addams' needs, seems a misguided effort.

I mentioned the problem of inept remodeling. Take the case of two notable McKim, Mead & White buildings, almost opposite each other on Fifth Avenue. Tiffany's grand old palace (Fig 9a), abandoned by its owners following World War II, had, it is said, more than a million dollars spent on it by the new proprietors who turned the upper portion into office space and the great, high, ground floor into ordinary stores and a mezzanine (Fig 9b). They did this, however, very skillfully. While removing some of the more ornate mouldings, capitals and cornices of the lower portion of the building, they left the spacing of the bays and the main divisions of the windows intact so that the building as a whole retains the character of its Fifth Avenue facade. Along the side street where they did not find it necessary to make such extensive changes, the old details remain and do not form a violent contrast with the newer, streamlined piers.

Such a contrast is sadly evident in the inept

remodeling of the former Gorham Building across the street (Fig 10a). This McKim, Mead & White monument, of the same era as the Tiffany Building, had been occupied, after Gorham merged with Black, Starr & Frost and moved uptown, by the couturier-furrier, Russek's, which used the entire building for many years without any appreciable change to the exterior. When Russek's went out of business some five or six years ago, the new owner, following the same economic forces as beset the new owner of Tiffany's, divided up the property for small stores and offices (Fig 10b), ripping out the entire lower portion along the avenue front and part-way back along the side street. These facades were replaced with the usual flat glass facing, plastered with miscellaneous signs, resulting in a total lack of any design relationship between the upper and lower portions of the building or between the avenue and side street facades—a mutilation that could so easily have been prevented.

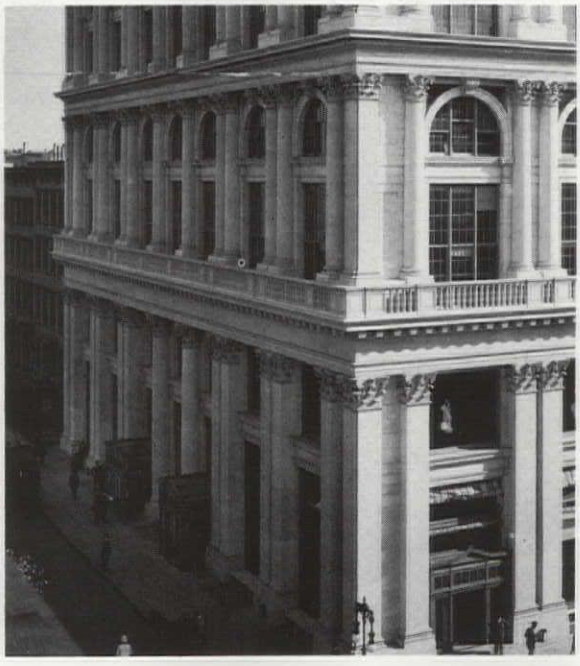
Even worse is the fate of the Black, Starr & Frost building at Fifth Avenue and 48th Street (Fig 11a), a graceful monument designed by Carrère & Hastings before World War I. This building was recently acquired by a bank, which noted in its annual report that it had acquired an "imposing, architecturally famous building. . . ." The bank then changed its mind, and the building now has been entirely shorn of its skin and resurfaced in the usual anonymous, monotonous style of the day (Fig 11b). For all intents and purposes the original building has been destroyed. This seems particularly ironic since just a block away, at 48th Street and Madison Avenue, a brand new bank building (Fig 12) has risen in scholarly, precise "Georgian Colonial" style, with billboards advertising the fact that this particular bank finds that its customers prefer the character of "classical" architecture to that of "modern"—possibly a gibe at the spectacular Skidmore, Owings & Merrill Manufacturer's Trust Building not far away. Yet the bank that is "doing over" the charmingly detailed Black, Starr & Frost building has witlessly destroyed this very character, spurning the distinguished "classic" structure which it boasted of buying and which it could have moved right into at much less output of money and time. Where is the logic in that?

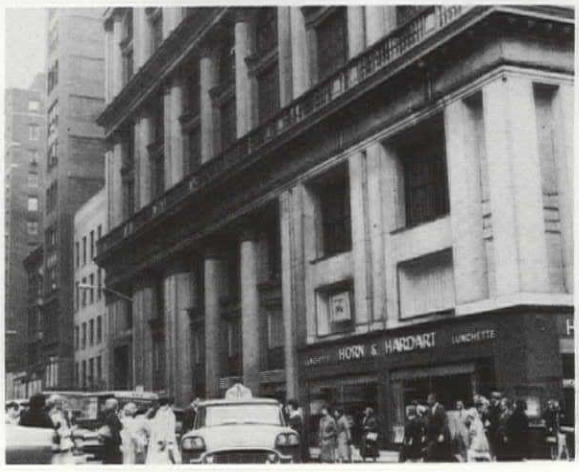
The *New York Times* ran an editorial deploring the needless destruction of the Black, Starr & Frost building and calling for recognition of and respect for such fine designs. A few days later a letter from the architects appeared in their columns protesting that the Carrère & Hastings exterior was not worth saving because it was not truly historic or American, but only a "foreign style."

The architects of the destruction of Carrère & Hastings' Fifth Avenue masterpiece, being on the defensive, were not arguing on any basis of esthetic theory but simply echoing those very specious arguments of the sentimental preservationists which architects must guard against. This brings up the question of relative, "historic" values vs those of absolute beauty. To say that some old

Fig 8—Hull House: "seems to be a misguided effort"

Fig 9a—Tiffany Building: "turned . . . the great, high, round floors into ordinary stores and a mezzanine (9b)"





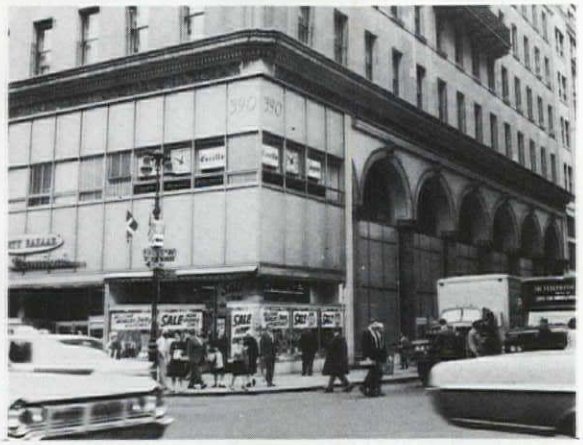


Fig 10a—Gorham building: "divided up the property for small stores and offices (10b) . . . a mutilation"

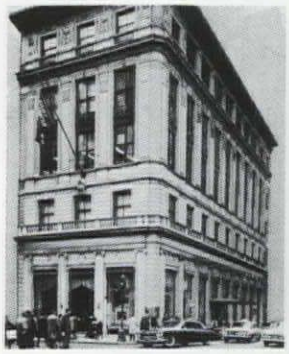
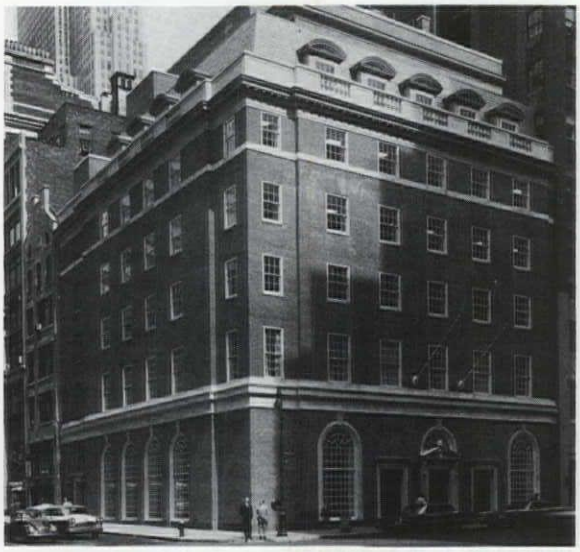


Fig 11a—Black, Starr & Frost Building: "resurfaced in the same anonymous, monotonous style of the day (11b)

Fig 12—New bank: "precise 'Georgian Colonial' "



buildings of the mid-nineteenth century and earlier should be preserved only because they are "American," even though they have no architectural distinction whatever, is as silly as to take a fine structure that has been added to over the years and which now has great beauty and character and strip it of the very features that make it what it is, in order to "restore" it to some pristine condition of archeological authenticity that characterized its earliest phase of existence. This is often done with the greatest solemnity and ceremony even while a work of great beauty is thus destroyed. The outstanding example of this type of misguided restoration is the damage done to the Decatur House on Washington's Lafayette Square by the late Mrs. Truxton Beale, who was persuaded to mutilate this great heritage by removing its graceful Victorian exterior decorations (Fig 13) in order to strip its facade down to the bare bones which the original architect, Latrobe, had been unable to clothe when he completed the house on a meager budget in the midst of austerities of the War of 1812 (Fig 14).

Real beauty in architecture of whatever origin or era must never be sacrificed to archeology at the cost of inferior design, however "authentic." Deliberately to destroy something that has achieved beauty by the changes of age should not be condoned by architects who know better. The esthetically illiterate, unable to recognize absolute beauty, must needs fall back on history and archeology to justify their misdirected expenditures of money and energy. The public, thus bereft of a fine work of architectural art, is the loser.

Among the many examples of the pointless saving of houses for purely sentimental reasons are the numerous places where Mark Twain "lived." There are at least two of these in Redding, Connecticut, several in Hartford and a whole slew of them in New York City. Wherever he lived—and he must have moved around a good deal during the last years of his life—people get all excited about "saving The Mark Twain House," usually a quite undistinguished structure architecturally. The "George Washington slept here" and "Washington's headquarters" syndromes have become recognized clichés, and yet there are those among my friends who believe me heartless when I cannot jump onto their bandwagon to save some nondescript old loft where Walt Whitman happened to do a printing job or some dreary, rotting rooming house where Theodore Dreiser was said to have taken notes for a novel.

If one were to follow this line of reasoning to its logical conclusion, there would be almost no building in New York that would escape the classification of "someone" having lived there, slept there, worked there, made love or created a masterpiece there. Many famous people lived in

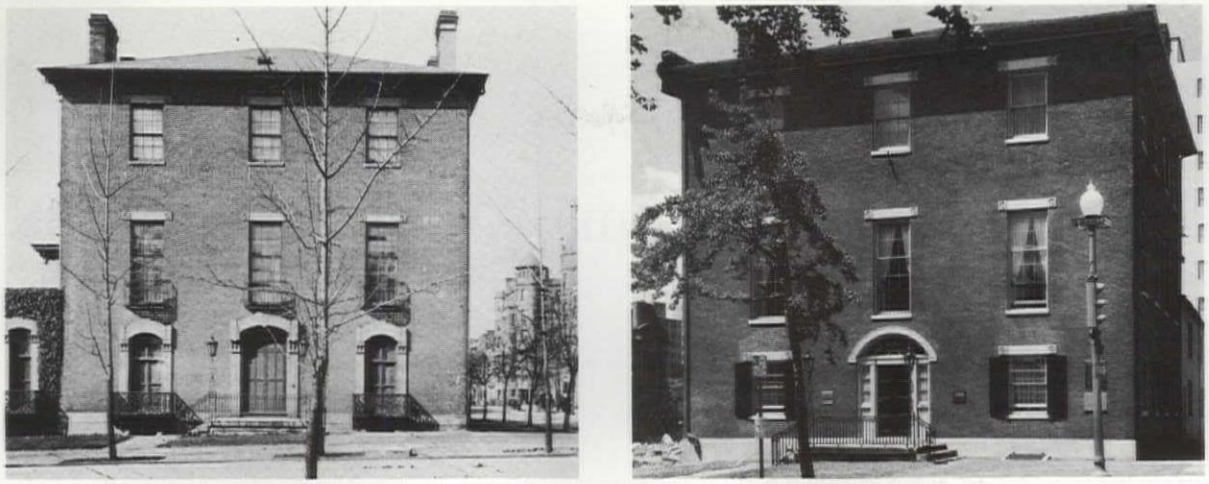


Fig 13—Decatur House: "removing its . . . graceful Victorian decorations to strip its facade to the bare bones (14)"

many places in New York for longer or shorter periods of time. The urge to preserve each of these places belongs, from a social or psychological viewpoint, in the same category as a widow's maintaining her late husband's room intact or pappa's dipping baby's shoes in metallic fluid and hanging them on his windshield.

A legitimate act of preservation that is occasionally used and could be used more frequently as the logical consequence of providing for the future usefulness of a fine old building is that of expanding it, adding to it or enlarging it in a way that is in keeping with its character and scale rather than in slavish imitation. An obvious example is the White House, whose wings to the east and west have been skillfully designed and do nothing to detract from the shape and symmetry of the original building. A more modest and generally unknown instance can be seen on the highway between North Salem, New York, and Ridgefield, Connecticut, where a beautiful old gray stone mansion constructed by one of the circus magnates in the 1840's was purchased by Gifford Cochran about a generation ago and skillfully enlarged by the addition of a low, two-storied wing on either side, so well done that the original Greek Revival house, thus enlarged, seems all of a piece and is actually improved. Less inspired (and fortunately not yet built) is the proposed wing to be added to Gracie Mansion—the eighteenth century frame "country house" in Manhattan's Yorkville which is the official residence of the Mayor. This design is so inept a piece of attempted neo-colonialism that it has been ridiculed in the daily press as well as in professional journals.

Attempts to honor a fine old building by extensions in slavish imitation of its original period are seldom successful. On the contrary, when a building of a style distinctive of its own age is used for some commercial or institutional purpose and an enlargement is required, the skillful architect can add a wing to it in a thoroughly contemporary manner and yet do it so imaginatively that the new blends harmoniously with the old.

Landmark houses in New York's still beautiful Westchester County are, where they are found to be in the way of a state highway or commercial building development, being proposed to be picked up and moved into a compound set aside for antiquities to be called "Colonial Park." This misbegotten project, like putting old horses out to graze in distant pastures, so completely misses the point of true architectural preservation that it must be nipped in the bud. How can anyone see what a house, originally part of a farm or country estate, really was like if it is plucked from its original setting and placed in a sort of zoo, to be ogled by tourists?

Architects who love their heritage rejoice at the public interest in preservation that is currently gaining ground. But much of the effort, in the hands of well-intentioned laymen, is often misapplied. The architect, the urbanist and the landscape architect whose sense of historic continuity matches his eye for esthetics can do much to advise his community before time and energy are wasted on preserving ill-selected monuments or allowing beautiful ones to be sacrificed to sentimentality or archeology.

These are only a few thoughts of an architect who is in full agreement with Mr Kerr's opinions on the subject, especially as to the value of subjective judgment, and who is watching with great interest the current national awakening to the need to preserve our past. Questions should be raised before action is taken on every landmark preservation issue, and the architect's advice used in finding the answers. My file is swelling daily with clippings and correspondence on the subject. I encourage my fellow architects and planners to join me in scrutinizing these developments and in helping guide them in every way possible. ■

School Problems Around the World

BY MARIO C. CELLI, FAIA

This report by the AIA representative to the UIA School Building Commission is published under the auspices of the Commission on Public Affairs, Lewellyn W. Pitts FAIA, *Chairman, and the Committee on International Relations, Henry L. Wright* FAIA, *Chairman*

PERHAPS some years ago when architects met to discuss school buildings, they talked about the building itself. At the latest, the tenth meeting of the School Building Commission of the UIA, held in Lausanne, Switzerland, from May 28 to June 5, 1964, most everything that produces the environment of an educational unit was discussed, from Montessori methods to industrialization of components. This is an indication of the interest stimulated by a group of professionals traveling great distances to discuss a common interest, with the sole purpose of improving school buildings. Fourteen members of the Commission attended; only three were absent. Members were Vergara, Mexico; Cahen, Switzerland; Campbell, England; Cicconcelli, Italy; Kloos, Netherlands; Mathieu, France; Schranil, Czechoslovakia; Schutte, Austria; Alves de Souza, Brazil; Tchaldymov, Russia; Uhlin, Scandinavia; Verdugo, Morocco; Wilhelm, Germany; and Celli from the United States. Ten others attended at times as program participants. We were the guests of the Swiss Section of the UIA.

The Conference went on for seven days, but another day was needed at the end for summations. A total of nine plenary sessions and four subcommittee meetings were held.

Most of the meetings were held at Les Diablerets at the Grand Hotel there, a spot I would recommend unhesitatingly to anyone interested in an out-of-the-way Swiss mountain village, sixty miles from Lausanne. It is both a summer and winter resort with a cable car going up in three stages to 10,000 feet in elevation, with many ski runs and lifts.

Brain-picking began at breakfast after the formality of handshaking all around had been completed. I was never able to pinpoint the accepted time interval between handshakes. It seems you handshake at first appearance each morning—this is inevitable. Then, if you haven't seen each other during the day, you handshake again before dinner or sooner. The discourse begun at breakfast carried on all day, in the sessions, in the buses that took us to picnics or to evening dinners.

The barrier to all this interchange of information was the language. French was used mostly except in corners or over a drink, where English or Italian or Russian were used between brother linguists. There were three interpreters at all the sessions and they stayed with us all the time. The Russian, Tchaldymov, an exuberant, jaunty man who kept calling me "my capitalist friend" and who now and then gave me a bear hug instead of a handshake, brought his own interpreter. One has to be very careful in the use of words when there is to be a translation by an interpreter. A remark I made once such as "Offhand, I think this needs more study," made Comrade Tchaldymov look at his hands wonderingly. And, as for the French language, all could understand it spoken by non-Frenchmen better than that spoken by Frenchmen, simply because the natives spoke too rapidly. Several times Vergara would say "Calma, Calma" to slow the flow of language, and Campbell said, "If the meetings last a couple of days longer, I'll go home speaking broken English." Vergara, who speaks Spanish, French and English fluently, sometimes would start out in French and then get into some particularly complicated technical part of his thinking and, begging pardon, finish that part in Spanish. The official interpreter from Mexico, Madame Danielle Wolfowitz, was topnotch—she spoke all of our languages, five of them fluently.

This language situation can get quite interesting at times. My wife and I spent a few days in Italy before the meeting, and after a hard day's drive we got to Rome in the middle of the heavy traffic (which lasts twelve hours). We had reservations at the Excelsior and approached it from the wrong side of the four-lane Via Veneto. It meant a left-hand turn across two busy lanes to get to the entrance driveway—strictly forbidden, but I was too tired to mosey around another dozen blocks, so I tried it and tied up traffic beautifully. The elegant

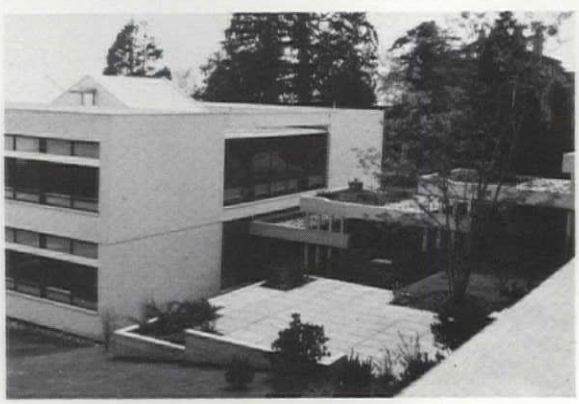
cop at the next corner charged up in all his finery to see what was the matter. When he saw me (with Italian license plates on the rented car), he let me have it loud and clear in choice Roman. I knew that whatever I would say would be wrong, but I blurted out weakly in English, "But I'm a tourist." He looked at me disdainfully and snorted back in Italian as he made me go straight, "Then quit acting like an Italian."

At the very first meeting we took cognizance of the death of our president, Marozeau of Morocco, who died a month before the meeting just after dictating a long letter of recommendations for this session. His death is an irreparable loss to the Commission, for he was not only one of its founders, but he was always distinguished for his efforts and constancy. In his place, Cahen agreed to preside at this meeting. Kloos of the Netherlands was elected president of the Commission. Five subcommittees were selected to dedicate their efforts to the study of the various points of the agenda. Before subcommittee meetings took place, topics to be discussed by each of them were discussed in plenary session. In this way the subcommittees were able to commence their work in full cognizance of members' opinions and directives formed by the consensus expressed in the plenary session. It was in these full meetings that the general earnestness of the speakers was most evident. The speakers had complete attention—if interpretation was necessary, this, too, was given without distraction from those who heard it the second time—all was tape recorded. As we sat in the conference room of the hotel listening intently or thoughtfully, staring out of the huge windows at the snow and glacier on the mountains, there was a sense of unreality that such a group would discuss in several languages Brazil's or Morocco's school problems. We became instantly aware of the great differences in our all-over social demographic development and in the historic and regional characteristics—all an integral part of design philosophy. We heard things like a plea from Alves de Souza, "What we need in the hinterlands of Brazil are roofs—we can't afford walls or lights just now, they'll be added later," but it was also evident as the senior members of this Commission noted, "We are bridging the gap; each year in all sections better schools are being built." Since I have mentioned senior members, it is interesting to note that on one of our field trips we had lunch at a beautiful inn near Gstaad—there, three members, Wilhelm, Kloos and Campbell, toasted their reunion. The third meeting of this School Commission had been held at that site in 1954. On that occasion, Ernie Kump represented the US.

The first subcommittee was on the revisions to the Charter for School Construction; its chairman, Cicconcelli. Some of us may not be aware of the importance of this document. It sets the ground rules and establishes guidelines for school construction. It has been used successfully by many countries (with notable success by Mexico and Morocco and their architects) in arriving at what is needed and at what is acceptable. We had all done our homework and had submitted reports beforehand. The subcommittee decided that it would not be necessary to rewrite the Charter, but to modify it; henceforth, the Charter will apply not only to primary schools but also to secondary. The evolutionary character of education will be considered as well as construction methods. The text of the Charter will confine itself to setting forth the general principles with only a minimum amount of figures. Detailed recommendations were adopted and this subcommittee will continue its work and submit the revisions for formal adoption by this School Commission later.

The second subcommittee studied schools for the training of skilled workers; Vergara was chairman. Here, again, a lot of preliminary work had been done by the Commission members. We had all submitted material and projects for study and incorporation into a book by the Mexican section. A notebook containing all extant information had been sent to all members before the meeting for study. This was gone over, recommendations made, and the book—a monumental job by the

Two projects in Lausanne—elementary school at left and high school at right—visited by the Commission



Mexican section who deserves a tremendous amount of credit for its dedication to these vocational and technical schools—will be prepared in the four official languages of the UIA, to be available before the UIA Congress in Paris this month. Here, I would like to make an observation. As soon as I saw the booklet that had been prepared with all submissions, it was readily apparent that Europe was far ahead of us in vocational and technical high schools. Their submissions were outstanding—in program, in scope, in architecture. Upon return to the US, I immediately canvassed all seventeen members of the AIA Committee on School and College Architecture to see if any architecturally noteworthy vocational high school had been designed here. With the single exception of New York City, all responses were negative. There seems to be a serious gap in our school architecture. With millions of dollars now available from the Federal government to aid in this type of program, it is hoped that some school district, some architect will come up with a design worthy of our profession. I shall suggest that the CSCA study this problem.

The third subcommittee dealt with evolution of pedagogic methods (repercussions of new teaching methods on schools); Celli was chairman. Here the tables were turned a little because we in the US have been doing quite a bit more on this subject than other nations. This subcommittee discussed methods to improve the quality of education and to handle the increasing number of students. The new techniques and the new aids to teaching and learning were discussed in relationship to school environment and shape. A great deal of time was spent upon stimulation of the student by means of his environment. The subcommittee also was entrusted with a study of effects of new construction methods on school buildings, but it was soon apparent that this should be the subject of a major study by all the Commission. This will be considered along with industrialization of schools at the next meeting. Tchaldymov was very insistent that this subject be given major emphasis at the eleventh meeting. Members in the meantime are to report on this condition in their region. Kloos was chairman of the fourth subcommittee, preparation for the Paris meeting; this meeting will be held at the same time as the general Congress of the UIA. In addition to cooperation with the general program of the Congress and continuing previous projects, the School Commission will study the social role of the school, considering, a) both the rural school and the huge urban complex; b) better utilization of the school with adult participation; c) study with sociologists on development of the home-school relationship.

The fifth subcommittee studied the International Center of School Buildings, with Wilhelm as chairman. It studied activities carried on by the Center during the past year. These activities were witness to the efficiency and value of the work conducted by the Center in spite of its limited financing. The Center is an important source of information and a research instrument to the UIA. The School Commission was one of the founding members of the Center; as such, it is conscious of its responsibility to help finance this work. The Center has been financed principally by the Swiss Government and the Swiss Federation of Architects, but it must receive other support or it will end its activities shortly. In recognition of the urgent crisis overtaking the Center, the members of the Commission decided on several measures to take up with their national sections—to get UNESCO recognition of this Center as its Center and to get financial support from each national architectural society.

Another item discussed by the full Commission was an international vocabulary of technical school terms. This has been started, with the French version nearly completed. When finished it will be distributed to all sections as a guide for their glossary. This is a most important function of this School Commission—we are very often at a loss in translating exact curriculum idioms or technical terms into other languages. It is interesting to note here that I stopped in Paris on my way home to see John Beynon, who had newly been appointed to the Educational Division of UNESCO headquarters in Paris. He was just getting organized, but he mentioned to me that one of his most important functions would be to establish an international vocabulary of school terms. I was most happy to be able to tell him that the UIA School Commission had taken on this chore several years ago and that the French version was rather complete and that other versions in several languages would follow shortly. I also had the opportunity to bring him up to date on the UIA School Commission and to tell him about the International Center for School Buildings and of its dire need for help. Beynon firmly believes in the Regional Centers for School Construction that UNESCO has already set up in Africa, Asia and Mexico (for South America).

A few more items of particular interest: One was our visit to the Swiss National Exposition at Lausanne when the director gave us detailed explanations of the design. A highlight was a dinner given by Jean Pierre Vouga, the UIA delegate who is the president of the Coordinating Committee of the Working Commissions, at his modern chalet at La Forclat, near Les Diablerets. He served a wonderful native dish called "raclette," two half-wheels of cheese with the cut ends toasted and scraped off. I had fourteen slices! ■

BEAUTY USA

The White House Conference on Natural Beauty

BY JOSEPH WATTERSON, FAIA

THE ONE note which recurred most frequently throughout the 15 panel discussion groups at the White House Conference on Natural Beauty in May was the demand for a central organization, a clearing-house to which citizens' groups and individuals everywhere could turn for information on what has been done in other areas and how it was accomplished. There was no denying the grass-roots origins of the

cry for order and beauty in both the landscape and the cityscape from people from all across the land.

Mrs. Lyndon B. Johnson, who hopped from one panel to another like a seasoned conference-goer, emphasized the importance of "the single citizen who plants a tree or tends a flower. There are 190 million of him. He is everybody." She

asked whether a great democratic society could equal the achievements of the aristocratic societies of the past in the creation of great and beautiful cities. Answering her own question, she said, "I not only hope so, I am certain that it can."

With five sessions of three concurrent panels each, it was impossible for this reporter to cover even half of the group discussions. The panelists were men and women from all over the country, from every walk of life: garden clubbers, planners, billboard executives, government officials, professors, auto junk dealers, landscape architects, ecologists, highway engineers, writers and manufacturers—and a quintet of architects. Of the five, one is a principal in a practicing firm, two are actively engaged in large-scale planning and two hold architectural positions in the Federal government.

Edmund Bacon AIA, executive director of Philadelphia's City Planning Commission, chairing the panel on "The Townscape," spoke of the great need for a system for feedback from experience in order to bring about many necessary changes and reforms in the methods of the application of urban renewal. Gordon Gray, chairman of the National Trust for Historic Preservation, suggested a national survey and certification program covering not only buildings and sites which should be preserved but also all scenic assets—a refrain which was echoed several times by panelists in other groups. He suggested tax relief for those who grant scenic easements over their properties, and said it makes no sense to destroy existing beauty only to replace it with the spurious.

Speaking of the highway program, Calvin Hamilton, Los Angeles' director of planning, emphasized the need for good basic design in road engineering and of the importance of integrating adjacent areas into highway design. Picking up the note sounded by Mr Gray, Karel Yasko FAIA, Assistant Commissioner for Design of the General Services Administration, said that

unless something is done right away, the richness and contrasts of the city will be lost—we must tame the bulldozer and build with selectivity, and strive to retain the vitality and individual identity of cities. Southern California's Garrett Eckbo FASLA declared, "Quality can only be produced by a conscious design process. We must remove the many arbitrary negative restrictions and personnel in the offices of government and replace them with positive and qualified designers." To this, Commissioner William L. Slayton of the Urban Renewal Administration replied that the local citizenry must become informed and aroused, and then the public officials will fall in line and designers can be employed. Frederick Gutheim HON AIA, president of the Washington Center for Metropolitan Studies,

put forth a challenge to the AIA when he suggested that national professional societies set up a method of cooperation with the manufacturers of nationally distributed items of urban furniture (hydrants, litter baskets, mailboxes, lamp-posts, etc) toward developing a new and better-designed line of products.

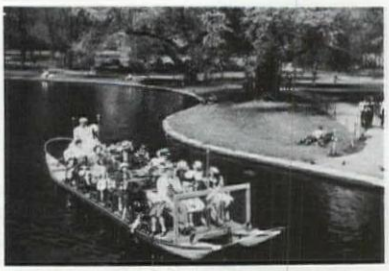
A fund director from Peoria brought out a mournful truth when he got up and said that thousands of people, especially in the Midwest, have never really seen beauty in a city. How can they even be expected to know what we're talking about? "People must *see* quality to know it." Nathaniel A. Owings FAIA of San Francisco had two mes-

sages: The emphasis on the need for beauty must be directed toward the men who *finance* large-scale "improvements"; and the importance of the fact that the GSA must select architects capable of creating a *nucleus* of good design—and also that landscape architects must be given the same status as architects. When the discussion turned to traffic lights, George Harvey, president of the American Institute of Traffic Engineers, got to his feet and pointed out that most traffic lights and their supports are in violation of accepted national standards, and that well-designed highways don't need so many lights, anyway.

"This meeting will serve to encourage public officials toward beauty in their public buying—the terror of public error," said Najeeb Halaby, former Federal Aviation Agency Administrator, who was sitting with Mrs. Johnson. He spoke of the example of the employment of Eero Saarinen to design a new prototype control tower for Dulles Airport—not just a design based on what had been done before but an entirely new approach to the basic problem of airport control, studying it as though it had never been solved before. Panel chairman Bacon then called upon August Heckscher, director of the Twentieth Century Fund, to sum up the morning's discussions. Mr Heckscher waved aside the summary but sounded a caution that in the near future the new functions of the city will bring out new solutions to old problems; old-fashioned streets will pass and there will be new functions for new streets, and a whole new way of life will come about for the people of the city.

At an afternoon session on "The City—Parks and Open Spaces," chaired by John O. Simonds, ASLA

president, Arthur Davis, director of the Housing and Home Finance Agency Open Space Program, called for "family center parks" in neighborhoods and downtown parks for business areas, and in particular for an encouragement of small, natural wildlife in city parks—some children grow up without ever even seeing a rabbit. A caution was sounded by New York critic Jane Jacobs when she said that even beauty will get an ugly name if the Federal open space program displaces poor people! And Arnold H. Vollmer of New York questioned the thought that cities could acquire downtown vacant lots for park uses, at $400 per square foot! But he pointed out that garages and parking lots should not only be required to pay their way but also that they should contribute to the open spaces within the city by such devices as parklets and landscaped roofs.



Washington's Carl Feiss FAIA brought out the need for more attention being paid to river basins and waterfronts as open spaces, and explained that urban renewal powers could be used to improve them and control pollution. Saying that our rivers and harbors are a national disgrace, he stated that all urban waters should be clean and decent for drinking and swimming. At this, a planner from Philadelphia jumped to his feet and demanded that the Corps of Engineers be curbed and that legislation be proposed requiring that all their watershed proposals be submitted to the governors of the states concerned for comment and approval.

At another session on "The Countryside," its chairman, author William H. Whyte of the American Conservation Association, pointed out that all the apparatus of the planner—maps, projections, etc—are birdseye views, not related to what one really sees as one walks on the earth. "Don't underrate what delights the eye," he said, and went on to point out that farmers can no longer be held responsible to maintain the landscape as they did in the past; some other authority must take over ridding it of weeds, overgrowth and rubbish. Senator Henry M. Jackson of Washington State saw a need for a Federal task force to study land uses and the coordination of all Federal projects, a better interagency coordination.

There were occasional fireworks, of course, as when one outraged delegate attending the session on "Roadside Control of Highways," seeing that outdoor advertising executive Philip Tocker of Washington was on the panel, demanded to know why strip miners, water polluters and litterbugs weren't included too. Tocker said he had come to lend his support to legislation restricting billboards to areas zoned or used for business and industry, which is the gist of the bill which President Johnson has just introduced into the Congress. He begged the delegates to recognize the difference between standardized billboards and the thousands of small signs that clutter the landscape. Senator Maurine Neuberger of Oregon remarked that "self-policing by an industry . . . doesn't work. They don't remove their billboards; they don't mean business."

Well-organized and well-run, the conference was on the whole a great success. It came forth with no new great solutions; many platitudes were passed around; an occasional bright and shining new idea shone through. Except for Mr Heckscher's brief vision of the new functions of the future, there was little clairvoyance and no one seemed to have thought of the great potentialities of future research for finding many of the sought-for answers to today's problems. But it was a solid affair, and a thousand people went back to their communities to start work on similar regional conferences. That can bring nothing but good. Late the second day, when the entire group assembled in

the White House to present its reports to the President, he assured them that they would all be studied carefully by his aides and by himself, and that all practical and worthwhile suggestions would be included in his next State of the Union message and incorporated into bills to be presented to the Congress wherever feasible. Knowing his record of following through on his public promises, delegates felt their efforts would result in both a new awareness of the need for beauty in the everyday American environment and in government recognition of this new need and full support toward achieving it. ■

An Architectural Primer

Fume Hoods for Science Laboratories

BY HAROLD HOROWITZ, AIA
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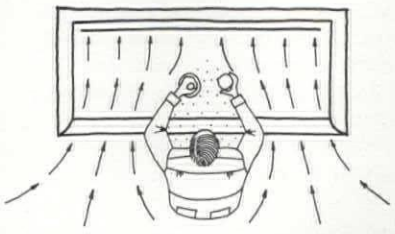
Architects have been giving vivid testimony to the significance of fume hoods and their associated exhaust equipment by the substantial number of recent science buildings in which they have moved service shafts housing exhaust ducts to the exterior wall as a means of expressing the functional characteristics of this type of building. Architects have been among the pioneers in the use of the chemical fume hood as a safety device in research laboratories and have been instrumental in bringing the technology of this means of environmental control to the present state of development. Nevertheless, after careful review of several hundred science buildings, the Architectural Services Staff of the National Science Foundation has concluded that much needs to be done to achieve wider dissemination and understanding of the basic principles of the fume hood's design and use. The objective of this article is to present a brief outline of principles for satisfactory use of fume hoods in science laboratory design, serving as an introduction to the subject for those architects who have not yet had the opportunity to study this important element of science building design.

A FUME hood is an exhaust duct terminal, so conceived that it can enclose an experiment. The enclosure has one or more openable sides and is designed so it can transform the suction of the duct into a uniform movement of air across the face of the opening. Hazardous experiments involving toxic chemicals, and those with unpleasant odors, are conducted within the enclosure. The flow of air into the enclosure sweeps the toxic and odoriferous vapors and dusts into the duct to be exhausted out-of-doors, thus protecting the person working in front of the hood and also preventing the toxic and odoriferous materials from passing into the air of the laboratory.

The Importance of Face Velocity

Satisfactory performance of a fume hood requires that the airflow past the opening into the enclosure occur within minimum and maximum limits, since both are of great importance. They vary somewhat depending upon a number of factors relating to the design of the particular hood, its location in the laboratory and the degree of hazard of the experiments; therefore, the limits must be selected with judgment. The minimum face velocity must be great enough to insure that the direction of air movement at any point in the area of the open face of the hood will always be into the hood. It is desirable that the lowest possible amount of air be exhausted, consistent with safety requirements, because of the economic advantage of reducing losses of heated air in winter and cooled in summer. Factors influencing the minimum safe face velocity for a particular hood are numerous.



The upper limit of air velocity for a fume hood is related to the aerodynamic flow pattern created by the air stream flowing past the scientist (above) in front of the hood, past the framed opening, past the experiment itself and out the exhaust opening. The scientist standing in front of a hood serves as a barrier to the air stream, and when the air velocity reaches a certain point, a low pressure or partial vacuum is created directly in front of him. The low-pressure zone extends into the fume hood increasingly as the face velocity is increased. A velocity can be reached where the low-pressure zone may extend into the area of the fume hood occupied by the experimental apparatus. When this condition is reached, the fumes generated by the experiment will fill the low-pressure zone and may contact the scientist's skin or be inhaled.

Within the two limiting extremes of face velocity the choice of airflow rate is based on the desire to reduce to a minimum the total flow of air being exhausted and to maintain a safe environment. Safety is generally enhanced by increasing the rate of airflow to the point where the maximum airflow limitation is reached. It is usual to select fume hoods and to design the airconditioning system to maintain the face velocity appropriate for the maximum hazards anticipated with the particular hood. The table on page 64 represents our general recommendations; but modifications in some situations may be warranted.

Selection of Fume Hoods

Degree of hazard—The degree of hazard of the experiments to be conducted within a fume hood has a great influence over the type that should be selected. It is important to establish the maximum degree of hazard anticipated before the choice of a hood is made. Conversely, it is important to know the limitations of each hood so that inconvenience, or even tragedy, is not caused through improper matching of experimental work with hood capabilities.

Size of experiment—For reasons

Recommended Face Velocities

Degree of Hazard	*Minimum Measured Velocity at Any Point Across Hood Face*
Low toxicity levels	50 fpm
Average toxicity levels in research involving a wide range of materials	75 fpm
Low-level radioactive tracer materials with nominal toxicity hazards	100 fpm
Significant chemical toxicity levels and moderately radioactive materials	150 fpm
Higher levels of toxicity and highly radioactive materials	Consider the use of glove boxes and total enclosures if velocities in excess of 150 fpm are required

Hood Construction Materials

Material (LISTED IN DECREASING ORDER OF COST)	*Limitations*
a) Hood structure	
Chemical grade soapstone	Most versatile
Stainless steel	May be attacked by some chemicals. Care should be used in selection
Monel metal	May be attacked by some chemicals. Care should be used in selection
Synthetic or cementitious "stones"	Absorb water, tend to stain, may be attacked by some chemicals
Carbonized birch	Recommended only for light service
Aluminum	Recommended only for light service, readily attacked by alkaline materials
Reinforced plastics	Recommended only for light service. Resins vary in resistance to chemical attack and fire resistance. Care should be used in selection
Varnished wood	Limited to the lightest service where no possibility of fire exists and no use will be made of solvents and steam
b) Glazing materials	
Laminated glass	Most versatile
Tempered glass	Not recommended where experiments may produce rapid thermal changes or explosion hazards exist. Although the glass shatters into fragments which are not sharp, failure results in loss of protection
Wire glass	Wires restrict vision
Plain glass	Not recommended
c) Coatings	
Epoxy	Too new for adequate experience but appears promising
Strippable paints	Not resistant to solvents and many chemicals. Use should be avoided except for special radioactive applications and when related to a decontamination program

of safety and economy it is desirable that hoods be as small as possible and exhaust the least possible amount of air from the laboratory. However, a hood must be sufficiently tall, wide and deep to house the particular type of experiments that will be undertaken. Experimental apparatuses vary greatly in size; therefore, fume hoods have been designed over a wide range of sizes and shapes. They may be as large as small rooms that are walked into, or they may be small, portable enclosures which are easily carried and placed in different positions on laboratory benches.

A common fault in the selection of fume hoods for science buildings is the tendency to select hoods of uniform size, usually a bench-type, as part of a conception of a modular laboratory arrangement. The program requirements for a science building should give consideration to the potential variation in size of experiments to be conducted so that an appropriate number of various size hoods, with a reasonable distribution within the building, can be obtained.

Fume hood construction materials—A great many materials have been used for fume hood construction. Most of them have proven to be satisfactory when used correctly and properly selected with regard to the requirements of the experiments. It makes good sense to use the least expensive material that will do the job. Unfortunately, however, materials which are most versatile tend to be the most expensive. The adjacent table relates fume hood materials with versatility for experimental work and economics.

Design factors

1) The depth of a hood is the most important dimension with respect to satisfactory operation. In general, the deeper the hood the more satisfactory it will be in providing uniform suction across the open face. The depth is also of great importance with respect to the possible size of apparatus and experimental setups that can be contained.

2) Generally, the lower the height of a fume hood (and the clear opening), the more satisfactory will be its airflow characteristics. A very tall hood with the exhaust duct connection near the top will present the greatest risk of escape for fumes because of the difficulty of securing uniform airflow at the base.

3) The design of the jamb is of utmost importance in preventing turbulence at the sides of the hood, which may result in fumes being swept out into the laboratory. In general, the jamb design should permit the smoothest possible airflow pattern.

4) The design of the sill should also provide for a smooth airflow to minimize turbulence. Sill designs which incorporate slots permitting air to enter and sweep across the working surface, irrespective of how close the operator may be standing, are valuable in insuring a safe hood. It is highly desirable that the sill be so designed, by means of a slope or curvature near the front edge, making it impossible for experimental equipment to be placed within 6 to 10 inches from the edge. Such design automatically prevents fume-generating experiments from being positioned close to the front edge of the hood.

5) It is recommended that the sash tracks of a fume hood be installed some distance behind the front edge of the jamb and sill. This automatically insures that the experimental apparatus will be set back to this extent in the hood. In general, the further back the fume-producing apparatus is located in a hood, the greater the safety in the conduct of the experiments.

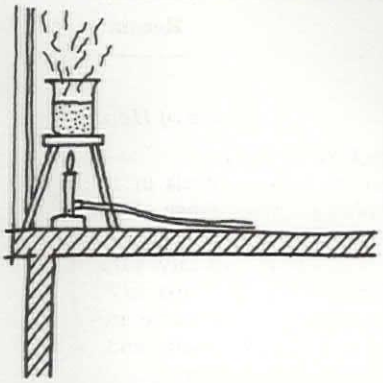
6) Uniformity of airflow across the face of the hood is of utmost importance. Averages can be deceptive, and a hood with an appropriate, average face velocity may actually provide below-minimum velocity at some points and above-maximum velocity at others. Such a hood can be unsafe. Each of the design factors influences uniformity of airflow across the face. Most important are the proportions of the hood—height, width, depth—and the relationship of the size and position of the exhaust-duct connection with the baffles. Unfortunately, no simple rule of thumb can be provided for guidance; the location of exhaust air ducts, the number of such ducts per hood, plus the type and design of baffles are of equal importance. For simple hoods with only a single exhaust air outlet near the top and with the usual type of slotted panel baffles, it is said that uniformity of airflow across the face will be increased as the hood depth increases, and will decrease with increasing height and width.

7) The function of baffles in a fume hood is to distribute the suction of the exhaust duct in such a way that uniform airflow through the face of the hood will result. The design and position of baffles and their openings are critical to satisfactory performance. Opinions on proper design of baffles vary widely among experts on the subject. At least two baffles, one at the top and one at the back of the enclosure, should be provided; they should be separated by air slots. Dividing the back baffle to form a center slot will improve velocity distribution at the hood face.

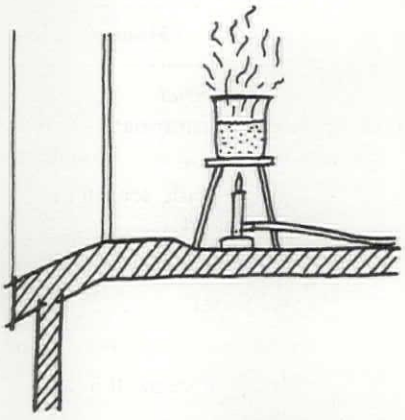
8) Many special design conditions occur with fume hoods and their associated components. These special situations should be explored when the program for a science building is being analyzed. Examples of special factors are: When radioactive materials are to be handled in a hood, the construction of the base cabinets and floor must be taken into consideration and the need for shielding blocks which may have a combined weight of 2000 pounds or more. When perchloric acid is to be used, the hood should be provided with washdown facilities and must be constructed so that its interior components and concealed air passages can be cleaned without undue jarring to avoid an explosion.

Relation of fume hoods to airconditioning systems

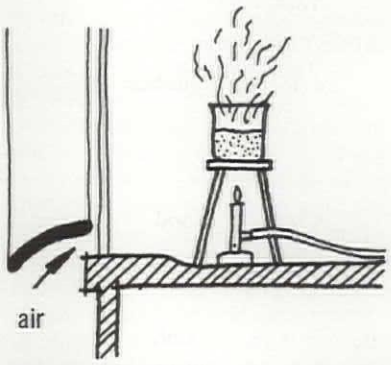
1) The advent of airconditioning for laboratory buildings has greatly intensified the economic problems in the selection and utilization of fume hoods. The large volumes of expensive cooled air exhausted by fume hoods add substantially to the initial and operating costs of airconditioning plants. Some mechanical engineers estimate that the initial extra cost of an airconditioning plant is approximately equal to the installed cost of the fume hoods. In a science building with many fume hoods, the exhaust through this safety device can account for the greatest single cooling load requirement. (Of course, heated air is also lost through fume hoods during the winter, but the cost of heating is generally not as great as the cost of cooling and therefore is of less concern.) Many ideas, both simple and elaborate, have been explored to reduce the volume of conditioned air lost through fume hoods, thereby reducing the initial and operating costs of the airconditioning system. Unfortunately, a number of these schemes have lost sight of the basic function of the fume hood—providing safety—and have tended to compromise the protection or comfort of the operator in the attempt to reduce airconditioning costs.



Flat sill permits apparatus to be located at front edge of hood

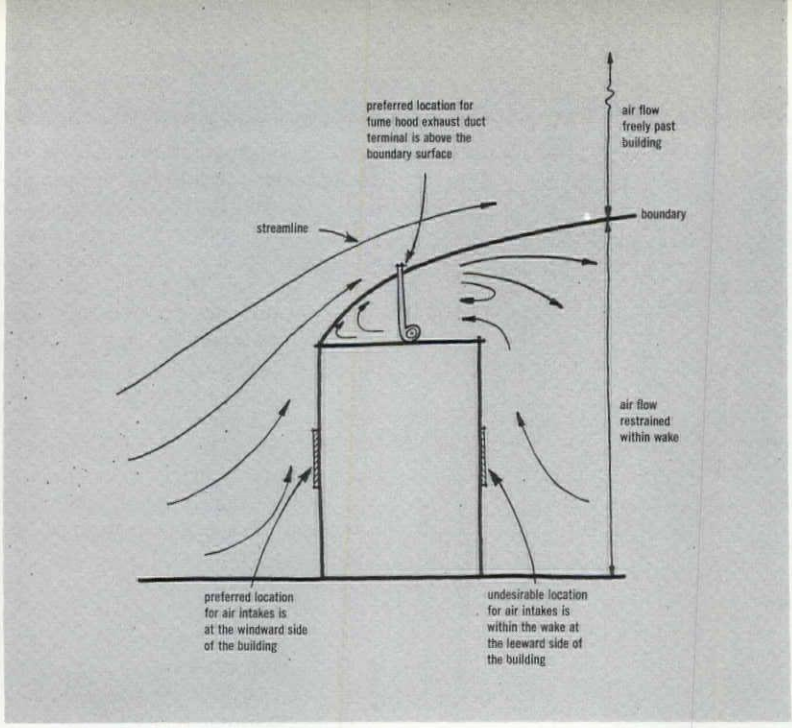


Sloping sill with stop prevents the placement of apparatus too close to edge of hood



Curved sill with air slots prevents the placement of apparatus too close to edge of hood. This detail also partially overcomes an experimentor's blocking airflow into the hood at the sill

2) The second important relationship of fume hoods to airconditioning systems is the problem of maintaining satisfactory balance. In a building where an extensive number of fume hoods are being employed, the simplest approach to this has been to ignore the problem of balance and simply supply additional air throughout the system to



make up for the losses through the hoods, on the assumption that about half the hoods may be operating at one time. The effectiveness of such a system seems to fluctuate depending on what actually occurs in use. Other approaches have been taken to control fume hoods and return air registers in a system to provide a constant volume of exhausted air, or to use constant-volume fume hoods as the sole exhaust outlet.

3) With respect to the airconditioning system, fume hoods may be divided into three groups:

a) The standard hood is one in which the volume and velocity of air varies as the sash is raised or lowered, since no means is provided to compensate for the variable area of face opening. This type of hood causes the greatest difficulty with balance in an airconditioning system. Laboratories containing such hoods must be supplemented with additional exhaust air openings to insure adequate laboratory ventilation.

b) The constant-volume hood incorporates an internal bypass feature permitting the same volume of air to be exhausted into the hood regardless of the position of the sash. Such hoods permit balancing of the airconditioning supply and exhaust. Constant-volume hoods may not be manually controlled but operate continuously while they serve as the air exhaust outlet for the laboratory. It is often incorrectly assumed that this type of hood, because of its greater cost and more elaborate appearance, is safer than a standard hood. The special function of the constant-volume hood is related to the balance of the airconditioning system rather than to safe operation and does not provide greater safety than can be achieved with a properly designed system using standard hoods.

c) The auxiliary air-supply hood attempts to reduce airconditioning requirements by providing a separate supply of air that has not been cooled and dehumidified in the summer or fully heated in the winter. The supply of air for such a hood may be drawn from outdoors or from the service chases within the building, which are, in turn, supplied by air from attic or mechanical equipment rooms. Such hoods can substantially reduce the airconditioning equipment capacity required to make up losses through fume hoods; operating costs can likewise be reduced. However, there are a number of disadvantages to the use of such hoods. Inasmuch as auxiliary air-supply hoods discharge untreated air just in front of the face of the hood, usually at the head, a scientist working at the hood must work in unconditioned air. The disadvantages are obvious, and the annoyance of scientists has been evidenced by their very human attempts to invent means of foiling the intended mode of operation. One such effort consists of securing cardboard over the outlets with adhesive tape, thus closing or reducing the auxiliary supply. Attempts to rectify this problem by partially cooling or heating the air supply, depending upon the season, substantially reduce any economic advantage of this type of hood.

Another very important problem with auxiliary air-supply hoods is that the balance between the temperature of the auxiliary air and the air in the hood is critical. Unless balanced just right, much of the auxiliary air will not enter the hood but will enter the airconditioned space of the laboratory, sweeping with it some of the contaminated air from the hood. Several manufacturers, universities, and public agencies are now attempting to improve upon the design of auxiliary air-supply hoods. For the present, however, it is our opinion that such hoods are usually an unwise selection.

4) Air supply outlets and returns in laboratories which contain fume hoods should be so located, in relation to the position of the hoods, that they do not cause strong drafts in the vicinity of the hood. If the fume hood is operating with a face velocity as low as 50 fpm, a relatively small draft of air can act to overcome and reverse the desired airflow into the hood and cause a hazardous condition.

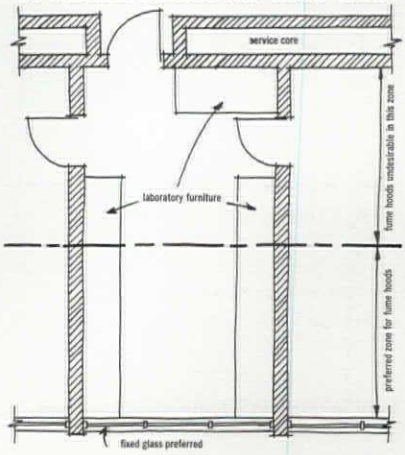
Controls

1) Piped services with outlets inside a fume hood should be controlled by handles in readily accessible locations outside the hood enclosure. If washdown facilities are provided for hoods to be used with perchloric acid, the control valve handle should also be located outside the hood enclosure.

2) Switches, rheostats and other control devices for electrical apparatuses and convenience outlets located within hoods should be located on the outside of the enclosure. The design of such controls should be approved for use in explosive environments.

3) Lighting controls, as with other electrical switches, should be located outside the hood enclosure and be of explosion-proof design.

4) When individual fan control is desired, the control device should be located outside the hood enclo-



sure. Where several hoods are included in a single laboratory space, it is recommended that all hoods be controlled through a single switch, thus insuring that they will all operate simultaneously. It is undesirable to have some hoods operating while others are idle in a single laboratory space, as the idle hoods can serve as sources of make-up air for the hoods which are operating. When this occurs, the make-up air entering the laboratory through the idle hood may pick up sufficient contaminated material from the hood exhaust duct, the hood itself and any experimental apparatus within the hood to cause a hazardous condition in the laboratory.

5) Occasionally special controls are required for the adjustment of an experimental setup within the hood enclosure. It is desirable that the controls for such installation be located outside the hood in such a way that the sash may be completely lowered. Slots or other means should be provided so that the controls can be conveniently brought out of the enclosure. Should the fume hood be of the type with a sill incorporating slots for airflow, the slots may serve this purpose.

Adjustment features for airflow

1) A number of air-volume controls have been used with fume hoods. Among the more commonly encountered types are dampers in the exhaust duct and multispeed fan controls. We do not recommend the use of dampers as they require extensive maintenance and reduce efficiency of the exhaust system. Multispeed fan controls provide the fume hood operators with a degree of individual control; however, they may cause difficulty with the balance of the airconditioning system by frequent fluctuation of the supply air requirements. The recommended means of controlling air volume is to design the exhaust system carefully with respect to its airflow characteristics and provide the possibility of volume adjustment at the fan in such a way that adjustments can only be made by the operating personnel of the building's mechanical system.

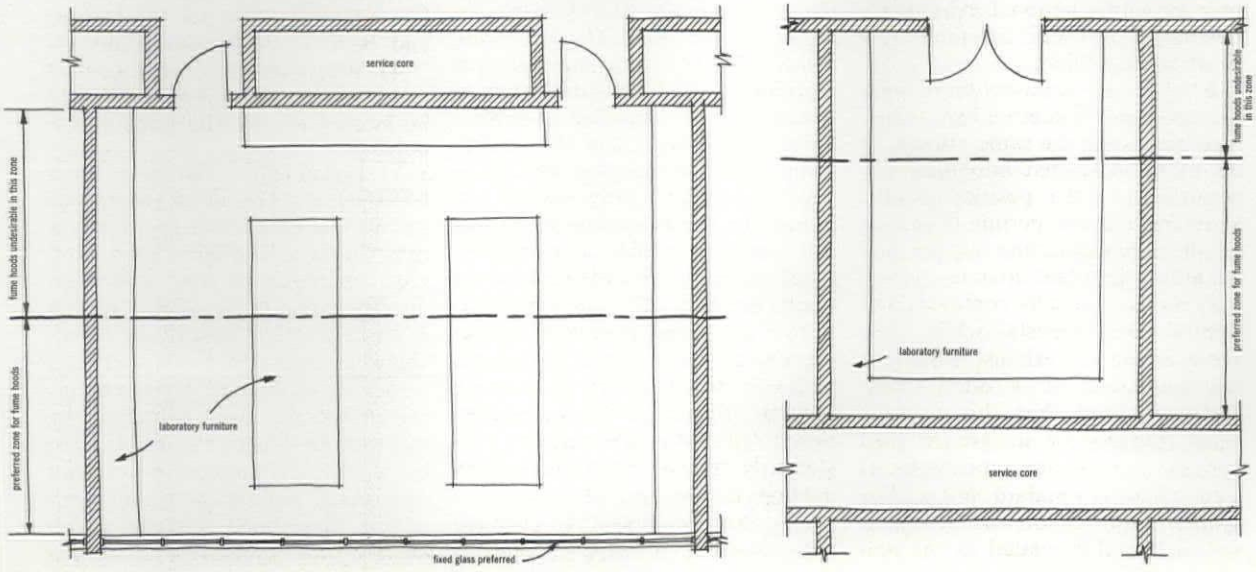
2) The principal means of controlling the pattern of air distribution within a hood is through adjustable baffles. Such baffles are located between working areas of the hood and the point of connection with the exhaust duct. The baffles must be able to transform the suction of the duct into a uniform flow of air at the fume hood face. Baffles control air distribution by their position within the hood and by the size and position of slots in the baffles; usually the slots are adjustable. Occasionally the position of the baffle is also adjustable. The need for control through adjustments of the baffles increases with increasing height and width of hoods. Very large hoods require very sophisticated baffling systems to insure satisfactory airflow characteristics. The adjustment of the baffles is of extreme importance regardless of the characteristic of the baffle design. Therefore, a critical part of every fume hood installation should be careful adjustment of baffles and subsequent testing.

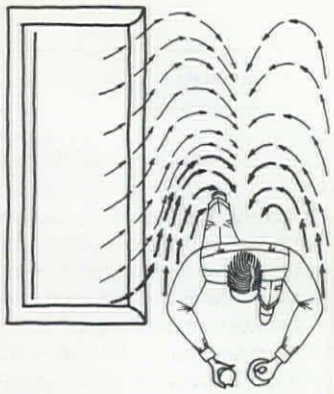
Location of the fume hood in the laboratory

Air velocity outside fume hood —The rate of airflow required to satisfy minimum face velocity requirements is quite small. Therefore, air movement outside the hood is of great importance in insuring safe operation. As already discussed, the location of room air outlets and returns may cause drafts sufficient to counteract and reverse the flow of air into a hood. Opening and closing of doors into a laboratory space will move a considerable volume of air and does have a marked influence on airflow patterns and pressure surges within a laboratory. This results in major air movements which can temporarily alter fume hood airflow characteristics. The effect of door openings is so great that considerable caution should be exercised in locating fume hoods in small laboratories where the relative volume of air movement generated by door action is substantial in relation to the total volume. In all laboratories it is desirable to locate fume hoods as far away as possible from door openings.

Windows which may be opened for ventilation can present even more serious interference with fume hood operation than doors. When fume hoods are located in buildings that are not airconditioned, or which require open-window ventilation during the spring and fall, hoods should not be located close to windows which may be open. However, it is preferable that hoods be located only in spaces provided with supply air through a mechanical ventilation system which can control the volume and location of incoming air.

Pedestrian traffic within a laboratory can also interfere with the operation of fume hoods. This can be readily recognized by recalling that a walking speed of one mile per hour is equal to 88 fpm, or 33 fpm greater than the minimum





recommended face velocity for fume hoods. A person walking at 2 mph moves at a speed of 176 fpm, which is 26 fpm more than the maximum recommended face velocity for fume hoods. These are very moderate walking speeds; thus it should be assumed that any walking speed will probably exceed the face velocity, and persons walking by fume hoods will tend to produce some flow of contaminated air out of the hood. It is therefore undesirable to locate fume hoods along principal traffic lanes.

Relation to work areas—Fume hoods should be located conveniently in relation to benches and apparatuses that may be used by scientists in connection with the same experimental program. It is desirable that fume hoods be integrated with other laboratory furniture in such a way as to provide adequate bench space adjacent.

Proximity to service shafts—There are economic advantages in locating fume hoods close to service shafts which will contain the exhaust ducts and piped service lines. Such economic considerations have often been carried to the point where fume hoods have been located in undesirable positions in laboratories with respect to safety. It should be remembered that the function of the hood is to provide a safe working environment, and small savings in horizontal ducts and pipe runs are not worthwhile if the fume hoods cannot serve their intended function. When it becomes necessary to choose between safety and proximity to service shafts, the choice should always be for the location that will provide for proper function of the hood.

Testing and adjustment

No standard testing procedure has yet been developed for the evaluation of fume hood performance. However, a number of procedures are being used which involve titanium tetrachloride smoke, smoke bombs, hot-wire anemometers and release of odoriferous materials (ammonia, mercaptans, etc) within hoods. Testing services are available from independent consultants (general industrial hygienists), mechanical engineers and manufacturers' representatives.

At present there is an important need for the establishment of a standardized testing procedure for fume hoods and for fume exhaust system evaluation. Even though we are not satisfied with existing testing procedures, the necessity of adjusting hoods after they are installed and testing them prior to acceptance (as well as periodically during the life of the equipment) cannot be omitted. A satisfactory specification for a laboratory building should incorporate requirements for testing hoods with respect to airflow characteristics and face velocity. Hoods which do not provide satisfactory test results should not be accepted.

Fume Hood Exhaust Systems

Duct system

1) Ideally, every fume hood should be served by an independent duct. Such an arrangement insures maximum safety and flexibility. Economics, however, favor some degree of combination of ducts. Separate ducts should always be used with hoods for handling of radioactive materials, perchloric acid, strong oxidizing agents, or highly reactive chemicals of any sort. Aside from these cautions it is always permissible to combine ducts from several fume hoods in the same laboratory space, especially teaching laboratories where the work being done in the several hoods is under the control and supervision of an instructor. Hoods in several different laboratory rooms should never have their ducts combined, since it is not possible to predict the simultaneous use of hoods with materials that may be reactive when combined in the air stream. The combination of several hoods into a single duct also greatly complicates servicing problems, as any maintenance or repairs required for the duct or exhaust fan will shut down hood operation in all of the laboratories served by the combined duct.

2) Fume hood ducts differ from other air-handling ducts in that the materials that pass through them are often highly corrosive and very toxic. Consideration should be given to the fact that such ducts will have to be serviced or replaced during the life of the average laboratory building. Safety to personnel making repairs or replacement of ducts should not be overlooked.

3) Many satisfactory materials are available for fume hood ducts. Unfortunately, as in the case of fume hood construction materials, they vary in their cost and versatility of use. Expensive duct materials, such as stainless steel, are not completely versatile and are subject to attack by some chemicals. Therefore, considerable care must be exercised in evaluating the type of materials to be used in laboratories, the selection of duct materials and the features provided in the design of the building for service and replacement of ducts.

4) High-velocity air movement in the ducts is desirable to insure that dust and aerosol-size materials are not deposited in the joints, cracks or corners in the duct system. A minimum suggested design velocity is 2000 fpm. Higher conveying velocities are desirable. A minimum of turns, bends and other obstructions to airflow are desirable. Where perchloric acid is to be used, duct configuration should permit thorough washdown of duct surfaces.

Exhaust fans and outlets

1) Location of the fan

a) Early in the history of the use of fume hoods, it was common to install exhaust fans directly above the hood. This has been found to be a very unsafe practice because it creates a high-pressure condition in the exhaust ducts and any leakage at joints or through pinholes caused by corrosion may result in distribution of contaminated air and toxic materials into the building. Unfortunately, some hoods are still being installed with fans located above the hood within the occupied space of the laboratory. This unsafe practice should be eliminated entirely, and we hope that building codes will eventually be revised to incorporate this requirement.

b) Locating the fan of a fume hood exhaust system in an attic or mechanical equipment room is less than wholly satisfactory, although a great improvement over a location directly at the hood. When the fan is located within an attic or a mechanical equipment room, there is a possibility of leakage into the building before the duct penetrates to the exterior where the fumes can be safely discharged. Attics and mechanical equipment rooms containing fume hood ducts in which the pressure is higher than in the

surrounding space should be mechanically ventilated to the outdoors. Joints in ducts containing fumes under pressures should be sealed with compounds especially formulated for the purpose.

c) The preferred location for fans is outside the building, usually on the roof, and as close as possible to the terminal. Such a location insures that the ducts within the building operate at lower pressure than exists within the surrounding spaces in the building and that any leakage that does occur will be into the duct.

2) Location of the discharge terminal

a) When fume hoods are installed in existing buildings that have not been provided with adequate service shafts, the discharge will sometimes be made at the side of the building. Usually the duct will be carried through a panel substituted for a pane of glass in a window. This practice is unsafe and should be discontinued. The possibility of re-entrance of fumes through opened windows of the same or adjacent buildings is very great. Also, discharge at this position may result in noxious fumes collecting in the vicinity of the building rather than being swept rapidly away when the discharge coincides with being on the leeward side of the building.

b) Fume hood ducts are occasionally discharged into stacks which carry fumes to a point high above the building for discharge into the air. There are a number of architectural design problems associated with this type of discharge; however, the use of tall stacks may help solve the problem of safe disposal of especially toxic matter.

c) Occasionally fume hood exhaust ducts discharge their contents into areawells below grade. This may occur as a simple way of exhausting a fume hood located in a basement or subbasement space. This practice is not recommended, as toxic materials may accumulate in the areawells where they cannot be swept away by air movement. Fumes discharged in this way may also pass through on-grade areas where building personnel must walk and would be subjected to hazards. Occasionally rooftop wells are created as a result of screening, skylights or other architectural features on roofs. Discharge outlets of fume hood exhaust systems located within such depressed or screened areas are unsatisfactory, as this kind of arrangement tends to prevent the fumes from being swept away from the building.

d) The preferred location for fume hood exhaust duct discharge terminals is above the roof of a building. Ideally, the point of discharge should be above the transition zone between air moving freely past the building and the turbulent air restrained or trapped on the roof or lee side of the building.

3) Horizontal fan discharge outlets, fixed cap outlets, mushroom cap outlets and rotating cap outlets tend to prevent discharged noxious materials from being projected upward into the air stream which will move them away from the building. The preferred type of discharge terminal projects the fume hood exhaust air in a vertical direction at the highest possible velocity so that it can be captured by the free air stream above the turbulent zone influenced by the shape of the building. The only positive way of accomplishing this is to carry the discharge terminal to a sufficient height so that it is above the boundary between air flowing past the building rather than captured on the roof or in the leeward wake.

4) When radioactive materials are used, filters may be required to prevent discharge of these materials into the air. Scrubbers, burners and other types of air cleaners may also be used to treat fume hood discharges and reduce the potential hazard from toxic, biological and radioactive wastes. Filters and scrubbers can also partially reduce the need for concern over location of discharge terminals with respect to air intakes, experimental apparatus located on the roof and to personnel who may work there.

Duct Construction Materials

Material (LISTED IN ORDER OF DECREASING COST)	*Limitations of Use*
Glazed ceramic pipe	Rarely used today because of installation problems
Epoxy coated stainless steel	Extensive experience not yet available but appears promising as most versatile material
Stainless steel	May be attacked by some chemicals. Care should be used in selection
Monel metal	May be attacked by some chemicals. Care should be used in selection
Synthetic or cementitious "stones"	Absorb moisture, may be attacked by some chemicals
Reinforced plastics	Various resins being used have different chemical and fire resistances. Care should be used in selection
Asphalt-asbestos coated steel	Limited solvent resistance. Care should be used in selection
Aluminum	Limited resistance to many chemicals. Care should be used in selection
Galvanized steel	Limited resistance to corrosion by wide variety of materials used in research
Black steel	Useful only with dry and uncorrosive dusts

Hazards Associated with Fume Hood Discharges

The problem of designing a satisfactory fume hood is not concluded with the hood, duct, fan and discharge terminal. Consideration must also be given to what happens when the fume hood exhaust leaves the system and enters the open air. As suggested in the previous section of this article, there is considerable danger that the fume hood exhaust may circulate back into the building of its origin or into adjacent buildings. Special care should be taken to protect air intakes against contamination, and model tests in wind tunnels are often desirable for the study of complex situations. Corrosive fumes released a short distance

above a laboratory roof can cause deterioration of scientific apparatus and rooftop mechanical equipment such as fans, cooling towers, etc; and there may be considerable potential hazard to personnel, both scientific and building maintenance, who may have occasion to work on the roof of the building.

The problems associated with fume hood discharges, airflow and gas diffusion around buildings, etc, require extensive research. However, considerable information has already been accumulated on these subjects and is available in the literature.

Additional Information

This article has attempted to briefly outline the principles for satisfactory use of fume hoods for science laboratories. We have attempted to describe all of the elements of the system without becoming involved with details. Therefore, the information in this article should not be considered to be sufficient for design criteria or for the preparation of specifications. A collection of literature on fume hoods and related subjects is available for reference in the offices of the Architectural Services Staff of the National Science Foundation in Washington. Architects who are planning science buildings are invited to visit and study this material. An extensive bibliography is available upon request. A few selected references particularly recommended for additional reading on this subject follow.

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ED NOTE: The authors are members of the Architectural Services Staff, Science Facilities Section, Division of Institutional Programs, National Sciences Foundation.

Architectural Research in Focus: A Survey

WHERE is architectural research being conducted? By whom? What areas are being covered? How big are the costs, and who pays them?

In an effort to answer these questions, the AIA Committee on Research for Architecture circularized several hundred institutions during 1964. Answers from the agencies which responded are documented (in the form of brief project descriptions) in the first "AIA Research Survey," just published.

As might have been anticipated, the answer to the first question is "in the universities." Although research is being carried on in a few architectural offices and by a few special institutions dedicated to the purpose, organized research for architecture seems to flourish best in an academic climate. As a corollary, most of the personnel involved in research are faculty members, frequently with student assistants.

A highly gratifying result of the survey was the realization that more architectural research is in progress or contemplated than the investigators had imagined. The number and scope of projects actually in progress at the time of the survey indicate a keen awareness by the profession of a need for scientific investigation, not only of advances in construction technology but also of the sociological and psychological effects of the total environment.

As survey results were tabulated, a certain ambivalence became increasingly apparent concerning the kinds of research which *are* being done, versus those for which there is an urgently felt need. A few respondents indicated they felt that areas in which they were working were among those of greatest current concern to the profession. However, in the majority of cases, areas of research activity seemed to be defined less by what the researchers thought important than by what kinds of activities a given sponsor might be expected to support.

In a few cases, the institution itself picked up the research tab—particularly in the larger schools, but the majority of projects were supported by industry or by government grants and thus limited in scope to the sponsor's area of interest, rather than the researcher's.

It is not surprising, therefore, that the lion's share of research effort reported was directed toward materials and structures. (In evaluating the conclusions reported here, it is important to note that many projects were assigned more than one value. For example, "Foam Plastics for Low-Cost Housing" was entered as having to do both with housing and with building materials. Some complex projects were assigned three or four values.)

With reference to specific building types, research projects on housing and educational facilities led the list, with health-care facilities a close third. Urban design ranked high on the tabulation of projects, as did research on construction systems and prefab components.

Generally speaking, the "pures" trailed well behind the "applieds." Research in the areas of color,

Cont'd on p 74


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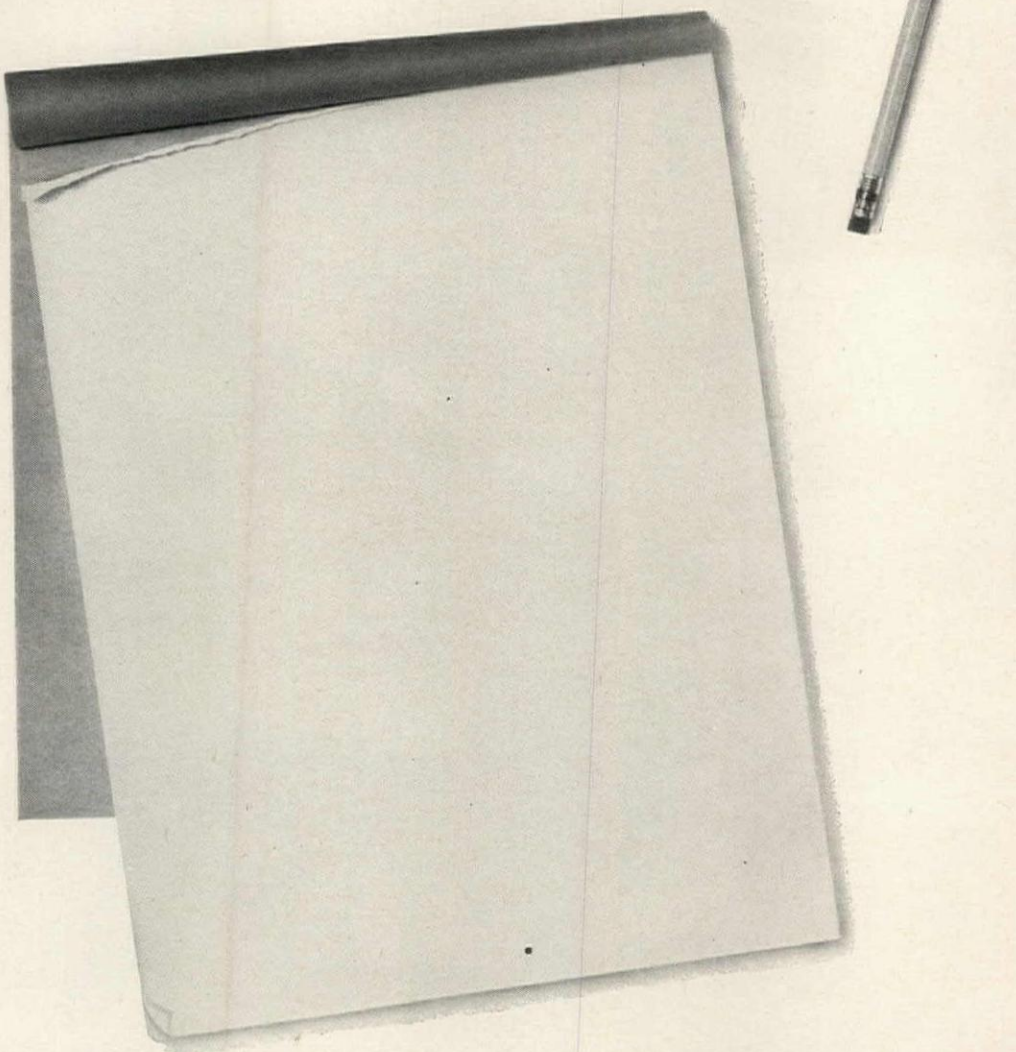

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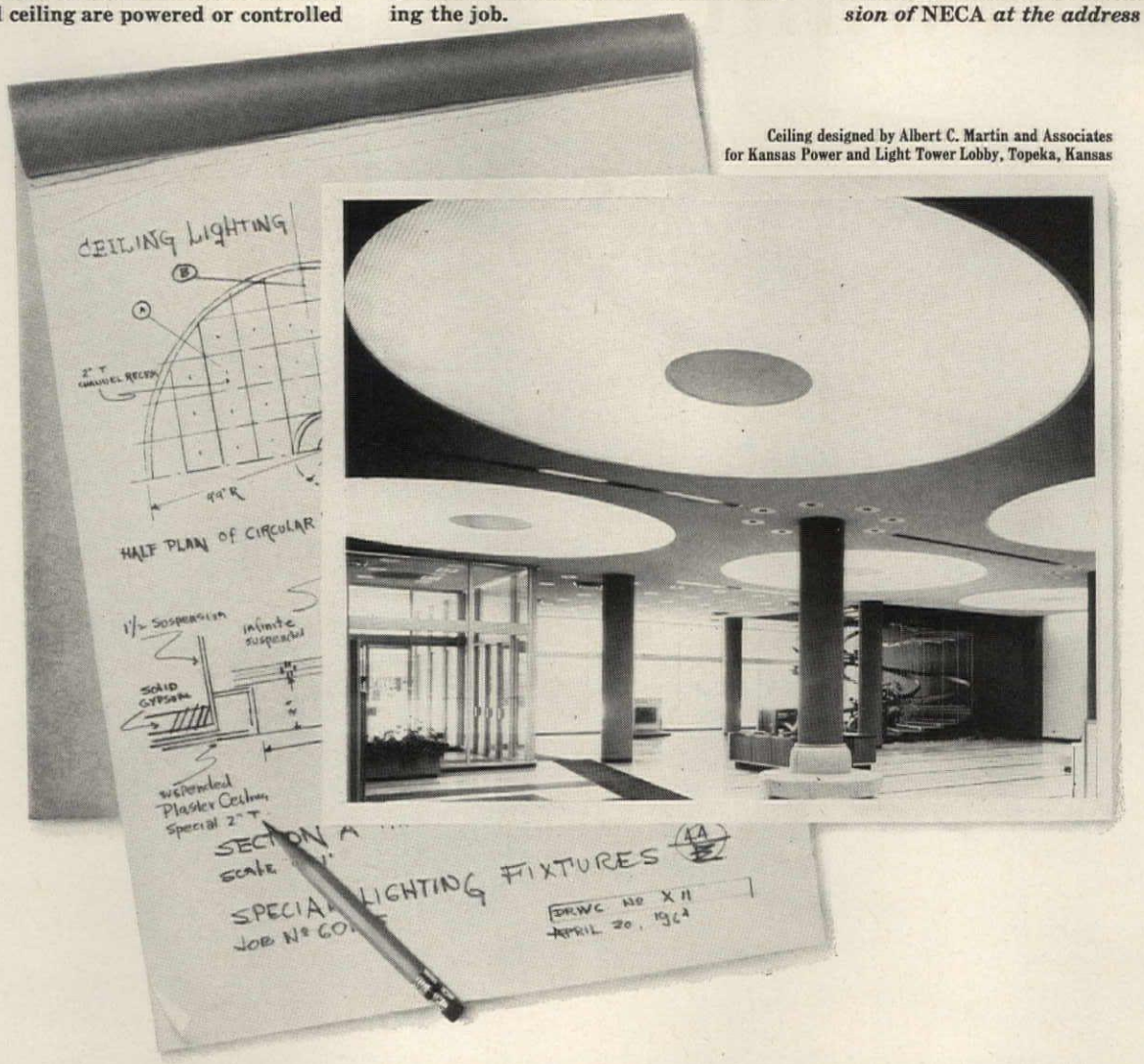

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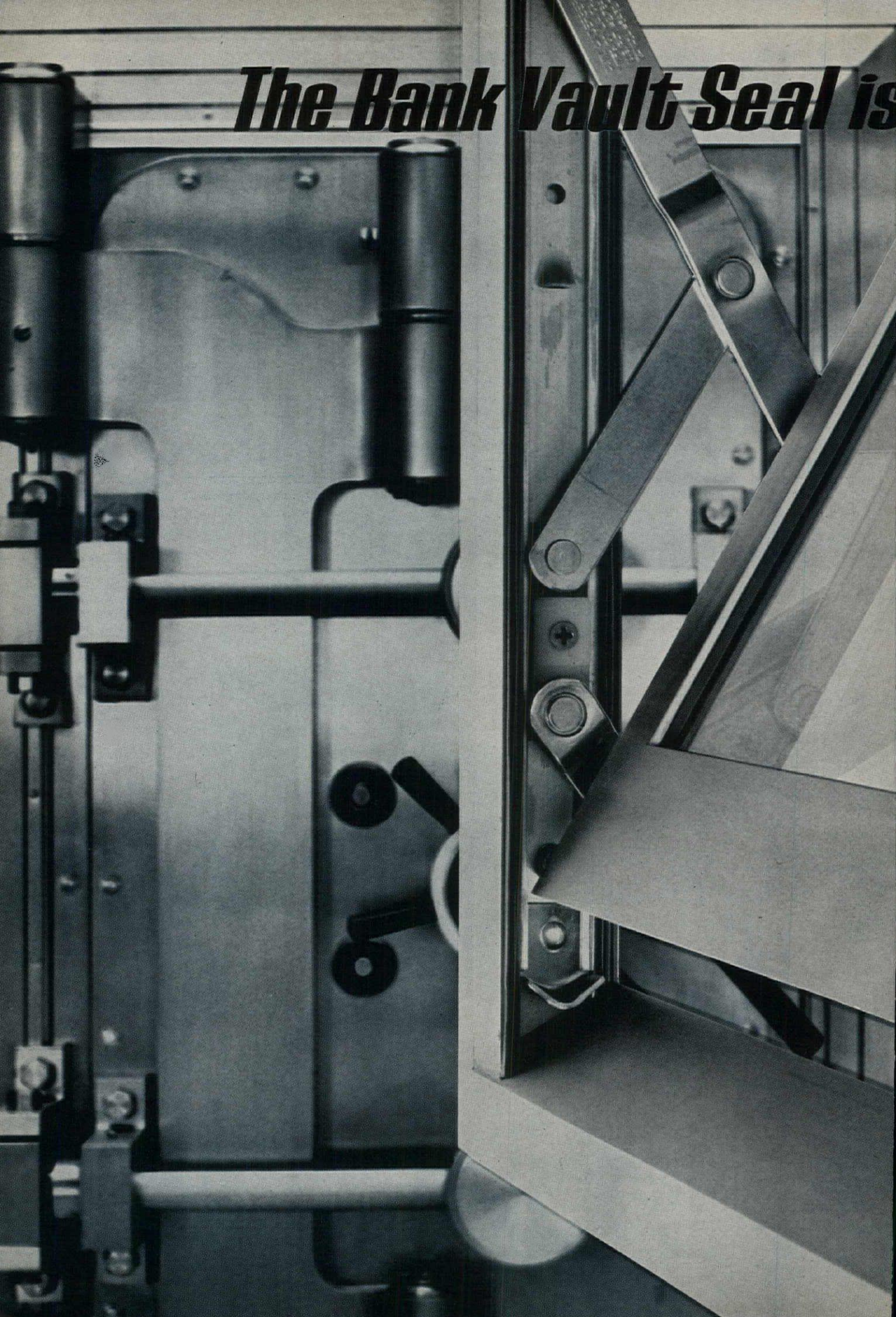
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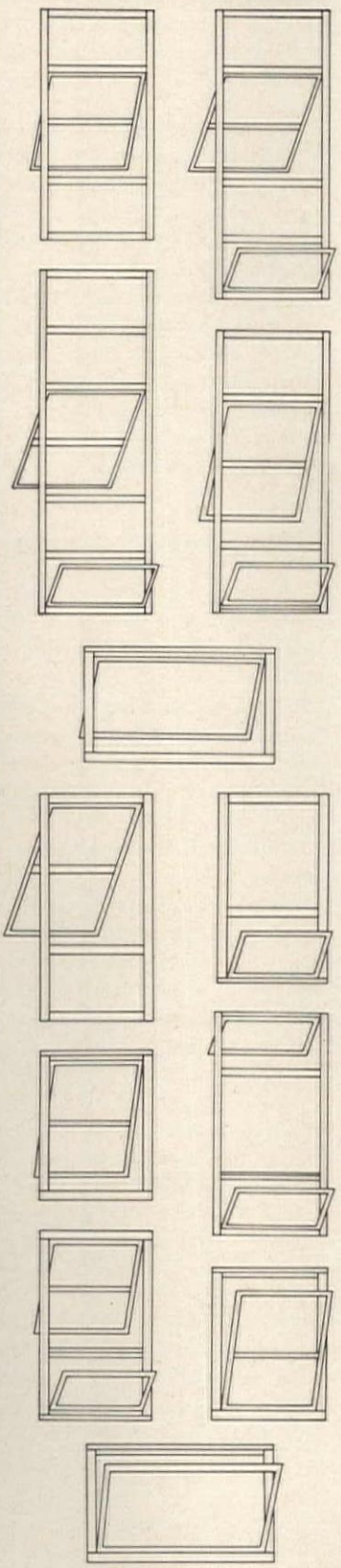

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Octagon Observer Cont'd from p 18

ALL FOR FINE ARTS: F. Donald Clark, dean of the University of Oklahoma College of Fine Arts, has been elected chairman of the newly organized National Council of Fine Arts Deans. "Membership is open to deans or directors who administer schools, divisions or colleges of fine arts which offer degrees in two or more areas," Dean Clark points out. Architecture is among the arts included by the Council.

REGARDING A REGENTS PROFESSOR: Known for his work in environmental technology, Henry Wright of New York City, joined the faculty of the Kansas State University College of Architecture and Design in February as a Regents Distinguished Professor, the second to be so named. The first, a molecular physicist, came to the Manhattan campus last fall under an appropriation made by the state legislature directly to the Board of Regents in an attempt to attract outstanding educators to Kansas institutions. Formerly a visiting lecturer at Cornell University, Wright has spent 18 years as an editor and has been teaching since 1955.

PUBLICATIONS / Canada's Best

If you want to see a cross section of outstanding contemporary buildings in Canada, the next best thing to a personal visit is the perusal of the 94-page publication of the Massey Medals for Architecture 1964. In addition to the 18 winners, the 76 other final-stage entries also are included. Among the jurors was Lawrence B. Anderson AIA, who heads MIT's Department of Architecture. Copies of the report are available at $1.50 each from the Royal Architectural Institute of Canada, 75 Albert St, Ottawa 4.

LIBRARY CALLS FOR HELP: Founded in 1936 by a group of 40 architects, the Library of Architecture and Allied Arts in Los Angeles has grown steadily until there are now 4,500 volumes, many not to be found elsewhere. And with this growth has come an acute need for more shelving and augmented personnel.

The board of directors, in its attempt to raise the minimum additional $3,500 annual income required to provide these necessities, is seeking help from interested parties. Donations should be addressed to the Library, 3725 Wilshire Blvd, Los Angeles 5, Calif.

STORY OF A RESCUE: While "912 Orleans Street" is concerned with a French Quarter residence "rescued" by an architect and his brother, its 90 pages comprise more than a New Orleans tourist souvenir. Preservationists should find much of interest, particularly in light of the freeway controversy brewing in that historic section (Octagon Observer, March '65).

Copies are available at $2 each postpaid through Mark P. Lowrey AIA who did the illustrations (Walter B. Lowrey did the text and photographs) at 809 Chartres St, New Orleans, La. ■

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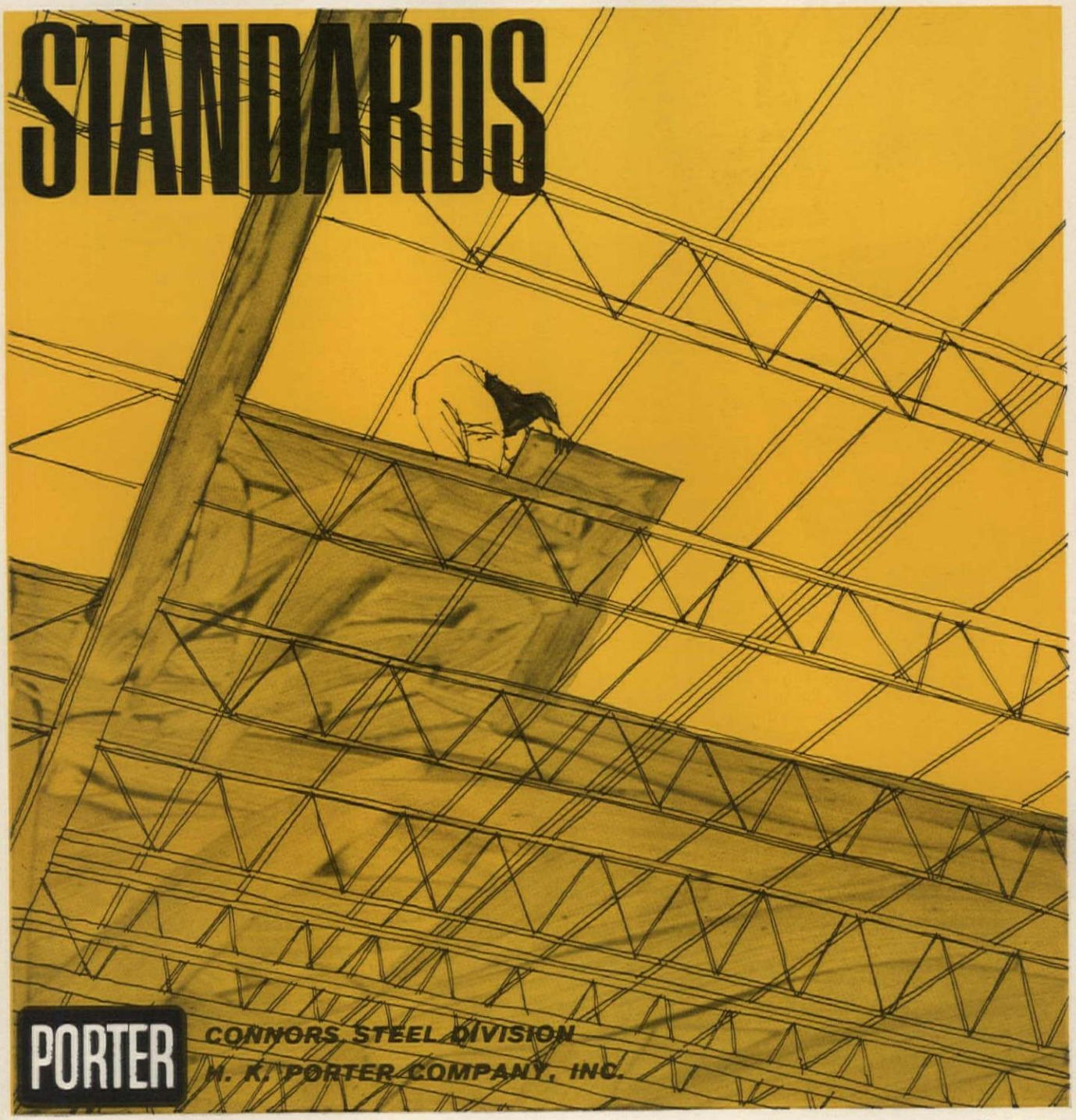

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CALENDAR

July 22-24: National Conference on Higher Education Facilities, University of Omaha
Aug 23-28: International Congress of the International Council for Building Research, Studies and Documentation, University of Copenhagen
Sept 8-10: New England Conference on Urban Planning for Environmental Health, Tufts University, Medford, Mass
Sept 22-24: AIA Board of Directors, Yosemite National Park, Calif

AIA Regional and State Conventions

Aug 5-7: Michigan Society of Architects, Grand Hotel, Mackinac Island
Aug 18-21: Northwest Region, Glacier National Park, Mont
Sept 9-11: New Jersey Society of Architects, Essex and Sussex Hotel, Spring Lake
Sept 30-Oct 2: Illinois Region, Sheraton-Chicago Hotel, Chicago
Oct 1-3: New England Region, Colony Motor Hotel, Providence, RI
Oct 6-10: California Region, Yosemite National Park
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, Austin
Nov 3-6: Central States Region, Des Moines
Nov 17-20: Florida Region, Jack Tar Hotel, Clearwater

AIA Committee and Related Meetings
(At the Octagon unless otherwise specified)

July 9-11: Documents Review
July 18-19: Architect/Engineer Liaison Commission, CEC Headquarters, Washington
Aug 6: Industrial Architecture
Aug 14: Building Construction Coordinating Committee, White Sulphur Springs, W Va
Aug 27-29: School and College Architecture, Chicago
Sept 26-27: Architect-Engineers Liaison Commission
Oct 1-2: School and College Architecture, Providence
Nov 5: Industrial Architecture

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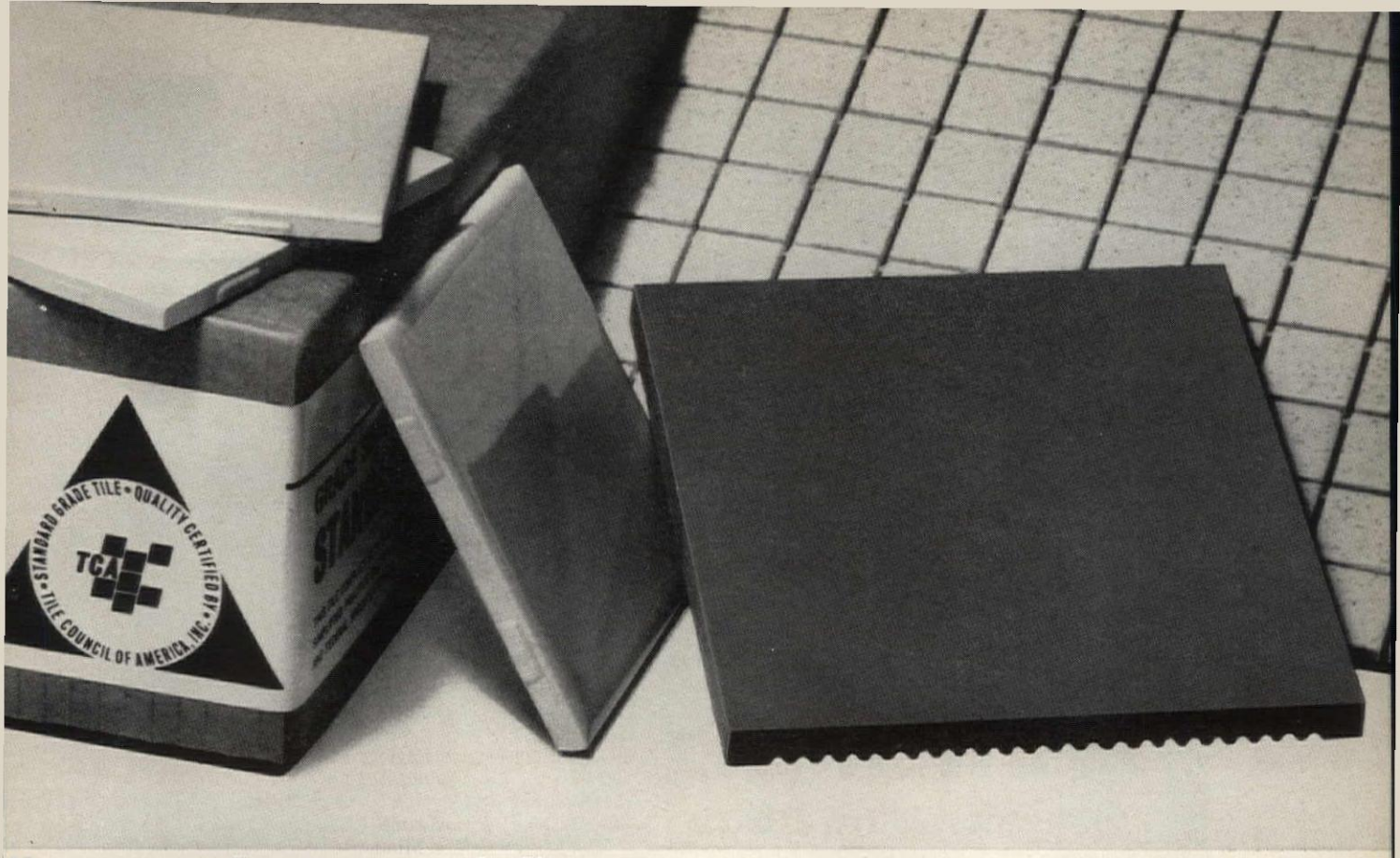
ED NOTE: The name of Henry T. Hey of Marianna, Fla, was inadvertently listed in last month's Necrology, due to misinformation supplied to the AIA JOURNAL. We sincerely regret any embarrassment this error might have created.



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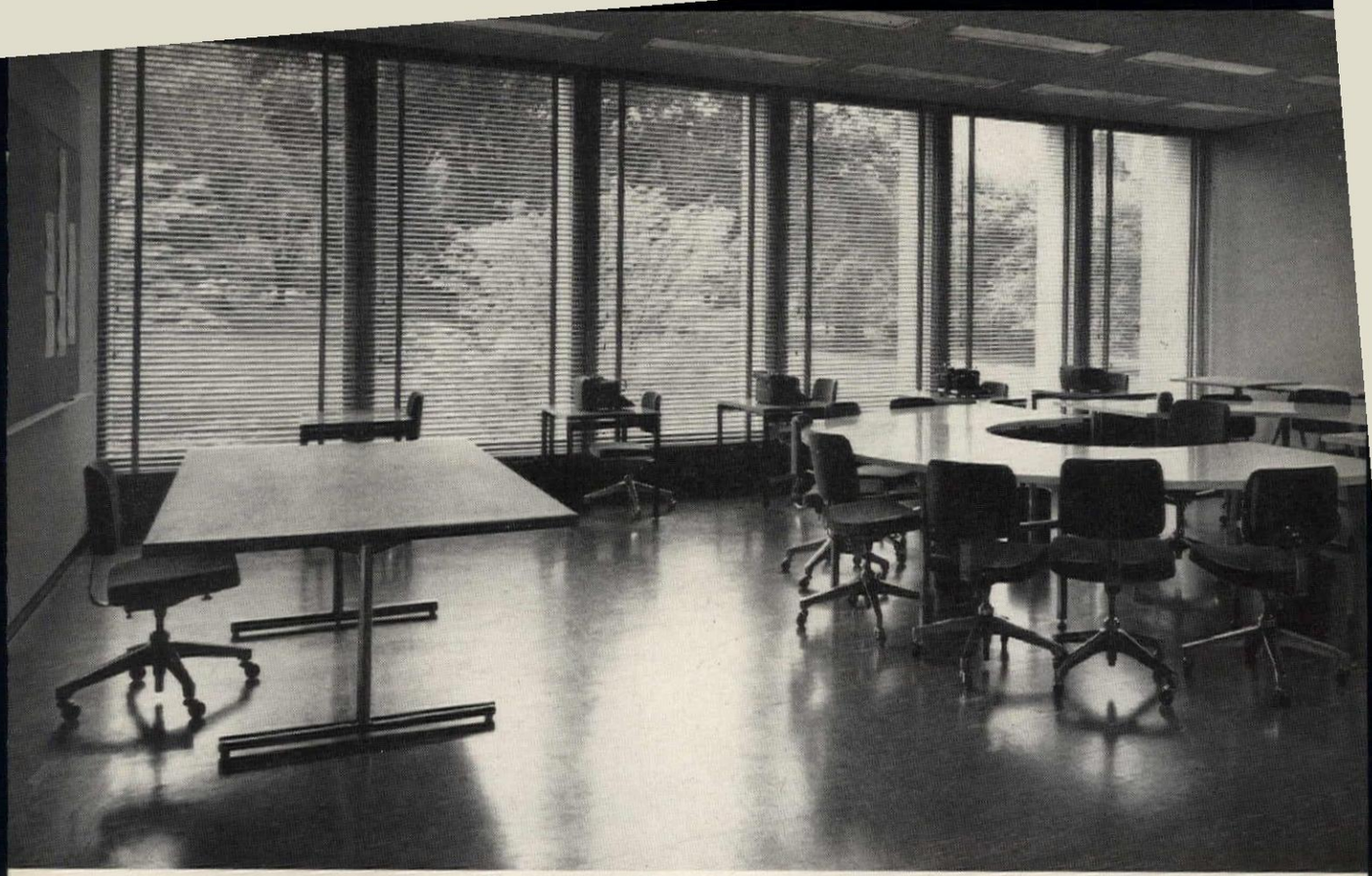

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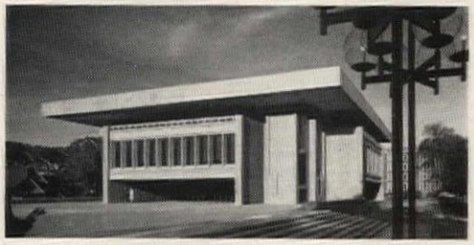

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